

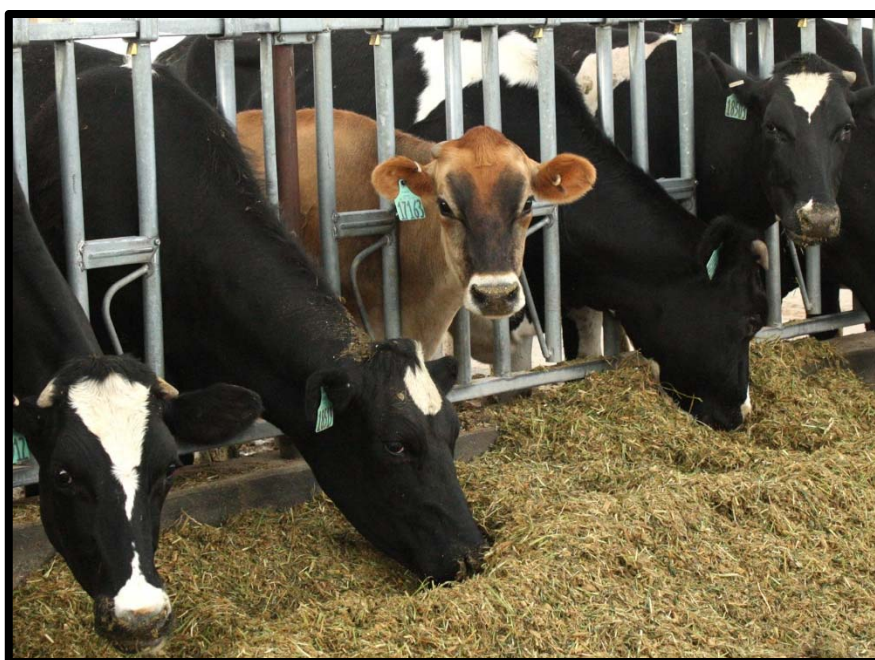
DAIRY FARM MANAGEMENT

August 2018

E.B. 2018-06

Revised

DAIRY BUSINESS SUMMARY NEW YORK STATE 2017



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

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2017 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 2017, over 200 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 Farm Credit 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.

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 forty-eight New York dairy farms participated in the summary both years. The averages of selected business factors are presented for these farms and the changes that occurred from 2016 to 2017 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 156 dairy farms that participated in the 2017 DFBS program. Also presented is the progress of the same top 10 percent of farms from 2016 through 2017.

The third section, a summary and analysis section, lists the average data for the 156 farms that participated in the 2017 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 225 cows, 225 to 599 cows, 600 to 899 cows, 900 to 1,299 cows, and farms with 1,300 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, and Wayne Knoblauch, Professor, Charles H. Dyson School of Applied Economics and Management at Cornell University.

PROGRESS OF THE FARM BUSINESS

The 2017 business year for the New York State dairy industry was a slight rebound from 2016, with milk prices increasing back towards 2015 levels. While milk prices rebounded from 2016, costs also increased from the previous year. Milk production per cow fell slightly, but herd size continued to grow and total milk produced per farm continued to increase. With the combination of changes during the year, an increase in profits occurred, resulting in positive changes in the financial position of the average farm participating in the Dairy Farm Business Summary and Analysis Program in New York for 2017.

In both 2016 and 2017, 148 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 148 farms that participated in the DFBS project each of the last two years. Table 3 is a business chart of selected factors for the 156 farms participating in 2017.

Milk Income. Gross milk prices increased 8 percent to \$18.47 per hundredweight, an increase of \$1.42, resulting in the highest gross milk price received since 2014. Milk marketing expenses increased by \$0.11 per hundredweight, leading to an increase of \$1.30 in net milk price received on farms. Milk production per cow decreased 1 percent to 25,898 pounds per cow, with participating farms indicating that forage quality challenges led to the decrease in milk production. With the decrease in milk production offsetting some of the increase in milk price, gross milk revenue per cow increased 7 percent from the previous year. Average herd size for the participating farms increased by 6 percent to 801 cows. This increase in cow numbers offset the small decrease in milk per cow, resulting in total milk pounds shipped per farm increasing by 5 percent. 2017 presented different growing challenges than 2016, with dry conditions becoming wet spring conditions around different parts of the state. Hay yields increased 3 percent and corn silage yields increased 5 percent. Cattle revenue fell an additional 2 percent in 2017, while dairy calf revenue was unchanged.

Cost Control. Costs reversed course in 2017, increasing on the participating farms. The single largest expense item, purchased grain and concentrates, was not part of the increase, falling \$0.03 to \$5.72 per hundredweight. Hired labor lead the way in increased costs, increasing by \$0.12 per hundredweight, followed by milk marketing expenses, interest, fuel, custom hire/machinery lease, and equipment repair.

Worker equivalents increased 3 percent, but with the increase in cow numbers, cows per worker also increased 3 percent to 47.5 cows per worker. With the cows per worker increase greater than the decrease in milk sold per cow, milk sold per worker equivalent increased to 1,230,777 pounds, a 2 percent increase. This increase in milk sold per worker only partially offset the increase in cost per worker equivalent of 6 percent, leading to an increase of 4 percent in hired labor costs per hundredweight.

The combination of these changes led to an increase in farm operating costs of \$0.39, or 2 percent, to \$17.56 per hundredweight.

Capital Investment. The average investment in the farm stayed relatively unchanged at \$12,034 per cow. The increase in cow numbers offset increased investment that occurred during the year, leading to little change in investment per cow or depreciation expenses per cow. Depreciation expenses increase on a per hundredweight basis with the small decrease in milk sold per cow, with machinery and equipment depreciation increasing 1 percent and real estate depreciation increasing 3 percent.

Small Increase in Earnings. Profits increased in 2017 to the highest level in the last three years. The increases in milk prices, larger grown feed inventories, and increased herd size offset the decreases in milk production and increases in costs. This increase in margin resulted in larger earnings than the last 2 years. Net farm income without appreciation increased to \$428,862. Net farm income with appreciation increased to \$665,162.

- Labor and management income per operator/manager increased 139 percent, from -\$72,028 in 2016 to \$28,162 in 2017.
- Rate of return to all capital without appreciation increased to 3.7 percent, from 1.3 percent in 2016. Rate of return on equity capital without appreciation rose to 3.5 percent.
- Farm net worth increased by 5 percent.
- Debt to asset ratio increased from 0.33 to 0.34, reflecting the increased borrowings for capital investment that is reflected in the 1 percent increase in debt per cow.

Overall, 2017 was a year showing a small recovery in earnings and the highest earnings since 2014 for the average dairy farm participating in the DFBS in New York State. While, on average, farms generated positive earnings in 2017, the changes on individual farms varied, with some farms still reporting negative earnings. Increases in milk prices, grown feed inventories, and herd size offset decreases in milk production and increases in costs.

Table 1.

PROGRESS OF THE FARM BUSINESS

Same 148 New York Dairy Farms, 2016 & 2017, DFBS

SELECTED FACTORS	Average of 148 Farms		Percent Change
	2016	2017	
<i>Size of Business</i>			
Average number of cows	851	901	6%
Average number of heifers	738	779	6%
Milk sold, pounds	22,301,913	23,323,230	5%
Worker equivalent	18.4	19.0	3%
Total tillable acres	1,687	1,721	2%
<i>Rates of Production</i>			
Milk sold per cow, pounds	26,194	25,898	-1%
Hay DM per acre, tons	3.2	3.30	3%
Corn silage per acre, tons	17.4	18.20	5%
<i>Labor Efficiency</i>			
Cows per worker	46.3	47.5	3%
Milk sold per worker, pounds	1,212,061	1,230,777	2%
<i>Cost Control and Milk Price</i>			
Grain & concentrate per cwt. milk	\$5.75	\$5.72	-1%
Net milk income over purchased grain & conc. per cow	\$2,526	\$2,859	13%
Dairy feed & crop expense per cwt. milk	\$7.24	\$7.17	-1%
Labor and machinery costs per cow	\$1,677	\$1,738	4%
Hired labor costs per cwt. milk	\$2.86	\$2.98	4%
Hired labor costs per worker equivalent	\$40,379	\$42,621	6%
Operating cost of producing milk per cwt.	\$14.57	\$14.94	3%
Purchased input cost of producing milk per cwt.	\$16.21	\$16.63	3%
Total cost of producing milk per cwt.	\$18.53	\$18.93	2%
Net milk price	\$16.11	\$17.41	8%
<i>Capital Efficiency (average for year)</i>			
Farm capital per cow	\$12,071	\$12,034	0%
Machinery and equipment per cow	\$1,940	\$1,867	-4%
Asset turnover ratio	0.45	0.48	7%
<i>Profitability</i>			
Net farm income without appreciation	\$187,224	\$428,862	129%
Net farm income without appreciation per cow	\$220	\$476	116%
Net farm income with appreciation	\$367,486	\$665,540	81%
Net farm income with appreciation per cow	\$432	\$739	71%
Labor & management income per operator/manager	-\$72,028	\$28,162	139%
Rate return on equity capital with appreciation	2.9%	6.8%	134%
Rate return on equity capital without appreciation	0.3%	3.5%	1139%
Rate return on all capital with appreciation	3.1%	5.9%	90%
Rate return on all capital without appreciation	1.3%	3.7%	176%
<i>Financial Summary (based on market value, excluding deferred taxes)</i>			
Farm net worth, end year	\$7,012,896	\$7,396,450	5%
Debt to asset ratio	0.33	0.34	3%
Farm debt per cow	\$3,988	\$4,046	1%
Debt coverage ratio	0.99	1.61	63%

Table 2.

RECEIPTS & EXPENSES PER COW AND PER HUNDREDWEIGHT

Same 148 New York Dairy Farms, 2016 & 2017, DFBS

Item	2016		2017		% Change Per Cwt.
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	
Average number of cows	851		901		
Cwt. of milk sold		223,019		233,232	
ACCRUAL OPERATING RECEIPTS					
Milk	\$4,467	\$17.05	\$4,783	\$18.47	8%
Dairy cattle	\$404	\$1.54	\$392	\$1.51	-2%
Dairy calves	\$51	\$0.19	\$50	\$0.19	0%
Other livestock	\$14	\$0.05	\$14	\$0.05	0%
Crops	\$88	\$0.34	\$124	\$0.48	41%
Miscellaneous receipts	<u>\$164</u>	<u>\$0.63</u>	<u>\$155</u>	<u>\$0.60</u>	-5%
Total Operating Receipts	\$5,188	\$19.81	\$5,519	\$21.31	8%
ACCRUAL OPERATING EXPENSES					
Hired labor	\$748	\$2.86	\$772	\$2.98	4%
Dairy grain & concentrate	\$1,507	\$5.75	\$1,482	\$5.72	-1%
Dairy roughage	\$88	\$0.33	\$86	\$0.33	0%
Nondairy feed	\$0	\$0.00	\$0	\$0.00	NA
Professional nutritional services	\$1	\$0.01	\$1	\$0.00	-100%
Machine hire, rent & lease	\$123	\$0.47	\$136	\$0.53	13%
Machine repair & vehicle expense	\$237	\$0.91	\$246	\$0.95	4%
Fuel, oil & grease	\$115	\$0.44	\$133	\$0.51	16%
Replacement livestock	\$11	\$0.04	\$9	\$0.04	0%
Breeding	\$57	\$0.22	\$57	\$0.22	0%
Veterinary & medicine	\$164	\$0.63	\$166	\$0.64	2%
Milk marketing	\$248	\$0.95	\$274	\$1.06	12%
Bedding	\$96	\$0.37	\$90	\$0.35	-5%
Milking supplies	\$91	\$0.35	\$89	\$0.34	-3%
Cattle lease	\$3	\$0.01	\$3	\$0.01	0%
Custom boarding	\$103	\$0.39	\$101	\$0.39	0%
BST expense	\$31	\$0.12	\$10	\$0.04	-67%
Livestock professional fees	\$16	\$0.06	\$17	\$0.06	0%
Other livestock expense	\$19	\$0.07	\$27	\$0.10	43%
Fertilizer & lime	\$111	\$0.43	\$97	\$0.37	-14%
Seeds & plants	\$119	\$0.45	\$119	\$0.46	2%
Spray & other crop expense	\$63	\$0.24	\$64	\$0.25	4%
Crop professional fees	\$9	\$0.03	\$9	\$0.03	0%
Land, building & fence repair	\$70	\$0.27	\$69	\$0.27	0%
Taxes	\$66	\$0.25	\$65	\$0.25	0%
Real estate rent & lease	\$73	\$0.28	\$78	\$0.30	7%
Insurance	\$48	\$0.18	\$45	\$0.18	0%
Utilities	\$88	\$0.34	\$88	\$0.34	0%
Interest paid	\$138	\$0.53	\$162	\$0.63	19%
Other professional fees	\$27	\$0.10	\$26	\$0.10	0%
Miscellaneous	<u>\$27</u>	<u>\$0.10</u>	<u>\$28</u>	<u>\$0.11</u>	10%
Total Operating Expenses	\$4,499	\$17.17	\$4,548	\$17.56	2%
Expansion livestock	\$38	\$0.14	\$56	\$0.22	57%
Extraordinary expenses	\$0	\$0.00	\$5	\$0.02	NA
Machinery depreciation	\$250	\$0.95	\$250	\$0.96	1%
Real estate depreciation	<u>\$182</u>	<u>\$0.69</u>	<u>\$184</u>	<u>\$0.71</u>	3%
Total Expenses	\$4,969	\$18.95	\$5,043	\$19.47	3%
Net Farm Income w/o Appreciation	\$220	\$0.84	\$476	\$1.84	119%

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, with each column sorted independently. The highest 20% of farms in one column may not be in the top 20% for another column. Use this information to identify business areas where more challenging goals or improvements are needed.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS

156 New York Dairy Farms, 2017

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)
41.2	2,020	52,895,526	28,532	4.9	22.6	61.1	1,559,232
23.5	1,098	29,643,579	26,954	3.9	19.9	49.9	1,287,704
17.3	794	20,203,369	25,906	3.3	18.0	45.1	1,155,035
9.3	440	10,595,318	24,455	2.7	16.2	40.2	990,579
3.7	130	2,848,859	19,222	1.7	10.6	30.0	677,140

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)
\$1,004	\$4.51	24	\$605	\$1,354	\$1,320	\$6.00	\$25,394
\$1,305	\$5.36	29	\$790	\$1,694	\$1,661	\$6.69	\$37,034
\$1,480	\$5.73	31	\$898	\$1,856	\$1,822	\$7.25	\$40,371
\$1,601	\$6.10	33	\$1,016	\$1,982	\$1,997	\$7.68	\$44,082
\$1,783	\$6.82	37	\$1,271	\$2,396	\$2,259	\$8.61	\$53,359

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)
\$5,317	\$19.63	\$12.81	\$17.32	7.5	\$1,447,383	\$346,810	\$1,524,106
\$4,987	\$18.81	\$13.96	\$18.76	4.0	\$521,592	\$45,889	\$389,340
\$4,760	\$18.50	\$15.05	\$19.71	2.1	\$204,931	-\$21	\$130,083
\$4,490	\$18.17	\$16.26	\$20.72	0.4	\$61,277	-\$60,253	\$14,245
\$3,599	\$17.63	\$18.11	\$24.82	-3.4	-\$138,484	-\$245,492	-\$323,772

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)
\$8,397	\$958	0.67	0.71	10.65	\$65	93	53
\$10,808	\$1,608	0.52	0.77	2.05	\$313	76	29
\$12,348	\$2,091	0.46	0.81	1.24	\$538	65	19
\$13,770	\$2,568	0.40	0.85	0.79	\$694	56	10
\$17,674	\$3,855	0.31	0.94	0.11	\$973	40	-8

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

COMPARING TO THE TOP 10 PERCENT OF FARMS, 2017

There is a considerable range in business performance every year within the farms participating in 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 2016 to 2017. Table 8 is a business chart for the top 10 percent of farms for 2017.

Milk production was higher for the top 10 percent of farms for both pounds of milk and pounds of components, averaging 3 percent more. With slightly higher percent components, the top 10 percent of farms did average a higher net milk price for the year, averaging \$17.63 per hundredweight, or a difference of 22 cents per hundredweight. Along with a higher milk price, these farms also were higher in the dairy cattle, dairy calf, and crop revenue categories. For the top 10 percent of farms, the total income per hundredweight averaged \$21.99, 70 cents higher than the average farm.

The top 10 percent of farms were 80 percent larger than the average herd size of participating farms. While they were 80 percent larger, they only utilized 59 percent more tillable land and 66 percent more labor. Cow numbers per worker were 8 percent higher. With higher milk sold per cow, the milk sold per worker equivalent was 11 percent higher. With slightly lower cost per hired worker coupled with higher labor efficiency, hired labor costs per hundredweight were 8 percent lower for farms in the top 10 percent.

While milk production per cow was 3 percent higher, the purchased grain and concentrate costs of the top 10 percent of farms was also higher by 2 percent, or 9 cents per hundredweight higher. Out of the 31 operating expense categories, the top profit group was lower in 27 of them. Purchased grain and concentrate was the only expense that averaged higher for the top 10 percent of farms than the average of all farms, with three other expenses being the same: vet & medicine, bedding, and other professional fees. With all costs combined, total farm operating costs for the top 10 percent were 8 percent lower, averaging \$16.27 per hundredweight. This cost was \$1.34 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 an average net farm income without appreciation 308 percent higher. Return to all capital without appreciation averaged 8.6 percent versus 3.6 percent for the average of all farms.

Total investment per cow was relatively similar between the two groups, averaging \$11,981 for the average farm and \$11,891 for the top 10 percent. Debt per cow was \$819 lower per cow for the top 10 percent of farms, averaging \$2,233. These farms had an average net worth, or percent equity, of 73 percent, versus 66 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 2017, 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 FACTORS156 New York Dairy Farms, All Farms vs Top10%², 2017

SELECTED FACTORS	Average of All Farms	Average of Top 10%	Percent Difference
<i>Size of Business</i>			
Average number of cows	891	1,603	80%
Average number of heifers	772	1,380	79%
Milk sold, pounds	23,106,635	42,691,630	85%
Worker equivalent	18.9	31.4	66%
Total tillable acres	1,701	2,702	59%
<i>Rates of Production</i>			
Milk sold per cow, pounds	25,919	26,637	3%
Hay DM per acre, tons	3.35	3.55	6%
Corn silage per acre, tons	18.23	19.31	6%
Cull rate, percent	34%	31%	-9%
<i>Labor Efficiency</i>			
Cows per worker	47.2	51.0	8%
Milk sold per worker, pounds	1,222,519	1,357,588	11%
<i>Cost Control and Milk Price</i>			
Grain & concentrate per cwt. milk	\$5.73	\$5.82	2%
Grain & concentrate purchased as % milk sales	30.76	30.56	-1%
Dairy feed & crop expense per cwt. milk	\$7.19	\$7.05	-2%
Labor and machinery costs per cow	\$1,744	\$1,553	-11%
Hired labor costs per cwt. milk	\$2.98	\$2.75	-8%
Hired labor costs per worker equivalent	\$42,377	\$41,072	-3%
Operating cost of producing milk per cwt.	\$15.00	\$13.13	-12%
Purchased input cost of producing milk per cwt.	\$16.67	\$14.65	-12%
Total cost of producing milk per cwt.	\$18.95	\$16.86	-11%
Net milk price	\$17.41	\$17.63	1%
<i>Capital Efficiency (average for year)</i>			
Farm capital per cow	\$11,981	\$11,891	-1%
Machinery and equipment per cow	\$1,869	\$1,444	-23%
Asset turnover ratio	0.48	0.51	6%
<i>Profitability</i>			
Net farm income without appreciation	\$415,790	\$1,696,181	308%
Net farm income without appreciation per cow	\$466	\$1,058	127%
Net farm income with appreciation	\$640,501	\$2,034,184	218%
Net farm income with appreciation per cow	\$718	\$1,269	77%
Labor & management income per operator/manager	\$25,042	\$405,788	1520%
Rate return on equity capital with appreciation	6.6%	12.8%	93%
Rate return on equity capital without appreciation	3.4%	10.3%	-90%
Rate return on all capital with appreciation	5.7%	10.4%	81%
Rate return on all capital without appreciation	3.6%	8.6%	137%
<i>Financial Summary (based on market value, excluding deferred taxes)</i>			
Farm net worth, end year	\$7,266,545	\$14,649,467	102%
Debt to asset ratio	0.34	0.27	-21%
Farm debt per cow	\$4,052	\$3,233	-20%
Debt coverage ratio ³	1.61	3.33	108%

² Average of 16 farms with highest rates of return to all capital (without appreciation).³ Farm participating both years

Table 4 Continued.

DAIRY FARM BUSINESS SUMMARY SELECTED FACTORS			
156 New York Dairy Farms, All Farms vs Top10% ⁴ , 2017			
SELECTED FACTORS	Average of All Farms	Average of Top 10%	Percent Difference
<i>Income Generation</i>			
% Butterfat ⁵	3.87%	3.90%	1%
% Protein ⁵	3.11%	3.13%	1%
Lbs. of Butterfat and Protein per Cow ⁵	1,822	1,873	3%
Component Value per Cwt. ⁵	\$17.37	\$17.50	1%
Gross Milk Price	\$18.47	\$18.62	1%
<i>Balance Sheet Analysis</i>			
Working Capital as % of Operating Expenses	20%	38%	90%
Long Term Debt to Asset Ratio	0.32	0.26	-19%
Intermediate/Current Debt to Asset Ratio	0.36	0.27	-25%
Debt to Asset Ratio, Total	0.34	0.27	-21%
<i>Debt Analysis</i>			
Accounts payable as percent of total debt	4%	2%	-50%
Long-term debt as percent of total debt	43%	43%	0%
Current & intermediate debt as percent of total debt	57%	57%	0%
Cost of term debt(weighted average)	4.4%	4.2%	-4%
<i>Net Worth Change</i>			
Retained earnings	\$230,996	\$1,372,644	494%
Contributed capital	\$31,027	\$26,606	-14%
Valuation equity	\$83,714	-\$162,945	-295%
<i>Cash Flow</i>			
Net provide by operating activities, per cow	\$563	\$779	38%
Net provided by investing activities, per cow	-\$867	-\$1,238	43%
Net provided by financing activities, per cow	\$314	\$487	55%
Net provided by reserves, per cow	-\$6	-\$17	161%
<i>Repayment Analysis</i>⁶			
Planned debt payments per Cow	\$536	\$419	-22%
Planned debt payments per Cwt.	\$2.07	\$1.58	-24%
Percent of total receipts	10%	8%	-23%
Percent of milk receipts	11%	9%	-24%
Cash flow coverage ratio	1.38	2.19	59%
Debt coverage ratio	1.61	3.33	108%
<i>Crop Program Analysis</i>			
Crop input costs per acre	\$140	\$151	8%
Total tillable acres per cow	1.94	1.69	-13%
Total forages acres per cow	1.68	1.61	-4%
Harvested dry matter per cow	8.04	8.03	0%
Percent tillable land owned	54%	57%	6%
<i>Capital and Financial Efficiency</i>			
Farm capital per cow	\$11,981	\$11,891	-1%
Real estate per cow	\$5,476	\$5,232	-4%
Machinery and equipment per cow	\$1,869	\$1,444	-23%
Asset turnover	0.48	0.51	6%
Operating expense ratio	0.81	0.73	-10%
Interest expense ratio	0.03	0.02	-33%
Depreciation expense ratio	0.08	0.07	-13%

⁴ Average of 16 farms with highest rates of return to all capital (without appreciation).⁵ Farms reporting data⁶ Farm participating two years

Table 5.

RECEIPTS & EXPENSES PER COW AND PER HUNDREDWEIGHT156 New York Dairy Farms, All Farms vs Top10%⁷, 2017

Item	Average of All Farms		Average of Top 10% Farms*		% Difference
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	
Average number of cows	891		1,603		80%
Cwt. of milk sold		231,066		426,916	85%
ACCRUAL OPERATING RECEIPTS					
Milk	\$4,787	\$18.47	\$4,960	\$18.62	1%
Dairy cattle	\$390	\$1.51	\$437	\$1.64	9%
Dairy calves	\$49	\$0.19	\$56	\$0.21	13%
Other livestock	\$14	\$0.05	\$24	\$0.09	74%
Crops	\$126	\$0.49	\$225	\$0.84	73%
Miscellaneous receipts	<u>\$153</u>	<u>\$0.59</u>	<u>\$155</u>	<u>\$0.58</u>	-1%
Total Operating Receipts	\$5,519	\$21.29	\$5,857	\$21.99	3%
ACCRUAL OPERATING EXPENSES					
Hired labor	\$772	\$2.98	\$733	\$2.75	-8%
Dairy grain & concentrate	\$1,485	\$5.73	\$1,550	\$5.82	2%
Dairy roughage	\$88	\$0.34	\$79	\$0.30	-12%
Nondairy feed	\$0	\$0.00	\$0	\$0.00	-100%
Professional nutritional services	\$1	\$0.00	\$0	\$0.00	-94%
Machine hire, rent & lease	\$137	\$0.53	\$134	\$0.50	-5%
Machine repair & vehicle expense	\$249	\$0.96	\$213	\$0.80	-17%
Fuel, oil & grease	\$134	\$0.52	\$123	\$0.46	-10%
Replacement livestock	\$9	\$0.04	\$1	\$0.00	-86%
Breeding	\$58	\$0.22	\$52	\$0.20	-12%
Veterinary & medicine	\$165	\$0.64	\$170	\$0.64	0%
Milk marketing	\$275	\$1.06	\$264	\$0.99	-6%
Bedding	\$92	\$0.35	\$92	\$0.35	-2%
Milking supplies	\$91	\$0.35	\$73	\$0.27	-22%
Cattle lease	\$3	\$0.01	\$1	\$0.00	-81%
Custom boarding	\$101	\$0.39	\$88	\$0.33	-15%
BST expense	\$10	\$0.04	\$8	\$0.03	-18%
Livestock professional fees	\$17	\$0.07	\$17	\$0.06	-5%
Other livestock expense	\$26	\$0.10	\$22	\$0.08	-16%
Fertilizer & lime	\$97	\$0.37	\$87	\$0.33	-12%
Seeds & plants	\$120	\$0.46	\$110	\$0.41	-11%
Spray & other crop expense	\$64	\$0.25	\$47	\$0.18	-29%
Crop professional fees	\$9	\$0.04	\$5	\$0.02	-44%
Land, building & fence repair	\$67	\$0.26	\$55	\$0.21	-20%
Taxes	\$64	\$0.25	\$59	\$0.22	-10%
Real estate rent & lease	\$79	\$0.31	\$62	\$0.23	-23%
Insurance	\$46	\$0.18	\$36	\$0.13	-25%
Utilities	\$88	\$0.34	\$78	\$0.29	-14%
Interest paid	\$163	\$0.63	\$119	\$0.45	-29%
Other professional fees	\$26	\$0.10	\$27	\$0.10	3%
Miscellaneous	<u>\$29</u>	<u>\$0.11</u>	<u>\$26</u>	<u>\$0.10</u>	-13%
Total Operating Expenses	\$4,565	\$17.61	\$4,334	\$16.27	-8%
Expansion livestock	\$54	\$0.21	\$60	\$0.22	8%
Extraordinary expenses	\$5	\$0.02	\$0	\$0.00	-100%
Machinery depreciation	\$249	\$0.96	\$211	\$0.79	-17%
Real estate depreciation	<u>\$181</u>	<u>\$0.70</u>	<u>\$194</u>	<u>\$0.73</u>	4%
Total Expenses	\$5,052	\$19.49	\$4,798	\$18.01	-8%
Net Farm Income w/o Appreciation	\$466	\$1.80	\$1,058	\$3.97	121%

⁷ Average of 16 farms with highest rates of return to all capital (without appreciation).

Table 6.

PROGRESS OF THE FARM BUSINESSSame 15 New York Dairy Farms, Top 10%, 2016 & 2017, DFBS⁸

SELECTED FACTORS	Average of 15 Farms, Top 10%		Percent Change
	2016	2017	
<i>Size of Business</i>			
Average number of cows	1,528	1,652	8%
Average number of heifers	1,322	1,419	7%
Milk sold, pounds	40,996,051	43,912,082	7%
Worker equivalent	30.4	32.3	6%
Total tillable acres	2,776	2,851	3%
<i>Rates of Production</i>			
Milk sold per cow, pounds	26,828	26,576	-1%
Hay DM per acre, tons	3.2	3.50	9%
Corn silage per acre, tons	16.5	19.30	17%
<i>Labor Efficiency</i>			
Cows per worker	50.3	51.1	2%
Milk sold per worker, pounds	1,350,331	1,359,507	1%
<i>Cost Control and Milk Price</i>			
Grain & concentrate per cwt. milk	\$5.82	\$5.82	0%
Net milk income over purchased grain & conc. per cow	\$2,810	\$3,199	14%
Dairy feed & crop expense per cwt. milk	\$7.12	\$6.98	-2%
Labor and machinery costs per cow	\$1,539	\$1,550	1%
Hired labor costs per cwt. milk	\$2.62	\$2.76	5%
Hired labor costs per worker equivalent	\$39,189	\$41,271	5%
Operating cost of producing milk per cwt.	\$13.16	\$13.00	-1%
Purchased input cost of producing milk per cwt.	\$14.77	\$14.56	-1%
Total cost of producing milk per cwt.	\$17.07	\$16.83	-1%
Net milk price	\$16.16	\$17.58	9%
<i>Capital Efficiency (average for year)</i>			
Farm capital per cow	\$12,067	\$12,144	1%
Machinery and equipment per cow	\$1,581	\$1,464	-7%
Asset turnover ratio	0.46	0.50	9%
<i>Profitability</i>			
Net farm income without appreciation	\$901,654	\$1,761,846	95%
Net farm income without appreciation per cow	\$590	\$1,066	81%
Net farm income with appreciation	\$1,241,706	\$2,124,790	71%
Net farm income with appreciation per cow	\$813	\$1,286	58%
Labor & management income per operator/manager	\$80,816	\$400,158	395%
Rate return on equity capital with appreciation	7.2%	12.6%	75%
Rate return on equity capital without appreciation	4.7%	10.2%	116%
Rate return on all capital with appreciation	6.1%	10.3%	69%
Rate return on all capital without appreciation	4.3%	8.5%	98%
<i>Financial Summary (based on market value, excluding deferred taxes)</i>			
Farm net worth, end year	\$14,155,328	\$15,459,803	9%
Debt to asset ratio	0.25	0.27	8%
Farm debt per cow	\$3,067	\$3,271	7%
Debt coverage ratio ⁹	2.04	3.33	63%

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 15 New York Dairy Farms, Top 10%, 2016 & 2017, DFBS¹⁰

Item	2016		2017		% Change Per Cwt.
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	
Average number of cows	1,528		1,652		
Cwt. of milk sold		409,961		439,121	
ACCRUAL OPERATING RECEIPTS					
Milk	\$4,553	\$16.97	\$4,937	\$18.58	9%
Dairy cattle	\$414	\$1.54	\$438	\$1.65	7%
Dairy calves	\$43	\$0.16	\$58	\$0.22	38%
Other livestock	\$31	\$0.12	\$25	\$0.10	-17%
Crops	\$127	\$0.47	\$206	\$0.78	66%
Miscellaneous receipts	<u>\$162</u>	<u>\$0.60</u>	<u>\$159</u>	<u>\$0.60</u>	0%
Total Operating Receipts	\$5,330	\$19.87	\$5,823	\$21.91	10%
ACCRUAL OPERATING EXPENSES					
Hired labor	\$702	\$2.62	\$734	\$2.76	5%
Dairy grain & concentrate	\$1,561	\$5.82	\$1,547	\$5.82	0%
Dairy roughage	\$77	\$0.29	\$57	\$0.21	-28%
Nondairy feed	\$0	\$0.00	\$0	\$0.00	NA
Professional nutritional services	\$2	\$0.01	\$0	\$0.00	-100%
Machine hire, rent & lease	\$133	\$0.50	\$121	\$0.45	-10%
Machine repair & vehicle expense	\$216	\$0.81	\$215	\$0.81	0%
Fuel, oil & grease	\$111	\$0.41	\$125	\$0.47	15%
Replacement livestock	\$3	\$0.01	\$0	\$0.00	-100%
Breeding	\$51	\$0.19	\$49	\$0.18	-5%
Veterinary & medicine	\$150	\$0.56	\$168	\$0.63	13%
Milk marketing	\$218	\$0.81	\$265	\$1.00	23%
Bedding	\$100	\$0.37	\$91	\$0.34	-8%
Milking supplies	\$93	\$0.35	\$73	\$0.27	-23%
Cattle lease	\$2	\$0.01	\$1	\$0.00	-100%
Custom boarding	\$68	\$0.25	\$71	\$0.27	8%
BST expense	\$22	\$0.08	\$9	\$0.03	-63%
Livestock professional fees	\$15	\$0.06	\$16	\$0.06	0%
Other livestock expense	\$12	\$0.04	\$23	\$0.09	125%
Fertilizer & lime	\$96	\$0.36	\$89	\$0.34	-6%
Seeds & plants	\$109	\$0.41	\$109	\$0.41	0%
Spray & other crop expense	\$50	\$0.18	\$48	\$0.18	0%
Crop professional fees	\$16	\$0.06	\$6	\$0.02	-67%
Land, building & fence repair	\$79	\$0.30	\$57	\$0.21	-30%
Taxes	\$67	\$0.25	\$61	\$0.23	-8%
Real estate rent & lease	\$59	\$0.22	\$57	\$0.21	-5%
Insurance	\$36	\$0.13	\$36	\$0.13	0%
Utilities	\$83	\$0.31	\$79	\$0.30	-3%
Interest paid	\$91	\$0.34	\$120	\$0.45	32%
Other professional fees	\$31	\$0.12	\$28	\$0.10	-17%
Miscellaneous	<u>\$29</u>	<u>\$0.11</u>	<u>\$26</u>	<u>\$0.10</u>	-9%
Total Operating Expenses	\$4,282	\$15.96	\$4,279	\$16.10	1%
Expansion livestock	\$26	\$0.10	\$62	\$0.23	130%
Extraordinary expenses	\$0	\$0.00	\$0	\$0.00	NA
Machinery depreciation	\$230	\$0.86	\$216	\$0.81	-6%
Real estate depreciation	<u>\$202</u>	<u>\$0.75</u>	<u>\$200</u>	<u>\$0.75</u>	0%
Total Expenses	\$4,740	\$17.67	\$4,757	\$17.89	1%
Net Farm Income w/o Appreciation	\$590	\$2.20	\$1,066	\$4.01	82%

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

Table 8.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS16 New York Dairy Farms, Top 10%, 2017¹¹

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)
63.1	3,102	80,844,008	28,915	5.4	24.8	69.3	1,776,255
36.3	1,784	47,909,374	28,154	4.5	21.6	58.7	1,555,417
26.0	1,519	39,752,998	26,756	4.2	19.8	54.0	1,419,419
21.1	1,111	30,014,809	26,369	3.6	18.9	45.0	1,266,069
15.8	774	21,875,628	25,227	2.1	11.4	40.0	1,127,452

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)
\$1,260	\$4.79	26	\$576	\$1,174	\$1,632	\$6.14	\$34,044
\$1,483	\$5.65	29	\$718	\$1,515	\$1,769	\$6.72	\$37,160
\$1,572	\$5.79	31	\$811	\$1,644	\$1,850	\$6.96	\$40,768
\$1,672	\$6.06	32	\$946	\$1,840	\$2,025	\$7.45	\$44,681
\$1,859	\$6.74	36	\$1,093	\$2,016	\$2,351	\$8.32	\$49,402

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)
\$5,547	\$19.47	\$10.75	\$15.95	13.4	\$3,294,194	\$1,083,601	\$3,862,581
\$5,309	\$18.93	\$12.65	\$16.55	9.7	\$1,972,962	\$660,508	\$1,718,063
\$5,040	\$18.69	\$13.27	\$17.08	8.5	\$1,486,874	\$488,892	\$1,031,290
\$4,893	\$18.55	\$13.67	\$17.39	8.1	\$1,134,480	\$335,139	\$711,919
\$4,613	\$18.14	\$15.26	\$17.59	7.2	\$868,341	\$161,624	-\$617,277

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)
\$7,785	\$655	0.94	0.64	37.37	\$30	98	114
\$10,230	\$1,148	0.57	0.71	13.24	\$161	88	50
\$12,701	\$1,577	0.53	0.74	3.44	\$494	72	33
\$13,900	\$1,951	0.49	0.75	2.47	\$621	61	25
\$17,947	\$2,612	0.38	0.82	1.66	\$836	44	10

¹¹ Top 10% of farms sorted by percent return to all capital without appreciation¹² 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 156 New York Dairy Farms, 2017

Type of Farm	Number	Type of Barn	Number
Dairy	156	Stanchion/Tie-Stall	11
Dairy – cash crop	0	Freestall	136
		Combination	8
Type of Ownership	Number	Milking System	Number
Owner	156	Pipeline	14
Renter	0	Herringbone Conventional	35
		Herringbone Rapid Exit	18
Type of Business	Number	Parallel	64
Single proprietorship	24	Parabone	3
Partnership	16	Rotary	5
Limited Liability Corporation	101	Other	16
Subchapter S Corporation	13		
Subchapter C Corporation	1		
Business Record System	Number	Milking Frequency	Number
Account Book	7	2x/day	40
Accounting Service	13	3x/day	105
On-Farm Computer	132	Other	11
Other	2		
Breed	Percent	Production Records	Number
Holstein	94	Testing Service	121
Jersey	2	On-Farm System	26
Other	4	Other	1
		None	6

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 2017.

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
156 New York Dairy Farms, 2017

Expense Item	Cash Paid	- Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses
<u>Hired Labor</u>	\$687,702	\$219<<		\$829		\$688,311
<u>Feed</u>						
Dairy grain & concentrate	1,310,654	5,114		18,541		1,324,081
Dairy roughage	79,542	4,771		3,741		78,512
Nondairy	192	0		0		192
Professional nutritional services	917	-6<<		130		1,052
<u>Machinery</u>						
Machinery hire, rent/lease	114,268	-975<<		6,906		122,149
Mach. repair & farm vehicle exp.	221,061	430		1,437		222,069
Fuel, oil & grease	118,324	481		1,242		119,085
<u>Livestock</u>						
Replacement livestock	8,260	0<<		-75		8,185
Breeding	51,236	-133		430		51,799
Vet & medicine	145,895	-655		945		147,495
Milk marketing	243,431	0<<		1,361		244,792
Bedding	79,421	-1,364		924		81,709
Milk supplies	81,499	926		626		81,199
Cattle lease/rent	2,326	0<<		10		2,336
Custom boarding	89,709	0<<		96		89,805
bST expense	8,731	-634		-524		8,840
Livestock professional fees	14,894	-162<<		104		15,160
Other livestock expense	23,129	-6		-66		23,069
<u>Crops</u>						
Fertilizer & lime	84,449	64		1,763		86,149
Seeds & plants	96,727	-7,887		2,146		106,759
Spray, other crop exp.	55,193	-236		1,629		57,058
Crop professional fees	7,697	-131<<		509		8,337
<u>Real Estate</u>						
Land/bldg./fence repair	60,268	325		-149		59,793
Taxes	56,933	149<<		241		57,026
Rent & lease	69,590	26<<		1,032		70,596
<u>Other</u>						
Insurance	41,029	121<<		194		41,102
Utilities (farm share)	78,597	233<<		522		78,886
Interest paid	114,375	-81<<		776		145,231
Other professional fees	22,836	53<<		409		23,192
Miscellaneous	<u>25,372</u>	<u>-30</u>		<u>182</u>		<u>25,584</u>
Total Operating Expenses	\$4,024,256	\$614		\$45,913		\$4,069,555
Expansion livestock	46,327	0<<		1,536		47,863
Extraordinary expense	4,041	0<<		0		4,041
Machinery depreciation						221,639
Building depreciation						160,924
Total Accrual Expenses						\$4,504,023

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 2017 funds used to prepay 2018 leases exceed the amount of 2017 leases prepaid in 2016, the amount of this excess is subtracted to exclude it from 2017 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 2017 but not paid for. A decrease is subtracted because the resource was used before 2017.

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 156 New York Dairy Farms, 2017

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts
Milk sales	\$4,265,356				\$2,528		\$4,267,884
Dairy cattle	227,082		120,340		668		348,090
Dairy calves	32,531		10,811		6		43,348
Other livestock	10,956		1,985		-735		12,206
Crops	44,055		68,863		-585		112,334
Government receipts	34,275		0 ¹³		458		34,733
Custom machine work	13,124				1,549		14,673
Gas tax refund	963				0		963
Other	<u>87,206</u>				<u>-1,089</u>		86,117
Less nonfarm noncash cap.			<u>536</u> ¹⁴				<u>536</u>
Total Receipts	\$4,715,548		\$201,463		\$2,802		\$4,919,813

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 2017 for the 2018 crop year in excess of funds earned for 2017. Likewise, a decrease is added to cash government receipts because it represents funds earned for 2017 but received in 2016.

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.

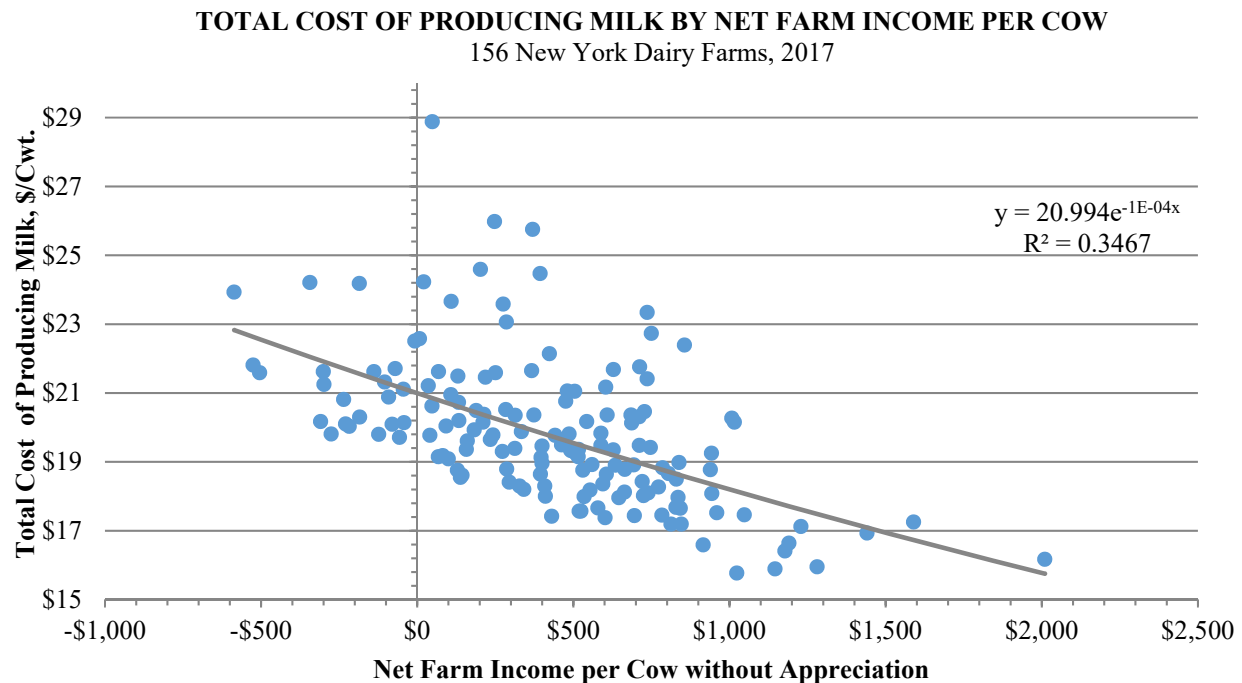
Net farm income is the return to the farm operators and other unpaid family members for their labor, management, and equity capital. It is the farm family's net annual return from working, managing, financing, and owning the farm business. This is not a measure of cash available from the year's business 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		
156 New York Dairy Farms, 2017		
Item	<u>Average 156 Farms</u>	
	Total	Per Cow
Total accrual receipts	\$ 4,919,813	
Appreciation: Livestock	-23,188	
Machinery	39,691	
Real Estate	197,371	
Other Stock/Certificates	10,837	
Total Including Appreciation	\$ 5,144,524	
Total accrual expenses	<u>4,504,023</u>	
Net Farm Income (with appreciation)	\$ 640,501	\$718
Net Farm Income (without appreciation)	\$ 415,790	\$466

Chart 1.



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.

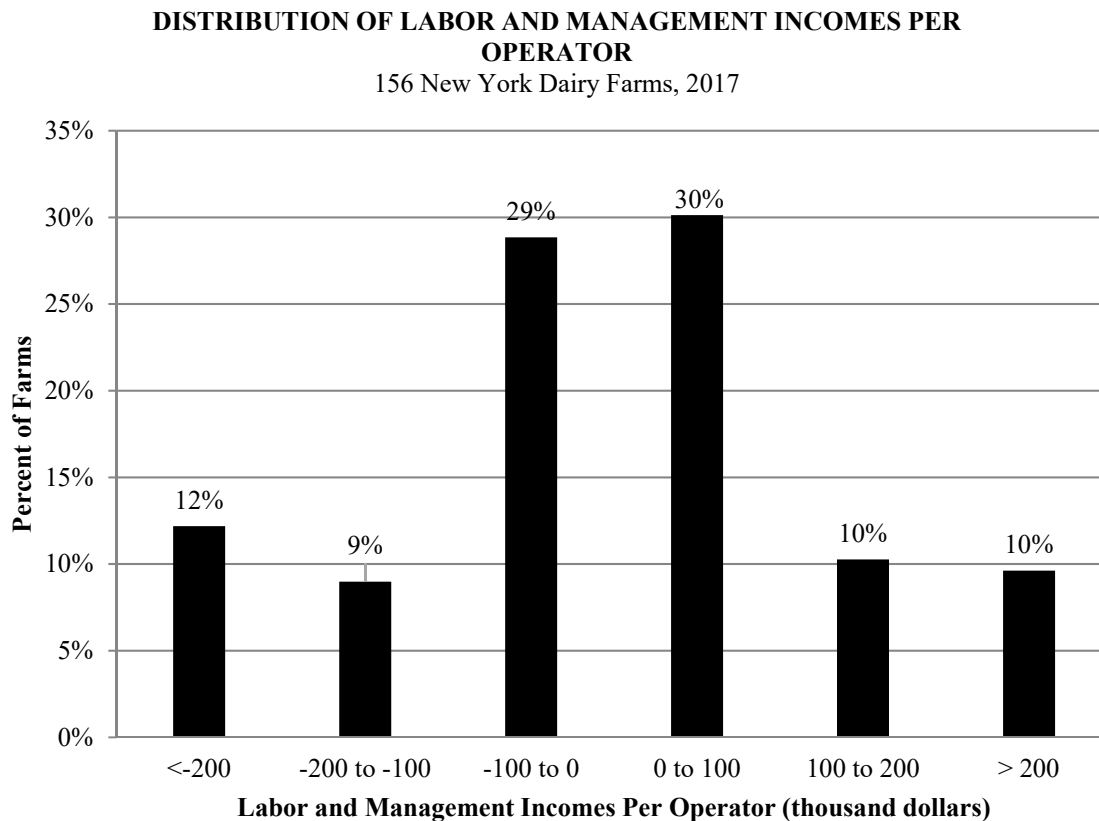
Labor and management income is the return which farm operators receive for their labor and management used in operating the farm business. Appreciation is not included as part of the return to labor and management because it results from ownership of assets rather than management of the farm business. 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 156 New York Dairy Farms, 2017	
Item	Average 156 Farms
Net farm income without appreciation	\$ 415,790
Family labor unpaid @ \$2,850 per month	- 2,978
Interest on \$7,095,295 average equity capital @ 5% real rate	- 354,964
Labor & Management Income per Farm (2.31 operators/farm)	\$ 57,848
Labor & Management Income per Operator/Manager	\$ 25,042

Labor and management income per operator averaged \$25,042 on these 156 Farms in 2017. Returns to labor and management were less than \$0 on 50 percent of the farms, with 12% 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 29 percent of the farms while 30 percent showed labor and management incomes per operator from \$0 to \$100,000. Twenty percent of the farms showed a return to labor and management greater than \$100,000 this year.

Chart 2.



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

156 New York Dairy Farms, 2017

Item	Average 156 Farms
Net farm income with appreciation	\$ 640,501
Family labor unpaid @ \$2,850 per month	- 2,978
Value of operators' labor & management	- 169,214
Return on equity capital with appreciation	\$ 468,309
Interest paid	+ 145,231
Return on total capital with appreciation	\$ 613,541
Return on equity capital without appreciation	\$ 243,599
Return on total capital without appreciation	\$ 388,830
Rate of return on average equity capital:	
with appreciation	6.6%
without appreciation	3.4%
Rate of return on average total capital:	
with appreciation	5.7%
without appreciation	3.6%
Net farm income from operations ratio	0.08

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 2017, leases were discounted by 7.5 percent.

Advanced government receipts are included as current liabilities. Government payments received in 2017 that are for participation in the 2018 program are the end year balance and payments received in 2016 for participation in the 2017 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.

2017 FARM BUSINESS & NONFARM MARKET VALUE BALANCE SHEET

156 New York Dairy Farms, 2017

Farm Assets			Farm Liabilities & Net Worth		
	Jan. 1	Dec. 31		Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$ 85,341	\$ 91,024	Accounts payable	\$ 107,711	\$155,042
Accounts receivable	398,034	400,933	Operating debt	254,557	260,552
Prepaid expenses	7,346	6,792	Short Term	10,092	11,313
Feed & supplies	1,109,270	1,179,301	Advanced govt. receipts	0	0
			Current Portion:		
			Intermediate	237,435	252,133
			Long Term	112,136	111,096
Total Current	\$ 1,599,992	\$ 1,678,050	Total Current	\$ 721,930	\$ 790,136
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy cows:			Structured debt		
owned	\$ 1,258,861	\$ 1,330,168	1-10 years	\$1,290,389	\$1,329,644
leased	3	2	Financial lease		
Heifers	731,987	767,774	(cattle/machinery)	9,782	9,135
Bulls/other livestock	751	447	Farm Credit stock	1,024	1,088
Mach./equipment owned	1,635,814	1,676,767	Total Intermediate	\$1,301,195	\$1,339,866
Mach./equipment leased	9,779	9,133			
Farm Credit stock	1,024	1,088			
Other stock/certificate	403,482	466,079			
Total Intermediate	\$ 4,053,946	\$ 4,266,860			
<u>Long Term</u>			<u>Long Term</u>		
Land/buildings:			Structured debt		
owned	\$ 4,703,411	\$ 5,051,382	>10 years	\$ 1,410,181	\$1,599,745
leased	4,943	3,945	Financial lease		
Total Long Term	\$ 4,708,355	\$ 5,055,327	(structures)	4,943	3,945
			Total Long Term	\$1,415,124	\$1,603,690
Total Farm Assets	\$ 10,362,292	\$11,000,238	Total Farm Liabilities	\$3,438,249	\$3,733,693
			FARM NET WORTH	\$6,924,044	\$7,266,545
Nonfarm Assets, Liabilities & Net Worth (Average of 41 farms reporting)					
Assets	Jan. 1	Dec. 31	Liabilities & Net Worth	Jan. 1	Dec. 31
Personal cash, checking & savings	\$ 12,036	\$ 11,422	Nonfarm Liabilities	\$1,601	\$1,765
Cash value life insurance	95,588	94,802			
Nonfarm real estate	133,415	133,415			
Auto (personal share)	7,415	7,732			
Stocks & bonds	201,131	222,058			
Household furnishings	4,427	4,415			
All other nonfarm assets	201,973	212,656			
Total Nonfarm Assets	\$655,984	\$686,499	NONFARM NET WORTH	\$654,383	\$684,734
Farm & Nonfarm Assets, Liabilities, and Net Worth ¹⁶					
				Jan. 1	Dec. 31
Total Assets				\$11,018,276	\$11,686,737
Total Liabilities				3,439,850	3,735,458
TOTAL FARM & NONFARM NET WORTH				\$ 7,578,427	\$ 7,951,279

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		
156 New York Dairy Farms, 2017		
Item	Average 156 Farms	
<u>Financial Ratios - Farm:</u>		
Percent equity		66%
Debt/asset ratio: total		0.34
long-term		0.32
intermediate/current		0.36
Leverage Ratio		0.51
Current Ratio		2.12
Working Capital: \$887,914	as % of Total Expenses:	20%
<u>Farm Debt Analysis:</u>		
Accounts payable as % of total debt		4%
Long-term liabilities as a % of total debt		43%
Current & intermediate liabilities as a % of total debt		57%
Cost of term debt (weighted average)		4.38%
	<u>Average 156 Farms</u>	
<u>Farm Debt Levels:</u>	<u>Per Cow</u>	<u>Per Tillable Acre Owned</u>
Total farm debt	\$4,052	\$4,083
Long-term debt	1,740	1,754
Long-term & intermediate	3,194	3,219
Intermediate & current debt	2,312	2,330

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			
156 New York Dairy Farms, 2017			
Item	Average of 156 Farms		
	<u>Real Estate</u>		<u>Machinery & Equipment</u>
Value beginning of year	\$ 4,703,411		\$ 1,635,814
Purchases	\$ 457,798 ¹⁷	\$ 237,806	
Gift/inheritance	+ 192	+ 0	
Lost capital	- 140,997		
Sales	- 5,469	- 14,905	
Depreciation	- 160,924	- 221,639	
Net investment	= 150,600	= 1,262	
Appreciation	+ 197,371	+ 39,691	
Value end of year	\$ 5,051,382	\$ 1,676,767	

¹⁷ \$106,299 land and \$351,499 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) 156 New York Dairy Farms, 2017

Item	Average 156 Farms	
Beginning of year farm net worth		\$ 6,924,044
Net farm income without appreciation	\$ 415,764	
+ Nonfarm cash income	+ 4,986	
- Personal withdrawals & family expenditures excluding nonfarm borrowings	- \$ 189,755	
Retained Earnings		+\$ 230,996
Nonfarm noncash transfers to farm	\$ 728	
+ Cash used in business from nonfarm capital	+ 30,299	
- Note/mortgage from farm real estate sold (nonfarm)	- 0	
Contributed/Withdrawn Capital	=	+\$ 31,027
Appreciation	\$ 224,711	
- Lost capital	- 140,997	
Change in Valuation Equity		+\$ 83,714
Imbalance/Error		- 3,236
End of year farm net worth ¹⁸		= \$ 7,266,545
Change in net worth with appreciation		\$ 342,502
<u>Change in Net Worth</u>		
Without appreciation		\$ 117,791
With appreciation		\$ 342,502

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			
156 New York Dairy Farms, 2017			
Item		Average 156 Farms	
<u>Cash Flow from Operating Activities</u>			
Cash farm receipts	\$ 4,715,548		
- Cash farm expenses	4,024,256		
- Extraordinary expense	4,041		
= Net cash farm income		\$ 687,252	
Personal withdrawals/family expenses including nonfarm debt payments	\$ 190,021		
- Nonfarm income	4,986		
- Net cash withdrawals from the farm		<u>\$ 185,034</u>	
= Net Provided by Operating Activities			\$ 502,218
<u>Cash Flow From Investing Activities</u>			
Sale of Assets: Machinery	\$ 14,905		
+ real estate	5,469		
+ other stock & certificates	9,136		
= Total asset sales		\$ 29,509	
Capital purchases: expansion livestock	\$ 46,327		
+ machinery	237,806		
+ real estate	457,798		
+ other stock & certificates	60,896		
- Total invested in farm assets		<u>\$ 802,827</u>	
= Net Provided by Investment Activities			\$ -773,318
<u>Cash Flow From Financing Activities</u>			
Money borrowed (intermediate & long term)	\$ 710,384		
+ Money borrowed (short-term)	7,308		
+ Increase in operating debt	5,995		
+ Cash from nonfarm capital used in business	30,299		
+ Money borrowed - nonfarm	266		
= Cash inflow from financing		\$ 754,252	
Principal payments (intermediate & long-term)	\$ 467,915		
+ Principal payments (short-term)	6,086		
+ Decrease in operating debt	0		
- Cash outflow for financing		<u>\$ 474,001</u>	
= Net Provided by Financing Activities			\$ 280,251
<u>Cash Flow From Business</u>			
Beginning farm cash, checking & savings		\$ 85,341	
- Ending farm cash, checking & savings		<u>91,024</u>	
= Net Provided from Reserves			<u>\$ -5,683</u>
<u>Imbalance (error)</u>			\$ 3,468

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 2018. The cash flow projection worksheet on the next page can be used to estimate repayment ability, which can then be compared to the planned 2018 debt payments shown below.

Table 20.

FARM DEBT PAYMENTS PLANNED New York Dairy Farms, 2016 & 2017

Debt Payments	Same 148 Dairy Farms		
	2017 Payments		Planned 2018
	Planned	Made	
Long-term	\$ 175,025	\$ 210,284	\$ 187,371
Intermediate-term	295,813	399,385	317,106
Short-term	6,606	6,308	4,220
Operating (net reduction)	5,095	42,410	16,567
Accounts payable (net reduction)	608	12,269	2,754
Total	\$ 483,146	\$ 670,655	\$ 528,016
Per cow	\$ 536	\$ 745	
Per cwt. 2017 milk	\$ 2.07	\$ 2.88	
Percent of total 2017 receipts	10.1%	13.5%	
Percent of 2017 milk receipts	11.2%	15.6%	

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 2017 (as of December 31, 2016) that could have been made with the amount available for debt service in 2017. Farmers who did not participate in DFBS in 2016 have their 2017 cash flow coverage ratio based on planned debt payments for 2018.

Table 21.

COVERAGE RATIOS Same 148 New York Dairy Farms, 2016 & 2017

Item	Average	Item	Average
<u>Cash Flow Coverage Ratio</u>		<u>Debt Coverage Ratio</u>	
Cash farm receipts	\$ 4,765,192	Net farm income (without appreciation)	\$ 428,862
- Cash farm expenses	4,054,368	+ Depreciation	390,620
+ Interest paid (cash)	144,991	+ Interest paid (accrual)	145,893
- Net personal withdrawals from farm ¹⁹	189,754	- Net personal withdrawals from farm ¹⁹	189,754
(A) = Amount Available for Debt Service	\$ 666,061	(A') = Repayment Capacity	\$ 775,622
(B) = Debt Payments Planned for 2017 (as of December 31, 2016)	\$ 483,146	(B) = Debt Payments Planned for 2017 (as of December 31, 2016)	\$ 483,146
(A/B) = Cash Flow Coverage Ratio for 2017	1.38	(A'/B) = Debt Coverage Ratio for 2017	1.61

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

156 New York Dairy Farms, 2017

Item	Average 156 Farms		Total
	Per Cow	Per Cwt.	
Number cows and cwt. Milk	891	231,066	
<u>Accrual Operating Receipts</u>			
Milk	\$4,787	\$18.47	\$ 4,267,884
Dairy cattle	390	1.51	348,090
Dairy calves	49	0.19	43,348
Other livestock	14	0.05	12,206
Crops	126	0.49	112,334
Misc. receipts	153	0.59	135,951
Total Operating Receipts	\$5,519	\$21.29	\$ 4,919,813
<u>Accrual Operating Expenses</u>			
Hired labor	\$ 772	\$ 2.98	\$ 688,311
Dairy grain & concentrate	1,485	5.73	1,324,081
Dairy roughage	88	0.34	78,512
Nondairy feed	0	0	192
Professional nutritional services	1	0	1,052
Machinery hire/rent/lease	137	0.53	122,149
Machinery repair & farm vehicle expense	249	0.96	222,069
Fuel, oil & grease	134	0.52	119,085
Replacement livestock	9	0.04	8,185
Breeding	58	0.22	51,799
Veterinary & medicine	165	0.64	147,495
Milk marketing	275	1.06	244,792
Bedding	92	0.35	81,709
Milking supplies	91	0.35	81,199
Cattle lease	3	0.01	2,336
Custom boarding	101	0.39	89,805
bST expense	10	0.04	8,840
Livestock professional fees	17	0.07	15,160
Other livestock expense	26	0.10	23,069
Fertilizer & lime	97	0.37	86,149
Seeds & plants	120	0.46	106,759
Spray/other crop expenses	64	0.25	57,058
Crop professional fees	9	0.04	8,337
Land, building, fence repair	67	0.26	59,793
Taxes	64	0.25	57,026
Real estate rent/lease	79	0.31	70,596
Insurance	46	0.18	41,102
Utilities	88	0.34	78,886
Other professional fees	26	0.10	23,192
Miscellaneous	29	0.11	25,584
Total Less Interest Paid	\$4,402	\$16.98	\$ 3,924,324
<u>Net Accrual Operating Income</u>			
(without interest paid)	\$ 1,117	\$ 4.31	\$ 995,489
- Change in livestock/crop inventory ²⁰	226	0.87	201,463
- Change in accounts receivable	3	0.01	2,802
- Change in feed/supply inventory ²¹	1	0	614
+ Change in accounts payable ²²	51	0.20	45,138
NET CASH FLOW	\$ 937	\$ 3.62	\$ 835,748
- Net personal withdrawals from farm (see footnote on page 24)	206	0.80	183,836
Available for Farm Debt Payments & Investments	\$ 731	\$ 2.82	\$ 651,912
- Farm debt payments	745	2.87	664,093
Available for Farm Investment	\$ -14	\$ -0.05	\$ -12,180
- Capital purchases: cattle, machinery & improvements	901	3.47	802,827
Additional Capital Needed	\$ -914	\$ -3.53	\$ -815,007

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

156 New York Dairy Farms, 2017

Item	Average 156 Farms		
<u>Land</u>	<u>Owned</u>	<u>Rented</u>	<u>Total</u>
Tillable	914	787	1,701
Nontillable	36	11	47
Other nontillable	185	6	191
Total	1,135	805	1,940
<u>Crop Yields</u>	<u>Farms</u>	<u>Acres²³</u>	<u>Prod/Acre</u>
Hay crop	153	757	3.35 tn DM
Corn silage	149	732	18.23 tn
Other forage	31	172	2.56 tn DM
Total forage	153	1,504	4.77 tn DM
Corn grain	74	264	142 bu
Oats	6	37	41 bu
Wheat	26	182	68 bu
Other crops	41	140	
Tillable pasture	9	248	
Idle tillable	66	128	
Total Tillable Acres	156	1,703	

²³This column represents the average acreage for the farms producing that crop. Average acreages including those farms not producing were corn grain 125, oats 1, wheat 30, tillable pasture 14, and idle 54.

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

153 New York Dairy Farms, 2017 ²⁴

Item	Average 153 Farms
Total tillable acres per cow	1.94
Total forage acres per cow	1.68
Harvested forage dry matter, tons per cow	8.04

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 four farms.

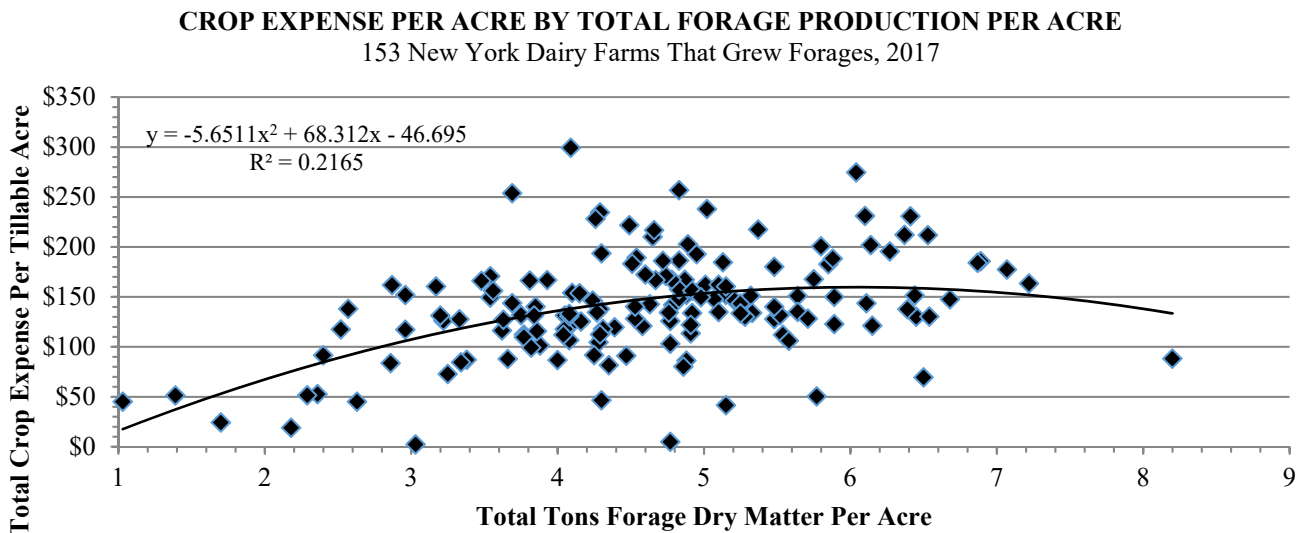
Table 25.

CROP RELATED ACCRUAL EXPENSES
New York Dairy Farms Reporting, 2017

Item	Total Per Till. Acre	All Corn Per Acre	Corn Silage Per Ton DM	Corn Grain Per Dry Sh. Bu.	Hay Crop	
					Per Acre	Per Ton DM
No. of farms reporting	153 ²⁵	9			9	
Ave. number of acres	1,504	672			867	
Fertilizer/lime	\$ 48.84	\$ 11.28	\$ 12.04	\$ 0.19	\$ 40.97	\$ 11.28
Seed/plants	58.79	8.68	18.87	0.29	29.56	8.68
Spray/other crop exp.	32.42	2.99	8.25	0.13	9.80	2.99
TOTAL	\$ 140.05	\$ 22.95	\$ 39.16	\$ 0.61	\$ 80.33	\$ 22.96

²⁵ Excludes farms that do not harvest forages.

Chart 3.



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
153 New York Dairy Farms, 2017

Machinery Expense Item	Average 156 Farms	
	Total Expenses	Per Tillable Acre
Fuel, oil & grease	\$120,641	\$ 69.69
Machinery repairs & farm vehicle exp.	224,604	129.75
Machine hire, rent & lease	122,330	70.67
Interest (5%)	84,457	48.79
Depreciation	224,676	129.79
Total	\$776,707	\$448.69

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.

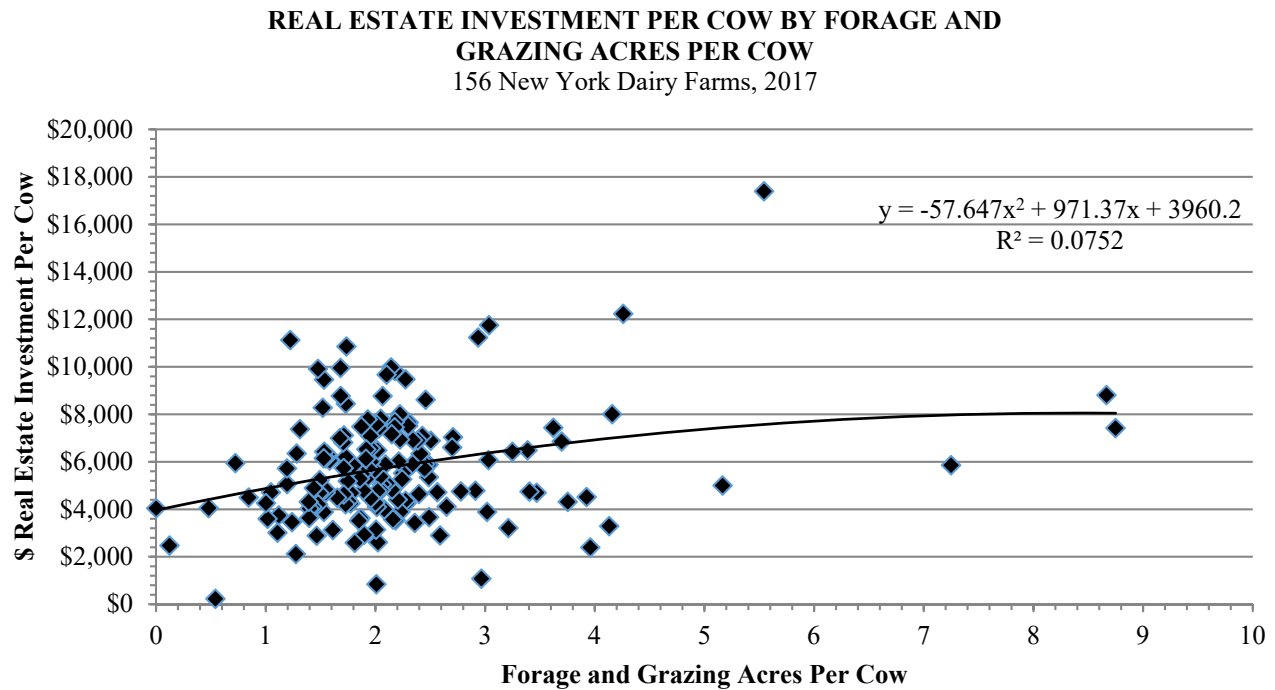
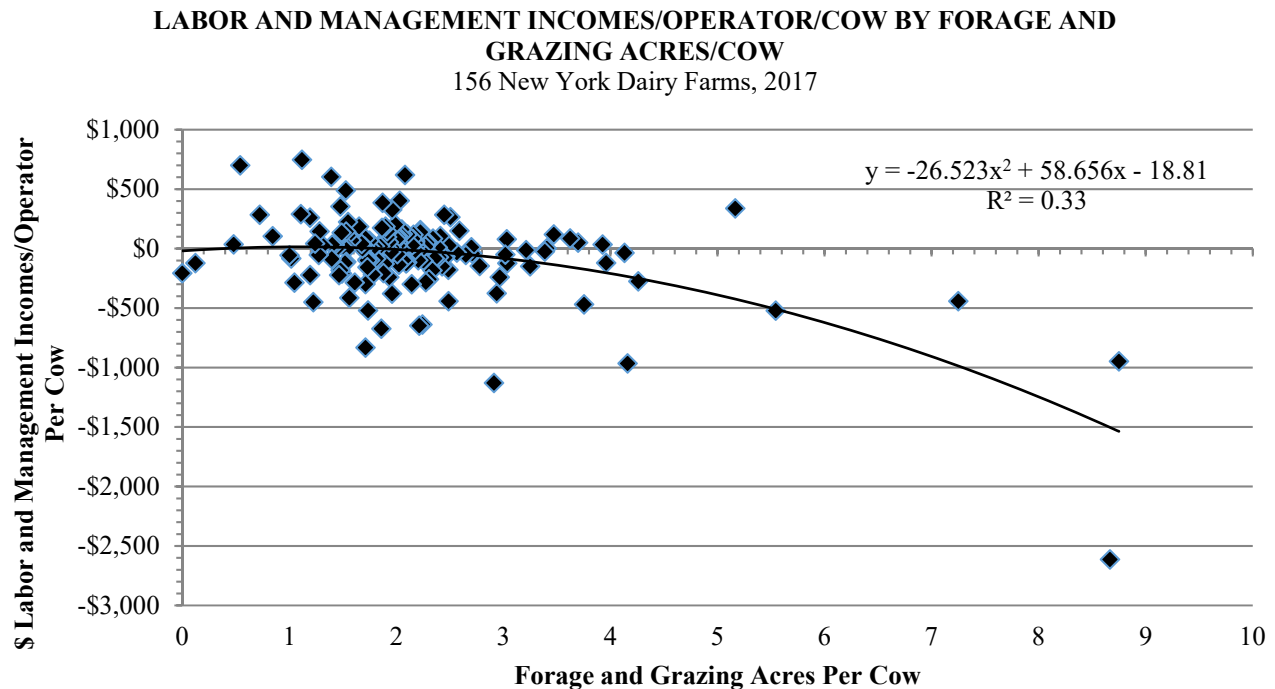


Chart 5.



Dairy Analysis

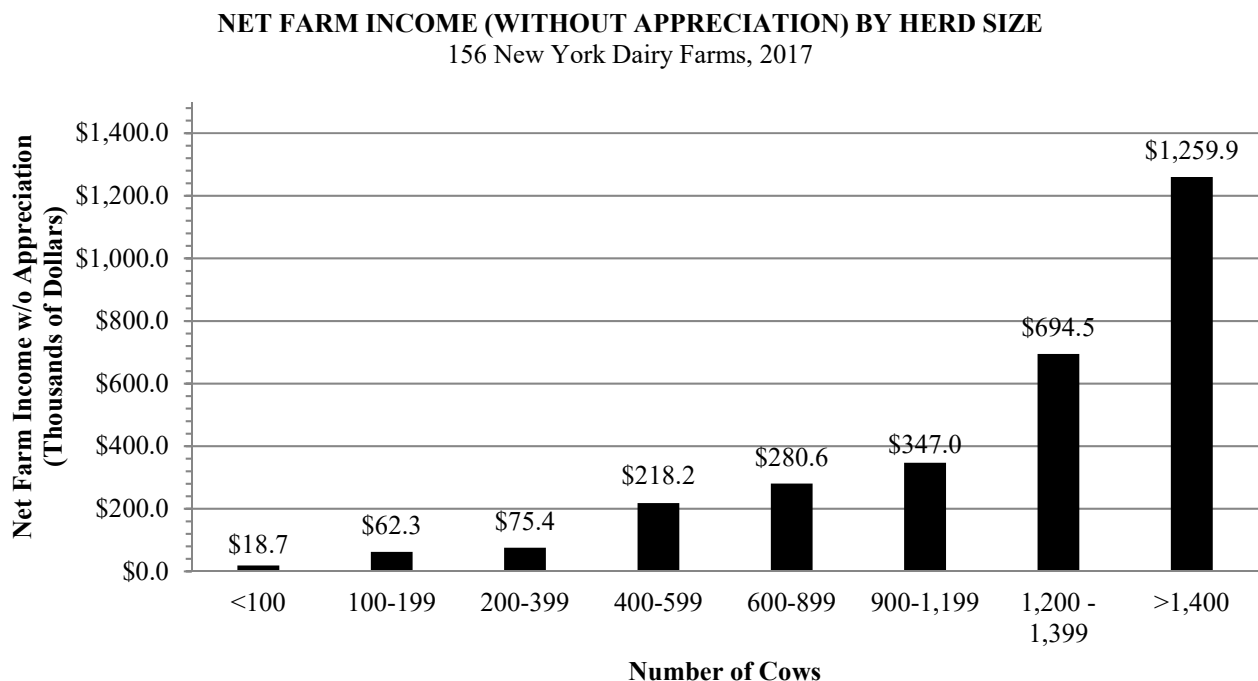
Analysis of the dairy enterprise can reveal a great deal about the strengths and weaknesses of the dairy farm business. Information on the following pages should be used in conjunction with Dairy Herd Improvement (DHI) and other dairy production information. Changes in dairy herd size and market values 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.

DAIRY HERD INVENTORY								
156 New York Dairy Farms, 2017								
Item	Dairy Cows		Heifers					
	No.	Value	No.	Value	No.	Value	No.	Value
<u>Average 156 Farms:</u>								
Beginning year (owned)	853	\$1,258,861	268	\$388,466	263	\$234,026	221	\$109,495
+ Change w/o appreciation		88,407		28,322		3,611		10,811
+ Appreciation		<u>-17,100</u>		<u>-4,059</u>		<u>-2,588</u>		<u>-310</u>
End year (owned)	912	\$1,330,168	289	\$412,729	267	\$235,049	241	\$119,996
End including leased	921							
Average number	891		772 (all age groups)					

Historically, there has been a strong relationship between farm size and net farm income on well-managed dairy farms. In 2017, this relationship is apparent, with income rising as herd size increases.

Chart 6.



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 156 New York Dairy Farms, 2017	
Item	Average 156 Farms
Total milk sold, lbs.	23,106,635
Milk sold per cow, lbs.	25,919
Butterfat per cow, lbs.	1,009 ²⁷
Protein per cow, lbs.	813 ²⁷
Total butterfat and protein per cow, lbs	1,822 ²⁷
Other solids per cow, lbs.	1,507 ²⁷
Total components per cow, lbs.	3,329 ²⁷

²⁷ This data is an average for the 136 farms that provided the data.

Table 29.

ANIMALS LEAVING THE HERD 156 New York Dairy Farms, 2017		
	Average 156 Farms	
	Number	Percent ²⁸
Cows sold for beef	249	27.9
Cows sold for dairy	16	1.8
Cows died	54	6.0
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 156 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 156 New York Dairy Farms, 2017					
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 20,000	15	256	\$42,449	\$133	-\$43,878
20,000 to 22,999	15	536	\$200,207	\$357	-\$21,570
23,000 to 24,999	25	846	\$252,698	\$303	-\$56,345
25,000 to 25,999	26	904	\$299,207	\$305	-\$25,609
26,000 to 26,999	29	1,317	\$878,807	\$612	\$139,680
27,000 to 27,999	24	951	\$426,786	\$449	-\$23,366
28,000 & over	22	873	\$518,105	\$542	\$91,713

Historically, net farm income per cow has increased as pounds of milk sold per cow increased. This trend continued in 2017, with total net farm income and net farm income per cow increasing slightly over the range of milk production per cow, but with a relatively low R-squared value.

Chart 7.

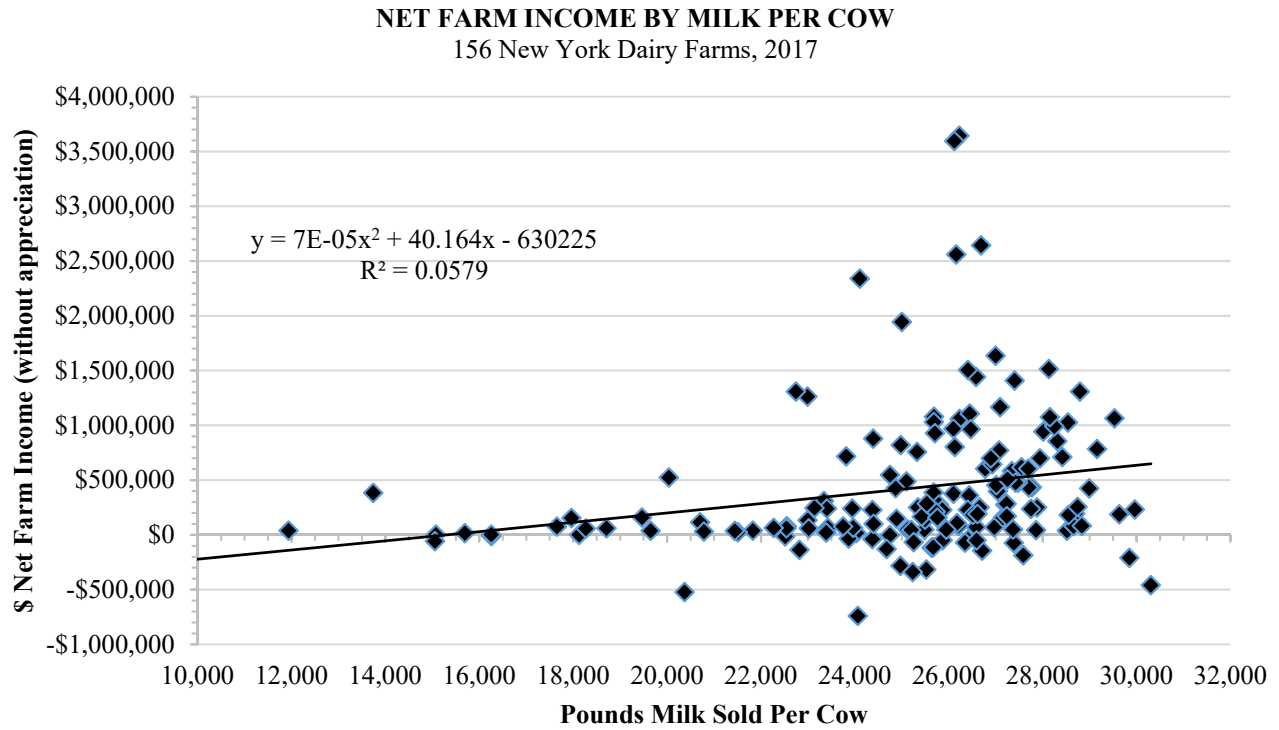
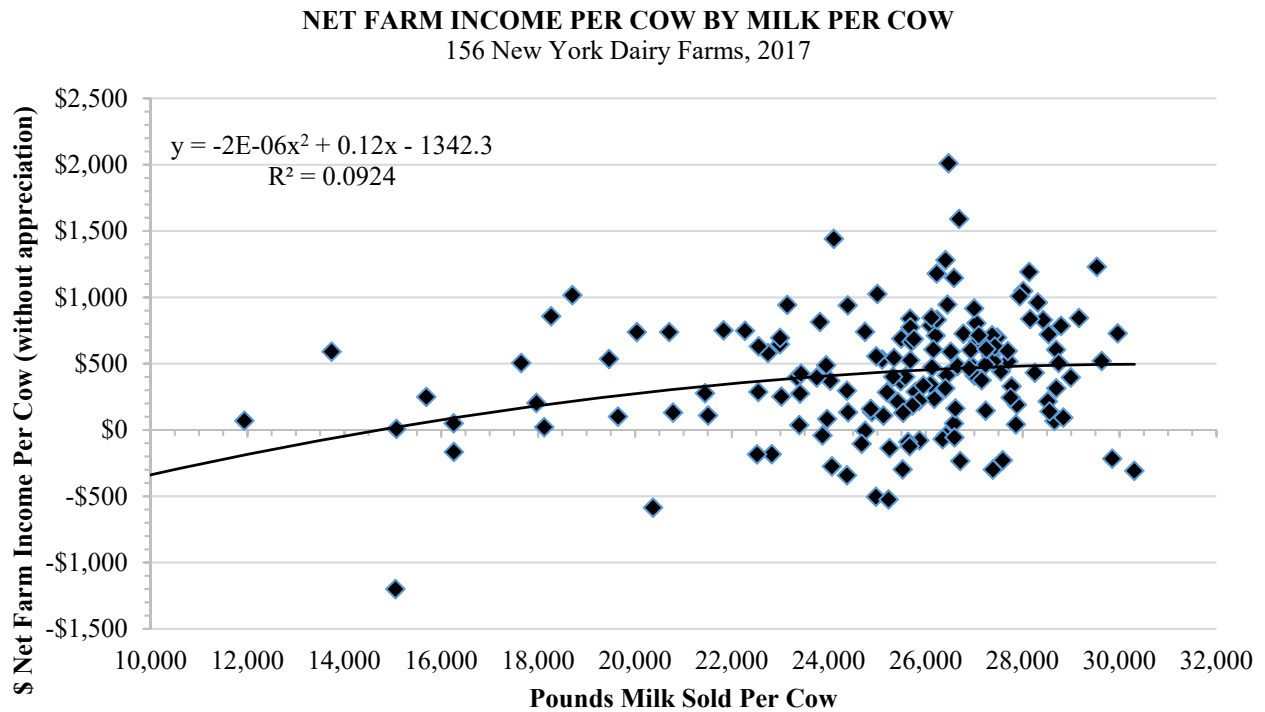


Chart 8.



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

156 New York Dairy Farms, 2017			
Item	Average 156 Farms		
Total Accrual Operating Expenses	\$	4,024,256	
Expansion Livestock, Accrual	+	46,327	
1. Total Accrual Operating Expenses, Including Expansion Livestock			\$ 4,070,583
Total Accrual Receipts	\$	4,919,813	
Milk Sales, Accrual	-	4,267,884	
2. Total Accrual Nonmilk Receipts			- 578,661
3. Operating Costs of Producing Milk			\$ 3,465,516
Cwt. of Milk Sold	÷	231,066	
Operating Costs/Cwt.	=	\$15.00	
Machinery Depreciation			+ 221,639
Building Depreciation			+ 160,924
Extraordinary Expenses			+ 4041
4. Purchased Inputs Cost of Producing Milk			\$ 3,852,120
Cwt. of Milk Sold	÷	231,066	
Purchased Inputs Cost/Cwt.	=	\$16.67	
Family Labor Unpaid (\$2,850/month)			+ 2,978
Real Interest on Equity Capital			+ 354,964
Value of Operators' Labor & Management			+ 169,214
5. Total Costs of Producing Milk			\$ 4,379,276
Cwt. Milk Sold	÷	231,066	
Total Costs/Cwt.	=	\$18.95	

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			
156 New York Dairy Farms, 2017			
Item	Average 156 Farms		
	Total	Per Cow	Per Cwt.
<u>Accrual Costs of Producing Milk</u>			
Operating costs	\$ 3,465,516	\$ 3,887	\$ 15.00
Purchased inputs costs	\$ 3,852,120	\$ 4,321	\$ 16.67
Total Costs	\$ 4,379,276	\$ 4,912	\$ 18.95
<u>Accrual Receipts From Milk</u>			
Net Milk Receipts	\$ 4,267,884	\$ 4,787	\$ 18.47
Net Farm Income	\$ 4,023,066	\$ 4,349	\$ 17.41
without appreciation	\$ 415,764	\$ 466	\$ 1.80
Net Farm Income with appreciation	\$ 640,474	\$ 718	\$ 2.77

The operating cost of producing milk on all 156 dairy farms averaged \$15.00 per hundredweight, leaving just \$2.77 per hundredweight to cover depreciation, unpaid labor and operator resources.

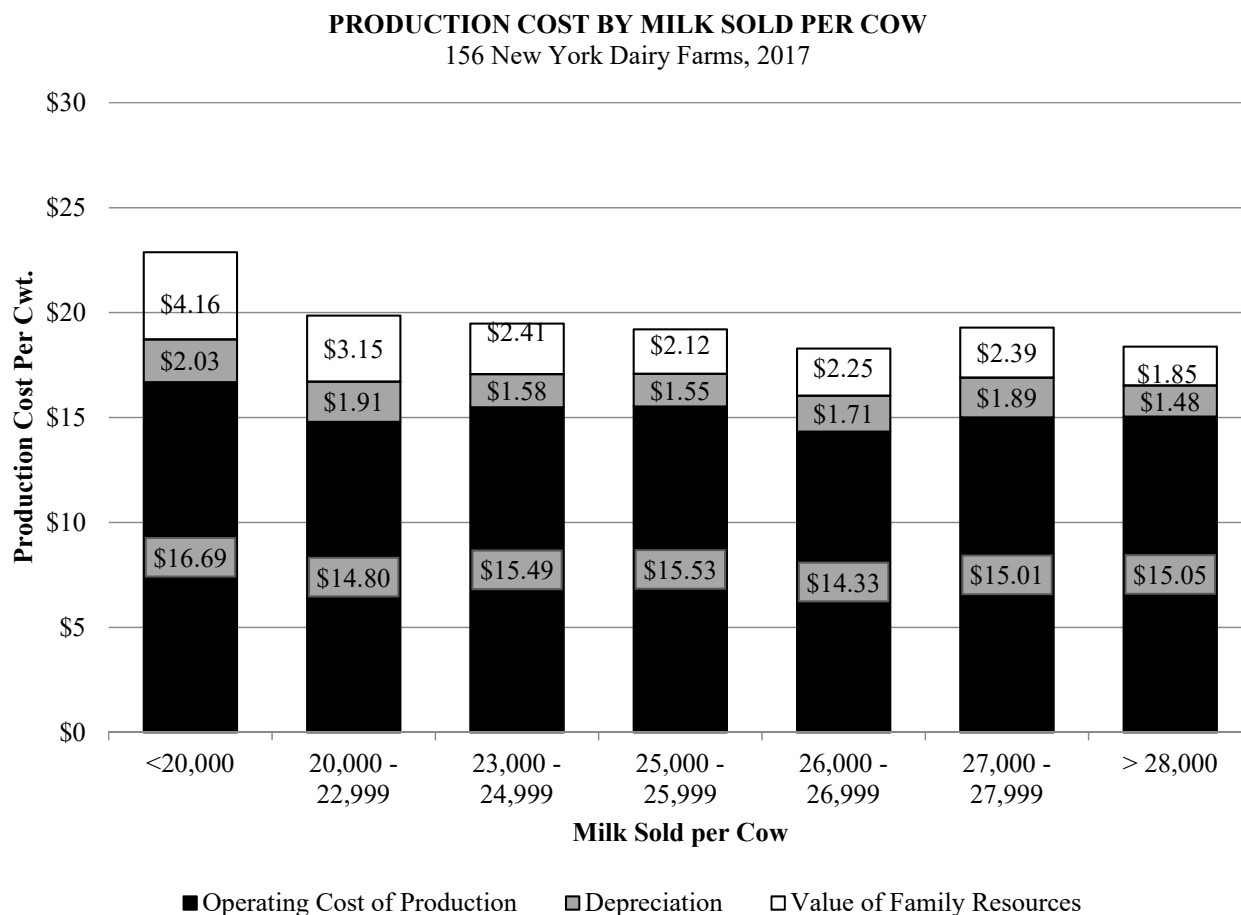
The total cost of producing milk on the 156 dairy farms averaged \$18.95 per hundredweight, \$0.46 more than the average price received for milk sold from these farms during 2017. The imputed costs or charge for the operator's labor, management and equity capital averaged \$2.28 per hundredweight in 2017; however, the farm operator received only \$1.80 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 23,000 pounds of milk per cow had average total costs of production of \$21.37 per hundredweight while those selling 26,000 pounds and over averaged \$18.65 for a difference of \$2.72 per hundredweight.

Table 33.

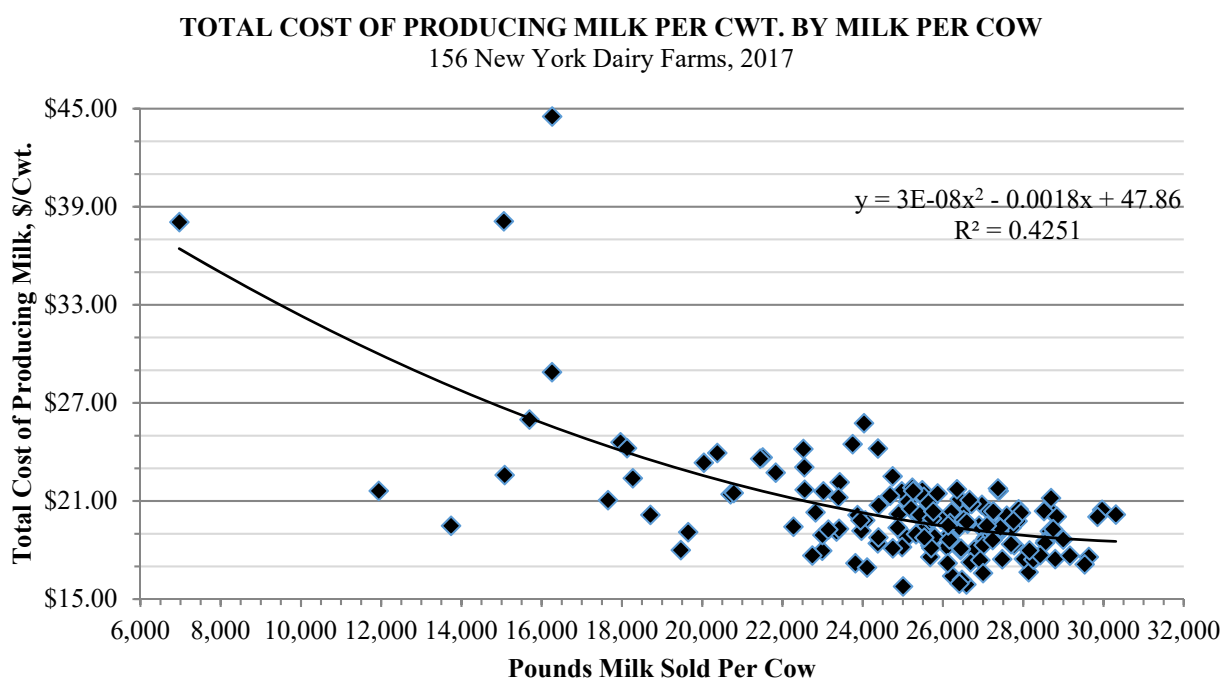
FARM COST OF PRODUCING MILK BY MILK SOLD PER COW							
156 New York Dairy Farms, 2017							
Pounds Milk Sold Per Cow	Costs per Hundredweight					Accrual Receipts From Milk Per Cwt.	Return Per Cwt. To Operator's Labor, Mgmt. & Capital
	Operating Costs		Costs of Producing Milk				
	Hired Labor	Dairy Grain & Concentrate	Total Operating	Purchased Inputs	Total		
Under 20,000	\$3.17	\$4.98	\$16.69	\$18.72	\$22.88	\$19.80	\$1.08
20,000-22,999	2.77	5.35	14.80	16.71	19.86	18.40	1.69
23,000-24,999	3.09	5.83	15.49	17.07	19.48	18.30	1.23
25,000-25,999	3.07	5.95	15.53	17.08	19.20	18.37	1.30
26,000-26,999	3.14	5.71	14.33	16.04	18.29	18.57	2.53
27,000-27,999	2.71	5.59	15.01	16.90	19.29	18.53	1.63
28,000 & over	2.84	5.79	15.05	16.53	18.38	18.37	1.84

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 largest herd size group, followed by the smallest. 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 and other cost efficiencies that offset the increases in hired labor and lead to lower operating costs.

Table 34.

FARM COST OF PRODUCING MILK BY HERD SIZE

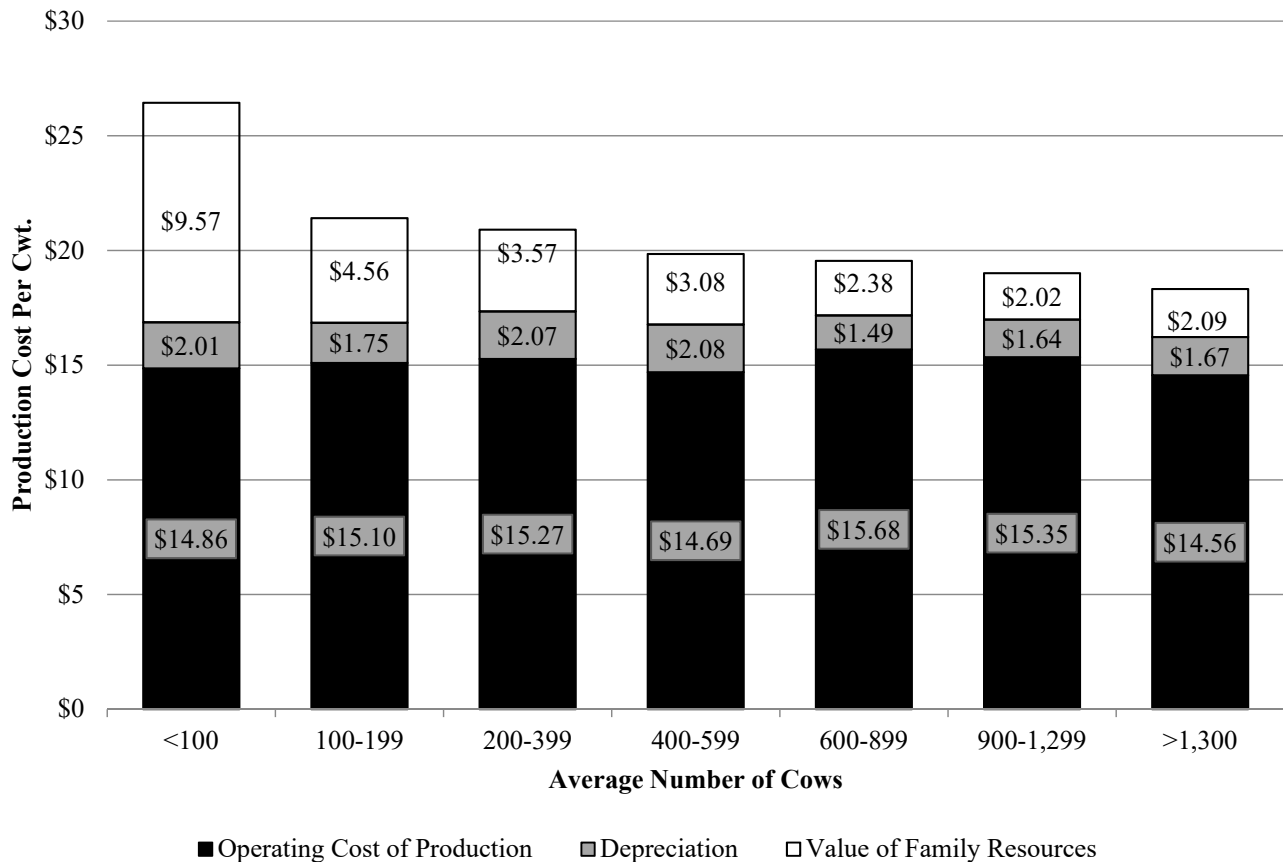
156 New York Dairy Farms, 2017

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	\$1.00	\$5.62	\$14.86	\$16.87	\$25.44	\$18.36	\$1.49
100 to 199	1.86	5.99	15.10	16.85	21.41	18.59	1.74
200 to 399	2.82	5.58	15.27	17.34	20.91	18.55	1.21
400 to 599	2.60	5.42	14.69	16.77	19.85	18.52	1.75
600 to 899	2.88	5.94	15.68	17.17	19.55	18.62	1.45
900 to 1,299	3.06	5.83	15.35	16.99	19.01	18.53	1.54
1,300 and over	3.08	5.64	14.56	16.23	18.32	18.37	2.13

Chart 11.

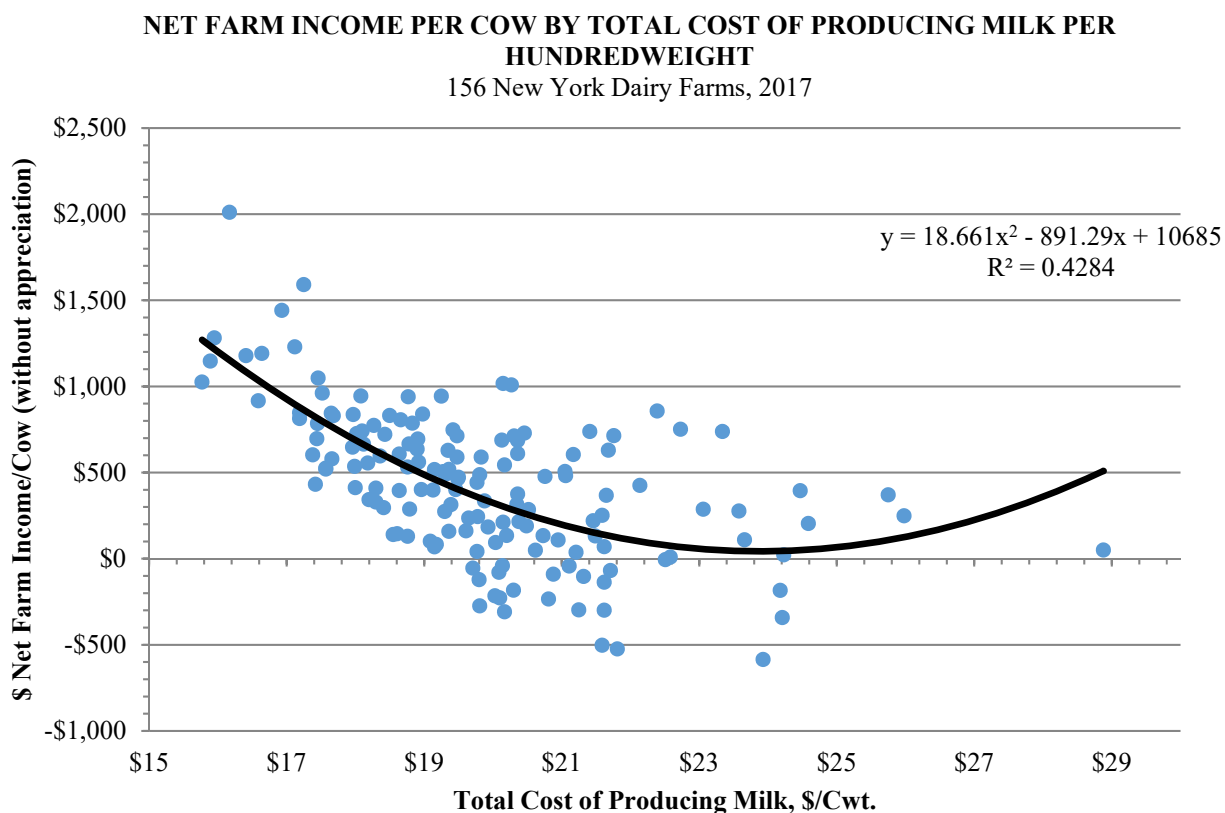
PRODUCTION COST BY HERD SIZE

156 New York Dairy Farms, 2017



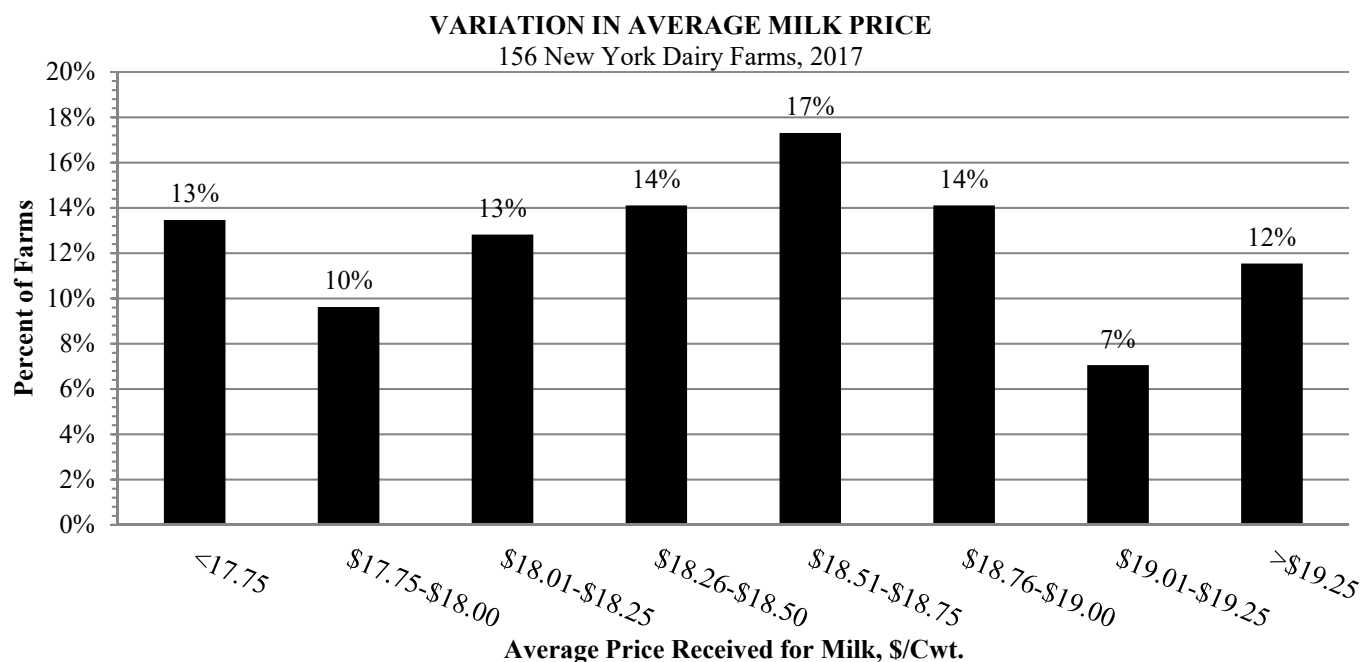
The importance of cost control and its impact on farm profitability are illustrated in Chart 12. As the total cost of producing milk per hundredweight increased, net farm income per cow fell. The majority of farms with net farm income per cow over \$500 had total costs below \$21 per hundredweight.

Chart 12.



The average price per hundredweight of milk sold is calculated by dividing gross milk receipts by the total hundredweights of milk sold. There is considerable variation among participating farms. The variations in average price received and the distribution of the farms around the mean are shown below. The average gross milk price for the 156 farms was \$18.47 per hundredweight. (Table 32)

Chart 13.



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.

DAIRY RELATED ACCRUAL EXPENSES		
156 New York Dairy Farms, 2017		
Item	Average 156 Farms	
	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	\$ 1,485	\$ 5.73
Purchased dairy roughage	88	0.34
Total Purchased Dairy Feed	\$ 1,573	\$ 6.07
Purchased grain & concentrate as % of milk receipts	31%	
Purchased feed & crop expense	\$ 1,863	\$ 7.19
Purchased feed & crop expense as % of milk receipts	39%	
Breeding	\$ 58	\$ 0.22
Veterinary & medicine	165	0.64
Milk marketing	275	1.06
Bedding	92	0.35
Milking supplies	91	0.35
Cattle lease	3	0.01
Custom boarding	101	0.39
bST expense	10	0.04
Livestock professional fees	17	0.07
Other livestock expenses	26	0.10

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.

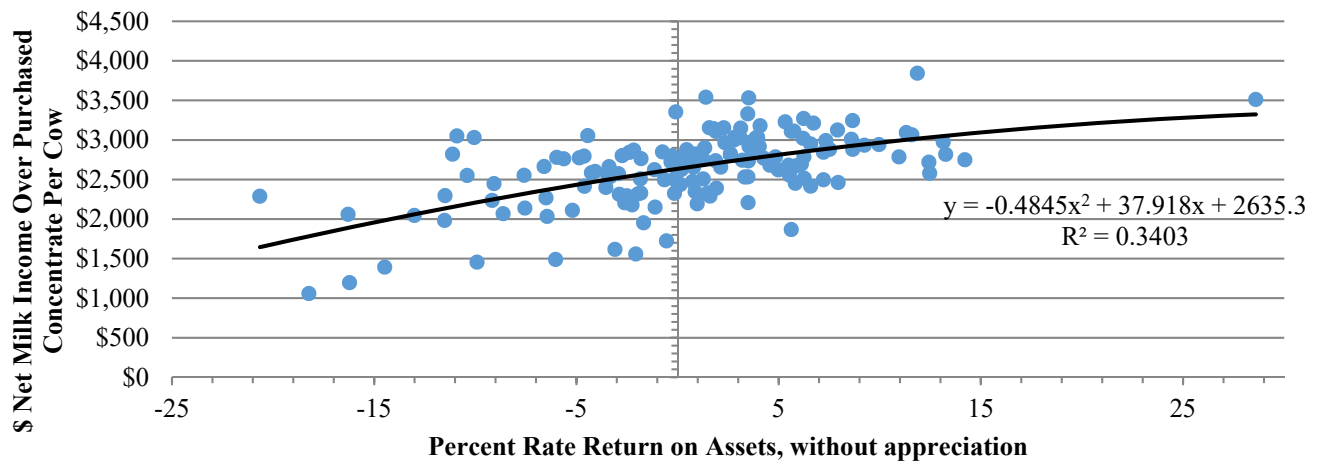
**PURCHASED FEED AND CROP EXPENSE PER HUNDREDWEIGHT
OF MILK AND FARM INCOME MEASURES**
156 New York Dairy Farms, 2017

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	17	716	7.7	24,535	\$109,197	-\$69,682	-\$78
7.75 to 8.49	23	704	8.2	25,426	265,139	-49,984	-193
7.50 to 7.75	21	831	8.1	23,992	318,392	-15,121	-93
7.00 to 7.49	31	1,073	8.0	25,485	549,240	24,200	-92
6.50 to 6.99	26	1,095	8.3	25,806	570,301	71,048	95
6.25 to 6.49	15	958	8.3	26,283	508,584	43,794	11
Less than 6.25	23	744	8.8	23,279	466,933	80,384	-28

Chart 14.

**NET MILK INCOME OVER PURCHASED CONCENTRATE PER COW BY
RETURN ON ASSETS**

156 New York Dairy Farms, 2017



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
138 New York Dairy Farms, 2017

	Pounds	Percent	Price/Pound	Total	\$/Cwt of Milk
BASE FARM PRICE					
Butterfat	967,722	3.89%	\$2.62	\$2,529,248	\$10.19
Protein	779,009	3.12%	\$1.87	\$1,455,228	\$ 5.83
Solids	1,447,015	5.78%	\$0.25	\$364,054	\$ 1.46
Total Component Contribution					\$ 17.48
PPD	25,014,416			\$109,748	\$ 0.46
Base Farm Price					\$ 17.93
Premiums					
Quality				\$64,996	\$ 0.27
Volume				\$22,066	\$ 0.07
Market Premiums				\$30,183	\$ 0.10
Total Premiums					\$ 0.44
BASE FARM PRICE + PREMIUM					\$ 18.37
<hr style="border-top: 1px dashed black;"/>					
Deductions					
Promo				\$37,712	\$ 0.15
Hauling				\$153,325	\$ 0.65
Coop Dues				\$74,401	\$ 0.28
Total Deductions				\$265,438	\$ 1.08
BASE FARM PRICE + PREMIUMS – DEDUCTIONS					\$ 17.29
Marketing Programs					
Futures Contracts, Forward Contracting, Etc.				\$5,036	\$ 0.02
Total Marketing Income					\$ 0.02
Patronage Dividends				\$43,519	\$ 0.18
NET PRICE RECEIVED ON FARM, ALL SOURCES					\$ 17.49
Net Marketing Value (PPD + Total Premiums – Total Deductions), \$ per cwt.					\$ -0.20

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.

Table 38.

MILK PRICE INFORMATION BY QUINTILE³¹
 (Each Category Sorted Independently)
 138 New York Dairy Farms, 2017

	Lowest Quintile	←————→			Highest Quintile
Butterfat, %	3.69	3.78	3.87	3.94	4.18
Protein, %	3.02	3.07	3.11	3.15	3.26
Other Solids, %	5.71	5.75	5.78	5.79	5.85
Butterfat, \$ per Cwt.	9.68	9.90	10.11	10.34	10.95
Protein, \$ per Cwt.	5.62	5.73	5.81	5.89	6.10
Other solids, \$ per Cwt.	1.43	1.45	1.46	1.46	1.49
Total Component Value per Cwt.	\$ 16.86	\$ 17.14	\$ 17.35	\$ 17.63	\$ 18.42
PPD, \$ per Cwt.	0.18	0.30	0.40	0.56	0.88
Base Farm Price per Cwt.	\$ 17.19	\$ 17.53	\$ 17.83	\$ 18.19	\$ 18.97
Quality, \$ per Cwt.	0.05	0.17	0.25	0.34	0.53
Volume, \$ per Cwt.	0.00	0.00	0.02	0.10	0.23
Market premium, \$ per Cwt.	-0.16	0.00	0.03	0.09	0.56
Total Premium, \$ per Cwt.	-0.01	0.29	0.48	0.56	0.93
Base Farm Price + Premiums per Cwt.	\$ 17.54	\$ 17.95	\$ 18.28	\$ 18.60	\$ 19.54
Promotion, \$ per Cwt.	0.15	0.15	0.15	0.15	0.17
Hauling, \$ per Cwt.	0.34	0.54	0.62	0.75	1.04
Coop Dues, \$ per Cwt.	0.03	0.10	0.25	0.47	0.57
Total Deductions per Cwt.	\$ 0.67	\$ 0.90	\$ 1.10	\$ 1.24	\$ 1.57
Base + Premiums – Deductions per Cwt.	\$ 16.47	\$ 16.89	\$ 17.16	\$ 17.54	\$ 18.41
Futures contract, forward contracting, \$ per Cwt.	-0.02	0.00	0.00	0.00	0.11
Total Marketing Income, \$ per Cwt.	\$-0.02	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.11
Patronage Dividends, \$ per Cwt.	\$0.00	\$ 0.00	\$ 0.04	\$ 0.15	\$ 0.72
Net Price Received From All Sources, \$ per Cwt.	\$ 16.59	\$ 17.04	\$ 17.41	\$ 17.77	\$ 18.63
Net Marketing Value (PPD + Total Premiums – Total Deductions), \$ per cwt.	\$-0.77	\$-0.40	\$-0.18	\$ -0.01	\$ 0.42

³¹ Each calculation of an average is independent of all others. Therefore, math operations on the detail will not 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				
156 New York Dairy Farms, 2017				
Item	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
<u>Average 156 Farms:</u>				
Farm capital	\$ 565,146	\$ 11,981	\$ 6,278	\$ 11,682
Real estate		5,476		5,339
Machinery & equipment	88,135	1,869	979	
<u>Ratios</u>				
Asset turnover ratio	Operating Expense	Interest Expense	Depreciation Expense	
0.48	0.81	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		
156 New York Dairy Farms, 2017		
Labor Efficiency	Total	Per Worker ³²
Cows, average number	891	47
Milk sold, pounds	23,106,635	1,222,519
Tillable acres	1,701	90

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**

156 New York Dairy Farms, 2017

Labor Force	Months	Age	Years of Education	Value of Labor & Mgmt.
Operator number 1	12.49	57	14	\$ 70,246
Operator number 2	8.92	52	14	51,506
Operator number 3	5.54	41	14	28,395
Operator number 4	2.35	18	4	11,873
Family paid	1.19			
Family unpaid	1.04			
Hired	<u>193.72</u>			
Total	226.81/	12 = 18.90 Worker Equivalent 2.31 Operator/Manager Equivalent		

Labor Costs	Average 156 Farms		
	Total	Per Cow	Per Cwt.
Value of operator(s) labor (\$3,100/month)	\$ 95,666	\$ 107	\$ 0.41
Family Unpaid (\$2,850/month)	2,964	3.32	0.01
Hired	<u>688,311</u>	<u>772</u>	<u>2.98</u>
Total Labor	\$ 786,941	\$ 883	\$ 3.41
Machinery Cost	<u>768,230</u>	<u>862</u>	<u>3.32</u>
Total Labor & Machinery	\$1,555,171	\$ 1,744	\$ 6.73
Hired labor expenses per hired worker equivalent		\$42,377	
Hired labor expense as % of milk sales		16.1%	

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**

156 New York Dairy Farms, 2017

Pounds of Milk Sold per Worker	No. of Farms	No. of Cows	Pounds Milk per Cow	Operating Expense Ratio	Net Farm Income (without Appreciation)	Labor & Management Income per Operator
Under 700,000	15	105	19,450	0.85	1,622	-53,936
700,000 to 899,999	18	405	22,945	0.83	90,563	-50,412
900,000 to 999,999	16	541	24,074	0.84	84,496	-62,245
1,000,000 to 1,099,999	18	741	24,932	0.83	216,554	-40,966
1,100,000 to 1,199,999	21	990	26,175	0.81	419,240	-5,245
1,200,000 to 1,299,999	25	1,333	26,402	0.80	701,689	13,803
1,300,000 to 1,499,999	26	1,357	26,823	0.82	628,351	105,138
1,500,000 and Greater	17	1,107	26,502	0.76	898,558	172,512

Chart 15.

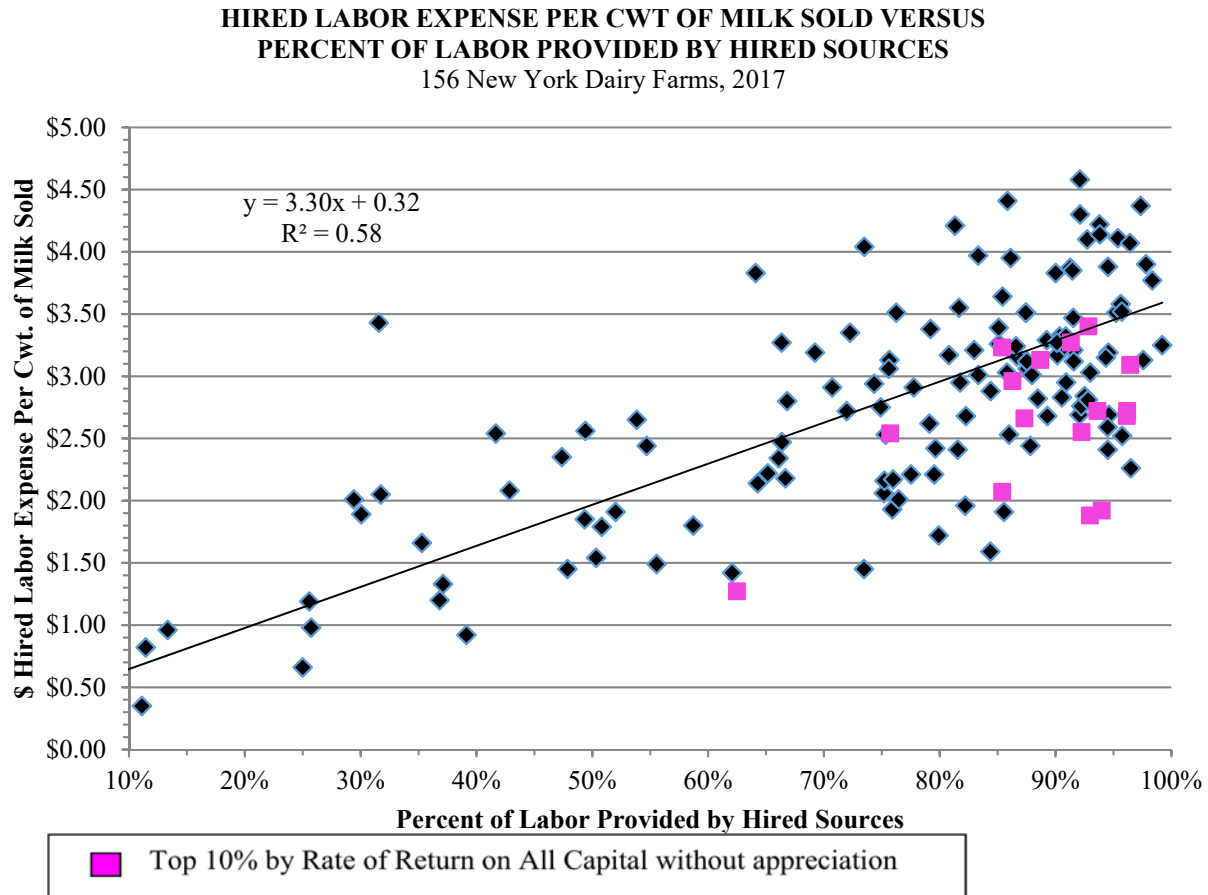


Table 43 below is the business chart for labor costs on a per worker and per hour basis and shows the range of costs for 156 farms. Hired labor expenses are all paid expenses that are associated with labor, including gross wages, workman's compensation, health, insurance, federal and state employment taxes, and other paid benefits.

Table 43.

HIRED LABOR EXPENSE BUSINESS CHART
152 New York Dairy Farms with Hired Labor, 2017

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	24%	\$0.96	5%	\$24,472	\$8.87
	50	1.79	10	34,392	12.46
	68	2.14	12	36,194	13.11
	76	2.49	13	38,260	13.86
	82	2.71	15	39,784	14.41
	86	2.94	16	41,042	14.87
	89	3.15	17	43,185	15.65
	91	3.29	18	44,845	16.25
	94	3.61	20	47,459	17.20
Average of Highest Decile	97	4.39	23	58,803	21.31

HERD SIZE BREAKDOWN

With a large variation in herd size, the following section provides information about five different herd size categories: Less than 225 cows, 225 to 599 cows, 600 to 899 cows, 900 to 1,299 cows, and 1,300 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 2017 for the herd size group.

Less than 225 cows:	Tables 45 through 50
225 to 599 cows:	Tables 51 through 56
600 to 899 cows:	Tables 57 through 62
900 to 1,299 cows:	Tables 63 through 68
1,300 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 a business in a manner similar to the herd profiles, except the different categories are in columns vs rows. A business manager can compare their business by drawing a line through or near the closest figure in each column that represents the 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 or improvements are needed.

Table 44.

SELECTED BUSINESS FACTORS FOR FIVE HERD SIZE GROUPS

156 Dairy Farms, New York State, 2017

Item	<225 Cows	225 to 599 Cows	600 to 899 Cows	900 to 1,299 Cows	≥ 1,300 Cows
# of Farms	30	30	32	33	31
Size of Business					
Average Cows	123	409	770	1,086	2,020
Average Heifers	112	359	624	954	1,771
Acres per Cow	2.88	2.07	2.17	1.91	1.79
Number of Worker Equivalents	3.70	9.02	16.96	23.62	40.16
Number of Owner Operators	1.79	2.08	2.60	2.22	2.82
Rates of Production					
Milk Sold per Cow	23,218	24,224	25,203	26,806	26,185
Hay DM per Acre, Tons	2.6	3.4	3.3	3.5	3.4
Corn Silage per Acre, Tons	17.3	18.7	17.3	19.0	18.1
Percent Butterfat	3.87%	3.87%	3.94%	3.84%	3.85%
Percent Protein	3.12%	3.08%	3.13%	3.11%	3.12%
Cull Rate, Percent	31.0%	34.0%	35.0%	34.0%	33.0%
Labor Efficiency					
Cows per Worker	33.2	45.3	45.4	46.0	50.3
Milk Sold per Worker	771,127	1,098,533	1,144,916	1,233,026	1,316,889
Cost Control					
Dairy Feed & Crop Expense per Cwt. Milk	7.42	6.89	7.54	7.38	6.99
Labor & Machinery Costs per Cow	\$2,171	\$1,828	\$1,725	\$1,802	\$1,677
Hired Labor Cost per Cwt.	\$1.72	\$2.72	\$2.88	\$3.06	\$3.08
Hired Labor Costs per Worker Equivalent	\$37,817	\$40,781	\$39,830	\$41,985	\$44,049
Crop Input Costs per Acre	\$103	\$132	\$155	\$158	\$150
Machinery Costs per Acre	\$365	\$471	\$403	\$480	\$454
Operating Cost of Producing Milk per Cwt.	\$15.10	\$14.85	\$15.68	\$15.35	\$14.56
Purch. Input Cost of Producing Milk per Cwt.	\$16.95	\$16.94	\$17.17	\$16.99	\$16.23
Total Cost of Producing Milk per Cwt.	\$22.24	\$20.08	\$19.55	\$19.01	\$18.32
Operating Expense Ratio	0.8	0.79	0.83	0.82	0.79
Capital Efficiency					
Farm Capital Per Cow	\$13,982	\$12,598	\$11,471	\$12,163	\$11,839
Machinery and Equipment per Cow	\$3,084	\$2,337	\$1,842	\$1,887	\$1,705
Real Estate per Cow	\$6,392	\$5,767	\$5,074	\$5,464	\$5,531
Asset Turnover Ratio	0.36	0.42	0.49	0.50	0.49
Working Capital as % of Tot. Oper. Expense	21%	24%	15%	17%	23%
Profitability					
Net Milk Price	\$17.48	\$17.41	\$17.53	\$17.42	\$17.36
Labor & Management Income per Operator	-\$14,711	-\$14,058	\$311	\$15,263	\$109,214
Rate Return on Equity Capital w/o Apprec.	-3.3%	0.7%	1.8%	3.3%	5.2%
Rate Return on All Capital w/o Apprec.	-1.2%	1.7%	2.6%	3.6%	4.8%
Financial Summary(based on market value, excluding deferred taxes)					
Debt to Asset Ratio	0.28	0.3	0.38	0.37	0.32
Farm Debt per Cow	\$3,918	\$3,476	\$4,412	\$4,558	\$3,754
Debt Coverage Ratio	0.90	1.06	0.43	0.70	1.34

Table 45.

SELECTED PRODUCTION AND FINANCIAL FACTORS

30 Farms Less Than 225 Cows, New York State, 2017

Item	QUINTILE				
	1	2	3	4	5
Size of Business					
Average Cows	55	72	126	158	204
Average Heifers	44	66	118	148	185
Acres per Cow	1.71	2.37	2.91	3.35	5.65
Number of Worker Equivalents	2.0	2.8	3.4	4.3	6.2
Number of Owner Operators	1.0	1.0	1.7	2.2	3.1
Rates of Production					
Milk Sold per Cow	27,285	24,723	22,718	20,411	16,508
Hay DM per Acre, Tons	4.7	3.0	2.3	1.9	1.3
Corn Silage per Acre, Tons	22.0	18.7	16.3	14.8	8.0
Percent Butterfat	4.2	3.8	3.6	0.0	0.0
Percent Protein	3.2	3.1	3.0	0.0	0.0
Cull Rate, Percent	17.3	24.5	30.5	35.5	42.5
Labor Efficiency					
Cows per Worker	48.3	38.0	31.7	27.3	21.7
Milk Sold per Worker	1,112,929	906,199	756,134	587,669	399,430
Cost Control					
Dairy Feed & Crop Expense per Cwt. Milk	5.69	6.91	7.35	8.03	9.06
Labor & Machinery Costs per Cow	1,669	1,914	2,117	2,427	2,928
Hired Labor Cost per Cwt.	0.07	0.83	1.61	2.05	2.92
Hired Labor Costs per Worker Equivalent	4,124	21,711	36,269	43,091	61,365
Crop Input Costs per Acre	31	66	106	139	175
Machinery Costs per Acre	158	276	350	433	654
Operating cost of Producing Milk per Cwt.	13.05	14.12	14.93	15.88	17.68
Purch. Input Cost of Producing Milk per Cwt.	14.89	16.12	16.86	17.77	19.90
Total Cost of Producing Milk per Cwt.	19.80	20.88	22.06	23.82	31.28
Operating Expense Ratio	0.69	0.77	0.80	0.83	0.95
Capital Efficiency					
Farm Capital Per Cow	9,752	11,509	13,133	15,284	22,154
Machinery and Equipment per Cow	1,577	2,175	2,530	3,704	5,982
Real Estate per Cow	3,600	4,714	5,945	7,178	12,043
Asset Turnover Ratio	0.48	0.43	0.38	0.31	0.23
Working Capital as % of Tot. Oper. Expense	50	34	17	11	-3
Profitability					
Labor & Management Income per Operator	21,276	5,477	-8,761	-27,067	-80,357
Rate Return on Equity Capital w/o Apprec.	1.81	-0.64	-3.94	-5.96	-11.97
Rate Return on All Capital w/o Apprec.	2.44	0.47	-0.98	-2.87	-7.34
Financial Summary(based on market value, excluding deferred taxes)					
Debt to Asset Ratio	0.04	0.14	0.25	0.36	0.54
Farm Debt per Cow	489	1,881	3,298	5,581	8,077
Debt Coverage Ratio	3.93	1.74	1.07	0.77	-0.06

Table 46.

RECEIPTS AND EXPENSES PER COW
30 Farms Less Than 225 Cows, New York State, 2017

Item	QUINTILE				
	1	2	3	4	5
Average Cows	55	72	126	158	204
Cwt. of Milk Sold	10,071	14,962	28,877	38,272	50,573
<u>Accrual Operating Receipts</u>					
Milk	5,001	4,576	4,251	3,861	3,045
Dairy cattle	595	363	303	207	122
Dairy calves	75	36	20	11	-59
Other livestock	102	1	0	0	-5
Crops	291	138	82	-12	-342
Miscellaneous receipts	411	229	169	105	37
Total Receipts	5,718	5,164	4,779	4,300	3,651
<u>Accrual Operating Expenses</u>					
Hired labor	16	170	347	477	713
Dairy grain & concentrates	933	1,082	1,204	1,477	1,818
Dairy roughage	0	0	0	7	246
Nondairy feed	0	0	0	0	0
Professional nutritional services	0	0	0	0	0
Machinery hire/rent/lease	0	12	49	124	244
Machinery repair & farm vehicle exp.	140	215	275	366	484
Fuel	86	120	148	176	228
Replacement livestock	0	0	0	2	58
Breeding	32	52	62	82	111
Veterinary, medicine & hoof care	45	84	117	179	253
Milk marketing	168	230	256	297	393
Bedding	20	72	88	104	188
Milking supplies	36	65	94	114	230
Cattle lease	0	0	0	0	0
Custom boarding	0	0	0	0	21
rBst expense	0	0	0	0	6
Livestock professional fees	0	7	25	34	104
Other livestock expense	6	23	33	51	95
Fertilizer & lime	18	62	96	162	287
Seeds & plants	9	73	101	114	179
Spray & other crop expenses	2	49	68	91	151
Crop professional fees	0	0	0	7	31
Land, building, fence repair	0	15	37	100	163
Taxes	57	88	113	142	242
Real estate rent/lease	5	18	30	74	155
Insurance	27	53	77	95	130
Utilities	43	74	109	139	204
Interest	17	71	148	234	345
Other professional fees	4	11	19	27	38
Miscellaneous	0	3	14	25	48
Total Farm Operating Costs	3,046	3,625	3,944	4,226	4,838
Expansion livestock	0	0	0	0	41
Extraordinary expenses	0	0	0	0	7
Machinery depreciation	106	207	285	418	650
Building depreciation	16	47	65	94	233
Total farm expense	3,369	4,051	4,485	4,694	5,246
Net Farm Income	803	638	394	236	-304

Table 47.

RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD

30 Farms Less Than 225 Cows, New York State, 2017

Item	QUINTILE				
	1	2	3	4	5
Average Cows	55	72	126	158	204
Cwt. of Milk Sold	10,071	14,962	28,877	38,272	50,573
<u>Accrual Operating Receipts</u>					
Milk	19.67	18.92	18.64	18.34	17.39
Dairy cattle	2.96	1.63	1.35	0.92	0.54
Dairy calves	0.30	0.15	0.10	0.05	-0.33
Other livestock	0.63	0.01	0.00	0.00	-0.02
Crops	1.16	0.66	0.37	-0.04	-1.43
Miscellaneous receipts	1.97	1.05	0.74	0.49	0.16
Total Receipts	23.63	22.06	21.20	20.70	18.77
<u>Accrual Operating Expenses</u>					
Hired labor	0.07	0.83	1.61	2.05	2.92
Dairy grain & concentrates	4.41	5.37	5.81	6.49	7.02
Dairy roughage	0.00	0.00	0.00	0.03	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	0.00
Machinery hire/rent/lease	0.00	0.06	0.24	0.55	1.05
Machinery repair & farm vehicle exp.	0.71	0.88	1.26	1.61	2.25
Fuel	0.38	0.54	0.63	0.79	1.17
Replacement livestock	0.00	0.00	0.00	0.01	0.29
Breeding	0.14	0.23	0.28	0.35	0.53
Veterinary, medicine & hoof care	0.22	0.39	0.52	0.75	1.24
Milk marketing	0.72	1.06	1.20	1.42	1.73
Bedding	0.11	0.34	0.40	0.46	0.78
Milking supplies	0.17	0.31	0.42	0.53	0.94
Cattle lease	0.00	0.00	0.00	0.00	0.00
Custom boarding	0.00	0.00	0.00	0.00	0.12
rBst expense	0.00	0.00	0.00	0.00	0.02
Livestock professional fees	0.00	0.03	0.11	0.16	0.45
Other livestock expense	0.02	0.10	0.16	0.25	0.44
Fertilizer & lime	0.08	0.31	0.41	0.69	1.34
Seeds & plants	0.04	0.29	0.43	0.54	0.84
Spray & other crop expenses	0.01	0.20	0.30	0.40	0.70
Crop professional fees	0.00	0.00	0.00	0.03	0.16
Land, building, fence repair	0.00	0.07	0.15	0.42	0.80
Taxes	0.25	0.37	0.51	0.66	1.30
Real estate rent/lease	0.02	0.07	0.14	0.32	0.77
Insurance	0.13	0.24	0.33	0.42	0.63
Utilities	0.19	0.32	0.47	0.60	1.08
Interest	0.07	0.30	0.76	1.06	1.62
Other professional fees	0.02	0.05	0.09	0.12	0.18
Miscellaneous	0.00	0.02	0.06	0.11	0.20
Total Farm Operating Costs	15.77	16.87	17.37	18.09	20.76
Expansion livestock	0.00	0.00	0.00	0.00	0.19
Extraordinary expenses	0.00	0.00	0.00	0.00	0.04
Machinery depreciation	0.51	0.90	1.30	1.83	3.20
Building depreciation	0.07	0.21	0.30	0.43	1.12
Total farm expense	17.14	18.53	19.54	20.07	23.68
Net Farm Income	3.92	2.63	1.63	1.04	-1.80

Table 48.

PROGRESS OF THE FARM BUSINESS28 Farms Less Than 225 Cows, New York State, 2016 & 2017, DFBS³³

SELECTED FACTORS	Average of 28 Farms		Percent Change
	2016	2017	
<i>Size of Business</i>			
Average number of cows	116	118	2%
Average number of heifers	100	106	6%
Milk sold, pounds	2,632,059	2,744,636	4%
Worker equivalent	3.5	3.6	2%
Total tillable acres	350	349	0%
<i>Rates of Production</i>			
Milk sold per cow, pounds	22,760	23,239	2%
Hay DM per acre, tons	2.5	2.60	4%
Corn silage per acre, tons	17.9	17.60	-2%
<i>Labor Efficiency</i>			
Cows per worker	33.2	33.2	0%
Milk sold per worker, pounds	754,172	773,137	3%
<i>Cost Control and Milk Price</i>			
Grain & concentrate per cwt. milk	\$6.03	\$5.91	-2%
Net milk income over purchased grain & conc. per cow	\$2,082	\$2,484	19%
Dairy feed & crop expense per cwt. milk	\$7.39	\$7.36	0%
Labor and machinery costs per cow	\$1,941	\$2,147	11%
Hired labor costs per cwt. milk	\$1.80	\$1.83	2%
Hired labor costs per worker equivalent	\$34,450	\$39,002	13%
Operating cost of producing milk per cwt.	\$14.26	\$15.03	5%
Purchased input cost of producing milk per cwt.	\$15.96	\$16.85	6%
Total cost of producing milk per cwt.	\$21.31	\$22.24	4%
Net milk price	\$15.86	\$17.45	10%
<i>Capital Efficiency (average for year)</i>			
Farm capital per cow	\$13,615	\$13,750	1%
Machinery and equipment per cow	\$3,007	\$3,037	1%
Asset turnover ratio	0.34	0.37	9%
<i>Profitability</i>			
Net farm income without appreciation	\$28,066	\$49,014	75%
Net farm income without appreciation per cow	\$243	\$415	71%
Net farm income with appreciation	\$47,740	\$68,630	44%
Net farm income with appreciation per cow	\$413	\$581	41%
Labor & management income per operator/manager	-\$23,575	-\$11,279	52%
Rate return on equity capital with appreciation	-2.9%	-1.7%	41%
Rate return on equity capital without appreciation	-4.6%	-3.4%	27%
Rate return on all capital with appreciation	-1.2%	-0.1%	92%
Rate return on all capital without appreciation	-2.4%	-1.3%	48%
<i>Financial Summary (based on market value, excluding deferred taxes)</i>			
Farm net worth, end year	\$1,169,271	\$1,201,135	3%
Debt to asset ratio	0.27	0.27	0%
Farm debt per cow	\$3,651	\$3,761	3%
Debt coverage ratio	0.74	1.19	61%

³³ Farm participating both years

Table 49.

RECEIPTS & EXPENSES PER COW AND PER HUNDREDWEIGHT28 Farms Less Than 225 Cows, New York State, 2016 & 2017, DFBS³³

Item	2016		2017		% Change Per Cwt.
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	
Average number of cows	116		118		2%
Cwt. of milk sold		26,321		27,446	4%
ACCRUAL OPERATING RECEIPTS					
Milk	\$3,876	\$17.03	\$4,330	\$18.63	9%
Dairy cattle	\$304	\$1.34	\$319	\$1.37	2%
Dairy calves	\$60	\$0.26	\$23	\$0.10	-62%
Other livestock	\$6	\$0.03	\$7	\$0.03	0%
Crops	\$88	\$0.39	\$13	\$0.06	-85%
Miscellaneous receipts	<u>\$159</u>	<u>\$0.70</u>	<u>\$190</u>	<u>\$0.82</u>	17%
Total Operating Receipts	\$4,492	\$19.74	\$4,883	\$21.01	6%
ACCRUAL OPERATING EXPENSES					
Hired labor	\$409	\$1.80	\$425	\$1.83	2%
Dairy grain & concentrate	\$1,371	\$6.03	\$1,374	\$5.91	-2%
Dairy roughage	\$27	\$0.12	\$29	\$0.12	0%
Nondairy feed	\$0	\$0.00	\$0	\$0.00	NA
Professional nutritional services	\$0	\$0.00	\$0	\$0.00	NA
Machine hire, rent & lease	\$82	\$0.36	\$94	\$0.40	11%
Machine repair & vehicle expense	\$242	\$1.06	\$295	\$1.27	20%
Fuel, oil & grease	\$128	\$0.56	\$147	\$0.63	13%
Replacement livestock	\$3	\$0.01	\$8	\$0.03	200%
Breeding	\$66	\$0.29	\$68	\$0.29	0%
Veterinary & medicine	\$134	\$0.59	\$134	\$0.58	-2%
Milk marketing	\$266	\$1.17	\$275	\$1.18	1%
Bedding	\$89	\$0.39	\$95	\$0.41	5%
Milking supplies	\$111	\$0.49	\$105	\$0.45	-8%
Cattle lease	\$0	\$0.00	\$0	\$0.00	NA
Custom boarding	\$2	\$0.01	\$3	\$0.01	0%
BST expense	\$5	\$0.02	\$2	\$0.01	-50%
Livestock professional fees	\$21	\$0.09	\$43	\$0.18	100%
Other livestock expense	\$57	\$0.25	\$34	\$0.15	-40%
Fertilizer & lime	\$111	\$0.49	\$133	\$0.57	16%
Seeds & plants	\$94	\$0.41	\$94	\$0.40	-2%
Spray & other crop expense	\$68	\$0.30	\$73	\$0.31	3%
Crop professional fees	\$11	\$0.05	\$9	\$0.04	-20%
Land, building & fence repair	\$42	\$0.19	\$57	\$0.25	32%
Taxes	\$124	\$0.54	\$119	\$0.51	-6%
Real estate rent & lease	\$47	\$0.21	\$51	\$0.22	5%
Insurance	\$68	\$0.30	\$68	\$0.29	-3%
Utilities	\$102	\$0.45	\$104	\$0.45	0%
Interest paid	\$134	\$0.59	\$162	\$0.70	19%
Other professional fees	\$22	\$0.10	\$18	\$0.08	-20%
Miscellaneous	<u>\$24</u>	<u>\$0.11</u>	<u>\$21</u>	<u>\$0.09</u>	-18%
Total Operating Expenses	\$3,860	\$16.96	\$4,038	\$17.38	2%
Expansion livestock	\$3	\$0.01	\$7	\$0.03	200%
Extraordinary expenses	\$0	\$0.00	\$1	\$0.00	NA
Machinery depreciation	\$298	\$1.31	\$330	\$1.42	8%
Real estate depreciation	<u>\$89</u>	<u>\$0.39</u>	<u>\$91</u>	<u>\$0.39</u>	0%
Total Expenses	\$4,250	\$18.67	\$4,467	\$19.22	3%
Net Farm Income w/o Appreciation	\$243	\$1.07	\$415	\$1.79	67%

Table 50.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS

30 Farm Less Than 225 Cows, New York State, 2017, 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)
6.2	204	5,057,259	27,285	4.7	22.0	48.3	1,112,929
4.3	158	3,827,204	24,723	3.0	18.7	38.0	906,199
3.4	126	2,887,672	22,718	2.3	16.3	31.7	756,134
2.8	72	1,496,217	20,411	1.9	14.8	27.3	587,669
2.0	55	1,007,140	16,508	1.3	8.0	21.7	399,430

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)
\$933	\$4.41	24	\$603	\$1,669	\$1,152	\$5.69	\$4,124
\$1,082	\$5.37	28	\$780	\$1,914	\$1,430	\$6.91	\$21,711
\$1,204	\$5.81	31	\$960	\$2,117	\$1,607	\$7.35	\$36,269
\$1,477	\$6.49	34	\$1,182	\$2,427	\$1,849	\$8.03	\$43,091
\$1,818	\$7.02	39	\$1,604	\$2,928	\$2,230	\$9.06	\$61,365

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)
\$5,001	\$19.67	\$13.05	\$19.80	2.4	\$111,486	\$21,276	\$169,478
\$4,576	\$18.92	\$14.12	\$20.88	0.5	\$68,641	\$5,477	\$49,631
\$4,251	\$18.64	\$14.93	\$22.06	-1.0	\$51,177	-\$8,761	\$17,842
\$3,861	\$18.34	\$15.88	\$23.82	-2.9	\$28,584	-\$27,067	-\$5,912
\$3,045	\$17.39	\$17.68	\$31.28	-7.3	-\$19,598	-\$80,357	-\$51,082

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)
\$9,752	\$1,577	0.48	0.69	3.93	\$48	96	50
\$11,509	\$2,175	0.43	0.77	1.74	\$235	86	34
\$13,133	\$2,530	0.38	0.80	1.07	\$380	76	17
\$15,284	\$3,704	0.31	0.83	0.77	\$606	65	11
\$22,154	\$5,982	0.23	0.95	-0.06	\$931	46	-3

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

Table 51.

SELECTED PRODUCTION AND FINANCIAL FACTORS

30 Farms Between 225 and 599 Cows, New York State, 2017

Item	QUINTILE				
	1	2	3	4	5
Size of Business					
Average Cows	246	327	435	482	555
Average Heifers	215	281	358	430	513
Acres per Cow	1.49	1.81	2.13	2.26	2.53
Number of Worker Equivalents	5.5	7.3	8.4	10.7	13.2
Number of Owner Operators	1.0	1.6	2.0	2.6	3.2
Rates of Production					
Milk Sold per Cow	28,361	26,670	25,544	23,869	15,647
Hay DM per Acre, Tons	5.0	3.7	3.4	3.0	1.9
Corn Silage per Acre, Tons	24.0	20.2	18.4	16.7	9.3
Percent Butterfat	4.2	4.0	3.9	3.8	3.1
Percent Protein	3.2	3.1	3.1	3.0	2.5
Cull Rate, Percent	23.3	31.0	34.3	37.5	44.8
Labor Efficiency					
Cows per Worker	65.5	50.8	45.2	40.5	32.8
Milk Sold per Worker	1,559,639	1,244,741	1,072,017	933,576	712,340
Cost Control					
Dairy Feed & Crop Expense per Cwt. Milk	5.81	6.53	6.84	7.41	7.90
Labor & Machinery Costs per Cow	1,285	1,723	1,906	2,015	2,230
Hired Labor Cost per Cwt.	1.35	2.42	2.78	3.27	4.61
Hired Labor Costs per Worker Equivalent	30,518	34,959	39,674	43,964	55,485
Crop Input Costs per Acre	73	116	131	150	188
Machinery Costs per Acre	300	367	472	547	691
Operating cost of Producing Milk per Cwt.	12.21	14.15	14.99	15.74	19.20
Purch. Input Cost of Producing Milk per Cwt.	14.53	16.36	16.91	17.79	21.32
Total Cost of Producing Milk per Cwt.	18.02	19.26	20.17	21.32	24.67
Operating Expense Ratio	0.70	0.75	0.81	0.85	0.95
Capital Efficiency					
Farm Capital Per Cow	8,376	11,100	12,342	14,361	17,627
Machinery and Equipment per Cow	1,109	1,587	2,479	2,956	3,682
Real Estate per Cow	3,492	4,732	5,492	6,890	8,978
Asset Turnover Ratio	0.56	0.49	0.43	0.38	0.30
Working Capital as % of Tot. Oper. Expense	53	33	23	13	-11
Profitability					
Labor & Management Income per Operator	88,132	29,754	-10,135	-59,399	-234,235
Rate Return on Equity Capital w/o Apprec.	5.88	2.60	0.85	-2.17	-10.11
Rate Return on All Capital w/o Apprec.	5.48	2.95	1.80	0.28	-3.43
Financial Summary(based on market value, excluding deferred taxes)					
Debt to Asset Ratio	0.02	0.19	0.32	0.43	0.61
Farm Debt per Cow	304	2,265	3,554	5,537	7,195
Debt Coverage Ratio	15.77	1.84	1.29	0.89	-0.20

Table 52.

RECEIPTS AND EXPENSES PER COW

30 Farms Between 225 and 599 Cows, New York State, 2017

Item	QUINTILE				
	1	2	3	4	5
Average Cows	246	327	435	482	555
Cwt. of Milk Sold	47,427	72,637	111,147	121,657	142,481
<u>Accrual Operating Receipts</u>					
Milk	5,298	4,956	4,746	4,353	2,867
Dairy cattle	628	377	320	266	201
Dairy calves	107	63	46	22	-26
Other livestock	36	9	0	0	-1
Crops	434	165	56	-14	-187
Miscellaneous receipts	209	122	99	76	27
Total Receipts	6,189	5,577	5,246	4,871	3,374
<u>Accrual Operating Expenses</u>					
Hired labor	314	516	707	828	951
Dairy grain & concentrates	719	1,227	1,412	1,558	1,656
Dairy roughage	0	0	22	64	296
Nondairy feed	0	0	0	0	5
Professional nutritional services	0	0	0	0	6
Machinery hire/rent/lease	3	38	122	239	461
Machinery repair & farm vehicle exp.	120	178	218	258	368
Fuel	85	114	125	145	169
Replacement livestock	0	0	0	0	11
Breeding	19	51	64	80	100
Veterinary, medicine & hoof care	68	122	153	169	212
Milk marketing	126	196	234	314	408
Bedding	28	66	97	127	181
Milking supplies	28	56	85	115	161
Cattle lease	0	0	0	0	0
Custom boarding	0	0	0	0	114
rBst expense	0	0	0	0	20
Livestock professional fees	0	2	19	26	52
Other livestock expense	0	2	18	32	90
Fertilizer & lime	25	60	85	123	203
Seeds & plants	58	100	114	127	155
Spray & other crop expenses	10	45	53	69	96
Crop professional fees	0	0	3	12	38
Land, building, fence repair	10	30	40	53	146
Taxes	21	52	69	87	117
Real estate rent/lease	15	43	69	81	123
Insurance	30	42	58	71	96
Utilities	46	63	83	105	132
Interest	11	91	152	234	330
Other professional fees	6	13	22	32	40
Miscellaneous	4	15	19	24	40
Total Farm Operating Costs	2,873	3,873	4,292	4,641	4,977
Expansion livestock	0	0	0	3	230
Extraordinary expenses	0	0	0	0	2
Machinery depreciation	134	225	309	337	462
Building depreciation	93	157	200	254	345
Total farm expense	3,333	4,536	4,826	5,151	5,560
Net Farm Income	1,019	584	432	113	-296

Table 53.

RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD

30 Farms Between 225 and 599 Cows, New York State, 2017

Item	QUINTILE				
	1	2	3	4	5
Average Cows	246	327	435	482	555
Cwt. of Milk Sold	47,427	72,637	111,147	121,657	142,481
<u>Accrual Operating Receipts</u>					
Milk	19.39	18.85	18.54	18.20	17.72
Dairy cattle	3.15	1.58	1.32	1.08	0.86
Dairy calves	0.46	0.25	0.19	0.09	-0.14
Other livestock	0.18	0.04	0.00	0.00	-0.01
Crops	1.67	0.66	0.21	-0.05	-1.22
Miscellaneous receipts	1.12	0.51	0.40	0.31	0.12
Total Receipts	23.22	21.69	20.77	20.35	19.40
<u>Accrual Operating Expenses</u>					
Hired labor	1.35	2.42	2.78	3.27	4.61
Dairy grain & concentrates	3.78	5.12	5.53	5.81	6.34
Dairy roughage	0.00	0.00	0.09	0.26	1.88
Nondairy feed	0.00	0.00	0.00	0.00	0.04
Professional nutritional services	0.00	0.00	0.00	0.00	0.03
Machinery hire/rent/lease	0.02	0.16	0.48	1.02	2.42
Machinery repair & farm vehicle exp.	0.54	0.73	0.85	1.21	1.58
Fuel	0.40	0.46	0.52	0.58	0.81
Replacement livestock	0.00	0.00	0.00	0.00	0.07
Breeding	0.08	0.20	0.25	0.31	0.40
Veterinary, medicine & hoof care	0.38	0.49	0.59	0.67	0.84
Milk marketing	0.68	0.85	1.02	1.22	1.51
Bedding	0.14	0.30	0.40	0.54	0.71
Milking supplies	0.13	0.26	0.32	0.45	0.79
Cattle lease	0.00	0.00	0.00	0.00	0.00
Custom boarding	0.00	0.00	0.00	0.00	0.46
rBst expense	0.00	0.00	0.00	0.00	0.07
Livestock professional fees	0.00	0.01	0.07	0.11	0.24
Other livestock expense	0.00	0.01	0.07	0.13	0.37
Fertilizer & lime	0.10	0.23	0.33	0.55	0.87
Seeds & plants	0.28	0.39	0.46	0.53	0.63
Spray & other crop expenses	0.04	0.17	0.21	0.28	0.40
Crop professional fees	0.00	0.00	0.02	0.05	0.17
Land, building, fence repair	0.04	0.13	0.17	0.25	0.59
Taxes	0.10	0.20	0.30	0.37	0.56
Real estate rent/lease	0.06	0.19	0.27	0.35	0.65
Insurance	0.13	0.18	0.23	0.28	0.56
Utilities	0.20	0.27	0.35	0.44	0.62
Interest	0.05	0.39	0.71	1.00	1.53
Other professional fees	0.03	0.06	0.09	0.13	0.20
Miscellaneous	0.02	0.06	0.08	0.11	0.19
Total Farm Operating Costs	15.20	16.38	17.42	18.02	20.88
Expansion livestock	0.00	0.00	0.00	0.01	1.15
Extraordinary expenses	0.00	0.00	0.00	0.00	0.02
Machinery depreciation	0.64	0.98	1.25	1.43	1.79
Building depreciation	0.38	0.70	0.90	1.19	1.37
Total farm expense	17.50	18.83	19.61	20.00	23.72
Net Farm Income	3.94	2.30	1.60	0.53	-2.60

Table 54.

PROGRESS OF THE FARM BUSINESSSame 29 Farms Between 225 and 599 Cows, New York State, 2017 & 2017, DFBS³⁵

SELECTED FACTORS	Average of 34 Farms		Percent
	2016	2017	Change
<i>Size of Business</i>			
Average number of cows	393	407	4%
Average number of heifers	336	358	7%
Milk sold, pounds	9,566,756	9,841,238	3%
Worker equivalent	8.9	9.0	0%
Total tillable acres	826	824	0%
<i>Rates of Production</i>			
Milk sold per cow, pounds	24,330	24,168	-1%
Hay DM per acre, tons	3.3	3.40	3%
Corn silage per acre, tons	18.2	18.70	3%
<i>Labor Efficiency</i>			
Cows per worker	44.0	45.3	3%
Milk sold per worker, pounds	1,070,107	1,095,906	2%
<i>Cost Control and Milk Price</i>			
Grain & concentrate per cwt. milk	\$5.54	\$5.46	-1%
Net milk income over purchased grain & conc. per cow	\$2,582	\$2,863	11%
Dairy feed & crop expense per cwt. milk	\$6.92	\$6.90	0%
Labor and machinery costs per cow	\$1,798	\$1,836	2%
Hired labor costs per cwt. milk	\$2.76	\$2.77	0%
Hired labor costs per worker equivalent	\$39,767	\$40,925	3%
Operating cost of producing milk per cwt.	\$14.42	\$14.92	3%
Purchased input cost of producing milk per cwt.	\$16.51	\$17.03	3%
Total cost of producing milk per cwt.	\$19.60	\$20.13	3%
Net milk price	\$16.25	\$17.43	7%
<i>Capital Efficiency (average for year)</i>			
Farm capital per cow	\$12,551	\$12,658	1%
Machinery and equipment per cow	\$2,388	\$2,375	-1%
Asset turnover ratio	0.4	0.42	5%
<i>Profitability</i>			
Net farm income without appreciation	\$65,611	\$146,911	124%
Net farm income without appreciation per cow	\$167	\$361	116%
Net farm income with appreciation	\$147,085	\$255,209	74%
Net farm income with appreciation per cow	\$374	\$627	68%
Labor & management income per operator/manager	-\$58,701	-\$18,957	68%
Rate return on equity capital with appreciation	0.8%	3.6%	350%
Rate return on equity capital without appreciation	-1.5%	0.7%	145%
Rate return on all capital with appreciation	1.7%	3.8%	124%
Rate return on all capital without appreciation	0.0%	1.7%	32611%
<i>Financial Summary (based on market value, excluding deferred taxes)</i>			
Farm net worth, end year	\$3,549,154	\$3,702,106	4%
Debt to asset ratio	0.29	0.29	0%
Farm debt per cow	\$3,724	\$3,453	-7%
Debt coverage ratio	1.1	1.56	42%

³⁵ Farm participating both years

Table 55.

RECEIPTS & EXPENSES PER COW AND PER HUNDREDWEIGHTSame 29 Farms Between 225 and 599 Cows, New York State, 2016 & 2017, DFBS³⁵

Item	2016		2017		% Change Per Cwt.
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	
Average number of cows	393		407		4%
Cwt. of milk sold		95,668		98,412	3%
ACCRUAL OPERATING RECEIPTS					
Milk	\$4,184	\$17.20	\$4,476	\$18.52	8%
Dairy cattle	\$331	\$1.36	\$367	\$1.52	12%
Dairy calves	\$66	\$0.27	\$39	\$0.16	-41%
Other livestock	\$16	\$0.06	\$8	\$0.04	-33%
Crops	\$91	\$0.37	\$72	\$0.30	-19%
Miscellaneous receipts	<u>\$121</u>	<u>\$0.50</u>	<u>\$107</u>	<u>\$0.44</u>	-12%
Total Operating Receipts	\$4,808	\$19.76	\$5,070	\$20.98	6%
ACCRUAL OPERATING EXPENSES					
Hired labor	\$671	\$2.76	\$670	\$2.77	0%
Dairy grain & concentrate	\$1,348	\$5.54	\$1,319	\$5.46	-1%
Dairy roughage	\$50	\$0.20	\$79	\$0.33	65%
Nondairy feed	\$4	\$0.02	\$1	\$0.01	-50%
Professional nutritional services	\$2	\$0.01	\$1	\$0.00	-100%
Machine hire, rent & lease	\$158	\$0.65	\$195	\$0.81	25%
Machine repair & vehicle expense	\$226	\$0.93	\$221	\$0.91	-2%
Fuel, oil & grease	\$113	\$0.47	\$127	\$0.52	11%
Replacement livestock	\$4	\$0.02	\$2	\$0.01	-50%
Breeding	\$66	\$0.27	\$62	\$0.25	-7%
Veterinary & medicine	\$155	\$0.64	\$149	\$0.62	-3%
Milk marketing	\$230	\$0.95	\$264	\$1.09	15%
Bedding	\$90	\$0.37	\$95	\$0.39	5%
Milking supplies	\$89	\$0.37	\$88	\$0.37	0%
Cattle lease	\$0	\$0.00	\$0	\$0.00	NA
Custom boarding	\$28	\$0.12	\$25	\$0.10	-17%
BST expense	\$15	\$0.06	\$3	\$0.01	-83%
Livestock professional fees	\$17	\$0.07	\$18	\$0.07	0%
Other livestock expense	\$20	\$0.08	\$27	\$0.11	38%
Fertilizer & lime	\$127	\$0.52	\$95	\$0.39	-25%
Seeds & plants	\$111	\$0.45	\$110	\$0.45	0%
Spray & other crop expense	\$45	\$0.19	\$55	\$0.23	21%
Crop professional fees	\$4	\$0.02	\$9	\$0.04	100%
Land, building & fence repair	\$61	\$0.25	\$58	\$0.24	-4%
Taxes	\$72	\$0.30	\$69	\$0.29	-3%
Real estate rent & lease	\$68	\$0.28	\$69	\$0.28	0%
Insurance	\$55	\$0.23	\$55	\$0.23	0%
Utilities	\$91	\$0.37	\$88	\$0.36	-3%
Interest paid	\$134	\$0.55	\$157	\$0.65	18%
Other professional fees	\$25	\$0.10	\$24	\$0.10	0%
Miscellaneous	<u>\$20</u>	<u>\$0.08</u>	<u>\$22</u>	<u>\$0.09</u>	13%
Total Operating Expenses	\$4,100	\$16.85	\$4,157	\$17.20	2%
Expansion livestock	\$33	\$0.14	\$42	\$0.17	21%
Extraordinary expenses	\$0	\$0.00	\$0	\$0.00	NA
Machinery depreciation	\$306	\$1.26	\$294	\$1.22	-3%
Real estate depreciation	<u>\$202</u>	<u>\$0.83</u>	<u>\$215</u>	<u>\$0.89</u>	7%
Total Expenses	\$4,641	\$19.08	\$4,708	\$19.48	2%
Net Farm Income w/o Appreciation	\$167	\$0.69	\$361	\$1.49	116%

Table 56.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS

30 Farms Between 225 and 599 Cows, New York State, 2017, 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)
13.2	555	14,248,055	28,361	5.0	24.0	65.5	1,559,639
10.7	482	12,165,652	26,670	3.7	20.2	50.8	1,244,741
8.4	435	11,114,652	25,544	3.4	18.4	45.2	1,072,017
7.3	327	7,263,661	23,869	3.0	16.7	40.5	933,576
5.5	246	4,742,678	15,647	1.9	9.3	32.8	712,340

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)
\$719	\$3.78	20	\$610	\$1,285	\$1,046	\$5.81	\$30,518
\$1,227	\$5.12	28	\$824	\$1,723	\$1,561	\$6.53	\$34,959
\$1,412	\$5.53	30	\$933	\$1,906	\$1,711	\$6.84	\$39,674
\$1,558	\$5.81	31	\$1,070	\$2,015	\$1,877	\$7.41	\$43,964
\$1,656	\$6.34	34	\$1,265	\$2,230	\$2,134	\$7.90	\$55,485

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)
\$5,298	\$19.39	\$12.21	\$18.02	5.5	\$447,686	\$88,132	\$464,804
\$4,956	\$18.85	\$14.15	\$19.26	3.0	\$245,811	\$29,754	\$227,834
\$4,746	\$18.54	\$14.99	\$20.17	1.8	\$159,038	-\$10,135	\$113,423
\$4,353	\$18.20	\$15.74	\$21.32	0.3	\$39,675	-\$59,399	\$41,677
\$2,867	\$17.72	\$19.20	\$24.67	-3.4	-\$117,845	-\$234,235	-\$193,451

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)
\$8,376	\$1,109	0.56	0.70	15.77	\$41	98	53
\$11,100	\$1,587	0.49	0.75	1.84	\$280	82	33
\$12,342	\$2,479	0.43	0.81	1.29	\$491	69	23
\$14,361	\$2,956	0.38	0.85	0.89	\$711	57	13
\$17,627	\$3,682	0.30	0.95	-0.20	\$995	40	-11

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

Table 57.

SELECTED PRODUCTION AND FINANCIAL FACTORS

32 Farms Between 600 and 899 Cows, New York State, 2017

Item	QUINTILE				
	1	2	3	4	5
Size of Business					
Average Cows	640	733	783	841	884
Average Heifers	361	590	659	731	830
Acres per Cow	1.08	1.97	2.17	2.40	3.08
Number of Worker Equivalents	12.1	15.7	17.0	19.2	21.8
Number of Owner Operators	1.2	2.0	2.4	3.1	4.6
Rates of Production					
Milk Sold per Cow	28,623	27,371	26,071	24,343	20,241
Hay DM per Acre, Tons	4.6	4.0	3.3	2.8	1.8
Corn Silage per Acre, Tons	21.5	19.1	17.3	15.4	9.1
Percent Butterfat	4.4	4.0	3.9	3.8	3.2
Percent Protein	3.4	3.2	3.1	3.1	2.6
Cull Rate, Percent	24.1	33.9	35.8	38.5	43.7
Labor Efficiency					
Cows per Worker	63.5	50.0	46.3	41.9	36.1
Milk Sold per Worker	1,533,214	1,305,634	1,162,198	1,039,970	892,803
Cost Control					
Dairy Feed & Crop Expense per Cwt. Milk	6.24	7.07	7.61	8.05	8.97
Labor & Machinery Costs per Cow	1,306	1,617	1,779	1,922	2,101
Hired Labor Cost per Cwt.	1.96	2.45	3.03	3.37	4.00
Hired Labor Costs per Worker Equivalent	34,517	37,823	39,666	41,280	46,049
Crop Input Costs per Acre	78	122	140	178	249
Machinery Costs per Acre	194	327	411	459	626
Operating cost of Producing Milk per Cwt.	13.44	14.42	16.12	16.91	18.61
Purch. Input Cost of Producing Milk per Cwt.	15.21	16.28	17.20	18.08	20.25
Total Cost of Producing Milk per Cwt.	17.57	18.98	19.76	20.26	22.54
Operating Expense Ratio	0.74	0.78	0.83	0.90	0.96
Capital Efficiency					
Farm Capital Per Cow	7,174	10,463	12,343	13,311	15,468
Machinery and Equipment per Cow	765	1,518	1,808	2,401	2,975
Real Estate per Cow	2,315	4,208	5,046	6,666	8,090
Asset Turnover Ratio	0.89	0.53	0.48	0.43	0.37
Working Capital as % of Tot. Oper. Expense	40	23	17	11	-15
Profitability					
Labor & Management Income per Operator	238,616	60,364	12,301	-50,991	-235,345
Rate Return on Equity Capital w/o Apprec.	10.98	5.02	2.21	-0.64	-7.65
Rate Return on All Capital w/o Apprec.	8.60	4.14	2.71	0.83	-2.02
Financial Summary(based on market value, excluding deferred taxes)					
Debt to Asset Ratio	0.16	0.32	0.41	0.48	0.69
Farm Debt per Cow	1,988	3,398	4,706	5,363	7,252
Debt Coverage Ratio	4.00	2.10	1.08	0.62	0.18

Table 58.

RECEIPTS AND EXPENSES PER COW

32 Farms Between 600 and 899 Cows, New York State, 2017

Item	QUINTILE				
	1	2	3	4	5
Average Cows	640	733	783	841	884
Cwt. of Milk Sold	145,833	180,613	193,221	216,300	245,138
<u>Accrual Operating Receipts</u>					
Milk	5,410	5,042	4,722	4,469	3,925
Dairy cattle	600	408	330	265	141
Dairy calves	114	59	49	35	13
Other livestock	56	3	0	0	-3
Crops	577	238	85	13	-133
Miscellaneous receipts	492	173	135	104	15
Total Receipts	6,436	5,751	5,479	5,111	4,442
<u>Accrual Operating Expenses</u>					
Hired labor	480	632	758	818	986
Dairy grain & concentrates	1,140	1,377	1,525	1,655	1,836
Dairy roughage	0	4	26	60	328
Nondairy feed	0	0	0	0	0
Professional nutritional services	0	0	0	0	6
Machinery hire/rent/lease	23	115	168	271	409
Machinery repair & farm vehicle exp.	113	187	230	271	359
Fuel	68	110	134	150	189
Replacement livestock	0	0	0	0	118
Breeding	23	52	65	74	110
Veterinary, medicine & hoof care	108	150	175	199	239
Milk marketing	186	240	272	323	380
Bedding	37	87	110	148	184
Milking supplies	38	76	92	113	138
Cattle lease	0	0	0	0	14
Custom boarding	0	0	55	193	518
rBst expense	0	0	0	3	32
Livestock professional fees	4	14	17	21	36
Other livestock expense	0	0	12	20	48
Fertilizer & lime	27	61	99	144	218
Seeds & plants	68	110	132	159	204
Spray & other crop expenses	11	38	59	87	161
Crop professional fees	0	0	5	12	71
Land, building, fence repair	21	40	54	68	92
Taxes	23	46	64	82	117
Real estate rent/lease	22	45	70	109	213
Insurance	26	35	46	51	71
Utilities	49	70	92	103	139
Interest	70	127	172	209	293
Other professional fees	9	17	24	37	62
Miscellaneous	12	18	26	35	52
Total Farm Operating Costs	3,881	4,435	4,599	4,931	5,530
Expansion livestock	0	0	0	2	150
Extraordinary expenses	0	0	0	0	2
Machinery depreciation	61	155	249	325	387
Building depreciation	45	119	160	184	257
Total farm expense	4,264	4,861	5,008	5,409	5,860
Net Farm Income	930	664	392	184	-269

Table 59.

RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD
 32 Farms Between 600 and 899 Cows, New York State, 2017

Item	QUINTILE				
	1	2	3	4	5
Average Cows	640	733	783	841	884
Cwt. of Milk Sold	145,833	180,613	193,221	216,300	245,138
<u>Accrual Operating Receipts</u>					
Milk	20.62	18.79	18.48	18.24	17.62
Dairy cattle	2.37	1.69	1.30	1.08	0.58
Dairy calves	0.50	0.23	0.19	0.14	0.05
Other livestock	0.32	0.01	0.00	0.00	-0.01
Crops	2.20	0.95	0.39	0.05	-0.54
Miscellaneous receipts	2.03	0.75	0.56	0.40	0.06
Total Receipts	25.05	23.01	21.17	20.25	19.24
<u>Accrual Operating Expenses</u>					
Hired labor	1.96	2.45	3.03	3.37	4.00
Dairy grain & concentrates	4.81	5.60	5.96	6.31	7.14
Dairy roughage	0.00	0.02	0.10	0.23	1.27
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	0.09	0.44	0.70	1.04	1.75
Machinery repair & farm vehicle exp.	0.46	0.74	0.92	1.07	1.50
Fuel	0.26	0.42	0.53	0.64	0.77
Replacement livestock	0.00	0.00	0.00	0.00	0.46
Breeding	0.09	0.19	0.25	0.32	0.43
Veterinary, medicine & hoof care	0.46	0.58	0.69	0.78	0.95
Milk marketing	0.74	0.95	1.18	1.30	1.48
Bedding	0.15	0.34	0.40	0.58	0.77
Milking supplies	0.16	0.29	0.36	0.44	0.57
Cattle lease	0.00	0.00	0.00	0.00	0.05
Custom boarding	0.00	0.00	0.21	0.82	1.98
rBst expense	0.00	0.00	0.00	0.01	0.13
Livestock professional fees	0.02	0.06	0.07	0.08	0.15
Other livestock expense	0.00	0.00	0.05	0.09	0.21
Fertilizer & lime	0.10	0.24	0.41	0.57	0.96
Seeds & plants	0.28	0.43	0.51	0.63	0.85
Spray & other crop expenses	0.05	0.15	0.23	0.34	0.66
Crop professional fees	0.00	0.00	0.02	0.06	0.30
Land, building, fence repair	0.09	0.16	0.20	0.25	0.39
Taxes	0.09	0.18	0.25	0.34	0.50
Real estate rent/lease	0.09	0.17	0.28	0.46	0.84
Insurance	0.10	0.14	0.19	0.22	0.28
Utilities	0.22	0.29	0.34	0.40	0.54
Interest	0.26	0.50	0.70	0.91	1.21
Other professional fees	0.04	0.07	0.10	0.14	0.25
Miscellaneous	0.05	0.08	0.10	0.14	0.22
Total Farm Operating Costs	15.91	17.49	18.96	19.66	21.56
Expansion livestock	0.00	0.00	0.00	0.01	0.57
Extraordinary expenses	0.00	0.00	0.00	0.00	0.01
Machinery depreciation	0.25	0.59	0.95	1.32	1.64
Building depreciation	0.19	0.49	0.62	0.75	1.05
Total farm expense	17.64	19.15	20.17	20.93	23.81
Net Farm Income	3.76	2.61	1.51	0.77	-1.14

Table 60.

PROGRESS OF THE FARM BUSINESSSame 30 Farms Between 600 and 899 Cows, New York State, 2016 & 2017, DFBS³⁷

SELECTED FACTORS	Average of 34 Farms		Percent
	2016	2017	Change
<i>Size of Business</i>			
Average number of cows	736	766	4%
Average number of heifers	603	612	1%
Milk sold, pounds	18,638,742	19,248,195	3%
Worker equivalent	16.4	16.7	2%
Total tillable acres	1,594	1,643	3%
<i>Rates of Production</i>			
Milk sold per cow, pounds	25,327	25,130	-1%
Hay DM per acre, tons	3.2	3.20	0%
Corn silage per acre, tons	17.9	17.30	-3%
<i>Labor Efficiency</i>			
Cows per worker	45.0	45.8	2%
Milk sold per worker, pounds	1,139,984	1,151,208	1%
<i>Cost Control and Milk Price</i>			
Grain & concentrate per cwt. milk	\$5.96	\$5.91	-1%
Net milk income over purchased grain & conc. per cow	\$2,563	\$2,903	13%
Dairy feed & crop expense per cwt. milk	\$7.63	\$7.44	-2%
Labor and machinery costs per cow	\$1,667	\$1,732	4%
Hired labor costs per cwt. milk	\$2.74	\$2.86	4%
Hired labor costs per worker equivalent	\$37,861	\$40,105	6%
Operating cost of producing milk per cwt.	\$15.17	\$15.58	3%
Purchased input cost of producing milk per cwt.	\$16.75	\$17.15	2%
Total cost of producing milk per cwt.	\$19.20	\$19.61	2%
Net milk price	\$16.11	\$17.50	9%
<i>Capital Efficiency (average for year)</i>			
Farm capital per cow	\$11,672	\$11,682	0%
Machinery and equipment per cow	\$1,889	\$1,873	-1%
Asset turnover ratio	0.45	0.48	7%
<i>Profitability</i>			
Net farm income without appreciation	\$64,684	\$276,765	328%
Net farm income without appreciation per cow	\$88	\$361	310%
Net farm income with appreciation	\$162,189	\$442,052	173%
Net farm income with appreciation per cow	\$220	\$577	162%
Labor & management income per operator/manager	-\$84,347	-\$2,647	97%
Rate return on equity capital with appreciation	-0.2%	4.5%	-2350%
Rate return on equity capital without appreciation	-2.0%	1.6%	180%
Rate return on all capital with appreciation	1.1%	4.3%	291%
Rate return on all capital without appreciation	0.0%	2.5%	-23890%
<i>Financial Summary (based on market value, excluding deferred taxes)</i>			
Farm net worth, end year	\$5,531,821	\$5,710,593	3%
Debt to asset ratio	0.36	0.38	6%
Farm debt per cow	\$4,023	\$4,478	11%
Debt coverage ratio	0.36	1.18	228%

³⁷ Farm participating both years

Table 61.

RECEIPTS & EXPENSES PER COW AND PER HUNDREDWEIGHTSame 30 Farms Between 600 and 899 Cows, New York State, 2016 & 2017, DFBS³⁷

Item	2016		2017		% Change Per Cwt.
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	
Average number of cows	736		766		4%
Cwt. of milk sold		186,387		192,482	3%
ACCRUAL OPERATING RECEIPTS					
Milk	\$4,330	\$17.10	\$4,672	\$18.59	9%
Dairy cattle	\$369	\$1.46	\$333	\$1.32	-10%
Dairy calves	\$42	\$0.17	\$53	\$0.21	24%
Other livestock	-\$7	-\$0.03	\$10	\$0.04	-233%
Crops	\$154	\$0.61	\$121	\$0.48	-21%
Miscellaneous receipts	<u>\$209</u>	<u>\$0.83</u>	<u>\$184</u>	<u>\$0.73</u>	-12%
Total Operating Receipts	\$5,098	\$20.13	\$5,373	\$21.38	6%
ACCRUAL OPERATING EXPENSES					
Hired labor	\$693	\$2.74	\$718	\$2.86	4%
Dairy grain & concentrate	\$1,510	\$5.96	\$1,484	\$5.91	-1%
Dairy roughage	\$83	\$0.33	\$60	\$0.24	-27%
Nondairy feed	\$0	\$0.00	\$0	\$0.00	NA
Professional nutritional services	\$1	\$0.00	\$1	\$0.00	NA
Machine hire, rent & lease	\$161	\$0.63	\$170	\$0.68	8%
Machine repair & vehicle expense	\$232	\$0.91	\$232	\$0.92	1%
Fuel, oil & grease	\$111	\$0.44	\$130	\$0.52	18%
Replacement livestock	\$42	\$0.17	\$19	\$0.07	-59%
Breeding	\$57	\$0.22	\$61	\$0.24	9%
Veterinary & medicine	\$173	\$0.68	\$172	\$0.68	0%
Milk marketing	\$249	\$0.99	\$274	\$1.09	10%
Bedding	\$107	\$0.42	\$106	\$0.42	0%
Milking supplies	\$81	\$0.32	\$89	\$0.36	13%
Cattle lease	\$4	\$0.01	\$3	\$0.01	0%
Custom boarding	\$120	\$0.48	\$131	\$0.52	8%
BST expense	\$26	\$0.10	\$7	\$0.03	-70%
Livestock professional fees	\$17	\$0.07	\$18	\$0.07	0%
Other livestock expense	\$21	\$0.08	\$15	\$0.06	-25%
Fertilizer & lime	\$141	\$0.56	\$110	\$0.44	-21%
Seeds & plants	\$118	\$0.46	\$132	\$0.53	15%
Spray & other crop expense	\$73	\$0.29	\$69	\$0.27	-7%
Crop professional fees	\$9	\$0.04	\$14	\$0.06	50%
Land, building & fence repair	\$65	\$0.26	\$56	\$0.22	-15%
Taxes	\$64	\$0.25	\$65	\$0.26	4%
Real estate rent & lease	\$83	\$0.33	\$86	\$0.34	3%
Insurance	\$47	\$0.19	\$44	\$0.18	-5%
Utilities	\$91	\$0.36	\$90	\$0.36	0%
Interest paid	\$148	\$0.58	\$172	\$0.68	17%
Other professional fees	\$28	\$0.11	\$29	\$0.11	0%
Miscellaneous	<u>\$30</u>	<u>\$0.12</u>	<u>\$28</u>	<u>\$0.11</u>	-8%
Total Operating Expenses	\$4,583	\$18.10	\$4,586	\$18.25	1%
Expansion livestock	\$27	\$0.10	\$31	\$0.13	30%
Extraordinary expenses	\$0	\$0.00	\$0	\$0.00	NA
Machinery depreciation	\$239	\$0.94	\$242	\$0.96	2%
Real estate depreciation	<u>\$161</u>	<u>\$0.64</u>	<u>\$153</u>	<u>\$0.61</u>	-5%
Total Expenses	\$5,010	\$19.78	\$5,012	\$19.95	1%
Net Farm Income w/o Appreciation	\$88	\$0.35	\$361	\$1.44	311%

Table 62.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS

32 Farms Between 600 and 899 Cows, New York State, 2017, 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)
21.8	884	24,513,780	28,623	4.6	21.5	63.5	1,533,214
19.2	841	21,630,031	27,371	4.0	19.1	50.0	1,305,634
17.0	783	19,322,140	26,071	3.3	17.3	46.3	1,162,198
15.7	733	18,061,321	24,343	2.8	15.4	41.9	1,039,970
12.1	640	14,583,282	20,241	1.8	9.1	36.1	892,803

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)
\$1,140	\$4.81	26	\$589	\$1,306	\$1,463	\$6.24	\$34,517
\$1,377	\$5.60	30	\$785	\$1,617	\$1,765	\$7.07	\$37,823
\$1,525	\$5.96	32	\$894	\$1,779	\$1,895	\$7.61	\$39,666
\$1,655	\$6.31	34	\$963	\$1,922	\$2,075	\$8.05	\$41,280
\$1,836	\$7.14	39	\$1,146	\$2,101	\$2,354	\$8.97	\$46,049

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)
\$5,410	\$20.62	\$13.44	\$17.57	8.6	\$774,989	\$238,616	\$663,415
\$5,042	\$18.79	\$14.42	\$18.98	4.1	\$494,499	\$60,364	\$328,213
\$4,722	\$18.48	\$16.12	\$19.76	2.7	\$297,546	\$12,301	\$77,205
\$4,469	\$18.24	\$16.91	\$20.26	0.8	\$141,200	-\$50,991	-\$11,868
\$3,925	\$17.62	\$18.61	\$22.54	-2.0	-\$201,507	-\$235,345	-\$373,227

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)
\$7,174	\$765	0.89	0.74	4.00	\$102	85	40
\$10,463	\$1,518	0.53	0.78	2.10	\$410	70	23
\$12,343	\$1,808	0.48	0.83	1.08	\$579	62	17
\$13,311	\$2,401	0.43	0.90	0.62	\$708	54	11
\$15,468	\$2,975	0.37	0.96	0.18	\$927	34	-15

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

Table 63.

SELECTED PRODUCTION AND FINANCIAL FACTORS

33 Farms Between 900 and 1,299 Cows, New York State, 2017

Item	QUINTILE				
	1	2	3	4	5
Size of Business					
Average Cows	923	1,012	1,090	1,176	1,271
Average Heifers	795	871	953	1,041	1,154
Acres per Cow	1.00	1.59	1.95	2.24	2.71
Number of Worker Equivalents	18.6	21.3	23.7	25.7	30.0
Number of Owner Operators	1.1	1.6	2.0	2.6	4.2
Rates of Production					
Milk Sold per Cow	28,825	27,651	26,750	26,112	25,126
Hay DM per Acre, Tons	5.0	4.2	3.6	3.2	2.0
Corn Silage per Acre, Tons	23.2	21.5	19.7	17.5	13.1
Percent Butterfat	4.0	3.9	3.8	3.8	3.7
Percent Protein	3.2	3.1	3.1	3.1	3.0
Cull Rate, Percent	25.6	33.1	35.6	37.8	42.2
Labor Efficiency					
Cows per Worker	59.8	50.2	46.4	43.1	37.6
Milk Sold per Worker	1,625,883	1,383,780	1,237,964	1,132,602	992,065
Cost Control					
Dairy Feed & Crop Expense per Cwt. Milk	6.20	6.83	7.48	7.85	8.75
Labor & Machinery Costs per Cow	1,377	1,725	1,855	1,991	2,192
Hired Labor Cost per Cwt.	2.16	2.71	3.18	3.40	4.13
Hired Labor Costs per Worker Equivalent	35,604	38,203	41,790	44,744	51,262
Crop Input Costs per Acre	99	133	153	176	217
Machinery Costs per Acre	357	441	484	538	776
Operating cost of Producing Milk per Cwt.	13.17	13.81	15.62	16.93	18.00
Purch. Input Cost of Producing Milk per Cwt.	14.79	15.94	17.18	18.39	19.38
Total Cost of Producing Milk per Cwt.	16.99	18.46	19.10	19.92	21.29
Operating Expense Ratio	0.73	0.76	0.83	0.88	0.93
Capital Efficiency					
Farm Capital Per Cow	8,585	10,997	12,606	13,313	16,163
Machinery and Equipment per Cow	801	1,662	2,012	2,390	2,788
Real Estate per Cow	2,987	4,273	5,700	6,330	8,720
Asset Turnover Ratio	0.69	0.57	0.50	0.45	0.39
Working Capital as % of Tot. Oper. Expense	48	30	20	9	-9
Profitability					
Labor & Management Income per Operator	497,810	98,352	-20,058	-124,470	-282,193
Rate Return on Equity Capital w/o Apprec.	10.73	5.88	2.47	-0.81	-6.25
Rate Return on All Capital w/o Apprec.	8.68	5.33	3.19	1.23	-0.43
Financial Summary(based on market value, excluding deferred taxes)					
Debt to Asset Ratio	0.17	0.33	0.40	0.47	0.60
Farm Debt per Cow	1,935	3,996	4,814	5,600	7,105
Debt Coverage Ratio	7.45	1.95	1.09	0.74	0.24

Table 64.

RECEIPTS AND EXPENSES PER COW

33 Farms Between 900 and 1,299 Cows, New York State, 2017

Item	QUINTILE				
	1	2	3	4	5
Average Cows	923	1,012	1,090	1,176	1,271
Cwt. of Milk Sold	242,941	272,285	294,692	313,828	342,978
<u>Accrual Operating Receipts</u>					
Milk	5,321	5,166	4,970	4,827	4,621
Dairy cattle	755	473	368	284	197
Dairy calves	173	72	48	22	6
Other livestock	206	3	0	0	-6
Crops	504	289	150	16	-173
Miscellaneous receipts	312	180	134	108	74
Total Receipts	6,551	5,947	5,778	5,468	5,220
<u>Accrual Operating Expenses</u>					
Hired labor	572	738	855	922	1,080
Dairy grain & concentrates	1,274	1,495	1,591	1,658	1,819
Dairy roughage	6	29	59	97	462
Nondairy feed	0	0	0	0	2
Professional nutritional services	0	0	0	0	17
Machinery hire/rent/lease	13	57	128	214	362
Machinery repair & farm vehicle exp.	150	224	263	317	420
Fuel	84	122	135	160	214
Replacement livestock	0	0	0	0	32
Breeding	18	40	53	69	104
Veterinary, medicine & hoof care	112	151	172	190	229
Milk marketing	180	266	308	335	422
Bedding	24	77	103	129	181
Milking supplies	55	72	94	126	189
Cattle lease	0	0	0	0	1
Custom boarding	0	0	19	157	457
rBst expense	0	0	0	21	51
Livestock professional fees	5	15	17	20	38
Other livestock expense	0	1	16	37	67
Fertilizer & lime	18	66	92	122	195
Seeds & plants	71	106	119	149	195
Spray & other crop expenses	12	44	64	82	143
Crop professional fees	0	0	9	15	33
Land, building, fence repair	34	68	80	99	142
Taxes	29	43	61	75	103
Real estate rent/lease	26	55	81	117	171
Insurance	26	36	45	57	67
Utilities	49	76	103	121	145
Interest	64	159	200	234	308
Other professional fees	10	18	31	41	61
Miscellaneous	10	20	25	44	71
Total Farm Operating Costs	4,183	4,619	4,865	5,216	5,683
Expansion livestock	0	0	0	4	221
Extraordinary expenses	0	0	0	0	29
Machinery depreciation	113	218	262	315	402
Building depreciation	56	135	186	237	308
Total farm expense	4,646	5,093	5,353	5,631	6,254
Net Farm Income	1,092	729	378	98	-137

Table 65.

RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD

33 Farms Between 900 and 1,299 Cows, New York State, 2017

Item	QUINTILE				
	1	2	3	4	5
Average Cows	923	1,012	1,090	1,176	1,271
Cwt. of Milk Sold	242,941	272,285	294,692	313,828	342,978
<u>Accrual Operating Receipts</u>					
Milk	19.32	18.80	18.55	18.28	17.82
Dairy cattle	2.81	1.80	1.37	1.07	0.73
Dairy calves	0.63	0.27	0.18	0.09	0.02
Other livestock	0.74	0.01	0.00	0.00	-0.02
Crops	1.90	1.07	0.58	0.06	-0.67
Miscellaneous receipts	1.19	0.68	0.50	0.41	0.27
Total Receipts	24.06	22.13	21.19	20.67	19.94
<u>Accrual Operating Expenses</u>					
Hired labor	2.16	2.71	3.18	3.40	4.13
Dairy grain & concentrates	4.81	5.53	5.89	6.23	6.79
Dairy roughage	0.02	0.11	0.22	0.37	1.66
Nondairy feed	0.00	0.00	0.00	0.00	0.01
Professional nutritional services	0.00	0.00	0.00	0.00	0.06
Machinery hire/rent/lease	0.05	0.22	0.47	0.82	1.35
Machinery repair & farm vehicle exp.	0.55	0.82	0.98	1.21	1.60
Fuel	0.30	0.46	0.51	0.61	0.80
Replacement livestock	0.00	0.00	0.00	0.00	0.11
Breeding	0.07	0.14	0.20	0.27	0.39
Veterinary, medicine & hoof care	0.43	0.56	0.63	0.69	0.88
Milk marketing	0.69	0.99	1.16	1.23	1.56
Bedding	0.09	0.29	0.38	0.47	0.68
Milking supplies	0.20	0.27	0.35	0.47	0.70
Cattle lease	0.00	0.00	0.00	0.00	0.00
Custom boarding	0.00	0.00	0.07	0.59	1.65
rBst expense	0.00	0.00	0.00	0.08	0.19
Livestock professional fees	0.02	0.05	0.06	0.08	0.15
Other livestock expense	0.00	0.00	0.06	0.14	0.25
Fertilizer & lime	0.07	0.24	0.35	0.46	0.72
Seeds & plants	0.27	0.40	0.44	0.57	0.72
Spray & other crop expenses	0.04	0.16	0.24	0.31	0.55
Crop professional fees	0.00	0.00	0.03	0.06	0.13
Land, building, fence repair	0.12	0.25	0.31	0.36	0.53
Taxes	0.11	0.16	0.22	0.29	0.39
Real estate rent/lease	0.09	0.21	0.31	0.43	0.63
Insurance	0.10	0.13	0.17	0.21	0.26
Utilities	0.18	0.28	0.38	0.46	0.55
Interest	0.23	0.60	0.74	0.90	1.15
Other professional fees	0.04	0.07	0.11	0.16	0.22
Miscellaneous	0.04	0.07	0.09	0.17	0.26
Total Farm Operating Costs	15.83	16.86	18.67	19.28	21.01
Expansion livestock	0.00	0.00	0.00	0.02	0.81
Extraordinary expenses	0.00	0.00	0.00	0.00	0.11
Machinery depreciation	0.41	0.82	0.99	1.16	1.53
Building depreciation	0.21	0.49	0.72	0.91	1.12
Total farm expense	17.23	19.11	20.26	20.86	23.19
Net Farm Income	4.09	2.65	1.41	0.37	-0.52

Table 66.

PROGRESS OF THE FARM BUSINESSSame 30 Farms Between 900 and 1,299 Cows, New York State, 2016 & 2017, DFBS³⁹

SELECTED FACTORS	Average of 29 Farms		Percent
	2016	2017	Change
<i>Size of Business</i>			
Average number of cows	1,041	1,086	4%
Average number of heifers	909	956	5%
Milk sold, pounds	28,323,252	29,090,226	3%
Worker equivalent	22.7	23.3	3%
Total tillable acres	1,929	2,000	4%
<i>Rates of Production</i>			
Milk sold per cow, pounds	27,221	26,787	-2%
Hay DM per acre, tons	3.4	3.60	6%
Corn silage per acre, tons	18.6	18.90	2%
<i>Labor Efficiency</i>			
Cows per worker	45.9	46.6	2%
Milk sold per worker, pounds	1,249,372	1,249,580	0%
<i>Cost Control and Milk Price</i>			
Grain & concentrate per cwt. milk	\$5.80	\$5.82	0%
Net milk income over purchased grain & conc. per cow	\$2,820	\$3,109	10%
Dairy feed & crop expense per cwt. milk	\$7.27	\$7.40	2%
Labor and machinery costs per cow	\$1,695	\$1,781	5%
Hired labor costs per cwt. milk	\$2.90	\$3.04	5%
Hired labor costs per worker equivalent	\$40,690	\$42,392	4%
Operating cost of producing milk per cwt.	\$14.86	\$15.22	2%
Purchased input cost of producing milk per cwt.	\$16.42	\$16.88	3%
Total cost of producing milk per cwt.	\$18.46	\$18.93	3%
Net milk price	\$16.16	\$17.44	8%
<i>Capital Efficiency (average for year)</i>			
Farm capital per cow	\$12,226	\$12,257	0%
Machinery and equipment per cow	\$1,921	\$1,872	-3%
Asset turnover ratio	0.46	0.50	9%
<i>Profitability</i>			
Net farm income without appreciation	\$202,839	\$484,960	139%
Net farm income without appreciation per cow	\$195	\$447	129%
Net farm income with appreciation	\$418,632	\$816,051	95%
Net farm income with appreciation per cow	\$402	\$751	87%
Labor & management income per operator/manager	-\$86,981	\$29,608	134%
Rate return on equity capital with appreciation	3.0%	7.6%	153%
Rate return on equity capital without appreciation	0.3%	3.7%	-974%
Rate return on all capital with appreciation	3.3%	6.3%	91%
Rate return on all capital without appreciation	1.5%	3.8%	146%
<i>Financial Summary (based on market value, excluding deferred taxes)</i>			
Farm net worth, end year	\$8,106,714	\$8,608,841	6%
Debt to asset ratio	0.37	0.37	0%
Farm debt per cow	\$4,509	\$4,572	1%
Debt coverage ratio	0.83	1.28	54%

³⁹ Farm participating both years

Table 67.

RECEIPTS & EXPENSES PER COW AND PER HUNDREDWEIGHTSame 30 Farms Between 900 and 1,299 Cows, New York State, 2016 & 2017, DFBS³⁹

Item	2016		2017		% Change Per Cwt.
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	
Average number of cows	1,041		1,086		4%
Cwt. of milk sold		283,233		290,902	3%
ACCRUAL OPERATING RECEIPTS					
Milk	\$4,664	\$17.13	\$4,969	\$18.55	8%
Dairy cattle	\$403	\$1.48	\$411	\$1.53	3%
Dairy calves	\$52	\$0.19	\$64	\$0.24	26%
Other livestock	\$42	\$0.15	\$37	\$0.14	-7%
Crops	\$87	\$0.32	\$153	\$0.57	78%
Miscellaneous receipts	<u>\$165</u>	<u>\$0.61</u>	<u>\$162</u>	<u>\$0.60</u>	-2%
Total Operating Receipts	\$5,413	\$19.88	\$5,795	\$21.63	9%
ACCRUAL OPERATING EXPENSES					
Hired labor	\$789	\$2.90	\$815	\$3.04	5%
Dairy grain & concentrate	\$1,580	\$5.80	\$1,560	\$5.82	0%
Dairy roughage	\$112	\$0.41	\$127	\$0.47	15%
Nondairy feed	\$0	\$0.00	\$0	\$0.00	NA
Professional nutritional services	\$2	\$0.01	\$3	\$0.01	0%
Machine hire, rent & lease	\$138	\$0.51	\$154	\$0.58	14%
Machine repair & vehicle expense	\$227	\$0.83	\$251	\$0.94	13%
Fuel, oil & grease	\$121	\$0.44	\$135	\$0.50	14%
Replacement livestock	\$5	\$0.02	\$6	\$0.02	0%
Breeding	\$58	\$0.21	\$53	\$0.20	-5%
Veterinary & medicine	\$175	\$0.64	\$169	\$0.63	-2%
Milk marketing	\$264	\$0.97	\$296	\$1.11	14%
Bedding	\$113	\$0.42	\$100	\$0.37	-12%
Milking supplies	\$97	\$0.36	\$98	\$0.37	3%
Cattle lease	\$0	\$0.00	\$0	\$0.00	NA
Custom boarding	\$137	\$0.50	\$124	\$0.46	-8%
BST expense	\$41	\$0.15	\$13	\$0.05	-67%
Livestock professional fees	\$18	\$0.07	\$17	\$0.06	-14%
Other livestock expense	\$19	\$0.07	\$25	\$0.09	29%
Fertilizer & lime	\$105	\$0.38	\$94	\$0.35	-8%
Seeds & plants	\$118	\$0.43	\$125	\$0.47	9%
Spray & other crop expense	\$58	\$0.21	\$65	\$0.24	14%
Crop professional fees	\$7	\$0.03	\$11	\$0.04	33%
Land, building & fence repair	\$83	\$0.30	\$85	\$0.32	7%
Taxes	\$61	\$0.22	\$61	\$0.23	5%
Real estate rent & lease	\$76	\$0.28	\$84	\$0.31	11%
Insurance	\$54	\$0.20	\$44	\$0.17	-15%
Utilities	\$101	\$0.37	\$97	\$0.36	-3%
Interest paid	\$163	\$0.60	\$185	\$0.69	15%
Other professional fees	\$27	\$0.10	\$30	\$0.11	10%
Miscellaneous	<u>\$31</u>	<u>\$0.12</u>	<u>\$31</u>	<u>\$0.12</u>	0%
Total Operating Expenses	\$4,780	\$17.56	\$4,860	\$18.14	3%
Expansion livestock	\$13	\$0.05	\$44	\$0.16	220%
Extraordinary expenses	\$0	\$0.00	\$6	\$0.02	NA
Machinery depreciation	\$240	\$0.88	\$250	\$0.94	7%
Real estate depreciation	<u>\$184</u>	<u>\$0.68</u>	<u>\$188</u>	<u>\$0.70</u>	3%
Total Expenses	\$5,217	\$19.17	\$5,348	\$19.96	4%
Net Farm Income w/o Appreciation	\$195	\$0.72	\$447	\$1.67	132%

Table 68.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS

33 Farms Between 900 and 1,299 Cows, New York State, 2017, 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)
30.0	1,271	34,297,784	28,825	5.0	23.2	59.8	1,625,883
25.7	1,176	31,382,788	27,651	4.2	21.5	50.2	1,383,780
23.7	1,090	29,469,190	26,750	3.6	19.7	46.4	1,237,964
21.3	1,012	27,228,549	26,112	3.2	17.5	43.1	1,132,602
18.6	923	24,294,104	25,126	2.0	13.1	37.6	992,065

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)
\$1,274	\$4.81	27	\$638	\$1,377	\$1,634	\$6.20	\$35,604
\$1,495	\$5.53	30	\$835	\$1,725	\$1,846	\$6.83	\$38,203
\$1,591	\$5.89	31	\$937	\$1,855	\$1,975	\$7.48	\$41,790
\$1,658	\$6.23	33	\$1,046	\$1,991	\$2,119	\$7.85	\$44,744
\$1,819	\$6.79	36	\$1,126	\$2,192	\$2,382	\$8.75	\$51,262

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)
\$5,321	\$19.32	\$13.17	\$16.99	8.7	\$1,283,315	\$497,810	\$1,394,363
\$5,166	\$18.80	\$13.81	\$18.46	5.3	\$770,811	\$98,352	\$712,601
\$4,970	\$18.55	\$15.62	\$19.10	3.2	\$384,061	-\$20,058	\$448,865
\$4,827	\$18.28	\$16.93	\$19.92	1.2	\$114,056	-\$124,470	\$81,645
\$4,621	\$17.82	\$18.00	\$21.29	-0.4	-\$143,921	-\$282,193	-\$351,892

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)
\$8,585	\$801	0.69	0.73	7.45	\$105	85	48
\$10,997	\$1,662	0.57	0.76	1.95	\$496	70	30
\$12,606	\$2,012	0.50	0.83	1.09	\$647	61	20
\$13,313	\$2,390	0.45	0.88	0.74	\$855	55	9
\$16,163	\$2,788	0.39	0.93	0.24	\$1,089	41	-9

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

Table 69.

SELECTED PRODUCTION AND FINANCIAL FACTORS

31 Farms Greater Than 1,300 Cows, New York State, 2017

Item	QUINTILE				
	1	2	3	4	5
Size of Business					
Average Cows	1,369	1,535	1,768	2,230	3,305
Average Heifers	1,181	1,362	1,577	1,903	2,929
Acres per Cow	1.11	1.62	1.90	2.12	2.51
Number of Worker Equivalents	25.8	31.6	36.4	42.8	66.5
Number of Owner Operators	1.2	2.1	2.7	3.5	4.8
Rates of Production					
Milk Sold per Cow	28,721	27,286	26,317	25,672	24,107
Hay DM per Acre, Tons	5.0	4.1	3.6	3.2	2.3
Corn Silage per Acre, Tons	21.1	19.8	18.7	17.5	14.8
Percent Butterfat	4.0	3.9	3.9	3.8	3.7
Percent Protein	3.2	3.2	3.1	3.1	3.0
Cull Rate, Percent	25.3	31.2	34.0	36.7	41.3
Labor Efficiency					
Cows per Worker	63.3	54.2	50.7	46.5	41.9
Milk Sold per Worker	1,662,097	1,405,264	1,302,526	1,239,762	1,134,223
Cost Control					
Dairy Feed & Crop Expense per Cwt. Milk	6.11	6.65	7.06	7.35	7.78
Labor & Machinery Costs per Cow	1,347	1,600	1,747	1,853	2,026
Hired Labor Cost per Cwt.	2.22	2.80	3.09	3.27	3.92
Hired Labor Costs per Worker Equivalent	36,303	40,725	43,431	47,109	51,765
Crop Input Costs per Acre	94	134	147	165	216
Machinery Costs per Acre	297	408	463	498	628
Operating cost of Producing Milk per Cwt.	12.35	13.65	14.62	15.55	16.77
Purch. Input Cost of Producing Milk per Cwt.	14.13	15.67	16.36	17.04	18.40
Total Cost of Producing Milk per Cwt.	16.79	17.82	18.40	19.20	20.06
Operating Expense Ratio	0.70	0.78	0.79	0.83	0.90
Capital Efficiency					
Farm Capital Per Cow	8,792	10,227	12,159	13,413	16,460
Machinery and Equipment per Cow	1,026	1,409	1,800	2,234	2,739
Real Estate per Cow	3,417	4,409	5,387	6,599	8,343
Asset Turnover Ratio	0.64	0.57	0.52	0.45	0.36
Working Capital as % of Tot. Oper. Expense	73	29	22	11	2
Profitability					
Labor & Management Income per Operator	699,957	207,617	73,018	-19,281	-302,542
Rate Return on Equity Capital w/o Apprec.	11.13	7.16	4.62	2.83	-2.81
Rate Return on All Capital w/o Apprec.	8.47	6.13	4.52	3.32	0.54
Financial Summary(based on market value, excluding deferred taxes)					
Debt to Asset Ratio	0.06	0.24	0.37	0.45	0.59
Farm Debt per Cow	714	3,100	4,368	4,916	6,166
Debt Coverage Ratio	22.62	3.39	1.86	1.27	0.51

Table 70.

RECEIPTS AND EXPENSES PER COW

31 Farms Greater Than 1,300 Cows, New York State, 2017

Item	QUINTILE				
	1	2	3	4	5
Average Cows	1,369	1,535	1,768	2,230	3,305
Cwt. of Milk Sold	369,504	413,814	463,164	560,283	864,051
<u>Accrual Operating Receipts</u>					
Milk	5,295	5,068	4,877	4,682	4,347
Dairy cattle	703	449	367	321	237
Dairy calves	90	58	45	29	8
Other livestock	34	0	0	0	-2
Crops	379	221	132	36	-139
Miscellaneous receipts	332	174	133	94	58
Total Receipts	6,212	5,865	5,569	5,313	4,991
<u>Accrual Operating Expenses</u>					
Hired labor	566	723	807	897	1,042
Dairy grain & concentrates	1,209	1,389	1,493	1,583	1,753
Dairy roughage	0	16	40	79	261
Nondairy feed	0	0	0	0	0
Professional nutritional services	0	0	0	0	2
Machinery hire/rent/lease	12	44	87	132	278
Machinery repair & farm vehicle exp.	166	219	261	283	349
Fuel	99	115	129	145	183
Replacement livestock	0	0	0	0	40
Breeding	29	42	54	66	103
Veterinary, medicine & hoof care	104	140	175	195	218
Milk marketing	158	214	262	328	434
Bedding	19	49	77	102	142
Milking supplies	42	65	81	107	131
Cattle lease	0	0	0	0	14
Custom boarding	0	0	5	88	367
rBst expense	0	0	0	0	53
Livestock professional fees	0	8	16	20	34
Other livestock expense	0	4	22	40	95
Fertilizer & lime	33	76	90	109	155
Seeds & plants	50	94	120	142	191
Spray & other crop expenses	15	37	64	80	151
Crop professional fees	0	0	1	8	24
Land, building, fence repair	23	49	64	83	147
Taxes	28	53	62	73	111
Real estate rent/lease	25	46	62	106	176
Insurance	23	33	45	59	83
Utilities	50	70	85	100	122
Interest	24	120	164	197	263
Other professional fees	6	14	21	34	62
Miscellaneous	11	18	22	30	77
Total Farm Operating Costs	3,774	4,330	4,559	4,768	5,164
Expansion livestock	0	0	0	16	337
Extraordinary expenses	0	0	0	0	45
Machinery depreciation	148	191	246	299	414
Building depreciation	113	153	193	235	287
Total farm expense	4,289	4,784	5,067	5,247	5,841
Net Farm Income	1,166	717	542	401	11

Table 71.

RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD

31 Farms Greater Than 1,300 Cows, New York State, 2017

Item	QUINTILE				
	1	2	3	4	5
Average Cows	1,369	1,535	1,768	2,230	3,305
Cwt. of Milk Sold	369,504	413,814	463,164	560,283	864,051
<u>Accrual Operating Receipts</u>					
Milk	19.26	18.73	18.27	17.94	17.69
Dairy cattle	2.69	1.68	1.39	1.24	0.92
Dairy calves	0.35	0.22	0.17	0.11	0.03
Other livestock	0.13	0.00	0.00	0.00	-0.01
Crops	1.45	0.83	0.52	0.14	-0.52
Miscellaneous receipts	1.26	0.66	0.50	0.35	0.23
Total Receipts	23.18	21.82	20.80	20.51	19.69
<u>Accrual Operating Expenses</u>					
Hired labor	2.22	2.80	3.09	3.27	3.92
Dairy grain & concentrates	4.82	5.26	5.65	5.93	6.46
Dairy roughage	0.00	0.06	0.15	0.29	1.01
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	0.05	0.17	0.32	0.50	1.07
Machinery repair & farm vehicle exp.	0.63	0.84	0.99	1.08	1.32
Fuel	0.37	0.45	0.49	0.54	0.72
Replacement livestock	0.00	0.00	0.00	0.00	0.16
Breeding	0.11	0.16	0.20	0.25	0.40
Veterinary, medicine & hoof care	0.40	0.55	0.64	0.73	0.84
Milk marketing	0.63	0.83	1.01	1.21	1.57
Bedding	0.07	0.19	0.29	0.39	0.54
Milking supplies	0.16	0.25	0.32	0.41	0.50
Cattle lease	0.00	0.00	0.00	0.00	0.05
Custom boarding	0.00	0.00	0.02	0.34	1.37
rBst expense	0.00	0.00	0.00	0.00	0.19
Livestock professional fees	0.00	0.03	0.06	0.07	0.13
Other livestock expense	0.00	0.01	0.08	0.15	0.37
Fertilizer & lime	0.12	0.29	0.35	0.42	0.59
Seeds & plants	0.19	0.36	0.46	0.54	0.72
Spray & other crop expenses	0.06	0.15	0.24	0.31	0.56
Crop professional fees	0.00	0.00	0.01	0.03	0.09
Land, building, fence repair	0.09	0.18	0.25	0.32	0.56
Taxes	0.12	0.21	0.23	0.28	0.42
Real estate rent/lease	0.10	0.18	0.24	0.40	0.65
Insurance	0.09	0.13	0.18	0.21	0.31
Utilities	0.19	0.27	0.32	0.38	0.45
Interest	0.09	0.47	0.63	0.75	0.94
Other professional fees	0.02	0.05	0.08	0.12	0.23
Miscellaneous	0.04	0.07	0.08	0.12	0.28
Total Farm Operating Costs	15.18	16.31	17.16	18.11	18.77
Expansion livestock	0.00	0.00	0.00	0.06	1.31
Extraordinary expenses	0.00	0.00	0.00	0.00	0.17
Machinery depreciation	0.56	0.75	0.94	1.14	1.51
Building depreciation	0.44	0.61	0.73	0.87	1.06
Total farm expense	16.96	18.17	19.04	20.22	21.14
Net Farm Income	4.53	2.72	2.13	1.49	0.05

Table 72.

PROGRESS OF THE FARM BUSINESSSame 31 Farms Greater Than 1,300 Cows, New York State, 2016 & 2017, DFBS⁴¹

SELECTED FACTORS	Average of 29 Farms		Percent Change
	2016	2017	
<i>Size of Business</i>			
Average number of cows	1,873	2,020	8%
Average number of heifers	1,657	1,771	7%
Milk sold, pounds	49,699,670	52,885,150	6%
Worker equivalent	38.5	40.2	4%
Total tillable acres	3,555	3,603	1%
<i>Rates of Production</i>			
Milk sold per cow, pounds	26,530	26,185	-1%
Hay DM per acre, tons	3.2	3.40	6%
Corn silage per acre, tons	16.5	18.10	10%
<i>Labor Efficiency</i>			
Cows per worker	48.6	50.3	3%
Milk sold per worker, pounds	1,289,561	1,316,861	2%
<i>Cost Control and Milk Price</i>			
Grain & concentrate per cwt. milk	\$5.68	\$5.64	-1%
Net milk income over purchased grain & conc. per cow	\$2,756	\$3,086	12%
Dairy feed & crop expense per cwt. milk	\$7.14	\$6.99	-2%
Labor and machinery costs per cow	\$1,632	\$1,677	3%
Hired labor costs per cwt. milk	\$2.94	\$3.08	5%
Hired labor costs per worker equivalent	\$41,451	\$44,049	6%
Operating cost of producing milk per cwt.	\$14.23	\$14.56	2%
Purchased input cost of producing milk per cwt.	\$15.87	\$16.23	2%
Total cost of producing milk per cwt.	\$18.00	\$18.32	2%
Net milk price	\$16.06	\$17.36	8%
<i>Capital Efficiency (average for year)</i>			
Farm capital per cow	\$11,959	\$11,839	-1%
Machinery and equipment per cow	\$1,823	\$1,705	-6%
Asset turnover ratio	0.46	0.49	7%
<i>Profitability</i>			
Net farm income without appreciation	\$548,222	\$1,128,747	106%
Net farm income without appreciation per cow	\$293	\$559	91%
Net farm income with appreciation	\$1,011,650	\$1,659,298	64%
Net farm income with appreciation per cow	\$540	\$822	52%
Labor & management income per operator/manager	-\$83,758	\$109,214	230%
Rate return on equity capital with appreciation	4.7%	8.4%	79%
Rate return on equity capital without appreciation	1.7%	5.2%	198%
Rate return on all capital with appreciation	4.3%	7.0%	63%
Rate return on all capital without appreciation	2.2%	4.8%	114%
<i>Financial Summary (based on market value, excluding deferred taxes)</i>			
Farm net worth, end year	\$15,906,046	\$16,906,408	6%
Debt to asset ratio	0.31	0.32	3%
Farm debt per cow	\$3,762	\$3,754	0%
Debt coverage ratio	1.36	2.07	52%

⁴¹ Farm participating both years

Table 73.

RECEIPTS & EXPENSES PER COW AND PER HUNDREDWEIGHTSame 31 Farms Greater Than 1,300 Cows, New York State, 2016 & 2017, DFBS⁴¹

Item	2016		2017		% Change Per Cwt.
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	
Average number of cows	1,873		2,020		8%
Cwt. of milk sold		496,997		528,852	6%
ACCRUAL OPERATING RECEIPTS					
Milk	\$4,502	\$16.97	\$4,809	\$18.37	8%
Dairy cattle	\$438	\$1.65	\$413	\$1.58	-4%
Dairy calves	\$50	\$0.19	\$45	\$0.17	-11%
Other livestock	\$7	\$0.02	\$5	\$0.02	0%
Crops	\$63	\$0.24	\$125	\$0.48	100%
Miscellaneous receipts	\$155	\$0.59	\$149	\$0.57	-3%
Total Operating Receipts	\$5,215	\$19.66	\$5,546	\$21.18	8%
ACCRUAL OPERATING EXPENSES					
Hired labor	\$781	\$2.94	\$806	\$3.08	5%
Dairy grain & concentrate	\$1,507	\$5.68	\$1,476	\$5.64	-1%
Dairy roughage	\$87	\$0.33	\$78	\$0.30	-9%
Nondairy feed	\$0	\$0.00	\$0	\$0.00	NA
Professional nutritional services	\$1	\$0.00	\$0	\$0.00	NA
Machine hire, rent & lease	\$96	\$0.36	\$105	\$0.40	11%
Machine repair & vehicle expense	\$247	\$0.93	\$250	\$0.96	3%
Fuel, oil & grease	\$112	\$0.42	\$133	\$0.51	21%
Replacement livestock	\$4	\$0.02	\$9	\$0.03	50%
Breeding	\$55	\$0.21	\$56	\$0.22	5%
Veterinary & medicine	\$159	\$0.60	\$167	\$0.64	7%
Milk marketing	\$242	\$0.91	\$264	\$1.01	11%
Bedding	\$84	\$0.32	\$78	\$0.30	-6%
Milking supplies	\$90	\$0.34	\$83	\$0.32	-6%
Cattle lease	\$6	\$0.02	\$5	\$0.02	0%
Custom boarding	\$98	\$0.37	\$98	\$0.37	0%
BST expense	\$33	\$0.12	\$11	\$0.04	-67%
Livestock professional fees	\$13	\$0.05	\$15	\$0.06	20%
Other livestock expense	\$16	\$0.06	\$31	\$0.12	100%
Fertilizer & lime	\$101	\$0.38	\$92	\$0.35	-8%
Seeds & plants	\$123	\$0.46	\$115	\$0.44	-4%
Spray & other crop expense	\$64	\$0.24	\$63	\$0.24	0%
Crop professional fees	\$11	\$0.04	\$6	\$0.02	-50%
Land, building & fence repair	\$68	\$0.26	\$68	\$0.26	0%
Taxes	\$64	\$0.24	\$62	\$0.24	0%
Real estate rent & lease	\$70	\$0.26	\$75	\$0.29	12%
Insurance	\$42	\$0.16	\$43	\$0.17	6%
Utilities	\$79	\$0.30	\$83	\$0.32	7%
Interest paid	\$122	\$0.46	\$148	\$0.56	22%
Other professional fees	\$27	\$0.10	\$23	\$0.09	-10%
Miscellaneous	\$26	\$0.10	\$29	\$0.11	10%
Total Operating Expenses	\$4,429	\$16.70	\$4,472	\$17.08	2%
Expansion livestock	\$59	\$0.22	\$76	\$0.29	32%
Extraordinary expenses	\$0	\$0.00	\$6	\$0.02	NA
Machinery depreciation	\$245	\$0.92	\$239	\$0.91	-1%
Real estate depreciation	\$190	\$0.72	\$193	\$0.74	3%
Total Expenses	\$4,923	\$18.56	\$4,986	\$19.04	3%
Net Farm Income w/o Appreciation	\$293	\$1.10	\$559	\$2.13	94%

Table 74.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS

31 Farms Greater Than 1,300 Cows, New York State, 2017, 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)
66.5	3,305	86,405,091	28,721	5.0	21.1	63.3	1,662,097
42.8	2,230	56,028,258	27,286	4.1	19.8	54.2	1,405,264
36.4	1,768	46,316,386	26,317	3.6	18.7	50.7	1,302,526
31.6	1,535	41,381,390	25,672	3.2	17.5	46.5	1,239,762
25.8	1,369	36,950,416	24,107	2.3	14.8	41.9	1,134,223

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)
\$1,209	\$4.82	26	\$608	\$1,347	\$1,549	\$6.11	\$36,303
\$1,389	\$5.26	29	\$758	\$1,600	\$1,738	\$6.65	\$40,725
\$1,493	\$5.65	30	\$848	\$1,747	\$1,827	\$7.06	\$43,431
\$1,583	\$5.93	33	\$932	\$1,853	\$1,975	\$7.35	\$47,109
\$1,753	\$6.46	36	\$1,090	\$2,026	\$2,134	\$7.78	\$51,765

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)
\$5,295	\$19.26	\$12.35	\$16.79	8.5	\$2,787,742	\$699,957	\$3,443,242
\$5,068	\$18.73	\$13.65	\$17.82	6.1	\$1,348,416	\$207,617	\$1,356,889
\$4,877	\$18.27	\$14.62	\$18.40	4.5	\$1,003,991	\$73,018	\$662,698
\$4,682	\$17.94	\$15.55	\$19.20	3.3	\$688,801	-\$19,281	\$227,530
\$4,347	\$17.69	\$16.77	\$20.06	0.5	\$2,494	-\$302,542	-\$475,259

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)
\$8,792	\$1,026	0.64	0.70	22.62	\$77	96	73
\$10,227	\$1,409	0.57	0.78	3.39	\$315	78	29
\$12,159	\$1,800	0.52	0.79	1.86	\$510	65	22
\$13,413	\$2,234	0.45	0.83	1.27	\$666	56	11
\$16,460	\$2,739	0.36	0.90	0.51	\$843	43	2

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 156 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

156 New York Dairy Farms, 2017

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- alent	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
51.3	2,586	66,536,753	29,130	5.2	23.6	67.1	1,691,302
31.8	1,501	40,383,195	28,000	4.5	21.6	55.7	1,439,842
25.5	1,217	32,687,211	27,284	4.1	20.4	51.5	1,327,719
22.3	1,018	27,612,914	26,733	3.8	19.5	48.9	1,262,069
19.2	874	23,064,235	25,241	3.5	18.6	46.6	1,196,639
16.1	739	18,244,983	25,667	3.2	17.7	44.1	1,126,490
11.5	544	13,367,608	25,056	2.9	16.8	42.1	1,042,445
7.5	349	8,146,329	23,915	2.5	15.6	38.4	944,121
4.7	182	4,095,537	22,140	2.1	14.4	34.3	830,284
2.6	78	1,602,181	16,304	1.2	6.8	25.8	523,997
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		
\$848	22%	\$526	\$1,205	\$1,129	\$5.75		
1,160	27	683	1,503	1,512	6.26		
1,262	28	761	1,639	1,618	6.55		
1,354	29	823	1,754	1,710	6.88		
1,448	30	874	1,827	1,794	7.16		
1,527	31	932	1,898	1,866	7.38		
1,582	32	980	1,948	1,957	7.60		
1,631	33	1,065	2,032	2,054	7.80		
1,697	35	1,148	2,192	2,129	8.16		
1,876	39	1,405	2,621	2,402	9.10		

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**
156 New York Dairy Farms, 2017

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.
\$5,433	\$20.18	\$2,465	\$12.20	\$3,669	\$16.80
5,213	19.13	3,136	13.42	4,410	17.85
5,049	18.90	3,439	13.77	4,657	18.51
4,947	18.74	3,619	14.18	4,838	19.04
4,833	18.60	3,737	14.86	5,008	19.51
4,710	18.44	3,887	15.33	5,118	19.99
4,595	18.27	4,027	15.98	5,231	20.39
4,395	18.08	4,268	16.67	5,397	21.17
4,125	17.80	4,499	17.13	5,570	22.03
3,072	17.45	4,859	19.16	6,013	27.83
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
\$1,951,838	\$1,201	0.22	\$2,855,605	\$1,799	\$1,036,011
985,948	830	0.15	1,340,371	1,175	421,012
670,992	713	0.13	890,502	982	172,488
422,360	606	0.11	652,460	866	73,815
252,860	501	0.09	446,908	740	20,809
172,597	381	0.07	300,310	564	-17,272
82,149	252	0.05	149,373	405	-64,467
44,124	121	0.02	72,842	280	-147,624
-19,266	-35	-0.01	30,789	84	-262,228
-257,703	-400	-0.11	-135,592	-259	-562,069
					-342,939

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							
156 New York Dairy Farms, 2017							
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
\$ 5	\$1,404	13.46	18.37	2%	\$ 322	67%	63.72
126	1,102	3.27	3.42	7	1,493	40	6.63
263	927	1.89	2.36	10	2,415	32	3.87
372	815	1.50	1.72	12	3,292	25	3.10
506	738	1.24	1.37	14	4,076	21	2.49
584	634	1.05	1.10	16	4,644	17	2.07
659	502	0.87	0.90	19	5,111	13	1.61
744	391	0.66	0.67	21	5,589	7	1.30
870	289	0.45	0.40	24	6,522	1	0.99
1,088	7	-0.28	-0.19	45	8,017	-16	0.53
Solvency				Operational Ratios			
Leverage Ratio ⁴³	Percent Equity	Debt/Asset Ratio		Operating Expense Ratio	Interest Expense Ratio	Depreciation	
		Current & Intermediate	Long Term			Expense Ratio	Expense Ratio
-0.43	98%	0.0	0.00	0.68	0.00	0.03	
0.12	89	0.11	0.01	0.74	0.01	0.05	
0.26	81	0.21	0.08	0.76	0.02	0.06	
0.38	73	0.28	0.19	0.78	0.03	0.07	
0.49	68	0.31	0.27	0.79	0.03	0.08	
0.63	62	0.36	0.35	0.82	0.03	0.09	
0.72	59	0.43	0.41	0.84	0.04	0.09	
0.88	54	0.49	0.48	0.87	0.04	0.10	
1.10	48	0.55	0.58	0.90	0.05	0.11	
1.94	32	0.84	0.97	0.99	0.07	0.15	
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	
0.77	\$ 2,423	\$ 708	\$ 7,370	\$ 2,282,301	12%	13%	
0.59	3,718	1,207	9,423	826,583	11	9	
0.54	4,233	1,491	10,402	510,426	9	7	
0.51	4,652	1,740	11,267	306,049	7	6	
0.47	5,060	1,983	12,078	183,370	5	5	
0.45	5,756	2,244	12,737	92,281	3	3	
0.42	6,269	2,474	13,386	37,879	1	2	
0.39	6,981	2,711	14,342	-6,619	-1	1	
0.36	7,867	3,069	15,972	-104,209	-4	-1	
0.27	10,694	4,709	19,555	-543,336	-10	-4	

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 16 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 32).

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)
2018-06	Dairy Farm Business Summary New York State 2017		Karszes, J., Christman, A., Howlett, A., Knoblauch, W.
2018-05	Dairy Farm Management: Business Summary New York State 2016		Karszes, J., Christman, A., Howlett, A., Windecker, K., and W. Knoblauch
2018-04	Approaches to Balancing Solar Expansion and Farmland Preservation: A Comparison across Selected States		Grout, T and J. Ifft
2018-03	Economic Contributions of the Apple Industry Supply Chain in New York State		Schmit, T.M., R.M. Severson, J. Strzok, and J. Barros
2018-02	Case Studies of supermarkets and food supply chains in low-income areas of the Northeast: A cross case comparison of 11 case studies		Park, K.S., Gomez, M.I. and K. Clancy
2018-01	Six Year Trend Analysis New York State Dairy Farms: Selected Financial and Production Factors		Karszes, J. and K. Windecker
2017-16	Case studies of supermarkets and food supply chains in low-income areas of the Northeast: Syracuse Store 2, New York		Park, K.S., Gomez, M. and K. Clancy
2017-15	Case studies of supermarkets and food supply chains in low-income areas of the Northeast: Syracuse Store 1, New York		Park, K.S., Gomez, M. and K. Clancy
2017-14	Case studies of supermarkets and food supply chains in low-income areas of the Northeast: Pittsburgh Store, Pennsylvania		Park, K.S., Gomez, M. and K. Clancy
2017-13	Case studies of supermarkets and food supply chains in low-income areas of the Northeast: Onondaga County Store, New York		Park, K.S., Gomez, M. and K. Clancy

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