

***BUSINESS SUMMARY
NEW YORK STATE
2014***



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

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**DAIRY FARM
MANAGEMENT**

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**Dairy Farm Management
Business Summary, New York State, 2014¹**

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Dedication

This publication is dedicated to the memory of Professor Conneman. Conneman's appointment at Cornell emphasized teaching and extension programming, and he was soon recognized as an outstanding teacher. Numerous former students, as well as agri-business owners throughout the state, credit Professor Conneman for their success. His ability to analyze business opportunities and communicate them effectively influenced many business decisions. He worked with the DFBS on the Intensive Rotational Grazing publication and also contributed to the State Summary. His insights will be sorely missed.

¹This report was written by Wayne A. Knoblauch, Professor; Cathryn Dymond, Extension Support Specialist, in the Dyson School of Applied Economics and Management at Cornell University; Jason Karszes, Senior Extension Associate, Pro-Dairy, Department of Animal Science at Cornell University; and Richard Kimmich, Extension Support Specialist, in the Dyson School of Applied Economics and Management at Cornell University.

ABSTRACT

Business and financial records for 2014 from 173 New York dairy farm businesses are summarized and analyzed. This analysis uses cash accounting with accrual adjustments to measure farm profitability, financial performance, and costs of producing milk. Traditional methods of analyzing dairy farm businesses are combined with evaluation techniques that show the relationship between good management performance and financial success.

The farms in the project averaged 695 cows per farm and 25,448 pounds of milk sold per cow, which represent above average size and management level for New York dairy farms. An average New York dairy has a herd size per farm of 124 according to the New York Agricultural Statistics Service. The New York Agricultural Statistics Service reports 22,330 pounds milk production per cow for New York.

Net farm income excluding appreciation, which is the return to the operator's labor, management, capital, and other unpaid family labor, averaged \$1,164,071 per farm. The rate of return to all capital invested in the farm business including appreciation averaged 16.70 percent.

Differences in profitability between farms continue to widen. Average net farm income excluding appreciation of the top 10 percent of farms was \$4,016,078, while the lowest 10 percent was \$34,576. Rates of return on equity with appreciation ranged from positive 41 percent to negative 5 percent for the highest decile and the lowest decile of farms, respectively.

Large freestall farms averaged the highest milk output per cow and per worker, and the lowest total cost of production. In 2014 they averaged the highest returns to labor, management and capital. Farms milking three times a day (3X) were larger, produced more milk per cow and had higher net farm incomes in 2014 than herds milking two times per day (2X). Operating costs per hundredweight of milk were \$0.31 per hundredweight lower for 3X than 2X milking herds, while output per cow was 4,621 pounds higher.

Farms adopting intensive grazing generally produced less milk per cow than non-grazing farms and in 2014 averaged lower labor and management incomes per operator. One should not conclude that adoption of these technologies alone were responsible for differences in performance.

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INTRODUCTION

Dairy farm business summary (DFBS) projects are an integral part of Cornell Cooperative Extension's agricultural educational program in New York State. The Charles H. Dyson School of Applied Economics and Management of the College of Agriculture and Life Sciences at Cornell University, PRO-DAIRY, and County and Regional Extension staff, cooperate in sponsoring DFBS projects. In 2014, 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 35 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 individual consultants Bruce Dehm and Charles Radick; and by consultants from Farm Credit East Association. 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>. Regional reports are prepared by Cornell faculty and used by DFBS cooperators and other farmers to compare their farm performance with regional 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>

Individual farm records from the owned, full-time dairies from the three regions located in 33 counties of the State (Figure 1, page 2) have been combined and the total data set analyzed to determine the effects of different levels of price, technology, and management on dairy farm incomes. This study provides current dairy farm business information for use by farmers, Cooperative Extension staff, teachers, and others concerned with the New York dairy industry.

Trend Analysis

Farms in New York have changed dramatically over the past 50 years. Farms are larger, more efficient with greater rates of production and generally more profitable. Changes have also occurred in recent years especially in regard to costs and milk price (see pages 3-7).

Farms Included

Data from 173 specialized dairy farms are included in the main body of this report starting on page 8. These farms do NOT represent the "average" for all dairy farms in the State. Participation was on a voluntary basis, therefore, not all areas or types of operations were proportionately represented (Figure 1, page 2). All New York DFBS participants (nearly 200) represent nearly five percent of the milk cow operations in New York (see Appendix Table A3). The 173 specialized dairy farms represent a cross section of better than average commercial dairy farm owner/operators in the State. The DFBS participating farms represent 22 percent of the total New York milk production and 20 percent of the total cows in the State. Dairy farm renters, dairy-cash crop farmers with crop sales exceeding 10 percent of milk sales, part-time dairy operators, and organic farms are not included in the main body of this report. Data on dairy farm renters are summarized separately in the supplemental information section of the publication.

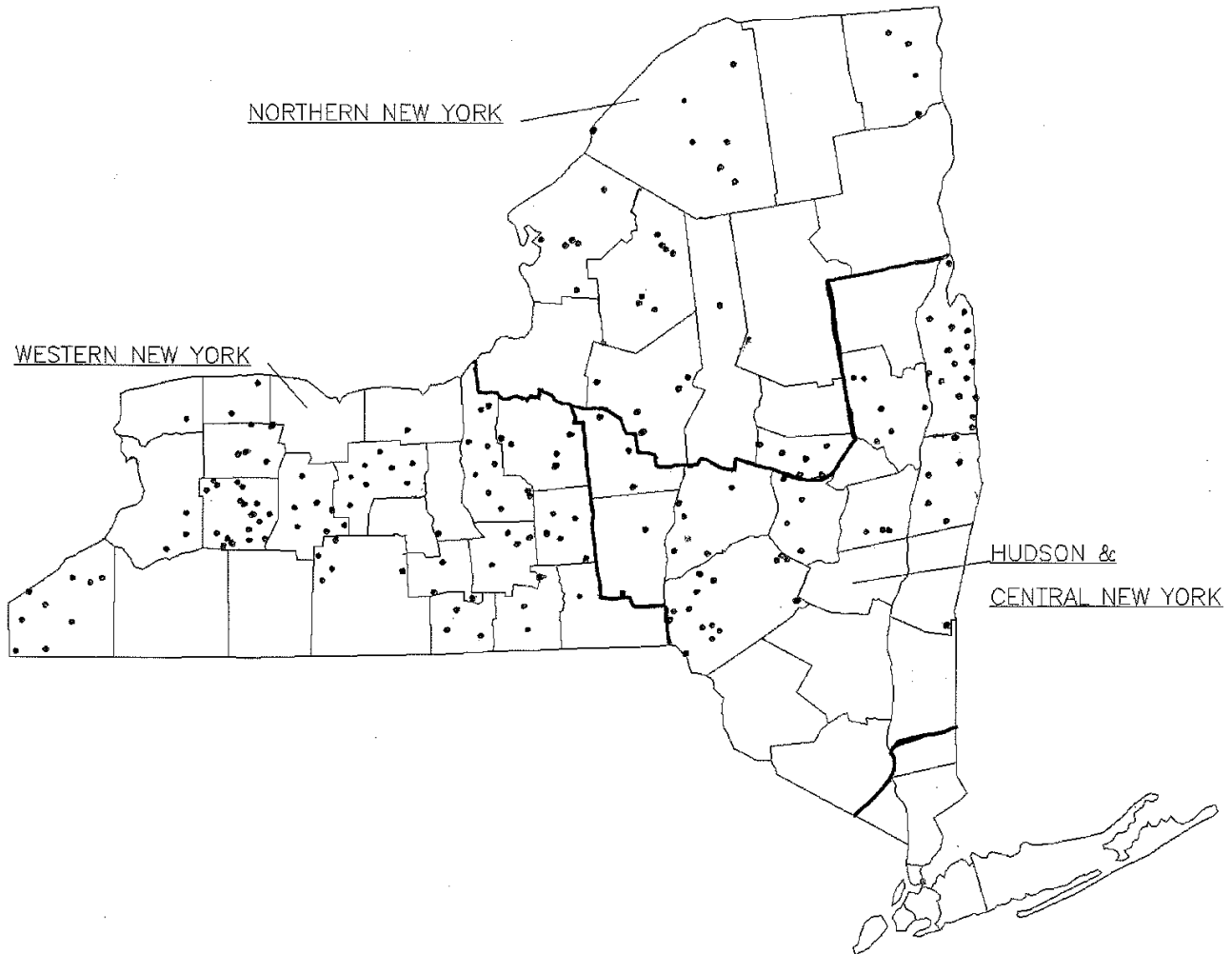
Features

Accrual adjustment procedures have been used to provide the most accurate accounting of farm receipts and farm expenses for measuring farm profits. An explanation of these procedures is found on page 9. Five measures of farm profitability: net farm income, labor and management income, return on equity, return on all capital, and return to all labor and management are calculated on pages 11 through 14. The balance sheet is presented with the current portion of intermediate and long-term debt identified as a current liability, on pages 15 and 16. The statement of owner equity, which shows the interrelationship between farm profitability, non-farm cash flows and net worth is presented on page 17. A detailed cash flow statement, as well as budgeting data and debt repayment analysis are presented on pages 18 through 20.

The whole farm method of calculating the cost of producing milk is detailed on pages 28 through 33. The operating cost, purchased inputs cost and total cost of producing 100 pounds of milk are developed and analyzed. Farm business charts for farms with conventional and freestall housing are presented on pages 67 through 71. Specific information concerning the performance of dairy farms using rotational grazing and three times (3X) a day milking are presented on pages 72 and 79.

Figure 1.

**LOCATION OF THE 173 NEW YORK DAIRY FARMS
IN THE 2014 DAIRY FARM BUSINESS SUMMARY**



2014 Regional Summary Publications

<u>Region</u>	<u>Publications</u>	<u>Author(s)</u>
Western New York	E.B. 2015-06	Wayne A. Knoblauch, Cathryn Dymond, Jason Karszes, Betsey Howland, John Hanchar, Joan Petzen, Katelyn Stoll, and Richard Kimmich.
Hudson and Central New York	E.B. 2015-07	Wayne A. Knoblauch, Cathryn Dymond, Jason Karszes, Betsey Howland, Sandy Buxton, Mariane Kiraly, Richard Kimmich, and Kirk Shoen.
Northern New York	E.B. 2015-08	Wayne A. Knoblauch, Cathryn Dymond, Jason Karszes, Betsey Howland, Peggy Murray, Sandy Buxton, and Richard Kimmich.

FIFTY YEARS OF NEW YORK STATE DAIRY FARM BUSINESS DATA

New York dairy farming has changed dramatically over the past 50 years (Table 1, page 4). Dairy cows per farm on DFBS cooperating farms increased 17 fold between 1964 and 2014 with herd size more than doubling over the last 10 years. The DFBS sample is not representative of all farms in New York State. Milk output per cow increased 126 percent with the largest increase occurring between 1984 and 1994. Labor efficiency, measured by pounds of milk sold per worker, is up 328 percent on DFBS farms, and the operating cost of producing milk increased more than 452 percent with the largest jump occurring between 1974 and 1984.

There is a large increase in farm capital invested per farm, which is over 681 percent greater than in 1964. Net farm income per farm increased 2,752 percent (adjusted for 2014 dollars). Labor and management income per operator is up 1,838 percent from 50 years ago (adjusted for 2014 dollars). This is a reflection of the increased variability over the last 50 years. Some factors could not be calculated with 1964, 1974, and 1984 data because liabilities, interest paid, and/or appreciation were not available in those years. Farm net worth excluding deferred taxes is more than 112 times greater than 50 years ago and rate of return on equity capital increased 21 percent since 1984.

FOUR YEARS OF VARIABILITY

Recognition and evaluation of the progress that has occurred on farms can best be achieved by studying the same farms over a period of time. Table 2, page 5, presents average data from 143 DFBS cooperators each year since 2011. Chart 1 shows the price received for milk in comparison to the operating cost of producing a hundredweight of milk for these farms. The higher milk price and higher costs in 2014 still provided dairy farmers with the highest operating margin per hundredweight of \$8.25 over these four years.

Average net farm income without appreciation in 2014 was 62 percent above the 2011 average, 185 percent above the 2012 average, and 95 percent above the 2013 average. Net worth increased 8 percent in 2012, increased 9 percent in 2013, and increased 21 percent in 2014.

The last four years has been a period that has provided returns for skillful decision making and improved management skills on the part of New York dairy farm operators. Risk management skills, including output price management, are becoming more important to farm business success.

Chart 1.

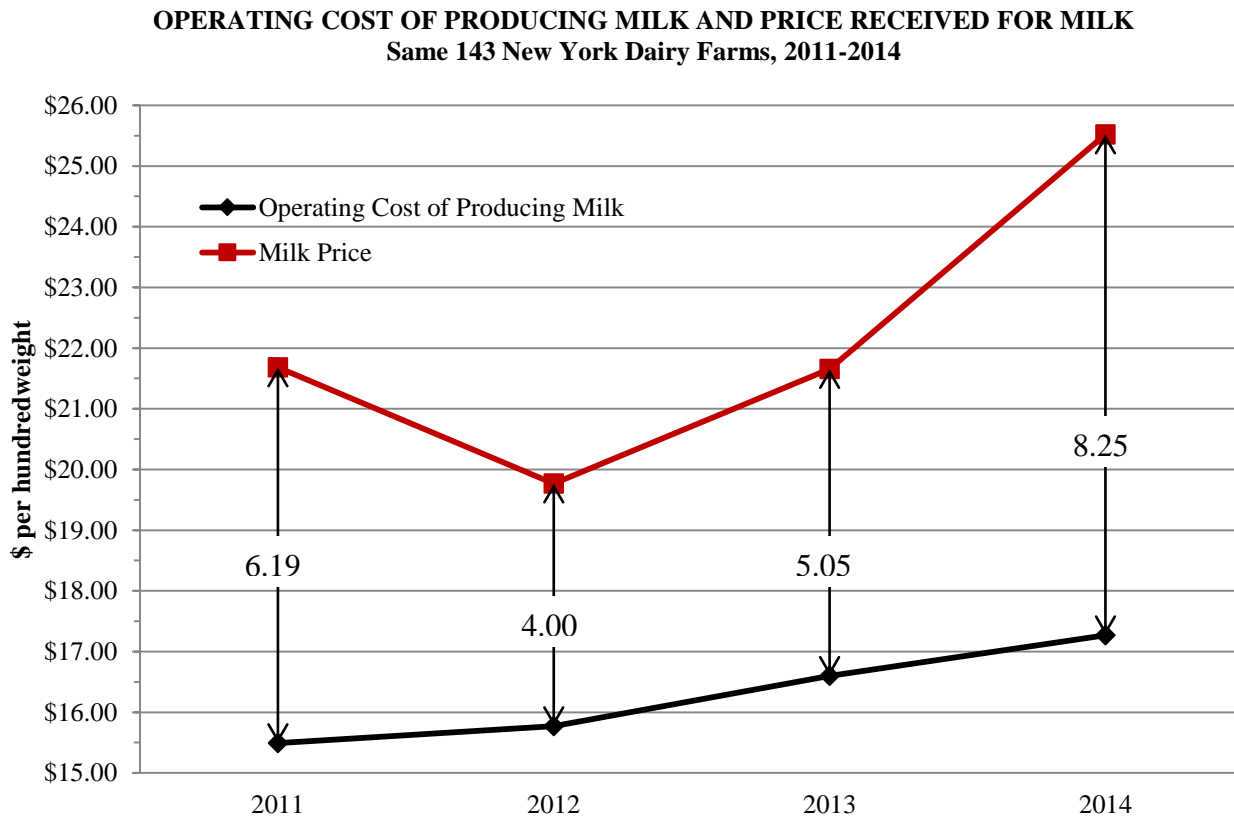


Table 1.

COMPARISON OF FARM BUSINESS SUMMARY DATA
New York Dairy Farms, 1964 - 2014

Selected Factors	1964	1974	1984	1994	2004	2014
Number of farms	434	628	458	321	200	173
<u>Size of Business</u>						
Average number of cows	40	72	89	151	334	695
Average number of heifers	24	50	76	116	260	590
Milk sold, cwt.	4,504	9,058	13,735	30,335	73,767	176,737
Worker equivalent	1.70	2.40	3.08	4.02	7.97 ⁴	15.59 ⁴
Total tillable acres	104 ²	213 ²	280	392	701	1,366
<u>Rates of Production</u>						
Milk sold per cow, lbs.	11,260	12,580	15,433	20,091	22,070	25,448
Hay DM per acre, tons	2.0	2.6	2.7	3.0	3.5	3.4
Corn silage per acre, tons	12	14	14	16	18	19
<u>Labor Efficiency</u>						
Cows per worker	24	30	29	38	42 ⁴	45 ⁴
Milk sold per worker, lbs.	264,900	374,300	445,942	755,178	925,553 ⁴	1,133,473 ⁴
<u>Cost Control</u>						
Grain & conc. as % of milk sales	31%	30%	24%	28%	27%	28%
Dairy feed & crop expense/cwt.	\$1.67	\$3.26	\$4.53	\$4.61	\$5.60	\$9.12
Operating cost of prod. cwt. milk	\$3.12	\$5.51	\$10.28	\$10.47	\$12.58	\$17.23
Total cost of producing cwt. milk	\$4.29	\$8.70	\$14.86	\$13.90	\$15.74	\$21.27
Milk receipts per cwt. milk	\$4.40	\$8.57	\$13.49	\$13.44	\$16.24	\$25.45
<u>Capital Efficiency</u>						
Total farm capital	\$57,187	\$231,550	\$539,431	\$966,047	\$2,343,166	\$7,980,614
Farm capital per cow	\$1,471	\$3,216	\$6,061	\$6,398	\$7,010	\$11,491
Machinery & equipment per cow	\$317	\$572	\$1,105	\$1,150	\$1,226	\$1,929
Real estate per cow	\$698	\$1,695	\$2,842	\$2,859	\$2,809	\$4,697
Livestock investment per cow	\$385	\$684	\$1,329	\$1,499	\$2,811	\$2,270
Asset turnover ratio	NA	0.40	0.43	0.50	0.64	0.66
<u>Profitability</u>						
Net farm income without apprec. ⁵	\$35,998	\$21,936	\$76,268	\$105,330	\$244,962	\$1,164,071
Net farm income with apprec. ⁵	NA	NA	\$98,994	\$128,367	\$353,023	\$1,400,147
Labor & management income per operator/manager ⁵	\$17,505	\$18,478	\$8,057	\$27,775	\$95,199	\$432,971
Rate of return on:						
Equity capital with appreciation	NA	6.8%	1.3%	4.7%	16.4%	22.4%
All capital with appreciation	NA	6.5%	4.4%	5.5%	11.3%	16.7%
All capital without appreciation	NA	NA	3.2%	4.2%	7.5%	13.7%
<u>Financial Summary, End Year</u>						
Farm net worth	\$54,840 ³	\$156,775 ³	\$336,210	\$624,580	\$1,466,674	\$6,149,047
Change in net worth with apprec.	NA	NA	NA	31,663	218,436	1,082,880
Debt to asset ratio	0.32 ³	0.36 ³	0.38	0.37	0.40	0.28
Farm debt per cow	\$605 ³	\$1,210 ³	\$2,283	\$2,324	\$2,879	\$3,433

²Acres of cropland harvested.

³Average of 126 farms in 1964 and 591 farms in 1974.

⁴Based on 230 hours per month actually worked by owner/operator instead of standard 12 months per full-time owner/operator.

⁵Adjusted for inflation using Consumer Price Index—2014 dollars.

Table 2.

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 143 New York Dairy Farms, 2011 - 2014

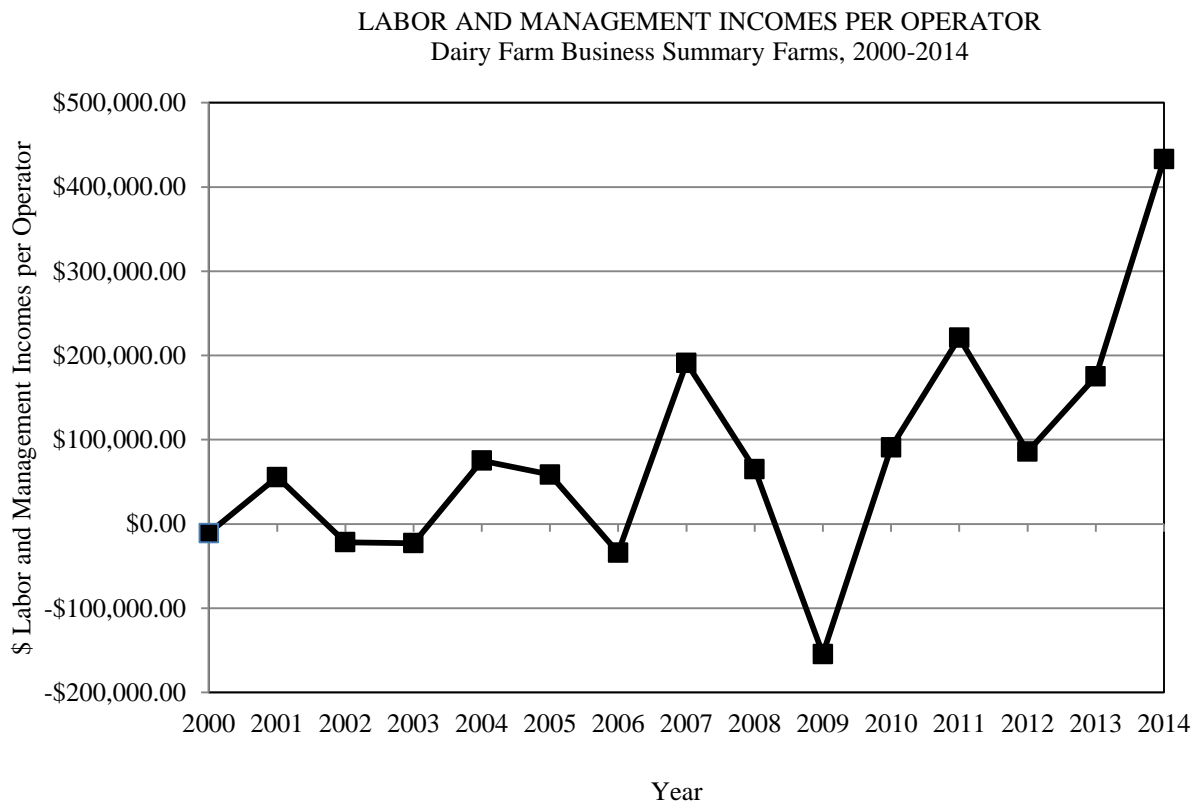
Selected Factors	2011	2012	2013	2014
Milk receipts per cwt. milk	\$21.68	\$19.77	\$21.66	\$25.52
<u>Size of Business</u>				
Average number of cows	666	691	719	757
Average number of heifers	574	593	616	644
Milk sold, cwt.	16,563,879	17,631,201	18,539,932	19,419,972
Worker equivalent ⁶	14.58	15.49	15.91	16.99
Total tillable acres	1,313	1,375	1,408	1,460
<u>Rates of Production</u>				
Milk sold per cow, pounds	24,864	25,518	25,795	25,647
Hay DM per acre, tons	3.5	3.0	3.6	3.4
Corn silage per acre, tons	17	17	18	19
<u>Labor Efficiency</u>				
Cows per worker ⁶	46	45	45	45
Milk sold per worker, pounds ⁶	1,136,069	1,138,231	1,165,301	1,143,024
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	28%	34%	33%	29%
Dairy feed & crop expense per cwt. milk	\$7.57	\$8.49	\$8.89	\$9.15
Operating cost of producing cwt. milk	\$15.49	\$15.77	\$16.60	\$17.27
Total cost of producing cwt. milk	\$18.96	\$19.35	\$20.33	\$21.28
Hired labor cost per cwt.	\$2.75	\$2.77	\$2.80	\$2.95
Interest paid per cwt.	\$0.48	\$0.46	\$0.47	\$0.44
Labor & machinery costs per cow	\$1,619	\$1,676	\$1,733	\$1,833
<u>Capital Efficiency, Average for Year</u>				
Farm capital per cow	\$9,542	\$10,271	\$10,794	\$11,487
Machinery & equipment per cow	\$1,572	\$1,688	\$1,792	\$1,933
Real estate per cow	\$3,873	\$4,205	\$4,471	\$4,677
Livestock investment per cow	\$2,219	\$2,229	\$2,238	\$2,263
Asset turnover ratio	0.66	0.60	0.61	0.67
<u>Profitability</u>				
Net farm income without appreciation	\$792,466	\$450,051	\$654,787	\$1,282,591
Net farm income with appreciation	\$954,774	\$631,842	\$821,462	\$1,545,105
Labor & management income per operator/manager	\$282,902	\$98,108	\$183,998	\$457,241
Rate return on:				
Equity capital with appreciation	19.3%	10.2%	12.8%	22.8%
All capital with appreciation	14.3%	8.1%	9.9%	17.0%
All capital without appreciation	11.7%	5.6%	7.7%	14.0%
<u>Financial Summary, End Year</u>				
Farm net worth	\$4,665,120	\$5,046,930	\$5,521,343	\$6,691,576
Change in net worth with appreciation	\$765,257	\$340,801	\$446,445	\$1,192,229
Debt to asset ratio	0.31	0.32	0.32	0.28
Farm debt per cow	\$3,064	\$3,382	\$3,494	\$3,437

⁶Based on 230 hours per month actually worked by owner/operator instead of standard 12 months per full-time owner/operator.

ADJUSTING PROFIT, PRICE AND COSTS FOR INFLATION

Labor and management incomes per operator in 2014 were a 15 year high, when measured in nominal (actual) values (Chart 2). Over the period 2000 to 2014, labor and management income per operator has exceeded \$50,000 in just over half of the years with the largest five incomes in each reaching over \$90,000. Over \$191,000 in 2007, over \$90,000 in 2010, \$221,009 in 2011, \$175,046 in 2013 and a record high of \$432,971 in 2014. The reader is reminded that the average herd size of DFBS participating farms steadily increased from 328 cows to 695 cows over this period.

Chart 2.

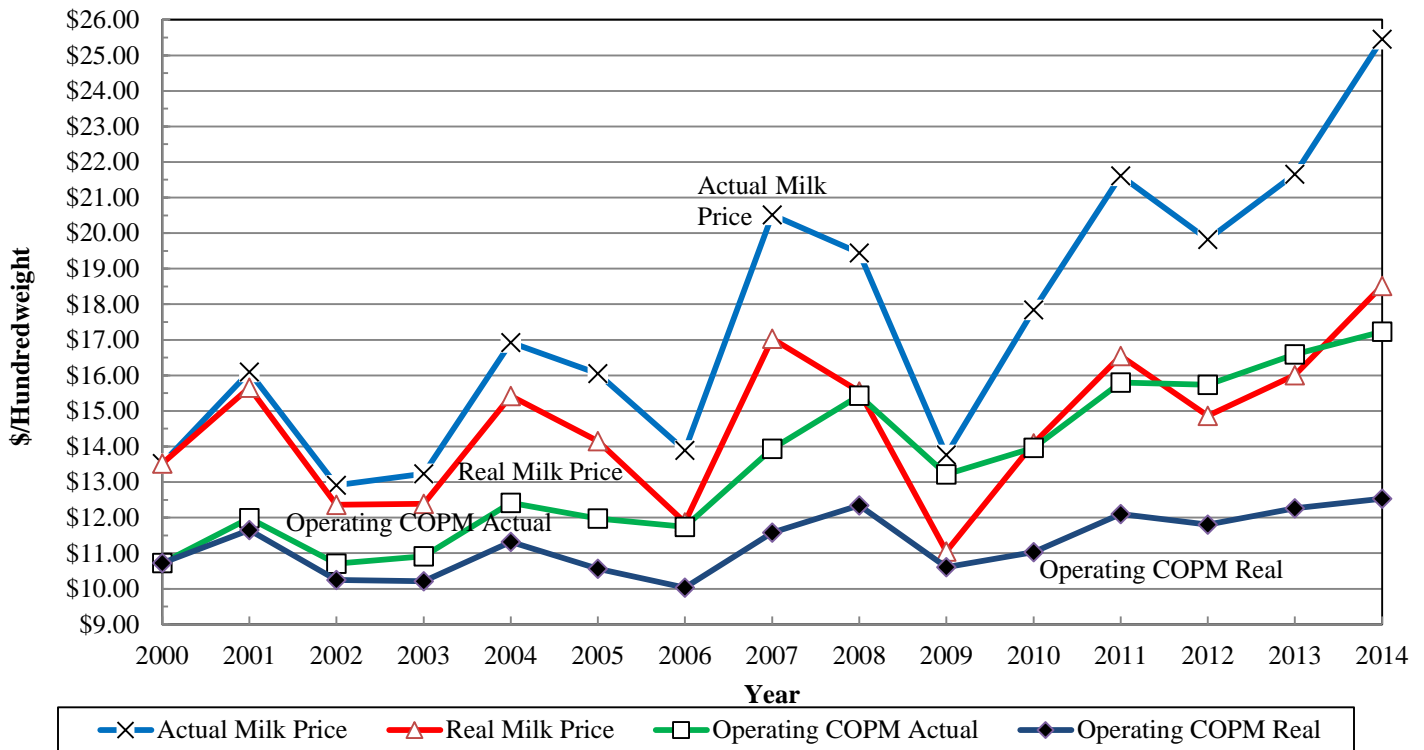


Milk prices in 2014 averaged \$25.45 per hundredweight in actual dollars (Chart 3). However, the 2014 milk price, adjusted for inflation, in 2000 dollars, would have been only \$18.51 per hundredweight, which would still be a historic high.

Operating costs of producing milk (actual) saw sharp increases between 2006 and 2008 (Chart 3). This was due to feed and fuel costs increasing during 2007 and 2008. Operating costs settled back down in 2009, which coincided with a crash in milk price. Operating costs increase nearly \$2 per hundredweight from 2010 to 2011, followed by a slight drop of \$0.06 in 2012 and an increase of \$0.86 in 2013. In 2014, operating costs increased to \$17.23 per hundredweight from \$16.59 in 2013. Real costs of producing milk per hundredweight have been on an upward trend since 2009, with a small drop in 2012.

Chart 3.

OPERATING COST OF PRODUCING MILK AND MILK PRICE⁷
Dairy Farm Business Summary Farms, 2000-2014



⁷ Actual operating cost of producing milk as well as milk price are adjusted for inflation, to obtain real values, using the Consumer Price Index—2000 dollars.

SUMMARY AND ANALYSIS OF THE FARM BUSINESS

Business Characteristics and Resources Used

Recognition of important business characteristics and identification of the farm resources used is necessary for evaluating management performance. The combination of resources used and management practices employed is known as farm organization. Important farm business characteristics and the number of farms reporting these characteristics for 2014 are presented in the following table.

Table 3.

**BUSINESS CHARACTERISTICS AND RESOURCES USED
173 New York Dairy Farms, 2014**

<u>Dairy Livestock</u>	<u>Cows</u>	<u>Heifers</u>	<u>Dairy Records</u>	<u>Number</u>	<u>Percent</u>
Beginning of Year	663	576	Testing Service	128	74
End of Year	705	604	On Farm System	28	16
Average for Year	695	590	Other	2	1
			None	15	9
<u>Type of Business</u>	<u>Number</u>	<u>Percent</u>	<u>Labor Force (Months)</u>	<u>Average</u>	<u>Percent</u>
Sole Proprietorship	49	28	Operators	27.1	14
Partnership	26	15	Family Paid	3.7	2
Limited Liability Corp.	83	48	Family Unpaid	1.8	1
Subchapter S	13	8	Hired	<u>154.5</u>	<u>83</u>
Subchapter C	2	1	Total Months	187.1	100
<u>Barn Type</u>	<u>Number</u>	<u>Percent</u>			
Stanchion	24	14			
Freestall	137	79		<u>Average</u>	
Combination	12	7	<u>Operators (total = 351)</u>	2.03	
			Age	51	
<u>Milking System</u>	<u>Number</u>	<u>Percent</u>	Education	14 years	
Bucket & Carry	0	0	Estimated value of labor & management/farm	\$139,939	
Dumping Station	0	0			
Pipeline	28	16			
Herringbone	40	23			
Herringbone Rapid Exit	14	8	<u>Land Used</u>	<u>Number</u>	<u>Average</u>
Parallel	64	37	Total acres:		
Parabone	7	4	Owned	173	914
Rotary	5	3	Rented	167	649
Other	15	9	Tillable acres:		
			Owned	173	731
			Rented	166	634
			Total	173	1,366
<u>Milking Frequency</u>	<u>Number</u>	<u>Percent</u>	<u>Breed of Herd</u>		
2 times per day	65	38	Holstein	91%	
3 times per day	96	55	Jersey	4%	
Other	12	7	Other	5%	
<u>Business Records</u>	<u>Number</u>	<u>Percent</u>			
Account Book	14	8			
Accounting Service	19	11			
On-Farm Computer	137	79			
Other	3	2			

There were 351 full-time operator equivalents on the 173 dairy farms for an average of 2.03 operators per farm. The operators averaged 51 years of age and 14 years of formal education. Additional data on the labor force is in Table 44.

All 173 farm businesses included in this dairy summary own farm real estate. Dairy farm renters are summarized separately later in this publication. However, 166 of the dairy farm owners rented an average of 661 acres of tillable land in 2014. The 173 farms averaged 1,366 total tillable acres per farm of which 634 acres were rented. Tables 19 and 25 contain additional information on land use and the dairy herd.

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 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 22.
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 nonoperating cost included in total expenses.
9. Depreciation of machinery and buildings are nonoperating costs included in total expenses. Depreciation charges are based on those reported for income tax purposes.

Cash and accrual farm expenses are summarized below. Total operating accrual expenses for the 173 farms averaged \$9,822 per day and 92 percent of total farm accrual expenses. Cash paid is the actual amount of money paid out during the year and does not necessarily represent the cost of goods and services actually used.

Table 4.

CASH AND ACCRUAL FARM EXPENSES
173 New York Dairy Farms, 2014

Expense Item	Cash Paid	- Change in Inventory or Prepaid Expense	+ Change in Accounts Payable	= Accrual Expenses	Percent
<u>Hired Labor</u>	\$519,798	\$2,171<<	\$-382	\$517,245	14
<u>Feed</u>					
Dairy grain & concentrate	1,441,898	122,980	-16,236	1,302,681	36
Dairy roughage	79,209	7,118	2,333	74,424	2
Nondairy livestock	62	0	0	62	<1
Professional nutritional services	598	0<<	-3	595	<1
<u>Machinery</u>					
Machinery hire, rent & lease	86,010	713<<	-817	84,480	2
Machinery repairs & farm vehicle expense	197,112	2,109	-1,547	193,457	5
Fuel, oil & grease	155,865	1,954	-827	153,084	4
<u>Livestock</u>					
Replacement livestock	11,447	0<<	-934	10,513	<1
Breeding	42,504	1,603	-170	40,732	1
Veterinary & medicine	124,832	1,949	-360	122,523	3
Milk marketing	154,021	0<<	7,066	161,087	5
Bedding	71,113	774	-355	69,983	2
Milking Supplies	68,143	673	-502	66,968	2
Cattle lease & rent	2,880	0<<	0	2,880	<1
Custom boarding	71,207	2,141<<	-907	68,159	2
bST expense	34,253	70<<	-115	34,068	1
Livestock professional fees	12,546	205<<	-47	12,293	<1
Other livestock expense	20,964	247	-479	20,238	1
<u>Crops</u>					
Fertilizer & lime	103,800	7,606	-2,966	93,228	3
Seeds & plants	109,854	18,899	-322	90,632	3
Spray & other crop expense	50,541	1,761	-2,237	46,543	1
Crop professional fees	4,773	748<<	-103	3,922	<1
<u>Real Estate</u>					
Land, building & fence repair	80,775	400	-12	80,364	2
Taxes	46,213	968<<	-15	45,230	1
Rent & lease	49,754	991<<	-43	48,719	1
<u>Other</u>					
Insurance	39,469	4,856<<	514	35,126	1
Utilities	82,193	27<<	69	82,235	2
Interest paid	77,694	93<<	-212	77,389	2
Other professional fees	21,317	48<<	135	21,404	1
Miscellaneous	<u>24,861</u>	<u>95</u>	<u>-146</u>	<u>24,621</u>	<u>1</u>
Total Operating	\$3,785,706	\$181,198	\$-19,620	\$3,584,887	100
Expansion livestock	\$31,977	0<<	0	\$31,977	
Extraordinary expense	\$1,508	0	-216	\$1,291	
Machinery depreciation				\$178,651	
Building depreciation				\$108,689	
TOTAL ACCRUAL EXPENSES				\$3,905,496	

Change in inventory represents feeds and supplies purchased this year but not used (positive change), and similar items purchased in a prior year and used this year (negative change). For example, there was dairy grain and concentrate inventory purchased this year but not used still in inventory that resulted in an increase in the value of \$122,980.

Prepaid expenses (noted by « in Table 4) are advance payments made for services and noninventory items to be used in future years. For example, advance payments for utilities increased an average of \$27 per farm in 2014, and that increase is subtracted from cash rent to determine the correct 2014 accrual utilities expense.

Changes in accounts payable reflect supplies/services used in this year's production but not paid for (positive change), and payments for production inputs used in a prior year (negative change).

Accrual expenses are cash expenses adjusted for changes in inventory, prepaid expenses and accounts payable. They are the total costs of inputs actually used in this year's business. Total change in inventory and prepaid expenses equals \$181,198 and total change in accounts payable equals \$-19,620.

Income Statement - Receipts

Cash and accrual farm receipts are presented in the following table. Total cash receipts averaged \$4,764,155 per farm. Total accrual receipts averaged \$5,069,567 per farm. Accrual receipts were greater than cash receipts due to an increase in milk sales accounts receivable along with dairy herd and homegrown feed inventory growth. Cow numbers increased an average of 41 head per farm. Homegrown feed inventory per cow increased \$82 from beginning to end of year.

Table 5.

CASH AND ACCRUAL FARM RECEIPTS 173 New York Dairy Farms, 2014

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts	Percent
Milk sales	\$4,343,836				\$154,544		\$4,498,379	89
Dairy cattle	254,360		80,472		3,610		338,442	7
Dairy calves	45,916		5,969		556		52,442	1
Other livestock	7,587		3,623		-839		10,371	<1
Crops	32,396		56,995		-247		89,144	2
Government receipts	5,928		0		249		6,177	<1
Custom machine work	10,911				414		11,325	<1
Gas tax refund	477				0		477	<1
Other	62,744				958		63,701	1
- Nonfarm noncash capital transfer ⁹			(-) 891				(-) 891	
Total	\$4,764,155		\$146,167		\$159,244		\$5,069,567	100

⁸Change in advanced government receipts.

⁹Gifts 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 for the sale of farm products, services and government programs.

Accrual receipts represent the value of all farm commodities produced and services actually provided by the farmer during the year. Increases in livestock inventory caused by herd growth and/or quality, are included. Decreases in inventory caused by herd reduction are deducted. Changes in inventories of crops grown are included. Changes in advanced government receipts are the amount by which government payments received for participating in a future year's program have changed from 2013 to 2014. An increase requires a negative adjustment to cash receipts while a decrease is a positive adjustment. Changes in accounts receivable include the difference between the January milk check for December 2014 marketings and the previous January's check, and other delayed payments.

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. Gifts and inheritances of machinery and real estate are accounted for in Table 12.

Profitability Analysis

Farm owners/operators contribute labor, management, and capital to their businesses. The best combination of these resources produces optimum profits. Farm profits 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 total combined return to the farm operator(s) 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 with and without appreciation. Appreciation represents the change in farm inventory values caused by changes in prices during the year. Appreciation is a major factor contributing to changes in farm net worth and must be included in the profitability analysis. Net appreciation totaled \$236,077 per farm in 2014. On the average, farm real estate appreciated \$143,952 or 4.7 percent of beginning fair market value. Machinery appreciated 2.4 percent while dairy cattle prices appreciated 4.4 percent in 2014.

Average data from 17 farms with the highest rates of return to all capital (without appreciation) are compared with the 173 farm average in Table 8 and in many of the following tables. Net farm income without appreciation averaged \$2,419,865 per farm on the top 10 percent farms, 208 percent greater than the 173-farm average.

Table 6.

NET FARM INCOME 173 New York Dairy Farms, 2014

Item	Average 173 Farms		Average Top 10% Farms ¹⁰	
	Per Farm	Per Cow	Per Farm	Per Cow
Total accrual receipts	\$5,069,567		\$8,100,359	
+ Appreciation: Livestock	41,560		64,479	
Machinery	29,908		16,292	
Real Estate	143,952		94,594	
Other Stock & Certificates	<u>20,657</u>		<u>-5,417</u>	
= Total including appreciation	\$5,305,643		\$8,270,308	
- Total accrual expenses	<u>3,905,496</u>		<u>5,680,494</u>	
= Net Farm Income (with appreciation)	\$1,400,147	\$2,016	\$2,589,814	\$2,494
Net Farm Income (without appreciation)	\$1,164,071	\$1,676	\$2,419,865	\$2,330

¹⁰Average of 17 farms with highest rates of return to all capital (without appreciation).

Labor and management income is the part of net farm income without appreciation returned to the operator(s) labor and management. Appreciation is not included as part of the return to labor and management. Labor and management income is determined by deducting the charge for unpaid family labor and the cost of using equity capital at a real interest rate of five percent, from net farm income excluding appreciation. The interest charge reflects the long-term average rate of return above inflation that a farmer might expect to earn in comparable risk investments. Operator(s)' labor is not included in unpaid family labor.

Labor and management income per operator measures the return to one full-time operator's labor and management. A full-time operator provides 12 months of labor and management regardless of the actual labor hours worked.

Table 7.

**LABOR AND MANAGEMENT INCOME
173 New York Dairy Farms, 2014**

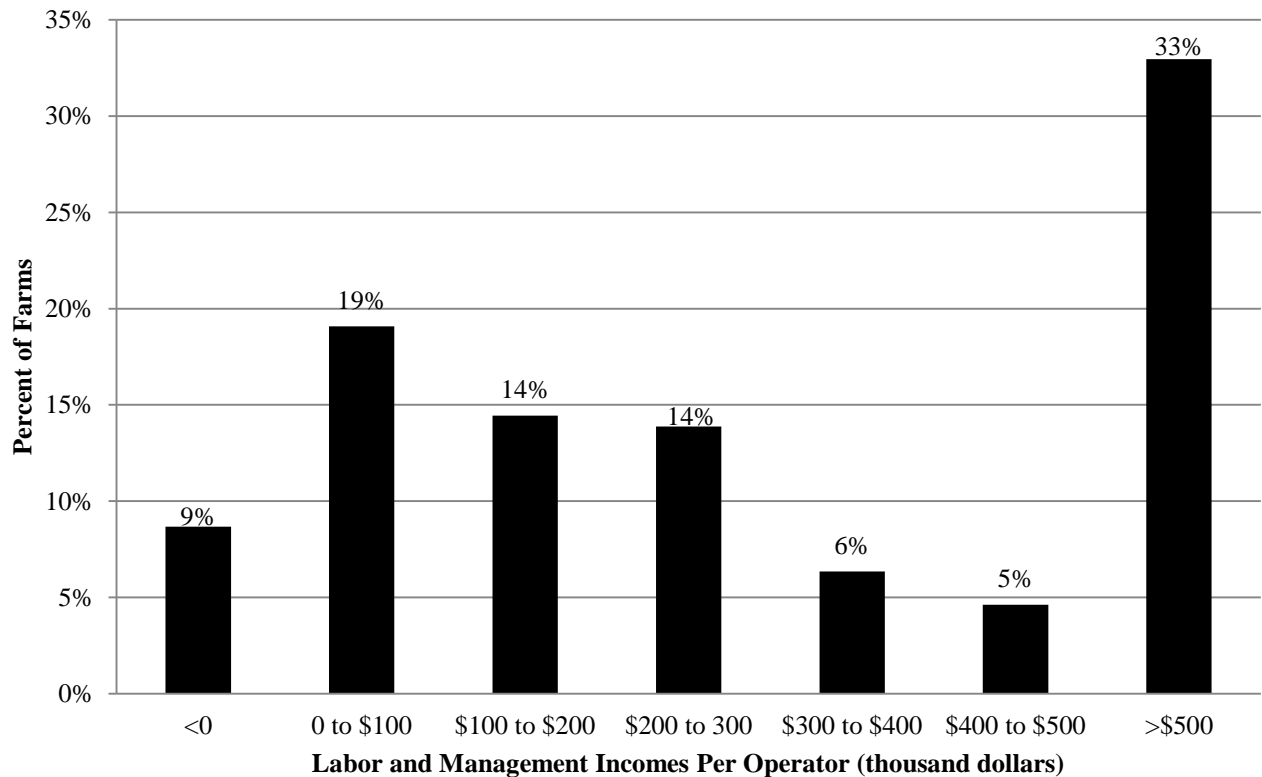
Item	Average 173 Farms		Average Top 10% Farms ¹¹
Net farm income without appreciation	\$1,164,071		\$2,419,865
- Family labor unpaid @ \$2,600 per month	4,760		1,453
- Real interest @ 5% on \$5,607,607 equity capital for average & \$7,588,443 for the top 10% farms	<u>280,380</u>		<u>379,422</u>
= Labor & Management Income (2.03 operators)	\$878,931	(2.15 operators)	\$2,038,990
Labor & Management Income per Operator	\$432,971		\$948,367

¹¹Average of 17 farms with highest rates of return to all capital (without appreciation).

Labor and management income per operator averaged \$432,971 on these 173 dairy farms in 2014. The range in labor and management income per operator was from less than \$-107,800 to more than \$2,354,000. Returns to labor and management were less than \$100,000 on 28 percent of the farms. Labor and management incomes per operator were between \$100,000 and \$300,000 on 28 percent of the farms while 44 percent showed labor and management incomes of \$300,000 or more per operator.

Chart 4.

**DISTRIBUTION OF LABOR AND MANAGEMENT INCOMES PER OPERATOR
173 New York Dairy Farms, 2014**



Return to 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 and unpaid family labor. The earnings or amount of net farm income allocated to labor and management is the opportunity cost or value of operator(s) 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 year's average farm net worth or equity capital. Return to 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 average total capital. Net farm income from operations ratio is net farm income (without appreciation) divided by total accrual receipts.

Table 8.

**RETURN TO CAPITAL
173 New York Dairy Farms, 2014**

Item	Average 173 Farms	Average Top 10% Farms ¹²
Net farm income with appreciation	\$1,400,147	\$2,589,814
- Family labor unpaid at \$2,600 per month	4,760	1,453
- Value of operators' labor & management	<u>139,939</u>	<u>156,765</u>
= Return to equity capital with appreciation	\$1,255,448	\$2,431,595
+ Interest paid	<u>77,389</u>	<u>70,783</u>
= Return to all capital with appreciation	\$1,332,837	\$2,502,379
Return to equity capital without appreciation	\$1,019,372	\$2,261,647
Return to all capital without appreciation	\$1,096,761	\$2,332,430
Rate of return on average equity capital:		
with appreciation	22.4%	32.0%
without appreciation	18.2%	29.8%
Rate of return on all capital:		
with appreciation	16.7%	24.2%
without appreciation	13.7%	22.6%
Net farm income from operations ratio	0.23	0.30

¹²Average of 17 farms with highest rates of return to all capital (without appreciation).

Return to all labor and management is another measure of profitability of a business that can be calculated. It is calculated by adding the charge for unpaid family labor and the hired labor expense to labor and management income. Table 9 shows that farms with higher return to all capital with appreciation also had significantly higher return per hour to all labor and management.

Table 9.

**RETURN TO ALL LABOR AND MANAGEMENT BY RETURN
TO ALL CAPITAL WITH APPRECIATION
173 New York Dairy Farms, 2014**

Item	Quartile by Return to All Capital With Appreciation			
	Lowest 25%	3rd 25%	2nd 25%	Top 25%
Return to all capital with appreciation	\$61,807	\$562,499	\$1,376,845	\$3,359,757
Rate of return on all capital with appreciation	4.4%	13.3%	16.8%	20.3%
Total returns to all labor & management	\$109,173	\$652,512	\$1,469,584	\$3,402,516
Worker equivalents	3.45	10.59	17.40	31.22
Return per worker equivalent	\$31,684	\$61,610	\$84,467	\$108,981
Returns/hour (2,760 hours/worker/year)	\$11.48	\$22.32	\$30.60	\$39.49

Farm and Family Financial Status

Evaluating the financial status of the farm business and the farm family is an important part of business analysis. The first step is to inventory all the assets, determine all liabilities and fill out the balance sheet. The second step is to analyze the complete balance sheet by evaluating the relationships between assets and liabilities and changes made during the year.

Table 10.

2014 FARM BUSINESS AND NONFARM BALANCE SHEET
173 New York Dairy Farms, 2014

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$ 75,170	\$ 84,722	Accounts payable	\$ 73,310	\$ 53,473
Accounts receivable	394,227	553,472	Operating debt	217,155	245,145
Prepaid expenses	7,142	20,103	Short term	5,225	3,400
Feed & supplies	<u>871,410</u>	<u>1,096,641</u>	Advanced gov't. receipt	0	0
Total Current	\$1,347,948	\$1,754,938	Current portion:		
			Intermediate	188,440	206,412
			Long term	<u>67,743</u>	<u>75,097</u>
			Total Current	\$551,872	\$583,527
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy Cows:			Structured debt		
owned	\$ 949,083	\$1,034,497	1-10 years	\$982,475	\$896,168
leased	0	0	Financial lease		
Heifers	551,012	590,186	(cattle & machinery)	8,263	7,311
Bulls & other livestock	10,832	17,867	Farm Credit stock	<u>1,080</u>	<u>1,106</u>
Mach. & equip. owned	1,233,406	1,431,056	Total Intermediate	\$991,818	\$904,585
Mach. & equip. leased	8,263	7,311			
Farm Credit stock	1,080	1,106	<u>Long Term</u>		
Other stock & certificates	<u>230,205</u>	<u>267,689</u>	Structured debt		
Total Intermediate	\$2,983,879	\$3,349,711	≥ 10 years	\$871,105	\$913,589
<u>Long Term</u>			Financial lease		
Land & buildings:			(structures)	<u>1,162</u>	<u>640</u>
owned	\$3,076,533	\$3,446,098	Total Long Term	\$872,267	\$914,229
leased	<u>1,162</u>	<u>640</u>			
Total Long Term	\$3,077,695	\$3,446,738	Total Farm Liabilities	\$2,415,956	\$2,402,341
Total Farm Assets	\$7,409,522	\$8,551,388	FARM NET WORTH	\$4,993,566	\$6,149,047
Nonfarm Assets ¹³	Jan.1	Dec. 31	Nonfarm Liabilities ¹³	Jan. 1	Dec. 31
Personal cash, checking & savings	\$ 8,336	\$ 10,578	Nonfarm Liabilities	\$ 6,710	\$ 5,156
Cash value life insurance	59,726	63,511	NONFARM NET WORTH	\$597,218	\$609,249
Nonfarm real estate	104,661	103,613			
Auto (personal share)	6,878	7,475	FARM & NONFARM ¹⁴	Jan. 1	Dec. 31
Stocks & bonds	258,117	243,586	Total Assets	\$8,013,450	\$9,165,794
Household furnishings	5,381	5,381	Total Liabilities	<u>2,422,666</u>	<u>2,407,497</u>
All other	<u>160,829</u>	<u>180,263</u>	TOTAL FARM & NON-		
Total Nonfarm	\$603,928	\$614,406	FARM NET WORTH	\$5,590,784	\$6,758,297

¹³Average of 62 farms completing the nonfarm balance sheet.

¹⁴Sum of average farm values for 173 farms and nonfarm values for 62 farms.

Financial lease obligations are included in the balance sheet. The present values of all future payments are listed as liabilities since the farmer (lessee) is committed to making the payments. The present values are also listed as assets, representing the future value the item has to the business.

The farm balance sheet analysis includes financial and debt ratios and factors measuring levels of debt. Percent equity is calculated by dividing farm net worth by farm assets. Equity increases as the value of assets increase more than liabilities. The debt to asset ratios reflect strength in solvency and the potential capacity to borrow. The debt analysis ratios show how well the debt is structured and managed. The leverage ratio is the dollars of debt per dollar of equity, computed by dividing total farm liabilities by farm net worth. Debt levels per unit of productive capacity include some old standards that are still useful if used with measures of cash flow and repayment ability.

Table 11.

FARM BALANCE SHEET ANALYSIS
173 New York Dairy Farms, 2014

Item	Average 173 Farms	Average Top 10% Farms ¹⁵		
<u>Farm Financial Ratios:</u>				
Percent equity	72%	75%		
Debt/asset ratio: total	0.28	0.25		
long term	0.27	0.22		
intermediate & current	0.29	0.26		
Leverage Ratio:	0.39	0.33		
Current Ratio:	3.01	3.80		
Working Capital: \$1,171,411 Dollars as % of Total Expenses:	30%	\$2,169,549 38%		
<u>Farm Debt Analysis:</u>				
Accounts payable as % of total debt	2%	2%		
Long term liabilities as % of total debt	38%	33%		
Current & intermediate liabilities as % of total debt	62%	67%		
Cost of term debt (weighted average)	3.8%	3.6%		
<u>Farm Debt Levels:</u>				
	<u>Per Cow</u>	<u>Per Tillable Acre Owned</u>	<u>Per Cow</u>	<u>Per Tillable Acre Owned</u>
Total farm debt	\$3,433	\$3,285	\$2,687	\$3,413
Long term debt	1,307	1,250	899	1,141
Intermediate & long term	2,599	2,487	1,956	2,484
Intermediate & current debt	2,127	2,035	1,788	2,272

¹⁵Average of 17 farms with highest rates of return to all capital (without appreciation).

The farm inventory balance accounts for the changes in the values of major farm assets from the beginning to the end of the year.

Table 12.

FARM INVENTORY BALANCE
173 New York Dairy Farms, 2014

Item	Real Estate	Machinery & Equipment	Livestock
Value beginning of year	\$3,076,533	\$1,233,406	\$1,510,926
Purchases	\$485,743 ¹⁶	\$351,546	
+ nonfarm noncash transfer ¹⁷	3,179	3,436	
- Lost capital	142,936		
- Net sales	11,684	<u>8,589</u>	
- Depreciation	<u>108,689</u>	178,651	
= Net Investment	225,613	167,742	90,064
+ Appreciation	<u>143,952</u>	<u>29,908</u>	<u>41,560</u>
Value end of year	\$3,446,098	\$1,431,056	\$1,642,549

¹⁶\$151,373 land and \$334,370 buildings and/or depreciable improvements.

¹⁷Gifts and inheritances of property transferred into the farm business from outside.

The Statement of Owner Equity has two purposes. It allows (1) verification that the accrual income statement and market value balance sheet are consistent (in accountants' 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 the farmer to determine to what degree the changes in equity were caused by (1) earnings from the business, and nonfarm income, (in excess of withdrawals) being retained in the business (retained earnings), (2) outside capital invested in the business or farm capital 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).

Lost capital is the difference between the actual cost of investment in new buildings or land improvements and the amount that these improvements added to the value of the farm's market value balance sheet.

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

Table 13.

**STATEMENT OF OWNER EQUITY (RECONCILIATION)
173 New York Dairy Farms, 2014**

Item	Average 173 Farms	Average Top 10% Farms ¹⁹
Beginning of year farm net worth	\$5,066,166	\$6,520,953
Net farm income without appreciation	\$1,164,071	\$2,419,865
+ Nonfarm cash income	4,130	1,328
- Personal withdrawals & family expenditures and income taxes, excluding nonfarm borrowings	<u>224,961</u>	<u>285,742</u>
RETAINED EARNINGS	+ \$943,240	+ \$2,135,451
Nonfarm noncash transfers to farm	\$ 7,506	\$ 19,248
+ Cash used in business from nonfarm capital	39,482	57,754
- Note or mortgage from farm real estate sold (nonfarm)	<u>0</u>	<u>0</u>
CONTRIBUTED/WITHDRAWN CAPITAL	+ \$46,989	+ \$77,002
Appreciation	\$ 236,076	\$ 169,949
- Lost capital	<u>142,936</u>	<u>261,560</u>
CHANGE IN VALUATION EQUITY	+ \$93,140	+ \$-91,611
IMBALANCE/ERROR	<u>- \$489</u>	<u>- \$-14,139</u>
End of year farm net worth ¹⁸	\$6,149,047	\$8,655,934
<u>Change in Net Worth</u>		
Without appreciation	\$846,804	\$1,965,032
With appreciation	\$1,082,880	\$2,134,981

¹⁸May not add due to rounding.

¹⁹Average of 17 farms with highest rates of return to all capital (without appreciation).

Cash Flow Summary and Analysis

Completing an annual cash flow statement is an important step in understanding and organizing the sources and uses of funds for the business. It is also useful in determining accuracy and completeness of the data. Understanding last year's cash flow is the first step in 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 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 flows.

Table 14.

**ANNUAL CASH FLOW STATEMENT
173 New York Dairy Farms, 2014**

Item	Average 173 Farms	
<u>Cash Flow from Operating Activities</u>		
Cash farm receipts	\$4,764,155	
- Cash farm expenses	3,785,706	
- Extraordinary expense	<u>1,508</u>	
= Net cash farm income		\$976,942
Personal withdrawals & family expenses including nonfarm debt payments	\$224,838	
- Nonfarm income	<u>4,130</u>	
- Net cash withdrawals from the farm		<u>\$220,708</u>
= Net Provided by Operating Activities		\$756,234
<u>Cash Flow From Investing Activities</u>		
Sale of assets: machinery	\$ 8,589	
+ real estate	11,684	
+ other stock & certificates	<u>7,317</u>	
= Total asset sales		\$27,590
Capital purchases: expansion livestock	\$ 31,977	
+ machinery	351,546	
+ real estate	485,743	
+ other stock & certificates	<u>24,145</u>	
- Total invested in farm assets		<u>\$893,412</u>
+ Net Provided by Investment Activities		\$-865,821
<u>Cash Flow From Financing Activities</u>		
Money borrowed (intermediate & long term)	\$380,648	
+ Money borrowed (short term)	2,779	
+ Increase in operating debt	27,990	
+ Cash from nonfarm capital used in business	39,482	
+ Money borrowed - nonfarm	<u>-123</u>	
= Cash inflow from financing		\$450,777
Principal payments (intermediate & long term)	\$326,549	
+ Principal payments (short term)	4,604	
+ Decrease in operating debt	<u>0</u>	
- Cash outflow for financing		<u>\$331,153</u>
= Net Provided by Financing Activities		\$119,624
<u>Cash Flow From Reserves</u>		
Beginning farm cash, checking & savings		\$75,170
- Ending farm cash, checking & savings		<u>84,722</u>
= Net Provided from Reserves		\$-9,552
<u>Imbalance (error)</u>		\$484

Table 15.

ANNUAL CASH FLOW DATA
173 New York Dairy Farms, 2014

Item	Average 173 Farms			Average Top 10% Farms ²¹		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Average number of cows and cwt. milk		695	176,737		1,038	273,425
<u>Accrual Operating Receipts</u>						
Milk	\$4,498,379	\$6,477	\$25.45	\$7,051,110	\$6,790	\$25.79
Dairy cattle	338,442	487	1.91	526,296	507	1.92
Dairy calves	52,442	76	0.30	86,561	83	0.32
Other livestock	10,371	15	0.06	21,367	21	0.08
Crops	89,144	128	0.50	317,062	305	1.16
Miscellaneous receipts	80,789	116	0.46	97,962	94	0.36
Total	\$5,069,567	\$7,299	\$28.68	\$8,100,359	\$7,801	\$29.63
<u>Accrual Operating Expenses</u>						
Hired labor	\$ 517,245	\$ 745	\$ 2.93	\$ 699,167	\$ 673	\$ 2.56
Dairy grain & concentrate	1,302,681	1,876	7.37	1,912,161	1,841	6.99
Dairy roughage	74,424	107	0.42	172,091	166	0.63
Nondairy feed	62	0	0.00	0	0	0.00
Professional nutritional services	595	1	0.00	1,453	1	0.01
Machinery hire, rent & lease	84,480	122	0.48	121,867	117	0.45
Machinery repairs & vehicle expense	193,457	279	1.09	261,450	252	0.96
Fuel, oil & grease	153,084	220	0.87	208,419	201	0.76
Replacement livestock	10,513	15	0.06	18,334	18	0.07
Breeding	40,732	59	0.23	56,365	54	0.21
Veterinary & medicine	122,523	176	0.69	182,781	176	0.67
Milk marketing	161,087	232	0.91	275,822	266	1.01
Bedding	69,983	101	0.40	113,439	109	0.41
Milking supplies	66,968	96	0.38	71,584	69	0.26
Cattle lease	2,880	4	0.02	523	1	0.00
Custom boarding	68,159	98	0.39	114,915	111	0.42
bST expense	34,068	49	0.19	54,094	52	0.20
Livestock professional fees	12,293	18	0.07	15,351	15	0.06
Other livestock expense	20,238	29	0.11	21,839	21	0.08
Fertilizer & lime	93,228	134	0.53	132,854	128	0.49
Seeds & plants	90,632	130	0.51	121,931	117	0.45
Spray/other crop expense	46,543	67	0.26	69,558	67	0.25
Crop professional fees	3,922	6	0.02	4,568	4	0.02
Land, building & fence repair	80,364	116	0.45	113,825	110	0.42
Taxes	45,230	65	0.26	61,360	59	0.22
Real estate rent & lease	48,719	70	0.28	67,603	65	0.25
Insurance	35,126	51	0.20	48,982	47	0.18
Utilities	82,235	118	0.47	128,381	124	0.47
Other professional fees	21,404	31	0.12	24,999	24	0.09
Miscellaneous	24,621	35	0.14	39,452	38	0.14
Total Less Interest Paid	\$3,507,498	\$5,050	\$19.85	\$5,115,168	\$4,926	\$18.71
<u>Net Accrual Operating Income</u>						
(without interest paid)	\$1,562,069	\$2,249	\$ 8.84	\$2,985,191	\$2,875	\$10.92
- Change in livestock & crop inventory	146,167	210	0.83	523,060	504	1.91
- Change in accounts receivable	159,244	229	0.90	268,832	259	0.98
- Change in feed & supply inventory	181,198	261	1.03	448,239	432	1.64
+ Change in accounts payable ²⁰	-19,408	-28	-0.11	-16,383	-16	-0.06
NET CASH FLOW	\$1,056,051	\$1,521	\$ 5.98	\$1,728,678	\$1,665	\$ 6.32
- Net personal withdrawals & family exp.	220,477	317	1.25	284,414	274	1.04
Available for Farm Debt Payments & Investment	\$ 835,573	\$1,203	\$ 4.73	\$1,444,264	\$1,391	\$ 5.28
- Farm debt payments	495,356	713	2.80	503,443	485	1.84
Cash available for Farm Investments	\$ 340,217	\$ 490	\$ 1.92	\$ 940,821	\$ 906	\$ 3.44

²⁰Exclude change in interest account payable.²¹Average of 17 farms with highest rates of return to all capital (without appreciation).

Repayment Analysis

The second step in cash flow planning and management is to compare and evaluate debt payments planned and made last year, and then to estimate the payments required in the current year. It is helpful to compare and evaluate a farm's repayment position by using debt payments per unit of production and receipt/debt payment ratios. The data below are from farms that completed summaries for both 2013 and 2014.

Table 16.

FARM DEBT PAYMENTS PLANNED Same 160 New York Dairy Farms, 2014

Debt Payments	160 Dairy Farms			17 Top 10% Farms		
	2014 Payments		Planned 2015	2014 Payments		Planned 2015
	Planned	Made		Planned	Made	
Long term	\$106,937	\$135,764	\$ 118,247	\$ 109,088	\$149,323	\$ 120,635
Intermediate term	253,392	290,301	258,461	258,083	273,211	291,380
Short term	1,926	5,082	1,136	0	2,354	0
Operating (net reduction)	21,949	61,390	12,313	6,716	43,496	0
Accts. payable (net reduction)	744	31,387	2,441	0	35,059	0
Total	\$384,948	\$523,924	\$392,598	\$373,887	\$503,443	\$412,015
Per cow	\$521	\$709		\$360	\$485	
Per hundredweight 2014 milk	\$2.04	\$2.78		\$1.37	\$1.84	
Percent of 2014 milk receipts	8%	10%		6%	7%	

The cash flow coverage ratio and debt coverage ratio measure the ability of the farm business to meet its planned debt payments from normal operation of the business. Debt coverage ratio indicates the income generated to make payments while cash flow coverage ratio shows the cash available to make payments.

Table 17.

COVERAGE RATIOS Same 160 New York Dairy Farms, 2014

Item	Average	Item	Average
<u>Cash Flow Coverage Ratio</u>		<u>Debt Coverage Ratio</u>	
Cash farm receipts	\$5,079,106	Net farm income (without appreciation)	\$1,244,234
- Cash farm expenses	4,035,223	+ Depreciation	306,881
+ Interest paid (cash)	82,063	+ Interest paid (accrual)	81,716
- Net personal withdrawals from farm ²²	<u>233,481</u>	- Net personal withdrawals from farm ²²	<u>233,481</u>
(A) = Amount Available for Debt Service	\$892,464	(A') = Repayment Capacity	\$1,399,349
(B) = Debt Payments Planned for 2014 (as of December 31, 2013)	\$384,984	(B) = Debt Payments Planned for 2014 (as of December 31, 2013)	\$384,984
(A/B)= Cash Flow Coverage Ratio for 2014	2.32	(A'/B)= Debt Coverage Ratio for 2014	3.64

17 Top 10% Dairy Farms, 2014			
(A) = Amount Available for Debt Service	\$1,444,264	(A') = Repayment Capacity	\$2,566,690
(B) = Debt Payments Planned for 2014	373,887	(B) = Debt Payments Planned for 2014	373,887
(A/B)= Cash Flow Coverage Ratio for 2014	3.86	(A'/B)= Debt Coverage Ratio for 2014	6.86

²²Personal withdrawals and family expenditures less nonfarm income and nonfarm money borrowed. If excluded, the coverage ratios will represent repayment ability of the farm only.

The debt to asset ratio is a good measure of the current relationship between assets and liabilities, but not the business' ability to meet cash flow obligations. Even with a debt to asset ratio of less than 40 percent, 6.4 percent of the farms had a cash flow coverage ratio less than 1.0.

Table 18.

DEBT TO ASSET RATIO VS. CASH FLOW COVERAGE 173 New York Dairy Farms, 2014

Debt/Asset Ratio	<u>Cash Flow Coverage Ratio (Farm & Nonfarm)</u>			
	<1.0	1.0 to 1.49	1.5 to 2.0	>=2.0
	percent of farms			
<40%	6.4	9.2	12.1	49.7
40 to 60%	4.6	5.8	4.0	5.2
60% & over	1.2	1.7	0.0	0.0

Cropping Program Analysis

The cropping program is an important part of the dairy farm business that is sometimes overlooked and often neglected. A complete evaluation of available land resources, how they are used, and what it costs to produce the crops, are required to evaluate alternative cropping and feed purchase choices.

Table 19.

LAND RESOURCES AND CROP PRODUCTION 173 New York Dairy Farms, 2014

Item	Average 173 Farms			Average Top 10% Farms ²³		
	<u>Owned</u>	<u>Rented</u>	<u>Total</u>	<u>Owned</u>	<u>Rented</u>	<u>Total</u>
<u>Land</u>						
Tillable	731	634	1,366	834	953	1,786
Nontillable pasture	28	10	38	12	2	14
Other nontillable	<u>155</u>	<u>4</u>	<u>160</u>	<u>108</u>	<u>0</u>	<u>108</u>
Total	914	649	1,563	954	954	1,909
<u>Crop Yields</u>	<u>Farms</u>	<u>Acres</u>	<u>Prod/Acre</u>	<u>Farms</u>	<u>Acres</u>	<u>Prod/Acre</u>
Hay crop	168	603	3.4 tn DM	16	786	3.4 tn DM
Corn silage	161	587	19.1 tn	16	836	20.0 tn
			6.5 tn DM			6.6 tn DM
Other forage	37	198	4.1 tn DM	5	348	5.8 tn DM
Total forage	168	1,209	4.8 tn DM	16	1,730	5.1 tn DM
Corn grain	80	258	137 bu	8	299	153 bu
Oats	7	22	52 bu	1	22	50 bu
Wheat	34	109	62 bu	4	86	55 bu
Other crops	45	138		4	48	
Tillable pasture	21	120		0	0	
Idle	39	79		4	64	

²³Average of 17 farms with highest rates of return to all capital (without appreciation).

Crop acres and yields are the average for the farms reporting each crop. All but five of the 173 farms produced hay or hay crop silage in 2014. Ninety-three percent produced corn silage, 46 percent grew and harvested corn grain, and four percent grew oats for grain. Although 21 farms used tillable pasture in 2014, only 10 of the 173 farms reported using rotational grazing.

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.

Crop acres represent planted acres, therefore, any unharvested acres are reflected in lower yields per acre.

The following measures of crop management indicate how effectively the land resource is being used and how well total forage requirements are being met. These measures are the averages of farms that grow forages.

Table 20.

CROP MANAGEMENT FACTORS 168 New York Dairy Farms That Grow Forages, 2014

Item	Average 168 Farms	Average Top 10% Farms ²⁴
Total tillable acres per cow	2.00	1.82
Total forage acres per cow	1.72	1.66
Harvested forage dry matter, tons per cow	8.33	8.50

²⁴Average of 17 farms with highest rates of return to all capital (without appreciation).

Crop input costs per tillable acre are reported in the table below. The chart below shows the relationship between total forage dry matter per acre and total crop input costs.

Table 21.

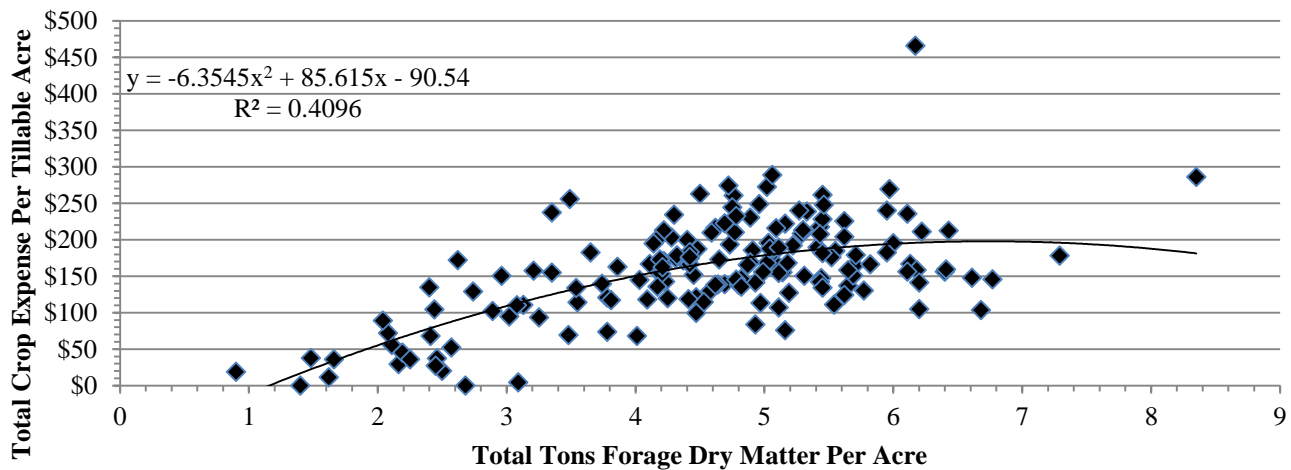
CROP RELATED ACCRUAL EXPENSES
168 New York Dairy Farms That Grow Forages, 2014

Item	Average 168 Farms		Average Top 10% Farms ²⁶	
	Total Per Tillable Acre		Total Per Tillable Acre	
Number of farm reporting	168		17	
Average number of acres	1,403		1,898	
Fertilizer and lime expense	\$67.75		\$71.24	
Seeds & plants	58.28		67.61	
Spray and other crop expense	31.14		42.78	
Total	\$157.17		\$181.63	

²⁵Average of 17 farms with highest rates of return to all capital (without appreciation).

Chart 5.

CROP EXPENSE PER ACRE BY TOTAL FORAGE PRODUCTION PER ACRE
168 New York Dairy Farms That Grow Forages, 2014



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. Machinery costs have not been allocated to individual crops, but they are calculated per total tillable acre.

Table 22.

ACCRUAL MACHINERY EXPENSES
168 New York Dairy Farms That Grow Forages, 2014

Machinery Expense Item	Average 168 Farms		Average Top 10% Farms ²⁶	
	Total Expenses	Per Tillable Acre	Total Expenses	Per Tillable Acre
Fuel, oil & grease	\$156,212	\$111.36	\$214,697	\$113.13
Machinery repairs & vehicle expense	197,164	140.56	270,572	142.57
Machine hire, rent & lease	85,289	60.80	129,484	68.23
Interest (5%)	68,456	48.80	78,383	41.30
Depreciation	182,059	129.79	214,549	113.05
Total	\$689,179	\$491.31	\$907,684	\$478.28

²⁶Average of 17 farms with highest rates of return to all capital (without appreciation) that grow 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 very low R^2 value for Chart 12 indicates little statistical relationship in the 2014 data.

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 nontillable pasture acres less corn grain acres, all divided by the average number of cows.

Chart 6.

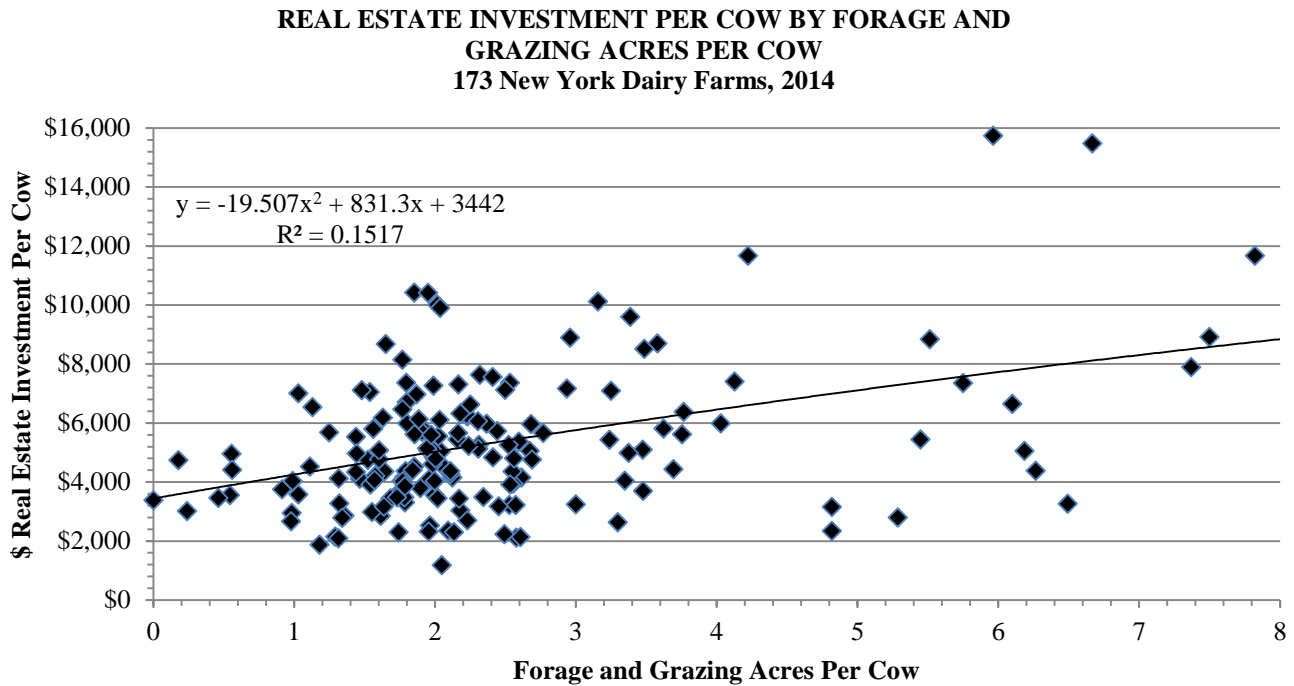
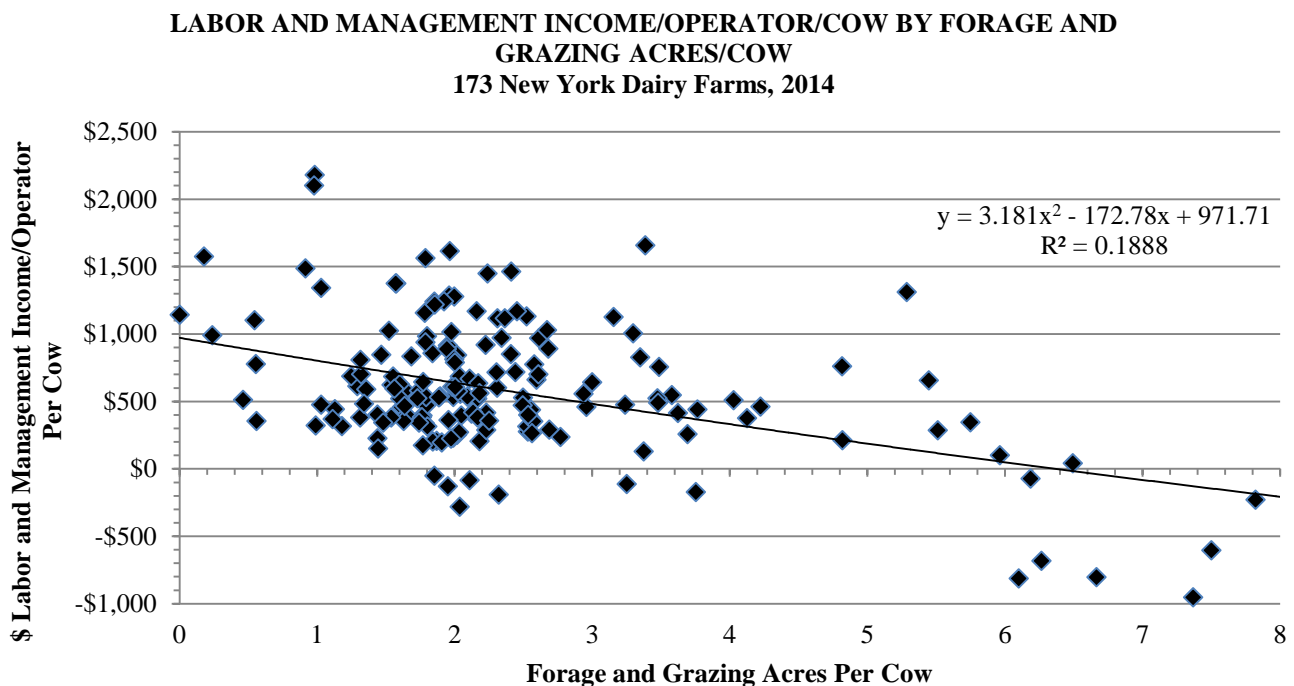


Chart 7.



Dairy Program Analysis

An analysis of the dairy enterprise can be the most important step in evaluating the strengths and weaknesses of the dairy farm business. Changes in dairy herd size and market values are identified in the table below. The change in inventory value without appreciation is attributed to physical changes in herd size and quality. This change in inventory is included as an accrual farm receipt when calculating profitability.

Table 23.

DAIRY HERD INVENTORY 173 New York Dairy Farms, 2014

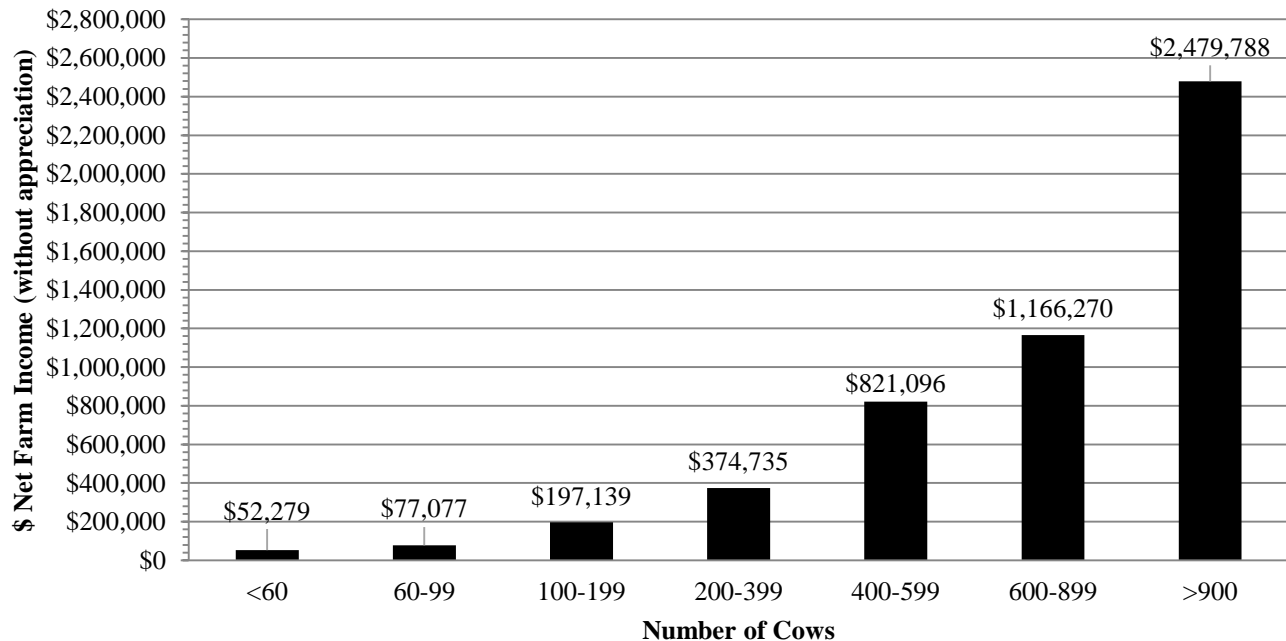
Item	Dairy Cows		Heifers					
	No.	Value	Bred		Open		Calves	
			No.	Value	No.	Value	No.	Value
Beg. year (owned)	663	\$ 949,083	214	\$298,096	197	\$171,949	165	\$80,967
+ Change w/o apprec.		61,582		11,038		7,852		5,969
+ Appreciation		<u>23,832</u>		<u>7,633</u>		<u>4,412</u>		<u>2,270</u>
End year (owned)	705	\$1,034,497	221	\$316,767	206	\$184,213	177	\$89,206
End including leased	700							
Average number	695		590	(all age groups)				
<u>Average Top 10% Farms:²⁷</u>								
Beg. year (owned)	953	\$1,371,229	251	\$364,229	288	\$259,139	229	\$118,624
+ Change w/o apprec.		177,200		53,014		13,836		17,315
+ Appreciation		<u>48,453</u>		<u>9,556</u>		<u>4,806</u>		<u>1,665</u>
End year (owned)	1,079	\$1,596,882	288	\$426,798	303	\$277,781	263	\$137,603
End including leased	1,059							
Average number	1,038		810	(all age groups)				

²⁷Average of 17 farms with highest rates of return to all capital (without appreciation).

Historically, there has been a strong relationship between farm size and net farm income on well-managed dairy farms. In 2014, there was a consistent increase in net farm incomes as herd size increased (Chart 8). For more information on herd size comparisons, see pages 48-58.

Chart 8.

NET FARM INCOME (WITHOUT APPRECIATION) BY HERD SIZE 173 New York Dairy Farms, 2014



Total milk sold and milk sold per cow are extremely valuable measures of productivity on the dairy farm. These measures of milk output are based on pounds of milk marketed during the year. Milk components per cow in the lower section of the table below are an average of 135 farms that provided the data.

Table 24.

**MILK PRODUCTION
173 New York Dairy Farms, 2014**

Item	Average 173 Farms	Average Top 10% Farms ²⁸
Total milk sold, pounds	17,673,672	27,342,497
Milk sold per cow, pounds	25,448	26,331
	<u>Average 135 Farms</u>	<u>Average 16 Farms</u>
Butterfat per cow, pounds	935	1,024
Protein per cow, pounds	756	829
Total butterfat and protein per cow, pounds	1,691	1,853
Other solids per cow, pounds	1,409	1,554
Total components per cow, pounds	3,100	3,407

²⁸Average of 17 farms with highest rates of return to all capital (without appreciation).

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 led to higher net farm incomes. In 2014, farms with higher milk production per cow and more cows did have higher labor and management incomes per operator.

Table 25.

**MILK SOLD PER COW AND FARM INCOME MEASURES
173 New York Dairy Farms, 2014**

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 16,000	17	197	\$161,073	\$563	\$61,949
16,000 to 18,999	8	109	154,559	1,403	57,163
19,000 to 20,999	7	111	152,409	1,348	64,659
21,000 to 22,999	22	365	541,914	1,552	255,677
23,000 to 24,999	32	837	1,206,616	1,452	440,322
25,000 to 26,999	57	845	1,504,977	1,690	515,411
27,000 & over	30	1,072	2,000,840	1,861	808,610

The relationship between milk output per cow and net farm income on all dairy farms is shown in Table 25 above and is diagrammed in Charts 9 and 10 on page 26. Each spot on each scatter diagram represents one of the 173 farms.

Historically, net farm income per cow has increased as pounds of milk sold per cow increased. This relationship held true in 2014 (see Table 25 and Charts 9 and 10). As pounds of milk sold per cow increased, total net farm income increased as did net farm income per cow, with some fluctuation.

Chart 9.

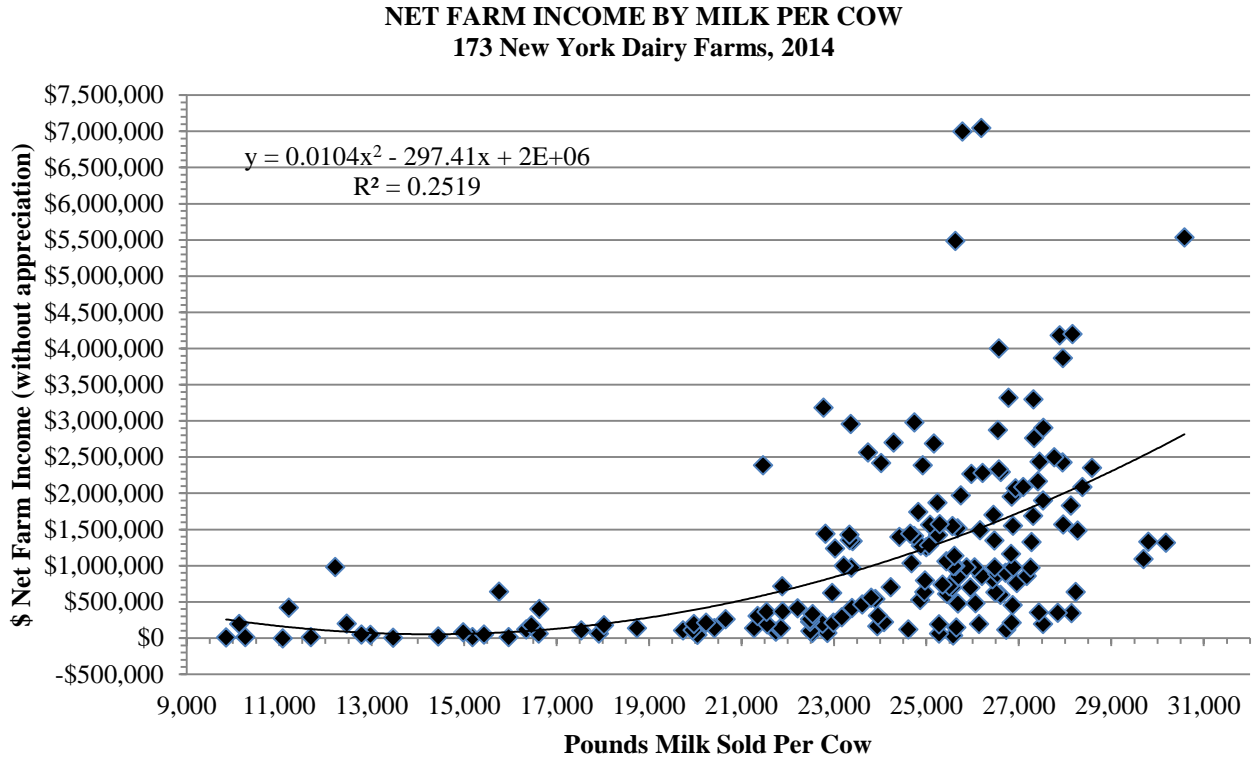
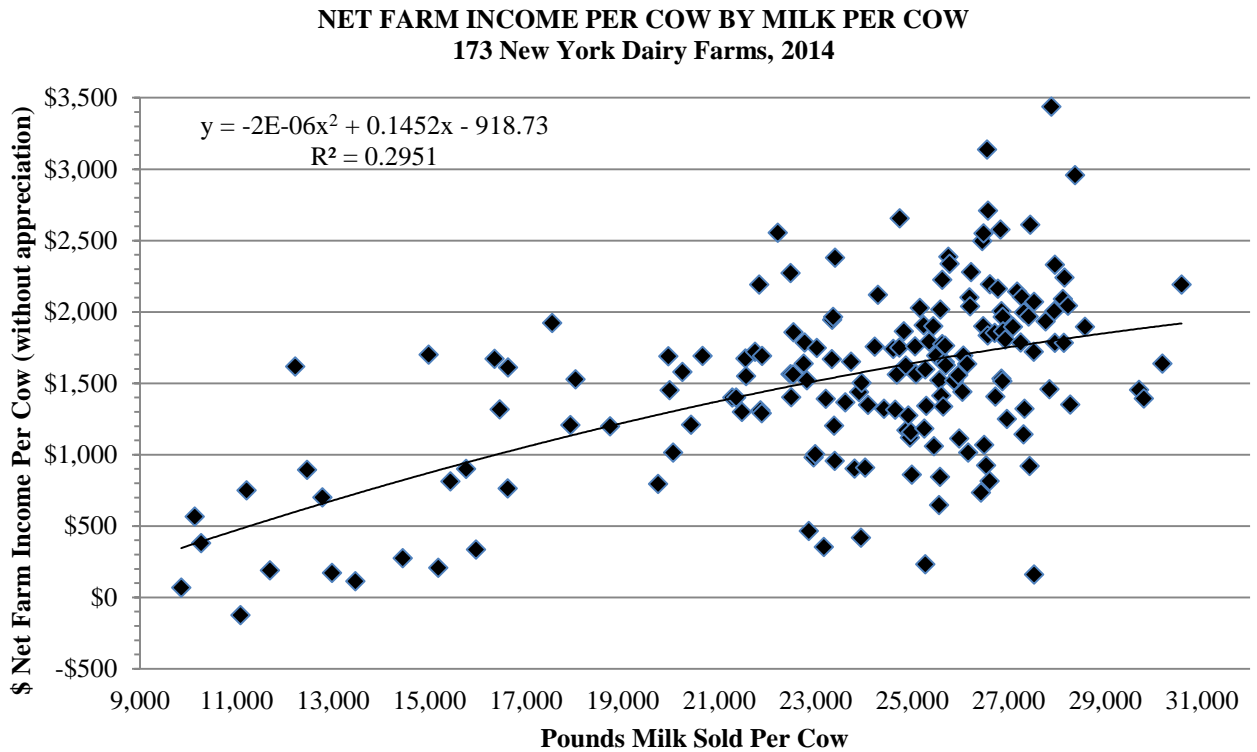


Chart 10.



Charts 11 and 12 show relationships between cull rates and milk production and net farm income per cow. The culling chart (Table 26) reports the decile range of reported factors for the different information that was collected. The average culling rate was 34 percent, sell rate was 28 percent, and death rate was 6 percent. The average number of cows sold for beef equaled 194, while 4 cows were sold for dairy, and 40 cows died. Please refer to the glossary for definitions of the different terms and how the measures were calculated.

Chart 11.

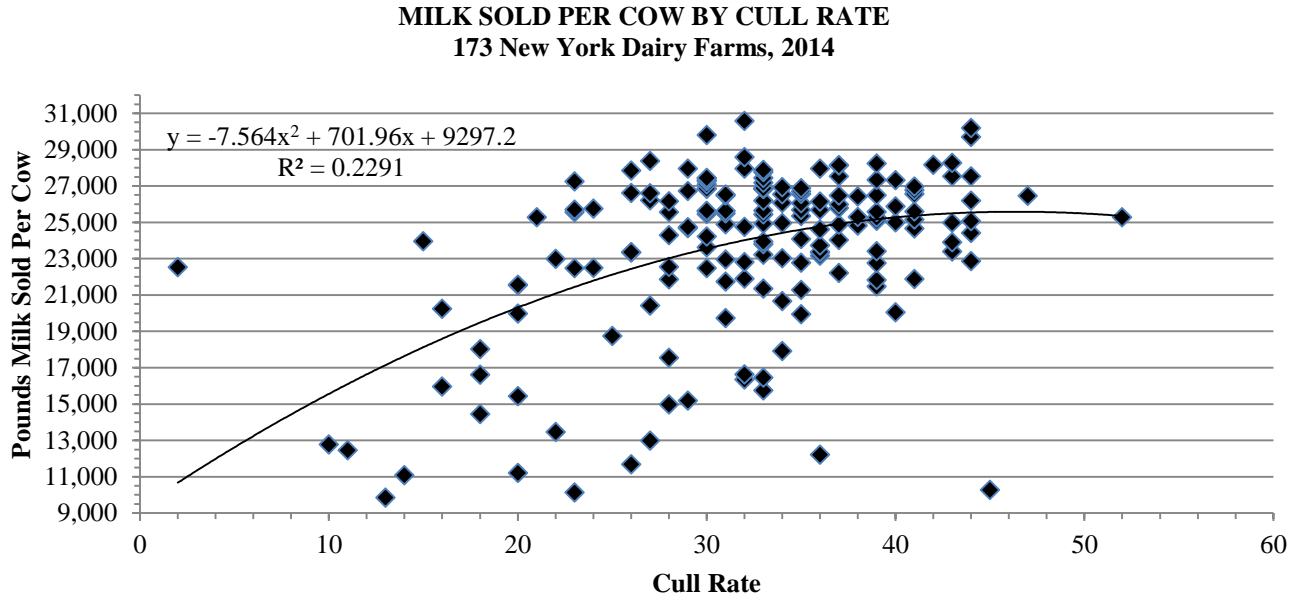


Chart 12.

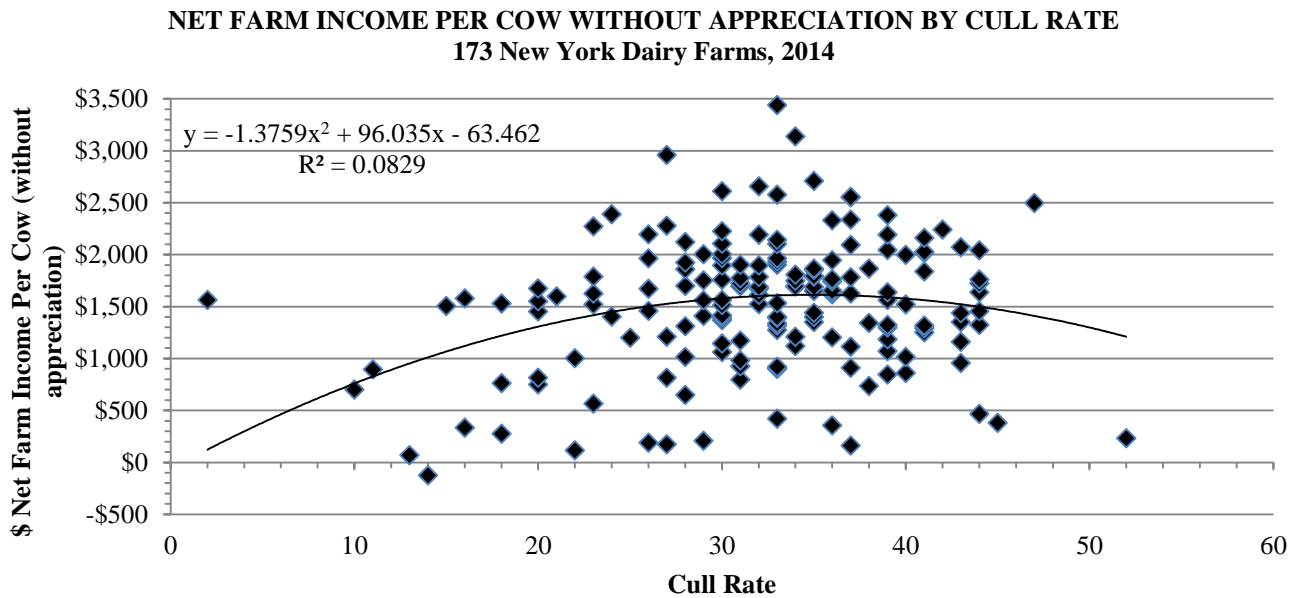


Table 26.

CULLING RATE AND DAIRY REPLACEMENT INFORMATION
New York Dairy Farms, 2014

Decile	Sell Rate	Death Rate	Cull Rate	Value of Cows Sold	Value of Animals Purchased	Percent of Replacements Purchased	Percent of Heifers Custom Raised
		----- 171 Farms ²⁹ -----			\$/head (40 Farms)		-----32 Farms ²⁹ -----
1	11%	1%	14%	\$ 638	\$755	0%	0%
2	20	3	24	1,040	1,386	0	0
3	23	4	28	1,204	1,720	0	0
4	25	4	30	1,351	1,852	0	0
5	27	5	32	1,484	1,944	0	0
6	28	6	33	1,636	2,027	0	0
7	30	6	35	1,827	2,106	0	5.0
8	32	7	37	2,086	2,363	0	23.0
9	34	8	40	2,594	3,294	0.3	54.0
10	39	10	44	3,365	15,793	23.8	71.5

²⁹171 DFBS farms provided culling information. 32 DFBS farms provided supplementary replacement information.

Cost of Producing Milk

The cost of producing milk has been compiled below using the whole farm method. 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 nonmilk receipts, which are used to represent total nonmilk operating costs. This assumes that costs equal revenues for nonmilk activities.
3. Total accrual nonmilk receipts are subtracted from total accrual operating expenses including expansion livestock to calculate the operating cost 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 cost 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 cost of producing milk. This cost includes all the operating, depreciation, and imputed costs of producing milk.

Table 27.

**COST OF PRODUCING MILK, WHOLE FARM METHOD
173 New York Dairy Farms, 2014**

Item	Average 173 Farms	Average Top 10% Farms ³⁰
Total Accrual Operating Expenses	\$3,584,887	\$5,185,951
Expansion Livestock, Accrual	<u>+ 31,977</u>	<u>+ 124,162</u>
1. Total Accrual Operating Expenses, Including Expansion Livestock	\$3,616,864	\$5,310,113
Total Accrual Receipts	\$5,069,567	\$8,100,359
Milk Sales, Accrual	<u>-4,498,379</u>	<u>- 7,051,110</u>
2. Total Accrual Nonmilk Receipts	<u>- \$571,188</u>	<u>-\$1,049,249</u>
3. Operating Cost of Producing Milk	\$3,045,677	\$4,260,864
Machinery Depreciation	+ 178,651	+ 208,013
Building Depreciation	+ 108,689	+ 152,443
Extraordinary Expense	<u>+ 1,291</u>	<u>+ 9,925</u>
4. Purchased Inputs Cost of Producing Milk	\$3,334,308	\$4,631,246
Family Labor Unpaid (\$2,600/month)	+ 4,760	+ 1,453
Real Interest on Equity Capital	+ 280,380	+ 379,422
Value of Operator's Labor & Management	<u>+ 139,939</u>	<u>+ 156,765</u>
5. Total Costs of Producing Milk	\$3,759,388	\$5,168,886
6. Costs Per Cwt.:		
Cwt. Milk Sold	176,737	273,425
Operating Cost Per Cwt.	\$17.23	\$15.58
Purchased Inputs Cost Per Cwt.	\$18.87	\$16.94
Total Cost Per Cwt.	\$21.27	\$18.90

³⁰Average of 17 farms with highest rates of return to all capital (without appreciation).

Costs of producing milk per hundredweight are presented for eight expenditure categories in Table 28. The whole farm method assumption that accrual nonmilk receipts represent nonmilk operating costs is used in computing net costs. A \$56,995 average increase in crop inventories per farm, (\$0.32 per hundredweight of milk), is included in crop sales on the 173 Farms. The top 10 percent farms had a \$260,037 average increase in crop inventories per farm (\$0.95 per hundredweight of milk).

Table 28.

**ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT
BASED ON WHOLE FARM DATA
173 New York Dairy Farms, 2014**

Item	Average 173 Farms	Average Top 10% Farms ³²
Dairy grain and concentrate	\$7.37	\$6.99
Dairy roughage	0.42	0.63
Nondairy feed	0.00	0.00
Professional nutritional services	<u>0.00</u>	<u>0.01</u>
Total feed expense	\$7.79	\$7.63
Crop expense	1.32	1.20
- Crop sales and government receipts ³¹	<u>0.53</u>	<u>1.17</u>
Net Feed and Crop Expense	\$8.58	\$7.66
Hired labor	2.93	2.56
Operator's and family labor	<u>0.43</u>	<u>0.27</u>
Total Labor Expense	\$3.35	\$2.82
Machine repairs, fuel and hire	2.44	2.16
Machinery depreciation	1.01	0.76
- Gas tax refunds and custom work	<u>0.06</u>	<u>0.00</u>
Net Machinery Expense	\$3.39	\$2.92
Replacement and expansion cattle purchases	0.24	0.52
- Sales and inventory growth	<u>1.91</u>	<u>1.92</u>
Net Cattle Purchases	\$-1.67	\$-1.40
Milk marketing costs	0.91	1.01
All other livestock expense excluding purchases	<u>2.48</u>	<u>2.31</u>
Net Livestock Expense	\$3.39	\$3.32
Real estate repairs, rent and taxes	0.99	0.89
Building depreciation	<u>0.61</u>	<u>0.56</u>
Total Real Estate Expense	\$1.60	\$1.45
Interest paid	0.44	0.26
Interest on equity	<u>1.59</u>	<u>1.39</u>
Total Interest Expense	\$2.03	\$1.65
Other operating and miscellaneous expenses	0.92	0.88
- Miscellaneous income	<u>0.36</u>	<u>0.35</u>
Net Miscellaneous Expenses	<u>\$ 0.56</u>	<u>\$0.53</u>
Total Cost of Producing Milk	\$21.27	\$18.90
Purchased Inputs Cost of Producing Milk	\$18.87	\$16.94
Total Operating Cost of Producing Milk	\$17.23	\$15.58

³¹Non-crop related government payments may bias the results.

³²Average of 17 farms with highest rates of return to all capital (without appreciation).

Costs of producing milk per hundredweight are presented in the table below for 160 farms that participated both in 2013 and 2014. Costs of production increased in all expense categories except for net miscellaneous expense which remained constant.

Table 29.

**ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT
BASED ON WHOLE FARM DATA
Same 160 New York Dairy Farms, 2013 & 2014**

Item	2013	2014	Percent Change
Dairy grain and concentrate	\$7.06	\$7.37	4.4%
Dairy roughage	0.47	0.42	-10.6%
Nondairy feed	0.00	0.00	
Professional nutritional services	<u>0.00</u>	<u>0.00</u>	
Total feed expense	\$7.53	\$7.79	3.5%
Crop expense	1.34	1.32	
- Crop sales and government receipts ³³	<u>0.76</u>	<u>0.53</u>	
Net Feed and Crop Expense	\$8.11	\$8.58	5.8%
Hired labor	2.79	2.94	
Operator's and family labor	<u>0.42</u>	<u>0.40</u>	
Total Labor Expense	\$3.21	\$3.34	4.1%
Machine repairs, fuel and hire	2.26	2.43	
Machinery depreciation	0.91	1.01	
- Gas tax refunds and custom work	<u>0.07</u>	<u>0.06</u>	
Net Machinery Expense	\$3.10	\$3.38	9.0%
Replacement and expansion cattle purchases	0.17	0.24	
- Sales and inventory growth	<u>1.53</u>	1.91	
Net Cattle Purchases	\$-1.36	\$-1.67	22.8%
Milk marketing costs	0.85	0.91	
All other livestock expense excluding purchases	<u>2.39</u>	<u>2.47</u>	
Net Livestock Expense	\$3.24	\$3.38	4.3%
Real estate repairs, rent and taxes	0.88	0.98	
Building depreciation	<u>0.59</u>	<u>0.62</u>	
Total Real Estate Expense	\$1.47	\$1.60	8.8%
Interest paid	0.47	0.43	
Interest on equity	<u>1.44</u>	<u>1.58</u>	
Total Interest Expense	\$1.91	\$2.01	5.2%
Other operating and miscellaneous expenses	0.80	0.92	
- Miscellaneous income	<u>0.40</u>	<u>0.36</u>	
Net Miscellaneous Expenses	<u>\$0.40</u>	<u>\$0.56</u>	40.0%
Total Cost of Producing Milk	\$20.25	\$21.22	4.8%
Purchased Inputs Cost	\$18.03	\$18.85	4.6%
Total Operating Cost	\$16.53	\$17.21	4.1%
Average Price Received for Milk	\$21.64	\$25.45	17.6%

³³Non-crop related government payments may bias the results.

The three measures of the accrual cost of producing milk calculated on a per cow and per hundredweight basis are compared with accrual receipts from milk sales in Table 30.

Table 30.

**COST OF PRODUCING MILK, ACCRUAL RECEIPTS FROM DAIRY, AND PROFITABILITY
173 New York Dairy Farms, 2014**

Item	Average 173 Farms			Average Top 10% Farms ³⁴		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
<u>Accrual Cost of Producing Milk</u>						
Operating Cost	\$3,045,677	\$4,385	\$17.23	\$4,260,864	\$4,103	\$15.58
Purchased Inputs Cost	3,334,308	4,801	18.87	4,631,246	4,460	16.94
Total Cost	3,759,388	5,413	21.27	5,168,886	4,978	18.90
<u>Accrual Receipts from Milk</u>						
Net Milk Receipts	\$4,498,379	\$6,477	\$25.45	\$7,051,110	\$6,790	\$25.79
	4,337,293	6,245	24.54	6,775,289	6,525	24.78
<u>Profitability</u>						
Net Farm Income without Appreciation	\$1,164,071	\$1,676	\$6.59	\$2,419,865	\$2,330	\$8.85
Net Farm Income with Appreciation	\$1,400,147	\$2,016	\$7.92	\$2,589,814	\$2,494	\$9.47

³⁴Average of 17 farms with highest rates of return to all capital (without appreciation).

The operating cost of producing milk on all 173 dairy farms averaged \$17.23 per hundredweight, leaving \$8.22 to cover depreciation, unpaid labor and operator resources.

The total cost of producing milk on the 173 dairy farms averaged \$21.27 per hundredweight, \$4.18 less than the average price received for milk sold from these farms during 2014. The inputted costs or charge for the operator's labor, management and equity capital averaged \$2.38 per hundredweight in 2014; however, the farm operator received \$6.58 per hundredweight for these inputs. The 17 most profitable farms held their operating costs to \$15.58 per hundredweight and their total cost of producing milk averaged \$18.90 per hundredweight. This left a return to the operator's labor, management and equity capital of \$8.85 per hundredweight of milk sold.

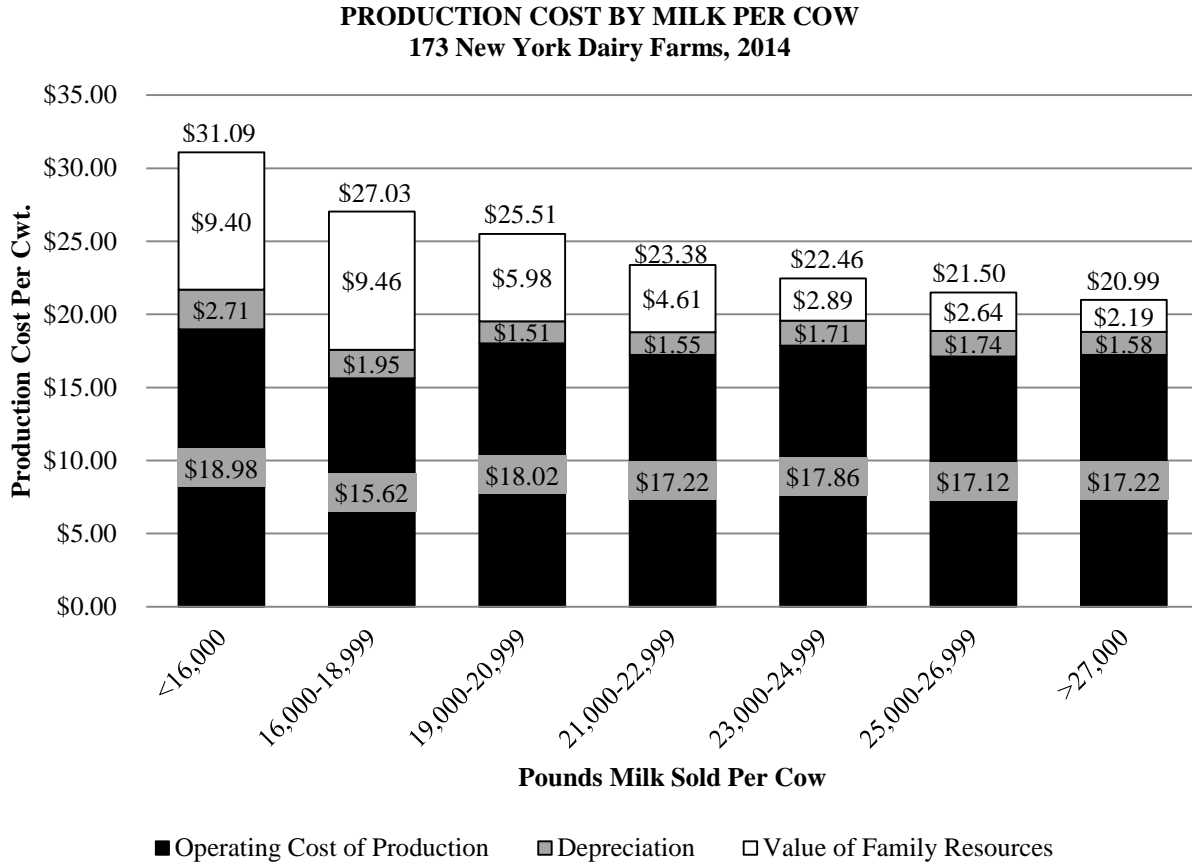
The strong relationship between milk output per cow and the total cost of producing milk is shown in Table 31 and Chart 13 on page 32. Farms selling less than 20,000 pounds of milk per cow had average total costs of production of \$29.32 per hundredweight while those selling 20,000 pounds and over averaged \$22.00 for a difference of \$7.32 per hundredweight.

Table 31.

**FARM COST OF PRODUCING MILK BY MILK SOLD PER COW
173 New York Dairy Farms, 2014**

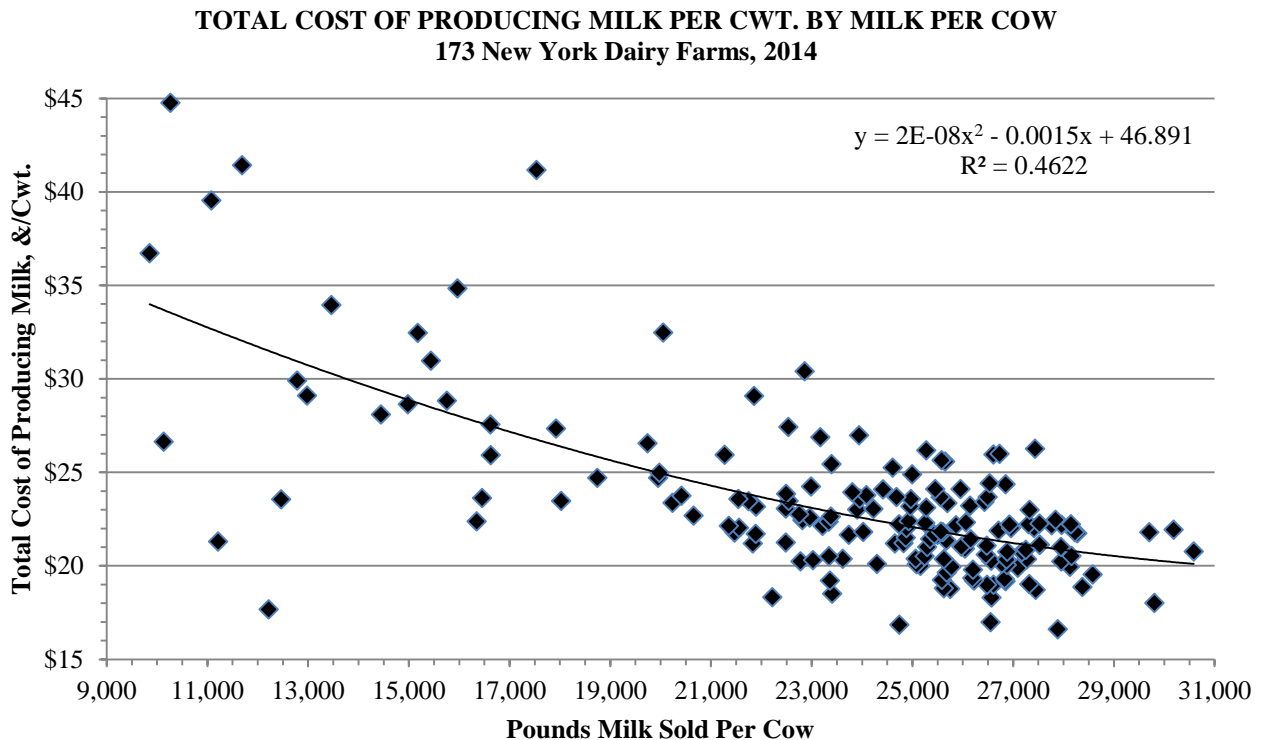
Pounds Milk Sold Per Cow	Costs per Hundredweight					Accrual Receipts From Milk Per Cwt.	Return Per Cwt. To Operator's Labor, Mgmt. & Capital
	Operating Costs		Costs of Producing Milk				
	Hired Labor	Dairy Grain & Concentrate	Total Operating	Purchased Inputs	Total		
Under 16,000	\$2.21	\$6.44	\$18.98	\$21.69	\$31.09	\$25.98	\$3.06
16,000-18,999	1.70	6.07	15.62	17.57	27.03	25.71	6.89
19,000-20,999	1.30	7.22	18.02	19.70	25.51	26.38	5.54
21,000-22,999	2.27	7.38	17.22	18.77	23.38	25.77	6.78
23,000-24,999	2.89	7.38	17.86	19.58	22.46	25.60	6.00
25,000-26,999	2.87	7.34	17.12	18.86	21.50	25.35	6.48
27,000 & over	2.84	7.31	17.22	18.81	20.99	25.45	6.64

Chart 13.



The relationship between total cost of producing milk and milk sold per cow is diagrammed in Chart 14. It shows that as milk sold per cow increases, on the average, total cost of production generally decreases.

Chart 14.



Data in Table 32 and Chart 15 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 under 60 herd size group and highest at the 60 to 99 herd size group, this is not always the case however. Hired labor cost generally increases with herd size, while purchased dairy grain and concentrate are not related to herd size.

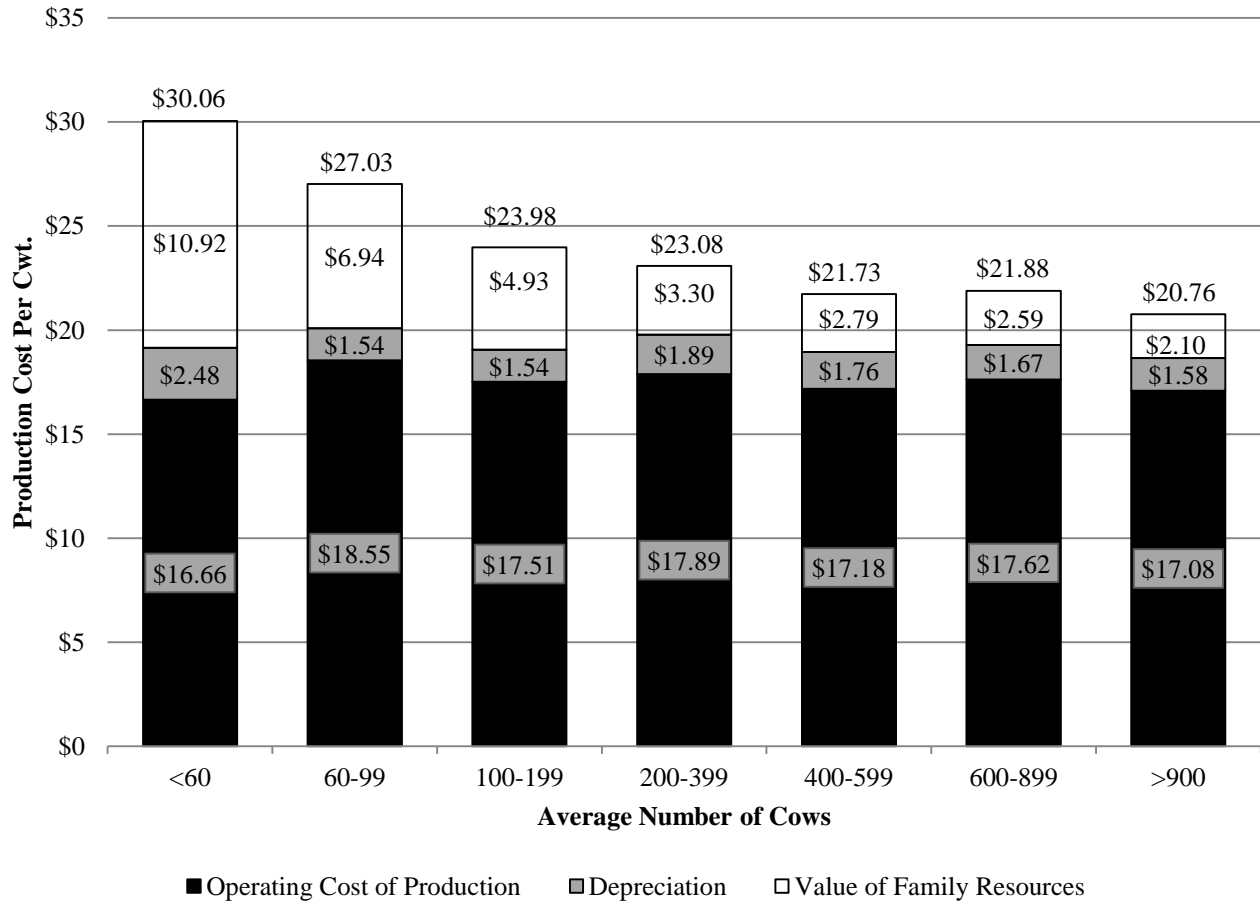
Table 32.

**FARM COST OF PRODUCING MILK BY HERD SIZE
173 New York Dairy Farms, 2014**

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 60	\$0.49	\$6.25	\$16.66	\$19.14	\$30.06	\$25.38	\$4.72
60 to 99	1.90	6.74	18.55	20.09	27.03	25.76	5.03
100 to 199	2.47	7.36	17.51	19.10	23.98	25.83	6.25
200 to 399	2.85	7.36	17.89	19.80	23.08	25.55	5.67
400 to 599	2.85	7.15	17.18	18.94	21.73	25.60	6.64
600 to 899	2.81	7.46	17.62	19.29	21.88	25.75	6.42
900 and over	3.01	7.39	17.08	18.67	20.76	25.34	6.67

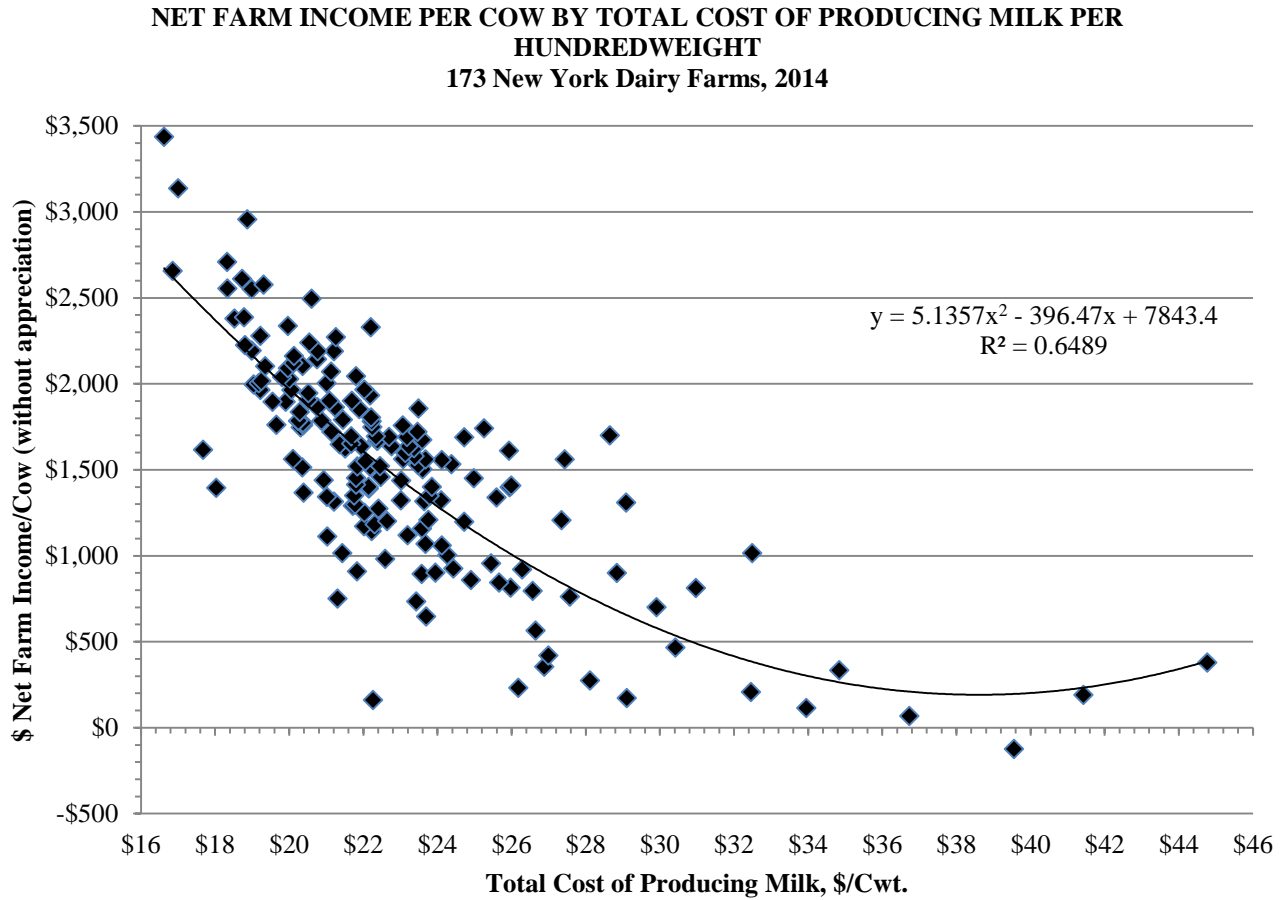
Chart 15.

**PRODUCTION COST BY HERD SIZE
173 New York Dairy Farms, 2014**



The importance of cost control and its impact on farm profitability are illustrated in Chart 16. As the total cost of producing milk per hundredweight increased, net farm income per cow fell. The majority of the farms experienced positive net farm incomes per cow in 2014.

Chart 16.



Cost of Producing Milk (continued)

A ten-year comparison of the average costs and returns of producing milk per hundredweight is presented in Table 33 on page 36. Average individual operating and overhead expenses per hundredweight of milk sold are reported on all specialized dairy farms included in the New York State Summary from 2005 through 2014. In 2014, the average operating cost of producing milk increased 3.1 percent after increasing 6.3 percent from 2012 to 2013. The average return per hundredweight to operator labor, management, and capital was \$3.03 higher in 2014, 86 percent more than 2013. In only five years during the last ten years has milk price exceeded the total cost of producing a hundredweight of milk. Those years were 2007, 2010, 2011, 2013 and 2014.

Hired labor expense per hundredweight decreased from 2005 to 2006, increased between 2007 and 2008, decreased in 2009 and 2010, increased in 2011, decreased in 2012, increased two percent in 2013, and increased five percent in 2014. Hired labor expense was \$2.66 in 2005 and has risen to \$2.93 in 2014. Thus, even as pounds of milk sold per worker have increased from 956,698 in 2005 to 1,133,473 in 2014, labor expense per worker has also increased. Some of this effect is due to increasing farm size where a larger portion of the labor force is comprised of hired workers. Another effect is an increase in hired labor cost per worker as shown by a 17 percent increase in hired labor expense per hired worker equivalent from 2005 to 2014.

Purchased feed expense per hundredweight of milk can fluctuate greatly, as much as \$3.49 per hundredweight. At \$4.30 in 2006, it was at its lowest in the past ten years. In 2014, purchased feed expense was at its highest in the past ten years at \$7.79 per hundredweight of milk.

Interest paid on debt per hundredweight of milk sold has fluctuated over this period. In 2005, interest expense was \$0.65 per hundredweight. In 2014, interest expense was at the lowest level in the past ten years at \$0.44 per hundredweight. Property taxes per hundredweight of milk were fairly constant during this ten-year period. Property taxes were \$0.23 per hundredweight in 2005 and \$0.26 in 2014.

A ten-year comparison of selected average business factors for all specialized DFBS farms is presented in Table 34 on page 37. The reader is reminded that the same farms are not in the survey each year. Average cow numbers are up 104 percent, tillable acres have increased 87 percent, and milk sold per farm has jumped 126 percent since 2005. Capital investment per cow has increased 53 percent over the last ten years. Labor and management income per operator decreased 147 percent in 2014 compared to 2013, farm net worth increased 32 percent, and percent equity increased 4 percent in 2014 compared to 2013.

Hay crop yields were 3.2 tons dry matter per acre in 2005 and 3.4 tons dry matter per acre in 2014. Corn silage yields, as fed, have varied more widely and were at a ten-year high of 19.9 tons per acre in 2008, decreased to 19.1 tons per acre in 2010, decreased further to 16.9 tons per acre in 2012, increased to 18.0 tons per acre in 2013, and increased again to 19.1 tons per acre in 2014. As yields have varied from 2005 to 2014, fertilizer and lime expense also fluctuated as much as \$41 per tillable acre, from \$30 to \$71 per acre. Pounds of milk sold per cow increased by 11 percent, from 22,998 pounds in 2005 to 25,448 pounds in 2014.

Average number of workers per farm increased by 7.41 and operators/managers per farm went from 1.60 to 2.03. Cows per worker equivalent increased from 42 in 2005 to 45 in 2014, but labor cost per cow increased from \$765 to \$853 over the same time period.

The asset turnover ratio ranged from a low of 0.44 in 2009 to a high of 0.67 in 2007. Total accrual receipts as a proportion of total farm assets equals asset turnover ratio. Percent equity was 63 percent in 2005, decreased slightly to 62 percent in 2006, increased to 68 percent in 2007 and 2008, decreased to 65 percent in 2010, increased to 70 percent in 2011, decreased to 68 percent in 2013, and increased to 72 percent in 2014.

Table 33.

**TEN YEAR COMPARISON: AVERAGE COST OF PRODUCING MILK PER HUNDREDWEIGHT
New York Dairy Farms, 2005 to 2014**

Item	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<u>Operating Expenses</u>										
Hired labor	\$2.66	\$2.58	\$2.70	\$2.79	\$2.70	\$2.61	\$2.75	\$2.72	\$2.78	\$2.93
Purchased feed	4.37	4.30	5.21	6.17	5.45	5.41	6.53	7.29	7.56	7.79
Machinery repair, vehicle expense & rent	1.07	1.04	1.27	1.24	1.07	1.16	1.36	1.31	1.40	1.57
Fuel, oil & grease	.53	.58	.67	.91	.57	.65	.88	.84	.84	.87
Replacement livestock	.11	.07	.07	.08	.06	.06	.08	.05	.07	.06
Breeding fees	.22	.23	.24	.26	.21	.21	.22	.21	.21	.23
Veterinary & medicine	.62	.65	.65	.68	.63	.63	.67	.65	.68	.69
Milk marketing	.76	.80	.80	.85	.88	.89	.88	.87	.86	.91
Other dairy expenses	1.32	1.29	1.41	1.52	1.44	1.45	1.48	1.48	1.49	1.55
Fertilizer & lime	.34	.31	.40	.47	.41	.37	.45	.55	.57	.53
Seeds & plants	.22	.23	.28	.33	.35	.36	.39	.42	.48	.51
Spray & other crop expense	.19	.19	.25	.26	.20	.21	.25	.27	.22	.28
Land, building & fence repair	.25	.22	.32	.34	.23	.26	.37	.35	.35	.45
Taxes	.23	.21	.23	.21	.22	.22	.23	.23	.24	.26
Insurance	.16	.17	.19	.18	.17	.17	.18	.17	.17	.20
Utilities (farm share)	.39	.41	.44	.43	.38	.41	.42	.37	.40	.47
Interest paid	.65	.78	.83	.54	.51	.53	.48	.45	.47	.44
Misc. (including rent)	.37	.45	.49	.49	.44	.44	.49	.49	.55	.54
Total Operating Expenses	\$14.54	\$14.51	\$16.46	\$17.77	\$15.90	\$16.04	\$18.12	\$18.71	\$19.34	\$20.28
Less: Nonmilk cash receipts	1.96	1.94	1.75	1.57	1.89	1.62	2.11	2.47	2.23	2.38
Increase in grown feed & supplies	.12	.22	.39	.66	-.04	.36	.17	0.34	0.29	0.32
Increase in livestock	.21	.27	.30	.33	.34	.30	.18	0.17	0.10	0.35
OPERATING COST OF MILK PRODUCTION	\$12.25	\$12.08	\$14.02	\$15.21	\$13.71	\$13.76	\$15.66	\$15.73	\$16.72	\$17.23
<u>Overhead Expenses</u>										
Depreciation: machinery & buildings	\$1.32	\$1.26	\$1.32	\$1.38	\$1.28	\$1.32	\$1.38	\$1.43	\$1.49	\$1.62
Unpaid labor	.06	.07	.07	.04	.05	.04	.04	.03	.04	.03
Operator(s) labor ³⁵	.61	.63	.65	.58	.54	.50	.53	.44	.41	.40
Operator(s) management (5% of cash receipts)	.90	.79	1.07	1.10	.80	.96	1.16	1.10	1.18	1.35
Interest on farm equity capital (5%)	1.02	1.06	1.20	1.29	1.21	1.15	1.15	1.38	1.41	1.59
Total Overhead Expenses	\$3.91	\$3.81	\$4.31	\$4.39	\$3.88	\$3.97	\$4.26	\$4.38	+\$4.53	+\$4.99
TOTAL COST OF MILK PRODUCTION	\$16.16	\$15.89	\$18.33	\$19.60	\$17.59	\$17.73	\$19.92	\$20.11	\$21.25	\$22.22
AVERAGE FARM PRICE OF MILK	\$15.98	\$13.85	\$20.34	\$19.24	\$13.88	\$17.81	\$21.67	\$19.77	\$21.65	\$25.45
Return per cwt. to operator labor, capital & mgmt.	\$2.35	\$0.44	\$4.93	\$2.61	\$-1.16	\$2.69	\$3.61	\$3.35	\$3.53	\$6.56
Rate of return on farm equity capital	4.1%	-4.6%	13.4%	3.6%	-10.3%	5.2%	13.6%	6.5%	9.8%	18.2%

³⁵2005= \$2,200/month, 2006= \$2,300/month, 2007= \$2,400/month, 2008 through 2010= \$2,500/month, 2011= \$2,550/month, and 2012 through 2014= \$2,600/month of operator labor.

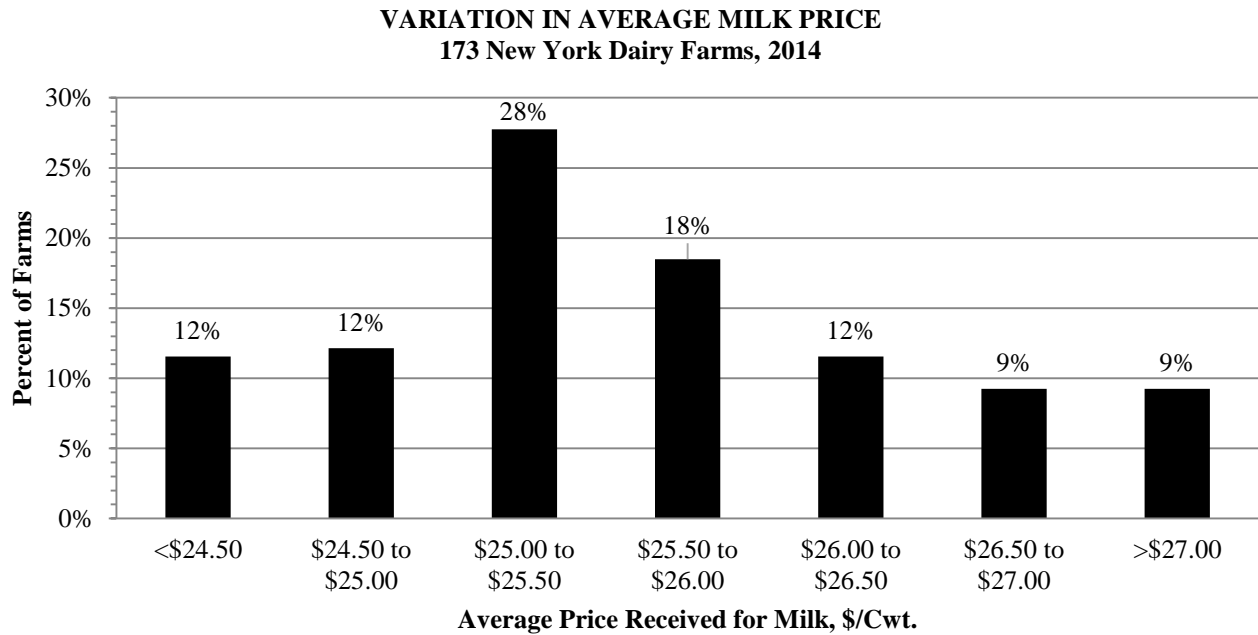
Table 34.

TEN YEAR COMPARISON: SELECTED BUSINESS FACTORS
New York Dairy Farms, 2005 to 2014

Item	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Number of farms	225	240	250	224	204	204	190	169	171	173
<u>Cropping Program</u>										
Total tillable acres	729	730	758	883	965	987	1,086	1,189	1,277	1,366
Tillable acres rented	365	360	385	446	482	493	519	554	603	634
Hay crop acres	361	366	364	421	464	469	477	530	565	586
Corn silage acres	246	249	258	297	348	340	405	488	504	546
Hay crop, tons DM/acre	3.2	3.2	3.0	3.5	3.3	3.5	3.4	3.0	3.5	3.4
Corn silage, tons/acre	18.8	18.4	18.9	19.9	18.7	19.6	16.6	16.9	18.0	19.1
Fertilizer & lime exp./tillable acre	\$33	\$30	\$40	\$49	\$42	\$43	\$50	\$66	\$71	\$68
Machinery cost/cow	\$624	\$618	\$708	\$800	\$660	\$712	\$839	\$864	\$918	\$992
<u>Dairy Analysis</u>										
Number of cows	340	350	358	414	469	489	531	609	650	695
Number of heifers	270	283	289	348	391	415	459	522	557	590
Milk sold, cwt.	78,250	80,862	82,315	99,884	113,555	119,782	130,898	154,730	166,004	176,737
Milk sold/cow, lbs.	22,998	23,083	22,983	24,115	24,208	24,508	24,648	25,401	25,532	25,448
Purchased dairy feed/cwt. milk	\$4.37	\$4.29	\$5.20	\$6.16	\$5.45	\$5.39	\$6.52	\$7.29	\$7.07	\$7.79
Purchased grain & concentrate as % of milk receipts	26%	29%	24%	31%	38%	29%	29%	34%	32%	28%
Purchased feed & crop exp/cwt.milk	\$5.12	\$5.02	\$6.13	\$7.23	\$6.41	\$6.32	\$7.62	\$8.52	\$8.87	\$9.12
<u>Capital Efficiency</u>										
Farm capital/cow	\$7,508	\$7,762	\$8,426	\$9,145	\$9,060	\$9,141	\$9,629	\$10,232	\$10,635	\$11,491
Real estate/cow	\$2,950	\$3,030	\$3,356	\$3,606	\$3,713	\$3,857	\$3,951	\$4,193	\$4,368	\$4,697
Machinery investment/cow	\$1,314	\$1,384	\$1,448	\$1,535	\$1,553	\$1,570	\$1,614	\$1,686	\$1,775	\$1,929
Asset turnover ratio	0.60	0.52	0.67	0.59	0.44	0.56	0.64	0.60	0.61	0.66
<u>Labor Efficiency</u>										
Worker equivalent	8.18	8.19	8.40	9.75	10.74	10.93	12.13	13.59	14.43	15.59
Operator/manager equivalent	1.60	1.63	1.62	1.72	1.83	1.82	1.88	2.01	2.01	2.03
Milk sold/worker, lbs.	956,698	987,530	980,234	1,024,799	1,057,063	1,095,897	1,079,423	1,138,769	1,150,279	1,133,473
Cows/worker	42	43	43	42	44	45	44	45	45	45
Labor cost/cow	\$765	\$757	\$784	\$823	\$794	\$771	\$818	\$810	\$823	\$853
Hired labor exp./hired worker equiv.	\$33,539	\$34,071	\$34,924	\$36,312	\$35,908	\$35,643	\$37,152	\$37,406	\$38,335	\$39,245
<u>Profitability & Financial Analysis</u>										
Labor & mgmt. income/operator	\$64,745	\$-31,269	\$189,019	\$75,945	\$-147,313	\$101,484	\$227,028	\$92,417	\$175,046	\$432,971
Farm net worth, end year	\$1,690,427	\$1,736,505	\$2,200,655	\$2,640,168	\$2,639,640	\$3,012,912	\$3,759,325	\$4,484,930	\$4,672,688	\$6,149,047
Percent equity	63%	62%	68%	68%	62%	65%	70%	69%	68%	72%

The average price per hundredweight of milk sold is calculated by dividing gross milk receipts by total pounds of milk sold. The average price for the 173 farms was \$25.45 but there was considerable variation among the individual farms. The variation in average price received and the distribution of farms around the mean are shown below.

Chart 17.



Forty-six percent of the farms received from \$25 to \$26 per hundredweight of milk sold. Thirty percent of the farms received \$26 or more and twenty-four percent received less than \$25 per hundredweight. Location and organization of markets are factors contributing to the difference in average milk prices on these dairy farms. Management practices on farms as well as in milk companies also affect farm milk prices. Seasonality of production and milk components are two variables that affect milk price. Additional milk price analysis can be found on pages 40 and 41.

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 the comparison of different size dairy farms for strengths and areas for improvement.

Table 35.

**DAIRY RELATED ACCRUAL EXPENSES
173 New York Dairy Farms, 2014**

Item	Average 173 Farms		Average Top 10% Farms ³⁶	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	\$1,876	\$7.37	\$1,841	\$6.99
Purchased dairy roughage	107	0.42	166	0.63
Total Purchased Dairy Feed	\$1,983	\$7.79	\$2,007	\$7.62
Purchased grain & concentrate as % of milk receipts		28%		27%
Purchased feed & crop expense	\$2,320	\$9.12	\$2,324	\$8.83
Purchased feed & crop expense as % of milk receipts		36%		34%
Breeding	\$59	\$0.23	\$54	\$0.21
Veterinary & medicine	176	0.69	176	0.67
Milk marketing	232	0.91	266	1.01
Bedding	101	0.40	109	0.41
Milking Supplies	96	0.38	69	0.26
Cattle lease	4	0.02	1	0.00
Custom boarding	98	0.39	111	0.42
bST expense	49	0.19	52	0.20
Other livestock expense	47	0.18	36	0.14

³⁶Average of 17 farms with highest rates of return to all capital (without appreciation).

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, it actually represents feed cost for one cow and associated replacements being raised (averaged 0.85 animals in 2014).

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 home grown 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 below. On average, farms with feed and crop expenses exceeding \$9.00 reported below average profits in 2014. Farms reporting feed and crop expenses less than \$9.00 per hundredweight generally showed above average profits. However, reducing feed and crop expenses does not necessarily lead to higher profits particularly when milk output per cow falls below average as can be seen in the farms in the group reporting less than \$8.00 per hundredweight. Net milk income over purchased concentrate per cow shows a similar relationship when compared to rate of return on assets without appreciation (Chart 18).

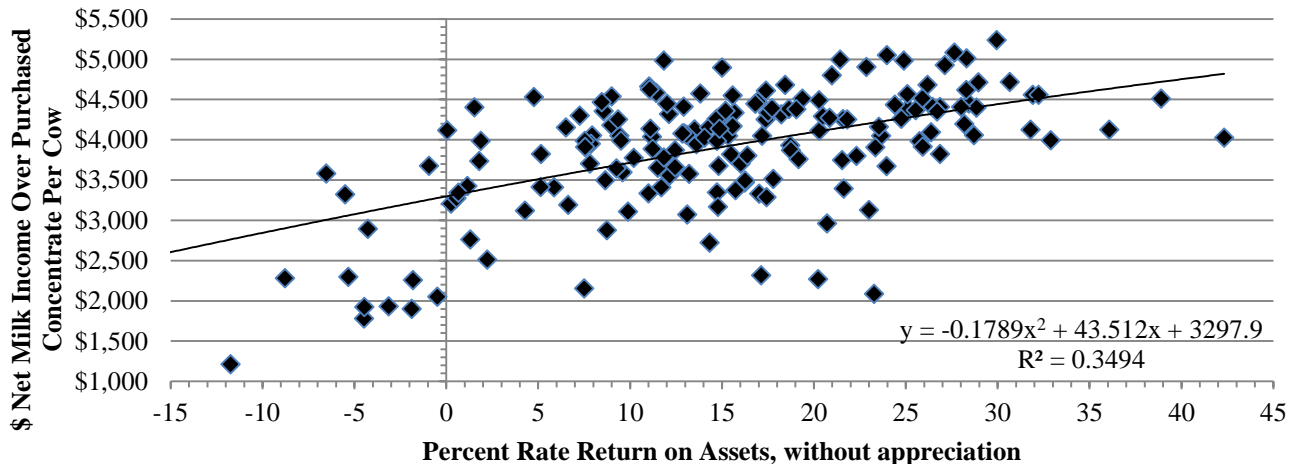
Table 36.

**PURCHASED FEED AND CROP EXPENSE PER HUNDREDWEIGHT
OF MILK AND FARM INCOME MEASURES
173 New York Dairy Farms, 2014**

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
\$10.00 or more	47	534	8.0	23,151	\$709,825	\$319,940	\$579
9.50 to 10.00	17	865	7.3	25,026	1,204,983	405,913	400
9.00 to 9.49	30	793	8.9	24,843	1,429,143	428,848	567
8.50 to 8.99	25	899	8.4	24,433	1,622,065	684,708	724
8.00 to 8.50	25	668	9.0	23,715	1,220,429	431,416	659
Less than 8.00	29	600	9.9	21,448	1,158,659	434,783	463

Chart 18.

**NET MILK INCOME OVER PURCHASED CONCENTRATE PER COW BY
RETURN ON ASSETS
173 New York Dairy Farms, 2014**



Milk Income and Marketing Expense Breakdown

Starting January 1st, 2001, the Northeast switched to multiple component pricing, which changed the format of the milk check and how farmers received payment for their milk. To examine the breakdown of the gross milk income and the marketing expenses, 135 farms 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 the following two tables. 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.

Table 37 reports the averages for the 135 farms providing the data. Table 38 on page 41 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. More milk price information was presented on page 38.

Table 37.

AVERAGE³⁷ MILK INCOME AND MARKETING REPORT 135 New York Dairy Farms, 2014

	Pounds	Percent	Price/Pound	Total	\$/Cwt of Milk
BASE FARM PRICE					
Butterfat	794,187	3.78%	\$2.38	\$1,888,178	\$8.98
Protein	648,275	3.08%	\$3.78	\$2,451,965	\$11.66
Solids	1,212,571	5.77%	\$0.47	\$571,858	\$2.72
Total Component Contribution					\$23.36
PPD	21,030,678			\$241,410	\$1.15
Base Farm Price					\$24.50
Premiums					
Quality				\$57,562	\$0.27
Volume				\$57,845	\$0.28
Market Premiums				\$104,906	\$0.50
Total Premiums					\$1.05
BASE FARM PRICE + PREMIUM					
<hr style="border-top: 1px dashed black;"/>					
Deductions					
Promotion				\$31,629	\$0.15
Hauling & Coop Dues				\$160,255	\$0.76
Total Deductions					\$0.91
BASE FARM PRICE + PREMIUMS – DEDUCTIONS					
Marketing Programs					
Futures Contracts, Forward Contracting, Etc.				-\$48,490	-\$0.23
Total Marketing Income					-\$0.23
Patronage Dividends				\$25,497	\$0.12
NET PRICE RECEIVED ON FARM, ALL SOURCES					
Net Marketing Value, per cwt. (PPD + Total Premiums - Total Deductions)					
					\$1.28

³⁷Each 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. Average herd size for these 135 farms is 821 cows.

Table 38.

MILK PRICE INFORMATION BY QUINTILE³⁸
(Each Category Sorted Independently)
135 New York Dairy Farms, 2014

	Lowest Quintile	←	→	Highest Quintile	
Butterfat, %	3.64	3.72	3.79	3.89	4.12
Protein, %	2.97	3.05	3.08	3.12	3.24
Other Solids, %	5.61	5.74	5.76	5.78	5.83
Butterfat, \$ per Cwt.	8.62	8.84	9.01	9.21	9.87
Protein, \$ per Cwt.	11.18	11.53	11.64	11.81	12.28
Other solids, \$ per Cwt.	2.66	2.69	2.70	2.72	2.81
Total Component Value per Cwt.	\$22.71	\$23.11	\$23.33	\$23.65	\$24.78
PPD, \$ per Cwt.	0.87	0.98	1.09	1.23	1.58
Base Farm Price per Cwt.	\$23.76	\$24.21	\$24.48	\$24.82	\$26.04
Quality, \$ per Cwt.	-0.07	0.18	0.26	0.36	0.54
Volume, \$ per Cwt.	0.00	0.02	0.18	0.34	0.59
Market premium, \$ per Cwt.	-0.06	0.11	0.35	0.61	1.08
Total Premium, \$ per Cwt.	0.27	0.67	0.89	1.19	1.54
Base Farm Price + Premiums per Cwt.	\$24.48	\$25.07	\$25.37	\$25.91	\$27.03
Promotion, \$ per Cwt.	0.15	0.15	0.15	0.15	0.15
Hauling & Coop Dues, \$ per Cwt.	0.32	0.55	0.71	0.91	1.23
Total Marketing Expenses per Cwt.	\$0.47	\$0.70	\$0.86	\$1.06	\$1.38
Base + Premiums – Deductions per Cwt.	\$23.72	\$24.26	\$24.56	\$24.92	\$25.94
Futures contract, forward contracting, \$ per Cwt.	-0.73	0.00	0.00	0.00	0.00
Total Marketing Income, \$ per Cwt.	\$-0.73	\$0.00	\$0.00	\$0.00	\$0.00
Patronage Dividends, \$ per Cwt.	\$0.00	\$0.00	\$0.00	\$0.13	\$0.47
Net Price Received From All Sources, \$ per Cwt.	\$23.44	\$24.27	\$24.58	\$24.96	\$26.01
Net Marketing Value, \$ per cwt. (PPD + Total Premiums - Total Deductions)	0.45	0.94	1.19	1.38	1.87

³⁸Data for each category are calculated independently of all others. Therefore, summation of individual categories will not equal total categories.

Capital and Labor Efficiency Analysis

Capital efficiency factors show how intensively capital is being used in the farm business. Capital efficiency can be measured as investment per worker and per cow. It can also be measured in terms of the relationship to farm receipts.

Table 39.

CAPITAL EFFICIENCY				
173 New York Dairy Farms, 2014				
Item (Average for Year)	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
Farm capital	\$511,896	\$11,491	\$5,843	\$10,912
Real estate		\$4,697		\$4,461
Machinery & equipment	\$85,954	\$1,929	\$981	
Ratios				
Asset Turnover	Operating Expense 0.66	Interest Expense 0.70		Depreciation Expense 0.06
Average Top 10% Farms:³⁹				
Farm capital	\$471,882	\$9,943	\$5,780	\$12,385
Real estate		\$3,751		\$4,673
Machinery & equipment	\$69,220	\$1,459	\$848	
Ratios				
Asset Turnover	Operating Expense 0.80	Interest Expense 0.65		Depreciation Expense 0.04

³⁹Average of 17 farms with highest rates of return to all capital (without appreciation).

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 following 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.

Table 40.

ASSET TURNOVER AND PROFITABILITY						
173 New York Dairy Farms, 2014						
Ratio	Number of Farms	Number of Cows	Farm Capital (average for year)		Labor & Manage- ment Income Per Operator	Net Farm Income (without appreciation)
			Per Cow	Per Worker		
≥ .70	57	991	\$9,599	\$429,494	\$1,158,619	\$1,688,485
.60 to .69	38	763	11,431	489,577	1,037,767	1,277,883
.50 to .59	40	617	13,408	544,046	982,764	1,083,118
Less than .50	38	262	15,824	525,978	671,545	348,852

Measures of labor efficiency are key indicators of the work accomplished by an average worker. The 17 farms with the highest rates of return on all capital (without appreciation) were above the average of all 173 farms in cows per worker and milk sold per worker. The top 10 percent averaged two more cows per worker and sold 10 percent more milk per worker than the average of all farms.

Table 41.

LABOR EFFICIENCY				
173 New York Dairy Farms, 2014				
Labor Efficiency	Average Farms		Average Top 10% Farms ⁴¹	
	Total	Per Worker ⁴⁰	Total	Per Worker ⁴⁰
Cows, average number	695	45	1,038	47
Milk sold, pounds	17,673,672	1,133,473	27,342,497	1,249,562
Tillable acres	1,366	88	1,786	82

⁴⁰The 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.

⁴¹Average of 17 farms with highest rates of return to all capital (without appreciation).

The labor force averaged 15.59 full-time worker equivalents per farm (based on 230 hours per month). Fourteen percent of the labor was supplied by the farm operator/managers. There were two operators on 58 farms, three on 38 farms, and 16 farms reported four or more operators.

Labor costs, labor efficiency, and farm profitability are closely related. Farms with high rates of return can attribute some of their success to the control of labor and machinery costs. Labor and machinery costs average \$1,587 per cow and \$6.03 per hundredweight on the 17 farms in the top decile.

Table 42.

**LABOR FORCE INVENTORY AND COST ANALYSIS
173 New York Dairy Farms, 2014**

Labor Force	Months ⁴²	Age	Years of Education	Value of Labor & Management	
Operator number 1	12.7	56	14	\$64,048	
Operator number 2	7.9	51	14	42,514	
Operator number 3	4.0	42	16	20,428	
Operator number 4	2.6	40	15	<u>12,949</u>	
Family paid	3.7			Total \$139,939	
Family unpaid	1.8				
Hired	<u>154.5</u>				
Total	187.1	÷ 12 =	15.59 Worker Equivalent		
			2.03 Operator/Manager Equivalent		
<u>Average Top 10% Farms:</u> ⁴³					
Total	262.58	÷ 12 =	22.88 Worker Equivalent		
Operators'			2.15 Operator/Manager Equivalent		
				Average 173 Farms Average Top 10% Farms ⁴³	
Labor Costs	Total	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Value operators' labor (\$2,600/month)	\$70,512	\$102	\$0.40	\$69	\$0.26
Family unpaid (\$2,600/month)	4,758	7	0.03	1	0.01
Hired	<u>517,245</u>	<u>745</u>	<u>2.93</u>	<u>673</u>	<u>2.56</u>
Total Labor	\$592,515	\$853	\$3.35	\$744	\$2.82
Machinery Cost	<u>676,673</u>	<u>974</u>	<u>3.83</u>	<u>843</u>	<u>3.20</u>
Total Labor & Machinery	\$1,269,188	\$1,827	\$7.18	\$1,587	\$6.03
Hired labor expense per hired worker equivalent	\$39,245			\$35,789	
Hired labor expense as % of milk sales		11.5%			9.9%

⁴²See footnote number 40 in Table 41.

⁴³Average of 17 farms with highest rates of return to all capital (without appreciation).

The relationship of labor efficiency to net farm income and labor and management income per operator is usually positive over the range of efficiency levels. The higher outputs of milk sold per worker are partially attributable to higher producing cows and larger herd size. In 2014, increased labor efficiency did result in larger net farm incomes.

Table 43.

**MILK SOLD PER WORKER AND NET FARM INCOME
173 New York Dairy Farms, 2014**

Pounds of Milk Sold Per Worker	No. of Farms	No. of Cows	Pounds of Milk Per Cow	Net Farm Income (without appreciation)	Labor & Manage- ment Income Per Operator
Under 500,000	18	64	16,481	\$49,535	\$-7,607
500,000 to 699,999	20	131	19,357	152,412	59,044
700,000 to 899,999	26	403	23,933	503,387	154,728
900,000 to 1,099,999	44	782	24,772	1,191,725	432,094
1,100,000 & over	65	1,100	25,977	2,029,545	788,245

Farm Business Charts

The Farm Business Chart is a tool which can be used in analyzing a business by drawing a line through the figure in each column which 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 173 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 which are in the top 10 percent for one factor would not necessarily be the same farms which 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 things affect the level of costs, and must be taken into account when analyzing the factors.

Table 44.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS 173 New York Dairy Farms, 2014

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
43.1	2,080	54,313,076	28,559	5.3	25	65	1,586,137
28.4	1,270	33,539,575	27,250	4.5	22	53	1,336,051
22.7	1,035	27,003,740	26,643	4.0	21	49	1,208,128
18.9	824	21,327,246	25,968	3.6	20	45	1,132,035
15.2	661	16,453,059	25,432	3.4	19	42	1,054,347
11.6	511	12,332,005	24,759	3.1	18	40	999,368
7.6	334	7,801,745	23,569	2.9	17	38	892,185
5.0	179	3,701,754	22,370	2.5	16	34	757,815
3.5	103	2,128,586	19,365	2.0	14	29	582,032
2.0	53	861,203	13,124	0.9	3	22	369,343
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		
\$739	18%	\$537	\$1,233	\$1,030	\$6.37		
1,239	23	770	1,564	1,630	7.91		
1,520	26	859	1,701	1,967	8.37		
1,681	27	917	1,807	2,118	8.70		
1,775	28	983	1,906	2,233	9.02		
1,878	29	1,047	1,970	2,350	9.25		
1,939	30	1,118	2,043	2,436	9.67		
2,024	31	1,202	2,166	2,519	10.08		
2,110	32	1,295	2,367	2,656	10.59		
2,344	37	1,572	2,812	2,915	12.10		

The profitability section shows the variation in farm income by decile and enables a dairy farmer 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 farmer who ranks at or near the top of most of these columns is in a very enviable position.

Farm Business Charts for farms with freestall barns and 200 cows or less, 201 to 500 cows, and more than 500 cows, and farms with conventional barns with less than 60 cows and equal to or more than 60 cows are discussed in the supplemental section on pages 67-71.

Table 44. (continued)

**FARM BUSINESS CHART FOR
FARM MANAGEMENT COOPERATORS
173 New York Dairy Farms, 2014**

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.	
\$7,384	\$27.84	\$2,230	\$13.12	\$3,739	\$18.40	
7,023	26.66	3,213	15.37	4,660	19.90	
6,768	26.19	3,686	16.04	4,920	20.68	
6,583	25.86	3,937	16.51	5,132	21.44	
6,406	25.58	4,142	17.02	5,290	22.01	

6,249	25.41	4,301	17.65	5,486	22.49	
6,019	25.20	4,534	18.57	5,632	23.38	
5,705	25.04	4,736	19.09	5,893	24.18	
5,072	24.64	4,999	19.73	6,186	26.34	
3,354	23.66	5,448	21.72	6,652	33.68	

Net Farm Income Without Appreciation			Profitability Net Farm Income With Appreciation		Labor & Management Income	
Total	Per Cow	Operations Ratio	Total	Per Cow	Per Farm	Per Operator
\$4,016,078	\$2,583	0.35	\$4,686,493	\$3,222	\$3,227,880	\$1,612,645
2,336,674	2,102	0.29	2,855,399	2,588	1,811,699	926,424
1,669,865	1,910	0.27	2,076,389	2,268	1,273,005	637,057
1,320,389	1,757	0.25	1,546,866	2,063	1,004,947	455,781
970,351	1,652	0.24	1,152,837	1,944	731,383	309,980

697,780	1,526	0.22	889,287	1,778	461,038	229,958
426,295	1,377	0.20	555,913	1,623	291,520	156,637
225,621	1,199	0.17	273,539	1,385	138,710	94,825
125,798	893	0.14	148,273	1,062	56,543	40,728
34,576	328	0.06	36,597	453	-60,251	-39,398

Financial Analysis and Management

Analysis and astute management of farm financial affairs must receive high priority if the farm business is to be successful and if the farm family is to achieve a reasonable living standard.

The farm finance checklist and the financial analysis chart are provided to serve as guidelines. Dairy farmers can determine how their financial management measures up by comparing with average data from other farms.

Table 45.

A FARM FINANCE CHECKLIST 173 New York Dairy Farms, 2014

	Average 173 farms		Average Top 10% Farms ⁴⁴	
<u>How farm assets are being used (average for the year):</u>				
Total assets (capital) per cow	\$11,491		\$9,943	
Farm assets in livestock	20%		22%	
Farm assets in farm real estate	41%		38%	
Farm assets in machinery	17%		15%	
<u>Measures of debt capacity & debt structure:</u>				
Equity in the business	72%		75%	
Farm debt per cow	\$3,433		\$2,687	
Long term debt/asset ratio ⁴⁵	0.27		0.22	
Intermediate & current term debt/asset ratio ⁴⁵	0.29		0.26	
Intermediate & current term debt as % of total debt	62%		67%	
<u>Debt repayment ability:⁴⁶</u>				
Cash flow coverage ratio	2.32		3.86	
Debt coverage ratio	3.64		6.86	
Debt payments made per cow	\$709		\$485	
Debt payments made as % of milk receipts	11%		7%	
<u>Indicators of annual financial progress:</u>				
	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>
Annual change in farm assets	+\$1,141,865	+15.4%	+\$2,352,794	+25.7%
Annual change in farm debt	-\$ 13,615	- 0.6%	-\$ 217,813	- 8.3%
Annual change in farm net worth	+\$1,155,480	+23.1%	+\$2,134,981	+32.7%

⁴⁴Seventeen farms with highest rates of return on all capital (without appreciation).

⁴⁵Long or intermediate and current term debt divided by long or intermediate and current term assets.

⁴⁶Average of 160 farms that participated in DFBS both in 2013 and 2014. Seventeen top 10 percent farms that participated both years.

The most profitable farms carried \$746 less debt per cow, the average equity in their businesses was 3 percent higher than that of the average of all 173 farms, and they had a greater ability to make 2015 debt payments when measured by cash flow coverage ratio and debt coverage ratio. Although with higher income they were able to pay down debt, it does not mean that lower debt farms are more profitable.

Average farm assets grew 16 percentage points faster than debt during 2014 on the 173 dairy farms. Average farm net worth increased 23 percent.

The farm financial analysis chart is designed just like the farm business chart on pages 44-45 and may be used to measure the financial health of the farm business. Most of the financial measures are defined on pages 16, 18, 22, and 42 in this publication.

Table 46.

FINANCIAL ANALYSIS CHART
173 New York Dairy Farms, 2014

Liquidity/Repayment							
Planned Debt Payments Per Cow	Available for Debt Service Per Cow	Cash Flow Coverage Ratio	Debt Coverage Ratio	Debt Payments as Percent of Milk Sales	Debt Per Cow	Working Capital as % of Total Expenses	Current Ratio
\$ 51	\$1,950	28.46	48.05	0%	\$ 209	70%	63.81
264	1,559	4.75	7.40	3	1,179	49	8.70
426	1,416	3.31	5.19	5	2,163	40	5.63
541	1,283	2.76	4.19	6	2,560	34	4.17
621	1,182	2.35	3.40	7	3,067	29	3.21

713	1,102	1.95	2.94	9	3,629	25	2.74
856	938	1.65	2.50	10	4,039	21	2.33
991	819	1.41	2.05	11	4,630	17	1.87
1,172	581	1.11	1.42	14	5,379	10	1.40
1,570	216	0.43	0.37	20	7,241	-1	0.75
Solvency				Operational Ratios			
Leverage Ratio ⁴⁷	Percent Equity	Debt/Asset Ratio		Operating Expense Ratio	Interest Expense Ratio	Depreciation Expense Ratio	
		Current & Intermediate	Long Term				
0.01	99%	0.01	0.00	0.58	0.00	0.02	
0.11	91	0.08	0.00	0.64	0.00	0.04	
0.20	84	0.15	0.05	0.66	0.01	0.04	
0.27	79	0.21	0.13	0.67	0.01	0.05	
0.35	75	0.25	0.23	0.69	0.01	0.05	

0.46	70	0.29	0.31	0.70	0.02	0.06	
0.56	65	0.32	0.39	0.72	0.02	0.07	
0.63	62	0.37	0.46	0.75	0.03	0.07	
0.78	57	0.44	0.55	0.78	0.03	0.09	
1.35	45	0.59	0.81	0.85	0.05	0.13	
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 ⁴⁸	
0.98	\$2,306	\$ 760	\$ 7,448	\$3,814,371	41%	27%	
0.80	3,167	1,228	9,156	2,290,942	31	22	
0.74	3,703	1,510	10,063	1,642,462	27	19	
0.69	4,192	1,748	10,681	1,234,750	23	17	
0.65	4,647	1,964	11,315	848,733	20	15	

0.60	5,131	2,219	12,335	584,698	17	13	
0.56	5,676	2,436	13,077	348,105	15	12	
0.52	6,330	2,708	13,895	170,637	12	9	
0.45	7,435	3,212	15,217	90,292	6	6	
0.30	11,101	4,932	19,902	-19,302	-5	-2	

⁴⁷Dollars of debt per dollar of equity, computed by dividing total liabilities by total equity.

⁴⁸Return on all farm capital (no deduction for interest paid) divided by total farm assets.

Herd Size Comparisons

The 173 New York dairy farms have been sorted into seven herd size categories and averages for the farms in each category are presented in Tables 47 through 55. Note that after the less than 60 cow category, the herd size categories increase by 40 cows up to 100 cows, by 100 cows up to 200 cows, by 200 cows up to 600 cows and by 300 cows up to 900 cows.

In most years, as herd size increases, the net farm income increases (Table 47); and that was the case for 2014. Net farm income without appreciation averaged \$52,279 per farm for the less than 60 cow farms and \$2,479,788 per farm for those with more than 900 cows. Return to all capital without appreciation generally increased as herd size increased. With herd sizes less than 200 cows, many farms find it difficult to find a low cost combination of technology and labor to produce milk. Thus profits are lower for these herds than other herd sizes.

It is more than size of herd that determines profitability on dairy farms. Farms with 900 and more cows averaged \$1,743 net farm income per cow while 60 cows or less dairy farms averaged \$1,105 net farm income per cow. The over 900 herd size category had the highest net farm income per cow while the 60 to 99 herd size category had the lowest net farm income per cow at \$1,055. In some years, other herd size categories have averaged the highest net farm income per cow. Other factors that affect profitability and their relationship to the size classifications are shown in Table 48.

Table 47.

COWS PER FARM AND FARM FAMILY INCOME MEASURES 173 New York Dairy Farms, 2014

Number of Cows	Number of Farms	Average Number of Cows	Net Farm Income Without Appreciation	Net Farm Income Per Cow	Labor & Management Income Per Operator	Return to All Capital Without Appreciation
Under 60	13	47	\$52,279	\$1,105	\$9,076	-0.6%
60 to 99	11	73	77,077	1,055	21,902	3.0%
100 to 199	23	133	197,139	1,477	81,822	7.8%
200 to 399	21	285	374,735	1,313	147,419	9.4%
400 to 599	21	499	821,096	1,645	287,941	12.8%
600 to 899	29	722	1,166,270	1,615	352,785	12.7%
900 & over	55	1,423	2,479,788	1,743	773,543	15.1%

This year, net farm income per cow showed a positive correlation with herd size, however some size categories varied from the expected relationship slightly. All herd size categories saw an increase in operating cost of producing milk from a year earlier (Table 48). Net farm income per cow will increase as farms become larger if the costs of increased purchased inputs are offset by greater and more efficient output.

The farms with more than 900 cows averaged more milk sold per cow than any other size category (Table 48). With 26,139 pounds of milk sold per cow, farms in the largest herd size group averaged 7.6 percent more milk output per cow than the average of all herds in the summary with less than 900 cows.

Many dairy farmers who have been willing and able to employ and manage the labor required to milk three times per day have been successful. One of the 24 DFBS farms with less than 100 cows used a milking frequency greater than two times per day. As herd size increased, the percent of herds using a higher milking frequency increased. Farms with 100 to 199 cows reported 22 percent of the herds milking more often than two times per day, the 200-399 cow herds reported 48 percent, 400-599 cow herds reported 67 percent, 600-899 cow herds reported 86 percent, and the 900 cow and larger herds reported 96 percent exceeding the two times per day milking frequency. Data regarding milking frequency for all farms is further analyzed in Table 70, which can be found on page 79.

Table 48.

COWS PER FARM AND RELATED FARM FACTORS
173 New York Dairy Farms, 2014

Number of Cows	Average Number of Cows	Milk Sold Per Cow (lbs.)	Milk Sold Per Worker (cwt.)	Tillable Acres Per Cow	Forage DM Per Cow (tons)	Farm Capital Per Cow	Cost of Producing Milk Per Cwt.	
							Operating	Total
Under 60	47	17,695	3,848	4.4	8.5	\$15,783	\$16.66	\$30.06
60 to 99	73	18,583	4,949	3.9	9.5	13,529	18.55	27.03
100 to 199	133	21,962	6,758	3.1	10.5	13,032	17.51	23.98
200 to 399	285	22,832	9,257	2.2	9.4	11,923	17.89	23.08
400 to 599	499	24,715	10,407	2.1	8.4	11,595	17.18	21.73
600 to 899	722	24,982	10,917	2.1	8.3	11,839	17.62	21.88
900 & over	1,423	26,139	12,296	1.9	8.2	11,235	17.08	20.76

Milk output per worker has always shown a strong correlation with herd size. The farms with 100 cows or more averaged over 1,148,000 pounds of milk sold per worker while the farms with less than 100 cows averaged less than 442,000 pounds per worker.

In achieving the highest productivity per cow and per worker, the largest farms had the fewest crop acres per cow. The largest herd size group also had the more efficient use of farm capital with an average investment of \$11,235 per cow.

The 55 farms with 900 or more cows had the lowest total cost of producing milk at \$20.76 per hundredweight. This is \$1.55 below the \$22.31 average for the remaining 118 dairy farms.

Tables 49 through 52 show progress of the farm businesses that have participated in DFBS in each of the last five years for four herd size groups.

A detailed list of accrual expenses, receipts and a profitability analysis is presented in Table 53, on pages 54 and 55 for the seven herd size categories. Purchased feed is the largest expense on all farms, regardless of size. However, larger farms find hired labor expense as the second largest expense category.

Assets, liabilities and financial measures are presented in Table 54 on pages 56-59. All herd size categories saw an increase in net worth during 2014. The largest herd size category experienced an increase in net worth of \$2,306,383. However, percent equity varied as herd size increased. The 600 to 899 herd size category had the lowest percent equity at 70 percent; while the 400 to 599 herd size category averaged the highest percent equity at 79 percent.

Selected business factors by herd size group are presented in Table 55 on pages 60 and 61. George Warren, father of farm business management at Cornell, said in his 1918 farm management text, "No size of farm is large enough to ensure a profit." Therefore, larger farms are, on average, more profitable; but no farm is large enough to guarantee a profit. For a more detailed analysis of large herd farms, see Dairy Farm Business Summary, New York Large Herd Farms, 300 Cows or Larger, 2014. For analysis of smaller herds, see Dairy Farm Business Summary, New York Small Herd Farms, 140 Cows or Fewer, 2014. Both publications are available from the Dairy Farm Business Summary and Analysis Project, Dyson School of Applied Economics and Management, Cornell University, 240F Warren Hall, Ithaca, New York 14853-7801; phone 607-255-8429. Visit the Charles H. Dyson School of Applied Economics and Management website <http://www.dyson.cornell.edu/outreach/> for a list of all department publications and a publication order form.

Table 49.

PROGRESS OF FARM BUSINESSES WITH LESS THAN 110 COWS
Same 17 New York Dairy Farms, 2010 - 2014

Selected Factors	2010	2011	2012	2013	2014
Milk receipts per cwt. milk	\$17.76	\$21.54	\$19.91	\$21.47	\$25.70
<u>Size of Business</u>					
Average number of cows	64	65	63	60	60
Average number of heifers	54	52	50	46	48
Milk sold, cwt.	12,229	12,071	11,180	10,961	11,051
Worker equivalent	2.28	2.26	2.30	2.38	2.39
Total tillable acres	198	201	200	217	225
<u>Rates of Production</u>					
Milk sold per cow, lbs.	19,091	18,688	17,845	18,394	18,382
Hay DM per acre, tons	2.5	2.2	2.1	1.9	2.0
Corn silage per acre, tons	17	14	15	15	17
<u>Labor Efficiency</u>					
Cows per worker	28	29	27	25	25
Milk sold per worker, lbs.	536,379	533,711	486,088	460,224	462,552
<u>Cost Control</u>					
Grain & concn. purchased as % of milk sales	27%	27%	33%	26%	24%
Dairy feed & crop expense per cwt. milk	\$6.78	\$8.16	\$9.24	\$8.38	\$9.38
Operating cost of producing cwt. milk	\$14.58	\$16.10	\$16.28	\$16.55	\$17.78
Total cost of producing cwt. milk	\$22.37	\$24.43	\$25.63	\$25.68	\$27.71
Hired labor cost per cwt.	\$1.42	\$1.37	\$1.38	\$1.45	\$1.57
Interest paid per cwt.	\$0.82	\$0.79	\$0.75	\$0.74	\$0.73
Labor & machinery costs per cow	\$1,861	\$1,968	\$2,011	\$2,062	\$2,165
Total Replacement livestock expense	\$2,324	\$2,371	\$3,265	\$3,751	\$3,227
Total Expansion livestock expense	\$147	\$232	\$128	\$0	\$510
<u>Capital Efficiency</u>					
Farm capital per cow	\$11,882	\$12,154	\$12,882	\$14,222	\$14,678
Machinery & equipment per cow	\$3,099	\$3,184	\$3,335	\$3,480	\$3,500
Real estate per cow	\$5,129	\$5,236	\$5,656	\$6,584	\$6,891
Livestock investment per cow	\$2,169	\$2,108	\$1,961	\$2,130	\$2,286
Asset turnover ratio	0.33	0.41	0.37	0.33	0.37
<u>Profitability</u>					
Net farm income without appreciation	\$20,446	\$44,711	\$19,005	\$34,505	\$63,465
Net farm income with appreciation	\$25,355	\$71,054	\$48,012	\$42,582	\$72,525
Labor & management income per operator/manager	\$-12,385	\$2,587	\$-20,658	\$-2,623	\$16,685
Rate return on:					
Equity capital with appreciation	-4.4%	3.5%	-0.79%	-1.0%	3.1%
All capital with appreciation	-1.8%	3.9%	0.4%	0.2%	3.2%
All capital without appreciation	-2.5%	0.5%	-3.2%	-0.8%	2.2%
<u>Financial Summary, End Year</u>					
Farm net worth	\$558,868	\$605,361	\$622,367	\$649,311	\$696,752
Change in net worth with appreciation	\$18,387	\$39,266	\$36,246	\$16,180	\$49,828
Debt to asset ratio	0.27	0.24	0.91	0.24	0.23
Farm debt per cow	\$3,190	\$3,002	\$3,326	\$3,442	\$3,418

Table 50.

PROGRESS OF FARM BUSINESSES WITH 110-499 COWS
Same 38 New York Dairy Farms, 2010 - 2014

Selected Factors	2010	2011	2012	2013	2014
Milk receipts per cwt. milk	\$17.82	\$21.87	\$19.79	\$21.73	\$25.78
<u>Size of Business</u>					
Average number of cows	269	274	280	277	282
Average number of heifers	230	240	237	230	234
Milk sold, cwt.	62,931	62,942	66,149	66,806	68,020
Worker equivalent	6.59	6.85	7.14	7.09	7.32
Total tillable acres	576	586	616	600	616
<u>Rates of Production</u>					
Milk sold per cow, lbs.	23,365	22,947	23,649	24,115	24,136
Hay DM per acre, tons	3.5	3.3	2.7	3.3	3.5
Corn silage per acre, tons	19	17	17	18	20
<u>Labor Efficiency</u>					
Cows per worker	41	40	39	39	39
Milk sold per worker, lbs.	955,673	918,631	925,913	942,038	929,338
<u>Cost Control</u>					
Grain & concn. purchased as % of milk sales	27%	27%	34%	33%	28%
Dairy feed & crop expense per cwt. milk	\$6.10	\$7.54	\$8.75	\$9.03	\$9.22
Operating cost of producing cwt. milk	\$13.38	\$15.82	\$15.93	\$16.74	\$17.22
Total cost of producing cwt. milk	\$17.29	\$20.10	\$20.33	\$21.43	\$22.34
Hired labor cost per cwt.	\$2.53	\$2.70	\$2.71	\$2.70	\$2.84
Interest paid per cwt.	\$0.49	\$0.44	\$0.42	\$0.45	\$0.41
Labor & machinery costs per cow	\$1,534	\$1,702	\$1,770	\$1,839	\$2,026
Total Replacement livestock expense	\$5,696	\$9,545	\$7,155	\$10,950	\$8,727
Total Expansion livestock expense	\$8,764	\$1,845	\$4,285	\$2,774	\$4,842
<u>Capital Efficiency</u>					
Farm capital per cow	\$9,067	\$9,626	\$10,317	\$11,111	\$11,841
Machinery & equipment per cow	\$1,707	\$1,784	\$1,949	\$2,108	\$2,282
Real estate per cow	\$3,694	\$3,897	\$4,246	\$4,699	\$4,896
Livestock investment per cow	\$2,085	\$2,207	\$2,088	\$2,089	\$2,196
Asset turnover ratio	0.56	0.60	0.56	0.55	0.62
<u>Profitability</u>					
Net farm income without appreciation	\$199,163	\$291,108	\$153,873	\$220,106	\$456,938
Net farm income with appreciation	\$277,156	\$362,465	\$243,893	\$277,592	\$541,349
Labor & management income per operator/manager	\$67,427	\$113,995	\$25,682	\$61,406	\$186,170
Rate return on:					
Equity capital with appreciation	11.7%	14.5%	7.6%	8.4%	17.6%
All capital with appreciation	9.2%	11.6%	6.5%	7.2%	14.1%
All capital without appreciation	6.1%	8.9%	3.4%	5.3%	11.6%
<u>Financial Summary, End Year</u>					
Farm net worth	\$1,794,549	\$2,045,067	\$2,193,575	\$2,324,390	\$2,722,412
Change in net worth with appreciation	\$219,727	\$266,801	\$130,647	\$115,897	\$411,001
Debt to asset ratio	0.30	0.26	0.27	0.26	0.23
Farm debt per cow	\$2,781	\$2,554	\$2,926	\$2,946	\$2,819

Table 51.

PROGRESS OF FARM BUSINESSES WITH 500-999 COWS
Same 42 New York Dairy Farms, 2010 - 2014

Selected Factors	2010	2011	2012	2013	2014
Milk receipts per cwt. milk	\$17.88	\$21.63	\$19.76	\$21.59	\$25.57
<u>Size of Business</u>					
Average number of cows	632	650	670	698	736
Average number of heifers	548	569	580	598	617
Milk sold, cwt.	152,524	158,843	167,479	176,900	185,056
Worker equivalent	14.03	14.50	15.37	15.85	16.88
Total tillable acres	1,328	1,393	1,447	1,480	1,527
<u>Rates of Production</u>					
Milk sold per cow, lbs.	24,133	24,451	25,015	25,337	25,134
Hay DM per acre, tons	3.4	3.5	2.8	3.4	3.2
Corn silage per acre, tons	19	17	17	17	19
<u>Labor Efficiency</u>					
Cows per worker	45	45	44	44	44
Milk sold per worker, lbs.	1,087,001	1,095,283	1,089,829	1,116,206	1,096,577
<u>Cost Control</u>					
Grain & concn. purchased as % of milk sales	28%	29%	34%	32%	29%
Dairy feed & crop expense per cwt. milk	\$6.53	\$7.76	\$8.61	\$8.98	\$9.38
Operating cost of producing cwt. milk	\$13.86	\$15.60	\$15.75	\$16.68	\$17.34
Total cost of producing cwt. milk	\$17.15	\$19.22	\$19.53	\$20.62	\$21.55
Hired labor cost per cwt.	\$2.55	\$2.64	\$2.66	\$2.73	\$2.88
Interest paid per cwt.	\$0.59	\$0.54	\$0.52	\$0.51	\$0.50
Labor & machinery costs per cow	\$1,462	\$1,665	\$1,697	\$1,779	\$1,840
Total Replacement livestock expense	\$8,239	\$12,110	\$9,441	\$12,868	\$13,981
Total Expansion livestock expense	\$14,994	\$11,454	\$22,408	\$12,459	\$35,350
<u>Capital Efficiency</u>					
Farm capital per cow	\$8,947	\$9,652	\$10,463	\$10,904	\$11,696
Machinery & equipment per cow	\$1,519	\$1,640	\$1,783	\$1,873	\$1,988
Real estate per cow	\$3,700	\$3,952	\$4,342	\$4,571	\$4,910
Livestock investment per cow	\$2,263	\$2,285	\$2,279	\$2,269	\$2,292
Asset turnover ratio	0.58	0.65	0.59	0.59	0.66
<u>Profitability</u>					
Net farm income without appreciation	\$411,119	\$720,640	\$409,103	\$589,848	\$1,206,944
Net farm income with appreciation	\$553,460	\$941,295	\$643,295	\$751,944	\$1,529,516
Labor & management income per operator/manager	\$101,725	\$217,544	\$73,705	\$134,538	\$374,085
Rate return on:					
Equity capital with appreciation	12.3%	19.7%	10.6%	11.4%	22.8%
All capital with appreciation	9.1%	14.3%	8.4%	8.9%	16.9%
All capital without appreciation	6.6%	10.8%	5.1%	6.8%	13.2%
<u>Financial Summary, End Year</u>					
Farm net worth	\$3,637,332	\$4,493,586	\$4,906,860	\$5,400,614	\$6,589,521
Change in net worth with appreciation	\$356,871	\$799,013	\$381,651	\$465,348	\$1,156,762
Debt to asset ratio	0.38	0.32	0.33	0.31	0.29
Farm debt per cow	\$3,407	\$3,284	\$3,582	\$3,490	\$3,624

Table 52.

PROGRESS OF FARM BUSINESSES WITH MORE THAN 1000 COWS
Same 39 New York Dairy Farms, 2010 - 2014

Selected Factors	2010	2011	2012	2013	2014
Milk receipts per cwt. milk	\$17.80	\$21.65	\$19.74	\$21.67	\$25.42
<u>Size of Business</u>					
Average number of cows	1,273	1,324	1,385	1,457	1,542
Average number of heifers	1,082	1,137	1,192	1,258	1,328
Milk sold, cwt.	326,270	340,298	365,292	385,950	406,198
Worker equivalent	26.66	27.53	29.43	30.35	32.66
Total tillable acres	2,378	2,437	2,556	2,646	2,761
<u>Rates of Production</u>					
Milk sold per cow, lbs.	25,638	25,699	26,381	26,495	26,347
Hay DM per acre, tons	4.0	3.6	3.3	3.8	3.6
Corn silage per acre, tons	20	17	17	18	19
<u>Labor Efficiency</u>					
Cows per worker	48	48	47	48	47
Milk sold per worker, lbs.	1,224,010	1,236,173	1,241,154	1,271,663	1,243,813
<u>Cost Control</u>					
Grain & concn. purchased as % of milk sales	28%	28%	34%	32%	29%
Dairy feed & crop expense per cwt. milk	\$6.17	\$7.50	\$8.35	\$8.83	\$9.06
Operating cost of producing cwt. milk	\$13.39	\$15.38	\$15.65	\$16.49	\$17.27
Total cost of producing cwt. milk	\$16.25	\$18.55	\$18.92	\$19.92	\$20.96
Hired labor cost per cwt.	\$2.72	\$2.84	\$2.87	\$2.89	\$3.05
Interest paid per cwt.	\$0.52	\$0.46	\$0.43	\$0.45	\$0.41
Labor & machinery costs per cow	\$1,443	\$1,580	\$1,651	\$1,694	\$1,800
Total Replacement livestock expense	\$16,276	\$34,450	\$10,342	\$22,676	\$15,138
Total Expansion livestock expense	\$46,159	\$14,415	\$81,893	\$44,766	\$73,813
<u>Capital Efficiency</u>					
Farm capital per cow	\$8,786	\$9,403	\$10,118	\$10,647	\$11,310
Machinery & equipment per cow	\$1,449	\$1,497	\$1,588	\$1,697	\$1,851
Real estate per cow	\$3,568	\$3,787	\$4,100	\$4,346	\$4,501
Livestock investment per cow	\$2,163	\$2,193	\$2,210	\$2,226	\$2,257
Asset turnover ratio	0.61	0.68	0.62	0.63	0.69
<u>Profitability</u>					
Net farm income without appreciation	\$1,009,188	\$1,669,963	\$989,830	\$1,422,214	\$2,655,375
Net farm income with appreciation	\$1,189,819	\$1,938,997	\$1,313,675	\$1,776,919	\$3,123,060
Labor & management income per operator/manager	\$298,074	\$517,698	\$201,637	\$356,121	\$804,226
Rate return on:					
Equity capital with appreciation	14.3%	20.9%	11.5%	14.8%	23.8%
All capital with appreciation	10.5%	15.3%	9.0%	11.1%	17.5%
All capital without appreciation	8.9%	13.1%	6.7%	8.9%	14.8%
<u>Financial Summary, End Year</u>					
Farm net worth	\$7,491,512	\$9,102,487	\$9,958,493	\$10,950,251	\$13,311,315
Change in net worth with appreciation	\$900,137	\$1,522,556	\$733,487	\$924,620	\$2,445,115
Debt to asset ratio	0.35	0.31	0.32	0.33	0.29
Farm debt per cow	\$3,156	\$3,057	\$3,331	\$3,578	\$3,432

Table 53.

FARM BUSINESS SUMMARY BY HERD SIZE
173 New York Dairy Farms, 2014

Item	Farm Size:	Less than 60 Cows	60 to 99 Cows	100 to 199 Cows	200 to 399 Cows
Number of farms		13	11	23	21
<u>ACCRUAL EXPENSES</u>					
Hired labor		\$4,074	\$25,815	\$72,537	\$185,672
Dairy grain & concentrate		52,287	91,607	215,780	479,358
Dairy roughage		15,456	8,252	11,478	21,820
Nondairy feed		562	0	0	0
Professional nutritional services		0	0	0	0
Machine hire, rent & lease		2,233	3,903	18,029	39,641
Machine repairs & farm vehicle expense		13,080	22,671	43,547	84,411
Fuel, oil & grease		11,596	14,677	33,208	66,897
Replacement livestock		3,306	4,329	1,178	11,925
Breeding		3,254	4,933	8,790	15,420
Veterinary & medicine		5,229	6,780	18,175	43,289
Milk marketing		10,432	13,968	33,528	51,683
Bedding		2,231	5,216	11,089	27,176
Milking supplies		6,051	10,316	14,935	28,260
Cattle lease & rent		159	0	121	0
Custom boarding		1,000	818	0	12,705
bST expense		0	1,046	1,970	6,068
Livestock professional fees		1,168	1,302	4,222	3,736
Other livestock expense		2,235	3,695	7,628	16,121
Fertilizer & lime		4,418	11,325	26,690	41,662
Seeds & plants		2,000	6,453	20,152	34,341
Spray & other crop expense		1,692	3,667	9,531	17,591
Crop professional fees		0	145	480	2,604
Land, building & fence repair		2,875	6,227	12,857	21,269
Taxes & rent		8,136	11,462	19,343	38,017
Utilities		7,440	13,518	18,108	32,591
Interest paid		6,750	8,255	14,520	38,766
Other professional fees		1,415	1,616	2,351	7,242
Misc. (including insurance)		5,619	6,785	15,971	23,019
Total Operating Expenses		<u>\$174,699</u>	<u>\$288,781</u>	<u>\$636,219</u>	<u>\$1,351,280</u>
Expansion livestock		667	0	12,363	5,665
Extraordinary expense		0	0	1,386	727
Machinery depreciation		14,676	17,235	37,215	85,233
Building depreciation		6,067	3,636	7,992	38,110
Total Accrual Expenses		<u>\$196,109</u>	<u>\$309,653</u>	<u>\$695,174</u>	<u>\$1,481,016</u>
<u>ACCRUAL RECEIPTS</u>					
Milk sales		\$212,479	\$349,885	\$757,157	\$1,664,429
Dairy cattle		18,015	24,523	62,601	104,347
Dairy calves		3,469	4,284	12,119	25,512
Other livestock		1,644	264	1,051	186
Crops		3,245	3,042	34,090	38,879
Miscellaneous receipts		9,536	4,732	25,294	22,398
Total Accrual Receipts		<u>\$248,388</u>	<u>\$386,729</u>	<u>\$892,313</u>	<u>\$1,855,751</u>
<u>PROFITABILITY ANALYSIS</u>					
Net farm income (without appreciation)		\$52,279	\$77,077	\$197,139	\$374,735
Net farm income (with appreciation)		\$58,689	\$92,822	\$204,915	\$494,770
Labor & management income		\$11,707	\$29,786	\$117,006	\$250,612
Number of operators		1.29	1.36	1.43	1.70
Labor & management income/operator		\$9,076	\$21,902	\$81,822	\$147,419
Rates of return on: Equity capital w/o apprec.		-2.0%	2.8%	9.1%	11.8%
Equity capital with appreciation		-0.9%	4.8%	9.7%	16.8%
All capital without appreciation		-0.6%	3.0%	7.8%	9.4%
All capital with appreciation		0.3%	4.6%	8.2%	12.9%

*May not add due to rounding.

Table 53. (continued)

FARM BUSINESS SUMMARY BY HERD SIZE
173 New York Dairy Farms, 2014

Item	Farm Size:	400 to 599 Cows	600 to 899 Cows	900 or More Cows
Number of farms		21	29	55
<u>ACCRUAL EXPENSES</u>				
Hired labor		\$351,090	\$506,779	\$1,118,356
Dairy grain & concentrate		882,084	1,346,421	2,746,854
Dairy roughage		55,660	66,768	159,207
Nondairy feed		45	86	0
Professional nutritional services		707	758	1,202
Machine hire, rent & lease		109,856	118,206	137,472
Machine repairs & farm vehicle expense		129,175	202,222	394,495
Fuel, oil & grease		104,640	164,523	309,712
Replacement livestock		21,673	10,960	12,320
Breeding		31,502	48,199	79,359
Veterinary & medicine		80,088	131,518	258,746
Milk marketing		117,053	154,891	341,314
Bedding		51,369	77,428	143,106
Milking supplies		43,540	66,339	138,512
Cattle lease & rent		0	1,974	7,928
Custom boarding		23,618	111,737	141,206
bST expense		15,531	24,822	84,792
Livestock professional services		10,143	10,659	25,447
Other livestock expense		12,070	14,219	40,940
Fertilizer & lime		75,624	118,497	171,513
Seeds & plants		58,470	98,147	187,702
Spray & other crop expense		38,977	51,517	92,517
Crop professional fees		2,469	5,329	7,362
Land, building & fence repair		43,769	80,762	178,064
Taxes & rent		68,229	102,916	188,379
Utilities		58,015	84,267	167,606
Interest paid		43,342	88,595	156,040
Other professional fees		19,285	19,701	45,169
Misc. (including insurance)		42,185	53,010	125,721
Total Operating Expenses		\$2,490,208	\$3,761,250	\$7,461,042
Expansion livestock		9,027	12,485	83,063
Extraordinary expense		344	3	3,072
Machinery depreciation		132,071	180,528	361,303
Building depreciation		84,462	121,243	225,644
Total Accrual Expenses		\$2,716,113	\$4,075,509	\$8,134,123
<u>ACCRUAL RECEIPTS</u>				
Milk sales		\$3,157,698	\$4,646,658	\$9,421,387
Dairy cattle		198,383	315,049	747,508
Dairy calves		39,099	60,035	101,884
Other livestock		21,233	13,908	16,229
Crops		83,530	100,526	165,025
Misc. receipts		37,267	105,602	161,877
Total Accrual Receipts		\$3,537,209	\$5,241,779	\$10,613,911
<u>PROFITABILITY ANALYSIS</u>				
Net farm income (without appreciation)		\$821,096	\$1,166,270	\$2,479,788
Net farm income (with appreciation)		\$1,008,020	\$1,497,801	\$2,922,429
Labor & management income		\$596,038	\$867,852	\$1,926,122
Number of operators		2.07	2.46	2.49
Labor & management income/operator		\$287,941	\$352,785	\$773,543
Rates of return on: Equity capital w/o apprec.		15.7%	16.8%	20.4%
Equity capital with appreciation		19.9%	22.4%	24.4%
All capital without appreciation		12.8%	12.7%	15.1%
All capital with appreciation		16.1%	16.6%	17.7%

*May not add due to rounding.

Table 54.

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
173 New York Dairy Farms, 2014

Item	Farms with:		60 to 99 Cows	
	Less than 60 Cows		Jan. 1	Dec. 31
	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS				
Farm cash, checking & savings	\$ 8,354	\$ 10,682	\$ 3,456	\$ 6,020
Accounts receivable	15,309	15,863	31,786	25,930
Prepaid expenses	0	115	0	95
Feed & supplies	45,060	47,188	68,744	73,721
Livestock ⁴⁹	110,340	118,302	157,559	164,250
Machinery & equipment ⁴⁹	140,688	148,186	186,007	201,575
Farm Credit stock	308	308	273	273
Other stock & certificates	10,105	10,446	11,462	12,614
Land & buildings ⁴⁹	<u>400,989</u>	<u>411,159</u>	<u>491,660</u>	<u>542,264</u>
Total Farm Assets	\$731,152	\$762,249	\$ 950,947	\$1,026,741
Nonfarm Assets ⁵⁰	<u>\$121,663</u>	<u>\$150,357</u>	<u>\$ 157,028</u>	<u>\$ 159,246</u>
Farm & Nonfarm Assets	\$852,815	\$912,606	\$1,107,975	\$1,185,987
LIABILITIES (excluding deferred taxes)				
Accounts payable	\$ 17,998	\$ 11,761	\$ 16,584	\$ 5,174
Operating debt	3,090	3,440	3,510	5,112
Short term	785	6,392	6,821	4,016
Advanced government receipt	0	0	0	0
Current Portion:				
Intermediate	10,584	12,305	11,527	14,842
Long Term	6,430	6,701	6,480	7,518
Intermediate ⁵¹	46,949	29,471	142,700	91,447
Long term ⁴⁹	<u>121,672</u>	<u>111,109</u>	<u>76,313</u>	<u>94,694</u>
Total Farm Liabilities	\$207,508	\$181,178	\$ 263,936	\$ 222,803
Nonfarm Liabilities ⁵⁰	<u>612</u>	<u>3,600</u>	<u>16,440</u>	<u>5,270</u>
Farm & Nonfarm Liabilities	\$208,120	\$184,778	\$ 280,376	\$ 228,073
Farm Net Worth (Equity Capital)	\$523,644	\$581,071	\$687,011	\$803,939
Farm & Nonfarm Net Worth	\$644,695	\$727,828	\$ 827,599	\$ 957,914
FINANCIAL MEASURES				
	<u>Less than 60 Cows</u>		<u>60 to 99 Cows</u>	
Percent Equity	76%		78%	
Debt/asset ratio-long term	0.27		0.17	
Debt/asset ratio-intermediate & current	0.20		0.26	
Debt/asset ratio-total	0.24		0.22	
Leverage ratio	0.31		0.28	
Current ratio	1.82		2.88	
Working capital as % of total expenses	17%		22%	
Accounts payable as % of total debt	6%		2%	
Long-term debt as % of total debt	61%		43%	
Cost of term debt (weighted average)	2.38%		4.09%	
Change in net worth with appreciation	\$47,282		\$63,240	
Total farm debt per cow	\$3,799		\$2,974	
Debt payments made per cow	\$981		\$418	
Debt payments as % of milk sales	18%		9%	
Amount available for debt service	\$49,622		\$47,136	
Cash flow coverage ratio for 2014	2.07		1.97	
Debt coverage ratio for 2014	2.54		2.36	

⁴⁹Includes discounted lease payments.⁵⁰Average of farms reporting nonfarm assets and liabilities for 2014.⁵¹Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 54. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
173 New York Dairy Farms, 2014

Item	Farms with:		200 to 399 Cows	
	100 to 199 Cows		Jan. 1	Dec. 31
	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS				
Farm cash, checking & savings	\$ 19,450	\$ 16,624	\$ 22,263	\$ 33,374
Accounts receivable	52,372	70,075	113,723	158,662
Prepaid expenses	507	1,399	1,378	8,215
Feed & supplies	166,864	208,042	328,377	390,660
Livestock ⁵²	298,320	328,515	570,886	630,673
Machinery & equipment ⁵²	344,740	406,291	627,094	682,567
Farm Credit stock	674	761	638	638
Other stock & certificates	47,942	53,891	84,631	93,600
Land & buildings ⁵²	<u>707,891</u>	<u>754,621</u>	<u>1,482,224</u>	<u>1,574,411</u>
Total Farm Assets	\$1,638,759	\$1,840,218	\$3,231,215	\$3,572,800
Nonfarm Assets ⁵³	<u>\$ 281,698</u>	<u>\$ 280,664</u>	<u>\$ 607,590</u>	<u>\$ 611,261</u>
Farm & Nonfarm Assets	\$1,920,457	\$2,120,882	\$3,838,805	\$4,184,061
LIABILITIES (excluding deferred taxes)				
Accounts payable	\$ 15,787	\$ 15,743	\$ 49,246	\$ 33,390
Operating debt	21,758	21,112	60,656	52,016
Short term	957	4,838	552	71
Advanced government receipt	0	0	0	0
Current Portion:				
Intermediate	32,648	38,820	73,595	80,981
Long Term	7,546	11,393	36,608	41,027
Intermediate ⁵⁴	144,956	132,856	319,020	268,061
Long term ⁵²	<u>173,839</u>	<u>226,786</u>	<u>501,716</u>	<u>537,530</u>
Total Farm Liabilities	\$397,491	\$451,548	\$1,041,394	\$1,013,075
Nonfarm Liabilities ⁵³	<u>19,481</u>	<u>14,242</u>	<u>4,535</u>	<u>3,218</u>
Farm & Nonfarm Liabilities	\$416,972	\$465,790	\$1,045,929	\$1,016,293
Farm Net Worth (Equity Capital)	\$1,241,268	\$1,388,670	\$2,189,821	\$2,559,725
Farm & Nonfarm Net Worth	\$1,503,485	\$1,655,092	\$2,792,876	\$3,167,768
FINANCIAL MEASURES				
	<u>100 to 199 Cows</u>		<u>200 to 399 Cows</u>	
Percent equity	75%		72%	
Debt/asset ratio-long term	0.30		0.34	
Debt/asset ratio-intermediate & current	0.21		0.24	
Debt/asset ratio-total	0.25		0.28	
Leverage ratio	0.33		0.40	
Current ratio	3.22		2.85	
Working capital as % of total expenses	29%		26%	
Accounts payable as % of total debt	3%		3%	
Long-term debt as % of total debt	50%		53%	
Cost of term debt (weighted average)	3.61%		4.33%	
Change in net worth with appreciation	\$134,956		\$353,627	
Total farm debt per cow	\$3,142		\$3,458	
Debt payments made per cow	\$643		\$684	
Debt payments as % of milk sales	11%		12%	
Amount available for debt service	\$135,489		\$295,673	
Cash flow coverage ratio for 2014	2.14		1.92	
Debt coverage ratio for 2014	3.39		2.98	

⁵²Includes discounted lease payments.⁵³Average of farms reporting nonfarm assets and liabilities for 2014.⁵⁴Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 54. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
173 New York Dairy Farms, 2014

Item	Farms with:		600 to 899 Cows	
	400 to 599 Cows		Jan. 1	Dec. 31
	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS				
Farm cash, checking & savings	\$ 50,021	\$ 64,311	\$ 60,590	\$ 49,388
Accounts receivable	265,629	358,677	363,921	459,723
Prepaid expenses	8,158	12,096	9,432	33,082
Feed & supplies	585,490	788,590	975,076	1,260,838
Livestock ⁵⁵	1,043,685	1,091,963	1,608,309	1,755,109
Machinery & equipment ⁵⁵	976,312	1,141,876	1,281,624	1,470,465
Farm Credit stock	1,143	1,143	1,017	1,034
Other stock & certificates	196,656	245,965	244,777	278,579
Land & buildings ⁵⁵	<u>2,293,924</u>	<u>2,449,827</u>	<u>3,356,306</u>	<u>3,891,939</u>
Total Farm Assets	\$5,421,018	\$6,154,446	\$7,901,050	\$9,200,160
Nonfarm Assets ⁵⁶	<u>\$ 508,855</u>	<u>\$ 582,661</u>	<u>\$ 465,090</u>	<u>\$ 521,612</u>
Farm & Nonfarm Assets	\$5,929,873	\$6,737,107	\$8,366,140	\$9,721,772
LIABILITIES (excluding deferred taxes)				
Accounts payable	\$ 72,558	\$ 49,889	\$ 70,374	\$ 57,922
Operating debt	124,690	156,503	227,787	234,424
Short term	714	0	9,837	5,668
Advanced government receipt	0	0	0	0
Current Portion:				
Intermediate	99,453	110,110	198,717	213,047
Long Term	46,811	49,837	73,609	86,945
Intermediate ⁵⁷	439,131	400,356	966,926	922,176
Long term ⁵⁵	<u>589,517</u>	<u>545,330</u>	<u>1,048,988</u>	<u>1,201,592</u>
Total Farm Liabilities	\$1,372,873	\$1,312,025	\$2,596,238	\$2,721,773
Nonfarm Liabilities ⁵⁶	<u>10,303</u>	<u>6,710</u>	<u>5,963</u>	<u>7,292</u>
Farm & Nonfarm Liabilities	\$1,383,176	\$1,318,735	\$2,602,201	\$2,729,065
Farm Net Worth (Equity Capital)	\$4,048,145	\$4,842,421	\$5,304,812	\$6,478,386
Farm & Nonfarm Net Worth	\$4,546,697	\$5,418,372	\$5,763,939	\$6,992,707
FINANCIAL MEASURES				
	<u>400 to 599 Cows</u>		<u>600 to 899 Cows</u>	
Percent equity	79%		70%	
Debt/asset ratio-long term	0.22		0.31	
Debt/asset ratio-intermediate & current	0.21		0.29	
Debt/asset ratio-total	0.21		0.30	
Leverage ratio	0.27		0.42	
Current ratio	3.34		3.02	
Working capital as % of total expenses	32%		30%	
Accounts payable as % of total debt	4%		2%	
Long-term debt as % of total debt	42%		44%	
Cost of term debt (weighted average)	4.33%		3.69%	
Change in net worth with appreciation	\$776,612		\$1,115,101	
Total farm debt per cow	\$2,647		\$3,691	
Debt payments made per cow	\$600		\$764	
Debt payments as % of milk sales	9%		12%	
Amount available for debt service	\$565,643		\$876,638	
Cash flow coverage ratio for 2014	2.93		2.29	
Debt coverage ratio for 2014	4.68		3.52	

⁵⁵Includes discounted lease payments.⁵⁶Average of farms reporting nonfarm assets and liabilities for 2014.⁵⁷Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 54. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
173 New York Dairy Farms, 2014

Item	Farms with:	More than 900 Cows	
		Jan. 1	Dec. 31
<u>ASSETS</u>			
Farm cash, checking & savings		\$ 166,097	\$ 192,470
Accounts receivable		871,418	1,262,752
Prepaid expenses		13,637	37,405
Feed & supplies		1,783,739	2,221,473
Livestock ⁵⁸		3,105,715	3,385,219
Machinery & equipment ⁵⁸		2,403,019	2,807,131
Farm Credit stock		1,771	1,808
Other stock & certificates		462,904	537,937
Land & buildings ⁵⁸		<u>5,980,121</u>	<u>6,731,713</u>
Total Farm Assets		\$14,788,421	\$17,177,906
Nonfarm Assets ⁵⁹		<u>\$ 1,167,482</u>	<u>\$ 1,134,297</u>
Farm & Nonfarm Assets		\$15,955,903	\$18,312,203
<u>LIABILITIES (excluding deferred taxes)</u>			
Accounts payable		\$ 132,806	\$ 95,461
Operating debt		481,645	557,206
Short term		8,814	3,343
Advanced government receipts		0	0
Current Portion:			
Intermediate		403,418	441,853
Long Term		136,448	147,825
Intermediate ⁶⁰		2,107,757	2,023,066
Long term ⁵⁸		<u>1,657,201</u>	<u>1,688,604</u>
Total Farm Liabilities		\$ 4,928,089	\$ 4,957,358
Nonfarm Liabilities ⁵⁹		<u>0</u>	<u>0</u>
Farm & Nonfarm Liabilities		\$ 4,928,089	\$ 4,957,358
Farm Net Worth (Equity Capital)		\$ 9,860,332	\$12,220,548
Farm & Nonfarm Net Worth		\$11,027,814	\$13,354,845
<u>FINANCIAL MEASURES</u>		<u>More than 900 Cows</u>	
Percent equity		71%	
Debt/asset ratio-long term		0.25	
Debt/asset ratio-intermediate & current		0.31	
Debt/asset ratio-total		0.29	
Leverage ratio		0.41	
Current ratio		2.98	
Working capital as % of total expenses		30%	
Accounts payable as % of total debt		2%	
Long-term debt as % of total debt		34%	
Cost of term debt (weighted average)		3.80%	
Change in net worth with appreciation		\$2,306,383	
Total farm debt per cow		\$3,480	
Debt payments made per cow		\$714	
Debt payments as % of milk sales		11%	
Amount available for debt service		\$1,764,945	
Cash flow coverage ratio for 2014		2.30	
Debt coverage ratio for 2014		3.63	

⁵⁸Includes discounted lease payments.⁵⁹Average of farms reporting nonfarm assets and liabilities for 2014.⁶⁰Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 55.

SELECTED BUSINESS FACTORS BY HERD SIZE
173 New York Dairy Farms, 2014

Item	Farms with:	Less than 60 Cows	60 to 99 Cows	100 to 199 Cows	200 to 399 Cows
Number of farms		13	11	23	22
<u>Cropping Program Analysis</u>					
Total Tillable acres		191	287	400	639
Tillable acres rented ⁶¹		86	164	181	249
Hay crop acres ⁶¹		128	195	225	341
Corn silage acres ⁶¹		21	50	113	213
Hay crop, tons DM/acre		1.7	2.2	2.7	3.5
Corn silage, tons/acre		15	15	18	19
Oats, bushels/acre		0	46	0	65
Forage DM per cow, tons		8.5	9.5	10.5	9.4
Tillable acres/cow		4.4	3.9	3.1	2.2
Fertilizer & lime expense/tillable acre		\$29.84	\$39.93	\$73.64	\$68.92
Total machinery costs		\$52,488	\$68,176	\$154,208	\$308,923
Machinery cost/tillable acre		\$255	\$237	\$375	\$483
<u>Dairy Analysis</u>					
Number of cows		47	73	133	285
Number of heifers		41	57	116	230
Milk sold, pounds		837,164	1,358,196	2,931,469	6,514,618
Milk sold/cow, pounds		17,695	18,583	21,962	22,832
Operating cost of producing milk/cwt.		\$16.66	\$18.55	\$17.51	\$17.89
Total cost of producing milk/cwt.		\$30.06	\$27.03	\$23.98	\$23.08
Price/cwt. milk sold		\$25.38	\$25.76	\$25.83	\$25.55
Purchased dairy feed/cow		\$1,432	\$1,366	\$1,703	\$1,756
Purchased dairy feed/cwt. milk		\$8.09	\$7.35	\$7.75	\$7.69
Purchased grain & concentrate as % of milk receipts		25%	25%	28%	29%
Purchased feed & crop expense/cwt. milk		\$9.06	\$8.94	\$9.69	\$9.17
Cull rate		27%	27%	29%	32%
<u>Capital Efficiency</u>					
Farm capital/worker		\$342,523	\$360,892	\$400,804	\$483,240
Farm capital/cow		\$15,783	\$13,529	\$13,032	\$11,923
Farm capital/tillable acre owned		\$7,091	\$8,022	\$7,927	\$8,730
Real estate/cow		\$8,583	\$7,073	\$5,478	\$5,356
Machinery investment/cow		\$3,053	\$2,651	\$2,813	\$2,295
Asset turnover ratio		0.34	0.41	0.52	0.58
<u>Labor Efficiency</u>					
Worker equivalent		2.18	2.74	4.34	7.04
Operator/manager equivalent		1.29	1.36	1.43	1.70
Milk sold/worker, lbs.		384,756	494,939	675,843	925,701
Cows/worker		22	27	31	41
Labor cost/cow		\$1,304	\$1,144	\$1,045	\$874
Labor cost/tillable acre		\$322	\$291	\$348	\$390

⁶¹Average of all farms, not only those reporting data.

Table 55. (cont'd)

SELECTED BUSINESS FACTORS BY HERD SIZE
173 New York Dairy Farms, 2014

Item	Farms with:	400 to 599 Cows	600 to 899 Cows	900 or More Cows
Number of farms		21	29	55
<u>Cropping Program Analysis</u>				
Total Tillable acres		1,065	1,484	2,593
Tillable acres rented ⁶²		492	737	1,195
Hay crop acres ⁶²		514	615	1,029
Corn silage acres ⁶²		367	589	1,123
Hay crop, tons DM/acre		3.4	3.3	3.6
Corn silage, tons/acre		19	19	19
Oats, bushels/acre		0	63	38
Forage DM per cow, tons		8.4	8.3	8.2
Tillable acres/cow		2.1	2.1	1.9
Fertilizer & lime exp./tillable acre		\$75.62	\$85.48	\$66.65
Total machinery costs		\$528,697	\$734,281	\$1,361,849
Machinery cost/tillable acre		\$497	\$495	\$507
<u>Dairy Analysis</u>				
Number of cows		499	722	1,423
Number of heifers		403	615	1,221
Milk sold, pounds		12,336,237	18,042,774	37,185,270
Milk sold/cow, pounds		24,715	24,982	26,139
Operating cost of producing milk/cwt.		\$17.18	\$17.62	\$17.08
Total cost of producing milk/cwt.		\$21.73	\$21.88	\$20.76
Price/cwt. milk sold		\$25.60	\$25.75	\$25.34
Purchased dairy feed/cow		\$1,879	\$1,957	\$2,073
Purchased dairy feed/cwt. milk		\$7.60	\$7.83	\$7.82
Purchased grain & concentrate as % of milk receipts		28%	29%	29%
Purchased feed & crop expense/cwt. milk		\$9.02	\$9.35	\$9.05
Cull rate		32%	35%	34%
<u>Capital Efficiency</u>				
Farm capital/worker		\$488,416	\$517,278	\$528,544
Farm capital/cow		\$11,595	\$11,839	\$11,235
Farm capital/tillable acre owned		\$10,107	\$11,448	\$11,434
Real estate/cow		\$4,752	\$5,018	\$4,468
Machinery investment/cow		\$2,122	\$1,905	\$1,831
Asset turnover ratio		0.64	0.65	0.69
<u>Labor Efficiency</u>				
Worker equivalent		11.85	16.53	30.24
Operator/manager equivalent		2.07	2.46	2.49
Milk sold/worker, lbs.		1,040,740	1,091,682	1,229,604
Cows/worker		42	44	47
Labor cost/cow		\$850	\$817	\$848
Labor cost/tillable acre		\$398	\$398	\$465

⁶²Average of all farms, not only those reporting data.

SUPPLEMENTAL INFORMATION

Comparisons of business performance by farms buying versus growing forages, types of housing and herd size, rotational grazers, milking frequency, same farms over 10 years, and dairy region are presented in this section. Farm receipts and expenses per cow and per hundredweight of milk sold for different levels of milk output and herd size groups, plus additional data, are included.

A word of caution to the reader on the interpretation of these data: It is the combination of resources and practices, and implementation of business management strategies by farmers that determine business performance. Examining one factor, while not holding all others constant, can lead to erroneous conclusions of cause and effect relationships. As an example, farms milking 3x per day showed higher profitability. Is it exclusively higher milking rates or is it that farms milking more frequently would have higher profitability per cow if they milked less often? Keep this distinction in mind when reviewing the following data.

Comparison for Farms That Buy All Feed Versus Farms That Grow Forages

Farms specializing in only milk production is utilized by a small number of farms in New York. In 2014, 5 participating farms purchased the majority of their feed, including most forages. On average, these farms did not harvest any forages in 2014. Table 56 highlights the income and expenses for these 5 farms compared to the income and expenses for 27 farms of similar size that grew their forages. Table 57 compares selected business factors for the two groups of farms. In 2014, the 5 farms buying forages had, on average, higher pounds of milk sold per cow and dairy cattle and calf sales per cow than the similar size farms growing forages. While the operating costs of producing milk were \$0.55 per hundredweight lower than farms growing forages, the net income per cwt was \$1.40 lower than farms that grow feed.

Comparison by Type of Barn and Herd Size

When analyzing a dairy farm business by comparing it to a group of farms, it is important that the group of farms have as many of the same physical characteristics as possible as the farm being analyzed. To assist in this endeavor, dairy farms in the summary have been divided into those with freestall and those with tiestall/stanchion housing. Within each group, is a further classification by size of the dairy herd. Table 58 on page 66 includes the average values for the resulting five groups of dairy farms. The average size in the five groups ranges from 37 cows on the small tiestall/stanchion farms to 2,462 cows on the largest freestall farms. The largest freestall farms averaged the highest milk output per cow and per worker, the lowest total cost of production; and, in 2014, they had the highest returns to labor, management and capital.

Farm business charts have been computed for each of the five housing and herd size categories and are on pages 67-71. By comparing the farm's performance on the most appropriate business chart, a farm manager will be better able to evaluate his or her business performance. Each column of the farm business chart is independent of the others.

Intensive Grazing Farms vs. Non-Grazing Farms

In 2014, 13 of the DFBS cooperators practiced intensive grazing. Intensive grazing means the dairy herd was on pasture for three months or more and was moved to a new paddock every third day or less and at least 30 percent of the forage was from pasture. The farms using intensive grazing are compared with a control group of non-grazing farms in Table 64. The control group is a selection of non-grazing dairy farms of similar size. In 2014, average profitability was 5 percent lower on intensive grazing farms. Operating costs of producing milk were \$1.18 per hundredweight lower while total costs were \$0.82 higher than the costs of production on the control farms.

Comparison of Data, Same Farms, 2005 - 2014

Follow ten years of growth, change and progress made by 87 New York DFBS farms in Table 65, pages 73 and 74. Milk receipts per hundredweight are higher by \$9.56 in 2014 when compared to 2005. Profitability in 2014 is higher than all other years in the ten-year period. Care should be exercised in using these data to indicate change in the dairy industry since the composition of the sample of farms is different from the state as a whole, and there is considerable year-to-year variability in milk prices.

Receipts and Expenses per Hundredweight of Milk and Per Cow

Average accrual receipts and expenses per cow and per hundredweight of milk sold are listed for 25 dairy farms selling less than 19,000 pounds of milk per cow, 29 farms with 19,000 to 22,999 pounds of milk sold per cow, and 119 dairy farms selling 23,000 pounds and more in Table 66 on page 75. Table 68 on page 77 provides the list of average accrual receipts and expenses for 24 farms averaging less than 100 cows per farm, 23 farms with 100 to 200 cows and 126 farms with 200 cows or more.

These data are very useful for forward planning or budgeting when a farmer or planner does not have complete and accurate data from his or her own farm business. It is important to use the costs and returns per unit of output that most closely fit the level of production and herd size that is included in the plan. For example, an expansion budget for a 20,000 pound herd should include higher feed costs per cow than a budget for an 18,000 pound herd. Herds with more than 180 cows must budget for higher hired labor costs per cow than smaller herds. These data should also be adjusted to the operating characteristics of the farm being budgeted. Most farms are not average. It is always better to have data on the specific farm being budgeted.

Comparison of Dairy Farm Business Data by Region

Average farm business summary data from five regions of the State are compared in Tables 68 and 69. The Northern New York Region averaged the highest profitability and the largest average farm size as well as the highest average rate of milk production with the Western and Central Plateau Region having the second highest. Dairy farmers in the Western and Central Plain Region have increased milk production 32.7 percent from 2000-2010 and they produced milk for an average total cost of \$21.60 per hundredweight in 2014. Total milk production has declined 3.7 percent from 2000-2010 in the Western and Central Plateau Region (Figure 2). The Central Valleys Region had the highest return per hundredweight to labor, management and capital with \$7.30 and the Western and Central Plateau Region was second at \$7.15. This data does not represent the “average” for all dairy farms in a given region; participation was on a voluntary basis, therefore not all areas or types of operations may have been proportionately represented.

Comparison of Farms by Milking Frequency

Fifty-Five percent of the 173 DFBS farms utilized three times per day (3X) milking in 2014. Most of the remaining farms milked twice per day (2X). Two years of selected average business and cost of milk production factors from the two milking frequency groups are compared in Table 70.

In 2014 compared to 2013, the 3X farms averaged 60 more cows per farm, sold 94lbs less milk per cow and showed an average \$857,725 increase in net farm income, and an increase in total cost of producing milk by \$0.86. The 2X farms between the two years saw no real change in milk production per cow (a 1lb drop), average net farm income increased by \$193,601, and total production costs increased by \$1.06 per hundredweight.

The 3X farms averaged 21 percent more milk per cow and 37 percent additional milk per worker in 2014 compared with the 2X farms. Similar differences were found in 2013. In 2014, the average total cost of producing milk was 9 percent lower on 3X farms than on 2X dairies. On the average, farmers milking 3X sold more milk per cow and per worker, produced milk at lower costs per hundredweight and received higher returns for their labor, management and capital than the average dairy farmer milking 2X. However, milking frequency was not the only, and probably not the most important, factor that contributed to financial success on these dairy farms. Comparison of herd size, crop yields, labor and capital efficiency indicates there are other important management differences contributing to higher profits.

Other Comparisons

Seven dairy renter farms (Table 71) were smaller, on average, and averaged lower labor and management incomes than the average for 173 owned dairy farms. Data for the top 10 percent of farms by rate of return on all capital without appreciation are presented in Table 72. Additional data for the top 10 percent of farms are presented in many of the first 46 tables of this publication. Summary data for the 173 specialized dairy farms are presented in Table 73.

Table 56.

**INCOME & EXPENSE COMPARISON FOR
FARMS BUYING MAJORITY OF FORAGES VERSUS SIMILAR SIZE FARMS GROWING FORAGES
New York State Dairy Farms, 2014**

Item	5 Farms Buying Majority of Forages		27 Similar Size Farms Growing Forages	
Number of cows per farm	470		470	
Pounds of milk sold	12,571,377		11,457,658	
<u>Income</u>	<u>Per Cow</u>	<u>Per Cwt.</u>	<u>Per Cow</u>	<u>Per Cwt.</u>
Milk sold	\$6,240.14	\$ 23.35	\$6,240.60	\$ 25.60
Dairy cattle	500.57	1.87	384.17	1.58
Dairy calves	109.52	0.41	82.35	0.34
Other livestock	-0.06	0.00	34.89	0.14
Crops	26.03	0.10	163.35	0.67
Miscellaneous	<u>33.43</u>	<u>0.13</u>	<u>72.59</u>	<u>0.30</u>
Total Accrual Receipts	6,909.63	25.85	6,977.94	28.62
<u>Expenses</u>				
Hired labor	\$ 575.77	\$ 2.15	\$ 720.35	2.95
Dairy grain & concentrate	2,136.46	7.99	1,737.93	7.13
Dairy roughage	802.88	3.00	107.94	0.44
Nondairy	0.00	0.00	0.07	0.00
Professional nutritional services	0.00	0.00	1.17	0.00
Machinery hire, rent/lease	121.82	0.46	211.98	0.87
Machinery repairs/vehicle expense.	146.45	0.55	271.54	1.11
Fuel, oil & grease	102.02	0.38	219.22	0.90
Replacement livestock	6.51	0.02	54.47	0.22
Breeding	43.54	0.16	58.11	0.24
Veterinary & medicine	162.14	0.61	160.16	0.66
Milk marketing	179.41	0.67	229.20	0.94
Bedding	48.49	0.18	101.25	0.42
Milking supplies	120.04	0.45	92.10	0.38
Cattle lease/rent	0.00	0.00	0.00	0.00
Custom boarding	5.53	0.02	39.08	0.16
bST expense	49.09	0.18	30.96	0.13
Livestock professional fees	10.86	0.04	19.74	0.08
Other livestock expenses	14.90	0.06	24.83	0.10
Fertilizer & lime	1.53	0.01	146.38	0.60
Seeds & plants	34.68	0.13	116.20	0.48
Spray, other crop expenses	6.99	0.03	76.03	0.31
Crop professional fees	0.00	0.00	5.54	0.02
Land/bldg/fence repair	63.25	0.24	86.31	0.35
Taxes	33.06	0.12	68.51	0.28
Rent & lease	25.10	0.09	65.39	0.27
Insurance	48.17	0.18	55.56	0.23
Utilities	190.06	0.71	115.01	0.47
Interest paid	96.93	0.36	86.96	0.36
Other professional fees	54.54	0.20	36.18	0.15
Miscellaneous	<u>25.91</u>	<u>0.10</u>	<u>28.54</u>	<u>0.12</u>
Total Operating Expenses	\$5,106.11	\$19.10	\$4,966.75	\$20.38
Expansion livestock	72.20	0.27	17.19	0.07
Extraordinary expense	6.06	0.02	0.57	0.00
Machinery depreciation	136.41	0.51	264.29	1.08
Building depreciation	<u>244.06</u>	<u>0.91</u>	<u>158.59</u>	<u>0.65</u>
Total Accrual Expenses	\$5,564.84	\$20.81	\$5,407.39	\$22.18
Net Farm Income (without appreciation)	\$1,344.79	\$ 5.04	\$1,570.55	\$ 6.44

Table 57.

**SELECTED BUSINESS FACTORS FOR FARMS BUYING MAJORITY OF FORAGES
VERSUS SIMILAR HERD SIZE FARMS GROWING FORAGES
New York Dairy Farms, 2014**

Selected Factors	5 Farms Buying Majority of Forages	27 Similar Size Farms Growing Forages
<u>Size of Business</u>		
Average number of cows	470	470
Average number of heifers	366	372
Milk sold, pounds	12,571,377	11,457,658
Worker equivalent	9.10	11.27
Total tillable acres	122	1,021
Forage acres harvested	0	867
<u>Rates of Production</u>		
Milk sold per cow, lbs.	26,725	24,378
Hay DM per acre, tons	0.0	3.56
Corn silage per acre, tons	0.0	19.17
<u>Labor Efficiency & Costs</u>		
Cows per worker	52	42
Milk sold/worker, pounds	1,381,976	1,016,877
Hired labor cost/cwt.	\$2.15	\$2.95
Hired labor cost/worker	\$35,692	\$37,524
Hired labor cost as % of milk sales	9.23%	11.54%
<u>Cost Control</u>		
Grain & concentrate purchased as % of milk sales	30%	28%
Grain & concentrate per cwt. milk	\$7.99	\$7.13
Dairy feed & crop expense per cwt. milk	\$11.16	\$8.98
Labor & machinery costs/cow	\$1,221	\$1,943
Total farm operating costs per cwt. sold	\$19.11	\$20.37
Interest costs per cwt. milk	\$0.36	\$0.36
Milk marketing costs per cwt. milk sold	\$0.67	\$0.94
Operating cost of producing cwt. of milk	\$16.87	\$17.42
<u>Capital Efficiency(average for the year)</u>		
Farm capital per cow	\$8,309	\$11,573
Machinery & equipment per cow	\$770	\$2,132
Asset turnover ratio	0.84	0.63
<u>Income Generation</u>		
Gross milk sales per cow	\$6,240	\$6,241
Gross milk sales per cwt.	\$23.35	\$25.60
Net milk sales per cwt.	\$22.68	\$24.66
Dairy cattle sales per cow	\$501	\$384
Dairy calf sales per cow	\$110	\$82
<u>Profitability</u>		
Net farm income without appreciation	\$632,622	\$738,157
Net farm income with appreciation	\$655,223	\$904,919
Labor & management income per operator/manager	\$408,800	\$260,619
Rate of return on equity capital without appreciation	20.7%	14.8%
Rate of return on all capital without appreciation	15.5%	12.2%
<u>Cash flow</u>		
Principal & interest payments per cow, 2014	\$910	\$584
Net cash flow	\$698,556	\$667,097
<u>Financial Summary</u>		
Farm net worth, end year	\$2,904,509	\$4,543,005
Farm net worth change from last year, percent	16.7%	17.9%
Debt to asset ratio	0.29	0.21
Farm debt per cow	\$2,471	\$2,590

Table 58.

SELECTED BUSINESS FACTORS BY TYPE OF BARN AND HERD SIZE
173 New York Dairy Farms, 2014

Item	Farms with:	Tiestall/Stanchion		Freestall		
		<60 Cows	>=60 Cows	<=200 Cows	201-500 Cows	>=500 Cows
Number of farms		11	13	20	26	91
<u>Cropping Program Analysis</u>						
Total Tillable acres		222	337	323	703	2,142
Tillable acres rented ⁶³		100	200	155	299	1,006
Hay crop acres ⁶³		150	225	183	356	873
Corn silage acres ⁶³		25	68	96	267	899
Hay crop, tons DM/acre		1.7	2.4	2.6	3.6	3.5
Corn silage, tons/acre		15.4	17.0	18.2	19.8	19.1
Oats, bushels/acre		0	46	0	65	49
Forage DM per cow, tons		9.5	10.9	10.0	9.2	8.3
Tillable acres/cow		4.9	3.9	2.9	2.1	2.0
Fertilizer & lime expense/tillable acre		\$32.82	\$50.27	\$67.76	\$67.47	\$73.69
Total machinery costs		\$55,139	\$97,993	\$130,669	\$386,120	\$1,099,217
Machinery cost/tillable acre		\$247	\$291	\$374	\$549	\$502
<u>Dairy Analysis</u>						
Number of cows		45	87	119	341	1,123
Number of heifers		38	70	104	285	959
Milk sold, lbs.		795,461	1,708,858	2,599,172	8,635,907	29,164,728
Milk sold/cow, lbs.		17,502	19,572	21,833	25,294	25,965
Operating cost of producing milk/cwt.		\$16.76	\$18.43	\$17.91	\$17.32	\$17.24
Total cost of producing milk/cwt.		\$31.20	\$26.39	\$24.34	\$22.10	\$21.08
Price/cwt. milk sold		\$25.15	\$25.68	\$25.95	\$25.70	\$25.41
Purchased dairy feed/cow		\$1,189	\$1,398	\$1,753	\$1,975	\$2,021
Purchased dairy feed/cwt. milk		\$6.79	\$7.14	\$8.03	\$7.81	\$7.78
Purchased grain & concentrate as % of milk receipts		24%	25%	28%	29%	29%
Purchased feed & crop expense/cwt. milk		\$8.00	\$9.14	\$9.67	\$9.15	\$9.10
<u>Capital Efficiency</u>						
Farm capital/worker		\$362,724	\$410,022	\$370,250	\$472,045	\$522,752
Farm capital/cow		\$17,159	\$14,652	\$12,254	\$11,946	\$11,430
Farm capital/tillable acre owned		\$6,397	\$9,317	\$8,699	\$10,105	\$11,299
Real estate/cow		\$9,507	\$6,741	\$5,146	\$4,904	\$4,634
Machinery investment/cow		\$3,499	\$3,511	\$2,406	\$2,349	\$1,893
Asset turnover ratio		0.31	0.40	0.53	0.64	0.68
<u>Labor Efficiency</u>						
Worker equivalent		2.15	3.12	3.95	8.64	24.56
Operator/manager equivalent		1.25	1.42	1.34	1.84	2.44
Milk sold/worker, lbs.		369,552	547,418	658,852	999,141	1,187,489
Cows/worker		21	28	30	40	46
Labor cost/cow		\$1,364	\$1,078	\$1,040	\$905	\$847
Labor cost/tillable acre		\$279	\$279	\$383	\$439	\$444
<u>Profitability & Balance Sheet Analysis</u>						
Net farm income (without appreciation)		\$46,268	\$96,700	\$167,144	\$567,183	\$1,907,986
Labor & management income/operator		\$1,626	\$28,068	\$73,718	\$224,607	\$598,499
Rate return on all capital with appreciation		-0.5%	4.8%	7.8%	15.0%	17.4%
Farm debt/cow		\$3,660	\$3,636	\$2,810	\$3,135	\$3,507
Percent equity		79%	75%	77%	75%	71%

⁶³Average of all farms, not only those reporting data.

Table 59.

FARM BUSINESS CHART FOR SMALL TIESTALL/STANCHION DAIRY FARMS
11 Tiestall/Stanchion Dairy Farms with 60 or Less Cows, New York, 2014

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	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
3.29	53	1,089,634	24,055	2.3	20	32	640,358
2.26	50	980,545	20,896	2.0	18	25	459,022
2.04	47	899,062	17,728	1.8	16	23	362,842
2.00	45	661,668	15,472	1.6	13	22	309,925
1.50	37	496,086	11,602	0.8	7	16	251,394
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		
\$579	15%	\$582	\$1,762	\$868	\$5.52		
1,021	22	1,001	2,377	1,202	7.72		
1,100	26	1,271	2,543	1,243	8.10		
1,261	29	1,423	2,697	1,675	9.09		
1,440	36	1,701	3,497	2,210	10.21		
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Operating Cost Producing Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Income Per Operator	Change in Net Worth w/Appreciation	
			Total	Per Cow			
\$5,971	\$12.65	\$25.49	\$96,732	\$1,823	\$39,378	\$112,385	
5,525	16.02	28.04	75,087	1,631	17,983	73,514	
4,398	17.70	33.22	53,080	1,112	8,569	34,862	
3,900	19.06	37.20	23,701	613	-18,402	25,318	
2,813	20.85	42.98	3,917	109	-32,524	6,925	

Table 60.

FARM BUSINESS CHART FOR LARGE TIESTALL/STANCHION DAIRY FARMS
13 Tiestall/Stanchion Dairy Farms with 60 or More Cows, New York, 2014

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	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
4.42	131	3,180,856	26,787	5.2	22	45	941,743
4.04	108	2,173,379	23,550	3.3	20	35	744,544
3.28	86	1,755,770	20,925	2.7	18	32	532,783
2.75	69	1,204,158	16,846	1.9	13	24	492,792
1.86	65	875,631	11,441	1.2	3	20	293,084
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		
\$521	16%	\$678	\$1,590	\$787	\$6.44		
1,030	23	885	1,979	1,489	8.40		
1,443	26	1,088	2,324	1,955	9.22		
1,730	30	1,358	2,427	2,309	9.86		
2,023	34	1,636	2,914	2,677	11.56		
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Operating Cost Producing Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Income Per Operator	Change in Net Worth w/Appreciation	
			Total	Per Cow			
\$6,957	\$16.80	\$23.43	\$201,097	\$1,716	\$99,412	\$175,695	
5,988	17.53	24.90	136,130	1,542	63,430	126,788	
5,414	18.41	26.50	114,572	1,403	38,541	91,564	
4,366	19.46	31.19	68,708	888	12,228	40,080	
2,845	22.94	39.08	10,937	156	-63,562	5,668	

Table 61.

FARM BUSINESS CHART FOR SMALL FREESTALL DAIRY FARMS
20 Freestall Barn Dairy Farms with 200 Cows or Less, New York, 2014

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	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
7.71	178	4,664,492	27,142	4.6	23	47	1,140,257
5.40	153	3,366,879	25,460	3.3	21	39	868,195
4.42	140	3,145,965	23,470	3.1	20	37	744,071
4.10	134	2,888,870	22,617	2.9	20	32	706,312
3.74	120	2,724,527	22,169	2.6	19	31	663,148

3.63	117	2,593,920	21,243	2.5	18	30	626,924
3.39	113	2,279,830	20,193	2.3	15	29	568,428
2.63	107	2,146,995	18,881	1.7	10	27	536,357
2.35	73	1,183,296	16,400	1.3	0	26	465,118
2.09	58	996,943	14,939	0.0	0	21	424,798

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		
\$764	19%	\$503	\$1,606	\$1,074	\$6.48		
1,102	23	730	1,634	1,394	7.33		
1,381	26	839	1,678	1,774	8.12		
1,497	27	885	1,738	1,979	8.58		
1,529	29	940	1,853	2,094	9.61		

1,642	29	1,016	1,961	2,227	10.19		
1,763	30	1,037	2,012	2,359	10.62		
1,937	32	1,120	2,315	2,511	11.18		
2,047	34	1,353	2,642	2,599	11.75		
2,106	36	1,637	2,873	2,847	14.75		

Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Operating Cost Producing Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Income Per Operator	Change in Net Worth w/Appreciation	
			Total	Per Cow			
\$6,943	\$13.69	\$21.24	\$301,499	\$2,232	\$167,393	\$241,808	
6,458	15.00	22.31	242,982	1,738	136,539	201,615	
6,295	16.09	22.73	209,101	1,655	102,474	153,895	
6,021	16.64	23.10	195,417	1,618	98,186	131,023	
5,883	17.14	23.36	183,166	1,546	89,966	117,768	

5,532	18.42	23.70	160,851	1,401	85,001	108,905	
5,307	19.00	24.39	135,858	1,328	70,324	81,042	
4,806	19.87	26.08	119,871	1,260	46,307	63,317	
4,271	20.31	28.60	88,397	805	22,662	25,127	
3,677	21.91	30.70	34,299	371	-11,318	-100,609	

Table 62.

FARM BUSINESS CHART FOR MEDIUM FREESTALL DAIRY FARMS
26 Freestall Barn Dairy Farms with 201-500 Cows, New York, 2014

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	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
14.51	490	12,811,128	28,034	5.4	25	62	1,601,543
13.05	449	11,838,170	27,305	5.0	24	54	1,280,734
11.39	420	10,923,200	26,851	4.6	23	47	1,173,592
9.63	406	10,634,193	26,596	4.4	22	45	1,137,750
9.32	389	10,074,994	26,072	4.0	20	43	1,073,824

8.30	365	8,978,834	25,587	3.6	20	40	1,029,781
7.45	312	8,039,669	25,162	3.3	19	39	957,395
6.67	271	7,005,816	24,038	3.1	18	35	858,115
6.13	236	5,427,747	23,500	2.9	16	33	783,788
4.65	210	4,513,011	20,021	2.1	9	29	732,535

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		
\$1,332	21%	\$611	\$1,228	\$1,711	\$6.88		
1,588	25	870	1,668	2,008	8.10		
1,678	27	958	1,874	2,090	8.40		
1,797	27	1,063	1,991	2,220	8.63		
1,882	29	1,123	2,050	2,275	9.13		

1,946	30	1,203	2,130	2,370	9.49		
2,001	31	1,292	2,238	2,484	10.13		
2,031	31	1,459	2,344	2,684	10.53		
2,219	32	1,507	2,471	2,821	10.92		
2,365	40	1,822	2,970	2,938	12.68		

Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Operating Cost Producing Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Income Per Operator	Change in Net Worth w/Appreciation	
			Total	Per Cow			
\$7,269	\$13.46	\$19.18	\$1,077,418	\$2,565	\$598,994	\$965,452	
7,157	15.45	19.94	938,643	2,094	478,568	862,851	
7,086	16.01	20.86	856,043	2,029	372,365	785,545	
6,792	16.64	21.66	725,223	1,824	342,849	754,253	
6,614	17.06	22.23	679,147	1,739	274,744	675,510	

6,446	17.64	23.09	515,178	1,687	233,561	494,109	
6,261	18.44	23.60	464,731	1,598	183,246	380,108	
6,140	19.51	24.19	376,632	1,493	142,118	326,630	
5,915	20.71	26.06	337,898	1,270	106,123	243,292	
5,420	22.51	26.64	143,779	524	-13,229	94,594	

Table 63.

FARM BUSINESS CHART FOR LARGE FREESTALL DAIRY FARMS
91 Freestall Barn Dairy Farms with 501 or More Cows, New York, 2014

Size of Business			Rates of Production			Labor Efficiency	
Worker Equi-Valent	No. of Cows	Pounds of Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
50.89	2,462	65,820,428	29,086	5.4	26	62	1,650,512
33.93	1,632	41,034,758	27,726	4.5	22	54	1,415,049
29.32	1,327	34,971,517	27,207	4.1	21	51	1,330,582
26.42	1,151	30,715,941	26,697	3.8	20	48	1,251,025
23.33	1,053	27,271,097	26,331	3.6	20	47	1,190,232

20.68	945	24,804,103	25,732	3.4	19	45	1,130,465
18.95	813	21,046,630	25,337	3.2	18	42	1,067,506
16.84	710	18,165,643	24,882	2.9	17	39	1,024,330
14.85	647	15,948,215	23,751	2.6	16	38	971,155
11.81	556	13,598,524	22,040	1.6	12	34	845,970

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		
\$1,340	22%	\$659	\$1,332	\$1,719	\$7.23		
1,668	25	827	1,551	2,075	8.17		
1,744	27	865	1,681	2,174	8.57		
1,834	28	924	1,790	2,282	8.84		
1,901	29	979	1,849	2,372	9.07		

1,957	29	1,031	1,913	2,430	9.26		
2,022	30	1,092	1,960	2,479	9.54		
2,088	31	1,158	2,031	2,558	9.88		
2,145	33	1,211	2,129	2,676	10.22		
2,435	36	1,316	2,328	2,982	11.02		

Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Operating Cost Producing Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Income Per Operator	Change in Net Worth w/Appreciation	
			Total	Per Cow			
\$7,530	\$13.85	\$18.27	\$4,958,267	\$2,717	\$1,858,419	\$4,575,100	
7,153	15.47	19.49	2,880,097	2,205	1,171,285	2,915,088	
6,937	16.00	20.16	2,391,634	2,026	962,426	2,388,399	
6,763	16.35	20.54	2,085,785	1,913	791,334	1,997,375	
6,663	16.84	21.05	1,676,095	1,794	622,406	1,664,669	

6,503	17.62	21.60	1,463,044	1,623	509,779	1,405,039	
6,399	18.46	21.98	1,313,281	1,426	403,618	1,208,979	
6,238	19.04	22.29	1,055,258	1,274	286,779	913,830	
6,023	19.47	23.24	860,217	1,093	237,762	656,784	
5,627	20.97	25.21	547,366	721	109,379	279,930	

Table 64.

INTENSIVE GRAZING FARMS VS. NON-GRAZING FARMS
New York State Dairy Farms, 2014

Item	All Intensive Grazing Farms ⁶⁴	Non-Grazing Farms ⁶⁵
Number of farms	13	46
<u>Business Size & Production</u>		
Number of cows	218	217
Number of heifers	159	185
Milk sold, pounds	3,144,288	5,220,264
Milk sold per cow, pounds	14,444	24,030
Milk plant test, % butterfat ⁶⁶	2.85	2.52%
Cull rate	27%	32%
Tillable acres, total	477	530
Hay crop, tons DM per acre	2.29	3.30
Corn silage, tons per acre	18.67	18.89
Forage dry matter per cow, tons ⁶⁷	4.96	9.80
<u>Labor & Capital Efficiency</u>		
Worker equivalent	4.22	6.03
Milk sold per worker, pounds	744,504	865,715
Cows per worker	52	36
Farm capital per worker	\$528,742	\$453,455
Farm capital per cow	\$10,250	\$12,587
Farm capital per cwt. milk	\$71	\$52
Machinery and equipment per cow	\$1,499	\$2,533
<u>Milk Production Costs & Returns</u>		
Selected costs per cwt.:		
Hired labor	\$3.04	\$2.69
Grain & concentrate	\$6.35	\$7.34
Purchased roughage	\$1.14	\$0.35
Replacements purchased	\$0.02	\$0.16
Vet & medicine	\$0.52	\$0.64
Milk marketing	\$0.95	\$0.94
Other dairy expenses	\$1.07	\$1.75
Operating cost of producing milk per cwt.	\$16.35	\$17.53
Total labor cost per cwt. (hired, family & operator)	\$4.61	\$3.95
Owner and operator resources per cwt.	\$6.75	\$4.52
Total cost of producing milk per cwt.	\$23.61	\$22.79
Average farm price per cwt.	\$26.87	\$25.48
Return over total costs/cwt.	\$3.26	\$2.69
<u>Related Cost Factors</u>		
Hired labor/cow	\$438	\$646
Total labor/cow	\$666	\$950
Purchased dairy feed/cow	\$1,351	\$1,763
Purchased grain & concentrate as % of milk receipts	24%	29%
Veterinary & medicine/cow	\$75	\$153
Machinery costs/cow	\$754	\$1,123
Feed & crop expenses/cwt.	\$9.36	\$9.20
<u>Profitability Analysis</u>		
Net farm income (with appreciation)	\$366,517	\$384,941
Net farm income (without appreciation)	\$252,968	\$326,082
Net farm income per cow (without appreciation)	\$1,162	\$1,501
Net farm income per cwt. (without appreciation)	\$8.05	\$6.25
Labor & management income per operator	\$125,563	\$136,575
Labor & management income per operator per cow	\$577	\$629
Rates of return on:		
Equity capital with appreciation	17.5%	15.0%
All capital with appreciation	14.3%	11.9%

⁶⁴Farms grazing at least three months of year, changing paddock at least every three days, forage from pasture at least 30 percent, and no organic farms.

⁶⁵Farms with similar herd size as the 13 rotational grazing farms.

⁶⁶Average of farms reporting this data.

⁶⁷Average of farms that grow forages.

Table 65.

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 87 New York Dairy Farms, 2005 -- 2014

Selected Factors	2005	2006	2007	2008	2009
Milk receipts per cwt. milk	\$15.95	\$13.83	\$20.69	\$19.28	\$13.89
<u>Size of Business</u>					
Average number of cows	528	557	563	583	613
Average number of heifers	419	447	450	485	525
Milk sold, cwt.	125,440	132,605	134,753	143,596	151,335
Worker equivalent	11.99	12.44	12.56	13.15	13.65
Total tillable acres	1,055	1,084	1,116	1,186	1,232
<u>Rates of Production</u>					
Milk sold per cow, lbs.	23,747	23,803	23,951	24,647	24,682
Hay DM per acre, tons	3.7	3.5	3.2	3.8	3.5
Corn silage per acre, tons	20	19	19	20	19
<u>Labor Efficiency</u>					
Cows per worker	44	45	45	44	45
Milk sold per worker, lbs.	1,046,640	1,065,673	1,073,227	1,091,985	1,108,409
<u>Cost Control</u>					
Grain & concentrate purchased as % of milk sales	25%	28%	23%	30%	37%
Dairy feed & crop expense per cwt. milk	\$5.03	\$4.95	\$5.99	\$7.26	\$6.46
Operating cost of producing cwt. milk	\$11.97	\$12.00	\$13.58	\$15.14	\$13.57
Total cost of producing cwt. milk	\$14.99	\$15.00	\$16.73	\$18.47	\$16.77
Hired labor cost per cwt.	\$2.73	\$2.70	\$2.77	\$2.87	\$2.76
Interest paid per cwt.	\$0.61	\$0.72	\$0.75	\$0.53	\$0.51
Labor & machinery costs per cow	\$1,365	\$1,353	\$1,454	\$1,619	\$1,440
Replacement livestock expense	\$17,178	\$10,510	\$13,446	\$17,728	\$9,029
Expansion livestock expense	\$21,345	\$25,567	\$16,755	\$34,094	\$26,279
<u>Capital Efficiency</u>					
Farm capital per cow	\$7,370	\$7,673	\$8,230	\$8,951	\$8,930
Machinery & equipment per cow	\$1,284	\$1,326	\$1,416	\$1,570	\$1,611
Real estate per cow	\$2,810	\$2,999	\$3,152	\$3,379	\$3,512
Livestock investment per cow	\$2,117	\$2,115	\$2,338	\$2,314	\$2,217
Asset turnover ratio	0.65	0.54	0.71	0.63	0.46
<u>Profitability</u>					
Net farm income without appreciation	\$329,558	\$72,101	\$740,583	\$392,469	\$-150,353
Net farm income with appreciation	\$524,498	\$207,615	\$950,091	\$483,606	\$-117,680
Labor & management income per operator/manager	\$112,312	\$-35,398	\$323,041	\$116,506	\$-170,875
Rate return on:					
Equity capital with appreciation	18.0%	4.3%	28.1%	10.9%	-6.6%
All capital with appreciation	13.2%	5.0%	20.7%	8.9%	-2.8%
All capital without appreciation	8.2%	1.8%	16.1%	7.1%	-3.4%
<u>Financial Summary, End Year</u>					
Farm net worth	\$2,605,493	\$2,690,202	\$3,438,768	\$3,635,512	\$3,341,362
Change in net worth with appreciation	\$368,844	\$40,526	\$781,187	\$188,478	\$-290,115
Debt to asset ratio	0.36	0.39	0.31	0.33	0.39
Farm debt per cow	\$2,770	\$2,969	\$2,729	\$3,005	\$3,437

Table 65. (continued)

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 87 New York Dairy Farms, 2005 -- 2014

Selected Factors	2010	2011	2012	2013	2014
Milk receipts per cwt. milk	\$17.81	\$21.63	\$19.73	\$21.64	\$25.51
<u>Size of Business</u>					
Average number of cows	652	672	693	718	755
Average number of heifers	558	583	597	614	635
Milk sold, cwt.	162,585	167,930	176,723	184,613	194,061
Worker equivalent	14.16	14.66	15.38	15.75	16.84
Total tillable acres	1,283	1,318	1,380	1,421	1,474
<u>Rates of Production</u>					
Milk sold per cow, lbs.	24,925	24,993	25,496	25,724	25,698
Hay DM per acre, tons	3.7	3.5	3.1	3.7	3.5
Corn silage per acre, tons	19	17	17	18	19
<u>Labor Efficiency</u>					
Cows per worker	46	46	45	46	45
Milk sold per worker, lbs.	1,147,996	1,145,495	1,149,167	1,172,396	1,152,210
<u>Cost Control</u>					
Grain & concentrate purchased as % of milk sales	28%	28%	35%	33%	29%
Dairy feed & crop expense per cwt. milk	\$6.27	\$7.60	\$8.66	\$9.00	\$9.09
Operating cost of producing cwt. milk	\$13.70	\$15.57	\$15.90	\$16.81	\$17.34
Total cost of producing cwt. milk	\$16.86	\$19.04	\$19.51	\$20.57	\$21.38
Hired labor cost per cwt.	\$2.69	\$2.82	\$2.81	\$2.88	\$3.05
Interest paid per cwt.	\$0.54	\$0.48	\$0.47	\$0.48	\$0.44
Labor & machinery costs per cow	\$1,480	\$1,650	\$1,690	\$1,762	\$1,869
Replacement livestock expense	\$10,241	\$21,605	\$7,450	\$11,365	\$10,816
Expansion livestock expense	\$12,420	\$5,306	\$23,154	\$5,415	\$38,299
<u>Capital Efficiency</u>					
Farm capital per cow	\$8,833	\$9,486	\$10,229	\$10,747	\$11,450
Machinery & equipment per cow	\$1,572	\$1,653	\$1,766	\$1,846	\$1,976
Real estate per cow	\$3,540	\$3,797	\$4,137	\$4,436	\$4,636
Livestock investment per cow	\$2,183	\$2,208	\$2,233	\$2,228	\$2,307
Asset turnover ratio	0.60	0.66	0.60	0.61	0.68
<u>Profitability</u>					
Net farm income without appreciation	\$450,966	\$773,051	\$411,407	\$597,808	\$1,256,958
Net farm income with appreciation	\$604,441	\$950,049	\$639,537	\$763,384	\$1,542,246
Labor & management income per operator/manager	\$140,545	\$283,141	\$82,364	\$164,847	\$461,100
Rate return on:					
Equity capital with appreciation	13.6%	19.5%	10.6%	12.0%	22.9%
All capital with appreciation	10.0%	14.2%	8.3%	9.3%	17.1%
All capital without appreciation	7.3%	11.4%	5.1%	7.1%	13.8%
<u>Financial Summary, End Year</u>					
Farm net worth	\$3,822,523	\$4,599,368	\$4,998,599	\$5,456,186	\$6,687,449
Change in net worth with appreciation	\$458,742	\$757,830	\$380,831	\$420,890	\$1,229,849
Debt to asset ratio	0.36	0.32	0.32	0.32	0.28
Farm debt per cow	\$3,223	\$3,173	\$3,399	\$3,489	\$3,394

Table 66.

**FARM RECEIPTS AND EXPENSES PER COW AND PER
HUNDREDWEIGHT FOR THREE LEVELS OF MILK PRODUCTION
173 New York Dairy Farms, 2014**

Item	25 Dairy Farms Milk/Cow <19,000#		29 Dairy Farms Milk/Cow 19,000-22,999#		119 Dairy Farms Milk/Cow ≥23,000#	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<u>ACCRUAL RECEIPTS</u>						
Milk sales	\$3,734	\$27.22	\$5,642	\$25.57	\$6,654	\$25.41
Dairy cattle	312	2.27	509	2.31	492	1.88
Dairy calves	39	0.28	64	0.29	78	0.30
Other livestock	86	0.63	2	0.01	13	0.05
Crops	44	0.32	152	0.69	130	0.50
Government receipts	6	0.04	8	0.03	9	0.03
All other	<u>79</u>	<u>0.57</u>	<u>97</u>	<u>0.44</u>	<u>112</u>	<u>0.43</u>
TOTAL ACCRUAL RECEIPTS	\$4,299	\$31.34	\$6,475	\$29.34	\$7,485	\$28.58
<u>ACCRUAL EXPENSES</u>						
<u>Labor:</u> Hired	\$ 417	\$ 3.04	\$ 626	\$ 2.84	\$ 767	\$ 2.93
<u>Feed:</u> Dairy grain & concentrate	926	6.75	1,507	6.83	1,943	7.42
Dairy roughage	112	0.81	82	0.37	109	0.42
Nondairy	2	0.01	0	0.00	0	0.00
Professional nutritional services	0	0.00	0	0.00	1	0.00
<u>Machinery:</u> Mach. hire, rent & lease	105	0.76	154	0.70	120	0.46
Machinery repairs & vehicle expense	197	1.44	298	1.35	280	1.07
Fuel, oil & grease	158	1.15	236	1.07	222	0.85
<u>Livestock:</u> Replacement livestock	7	0.05	8	0.04	16	0.06
Breeding	29	0.21	49	0.22	61	0.23
Vet & medicine	87	0.63	145	0.66	183	0.70
Milk marketing	141	1.03	219	0.99	237	0.90
Bedding	39	0.29	84	0.38	105	0.40
Milking supplies	76	0.55	103	0.47	97	0.37
Cattle lease & rent	4	0.03	1	0.00	4	0.02
Custom boarding	2	0.01	18	0.08	109	0.41
bST expense	8	0.06	15	0.07	53	0.20
Livestock professional fees	13	0.09	13	0.06	18	0.07
Other livestock expense	25	0.18	57	0.26	27	0.10
<u>Crops:</u> Fertilizer & lime	154	1.13	145	0.66	133	0.51
Seeds & plants	61	0.44	135	0.61	133	0.51
Spray & other crop expense	27	0.20	69	0.31	68	0.26
Crop professional fees	4	0.03	6	0.03	6	0.02
<u>Real Estate:</u> Land, building & fence repair	40	0.29	118	0.53	119	0.45
Taxes	82	0.60	60	0.27	65	0.25
Rent & lease	56	0.41	56	0.26	72	0.27
<u>Other:</u> Insurance	44	0.32	50	0.23	51	0.19
Utilities (farm share)	86	0.62	135	0.61	118	0.45
Interest paid	101	0.74	95	0.43	113	0.43
Other professional fees	31	0.23	21	0.09	32	0.12
Miscellaneous	<u>14</u>	<u>0.11</u>	<u>30</u>	<u>0.14</u>	<u>37</u>	<u>0.14</u>
TOTAL OPERATING EXPENSES	\$3,048	\$22.22	\$4,536	\$20.55	\$5,296	\$20.22
Expansion livestock	5	0.03	116	0.53	42	0.16
Extraordinary expense	0	0.00	4	0.02	2	0.01
Machinery depreciation	188	1.37	259	1.17	260	0.99
Building depreciation	<u>117</u>	<u>0.85</u>	<u>84</u>	<u>0.38</u>	<u>164</u>	<u>0.63</u>
TOTAL ACCRUAL EXPENSES	\$3,358	\$24.48	\$4,999	\$22.65	\$5,764	\$22.01

Table 67.

**FARM RECEIPTS AND EXPENSES PER COW AND PER
HUNDREDWEIGHT FOR THREE HERD SIZE CATEGORIES
173 New York Dairy Farms, 2014**

Item	24 Dairy Farms with <100 Cows		23 Dairy Farms with 100-200 Cows		126 Dairy Farms with ≥ 200 Cows	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<u>ACCRUAL RECEIPTS</u>						
Milk sales	\$4,658	\$25.60	\$5,672	\$25.83	\$6,521	\$25.44
Dairy cattle	355	1.95	469	2.14	489	1.91
Dairy calves	65	0.36	91	0.41	75	0.29
Other livestock	17	0.09	8	0.04	15	0.06
Crops	53	0.29	255	1.16	126	0.49
Government receipts	-5	-0.03	16	0.07	9	0.03
All other	<u>130</u>	<u>0.72</u>	<u>172</u>	<u>0.79</u>	<u>106</u>	<u>0.42</u>
TOTAL ACCRUAL RECEIPTS	\$5,273	\$28.98	\$6,685	\$30.44	\$7,341	\$28.64
<u>ACCRUAL EXPENSES</u>						
<u>Labor:</u> Hired	\$ 237	\$ 1.30	\$ 543	\$ 2.47	\$ 756	\$ 2.95
<u>Feed:</u> Dairy grain & concentrate	1,189	6.53	1,617	7.36	1,891	7.38
Dairy roughage	206	1.13	86	0.39	107	0.42
Nondairy	5	0.03	0	0.00	0	0.00
Professional nutritional services	0	0.00	0	0.00	1	0.00
<u>Machinery:</u> Mach. hire, rent & lease	51	0.28	135	0.62	122	0.48
Mach. repairs & vehicle expense	296	1.62	326	1.49	277	1.08
Fuel, oil & grease	220	1.21	249	1.13	220	0.86
<u>Livestock:</u> Replacement livestock	64	0.35	9	0.04	15	0.06
Breeding	68	0.37	66	0.30	58	0.23
Vet & medicine	100	0.55	136	0.62	178	0.70
Milk marketing	204	1.12	251	1.14	232	0.90
Bedding	61	0.33	83	0.38	102	0.40
Milking supplies	135	0.74	112	0.51	96	0.37
Cattle lease & rent	1	0.01	1	0.00	4	0.02
Custom boarding	16	0.09	0	0.00	102	0.40
bST expense	8	0.04	15	0.07	50	0.20
Livestock professional fees	21	0.11	32	0.14	17	0.07
Other livestock expense	49	0.27	57	0.26	28	0.11
<u>Crops:</u> Fertilizer & lime	128	0.70	200	0.91	133	0.52
Seeds & plants	68	0.38	151	0.69	131	0.51
Spray & other crop expense	44	0.24	71	0.33	67	0.26
Crop professional fees	1	0.01	4	0.02	6	0.02
<u>Real Estate:</u> Land, building & fence repair	75	0.41	102	0.47	117	0.46
Taxes	116	0.64	43	0.19	64	0.25
Rent & lease	47	0.26	82	0.38	71	0.28
<u>Other:</u> Insurance	83	0.46	136	0.62	49	0.19
Utilities (farm share)	173	0.95	102	0.47	117	0.46
Interest paid	126	0.69	109	0.50	111	0.43
Other professional fees	25	0.14	18	0.08	31	0.12
Miscellaneous	<u>21</u>	<u>0.11</u>	<u>37</u>	<u>0.17</u>	<u>36</u>	<u>0.14</u>
TOTAL OPERATING EXPENSES	\$3,839	\$21.10	\$4,766	\$21.70	\$5,188	\$20.24
Expansion livestock	6	0.03	93	0.42	45	0.18
Extraordinary expense	0	0.00	10	0.05	2	0.01
Machinery depreciation	268	1.47	279	1.27	257	1.00
Building depreciation	<u>84</u>	<u>0.46</u>	<u>60</u>	<u>0.27</u>	<u>160</u>	<u>0.62</u>
TOTAL ACCRUAL EXPENSES	\$4,197	\$23.06	\$5,208	\$23.71	\$5,652	\$22.05

Table 68.

COMPARISON OF DAIRY FARM BUSINESS DATA BY REGION⁶⁹
173 New York Dairy Farms, 2014

Item	West. & Cent. Plateau Region	Western & Central Plain Region	Northern New York	Central Valleys	North. Hudson & Southeastern New York
Number of farms	16	54	30	34	39
<u>ACCRUAL EXPENSES</u>					
Hired labor	\$525,542	\$683,576	\$626,835	\$369,652	\$327,909
Feed	1,567,401	1,733,798	1,741,202	1,022,775	836,896
Machinery	439,118	501,878	586,838	358,428	273,015
Livestock	681,405	752,625	819,720	418,797	386,127
Crops	207,839	269,671	340,896	211,561	134,121
Real estate	185,504	227,191	202,505	130,237	113,249
Other	<u>237,892</u>	<u>294,430</u>	<u>316,097</u>	<u>187,307</u>	<u>156,341</u>
Total Operating Expenses	\$3,844,701	\$4,463,168	\$4,634,093	\$2,698,758	\$2,227,658
Expansion livestock	2,950	16,367	52,450	16,762	63,016
Extraordinary expense	0	403	120	344	4,778
Machinery depreciation	200,585	211,373	243,383	162,620	88,530
Building depreciation	<u>97,401</u>	<u>147,189</u>	<u>164,202</u>	<u>68,776</u>	<u>52,105</u>
Total Accrual Expenses	\$4,145,637	\$4,838,501	\$5,094,247	\$2,947,260	\$2,436,086
<u>ACCRUAL RECEIPTS</u>					
Milk sales	\$5,069,778	\$5,451,128	\$5,955,552	\$3,488,451	\$2,704,318
Livestock	448,086	530,300	492,260	252,275	263,239
Crops	-14,469	70,225	80,398	134,850	124,728
Government Receipts	4,840	14,469	518	2,561	2,750
All other	<u>55,155</u>	<u>97,716</u>	<u>103,594</u>	<u>70,038</u>	<u>40,205</u>
Total Accrual Receipts	\$5,563,391	\$6,159,134	\$6,630,507	\$3,948,175	\$3,135,241
<u>PROFITABILITY ANALYSIS</u>					
Net farm income(w/o appreciation)	\$1,417,754	\$1,320,634	\$1,536,260	\$1,000,916	\$699,155
Net farm income (w/ appreciation)	\$1,700,053	\$1,693,448	\$1,777,329	\$1,161,336	\$789,056
Labor & management income	\$1,088,379	\$971,961	\$1,177,751	\$754,124	\$543,137
Number of operators	2.17	2.14	1.97	2.05	1.87
Labor & mgmt. income/operator	\$501,557	\$454,188	\$597,843	\$367,865	\$290,448
<u>BUSINESS FACTORS</u>					
Worker equivalent	17.25	18.15	19.24	12.76	11.04
Number of cows	767	848	915	549	411
Number of heifers	696	731	775	453	329
Acres of hay crops ⁶⁸	691	593	859	546	442
Acres of corn silage ⁶⁸	639	640	843	455	407
Total tillable acres	1,392	1,453	1,971	1,236	882
Pounds of milk sold	19,798,613	21,487,398	23,860,044	13,633,318	10,284,971
Pounds of milk sold/cow	25,828	25,353	26,072	24,856	25,044
Tons hay crop dry matter/acre	3.2	3.7	3.5	3.4	2.7
Tons corn silage/acre	19.7	19.9	18.3	19.4	18.3
Cows/worker	44	47	48	43	37
Pounds of milk sold/worker	1,148,023	1,183,987	1,240,288	1,068,163	931,539
% grain & conc. of milk receipts	28%	29%	28%	27%	28%
Feed & crop expense/cwt. milk	\$8.97	\$9.32	\$8.72	\$9.05	\$9.44
Fertilizer & lime/crop acre ⁶⁸	\$71.67	\$76.23	\$68.83	\$62.99	\$58.50
Machinery cost/tillable acre ⁶⁸	\$512	\$537	\$457	\$473	\$457

⁶⁸Excludes farms that do not harvest forages.⁶⁹Regions are defined in Figure 2 on page 78.

Figure 2.

**Percent Change in Milk Production, Five Regions in New York,
1990-2010**

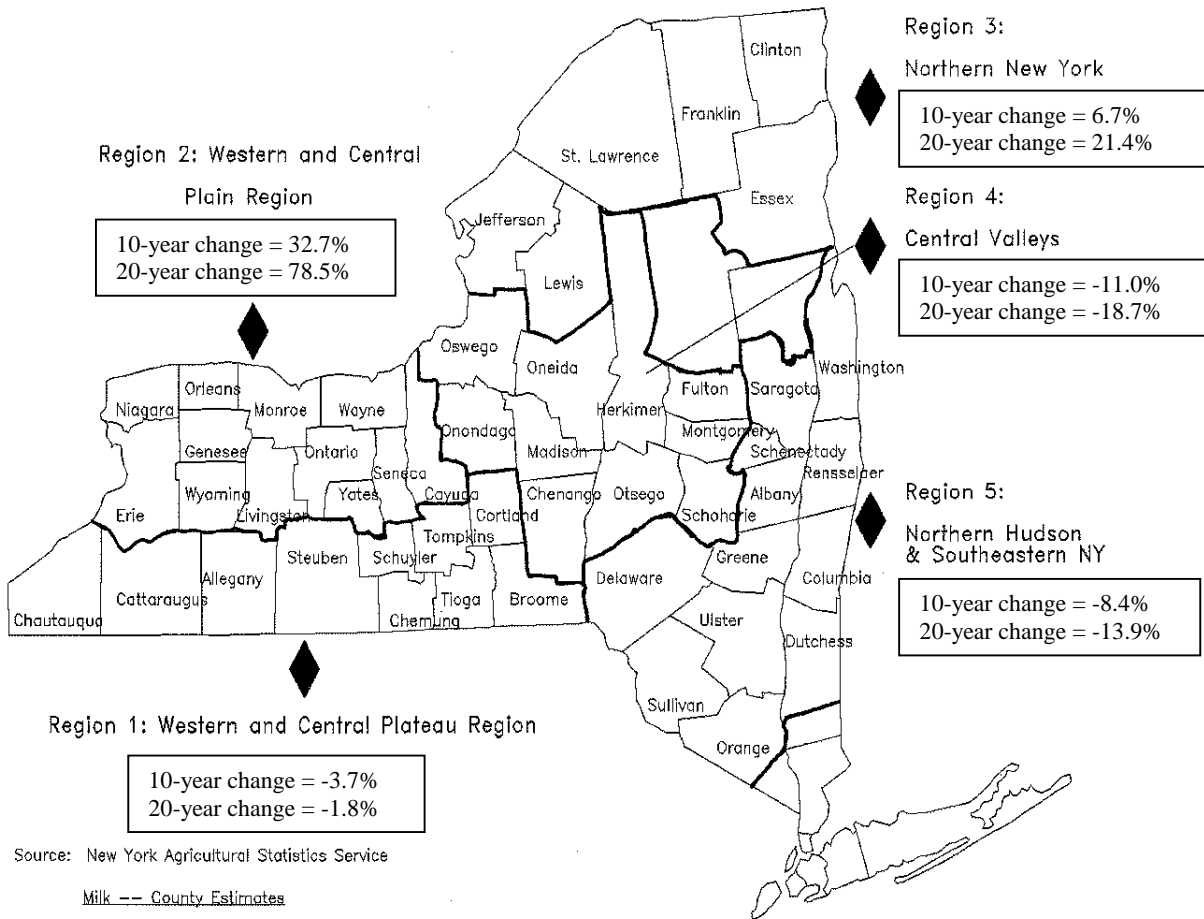


Table 69.

**MILK PRODUCTION & AVERAGE COST OF PRODUCING MILK
Five Regions of New York**

Item	Region ⁷⁰				
	1	2	3	4	5
<u>Milk Production</u> ⁷¹	(million pounds)				
1990	2,062.0	2,539.0	2,085.2	2,823.0	1,545.4
2000	2,103.8	3,415.2	2,372.3	2,576.1	1,452.6
2010	2,025.5	4,531.5	2,530.5	2,294.0	1,331.3
Percent change, 2000 to 2010	-3.7%	+32.7%	+6.7%	-11.0%	-8.4%
Percent change, 1990 to 2010	-1.8%	+78.5%	+21.4%	-18.7%	-13.9%
<u>2014 Cost of Producing Milk</u> ⁷²	(\$ per hundredweight milk)				
Operating cost	\$16.94	\$17.55	\$16.81	\$16.55	\$18.08
Total cost	20.90	21.60	20.67	21.01	21.99
Average price received	25.61	25.37	24.96	25.59	26.29
Return per cwt. to operator labor, management & capital	\$7.15	\$6.13	\$6.42	\$7.30	\$6.71

⁷⁰See Figure 2 for region descriptions.

⁷¹Source: New York Agricultural Statistics Service, Milk-County Estimates. The data for 2014 was not available.

⁷²From Dairy Farm Business Summary data.

Table 70.

SELECTED BUSINESS FACTORS BY MILKING FREQUENCY
New York State Dairy Farms, 2013 & 2014

Item	2x/Day Milking		3x/Day Milking	
	2013	2014	2013	2014
Number of farms	73	65	98	96
<u>Business Size & Production</u>				
Number of cows	234	252	942	1,002
Number of heifers	197	212	807	851
Milk sold, lbs.	5,039,222	5,425,105	24,700,671	26,177,502
Milk sold/cow, lbs.	21,510	21,509	26,224	26,130
Milk plant test, % butterfat	2.47%	2.45%	3.53%	3.54%
Tillable acres, total	547	596	1,815	1,922
Hay crop, tons DM/acre	2.8	2.8	3.7	3.5
Corn silage, tons/acre	17.8	19.4	18.0	19.0
Forage DM/cow, tons	4.0	8.2	8.5	8.43
<u>Labor & Capital Efficiency</u>				
Worker equivalent	5.63	6.32	20.72	22.26
Milk sold/worker, lbs.	895,862	857,950	1,192,069	1,175,944
Cows/worker	42	40	45	45
Farm capital/worker	\$457,293	\$470,831	\$480,250	\$508,767
Farm capital/cow	\$10,990	\$11,798	\$10,565	\$11,305
Farm capital/cwt. milk	\$51.03	\$54.80	\$40.29	\$43.27
<u>Milk Production Costs & Returns</u>				
Selected costs/cwt.:				
Hired labor	\$2.61	\$2.91	\$2.84	\$2.96
Grain & concentrate	\$6.93	\$7.30	\$7.13	\$7.39
Purchased roughage	\$0.39	\$0.44	\$0.48	\$0.42
Replacements purchased	\$0.08	\$0.05	\$0.08	\$0.06
Veterinary & medicine	\$0.68	\$0.73	\$0.69	\$0.69
Milk marketing	\$0.85	\$0.88	\$0.85	\$0.91
Other dairy expenses	\$1.51	\$1.56	\$1.67	\$1.75
Operating cost of milk production/cwt.	\$16.87	\$17.51	\$16.63	\$17.20
Total labor costs/cwt.	\$3.84	\$4.12	\$3.18	\$3.28
Owner/operator resources/cwt.	\$3.34	\$3.53	\$2.03	\$2.21
Total cost of milk production/cwt.	\$22.01	\$23.07	\$20.14	\$21.00
Average farm price/cwt.	\$21.81	\$25.99	\$21.62	\$25.39
Return over total costs/cwt.	\$-0.20	\$2.92	\$1.48	\$4.39
<u>Related Cost Factors</u>				
Hired labor/cow	\$562	\$625	\$745	\$774
Total labor/cow	\$826	\$886	\$834	\$856
Purchased dairy feed/cow	\$1,575	\$1,663	\$1,997	\$2,039
Purchased grain & concentrate as % of milk receipts	31%	26%	33%	29%
Veterinary & medicine/cow	\$147	\$158	\$181	\$181
Machinery costs/cow	\$885	\$958	\$903	\$975
<u>Profitability Analysis</u>				
Net farm income (without appreciation)	\$165,179	\$358,780	\$871,758	\$1,729,483
Labor & management income/operator	\$39,395	\$150,681	\$233,834	\$567,659
Rates of return on:				
Equity capital with appreciation	6.6%	16.7%	13.7%	23.7%
All capital with appreciation	5.9%	13.4%	10.4%	17.5%

Table 72.

FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
Average of 17 Top Ten Percent Farms by Rate of Return on All Capital
(without appreciation), 2014

<u>ACCRUAL EXPENSES</u>		<u>ACCRUAL RECEIPTS</u>	
Labor: Hired	\$699,167	Milk sales	\$7,051,110
Feed: Dairy grain & concentrate	1,912,161	Dairy cattle	526,296
Dairy roughage	172,091	Dairy calves	86,561
Nondairy	0	Other livestock	21,367
Professional nutritional services	1,453	Crops	317,062
Machinery: Machinery hire, rent & lease	121,867	Government receipts	2,112
Machinery repairs & farm vehicle expense	261,450	Custom machine work	557
Fuel, oil, grease	208,419	Gas tax refund	0
Livestock: Replacement livestock	18,334	Other	<u>96,894</u>
Breeding	56,365	TOTAL ACCRUAL RECEIPTS	\$8,100,359
Veterinary & medicine	182,781		
Milk marketing	275,822		
Bedding	113,439	<u>PROFITABILITY ANALYSIS</u>	
Milking supplies	71,584	Net farm income (without appreciation)	\$2,419,865
Cattle lease & rent	523	Net farm income (with appreciation)	2,589,814
Custom boarding	114,915	Labor & management income/operator	948,367
bST expense	54,094	Rate of return on equity	
Livestock professional fees	15,351	capital without appreciation	29.8%
Other livestock expense	21,839	Rate of return on all	
Crops: Fertilizer & lime	132,854	capital without appreciation	22.6%
Seeds & plants	121,931		
Spray & other crop expense	69,558	<u>BUSINESS FACTORS</u>	
Crop professional fees	4,568	Number of cows	1,038
Real estate: Land, building & fence repair	113,825	Number of heifers	810
Taxes	61,360	Worker equivalent	21.88
Rent & lease	67,603	Total tillable acres	1,786
Other:		Milk sold per cow, lbs.	26,331
Insurance	48,982	Hay DM per acre, tons	3.4
Utilities (farm share)	128,381	Corn silage per acre, tons	20.0
Interest paid	70,783	Milk sold per worker, lbs.	1,249,562
Miscellaneous	<u>64,451</u>	Grain & concentrate as % milk sales	27%
TOTAL OPERATING EXPENSES	\$5,185,951	Feed & crop expense/cwt. milk	\$8.83
Expansion livestock	124,162	Labor & machinery costs/cow	\$1,587
Extraordinary expense	9,925	Average price/cwt. milk	\$25.79
Machinery depreciation	208,013		
Building depreciation	<u>152,443</u>		
TOTAL ACCRUAL EXPENSES	\$5,680,494		

<u>ASSETS</u>	<u>Jan. 1</u>	<u>Dec. 31</u>	<u>LIABILITIES</u>	<u>Jan. 1</u>	<u>Dec. 31</u>
Farm cash, checking & savings	188,908	170,702	Current	\$636,505	\$774,722
Accounts receivable	611,443	880,275	Intermediate ⁷⁸	1,108,573	1,118,959
Prepaid expenses	7,879	22,410	Long-term ⁷⁷	<u>882,358</u>	<u>951,568</u>
Feed & supplies	1,177,139	1,870,884	Total Farm Liabilities	\$2,627,437	\$2,845,250
Livestock ⁷⁷	2,117,521	2,446,624	Nonfarm Liabilities ⁷⁹	<u>0</u>	<u>0</u>
Machinery & equipment ⁷⁷	1,335,043	1,694,013	Farm & Nonfarm Liabilities	\$2,627,437	\$2,845,250
Farm Credit stock	1,118	1,147	Farm Net Worth	\$6,520,953	\$8,655,934
Other stock & certificates	165,525	168,378	Farm & Nonfarm Net Worth	\$6,963,112	\$9,145,144
Land & buildings ⁷⁷	<u>3,543,814</u>	<u>4,246,750</u>			
Total Farm Assets	\$9,148,390	\$11,501,184			
Nonfarm Assets ⁷⁹	<u>442,159</u>	<u>489,210</u>			
Farm & Nonfarm Assets	\$9,590,549	\$11,990,394			

⁷⁷Includes discounted lease payments.

⁷⁸Includes Farm Credit Stock and discounted lease payments for cattle and machinery.

⁷⁹Average of 4 farms reporting.

NOTES

APPENDIX

**PRICES, COSTS AND TRENDS
IN THE NEW YORK DAIRY INDUSTRY**

The prices dairy farmers pay for a given quantity of goods and services has a major influence on farm production costs. The astute manager will keep close watch on unit costs and utilize the most economical goods and services.

Table A1.**PRICES PAID BY NEW YORK FARMERS FOR SELECTED ITEMS, 2000-2014**

Year	Mixed Dairy Feed 16% Protein ⁸³ (\$/ton)	Fertilizer, Urea 45-46%N ⁸³ (\$/ton)	Seed Corn, Hybrid ⁸⁴ (\$/80,000 kernels)	Diesel Fuel ⁸³ (\$/gal)	Tractor 50-59 PTO ⁸⁴ (\$)	Wage Rate All Hired Farm Workers ⁸⁵ (\$/hr)
2000	174	201	87.50	1.270	21,800	8.74
2001	176	270	92.20	1.260	22,000	8.72
2002	178	232	92.00	1.028	21,900	9.26
2003	194	283	102.00	1.516	21,300	9.93
2004	207	299	105.00	1.400	21,500	9.96
2005	190	365	111.00	2.020	23,400	9.88
2006	207	403	118.00	2.350	23,700	10.35
2007	239	480	133.00	2.355	24,300	10.49
2008	300	598	165.00	3.773	25,000	10.96
2009	258	494	217.00	1.952	24,500	10.83
2010	242	520	229.00	2.690	25,000	10.89
2011	340	598	237.00	3.716	25,700	11.36
2012	359	623	252.00	3.888	26,300	11.48
2013	438	655	274.00	3.714	26,700	11.97
2014	459	636	283.00	3.761	27,500	12.15

SOURCE: NYASS, New York Agricultural Statistics. USDA, NASS, Agricultural Prices.

⁸³Northeast region average. ⁸⁴United States average. ⁸⁵New York and New England combined.

Inflation, farm profitability, supply and demand all have a direct impact on the inventory values on New York dairy farms. The table below shows year-end (December) prices paid for dairy cows (replacements), an index of these cow prices, an index of new machinery prices (U.S. average), the average per acre value of farmland and buildings reported in January and an index of the real estate prices.

Table A2.**VALUES AND INDICES OF NEW YORK DAIRY FARM INVENTORY ITEMS, 2000-2014**

Year	Dairy Cows		Machinery ⁸⁶	Farm Real Estate ⁸⁷	
	Value/Head	1977=100	1977=100	Value/Acre	1977=100
2000	1,250	253	301	1,430	244
2001	1,600	323	312	1,520	259
2002	1,400	283	320	1,610	274
2003	1,300	263	325	1,700	290
2004	1,580	319	351	1,770	302
2005	1,690	341	377	1,900	324
2006	1,550	313	398	2,020	344
2007	1,930	390	416	2,180	371
2008	1,900	384	456	2,350	400
2009	1,200	242	484	2,400	409
2010	1,300	263	501	2,400	409
2011	1,410	293	532	2,450	417
2012	1,450	285	560	2,650	451
2013	1,400	283	571	2,600	443
2014	1,495	302	585	2,700	460

SOURCE: USDA, NASS, ASB, Agricultural Prices.

⁸⁶United States average; 2000 - 2014 are estimated due to discontinuation of 1977=100 series.

⁸⁷New York average for 2001-2014 excludes Native American Reservation land.

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 9).

Accrual Expenses: (defined on page 11).

Accrual Receipts: (defined on page 11).

Annual Cash Flow Statement: (defined on page 18).

Appreciation: (defined on page 12).

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 17 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.

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 18).

Cash Flow Coverage Ratio: (defined on page 20).

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 10).

Cash Receipts: (defined on page 11).

Change in Accounts Payable: (defined on page 11).

Change in Accounts Receivable: (defined under Accrual Receipts on page 11).

Change in Advanced Government Receipts: (defined under Accrual Receipts page 11).

Change in Inventory: (defined on page 10).

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 28).

Cost of Term Debt: A weighted average of the cost of borrowed intermediate and long term capital used on the farm. Calculate 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. Do 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: DHIC: Dairy Herd Improvement Cooperative official milk production records. Owner Sampler: weights and samples are taken by farmer but tested by DHIC. 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 20)

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

Debt to Asset Ratios: (defined on page 16).

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 9).

Farm Business Chart: (see definition and application on page 44).

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 pages 20 & 47.

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 47.

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 13).

Labor and Management Income Per Operator: (defined on page 13).

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.

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

Leverage Ratio: (defined on pages 16 and 47).

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.

Net Farm Income: (defined on page 12).

Net Farm Income from Operations Ratio: (defined on page 14)

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 11).

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 31).

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; bedding, DHIC, milk house and parlor supplies, livestock board, registration fees and transfers.

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 11).

Producer Price Differential: Under Federal Order markets with multiple component pricing, it is the residual value (per hundredweight) of the pool after deducting component payments (protein, butterfat, and other solids) to producers. This residual value will vary between market orders and from month-to-month based on the utilization of the various

classes and class price. It is possible that the PPD can even be negative at times if, for example, the class III price exceeds the class I price.

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

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

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

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

Return on Equity Capital: (defined on page 14).

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 14).

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 is 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 17).

Stocking Rate: (defined on page 23).

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 31).

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. RESEARCH BULLETINS

RB No	Title	Fee (if applicable)	Author(s)
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2014-01	Industry Evaluations of the Status and Prospects for the Burgeoning New York Greek-style Yogurt Industry		Boynton. R. and A. Novakovic
2013-01	Dairy Farm Management Business Summary, New York State 2012	(\$20.00)	Knoblauch, W., Dymond C., Karszes, J., Howland, B. and R. Kimmich
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