

DAIRY FARM MANAGEMENT

BUSINESS SUMMARY NEW YORK STATE 2013



*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
Business Summary, New York State, 2013¹**

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ABSTRACT

Business and financial records for 2013 from 171 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 650 cows per farm and 25,532 pounds of milk sold per cow, which represent above average size and management level for New York dairy farms. The New York Agricultural Statistics Service reports 22,080 pounds milk production per cow for New York. An average New York large dairy has a herd size per farm of 758 and is estimated in Appendix Table A3, page 85.

Net farm income excluding appreciation, which is the return to the operator's labor, management, capital, and other unpaid family labor, averaged \$592,380 per farm. The rate of return to all capital invested in the farm business including appreciation averaged 9.93 percent.

Differences in profitability between farms continue to widen. Average net farm income excluding appreciation of the top 10 percent of farms was \$2,293,718, while the lowest 10 percent was \$-14,804. Rates of return on equity with appreciation ranged from positive 29 percent to negative 10 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 2013 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 2013 than herds milking two times per day (2X). Operating costs per hundredweight of milk were \$0.35 per hundredweight lower for 3X than 2X milking herds, while output per cow was 4,758 pounds higher.

Farms adopting intensive grazing generally produced less milk per cow than non-grazing farms and in 2013 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 2013, 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 46 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 31 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 171 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 171 specialized dairy farms represent a cross section of better than average commercial dairy farm owner/operators in the State. The DFBS participating farms represent 21 percent of the total New York milk production and 18 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.

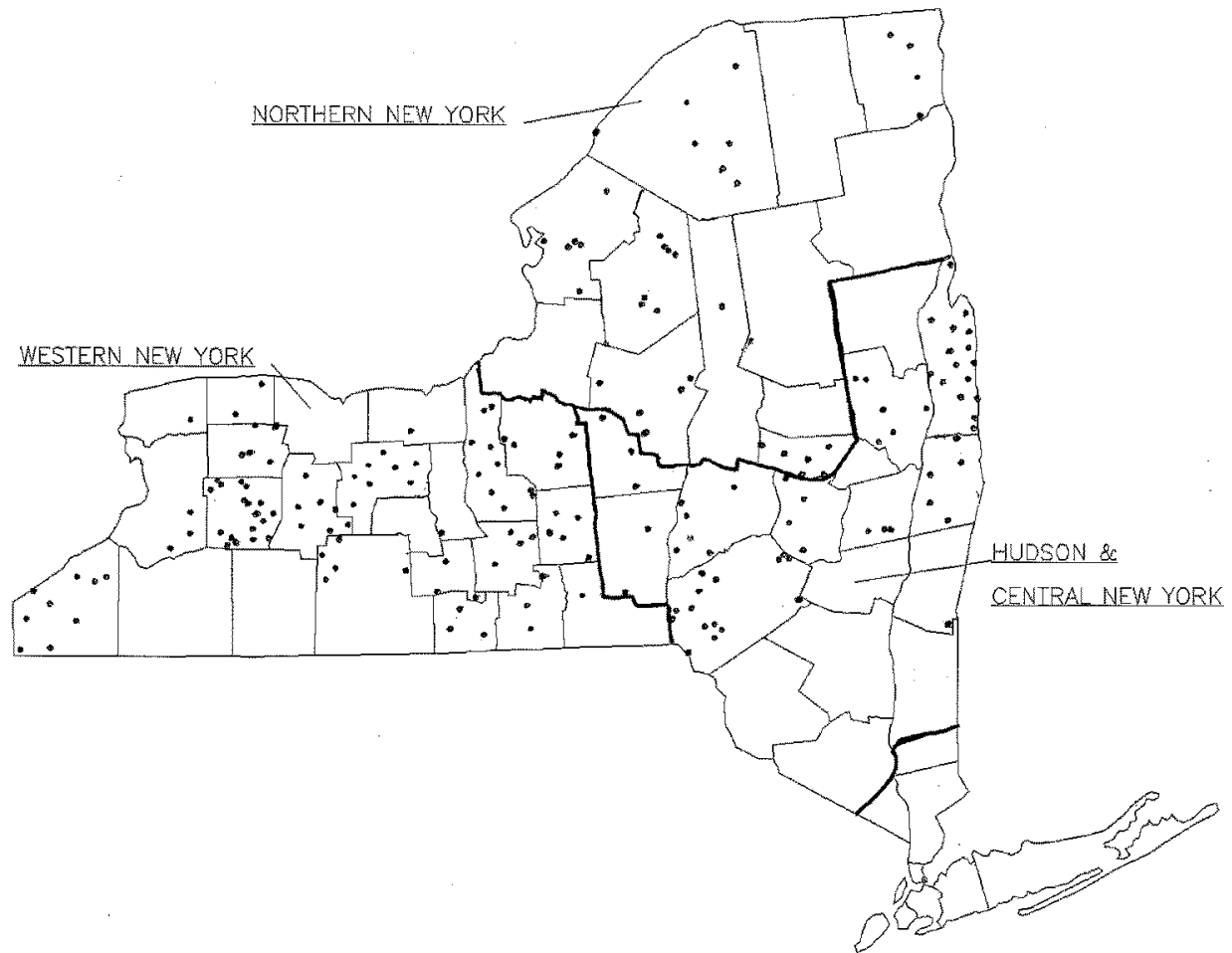
Features

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 66 through 70. Specific information concerning the performance of dairy farms using rotational grazing and three times (3X) a day milking are presented on pages 71 and 78.

Figure 1.

**LOCATION OF THE 171 NEW YORK DAIRY FARMS
IN THE 2013 DAIRY FARM BUSINESS SUMMARY**



2013 Regional Summary Publications

<u>Region</u>	<u>Publications</u>	<u>Author(s)</u>
Western New York	E.B. 2014-06	Wayne A. Knoblauch, Cathryn Dymond, Jason Karszes, Betsey Howland, John Hanchar, Virginia Carlberg, Richard Kimmich, and Joan Petzen.
Hudson and Central New York	E.B. 2014-08	Wayne A. Knoblauch, George J. Conneman, Cathryn Dymond, Jason Karszes, Betsey Howland, Sandy Buxton, Mariane Kiraly, Richard Kimmich, and Kirk Shoen.
Northern New York	E.B. 2014-09	Wayne A. Knoblauch, Cathryn Dymond, Jason Karszes, Betsey Howland, Peggy Murray, Anita Deming, David Balbian, Sandy Buxton, Jim Manning, Bonnie Collins, and Anita Figueras.

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 cooperating farms increased 16 fold between 1963 and 2013 with herd size doubling over the last 10 years. The DFBS sample is not representative of all farms in New York State. Milk output per cow increased 233 percent with the largest increase occurring between 1993 and 2003. Labor efficiency, measured by pounds of milk sold per worker, is up 458 percent on DFBS farms, and the operating cost of producing milk increased more than 568 percent with the largest jump occurring between 2003 and 2013.

There is a large increase in farm capital invested per farm, which is over 100 times greater than in 1963. Net farm income per farm increased 1,474 percent (adjusted for 2013 dollars). Labor and management income per operator is up 658 percent from 50 years ago (adjusted for 2013 dollars). This is a reflection of the increased variability over the last 50 years. Some factors could not be calculated with 1963 and 1973 data because liabilities, interest paid, and/or appreciation were not available in those years. Farm net worth excluding deferred taxes is more than 90 times greater than 50 years ago and rate of return on equity capital increased 27 percent since 1983.

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 137 DFBS cooperators each year since 2010. 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 2013 still provided dairy farmers with the second highest operating margin per hundredweight of \$5.06 over these four years.

Average net farm income without appreciation in 2013 was 36 percent above the 2010 average, and 21 percent below the 2011 average. Net worth increased 20 percent in 2011, increased 10 percent in 2012, and increased 10 percent in 2013.

The last four years have been a period requiring 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.

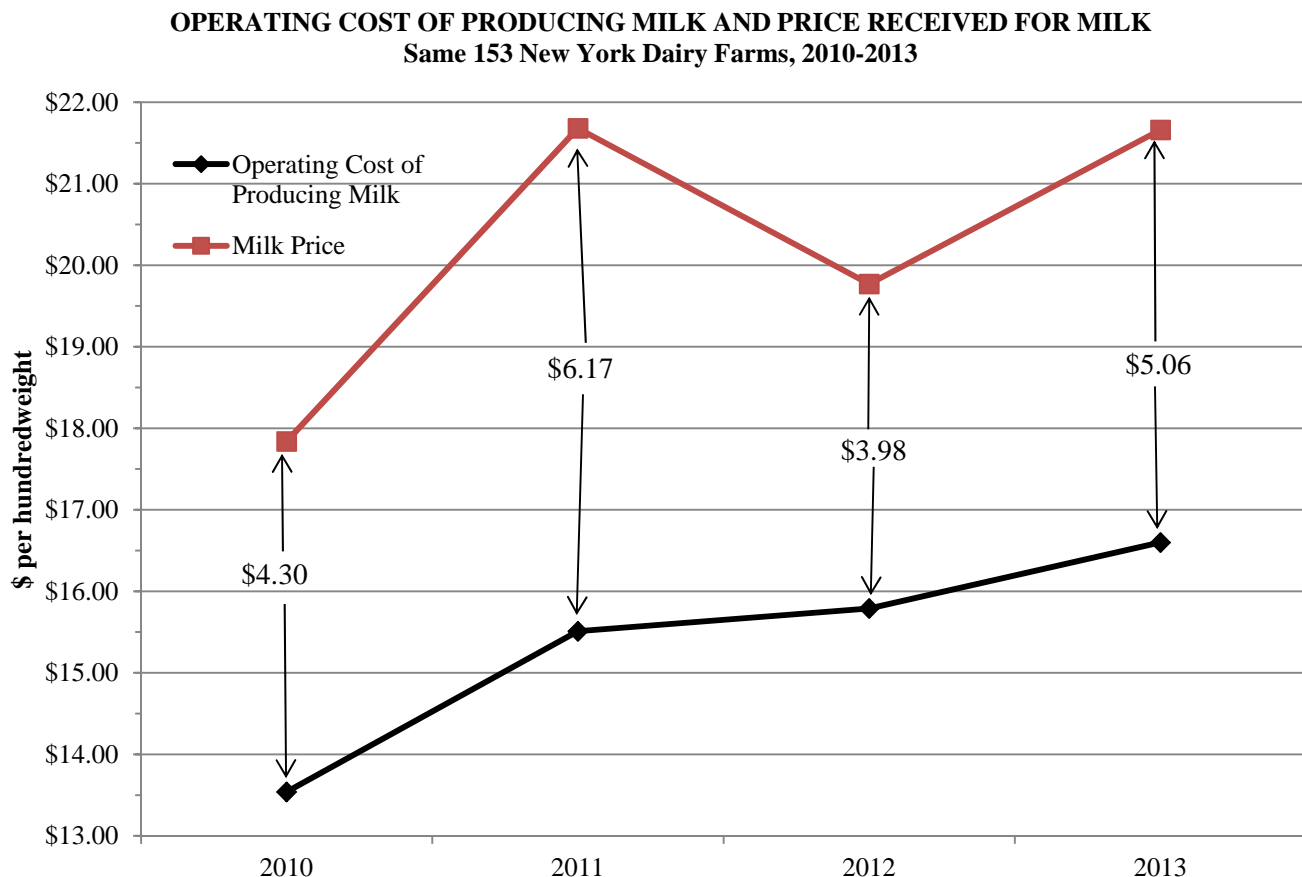


Table 1.

COMPARISON OF FARM BUSINESS SUMMARY DATA
New York Dairy Farms, 1963 - 2013

Selected Factors	1963	1973	1983	1993	2003	2013
Number of farms	468	609	510	343	201	171
<u>Size of Business</u>						
Average number of cows	39	69	88	130	314	650
Average number of heifers	24	46	72	100	240	557
Milk sold, cwt.	4,270	8,519	13,432	24,448	70,105	166,004
Worker equivalent	1.70	2.20	3.00	3.68	7.50 ⁴	14.43 ⁴
Total tillable acres	105 ²	198 ²	272	351	659	1,277
<u>Rates of Production</u>						
Milk sold per cow, lbs.	10,950	12,300	15,264	18,858	22,302	25,532
Hay DM per acre, tons	2.3	2.3	2.5	2.7	3.2	3.5
Corn silage per acre, tons	12	13	13.5	15	17.2	18
<u>Labor Efficiency</u>						
Cows per worker	23	32	29	35	42 ⁴	45 ⁴
Milk sold per worker, lbs.	251,200	392,600	447,733	664,868	934,733 ⁴	1,150,279 ⁴
<u>Cost Control</u>						
Grain & conc. as % of milk sales	32%	31%	25%	29%	30%	32%
Dairy feed & crop expense/cwt.	\$1.71	\$2.81	\$3.44	\$3.76	\$4.91	\$8.87
Operating cost of prod. cwt. milk	\$2.92	\$4.32	\$13.99	\$10.18	\$11.46	\$16.59
Total cost of producing cwt. milk	\$4.24	\$7.49	\$16.04	\$13.97	\$14.47	\$20.31
Milk receipts per cwt. milk	\$4.31	\$7.30	\$13.64	\$13.14	\$13.24	\$20.79
<u>Capital Efficiency</u>						
Total farm capital	\$55,304	\$207,621	\$477,048	\$840,060	\$2,118,872	\$6,912,750
Farm capital per cow	\$1,418	\$3,009	\$5,421	\$6,462	\$6,748	\$10,635
Machinery & equipment per cow	\$304	\$527	\$1,038	\$1,165	\$1,208	\$1,775
Real estate per cow	\$675	\$1,547	\$2,668	\$2,932	\$2,722	\$4,368
Livestock investment per cow	\$368	\$738	\$1,339	\$1,523	\$1,847	\$2,266
Asset turnover ratio	0.35	0.32	0.38	0.46	0.56	0.61
<u>Profitability</u>						
Net farm income without apprec. ⁵	NA	NA	\$49,571	\$70,832	\$48,074	\$592,380
Net farm income with apprec. ⁵	\$50,345	\$94,694	\$91,892	\$90,608	\$120,283	\$741,840
Labor & management income per operator/manager ⁵	\$26,585	\$53,491	\$37,554	\$14,509	\$-19,442	\$175,046
Rate of return on:						
Equity capital with appreciation	NA	14.0%	0.1%	3.5%	2.5%	12.9%
All capital with appreciation	NA	8.7%	3.6%	4.6%	3.3%	9.9%
All capital without appreciation	NA	NA	3.9%	3.1%	0.6%	7.8%
<u>Financial Summary, End Year</u>						
Farm net worth	NA	\$153,064 ³	\$322,001	\$553,370	\$1,207,964	\$4,672,688
Change in net worth with apprec.	NA	NA	6,909	22,489	10,747	419,456
Debt to asset ratio	NA	0.34 ³	0.21	0.35	0.44	0.321
Farm debt per cow	NA	\$1,103 ³	\$2,207	\$2,254	\$3,075	\$3,478

²Acres of cropland harvested.

³Average of 547 farms in 1973.

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—2013 dollars.

Table 2.

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 137 New York Dairy Farms, 2010 - 2013

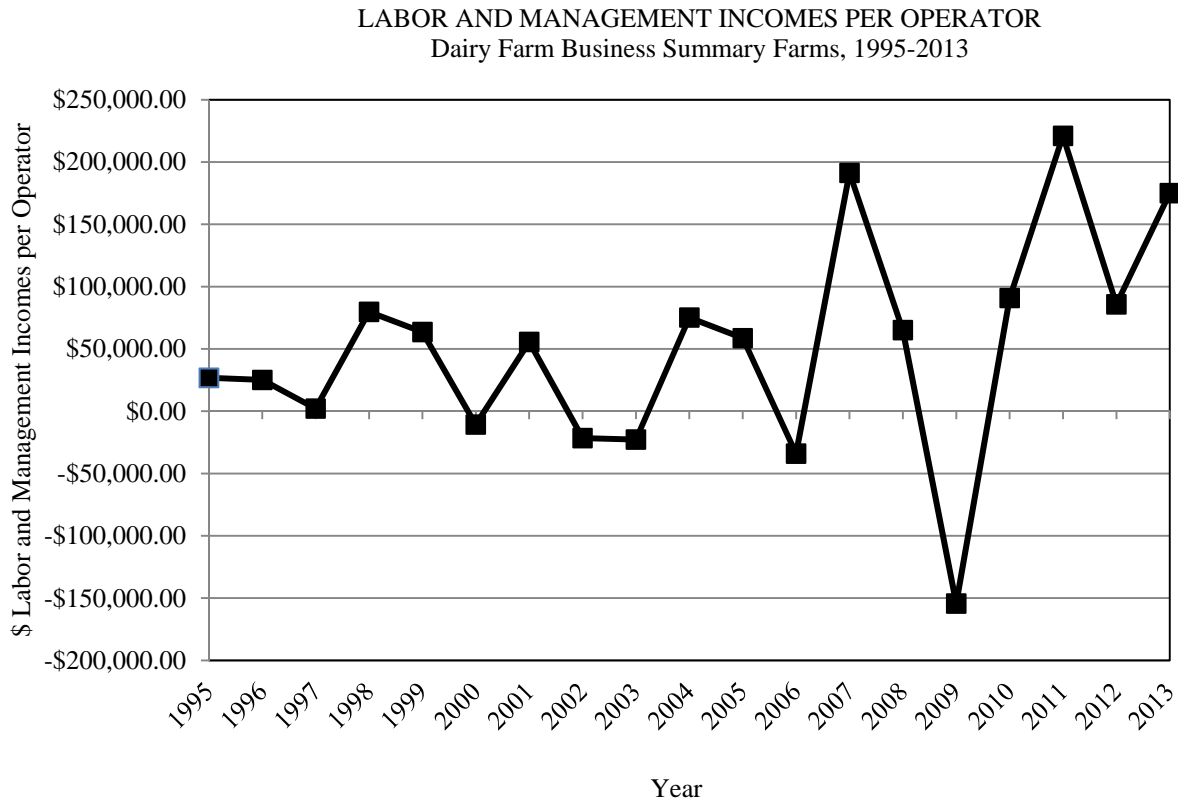
Selected Factors	2010	2011	2012	2013
Milk receipts per cwt. milk	\$17.84	\$21.68	\$19.77	\$21.66
<u>Size of Business</u>				
Average number of cows	630	651	676	704
Average number of heifers	537	562	581	603
Milk sold, cwt.	156,494	162,425	173,053	181,751
Worker equivalent ⁶	13.79	14.26	15.17	15.60
Total tillable acres	1,231	1,268	1,330	1,369
<u>Rates of Production</u>				
Milk sold per cow, pounds	24,845	24,934	25,589	25,826
Hay DM per acre, tons	3.7	3.5	3.0	3.6
Corn silage per acre, tons	20	17	17	18
<u>Labor Efficiency</u>				
Cows per worker ⁶	46	46	45	45
Milk sold per worker, pounds ⁶	1,135,176	1,138,829	1,141,010	1,164,823
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	28%	28%	34%	32%
Dairy feed & crop expense per cwt. milk	\$6.25	\$7.56	\$8.47	\$8.86
Operating cost of producing cwt. milk	\$13.54	\$15.51	\$15.79	\$16.60
Total cost of producing cwt. milk	\$16.66	\$18.93	\$19.34	\$20.31
Hired labor cost per cwt.	\$3.06	\$3.19	\$3.20	\$3.24
Interest paid per cwt.	\$0.53	\$0.48	\$0.45	\$0.47
Labor & machinery costs per cow	\$1,462	\$1,617	\$1,681	\$1,744
<u>Capital Efficiency, Average for Year</u>				
Farm capital per cow	\$8,805	\$9,427	\$10,131	\$10,666
Machinery & equipment per cow	\$1,502	\$1,583	\$1,700	\$1,815
Real estate per cow	\$3,567	\$3,771	\$4,094	\$4,356
Livestock investment per cow	\$2,197	\$2,214	\$2,226	\$2,243
Asset turnover ratio	0.60	0.66	0.61	0.62
<u>Profitability</u>				
Net farm income without appreciation	\$471,036	\$777,359	\$439,302	\$642,715
Net farm income with appreciation	\$585,974	\$934,502	\$622,156	\$805,811
Labor & management income per operator/manager	\$152,687	\$285,284	\$98,717	\$184,136
Rate return on:				
Equity capital with appreciation	13.3%	19.7%	10.4%	13.0%
All capital with appreciation	9.9%	14.5%	8.3%	10.0%
All capital without appreciation	7.9%	11.9%	5.6%	7.8%
<u>Financial Summary, End Year</u>				
Farm net worth	\$ 3,727,486	\$4,482,869	\$4,872,523	\$5,331,959
Change in net worth with appreciation	\$427,591	\$727,016	\$349,479	\$434,128
Debt to asset ratio	0.35	0.31	0.32	0.32
Farm debt per cow	\$3,145	\$3,205	\$3,348	\$3,475

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 2013 were up from 2010 and 2012, when measured in nominal (actual) values (Chart 2). Over the period 1995 to 2013, 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 \$80,000. Over \$191,000 in 2007, over \$90,000 in 2010, \$221,009 in 2011, \$85,749 in 2012 and \$175,046 in 2013. The reader is reminded that the average herd size of DFBS participating farms steadily increased from 130 cows to 704 cows over this period.

Chart 2.



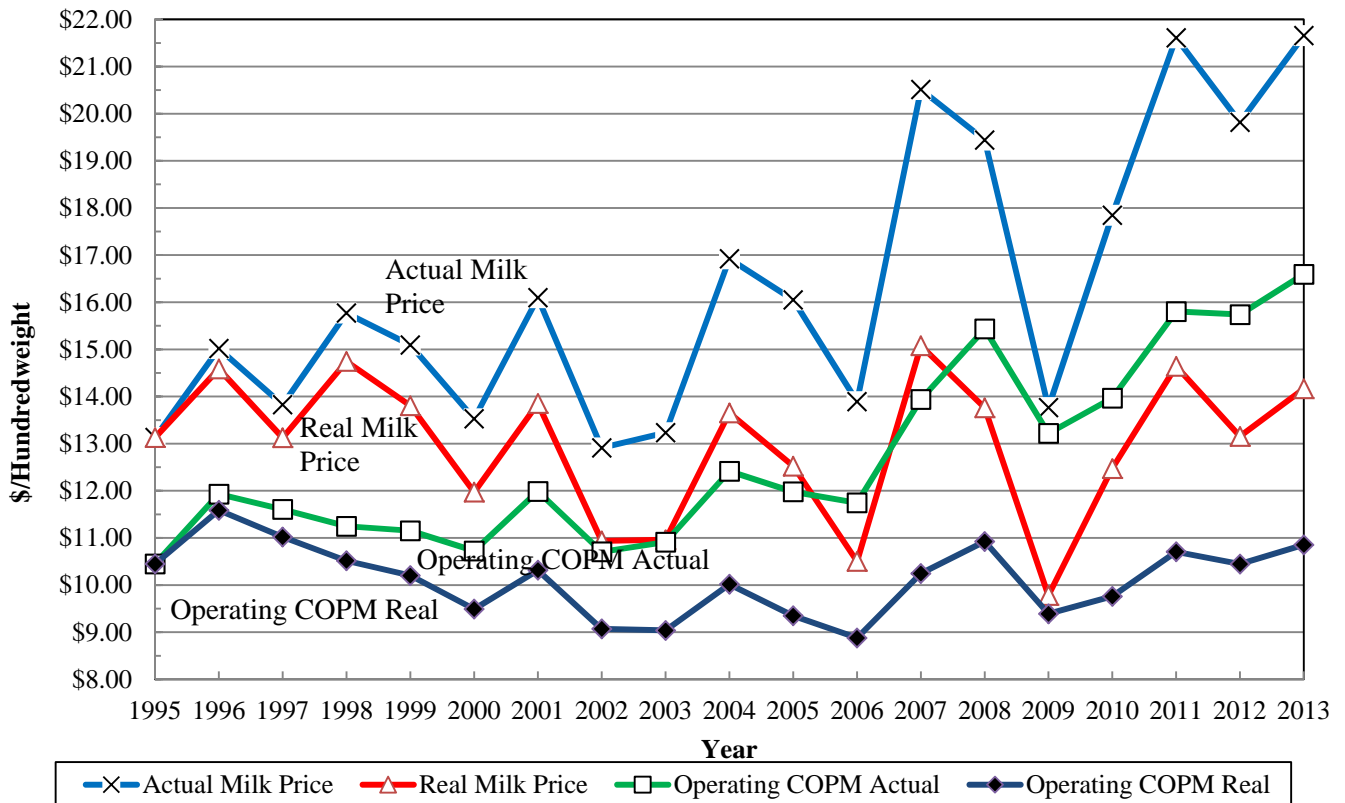
Milk prices in 2013 averaged \$21.65 per hundredweight in actual dollars (Chart 3). However, the 2013 milk price, adjusted for inflation, in 1995 dollars, would have been only \$14.16 per hundredweight.

Operating costs of producing milk (actual) saw an increase between 1995 and 1996 (Chart 3). This was due to feed costs increasing in 1996. Operating costs were on a downward trend after the 1996 increase through 2000. Operating costs then increased in 2001, fell in 2002, then increase in 2004 and decreased through 2006. Operating costs increase nearly \$2 per hundredweight from 2006 to 2008, followed by a \$2.22 decrease in 2009. In 2013, operating costs increased slightly from 2012 to \$16.59 per hundredweight. Real costs of producing milk per hundredweight have been on a downward trend over this 19-year period except for increases in 1996, 2001, 2004, 2007, 2008, 2011 and 2013.

Chart 3.

OPERATING COST OF PRODUCING MILK AND MILK PRICE⁷

Dairy Farm Business Summary Farms, 1995-2013



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–1995 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 2013 are presented in the following table.

Table 3.

**BUSINESS CHARACTERISTICS AND RESOURCES USED
171 New York Dairy Farms, 2013**

<u>Dairy Livestock (number)</u>	<u>Cows</u>	<u>Heifers</u>	<u>Dairy Records</u>	<u>Number</u>	<u>Percent</u>
Beginning of Year	630	545	Testing Service	133	78
End of Year	654	569	On Farm System	25	15
Average for Year	650	557	Other	2	1
			None	11	6
<u>Type of Business</u>	<u>Number</u>	<u>Percent</u>	<u>bST Usage (reporting is optional)</u>	<u>Number</u>	<u>Percent</u>
Sole Proprietorship	47	28	Used consistently	6	23
Partnership	26	15	Used inconsistently	0	0
Limited Liability Corp.	81	47	Started using in 2013	0	0
Subchapter S Corporation	13	8	Stopped using in 2013	0	0
Subchapter C Corporation	3	2	Not used in 2013	9	77
			Average % usage, if used	16%	
<u>Barn Type</u>	<u>Number</u>	<u>Percent</u>	<u>Labor Force</u>	<u>Average</u>	<u>Percent</u>
Stanchion	23	14	Operators	26.5	15
Freestall	136	80	Family Paid	2.8	2
Combination	11	6	Family Unpaid	2.3	1
<u>Milking System</u>	<u>Number</u>	<u>Percent</u>	Hired	141.6	82
Bucket & Carry	0	0	Total Months	173.2	100
Dumping Station	0	0			
Pipeline	25	15			
Herringbone Conventional	46	27			
Herringbone Rapid Exit	12	7			
Parallel	61	36			
Parabone	8	5			
Rotary	5	3			
Other	14	8			
<u>Milking Frequency</u>	<u>Number</u>	<u>Percent</u>	<u>Land Used</u>	<u>Number</u>	<u>Average</u>
2 times per day	67	39	Total acres:		
3 times per day	95	56	Owned	171	844
Other	9	5	Rented	165	617
			Tillable acres:		
			Owned	171	674
			Rented	164	603
			Total	171	1,277
<u>Business Records</u>	<u>Number</u>	<u>Percent</u>	<u>Breed of Herd</u>		
Account Book	16	10	Holstein	90%	
Accounting Service	16	10	Jersey	4%	
On-Farm Computer	134	79	Other	6%	
Other	2	1			

There were 344 full-time operator equivalents on the 171 dairy farms for an average of 2.01 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 171 farm businesses included in this dairy summary own farm real estate. Dairy farm renters are summarized separately later in this publication. However, 164 of the dairy farm owners rented an average of 628 acres of tillable land in 2013. The 171 farms averaged 1,277 total tillable acres per farm of which 603 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 171 farms averaged \$8,806 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
171 New York Dairy Farms, 2013

Expense Item	Cash Paid	-	Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses	Percent
<u>Hired Labor</u>	\$461,912		\$769<<		\$97		\$461,240	14
<u>Feed</u>								
Dairy grain & concentrate	1,201,557		25,879		-2,556		1,173,123	37
Dairy roughage	77,298		-6,599		-2,453		81,444	3
Nondairy livestock	63		0		0		63	<1
Professional nutritional services	801		0<<		2		803	<1
<u>Machinery</u>								
Machinery hire, rent & lease	69,990		106<<		-655		69,229	2
Machinery repairs & farm vehicle expense	163,545		1,281		711		162,975	5
Fuel, oil & grease	140,009		157		-171		139,681	4
<u>Livestock</u>								
Replacement livestock	11,464		-19<<		387		11,870	<1
Breeding	35,008		271		103		34,841	1
Veterinary & medicine	113,662		716		-26		112,920	4
Milk marketing	143,497		0<<		-527		142,970	4
Bedding	67,797		616		137		67,318	2
Milking Supplies	63,631		430		-117		63,084	2
Cattle lease & rent	2,891		0<<		0		2,891	<1
Custom boarding	59,665		336<<		5		59,333	2
bST expense	27,653		273<<		108		27,487	1
Livestock professional fees	12,973		129<<		2		12,845	<1
Other livestock expense	13,127		-168		416		13,711	<1
<u>Crops</u>								
Fertilizer & lime	100,574		2,833		-2,707		95,033	3
Seeds & plants	85,744		6,042		-169		79,533	2
Spray & other crop expense	39,671		1,730		-650		37,291	1
Crop professional fees	5,600		224<<		158		5,534	<1
<u>Real Estate</u>								
Land, building & fence repair	59,425		724		141		58,842	2
Taxes	39,863		-67<<		280		40,210	1
Rent & lease	48,025		-31<<		-442		47,615	1
<u>Other</u>								
Insurance	28,414		-60<<		-41		28,433	1
Utilities	66,846		61<<		-60		66,724	2
Interest paid	78,345		0<<		12		78,357	2
Other professional fees	20,127		83<<		-164		19,881	1
Miscellaneous	19,161		-17		-124		19,055	1
Total Operating	\$3,258,338		\$35,700		\$-8,303		\$3,214,335	100
Expansion livestock	\$16,958		0<<		-1,045		\$15,913	
Extraordinary expense	\$901		0		261		\$1,162	
Machinery depreciation							\$151,571	
Building depreciation							\$95,149	
TOTAL ACCRUAL EXPENSES							\$3,478,131	

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 of a total value of \$25,879 .

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 \$61 per farm in 2013, and that increase is subtracted from cash rent to determine the correct 2013 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 \$35,700 and total change in accounts payable equals \$-8,303.

Income Statement - Receipts

Cash and accrual farm receipts are presented in the following table. Total cash receipts averaged \$3,915,767 per farm. Total accrual receipts averaged \$4,070,511 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 26 head per farm. Homegrown feed inventory per cow increased \$73 from beginning to end of year.

Table 5.

CASH AND ACCRUAL FARM RECEIPTS 171 New York Dairy Farms, 2013

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts	Percent
Milk sales	\$3,546,198				\$48,618		\$3,594,816	88
Dairy cattle	195,206		\$55,342		495		251,044	6
Dairy calves	22,974		4,537		-9		27,502	1
Other livestock	10,386		-3,629		580		7,336	<1
Crops	29,653		47,482		2,110		79,246	2
Government receipts	36,787		0		7		36,793	1
Custom machine work	11,535				173		11,708	<1
Gas tax refund	605				0		605	<1
Other	62,424				-962		61,462	2
- Nonfarm noncash capital transfer ⁹			(-) 0				(-) 0	
Total	\$3,915,767		\$103,731		\$51,013		\$4,070,511	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 2012 to 2013. 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 2013 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 \$149,460 per farm in 2013. On the average, farm real estate appreciated \$88,587 or 3.2 percent of beginning fair market value. Machinery appreciated 3.9 percent while dairy cattle prices appreciated 0.7 percent in 2013.

Average data from 17 farms with the highest rates of return to all capital (without appreciation) are compared with the 171 farm average in Table 8 and in many of the following tables. Net farm income without appreciation averaged \$1,703,072 per farm on the top 10 percent farms, 188 percent greater than the 171-farm average.

Table 6.

NET FARM INCOME 171 New York Dairy Farms, 2013

Item	Average 171 Farms		Average Top 10% Farms ¹⁰	
	Per Farm	Per Cow	Per Farm	Per Cow
Total accrual receipts	\$4,070,511		\$7,744,136	
+ Appreciation: Livestock	10,150		49,174	
Machinery	43,281		97,335	
Real Estate	88,587		129,009	
Other Stock & Certificates	<u>7,440</u>		<u>-4,775</u>	
= Total including appreciation	\$4,219,971		\$8,014,879	
- Total accrual expenses	<u>3,478,131</u>		<u>6,012,738</u>	
= Net Farm Income (with appreciation)	\$741,840	\$1,141	\$2,002,141	\$1,720
Net Farm Income (without appreciation)	\$592,380	\$911	\$1,703,072	\$1,488

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
171 New York Dairy Farms, 2013**

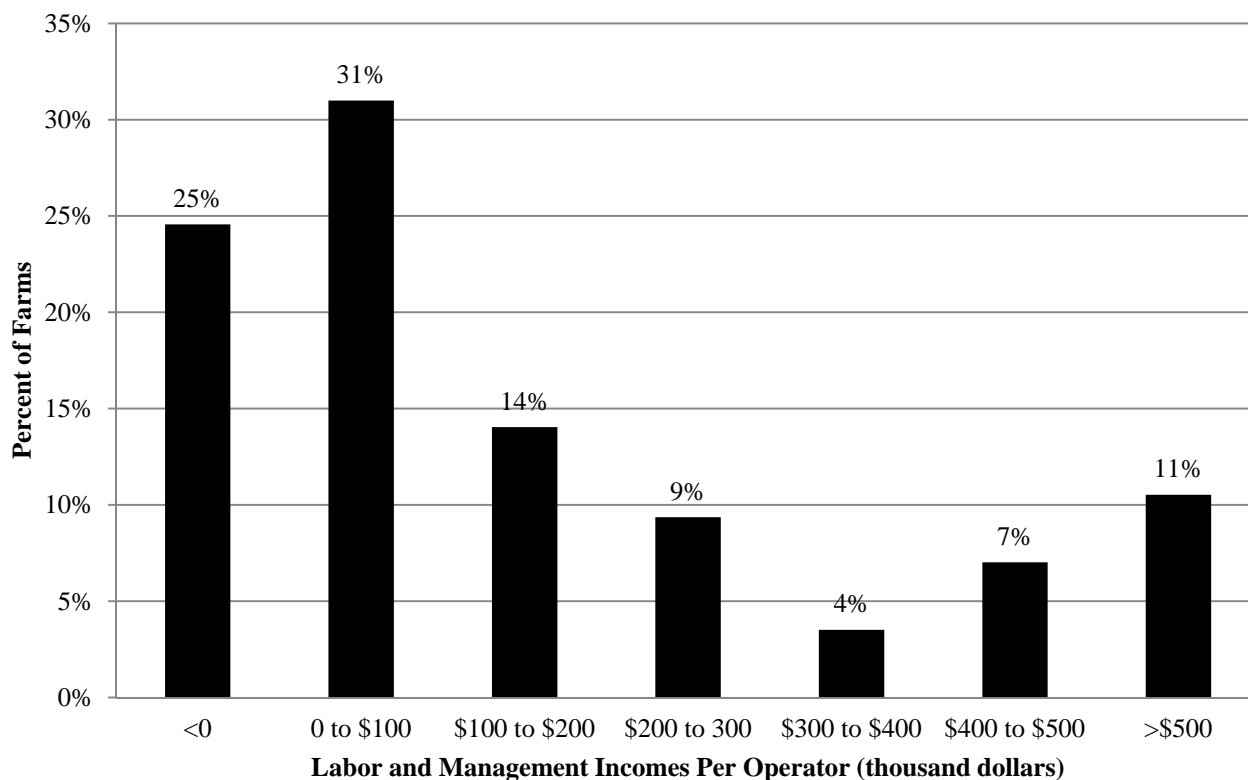
Item	Average 171 Farms		Average Top 10% Farms ¹¹
Net farm income without appreciation	\$ 592,380		\$1,731,398
- Family labor unpaid @ \$2,600 per month	5,647		2,019
- Real interest @ 5% on \$4,703,245 equity capital for average & \$8,080,172 for the top 10% farms	<u>234,890</u>		<u>404,009</u>
= Labor & Management Income (2.01 operators)	\$351,843	(2.10 operators)	\$1,325,371
Labor & Management Income per Operator	\$175,046		\$631,129

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

Labor and management income per operator averaged \$175,046 on these 171 dairy farms in 2013. The range in labor and management income per operator was from less than \$-294,000 to more than \$1,231,000. Returns to labor and management were less than \$100,000 on 56 percent of the farms. Labor and management incomes per operator were between \$100,000 and \$300,000 on 23 percent of the farms while 21 percent showed labor and management incomes of \$300,000 or more per operator.

Chart 4.

**DISTRIBUTION OF LABOR AND MANAGEMENT INCOMES PER OPERATOR
171 New York Dairy Farms, 2013**



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
171 New York Dairy Farms, 2013**

Item	Average 171 Farms	Average Top 10% Farms ¹²
Net farm income with appreciation	\$741,840	\$2,002,141
- Family labor unpaid at \$2,600 per month	5,647	2,019
- Value of operators' labor & management	<u>128,109</u>	<u>168,368</u>
= Return to equity capital with appreciation	\$608,083	\$1,831,754
+ Interest paid	<u>78,357</u>	<u>110,770</u>
= Return to all capital with appreciation	\$686,441	\$1,942,524
Return to equity capital without appreciation	\$458,624	\$1,561,012
Return to all capital without appreciation	\$536,981	\$1,671,781
Rate of return on average equity capital:		
with appreciation	12.9%	22.7%
without appreciation	9.8%	19.3%
Rate of return on all capital:		
with appreciation	9.9%	16.9%
without appreciation	7.8%	14.6%
Net farm income from operations ratio	0.15	0.22

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
171 New York Dairy Farms, 2013**

Item	Quartile by Return to All Capital With Appreciation			
	Lowest 25%	3rd 25%	2nd 25%	Top 25%
Return to all capital with appreciation	\$-9,687	\$183,606	\$664,649	\$1,936,260
Rate of return on all capital with appreciation	-0.6%	6.7%	9.9%	14.0%
Total returns to all labor & management	\$61,848	\$333,032	\$803,658	\$2,106,327
Worker equivalents	4.39	9.34	16.79	27.51
Return per worker equivalent	\$14,104	\$35,649	\$47,854	\$76,553
Returns/hour (2,760 hours/worker/year)	\$5.11	\$12.92	\$17.34	\$27.74

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.

**2013 FARM BUSINESS AND NONFARM BALANCE SHEET
171 New York Dairy Farms, 2013**

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$ 53,395	\$ 69,408	Accounts payable	\$ 78,091	\$ 69,004
Accounts receivable	345,918	396,930	Operating debt	176,151	212,086
Prepaid expenses	5,892	7,423	Short term	3,809	4,060
Feed & supplies	<u>773,010</u>	<u>854,661</u>	Advanced gov't. receipt	0	0
Total Current	\$1,178,214	\$1,328,422	Current portion:		
			Intermediate	180,729	195,547
			Long term	<u>60,691</u>	<u>65,107</u>
			Total Current	\$ 499,470	\$545,804
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy Cows:			Structured debt		
owned	\$ 887,652	\$930,433	1-10 years	\$ 882,260	\$870,694
leased	2,437	1,582	Financial lease		
Heifers	515,799	542,814	(cattle & machinery)	3,986	5,849
Bulls & other livestock	13,980	10,584	Farm Credit stock	<u>1,057</u>	<u>1,077</u>
Mach. & equip. owned	1,094,499	1,207,162	Total Intermediate	\$ 887,303	\$877,621
Mach. & equip. leased	1,549	4,267			
Farm Credit stock	1,057	1,077	<u>Long Term</u>		
Other stock & certificates	<u>195,886</u>	<u>232,131</u>	Structured debt		
Total Intermediate	\$2,712,859	\$2,930,051	≥ 10 years	\$ 832,187	\$858,926
<u>Long Term</u>			Financial lease		
Land & buildings:			(structures)	<u>2,045</u>	<u>1,661</u>
owned	\$2,738,833	\$2,936,793	Total Long Term	\$ 834,232	\$860,587
leased	<u>2,045</u>	<u>1,661</u>			
Total Long Term	\$2,740,878	\$2,938,454	Total Farm Liabilities	\$2,221,005	\$2,284,012
Total Farm Assets	\$6,631,951	\$7,196,927	FARM NET WORTH	\$4,410,946	\$4,912,915
Nonfarm Assets ¹³	Jan.1	Dec. 31	Nonfarm Liabilities ¹³ & Net Worth	Jan. 1	Dec. 31
Personal cash, checking & savings	\$ 9,635	\$ 7,853	Nonfarm Liabilities	\$ 4,704	\$ 4,134
Cash value life insurance	53,295	52,516	NONFARM NET WORTH	\$337,031	\$563,467
Nonfarm real estate	112,564	112,564	FARM & NONFARM ¹⁴	Jan. 1	Dec. 31
Auto (personal share)	6,420	6,164	Total Assets	\$6,973,685	\$7,764,528
Stocks & bonds	88,470	245,307	Total Liabilities	<u>2,225,709</u>	<u>2,288,146</u>
Household furnishings	4,727	4,556	TOTAL FARM & NON-		
All other	<u>66,624</u>	<u>138,642</u>	FARM NET WORTH	\$4,747,976	\$5,476,382
Total Nonfarm	\$341,734	\$567,601			

¹³Average of 55 farms completing the nonfarm balance sheet.

¹⁴Sum of average farm values for 171 farms and nonfarm values for 55 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
171 New York Dairy Farms, 2013

Item	Average 171 Farms	Average Top 10% Farms ¹⁵		
<u>Farm Financial Ratios:</u>				
Percent equity	68%	72%		
Debt/asset ratio: total	0.32	0.28		
long term	0.29	0.23		
intermediate & current	0.33	0.31		
Leverage Ratio:	0.46	0.38		
Current Ratio:	2.43	2.99		
Working Capital: \$782,676 Dollars as % of Total Expenses:	23%	\$1,759,001 29%		
<u>Farm Debt Analysis:</u>				
Accounts payable as % of total debt	3%	1%		
Long term liabilities as % of total debt	38%	33%		
Current & intermediate liabilities as % of total debt	62%	67%		
Cost of term debt (weighted average)	3.7%	3.7%		
<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	\$3,478	\$3,389	\$2,835	\$2,856
Long term debt	1,311	1,277	928	935
Intermediate & long term	2,647	2,579	2,095	2,111
Intermediate & current debt	2,168	2,112	1,907	1,921

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
171 New York Dairy Farms, 2013

Item	Real Estate	Machinery & Equipment	Livestock
Value beginning of year	\$2,738,833	\$1,094,499	\$1,417,431
Purchases	\$313,700	\$239,196	
+ nonfarm noncash transfer ¹⁷	-6,482	-3,550	
- Lost capital	98,078		
- Net sales	4,617	14,691	
- Depreciation	<u>95,149</u>	<u>151,571</u>	
= Net Investment	109,373	69,383	56,249
+ Appreciation	<u>88,587</u>	<u>43,281</u>	<u>10,150</u>
Value end of year	\$2,936,793	\$1,207,162	\$1,483,831

¹⁶\$96,920 land and \$216,779 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).

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

Table 13.

**STATEMENT OF OWNER EQUITY (RECONCILIATION)
171 New York Dairy Farms, 2013**

Item	Average 171 Farms	Average Top 10% Farms ¹⁹
Beginning of year farm net worth	\$4,493,517	\$7,350,023
Net farm income without appreciation	\$592,380	\$1,731,398
+ Nonfarm cash income	4,273	1,486
- Personal withdrawals & family expenditures and income taxes, excluding nonfarm borrowings	<u>267,683</u>	<u>466,040</u>
RETAINED EARNINGS	+ \$328,970	+ \$1,266,844
Nonfarm noncash transfers to farm	\$ -10,032	\$ 0
+ Cash used in business from nonfarm capital	51,021	132,590
- Note or mortgage from farm real estate sold (nonfarm)	<u>0</u>	<u>0</u>
CONTRIBUTED/WITHDRAWN CAPITAL	+ \$40,989	+ \$132,590
Appreciation	\$ 149,460	\$270,743
- Lost capital	<u>98,078</u>	<u>211,333</u>
CHANGE IN VALUATION EQUITY	+ \$51,381	+ \$59,410
IMBALANCE/ERROR	<u>\$1,884</u>	<u>\$ -1,455</u>
End of year farm net worth ¹⁸	\$4,912,974	\$8,810,322
<u>Change in Net Worth</u>		
Without appreciation	\$269,997	\$1,189,556
With appreciation	\$419,456	\$1,460,299

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 a means 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 171 New York Dairy Farms, 2013

Item	Average 171 Farms	
<u>Cash Flow from Operating Activities</u>		
Cash farm receipts	\$3,915,767	
- Cash farm expenses	3,258,338	
- Extraordinary expense	<u>901</u>	
= Net cash farm income		\$656,529
Personal withdrawals & family expenses including nonfarm debt payments	\$268,031	
- Nonfarm income	<u>4,273</u>	
- Net cash withdrawals from the farm		<u>\$ 263,758</u>
= Net Provided by Operating Activities		\$392,770
<u>Cash Flow From Investing Activities</u>		
Sale of assets: machinery	\$14,691	
+ real estate	4,617	
+ other stock & certificates	<u>7,062</u>	
= Total asset sales		\$26,370
Capital purchases: expansion livestock	\$ 16,958	
+ machinery	239,196	
+ real estate	313,700	
+ other stock & certificates	<u>35,866</u>	
- Total invested in farm assets		<u>\$605,719</u>
+ Net Provided by Investment Activities		\$-579,349
<u>Cash Flow From Financing Activities</u>		
Money borrowed (intermediate & long term)	\$374,052	
+ Money borrowed (short term)	3,127	
+ Increase in operating debt	35,936	
+ Cash from nonfarm capital used in business	51,021	
+ Money borrowed - nonfarm	<u>348</u>	
= Cash inflow from financing		\$464,484
Principal payments (intermediate & long term)	\$257,132	
+ Principal payments (short term)	2,877	
+ Decrease in operating debt	<u>0</u>	
- Cash outflow for financing		<u>\$260,009</u>
= Net Provided by Financing Activities		\$204,475
<u>Cash Flow From Reserves</u>		
Beginning farm cash, checking & savings		\$53,395
- Ending farm cash, checking & savings		<u>69,408</u>
= Net Provided from Reserves		\$-16,013
<u>Imbalance (error)</u>		\$1,884

Table 15.

ANNUAL CASH FLOW DATA
171 New York Dairy Farms, 2013

Item	Average 171 Farms			Average Top 10% Farms ²¹		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Average number of cows and cwt. milk		650	166,004		1,164	311,276
<u>Accrual Operating Receipts</u>						
Milk	\$3,594,816	\$5,529	\$21.65	\$6,793,318	\$5,836	\$21.82
Dairy cattle	251,044	386	1.51	464,474	399	1.49
Dairy calves	27,502	42	0.17	48,396	42	0.16
Other livestock	7,336	11	0.04	47	0	0.00
Crops	79,246	122	0.48	273,356	235	0.88
Miscellaneous receipts	<u>110,568</u>	<u>170</u>	<u>0.67</u>	<u>164,544</u>	<u>141</u>	<u>0.53</u>
Total	\$4,070,511	\$6,261	\$24.52	\$7,744,136	\$6,653	\$24.88
<u>Accrual Operating Expenses</u>						
Hired labor	\$ 461,240	\$ 709	\$ 2.78	\$ 775,695	\$ 666	\$ 2.49
Dairy grain & concentrate	1,173,123	1,804	7.07	2,162,299	1,858	6.95
Dairy roughage	81,444	125	0.49	174,448	150	0.56
Nondairy feed	63	0	0.00	0	0	0.00
Professional nutritional services	803	1	0.00	3,356	3	0.01
Machinery hire, rent & lease	69,229	106	0.42	126,533	109	0.41
Machinery repairs & vehicle expense	162,975	251	0.98	234,590	202	0.75
Fuel, oil & grease	139,681	215	0.84	233,928	201	0.75
Replacement livestock	11,870	18	0.07	7,789	7	0.03
Breeding	34,841	54	0.21	47,670	41	0.15
Veterinary & medicine	112,920	174	0.68	191,962	165	0.62
Milk marketing	142,970	220	0.86	246,343	212	0.79
Bedding	67,318	104	0.41	124,596	107	0.40
Milking supplies	63,084	97	0.38	102,984	88	0.33
Cattle lease	2,891	4	0.02	16,115	14	0.05
Custom boarding	59,333	91	0.36	133,861	115	0.43
bST expense	27,487	42	0.17	62,255	53	0.20
Livestock professional fees	12,845	20	0.08	16,584	14	0.05
Other livestock expense	13,711	21	0.08	16,945	15	0.05
Fertilizer & lime	95,033	146	0.57	148,064	127	0.48
Seeds & plants	79,533	122	0.48	141,065	121	0.45
Spray/other crop expense	37,291	57	0.22	59,853	51	0.19
Crop professional fees	5,534	9	0.03	4,749	4	0.02
Land, building & fence repair	58,842	91	0.35	107,001	92	0.34
Taxes	40,210	62	0.24	57,512	49	0.18
Real estate rent & lease	47,615	73	0.29	77,813	67	0.25
Insurance	28,433	44	0.17	36,664	31	0.12
Utilities	66,724	103	0.40	114,385	98	0.37
Other professional fees	19,881	31	0.12	28,916	25	0.09
Miscellaneous	<u>19,055</u>	<u>29</u>	<u>0.11</u>	<u>29,963</u>	<u>26</u>	<u>0.10</u>
Total Less Interest Paid	\$3,135,978	\$4,823	\$18.89	\$5,483,937	\$4,712	\$17.62
<u>Net Accrual Operating Income</u>						
(without interest paid)	\$ 934,533	\$1,437	\$ 5.63	\$2,260,198	\$1,942	\$ 7.26
- Change in livestock & crop inventory	103,731	160	0.62	400,928	344	1.29
- Change in accounts receivable	51,013	78	0.31	208,062	179	0.67
- Change in feed & supply inventory	35,700	55	0.22	89,184	77	0.29
+ Change in accounts payable ²⁰	<u>-8,315</u>	<u>-13</u>	<u>-0.05</u>	<u>-21,446</u>	<u>-18</u>	<u>-0.07</u>
NET CASH FLOW	\$ 735,775	\$1,132	\$ 4.43	\$1,540,580	\$1,324	\$ 4.95
- Net personal withdrawals & family exp.	<u>262,399</u>	<u>404</u>	<u>1.58</u>	<u>464,554</u>	<u>399</u>	<u>1.49</u>
Available for Farm Debt Payments & Investment	\$ 473,375	728	2.85	\$1,076,025	\$ 924	\$ 3.46
- Farm debt payments	<u>391,990</u>	<u>603</u>	<u>2.36</u>	<u>600,040</u>	<u>516</u>	<u>1.93</u>
Cash available for Farm Investments	\$ 81,385	\$ 125	\$ 0.49	\$ 475,986	\$ 409	\$ 1.53

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 2012 and 2013.

Table 16.

FARM DEBT PAYMENTS PLANNED 153 New York Dairy Farms, 2013

Debt Payments	153 Dairy Farms			16 Top 10% Farms		
	2013 Payments		Planned 2014	2013 Payments		Planned 2014
	Planned	Made		Planned	Made	
Long term	\$104,958	\$121,581	\$ 104,464	\$ 142,078	\$ 171,923	\$ 159,803
Intermediate term	217,642	228,986	243,262	303,962	338,396	339,429
Short term	1,573	3,333	1,731	997	0	0
Operating (net reduction)	15,904	36,610	21,540	71,813	67,012	125,000
Accts. payable (net reduction)	<u>763</u>	<u>24,450</u>	<u>516</u>	<u>625</u>	<u>25,142</u>	<u>0</u>
Total	\$340,840	\$414,958	\$371,513	\$519,474	\$602,473	\$624,232
Per cow	\$500	\$609		\$447	\$518	
Per hundredweight 2013 milk	\$1.94	\$2.37		\$1.66	\$1.92	
Percent of 2013 milk receipts	9%	11%		8%	9%	

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 153 New York Dairy Farms, 2013

Item	Average	Item	Average
<u>Cash Flow Coverage Ratio</u>		<u>Debt Coverage Ratio</u>	
Cash farm receipts	\$4,141,591	Net farm income (without appreciation)	\$625,351
- Cash farm expenses	3,440,155	+ Depreciation	262,139
+ Interest paid (cash)	81,978	+ Interest paid (accrual)	81,987
- Net personal withdrawals from farm ²²	<u>285,662</u>	- Net personal withdrawals from farm ²²	<u>285,662</u>
(A) = Amount Available for Debt Service	\$497,751	(A') = Repayment Capacity	\$683,815
(B) = Debt Payments Planned for 2013 (as of December 31, 2012)	\$340,840	(B) = Debt Payments Planned for 2013 (as of December 31, 2012)	\$340,840
(A/B)= Cash Flow Coverage Ratio for 2013	1.46	(A'/B)= Debt Coverage Ratio for 2013	2.01

16 Top 10% Dairy Farms, 2013			
(A) = Amount Available for Debt Service	\$1,069,323	(A') = Repayment Capacity	\$1,737,962
(B) = Debt Payments Planned for 2013	519,474	(B) = Debt Payments Planned for 2013	519,474
(A/B)= Cash Flow Coverage Ratio for 2013	2.06	(A'/B)= Debt Coverage Ratio for 2013	3.35

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, 15.2 percent of the farms had a cash flow coverage ratio less than 1.0.

Table 18.

DEBT TO ASSET RATIO VS. CASH FLOW COVERAGE 171 New York Dairy Farms, 2013

Debt/Asset Ratio	Cash Flow Coverage Ratio (Farm & Nonfarm)			
	<1.0	1.0 to 1.49	1.5 to 2.0	>=2.0
	percent of farms			
<40%	15.2	10.5	11.1	30.4
40 to 60%	15.2	6.4	5.3	1.8
60% & over	4.1	0.0	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 171 New York Dairy Farms, 2013

Item	Average 171 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	674	603	1,277	1,185	905	2,090
Nontillable pasture	28	9	37	7	2	9
Other nontillable	<u>142</u>	<u>5</u>	<u>147</u>	<u>122</u>	<u>0</u>	<u>122</u>
Total	844	617	1,461	1,314	907	2,221
<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	166	582	3.5 tn DM	16	883	4.0 tn DM
Corn silage	159	542	18.0 tn	16	1,042	19.1 tn
			6.1 tn DM			6.5 tn DM
Other forage	41	170	4.5 tn DM	8	167	4.4 tn DM
Total forage	166	1,143	4.8 tn DM	16	2,008	5.3 tn DM
Corn grain	70	236	138 bu	6	383	156 bu
Oats	6	32	64 bu	0	0	0 bu
Wheat	30	119	59 bu	6	135	68 bu
Other crops	42	125		4	126	
Tillable pasture	24	116		2	58	
Idle	44	84		5	53	

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 171 farms produced hay or hay crop silage in 2013. Ninety-three percent produced corn silage, 41 percent grew and harvested corn grain, and four percent grew oats for grain. Although 24 farms used tillable pasture in 2013, only 17 of the 171 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 166 New York Dairy Farms That Grow Forages, 2013

Item	Average 166 Farms	Average Top 10% Farms ²⁴
Total tillable acres per cow	2.00	1.88
Total forage acres per cow	1.74	1.70
Harvested forage dry matter, tons per cow	8.32	9.03

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.

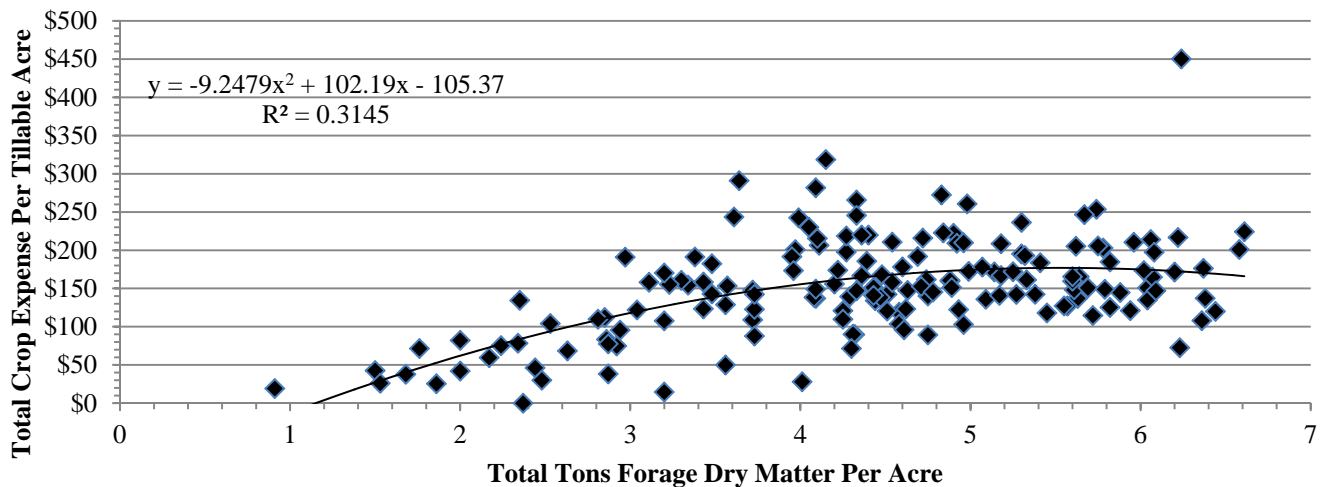
CROP RELATED ACCRUAL EXPENSES
166 New York Dairy Farms That Grow Forages, 2013

Item	Average 166 Farms		Average Top 10% Farms ²⁶	
	Total Per Tillable Acre		Total Per Tillable Acre	
Number of farm reporting	166		16	
Average number of acres	1,319		2,220	
Fertilizer and lime expense	\$70.67		\$68.63	
Seeds & plants	53.88		61.68	
Spray and other crop expense	<u>26.81</u>		<u>27.73</u>	
Total	\$151.36		\$158.04	

²⁵Average of 16 farms with highest rates of return to all capital (without appreciation).

Chart 5.

CROP EXPENSE PER ACRE BY TOTAL FORAGE PRODUCTION PER ACRE
166 New York Dairy Farms That Grow Forages, 2013



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
166 New York Dairy Farms That Grow Forages, 2013

Machinery Expense Item	Average 166 Farms		Average Top 10% Farms ²⁶	
	Total Expenses	Per Tillable Acre	Total Expenses	Per Tillable Acre
Fuel, oil & grease	\$143,737	\$108.95	\$241,825	\$108.91
Machinery repairs & vehicle expense	167,528	126.98	241,059	108.56
Machine hire, rent & lease	70,889	53.73	133,629	60.18
Interest (5%)	59,093	44.79	77,345	34.83
Depreciation	<u>155,340</u>	<u>117.74</u>	<u>224,495</u>	<u>101.10</u>
Total	\$596,587	\$452.19	\$918,352	\$413.58

²⁶Average of 16 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 2013 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.

**REAL ESTATE INVESTMENT PER COW BY FORAGE AND GRAZING ACRES PER COW
171 New York Dairy Farms, 2013**

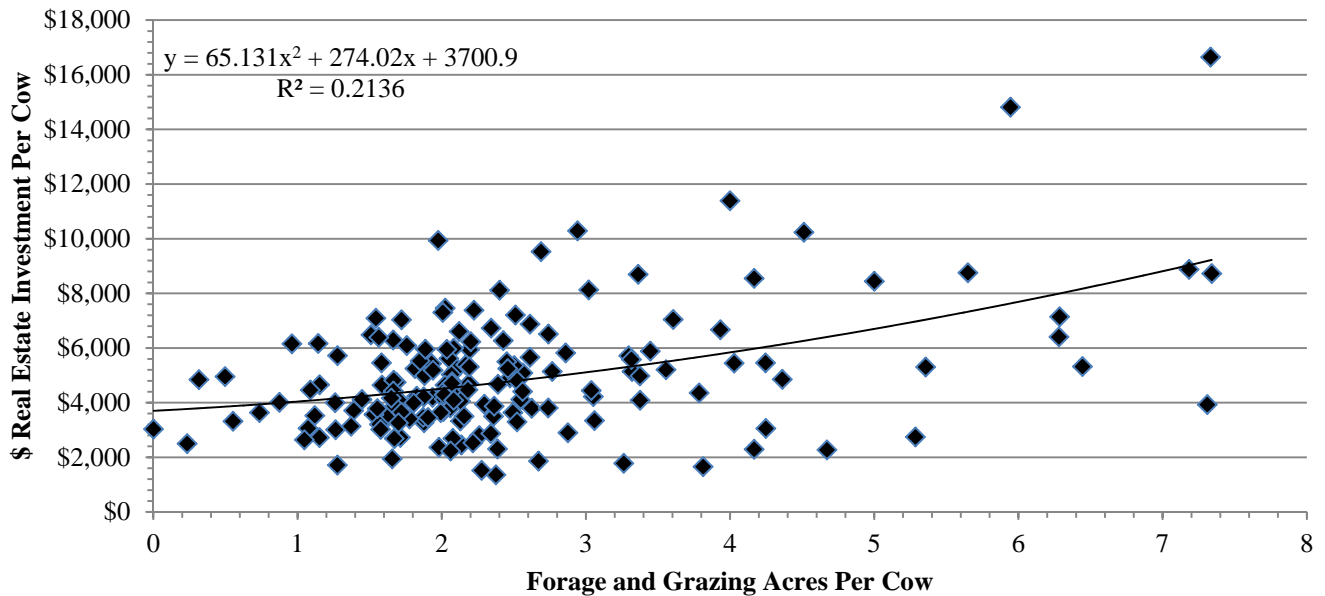
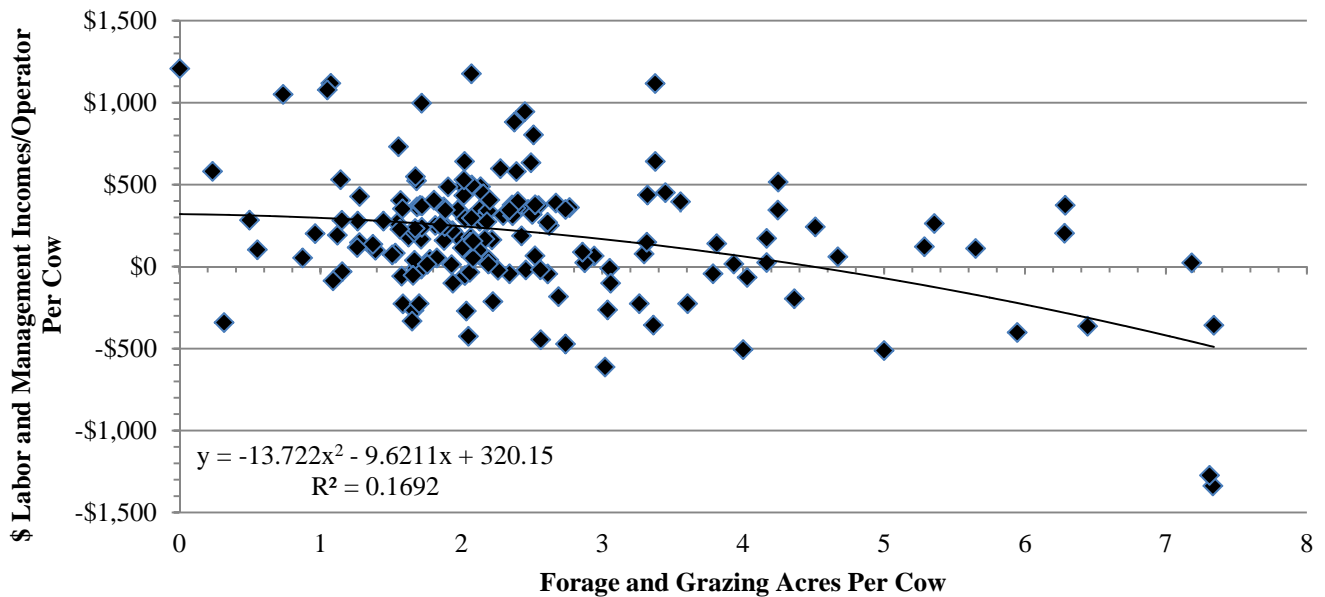


Chart 7.

**LABOR AND MANAGEMENT INCOMES/OPERATOR/COW BY FORAGE AND GRAZING ACRES/COW
171 New York Dairy Farms, 2013**



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 171 New York Dairy Farms, 2013

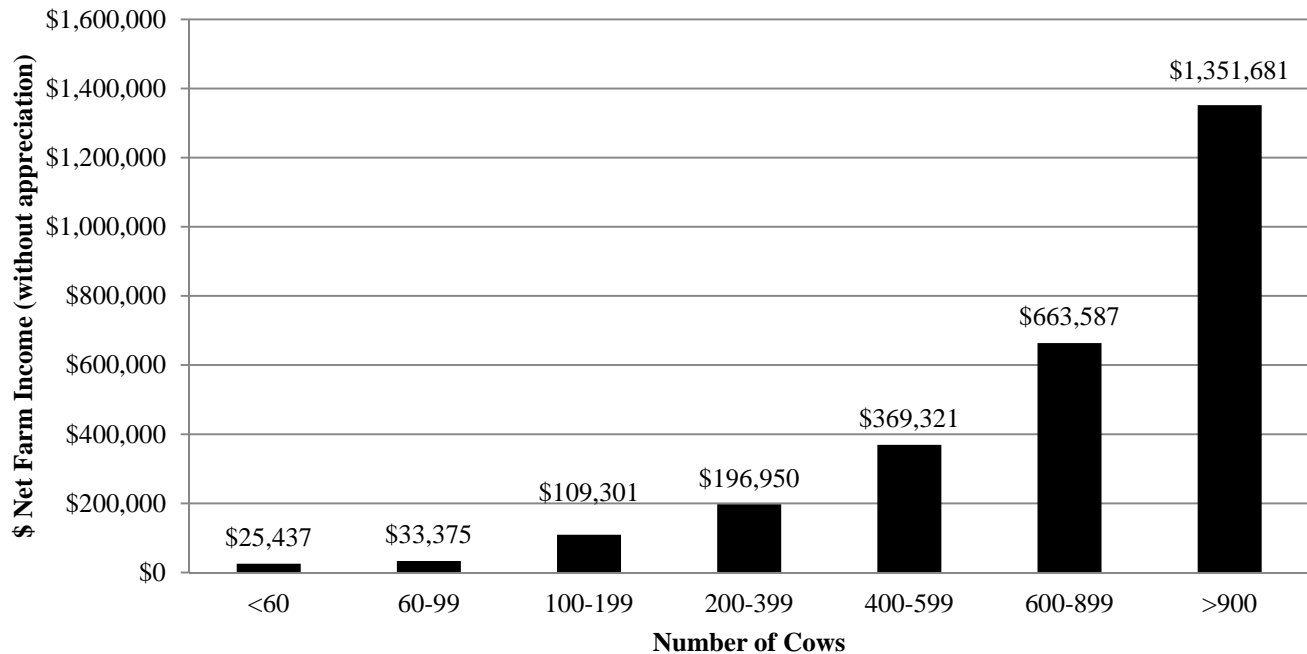
Item	Dairy Cows		Heifers					
	No.	Value	Bred		Open		Calves	
			No.	Value	No.	Value	No.	Value
Beg. year (owned)	630	\$887,652	201	\$278,320	185	\$160,599	159	\$76,879
+ Change w/o apprec.		34,553		13,964		6,825		4,537
+ Appreciation		<u>8,227</u>		<u>241</u>		<u>813</u>		<u>636</u>
End year (owned)	654	\$930,433	211	\$292,525	192	\$168,237	166	\$82,052
End including leased	657							
Average number	650		557	(all age groups)				
<u>Average Top 10% Farms:²⁷</u>								
Beg. year (owned)	1,108	\$1,590,968	347	\$482,289	309	\$272,332	314	\$153,036
+ Change w/o apprec.		91,535		47,481		12,236		18,320
+ Appreciation		<u>30,600</u>		<u>17,032</u>		<u>894</u>		<u>647</u>
End year (owned)	1,171	\$1,713,103	380	\$546,802	324	\$285,462	337	\$172,003
End including leased	1,194							
Average number	1,164		1,008	(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 2013, there was a consistent increase in net farm incomes as herd size increased (Chart 8). For more information on herd size comparisons, see pages 48-57.

Chart 8.

NET FARM INCOME (WITHOUT APPRECIATION) BY HERD SIZE 171 New York Dairy Farms, 2013



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 table below are an average of 131 farms that provided the data.

Table 24.

**MILK PRODUCTION
171 New York Dairy Farms, 2013**

Item	Average 171 Farms	Average Top 10% Farms ²⁸
Total milk sold, pounds	16,600,444	31,127,626
Milk sold per cow, pounds	25,532	26,743
	<u>Average 131 Farms</u>	<u>Average 13 Farms</u>
Butterfat per cow, pounds	971	1,022
Protein per cow, pounds	798	840
Total butterfat and protein per cow, pounds	1,769	1,862
Other solids per cow, pounds	1,499	1,563
Total components per cow, pounds	3,269	3,424

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 2013, 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
171 New York Dairy Farms, 2013**

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	14	179	\$75,069	\$274	\$16,445
16,000 to 18,999	15	120	62,845	585	13,278
19,000 to 20,999	7	173	161,736	1,002	43,502
21,000 to 22,999	17	288	203,188	659	65,086
23,000 to 24,999	34	750	627,201	770	206,337
25,000 to 26,999	51	826	665,356	815	157,628
27,000 & over	33	1,003	1,195,727	1,094	368,774

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 171 farms.

Historically, net farm income per cow has increased as pounds of milk sold per cow increased. This relationship held true in 2013 (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.

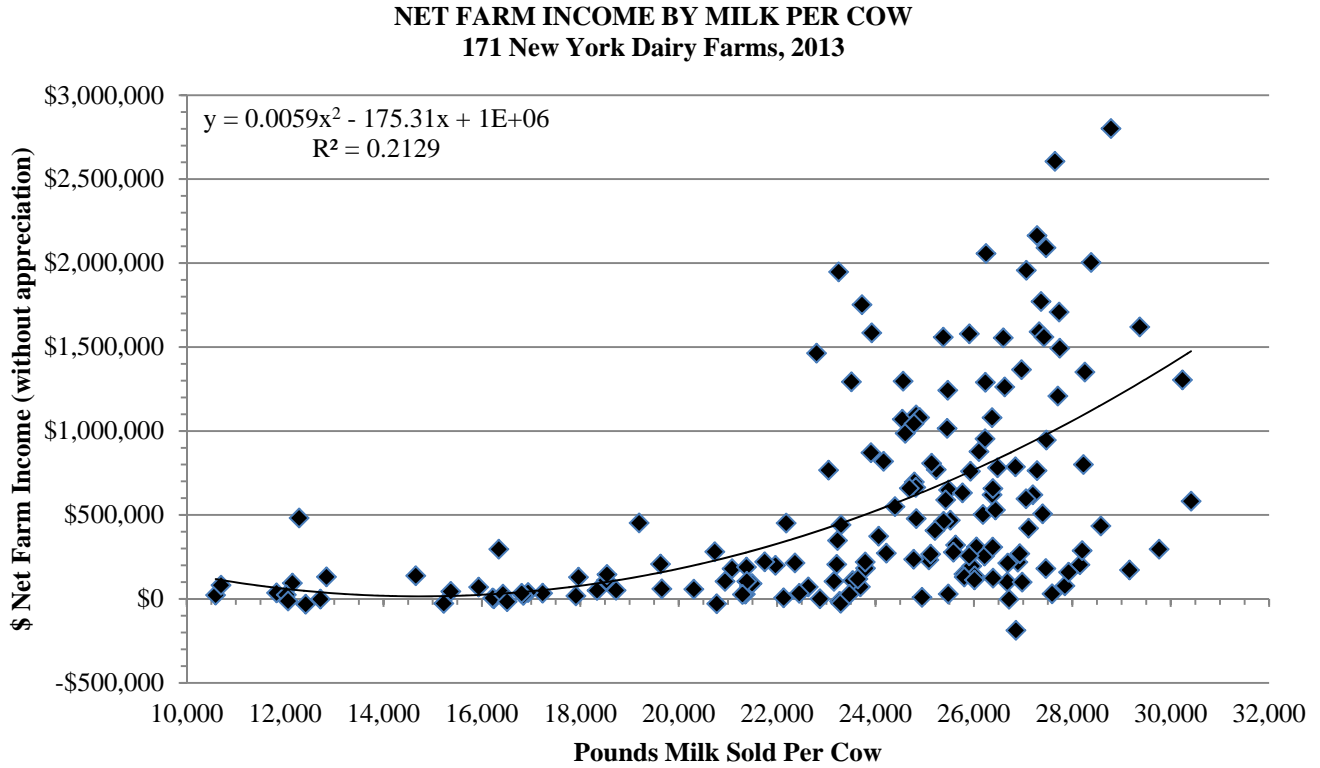
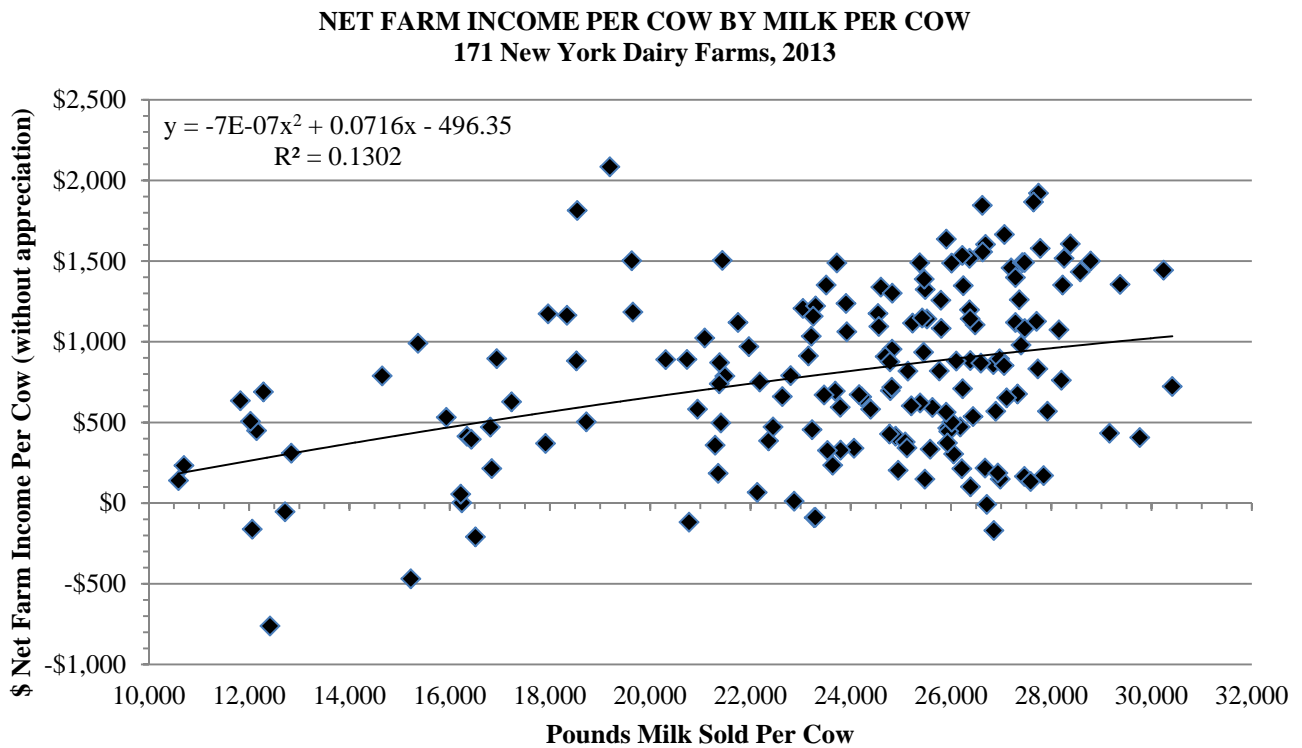


Chart 10.



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 35 percent, sell rate was 29 percent, and death rate was 6 percent. The average number of cows sold for beef equaled 188, 9 cows were sold for dairy, and 37 cows died. Please refer to the glossary for definitions of the different terms and how the measures were calculated.

Chart 11.

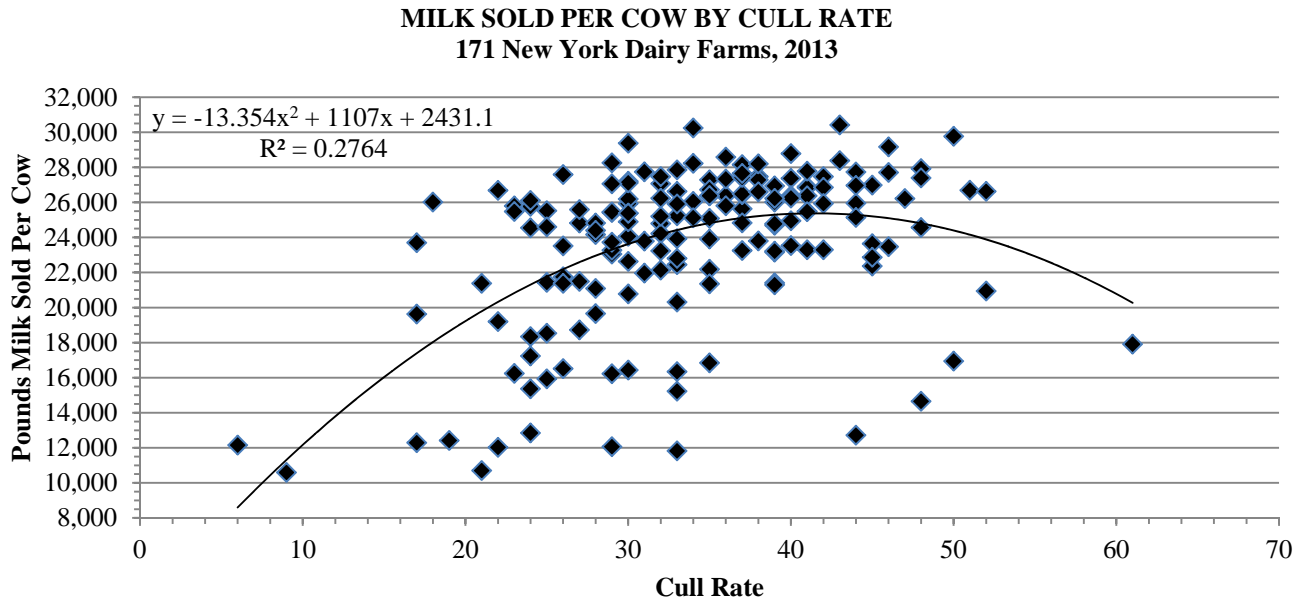


Chart 12.

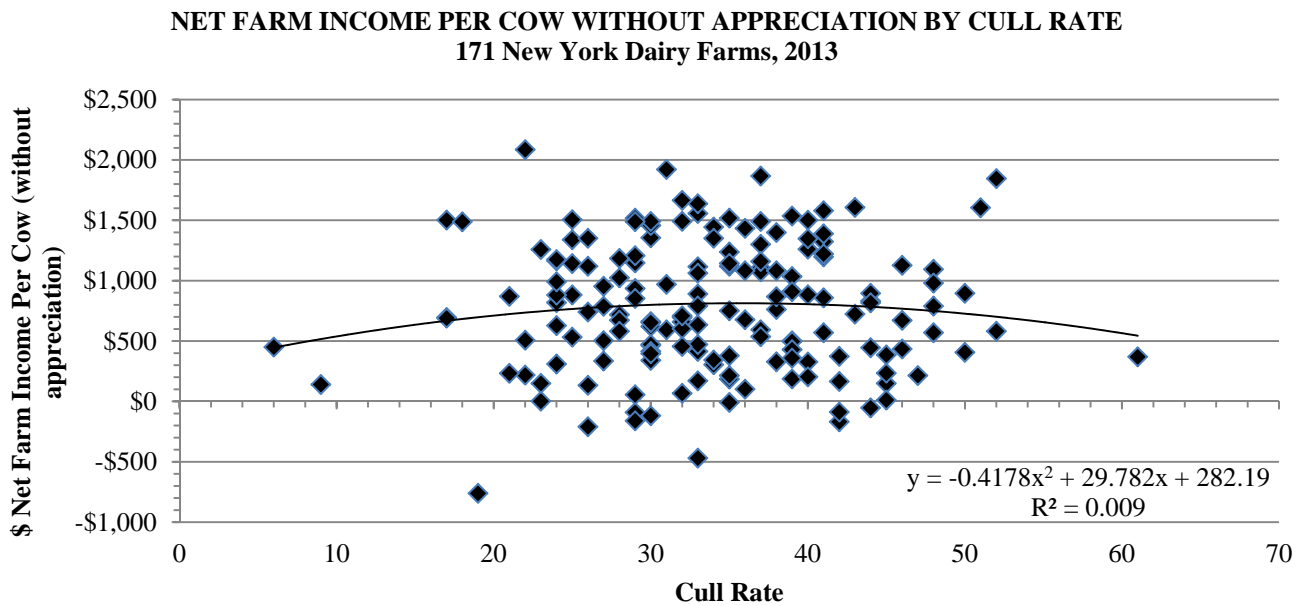


Table 26.

CULLING RATE AND DAIRY REPLACEMENT INFORMATION
New York Dairy Farms, 2013

Decile	Sell Rate	Death Rate	Cull Rate	Value of Cows Sold	Value of Animals Purchased	Percent of Replacements Purchased	Percent of Heifers Custom Raised
----- 165 Farms ²⁹ -----				\$/head (30 Farms)		-----42 Farms ²⁹ -----	
1	15%	1%	19%	\$ 89	\$1,017	0%	0%
2	20	2	25	593	1,271	0	0
3	23	4	29	801	1,400	0	0
4	25	4	31	949	1,597	0	0
5	27	5	33	1,081	1,833	0	0
6	29	6	35	1,281	2,054	0	0
7	32	6	38	1,399	2,395	0	0
8	34	7	40	1,552	2,949	0	19.0
9	37	8	43	1,816	3,602	0.2	41.0
10	44	11	49	2,688	11,091	4.6	74.2

²⁹165 DFBS farms provided culling information. 42 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
171 New York Dairy Farms, 2013**

Item	Average 171 Farms	Average Top 10% Farms ³⁰
Total Accrual Operating Expenses	\$3,214,335	\$5,594,707
Expansion Livestock, Accrual	<u>+ 15,913</u>	<u>+ 30,167</u>
1. Total Accrual Operating Expenses, Including Expansion Livestock	\$3,230,248	\$5,624,874
Total Accrual Receipts	\$4,070,511	\$7,744,136
Milk Sales, Accrual	<u>-3,594,816</u>	<u>- 6,793,318</u>
2. Total Accrual Nonmilk Receipts	<u>- \$475,695</u>	<u>-\$ 950,818</u>
3. Operating Cost of Producing Milk	\$2,754,553	\$4,674,057
Machinery Depreciation	+ 151,571	+ 216,872
Building Depreciation	+ 95,149	+ 170,992
Extraordinary Expense	<u>+ 1,162</u>	<u>+ 0</u>
4. Purchased Inputs Cost of Producing Milk	\$3,002,436	\$3,751,454
Family Labor Unpaid (\$2,600/month)	+ 5,647	+ 1,983
Real Interest on Equity Capital	+ 234,890	+ 314,502
Value of Operator's Labor & Management	<u>+ 128,109</u>	<u>+ 143,209</u>
5. Total Costs of Producing Milk	\$3,371,082	\$5,061,921
6. Costs Per Cwt.:		
Cwt. Milk Sold	166,004	311,276
Operating Cost Per Cwt.	\$16.59	\$15.02
Purchased Inputs Cost Per Cwt.	\$18.09	\$16.26
Total Cost Per Cwt.	\$20.31	\$18.11

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 \$47,482 average increase in crop inventories per farm, (\$0.27 per hundredweight of milk), is included in crop sales on the 171 Farms. The top 10 percent farms had a \$231,309 average increase in crop inventories per farm (\$0.74 per hundredweight of milk).

Table 28.

**ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT
BASED ON WHOLE FARM DATA
171 New York Dairy Farms, 2013**

Item	Average 171 Farms	Average Top 10% Farms ³²
Dairy grain and concentrate	\$7.07	\$6.95
Dairy roughage	0.49	0.56
Nondairy feed	0.00	0.00
Professional nutritional services	<u>0.00</u>	<u>0.01</u>
Total feed expense	\$7.56	\$7.52
Crop expense	1.31	1.14
- Crop sales and government receipts ³¹	<u>0.70</u>	<u>1.07</u>
Net Feed and Crop Expense	\$8.17	\$7.59
Hired labor	2.78	2.49
Operator's and family labor	<u>0.45</u>	<u>0.24</u>
Total Labor Expense	\$3.23	\$2.73
Machine repairs, fuel and hire	2.24	1.91
Machinery depreciation	0.91	0.70
- Gas tax refunds and custom work	<u>0.37</u>	<u>0.00</u>
Net Machinery Expense	\$2.78	\$2.61
Replacement and expansion cattle purchases	0.17	0.13
- Sales and inventory growth	<u>1.51</u>	<u>1.49</u>
Net Cattle Purchases	\$-1.34	\$-1.36
Milk marketing costs	0.86	0.79
All other livestock expense excluding purchases	<u>2.38</u>	<u>2.29</u>
Net Livestock Expense	\$3.24	\$3.08
Real estate repairs, rent and taxes	0.88	0.78
Building depreciation	<u>0.57</u>	<u>0.55</u>
Total Real Estate Expense	\$1.45	\$1.33
Interest paid	0.47	0.36
Interest on equity	<u>1.41</u>	<u>1.30</u>
Total Interest Expense	\$1.88	\$1.66
Other operating and miscellaneous expenses	0.81	0.67
- Miscellaneous income	<u>0.37</u>	<u>0.34</u>
Net Miscellaneous Expenses	\$ 0.44	\$0.33
Total Cost of Producing Milk	\$20.31	\$18.11
Purchased Inputs Cost of Producing Milk	\$18.09	\$16.26
Total Operating Cost of Producing Milk	\$20.31	\$15.02

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 153 farms that participated both in 2012 and 2013. 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 153 New York Dairy Farms, 2012 & 2013**

Item	2012	2013	Percent Change
Dairy grain and concentrate	\$6.77	\$7.09	4.7%
Dairy roughage	0.48	0.51	6.3%
Nondairy feed	0.00	0.00	
Professional nutritional services	<u>0.00</u>	<u>0.00</u>	
Total feed expense	\$7.25	\$7.60	4.8%
Crop expense	1.23	1.30	
- Crop sales and government receipts ³³	<u>0.84</u>	<u>0.70</u>	
Net Feed and Crop Expense	\$7.64	\$8.20	7.3%
Hired labor	2.75	2.78	
Operator's and family labor	<u>0.44</u>	<u>0.43</u>	
Total Labor Expense	\$3.19	\$3.21	0.6%
Machine repairs, fuel and hire	2.16	2.22	
Machinery depreciation	0.86	0.92	
- Gas tax refunds and custom work	<u>0.09</u>	<u>0.08</u>	
Net Machinery Expense	\$2.93	\$3.06	4.4%
Replacement and expansion cattle purchases	0.22	0.16	
- Sales and inventory growth	<u>1.56</u>	1.51	
Net Cattle Purchases	-\$1.34	-\$1.35	0.8%
Milk marketing costs	0.87	0.87	
All other livestock expense excluding purchases	<u>2.34</u>	<u>2.38</u>	
Net Livestock Expense	\$3.21	\$3.25	1.3%
Real estate repairs, rent and taxes	0.84	0.88	
Building depreciation	<u>0.55</u>	<u>0.58</u>	
Total Real Estate Expense	\$1.39	\$1.46	5.0%
Interest paid	0.45	0.47	
Interest on equity	<u>1.34</u>	<u>1.40</u>	
Total Interest Expense	\$1.79	\$1.87	4.5%
Other operating and miscellaneous expenses	0.80	0.80	
- Miscellaneous income	<u>0.38</u>	<u>0.38</u>	
Net Miscellaneous Expenses	<u>\$0.42</u>	<u>\$0.42</u>	0.0%
Total Cost of Producing Milk	\$19.31	\$20.29	5.1%
Purchased Inputs Cost	\$17.20	\$18.10	5.2%
Total Operating Cost	\$15.78	\$16.60	5.2%
Average Price Received for Milk	\$19.79	\$21.67	9.5%

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
171 New York Dairy Farms, 2013

Item	Average 171 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	\$2,754,553	\$4,237	\$16.59	\$4,674,057	\$4,016	\$15.02
Purchased Inputs Cost	3,002,436	4,618	18.09	5,061,920	4,349	16.26
Total Cost	3,371,082	5,185	20.31	5,636,315	4,842	18.11
<u>Accrual Receipts from Milk</u>						
Net Milk Receipts	\$3,594,816	\$5,529	\$21.65	\$6,793,318	\$5,836	\$21.82
	3,451,846	5,309	20.79	6,546,975	5,625	21.03
<u>Profitability</u>						
Net Farm Income without						
Appreciation	\$592,380	\$911	\$3.57	\$1,731,398	\$1,488	\$5.56
Net Farm Income with						
Appreciation	\$741,840	\$1,141	\$4.47	\$2,002,141	\$1,720	\$6.43

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

The operating cost of producing milk on all 171 dairy farms averaged \$16.59 per hundredweight, leaving \$5.03 to cover depreciation, unpaid labor and operator resources.

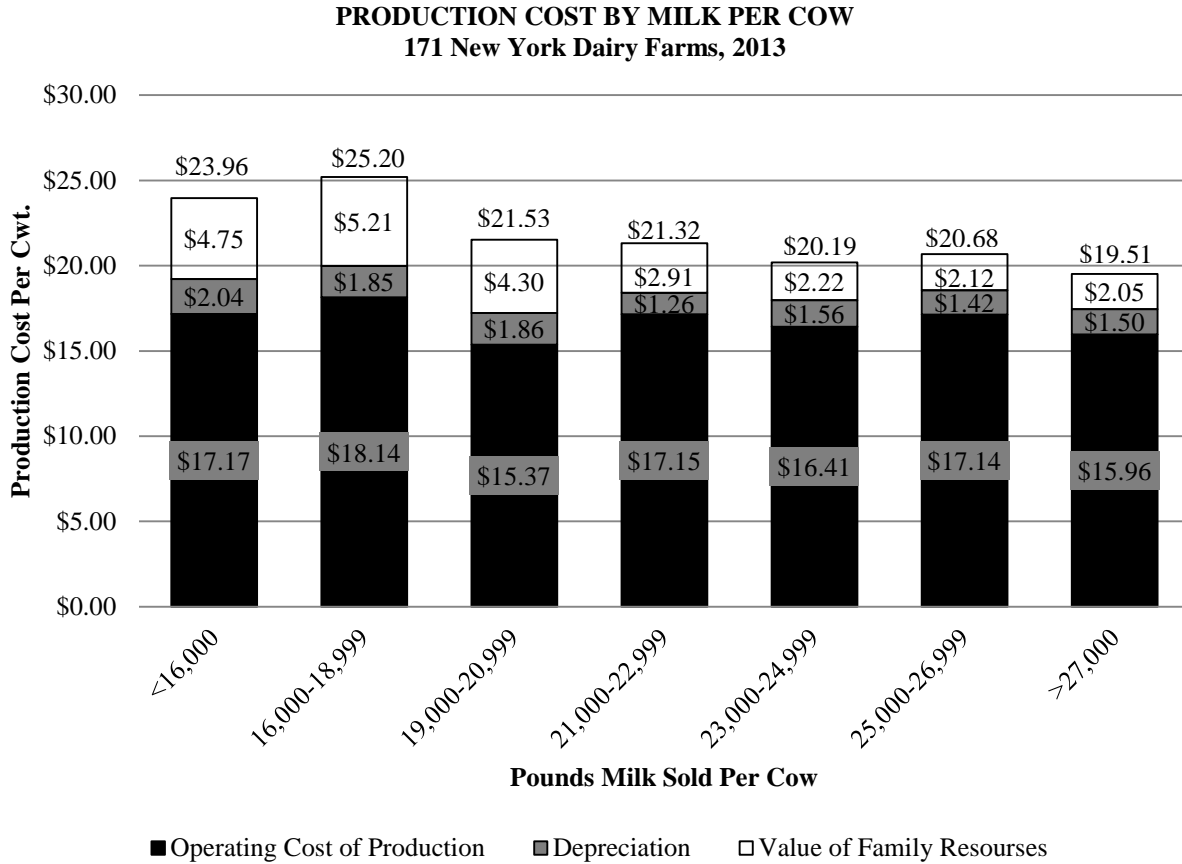
The total cost of producing milk on the 171 dairy farms averaged \$20.31 per hundredweight, \$1.34 less than the average price received for milk sold from these farms during 2013. The inputted costs or charge for the operator's labor, management and equity capital averaged \$2.19 per hundredweight in 2013; however, the farm operator received \$3.57 per hundredweight for these inputs. The 17 most profitable farms held their operating costs to \$15.02 per hundredweight and their total cost of producing milk averaged \$18.11 per hundredweight. This left a return of \$3.71 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 \$26.27 per hundredweight while those selling 20,000 pounds and over averaged \$20.96 for a difference of \$5.31 per hundredweight.

Table 31.
FARM COST OF PRODUCING MILK BY MILK SOLD PER COW
171 New York Dairy Farms, 2013

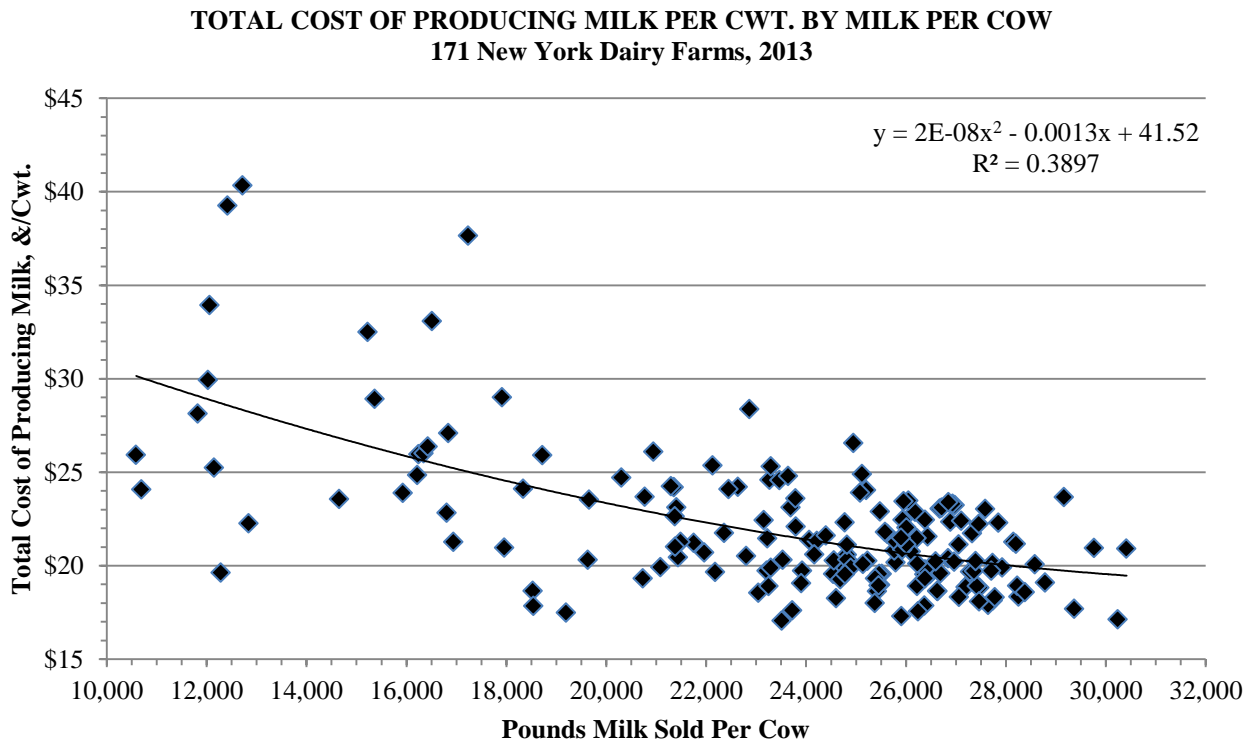
Pounds Milk Sold Per Cow	Costs per Hundredweight					Accrual Receipts From Milk Per Cwt.	Return Per Cwt. To Operator's Labor, Mgmt. & Capital
	Operating Costs		Costs of Producing Milk				
	Hired Labor	Dairy Grain & Concentrate	Total Operating	Purchased Inputs	Total		
Under 16,000	\$1.87	\$5.93	\$17.94	\$20.25	\$28.40	\$22.33	\$3.19
16,000-18,999	1.22	6.83	16.84	18.41	25.44	21.69	2.56
19,000-20,999	1.41	7.43	15.30	17.04	22.16	22.10	4.39
21,000-22,999	2.01	6.90	16.87	18.37	22.52	21.40	3.03
23,000-24,999	2.75	6.90	16.70	18.27	21.04	21.48	3.45
25,000-26,999	2.75	7.21	16.98	18.45	20.89	21.58	3.03
27,000 & over	2.68	6.96	16.17	17.78	19.90	21.69	4.26

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 fixed costs 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.

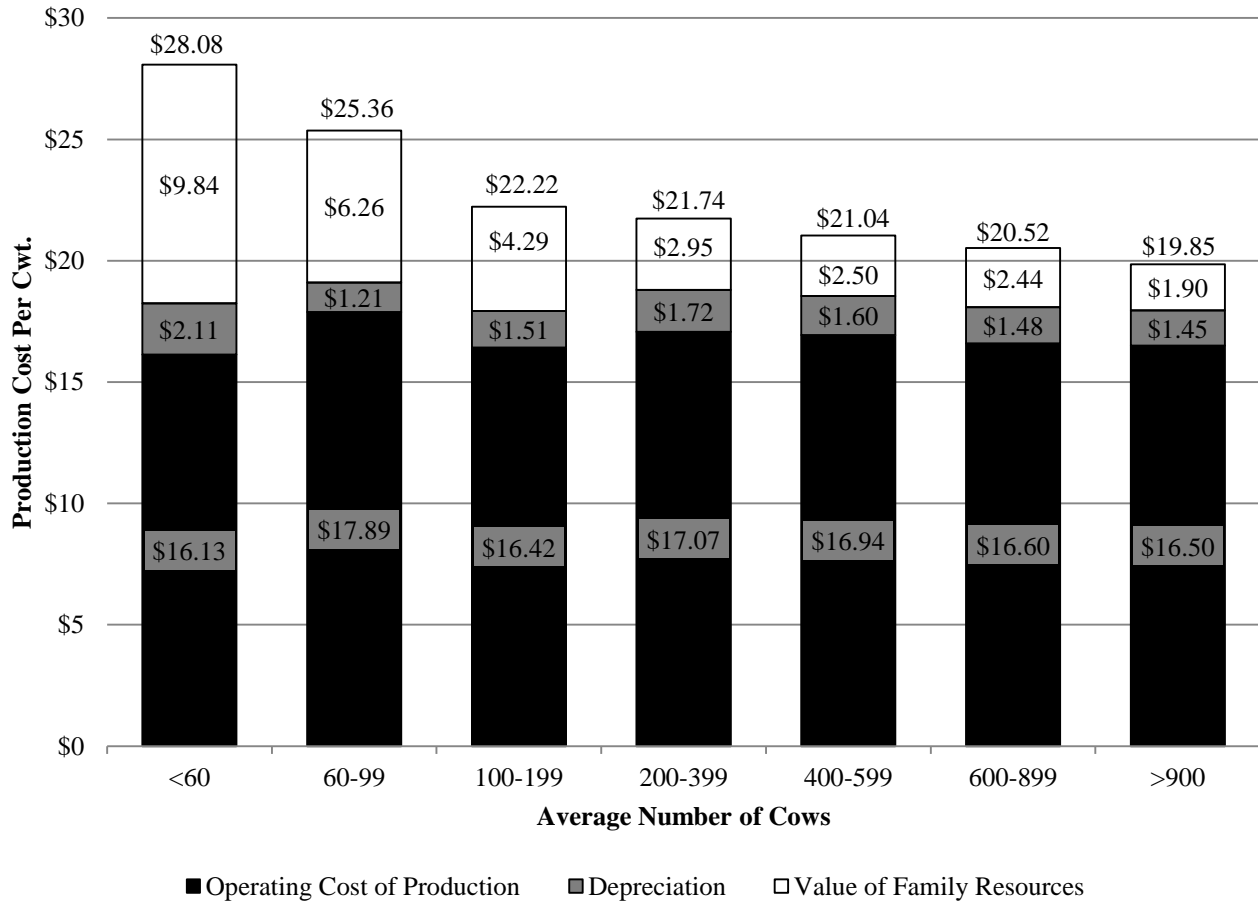
Table 32.

**FARM COST OF PRODUCING MILK BY HERD SIZE
171 New York Dairy Farms, 2013**

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	\$1.12	\$6.10	\$16.13	\$18.28	\$28.08	\$21.48	\$2.69
60 to 99	1.53	6.45	17.89	19.10	25.36	21.46	2.02
100 to 199	1.95	6.97	16.42	18.06	22.22	21.63	3.22
200 to 399	2.69	7.33	17.07	18.80	21.74	21.59	2.76
400 to 599	2.73	6.97	16.94	18.57	21.04	21.56	2.96
600 to 899	2.69	7.14	16.60	18.08	20.52	21.69	3.51
900 and over	2.87	7.05	16.50	17.95	19.85	21.67	3.72

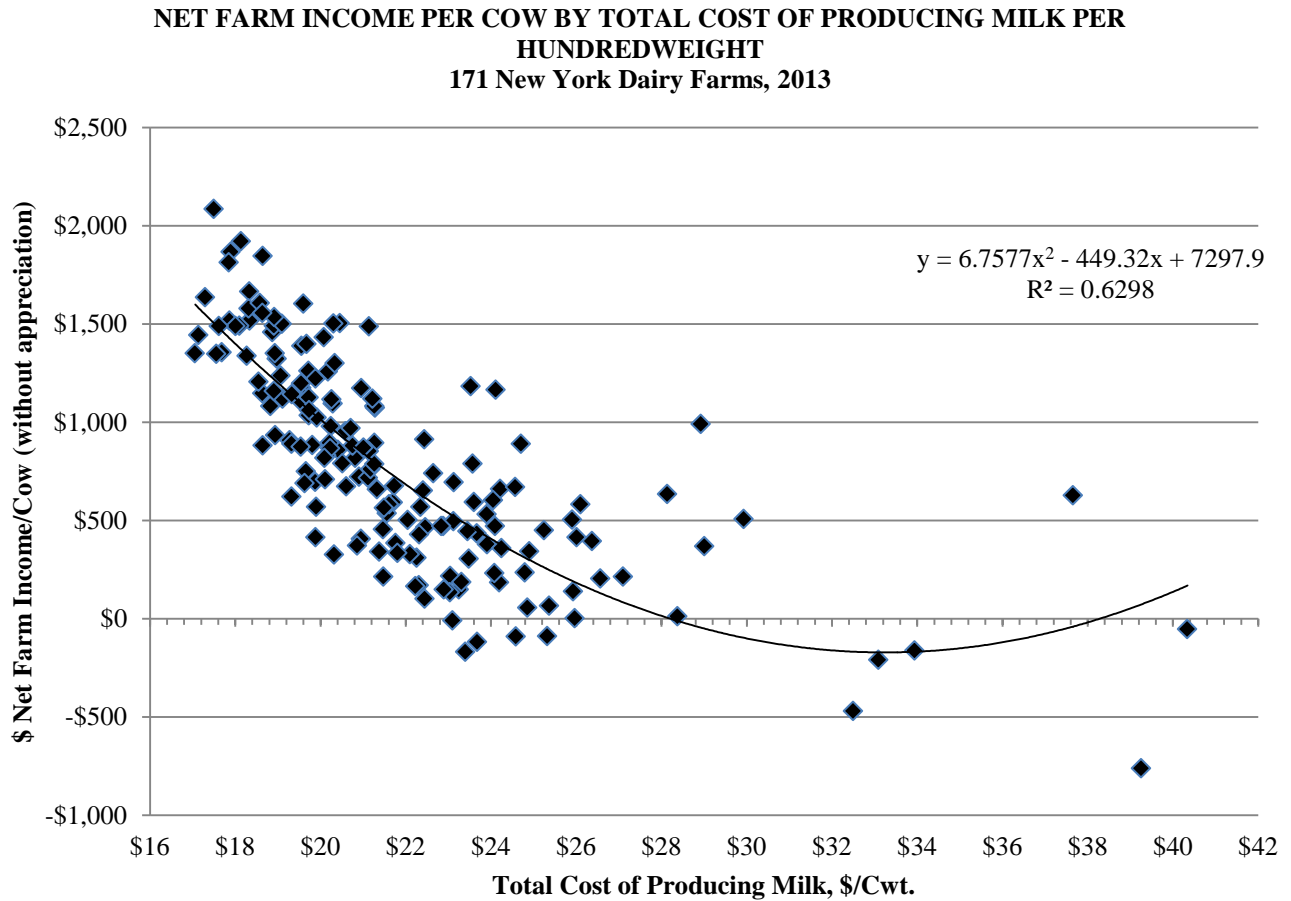
Chart 15.

**PRODUCTION COST BY HERD SIZE
171 New York Dairy Farms, 2013**



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. All farms had a positive net farm income per cow until the total cost of producing milk exceeded \$23 per hundredweight. The majority of the farms experienced positive net farm incomes per cow in 2013.

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 2004 through 2013. In 2013, the average operating cost of producing milk increased 6.3 percent after increasing 0.5 percent from 2011 to 2012. The average return per hundredweight to operator labor, management, and capital was \$0.18 higher in 2013, 2 percent less than 2012. 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 2004, 2007, 2010, 2011 and 2013.

Hired labor expense per hundredweight decreased from 2004 to 2006, increased between 2006 and 2007, decreased in 2008 and 2009, increased in 2010 and 2011, decreased one percent in 2012, and increased three percent in 2013. Hired labor expense was \$2.67 in 2004 and has risen to \$2.78 in 2013. Thus, even as pounds of milk sold per worker have increased from 925,553 in 2004 to 1,150,279 in 2013, 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 15 percent increase in hired labor expense per hired worker equivalent from 2004 to 2013.

Purchased feed expense per hundredweight of milk can fluctuate greatly, as much as \$2.68 per hundredweight. At \$4.88 in 2004, it was at its lowest in the past ten years. In 2013, purchased feed expense was at its highest in the past ten years at \$7.56 per hundredweight of milk.

Interest paid on debt per hundredweight of milk sold has fluctuated over this period. In 2004, interest expense was \$0.57 per hundredweight. In 2013, interest expense was at the second lowest level in the past ten-year s of \$0.47 per hundredweight. Property taxes per hundredweight of milk were fairly constant during this ten-year period. Property taxes were \$0.22 per hundredweight in 2004 and \$0.24 in 2013.

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 95 percent, tillable acres have increased 82 percent, and milk sold per farm has jumped 225 percent since 2004. Capital investment per cow has increased 66 percent over the last ten years. Labor and management income per operator decreased 53 percent in 2013 compared to 2012, farm net worth increased 4 percent, and percent equity decreased 1 percent in 2013 compared to 2012.

Hay crop yields were 3.5 tons dry matter per acre in 2004 and 3.5 tons dry matter per acre in 2013. 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 19.6 tons per acre in 2010, increased to 16.6 tons per acre in 2011, decreased to 16.9 tons per acre in 2012, and increased to 18.0 tons per acre in 2013. As yields increased from 2012 to 2013, fertilizer and lime expense increased \$40 per tillable acre, from \$31 to \$71 per acre. Pounds of milk sold per cow increased by 16 percent, from 22,070 pounds in 2004 to 25,532 pounds in 2013.

Average number of workers per farm increased by 6.46 and operators/managers per farm went from 1.64 to 2.01. Cows per worker equivalent increased from 42 in 2004 to 45 in 2013, but labor cost per cow increased from \$752 to \$823 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 60 percent in 2004, was relatively constant over the next three years, increased to 68 percent in 2007 and 2008, decreased to 65 percent in 2010, increased to 70 percent in 2011, decreased to 69 percent in 2012, and decreased to 68 percent in 2013.

Table 33.

**TEN YEAR COMPARISON: AVERAGE COST OF PRODUCING MILK PER HUNDREDWEIGHT
New York Dairy Farms, 2004 to 2013**

Item	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<u>Operating Expenses</u>										
Hired labor	\$2.67	\$2.66	\$2.58	\$2.70	\$2.79	\$2.70	\$2.61	\$2.75	\$2.72	\$2.78
Purchased feed	4.88	4.37	4.30	5.21	6.17	5.45	5.41	6.53	7.29	7.56
Machinery repair, vehicle expense & rent	1.09	1.07	1.04	1.27	1.24	1.07	1.16	1.36	1.31	1.40
Fuel, oil & grease	.41	.53	.58	.67	.91	.57	.65	.88	.84	.84
Replacement livestock	.16	.11	.07	.07	.08	.06	.06	.08	.05	.07
Breeding fees	.21	.22	.23	.24	.26	.21	.21	.22	.21	.21
Veterinary & medicine	.59	.62	.65	.65	.68	.63	.63	.67	.65	.68
Milk marketing	.72	.76	.80	.80	.85	.88	.89	.88	.87	.86
Other dairy expenses	1.27	1.32	1.29	1.41	1.52	1.44	1.45	1.48	1.48	1.49
Fertilizer & lime	.30	.34	.31	.40	.47	.41	.37	.45	.55	.57
Seeds & plants	.24	.22	.23	.28	.33	.35	.36	.39	.42	.48
Spray & other crop expense	.20	.19	.19	.25	.26	.20	.21	.25	.27	.22
Land, building & fence repair	.21	.25	.22	.32	.34	.23	.26	.37	.35	.35
Taxes	.22	.23	.21	.23	.21	.22	.22	.23	.23	.24
Insurance	.16	.16	.17	.19	.18	.17	.17	.18	.17	.17
Utilities (farm share)	.36	.39	.41	.44	.43	.38	.41	.42	.37	.40
Interest paid	.57	.65	.78	.83	.54	.51	.53	.48	.45	.47
Misc. (including rent)	.43	.37	.45	.49	.49	.44	.44	.49	.49	.55
Total Operating Expenses	\$14.67	\$14.54	\$14.51	\$16.46	\$17.77	\$15.90	\$16.04	\$18.12	\$18.71	\$19.34
Less: Nonmilk cash receipts	1.70	1.96	1.94	1.75	1.57	1.89	1.62	2.11	2.47	2.23
Increase in grown feed & supplies	.17	.12	.22	.39	.66	-.04	.36	.17	0.34	0.29
Increase in livestock	.22	.21	.27	.30	.33	.34	.30	.18	0.17	0.10
OPERATING COST OF MILK PRODUCTION	\$12.58	\$12.25	\$12.08	\$14.02	\$15.21	\$13.71	\$13.76	\$15.66	\$15.73	\$16.72
<u>Overhead Expenses</u>										
Depreciation: machinery & buildings	\$1.32	\$1.32	\$1.26	\$1.32	\$1.38	\$1.28	\$1.32	\$1.38	\$1.43	\$1.49
Unpaid labor	.07	.06	.07	.07	.04	.05	.04	.04	.03	.04
Operator(s) labor ³⁵	.67	.61	.63	.65	.58	.54	.50	.53	.44	.41
Operator(s) management (5% of cash receipts)	.90	.90	.79	1.07	1.10	.80	.96	1.16	1.10	1.18
Interest on farm equity capital (5%)	.92	1.02	1.06	1.20	1.29	1.21	1.15	1.15	1.38	1.41
Total Overhead Expenses	\$3.88	\$3.91	\$3.81	\$4.31	\$4.39	\$3.88	\$3.97	\$4.26	\$4.38	+\$4.53
TOTAL COST OF MILK PRODUCTION	\$16.46	\$16.16	\$15.89	\$18.33	\$19.60	\$17.59	\$17.73	\$19.92	\$20.11	\$21.25
AVERAGE FARM PRICE OF MILK	\$16.64	\$15.98	\$13.85	\$20.34	\$19.24	\$13.88	\$17.81	\$21.67	\$19.77	\$21.65
Return per cwt. to operator labor, capital & mgmt.	\$2.67	\$2.35	\$0.44	\$4.93	\$2.61	\$-1.16	\$2.69	\$3.61	\$3.35	\$3.53
Rate of return on farm equity capital	6.0%	4.1%	-4.6%	13.4%	3.6%	-10.3%	5.2%	13.6%	6.5%	9.8%

³⁵2004 through 2006 = \$2,200/month, 2007 = \$2,300/month, 2008 = \$2,400/month, 2009 through 2011 = \$2,500/month, 2012 = \$2,600/month, and 2013 = \$2,600/month of operator labor.

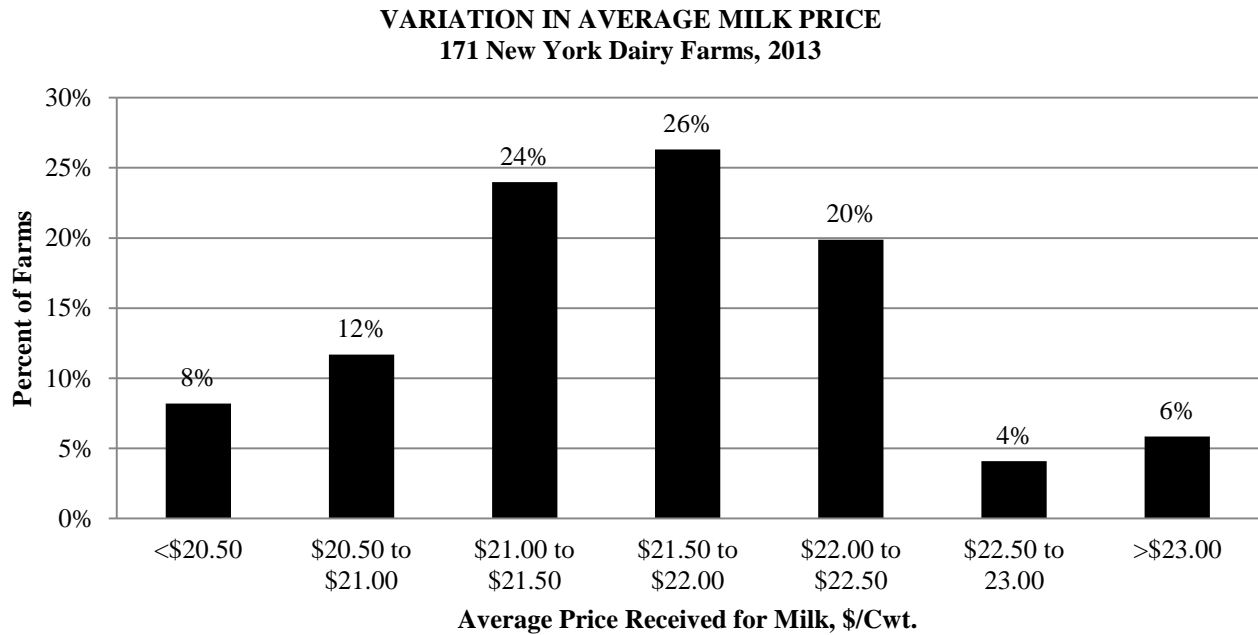
Table 34.

TEN YEAR COMPARISON: SELECTED BUSINESS FACTORS
New York Dairy Farms, 2004 to 2013

Item	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Number of farms	200	225	240	250	224	204	204	190	169	171
<u>Cropping Program</u>										
Total tillable acres	701	729	730	758	883	965	987	1,086	1,189	1,277
Tillable acres rented	345	365	360	385	446	482	493	519	554	603
Hay crop acres	339	361	366	364	421	464	469	477	530	565
Corn silage acres	245	246	249	258	297	348	340	405	488	504
Hay crop, tons DM/acre	3.5	3.2	3.2	3.0	3.5	3.3	3.5	3.4	3.0	3.5
Corn silage, tons/acre	17.7	18.8	18.4	18.9	19.9	18.7	19.6	16.6	16.9	18.0
Fertilizer & lime exp./tillable acre	\$31	\$33	\$30	\$40	\$49	\$42	\$43	\$50	\$66	\$71
Machinery cost/cow	\$565	\$624	\$618	\$708	\$800	\$660	\$712	\$839	\$864	\$918
<u>Dairy Analysis</u>										
Number of cows	334	340	350	358	414	469	489	531	609	650
Number of heifers	260	270	283	289	348	391	415	459	522	557
Milk sold, cwt.	73,767	78,250	80,862	82,315	99,884	113,555	119,782	130,898	154,730	166,004
Milk sold/cow, lbs.	22,070	22,998	23,083	22,983	24,115	24,208	24,508	24,648	25,401	25,532
Purchased dairy feed/cwt. milk	\$4.86	\$4.37	\$4.29	\$5.20	\$6.16	\$5.45	\$5.39	\$6.52	\$7.29	\$7.07
Purchased grain & concentrate as % of milk receipts	27%	26%	29%	24%	31%	38%	29%	29%	34%	32%
Purchased feed & crop exp/cwt.milk	\$5.60	\$5.12	\$5.02	\$6.13	\$7.23	\$6.41	\$6.32	\$7.62	\$8.52	\$8.87
<u>Capital Efficiency</u>										
Farm capital/cow	\$7,010	\$7,508	\$7,762	\$8,426	\$9,145	\$9,060	\$9,141	\$9,629	\$10,232	\$10,635
Real estate/cow	\$2,809	\$2,950	\$3,030	\$3,356	\$3,606	\$3,713	\$3,857	\$3,951	\$4,193	\$4,368
Machinery investment/cow	\$1,226	\$1,314	\$1,384	\$1,448	\$1,535	\$1,553	\$1,570	\$1,614	\$1,686	\$1,775
Asset turnover ratio	0.64	0.60	0.52	0.67	0.59	0.44	0.56	0.64	0.60	0.61
<u>Labor Efficiency</u>										
Worker equivalent	7.97	8.18	8.19	8.40	9.75	10.74	10.93	12.13	13.59	14.43
Operator/manager equivalent	1.64	1.60	1.63	1.62	1.72	1.83	1.82	1.88	2.01	2.01
Milk sold/worker, lbs.	925,553	956,698	987,530	980,234	1,024,799	1,057,063	1,095,897	1,079,423	1,138,769	1,150,279
Cows/worker	42	42	43	43	42	44	45	44	45	45
Labor cost/cow	\$752	\$765	\$757	\$784	\$823	\$794	\$771	\$818	\$810	\$823
Hired labor exp./hired worker equiv.	\$33,311	\$33,539	\$34,071	\$34,924	\$36,312	\$35,908	\$35,643	\$37,152	\$37,406	\$38,335
<u>Profitability & Financial Analysis</u>										
Labor & mgmt. income/operator	\$78,061	\$64,745	\$-31,269	\$189,019	\$75,945	\$-147,313	\$101,484	\$227,028	\$92,417	\$175,046
Farm net worth, end year	\$1,466,674	\$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
Percent equity	60%	63%	62%	68%	68%	62%	65%	70%	69%	68%

The average or mean price per hundredweight of milk sold is calculated by dividing gross milk receipts by total pounds of milk sold. The average price for the 171 farms was \$21.65 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.



Fifty percent of the farms received from \$21 to \$22 per hundredweight of milk sold. Thirty percent of the farms received \$22 or more and twenty percent received less than \$21 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
171 New York Dairy Farms, 2013

Item	Average 171 Farms		Average Top 10% Farms ³⁶	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	\$1,804	\$7.07	\$1,858	\$6.95
Purchased dairy roughage	<u>125</u>	<u>.49</u>	<u>150</u>	<u>.56</u>
Total Purchased Dairy Feed	\$1,930	\$7.56	\$2,008	\$7.51
Purchased grain & concentrate as % of milk receipts		32%		32%
Purchased feed & crop expense	\$2,264	\$8.87	\$2,312	\$8.64
Purchased feed & crop expense as % of milk receipts		41%		40%
Breeding	\$54	\$.21	\$41	\$.15
Veterinary & medicine	174	.68	165	.62
Milk marketing	220	.86	212	.79
Bedding	104	.41	107	.40
Milking Supplies	97	.38	88	.33
Cattle lease	4	.02	14	.05
Custom boarding	91	.36	115	.43
bST expense	42	.17	53	.20
Other livestock expense	41	.16	29	.10

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 youngstock. 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 0.86 animals in 2013).

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 \$8.00 reported below average profits in 2013. Farms reporting less than \$8.00 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 \$7.00 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).

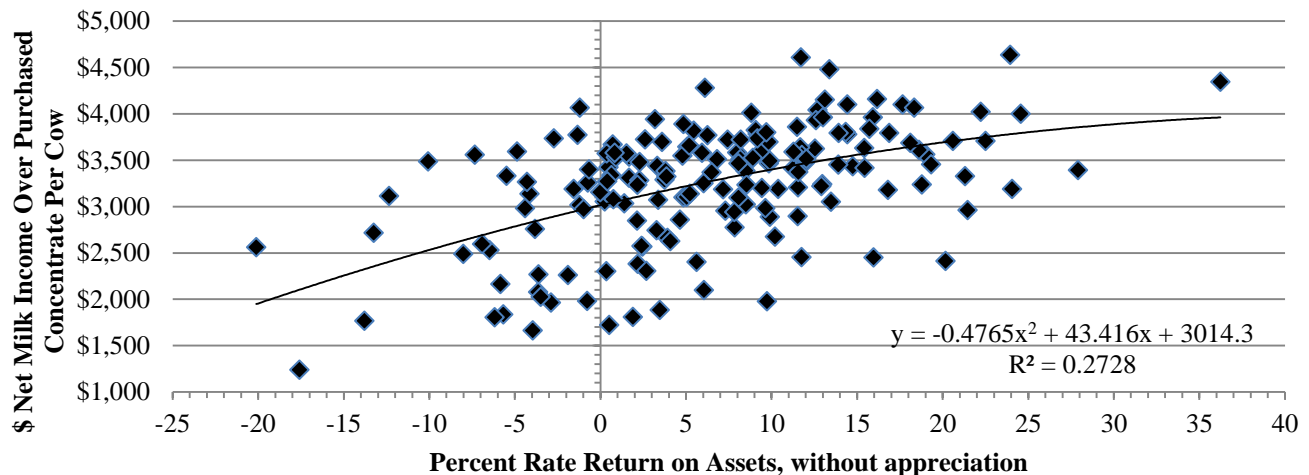
Table 36.

**PURCHASED FEED AND CROP EXPENSE PER HUNDREDWEIGHT
OF MILK AND FARM INCOME MEASURES
171 New York Dairy Farms, 2013**

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
\$9.00 or more	76	623	7.7	16,429	\$432,566	\$121,087	\$194
8.50 to 9.00	25	835	8.7	23,676	839,815	223,885	268
8.00 to 8.49	29	657	8.7	24,658	669,485	216,978	330
7.50 to 7.99	15	904	8.4	25,916	1,120,158	324,673	359
7.00 to 7.50	13	633	8.8	21,383	722,267	206,431	326
Less than 7.00	13	163	7.4	17,814	139,977	32,198	198

Chart 18.

**NET MILK INCOME OVER PURCHASED CONCENTRATE PER COW BY
RETURN ON ASSETS
171 New York Dairy Farms, 2013**



Milk Income and Marketing Expense Breakdown

Starting January 1st, 2000, 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, 131 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. MILC payments are not included as a milk receipt, but as a government receipt.

Table 37 reports the averages for the 131 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 131 New York Dairy Farms, 2013

	Pounds	Percent	Price/Pound	Total	\$/Cwt of Milk
BASE FARM PRICE					
Butterfat	732,450	3.77%	\$1.66	\$1,217,208	\$6.26
Protein	601,533	3.10%	\$3.30	\$1,982,716	\$10.20
Solids	1,130,487	5.82%	\$0.40	\$449,170	\$2.31
Total Component Contribution					\$18.78
PPD	19,433,797			\$278,333	\$1.43
Base Farm Price					\$20.21
Premiums					
Quality				\$59,055	\$0.30
Volume				\$54,293	\$0.28
Market Premiums				\$125,567	\$0.65
Total Premiums					\$1.23
BASE FARM PRICE + PREMIUM					\$21.44
Deductions					
Promotion				\$29,082	\$0.15
Hauling & Stop Charges.				\$127,623	\$0.66
Market Fees & Coop Dues				\$12,178	\$0.06
Total Deductions					\$0.87
BASE FARM PRICE + PREMIUMS – DEDUCTIONS					\$20.57
Marketing Programs					
Futures Contracts, Forward Contracting, Etc.				\$-3,620	\$-0.02
Total Marketing Income					\$-0.02
Patronage Dividends				\$47,277	\$0.24
NET PRICE RECEIVED ON FARM, ALL SOURCES					\$20.79
PPD – Hauling, per cwt.					\$0.78
PPD – Hauling + Market Premiums, per cwt.					\$1.42
Net Marketing Value, per cwt. (PPD + Total Premiums - Total Deductions)					\$1.79

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 131 farms is 754 cows.

Table 38.

MILK PRICE INFORMATION BY QUINTILE³⁸
(Each Category Sorted Independently)
131 New York Dairy Farms, 2013

	Lowest Quintile	←—————→	Highest Quintile		
Butterfat, %	3.62	3.72	3.78	3.86	4.09
Protein, %	2.98	3.06	3.10	3.15	3.25
Other Solids, %	5.67	5.73	5.75	5.78	5.87
Butterfat, \$ per Cwt.	5.78	6.21	6.31	6.43	6.80
Protein, \$ per Cwt.	9.38	10.07	10.24	10.39	10.78
Other solids, \$ per Cwt.	2.12	2.31	2.32	2.33	2.46
Total Component Value per Cwt.	\$17.55	\$18.61	\$18.82	\$19.07	\$19.86
PPD, \$ per Cwt.	1.08	1.26	1.37	1.53	1.93
Base Farm Price per Cwt.	\$18.81	\$19.96	\$20.30	\$20.63	\$21.38
Quality, \$ per Cwt.	0.07	0.20	0.28	0.37	0.55
Volume, \$ per Cwt.	0.00	0.03	0.18	0.35	0.60
Market premium, \$ per Cwt.	-0.01	0.23	0.46	0.80	1.12
Total Premium, \$ per Cwt.	0.41	0.83	1.06	1.33	1.60
Base Farm Price + Premiums per Cwt.	\$19.50	\$20.92	\$21.37	\$21.85	\$22.64
Promotion, \$ per Cwt.	0.15	0.15	0.15	0.15	0.15
Hauling, \$ per Cwt.	0.29	0.48	0.64	0.82	1.21
Market fees & coop dues per Cwt.	0.00	0.03	0.05	0.09	0.13
Total Marketing Expenses per Cwt.	\$0.47	\$0.69	\$0.85	\$1.05	\$1.43
Base + Premiums – Deductions per Cwt.	\$18.78	\$20.11	\$20.49	\$20.88	\$21.55
Futures contract, forward contracting, \$ per Cwt.	-0.07	0.00	0.00	0.00	0.01
Total Marketing Income, \$ per Cwt.	\$-0.07	\$0.00	\$0.00	\$0.00	\$0.01
Patronage Dividends, \$ per Cwt.	\$0.00	\$0.00	\$0.01	\$0.27	\$1.11
Net Price Received From All Sources, \$ per Cwt.	\$19.81	\$20.40	\$20.78	\$21.11	\$21.81
PPD - Hauling, \$ per cwt.	0.34	0.63	0.76	0.88	1.15
PPD - Hauling + Market Premiums, \$ per cwt.	0.58	0.99	1.27	1.58	1.93
Net Marketing Value, \$ per cwt. (PPD + Total Premiums - Total Deductions)	0.80	1.38	1.64	1.84	2.25

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				
171 New York Dairy Farms, 2013				
Item (Average for Year)	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
Farm capital	\$479,175	\$10,635	\$5,416	\$10,260
Real estate		\$4,368		\$4,213
Machinery & equipment	\$79,954	\$1,775	\$904	
Ratios				
Asset Turnover	Operating Expense	Interest Expense		Depreciation Expense
0.61	0.77	0.02		0.06
Average Top 10% Farms:³⁹				
Farm capital	\$505,077	\$9,855	\$5,488	\$9,681
Real estate		\$4,019		\$3,948
Machinery & equipment	\$66,085	\$1,289	\$718	
Ratios				
Asset Turnover	Operating Expense	Interest Expense		Depreciation Expense
0.70	0.71	0.01		0.05

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						
171 New York Dairy Farms, 2013						
Ratio	Number of Farms	Number of Cows	Farm Capital (average for year)		Labor & Management Income Per Operator	Net Farm Income (without appreciation)
			Per Cow	Per Worker		
≥ .70	37	917	\$8,546	\$391,459	\$261,216	\$740,368
.60 to .69	33	986	9,976	448,231	393,211	1,137,704
.50 to .59	48	577	11,376	462,061	106,917	503,597
Less than .50	53	321	13,906	497,991	24,366	229,934

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 171 farms in all measures of labor efficiency. The top 10 percent averaged six more cows per worker and sold 19 percent more milk per worker than the average of all farms.

Table 41.

LABOR EFFICIENCY				
171 New York Dairy Farms, 2013				
Labor Efficiency	Average Farms		Average Top 10% Farms ⁴¹	
	Total	Per Worker ⁴⁰	Total	Per Worker ⁴⁰
Cows, average number	650	45	1,164	51
Milk sold, pounds	16,600,444	1,150,279	31,127,626	1,370,959
Tillable acres	1,277	88	2,090	92

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 14.43 full-time worker equivalents per farm (based on 230 hours per month). Fifteen percent of the labor was supplied by the farm operator/managers. There were two operators on 63 farms, three on 32 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 \$1,491 per cow and \$5.57 per hundredweight on the 17 farms in the top decile.

Table 42.

**LABOR FORCE INVENTORY AND COST ANALYSIS
171 New York Dairy Farms, 2013**

Labor Force	Months ⁴²	Age	Years of Education	Value of Labor & Management	
Operator number 1	12.8	54	14	\$60,682	
Operator number 2	7.9	48	14	39,324	
Operator number 3	3.7	43	15	18,541	
Operator number 4	2.0	48	15	<u>9,562</u>	
Family paid	2.8			Total \$128,109	
Family unpaid	2.3				
Hired	<u>141.6</u>				
Total	173.2	÷ 12 =	14.43 Worker Equivalent		
			2.01 Operator/Manager Equivalent		
<u>Average Top 10% Farms:</u> ⁴³					
Total	272.5	÷ 12 =	22.71 Worker Equivalent		
Operators'			2.10 Operator/Manager Equivalent		
		Average 171 Farms		Average Top 10% Farms ⁴³	
Labor Costs	Total	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Value operators' labor (\$2,600/month)	\$68,017	\$105	\$0.41	\$60	\$0.23
Family unpaid (\$2,600/month)	5,987	9	0.04	2	0.01
Hired	<u>461,240</u>	<u>709</u>	<u>2.78</u>	<u>666</u>	<u>2.49</u>
Total Labor	\$535,244	\$823	\$3.22	\$729	\$2.72
Machinery Cost	<u>581,006</u>	<u>894</u>	<u>3.50</u>	<u>762</u>	<u>2.85</u>
Total Labor & Machinery	\$1,116,250	\$1,717	\$6.72	\$1,491	\$5.57
Hired labor expense per hired worker equivalent	\$38,335			\$38,049	
Hired labor expense as % of milk sales	12.8%			11.4%	

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 2013, increased labor efficiency did result in larger net farm incomes.

Table 43.

**MILK SOLD PER WORKER AND NET FARM INCOME
171 New York Dairy Farms, 2013**

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	19	75	16,557	\$23,235	\$-10,767
500,000 to 699,999	18	115	21,265	73,881	15,941
700,000 to 899,999	24	355	21,925	228,910	29,679
900,000 to 1,099,999	33	565	24,068	392,816	105,666
1,100,000 & over	77	1,046	26,049	1,052,843	321,854

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 171 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 171 New York Dairy Farms, 2013

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
39.9	1,976	52,254,852	28,620	5.3	24	64	1,544,121
26.0	1,187	31,161,995	27,342	4.5	21	53	1,298,023
20.9	968	25,221,350	26,638	4.1	20	49	1,211,659
17.6	764	19,848,109	26,051	3.7	19	46	1,154,144
14.1	614	15,011,729	25,370	3.4	18	44	1,092,286
10.5	438	10,936,395	24,516	3.1	17	41	1,006,486
6.8	284	6,492,159	23,399	2.8	16	38	883,376
4.4	162	3,307,891	21,767	2.4	15	34	759,105
2.9	94	1,828,527	18,508	2.0	12	28	592,477
1.9	52	866,932	13,668	0.7	1	22	385,315
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		
\$774	21%	\$495	\$1,118	\$1,040	\$6.20		
1,215	27	683	1,445	1,588	7.48		
1,385	28	762	1,561	1,823	8.06		
1,558	30	826	1,664	1,976	8.31		
1,645	32	894	1,719	2,106	8.68		
1,748	33	952	1,800	2,202	9.02		
1,854	34	1,000	1,902	2,325	9.33		
1,944	36	1,079	2,032	2,430	9.68		
2,067	38	1,170	2,181	2,564	10.08		
2,287	41	1,419	2,577	2,818	11.63		

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 66-70.

Table 44. (continued)

**FARM BUSINESS CHART FOR
FARM MANAGEMENT COOPERATORS
171 New York Dairy Farms, 2013**

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.
\$6,223	\$23.52	\$2,159	\$13.06	\$3,399	\$17.86
5,991	22.38	3,071	14.31	4,330	18.88
5,767	22.10	3,470	14.93	4,667	19.58
5,609	21.89	3,688	15.53	4,913	20.09
5,459	21.70	3,940	16.31	5,051	20.73
5,260	21.51	4,124	17.06	5,192	21.42
4,995	21.31	4,290	17.67	5,382	22.44
4,661	21.11	4,557	18.42	5,568	23.48
4,066	20.83	4,803	19.33	5,902	24.77
2,972	20.27	5,289	21.14	6,317	30.55

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
\$2,293,718	\$1,662	0.27	\$2,875,086	\$2,196	\$1,658,986	\$807,659
1,323,231	1,409	0.22	1,537,847	1,751	874,557	426,977
871,401	1,179	0.20	1,049,392	1,469	561,397	262,451
588,780	1,013	0.18	778,316	1,276	361,202	171,348
373,730	852	0.15	523,504	1,081	177,429	97,301
237,277	691	0.12	328,362	894	86,913	46,707
156,234	547	0.10	208,401	704	28,456	19,016
92,959	411	0.07	115,544	559	-1,382	-132
36,993	243	0.05	51,507	380	-36,812	-21,191
-14,804	-81	-0.03	-5,596	-3	-162,083	-94,885

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 171 New York Dairy Farms, 2013

	Average 171 farms		Average Top 10% Farms ⁴⁴	
<u>How farm assets are being used (average for the year):</u>				
Total assets (capital) per cow	\$10,635		\$9,855	
Farm assets in livestock	21%		23%	
Farm assets in farm real estate	41%		41%	
Farm assets in machinery	17%		13%	
<u>Measures of debt capacity & debt structure:</u>				
Equity in the business	68%		72%	
Farm debt per cow	\$3,478		\$2,835	
Long term debt/asset ratio ⁴⁵	0.29		0.23	
Intermediate & current term debt/asset ratio ⁴⁵	0.33		0.31	
Intermediate & current term debt as % of total debt	62%		67%	
<u>Debt repayment ability:</u> ⁴⁶				
Cash flow coverage ratio	1.46		2.06	
Debt coverage ratio	2.01		3.35	
Debt payments made per cow	\$609		\$518	
Debt payments made as % of milk receipts	11%		9%	
<u>Indicators of annual financial progress:</u>				
	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>
Annual change in farm assets	+\$564,976	+8.5%	+\$1,447,627	+13.5%
Annual change in farm debt	+\$ 63,007	+2.8%	-\$ 199,497	- 5.6%
Annual change in farm net worth	+\$501,969	+11.4%	+\$1,647,124	+23.0%

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 153 farms that participated in DFBS both in 2012 and 2013. sixteen top 10 percent farms that participated both years.

The most profitable farms carried \$643 less debt per cow, the average equity in their businesses was 4 percent higher than that of the average of all 171 farms, and they had a greater ability to make 2014 debt payments when measured by cash flow coverage ratio and debt coverage ratio. Because, 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 almost 6 percentage points faster than debt during 2013 on the 171 dairy farms. Average farm net worth increased 11 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
171 New York Dairy Farms, 2013

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
\$ 53	\$1,585	9.83	12.79	0%	\$ 260	62%	91.19
222	1,243	3.26	3.76	2	1,348	40	7.09
366	1,038	2.19	2.77	4	2,070	33	4.70
456	927	1.73	2.22	7	2,607	28	3.29
549	789	1.50	1.72	9	3,074	24	2.77

641	661	1.23	1.38	10	3,514	20	2.40
730	521	0.98	1.06	11	3,972	16	1.97
852	418	0.76	0.82	14	4,428	10	1.47
1,086	204	0.48	0.38	16	5,196	5	1.13
1,917	-448	-1.71	-0.72	21	6,854	-8	0.61
Solvency				Operational Ratios			
Leverage Ratio ⁴⁷	Percent Equity	Debt/Asset Ratio		Operating Expense Ratio	Interest Expense Ratio	Depreciation Expense Ratio	
		Current & Intermediate	Long Term				
0.02	98%	0.02	0.00	0.65	0.00	0.03	
0.13	89	0.09	0.00	0.70	0.01	0.04	
0.23	82	0.15	0.06	0.72	0.01	0.04	
0.32	76	0.23	0.15	0.74	0.01	0.05	
0.39	72	0.27	0.25	0.76	0.02	0.06	

0.49	68	0.32	0.34	0.79	0.02	0.06	
0.62	62	0.38	0.40	0.81	0.03	0.07	
0.76	57	0.42	0.47	0.84	0.03	0.08	
0.87	54	0.50	0.56	0.88	0.04	0.09	
1.61	41	0.67	0.81	0.94	0.06	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	
0.88	\$2,155	\$755	\$6,982	\$2,009,009	29%	19%	
0.73	2,989	1,109	8,484	1,003,640	20	14	
0.67	3,498	1,373	9,154	681,182	17	12	
0.62	3,913	1,629	9,860	440,826	14	10	
0.58	4,276	1,858	10,660	247,080	11	8	

0.55	4,774	2,013	11,257	131,971	8	6	
0.52	5,265	2,259	11,917	79,692	5	5	
0.46	5,806	2,473	12,832	18,703	2	3	
0.39	6,721	2,865	14,119	-5,034	-1	1	
0.28	9,762	4,363	17,767	-366,287	-10	-4	

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 171 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 54. 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 2013. Net farm income without appreciation averaged \$25,437 per farm for the less than 60 cow farms and \$1,351,681 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 \$975 net farm income per cow while 60 cows or less dairy farms averaged \$546 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 \$436. 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 171 New York Dairy Farms, 2013

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	14	47	\$25,437	\$546	-\$4,387	-2.8%
60 to 99	13	77	33,375	436	-3,064	-1.6%
100 to 199	24	143	109,301	765	27,325	3.6%
200 to 399	22	298	196,971	662	40,614	4.4%
400 to 599	20	491	369,321	752	89,300	5.8%
600 to 899	28	729	663,587	911	153,648	7.2%
900 & over	50	1,387	1,351,681	975	360,155	9.1%

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 26,225 pounds of milk sold per cow, farms in the largest herd size group averaged 7.5 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. None of the 27 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 17 percent of the herds milking more often than two times per day, the 200-399 cow herds reported 59 percent, 400-599 cow herds reported 70 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 69, which can be found on page 78.

Table 48.

COWS PER FARM AND RELATED FARM FACTORS
171 New York Dairy Farms, 2013

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	17,097	3,814	4.1	8.0	\$15,036	\$16.13	\$28.08
60 to 99	77	18,515	5,124	3.6	8.5	11,183	17.89	25.36
100 to 199	143	21,456	7,489	2.7	9.2	12,010	16.42	22.22
200 to 399	298	23,701	8,955	2.3	9.0	11,093	17.07	21.74
400 to 599	491	25,195	10,783	2.1	8.0	10,299	16.94	21.04
600 to 899	729	25,228	11,223	2.1	8.2	11,148	16.60	20.52
900 & over	1,387	26,225	12,599	1.9	8.3	10,371	16.50	19.85

Milk output per worker has always shown a strong correlation with herd size. The farms with 100 cows or more averaged over 1,169,058 pounds of milk sold per worker while the farms with less than 100 cows averaged less than 452,000 pounds per worker.

In achieving the highest productivity per cow and per worker, the largest farms had the fewest crop acres per cow. The 400 to 599 herd size group had the more efficient use of farm capital with an average investment of \$10,299 per cow.

The 50 farms with 900 or more cows had the lowest total cost of producing milk at \$19.85 per hundredweight. This is \$1.28 below the \$21.13 average for the remaining 121 dairy farms.

Tables 49 through 51 show progress of the farm businesses that have participated in DFBS in each of the last five years for three herd size groups.

A detailed list of accrual expenses, receipts and a profitability analysis is presented in Table 52, on pages 53 and 54 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 53 on pages 55-58. All herd size categories saw an increase in net worth during 2013. The largest herd size category experienced an increase in net worth of \$924,421. However, percent equity varied as herd size increased. The 900 and over herd size category had the lowest percent equity at 66 percent; while the less than 60 and 60 to 99 herd size categories averaged the highest percent equity at 77 percent.

Selected business factors by herd size group are presented in Table 54 on pages 59 and 60. 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, 2013. For analysis of smaller herds, see Dairy Farm Business Summary, New York Small Herd Farms, 120 Cows or Fewer, 2013. 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 16 New York Dairy Farms, 2009 - 2013

Selected Factors	2009	2010	2011	2012	2013
Milk receipts per cwt. milk	\$13.63	\$17.73	\$21.44	\$19.98	\$21.75
<u>Size of Business</u>					
Average number of cows	63	64	64	62	59
Average number of heifers	51	51	50	50	46
Milk sold, cwt.	12,648	12,747	12,588	11,687	11,541
Worker equivalent	2.26	2.16	2.16	2.19	2.29
Total tillable acres	179	182	185	192	199
<u>Rates of Production</u>					
Milk sold per cow, lbs.	19,978	20,055	19,669	18,887	19,498
Hay DM per acre, tons	2.5	2.4	2.7	2.0	2.0
Corn silage per acre, tons	17	18	15	16	16
<u>Labor Efficiency</u>					
Cows per worker	28	29	30	28	26
Milk sold per worker, lbs.	560,053	589,679	583,460	534,891	504,509
<u>Cost Control</u>					
Grain & concn. purchased as % of milk sales	37%	29%	29%	34%	27%
Dairy feed & crop expense per cwt. milk	\$6.88	\$6.98	\$8.31	\$9.23	\$8.30
Operating cost of producing cwt. milk	\$12.78	\$14.23	\$16.17	\$16.11	\$16.17
Total cost of producing cwt. milk	\$20.39	\$21.63	\$24.06	\$24.90	\$24.95
Hired labor cost per cwt.	\$0.95	\$1.24	\$1.17	\$1.20	\$1.28
Interest paid per cwt.	\$0.64	\$0.77	\$0.76	\$0.74	\$0.72
Labor & machinery costs per cow	\$1,710	\$1,762	\$1,851	\$1,966	\$2,073
Total Replacement livestock expense	\$381	\$1,729	\$1,297	\$3,554	\$4,608
Total Expansion livestock expense	\$75	\$0	\$128	\$0	\$0
<u>Capital Efficiency</u>					
Farm capital per cow	\$10,616	\$10,949	\$11,359	\$12,051	\$13,418
Machinery & equipment per cow	\$2,330	\$2,363	\$2,449	\$2,540	\$2,654
Real estate per cow	\$4,755	\$5,034	\$5,303	\$5,756	\$6,735
Livestock investment per cow	\$2,269	\$2,240	\$2,216	\$2,198	\$2,259
Asset turnover ratio	0.32	0.36	0.43	0.42	0.38
<u>Profitability</u>					
Net farm income without appreciation	-\$6,643	\$27,316	\$45,436	\$23,334	\$44,935
Net farm income with appreciation	-\$1,588	\$30,755	\$61,150	\$58,217	\$59,954
Labor & management income per operator/manager	\$-33,218	\$-5,777	\$5,788	\$-14,093	\$5,662
Rate return on:					
Equity capital with appreciation	-11.2%	-4.2%	1.8%	0.9%	1.4%
All capital with appreciation	-7.1%	-1.6%	2.6%	1.8%	2.1%
All capital without appreciation	-7.8%	-2.1%	0.5%	-2.9%	0.2%
<u>Financial Summary, End Year</u>					
Farm net worth	\$491,675	\$515,773	\$549,910	\$572,909	\$624,334
Change in net worth with appreciation	-\$7,135	\$24,845	\$26,884	\$43,441	\$39,471
Debt to asset ratio	0.28	0.27	0.26	0.25	0.23
Farm debt per cow	\$2,935	\$3,011	\$2,990	\$3,242	\$3,153

Table 50.

PROGRESS OF FARM BUSINESSES WITH 110-499 COWS
Same 39 New York Dairy Farms, 2009 - 2013

Selected Factors	2009	2010	2011	2012	2013
Milk receipts per cwt. milk	\$13.82	\$17.78	\$21.78	\$19.80	\$21.71
<u>Size of Business</u>					
Average number of cows	245	258	263	268	269
Average number of heifers	198	210	219	219	212
Milk sold, cwt.	56,220	60,195	60,824	63,504	65,147
Worker equivalent	6.26	6.29	6.55	6.82	7.04
Total tillable acres	538	540	556	586	600
<u>Rates of Production</u>					
Milk sold per cow, lbs.	22,904	23,303	23,102	23,680	24,232
Hay DM per acre, tons	3.1	3.3	3.3	2.5	3.3
Corn silage per acre, tons	17	19	16	17	18
<u>Labor Efficiency</u>					
Cows per worker	39	41	40	39	38
Milk sold per worker, lbs.	898,560	957,501	928,604	931,600	924,841
<u>Cost Control</u>					
Grain & concn. purchased as % of milk sales	37%	27%	27%	34%	33%
Dairy feed & crop expense per cwt. milk	\$6.59	\$6.15	\$7.40	\$8.54	\$8.85
Operating cost of producing cwt. milk	\$13.16	\$13.57	\$15.58	\$15.84	\$16.58
Total cost of producing cwt. milk	\$17.04	\$17.33	\$19.77	\$20.25	\$21.23
Hired labor cost per cwt.	\$2.46	\$2.30	\$2.48	\$2.51	\$2.60
Interest paid per cwt.	\$0.50	\$0.52	\$0.48	\$0.46	\$0.47
Labor & machinery costs per cow	\$1,487	\$1,502	\$1,684	\$1,783	\$1,878
Total Replacement livestock expense	\$9,796	\$12,479	\$15,111	\$13,729	\$16,067
Total Expansion livestock expense	\$2,482	\$12,290	\$1,244	\$4,463	\$6,113
<u>Capital Efficiency</u>					
Farm capital per cow	\$8,722	\$8,824	\$9,433	\$10,117	\$10,866
Machinery & equipment per cow	\$1,648	\$1,698	\$1,816	\$2,014	\$2,210
Real estate per cow	\$3,427	\$3,588	\$3,769	\$4,056	\$4,455
Livestock investment per cow	\$2,121	\$2,008	\$2,052	\$2,054	\$2,066
Asset turnover ratio	0.43	0.57	0.62	0.56	0.57
<u>Profitability</u>					
Net farm income without appreciation	\$-32,606	\$180,102	\$290,280	\$149,377	\$219,471
Net farm income with appreciation	\$-53,200	\$244,764	\$356,946	\$214,802	\$279,442
Labor & management income per operator/manager	\$-64,703	\$59,651	\$114,778	\$27,433	\$64,459
Rate return on:					
Equity capital with appreciation	-8.8%	11.1%	16.0%	6.9%	9.3%
All capital with appreciation	-4.7%	8.7%	12.3%	6.0%	7.7%
All capital without appreciation	-3.8%	5.9%	9.6%	3.6%	5.7%
<u>Financial Summary, End Year</u>					
Farm net worth	\$1,400,460	\$1,585,570	\$1,860,749	\$1,995,113	\$2,183,981
Change in net worth with appreciation	\$-117,965	\$163,733	\$275,198	\$117,370	\$177,893
Debt to asset ratio	0.34	0.33	0.28	0.29	0.27
Farm debt per cow	\$2,977	\$2,994	\$2,777	\$3,092	\$3,071

Table 51.

PROGRESS OF FARM BUSINESSES WITH MORE THAN 500 COWS
Same 72 New York Dairy Farms, 2009 - 2013

Selected Factors	2009	2010	2011	2012	2013
Milk receipts per cwt. milk	\$13.90	\$17.83	\$21.67	\$19.79	\$21.66
<u>Size of Business</u>					
Average number of cows	913	971	1,006	1,047	1,092
Average number of heifers	791	836	873	904	943
Milk sold, cwt.	229,256	245,971	256,085	273,364	287,335
Worker equivalent	19.91	20.64	21.44	22.79	23.43
Total tillable acres	1,783	1,860	1,915	2,009	2,073
<u>Rates of Production</u>					
Milk sold per cow, lbs.	25,104	25,321	25,466	26,107	26,313
Hay DM per acre, tons	3.7	3.8	3.6	3.1	3.7
Corn silage per acre, tons	19	20	17	17	18
<u>Labor Efficiency</u>					
Cows per worker	46	47	47	46	47
Milk sold per worker, lbs.	1,151,509	1,191,672	1,194,379	1,199,447	1,226,398
<u>Cost Control</u>					
Grain & concn. purchased as % of milk sales	37%	28%	28%	34%	33%
Dairy feed & crop expense per cwt. milk	\$6.36	\$6.21	\$7.54	\$8.45	\$8.87
Operating cost of producing cwt. milk	\$13.53	\$13.49	\$15.45	\$15.73	\$16.57
Total cost of producing cwt. milk	\$16.58	\$16.46	\$18.74	\$19.15	\$20.17
Hired labor cost per cwt.	\$2.75	\$2.69	\$2.81	\$2.81	\$2.85
Interest paid per cwt.	\$0.48	\$0.50	\$0.45	\$0.43	\$0.45
Labor & machinery costs per cow	\$1,426	\$1,453	\$1,614	\$1,673	\$1,738
Total Replacement livestock expense	\$9,533	\$9,470	\$22,056	\$7,057	\$14,594
Total Expansion livestock expense	\$39,279	\$26,050	\$12,668	\$46,766	\$23,513
<u>Capital Efficiency</u>					
Farm capital per cow	\$8,951	\$8,796	\$9,450	\$10,195	\$10,739
Machinery & equipment per cow	\$1,537	\$1,488	\$1,569	\$1,681	\$1,795
Real estate per cow	\$3,534	\$3,552	\$3,775	\$4,120	\$4,387
Livestock investment per cow	\$2,257	\$2,184	\$2,217	\$2,220	\$2,229
Asset turnover ratio	0.46	0.60	0.68	0.61	0.62
<u>Profitability</u>					
Net farm income without appreciation	\$-206,231	\$746,857	\$1,236,925	\$716,894	\$1,023,640
Net farm income with appreciation	\$-157,526	\$923,589	\$1,488,853	\$1,024,898	\$1,275,359
Labor & management income per operator/manager	\$-209,750	\$217,678	\$395,447	\$144,676	\$253,298
Rate return on:					
Equity capital with appreciation	-5.7%	14.2%	20.7%	11.5%	13.5%
All capital with appreciation	-2.3%	10.5%	15.2%	9.0%	10.3%
All capital without appreciation	-2.9%	8.4%	12.5%	6.2%	8.2%
<u>Financial Summary, End Year</u>					
Farm net worth	\$5,081,165	\$5,772,703	\$6,994,135	\$7,656,086	\$8,341,763
Change in net worth with appreciation	\$-419,088	\$672,596	\$1,167,972	\$583,475	\$648,303
Debt to asset ratio	0.38	0.35	0.31	0.32	0.32
Farm debt per cow	\$3,312	\$3,110	\$3,024	\$3,324	\$3,501

Table 52.

FARM BUSINESS SUMMARY BY HERD SIZE
171 New York Dairy Farms, 2013

Item	Farm Size:	Less than 60 Cows	60 to 99 Cows	100 to 199 Cows	200 to 399 Cows
Number of farms		14	13	24	22
<u>ACCRUAL EXPENSES</u>					
Hired labor		\$8,915	\$21,736	\$59,673	\$190,007
Dairy grain & concentrate		48,569	91,419	213,667	517,414
Dairy roughage		6,810	6,421	3,573	36,557
Nondairy feed		0	0	2	467
Professional nutritional services		0	0	30	6
Machine hire, rent & lease		1,464	9,592	19,769	50,474
Machine repairs & farm vehicle expense		11,398	19,964	32,841	75,546
Fuel, oil & grease		8,808	14,352	33,044	66,845
Replacement livestock		2,930	7,670	4,197	12,236
Breeding		2,670	4,579	8,294	15,531
Veterinary & medicine		3,667	6,973	18,568	42,826
Milk marketing		10,270	13,759	30,029	57,247
Bedding		1,646	3,357	11,048	28,424
Milking supplies		5,049	8,232	13,804	33,643
Cattle lease & rent		0	0	1,640	0
Custom boarding		0	1,036	746	6,306
bST expense		288	490	1,993	3,530
Livestock professional fees		1,854	1,425	3,237	3,749
Other livestock expense		1,058	4,243	7,656	8,500
Fertilizer & lime		4,158	12,366	24,039	47,210
Seeds & plants		2,398	6,542	16,628	33,820
Spray & other crop expense		1,876	2,564	11,438	14,174
Crop professional fees		0	135	555	3,043
Land, building & fence repair		2,560	4,287	10,888	11,404
Taxes & rent		7,236	13,463	21,339	44,049
Utilities		6,199	11,652	15,268	34,376
Interest paid		6,411	8,700	16,801	40,083
Other professional fees		1,417	2,715	2,949	8,518
Misc. (including insurance)		<u>5,030</u>	<u>7,997</u>	<u>11,547</u>	<u>21,320</u>
Total Operating Expenses		\$152,678	\$285,670	\$595,263	\$1,407,302
Expansion livestock		0	0	525	3,656
Extraordinary expense		391	0	4,157	469
Machinery depreciation		12,945	13,932	35,979	85,511
Building depreciation		<u>3,828</u>	<u>3,221</u>	<u>10,182</u>	<u>35,985</u>
Total Accrual Expenses		\$169,842	\$302,822	\$646,107	\$1,532,923
<u>ACCRUAL RECEIPTS</u>					
Milk sales		\$171,015	\$304,093	\$663,052	\$1,523,218
Dairy cattle		10,565	13,055	43,422	91,242
Dairy calves		344	2,271	4,381	11,260
Other livestock		2,537	105	1,206	3,879
Crops		-217	1,041	18,872	39,809
Miscellaneous receipts		<u>11,035</u>	<u>15,631</u>	<u>24,474</u>	<u>60,466</u>
Total Accrual Receipts		\$195,278	\$336,197	\$755,408	\$1,729,873
<u>PROFITABILITY ANALYSIS</u>					
Net farm income (without appreciation)		\$25,437	\$33,375	\$109,301	\$196,950
Net farm income (with appreciation)		\$47,511	\$47,720	\$120,427	\$279,133
Labor & management income		\$-5,440	\$-4,657	\$38,255	\$80,010
Number of operators		1.24	1.52	1.40	1.97
Labor & management income/operator		\$-4,387	\$-3,064	\$27,325	\$40,614
Rates of return on: Equity capital w/o apprec.		-4.8%	-3.3%	3.5%	4.5%
Equity capital with appreciation		-0.7%	-1.2%	4.3%	8.1%
All capital without appreciation		-2.8%	-1.6%	3.6%	4.4%
All capital with appreciation		0.4%	0.1%	4.2%	6.8%

*May not add due to rounding.

Table 52. (continued)

FARM BUSINESS SUMMARY BY HERD SIZE
171 New York Dairy Farms, 2013

Item	Farm Size:	400 to 599 Cows	600 to 899 Cows	900 or More Cows
Number of farms		20	28	50
<u>ACCRUAL EXPENSES</u>				
Hired labor		\$337,865	\$494,912	\$1,044,750
Dairy grain & concentrate		862,913	1,313,006	2,564,041
Dairy roughage		89,809	63,975	185,413
Nondairy feed		13	9	0
Professional nutritional services		364	813	2,129
Machine hire, rent & lease		97,701	103,843	104,930
Machine repairs & farm vehicle expense		109,724	178,604	356,079
Fuel, oil & grease		100,284	155,567	299,006
Replacement livestock		15,779	5,098	21,218
Breeding		29,055	40,988	71,827
Veterinary & medicine		81,681	128,864	250,755
Milk marketing		109,023	158,765	310,384
Bedding		50,071	82,123	145,067
Milking supplies		41,448	66,635	136,868
Cattle lease & rent		0	2,154	7,895
Custom boarding		53,803	79,238	133,621
bST expense		15,101	25,093	71,197
Livestock professional services		10,651	10,688	29,592
Other livestock expense		6,669	12,486	28,417
Fertilizer & lime		77,070	118,463	191,156
Seeds & plants		55,643	92,387	172,775
Spray & other crop expense		33,027	43,555	77,016
Crop professional fees		4,051	9,745	10,209
Land, building & fence repair		41,207	64,468	136,579
Taxes & rent		69,645	95,860	183,668
Utilities		48,157	68,538	143,333
Interest paid		45,702	88,479	170,395
Other professional fees		16,049	19,444	44,419
Misc. (including insurance)		39,345	53,244	98,442
Total Operating Expenses		\$2,441,850	\$3,577,044	\$6,991,179
Expansion livestock		13,468	6,404	43,589
Extraordinary expense		4,111	33	0
Machinery depreciation		115,668	165,045	317,539
Building depreciation		81,815	106,920	210,180
Total Accrual Expenses		\$2,656,911	\$3,855,446	\$7,562,487
<u>ACCRUAL RECEIPTS</u>				
Milk sales		\$2,667,948	\$3,987,077	\$7,878,898
Dairy cattle		199,937	264,888	562,915
Dairy calves		15,204	40,711	57,434
Other livestock		8,188	19,620	7,804
Crops		43,680	63,809	191,031
Misc. receipts		91,275	142,928	216,087
Total Accrual Receipts		\$3,026,232	\$4,519,033	\$8,914,168
<u>PROFITABILITY ANALYSIS</u>				
Net farm income (without appreciation)		\$369,321	\$663,587	\$1,351,681
Net farm income (with appreciation)		\$496,351	\$853,625	\$1,654,188
Labor & management income		\$181,278	\$365,683	\$875,177
Number of operators		2.03	2.38	2.43
Labor & management income/operator		\$89,300	\$153,648	\$360,155
Rates of return on: Equity capital w/o apprec.		6.7%	8.8%	12.0%
Equity capital with appreciation		10.2%	12.2%	15.1%
All capital without appreciation		5.8%	7.2%	9.1%
All capital with appreciation		8.3%	9.5%	11.2%

*May not add due to rounding.

Table 53.

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
171 New York Dairy Farms, 2013

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	\$ 7,043	\$ 10,022	\$ 7,286	\$ 4,451
Accounts receivable	10,807	13,977	26,848	31,807
Prepaid expenses	0	0	516	0
Feed & supplies	43,010	41,712	83,114	82,062
Livestock ⁴⁹	100,526	104,201	166,725	169,113
Machinery & equipment ⁴⁹	146,849	140,153	176,233	191,418
Farm Credit stock	286	286	1,054	977
Other stock & certificates	5,689	5,791	12,282	13,092
Land & buildings ⁴⁹	<u>371,494</u>	<u>398,566</u>	<u>363,476</u>	<u>381,483</u>
Total Farm Assets	\$685,703	\$714,707	\$837,534	\$ 874,403
Nonfarm Assets ⁵⁰	<u>\$188,824</u>	<u>\$209,266</u>	<u>\$134,841</u>	<u>\$ 157,029</u>
Farm & Nonfarm Assets	\$874,527	\$923,973	\$972,375	\$1,031,432
LIABILITIES (excluding deferred taxes)				
Accounts payable	\$18,456	\$11,710	\$16,045	\$12,641
Operating debt	1,976	662	5,575	7,533
Short term	1,090	729	3,451	6,139
Advanced government receipt	0	0	0	0
Current Portion:				
Intermediate	8,186	10,469	12,462	17,828
Long Term	4,475	6,722	1,899	3,979
Intermediate ⁵¹	55,937	34,475	174,482	101,718
Long term ⁴⁹	<u>75,837</u>	<u>99,876</u>	<u>26,773</u>	<u>54,020</u>
Total Farm Liabilities	\$165,958	\$164,643	\$240,686	\$203,858
Nonfarm Liabilities ⁵⁰	<u>2,506</u>	<u>250</u>	<u>17,271</u>	<u>16,440</u>
Farm & Nonfarm Liabilities	\$168,464	\$164,893	\$257,957	\$220,298
Farm Net Worth (Equity Capital)	\$519,746	\$550,065	\$596,848	\$670,546
Farm & Nonfarm Net Worth	\$706,064	\$759,081	\$714,417	\$811,135
FINANCIAL MEASURES				
	<u>Less than 60 Cows</u>		<u>60 to 99 Cows</u>	
Percent Equity	77%		77%	
Debt/asset ratio-long term	0.25		0.14	
Debt/asset ratio-intermediate & current	0.20		0.30	
Debt/asset ratio-total	0.23		0.23	
Leverage ratio	0.30		0.30	
Current ratio	2.17		2.46	
Working capital as % of total expenses	21%		23%	
Accounts payable as % of total debt	7%		6%	
Long-term debt as % of total debt	61%		26%	
Cost of term debt (weighted average)	2.50%		3.46%	
Change in net worth with appreciation	\$24,781		\$11,816	
Total farm debt per cow	\$3,476		\$2,632	
Debt payments made per cow	\$981		\$997	
Debt payments as % of milk sales	26%		24%	
Amount available for debt service	\$12,631		\$26,599	
Cash flow coverage ratio for 2013	0.54		0.87	
Debt coverage ratio for 2013	0.99		1.11	

⁴⁹Includes discounted lease payments.⁵⁰Average of farms reporting nonfarm assets and liabilities for 2013.⁵¹Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 53. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
171 New York Dairy Farms, 2013

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	\$ 21,828	\$ 18,982	\$ 28,495	\$ 28,034
Accounts receivable	54,073	55,601	140,352	131,308
Prepaid expenses	1,005	560	159	1,485
Feed & supplies	163,531	180,074	338,708	348,521
Livestock ⁵²	314,461	315,778	608,461	625,659
Machinery & equipment ⁵²	318,100	331,379	651,534	721,613
Farm Credit stock	650	604	682	682
Other stock & certificates	52,193	56,707	95,938	105,604
Land & buildings ⁵²	<u>736,375</u>	<u>810,151</u>	<u>1,342,108</u>	<u>1,434,871</u>
Total Farm Assets	\$1,662,214	\$1,769,835	\$3,206,436	\$3,397,778
Nonfarm Assets ⁵³	<u>52,635</u>	<u>56,066</u>	<u>1,353,213</u>	<u>1,354,779</u>
Farm & Nonfarm Assets	\$1,714,849	\$1,825,901	\$4,559,649	\$4,752,557
LIABILITIES (excluding deferred taxes)				
Accounts payable	\$20,108	\$16,256	\$68,036	\$63,252
Operating debt	20,089	17,620	72,391	67,884
Short term	2,006	1,081	5,230	527
Advanced government receipt	0	0	0	0
Current Portion:				
Intermediate	32,447	36,139	81,858	93,014
Long Term	11,043	12,933	21,901	28,065
Intermediate ⁵⁴	165,822	140,232	385,266	300,277
Long term ⁵²	<u>183,126</u>	<u>223,383</u>	<u>432,356</u>	<u>464,900</u>
Total Farm Liabilities	\$434,640	\$447,644	\$1,067,038	\$1,017,919
Nonfarm Liabilities ⁵³	<u>3,237</u>	<u>2,574</u>	<u>13,551</u>	<u>12,263</u>
Farm & Nonfarm Liabilities	\$437,877	\$450,218	\$1,080,589	\$1,030,182
Farm Net Worth (Equity Capital)	\$1,227,574	\$1,322,192	\$2,139,398	\$2,379,859
Farm & Nonfarm Net Worth	\$1,276,971	\$1,375,684	\$3,479,059	\$3,722,375
FINANCIAL MEASURES				
	<u>100 to 199 Cows</u>		<u>200 to 399 Cows</u>	
Percent equity	75%		70%	
Debt/asset ratio-long term	0.28		0.32	
Debt/asset ratio-intermediate & current	0.23		0.28	
Debt/asset ratio-total	0.25		0.30	
Leverage ratio	0.34		0.43	
Current ratio	3.04		2.02	
Working capital as % of total expenses	26%		17%	
Accounts payable as % of total debt	4%		6%	
Long-term debt as % of total debt	50%		46%	
Cost of term debt (weighted average)	4.21%		4.09%	
Change in net worth with appreciation	\$71,593		\$180,889	
Total farm debt per cow	\$3,159		\$3,611	
Debt payments made per cow	\$680		\$613	
Debt payments as % of milk sales	15%		12%	
Amount available for debt service	\$99,422		\$277,320	
Cash flow coverage ratio for 2013	1.47		1.47	
Debt coverage ratio for 2013	1.67		1.48	

⁵²Includes discounted lease payments.⁵³Average of farms reporting nonfarm assets and liabilities for 2013.⁵⁴Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 53. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
171 New York Dairy Farms, 2013

Item	Farms with: 400 to 599 Cows		600 to 899 Cows	
	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS				
Farm cash, checking & savings	\$ 73,289	\$ 53,141	\$ 53,627	\$ 69,940
Accounts receivable	242,111	259,863	375,247	445,840
Prepaid expenses	6,070	8,192	6,283	10,904
Feed & supplies	515,509	554,169	989,104	1,090,738
Livestock ⁵⁵	1,029,610	1,071,906	1,640,304	1,688,066
Machinery & equipment ⁵⁵	905,628	934,800	1,258,897	1,346,299
Farm Credit stock	1,050	955	1,107	1,125
Other stock & certificates	161,295	185,534	253,000	309,513
Land & buildings ⁵⁵	<u>2,014,030</u>	<u>2,100,520</u>	<u>3,245,229</u>	<u>3,462,732</u>
Total Farm Assets	\$4,948,590	\$5,169,080	\$7,822,799	\$8,425,156
Nonfarm Assets ⁵⁶	<u>\$ 418,371</u>	<u>\$ 536,641</u>	<u>\$ 287,714</u>	<u>\$ 512,090</u>
Farm & Nonfarm Assets	\$5,366,961	\$5,705,721	\$8,110,513	\$8,937,246
LIABILITIES (excluding deferred taxes)				
Accounts payable	\$ 72,533	\$64,258	\$71,265	\$45,166
Operating debt	91,522	94,919	231,713	251,939
Short term	1,200	3,974	8	4,491
Advanced government receipt	0	0	0	0
Current Portion:				
Intermediate	106,971	115,488	184,992	196,899
Long Term	44,146	49,973	77,802	76,038
Intermediate ⁵⁷	551,583	450,785	819,073	816,630
Long term ⁵⁵	<u>491,056</u>	<u>593,139</u>	<u>1,141,163</u>	<u>1,154,243</u>
Total Farm Liabilities	\$1,359,011	\$1,372,538	\$2,526,017	\$2,545,405
Nonfarm Liabilities ⁵⁶	<u>6,755</u>	<u>3,681</u>	<u>5,313</u>	<u>5,963</u>
Farm & Nonfarm Liabilities	\$1,365,766	\$1,376,219	\$2,531,330	\$2,551,368
Farm Net Worth (Equity Capital)	\$3,589,579	\$3,796,542	\$5,296,782	\$5,879,751
Farm & Nonfarm Net Worth	\$4,001,196	\$4,329,502	\$5,579,183	\$6,385,879
FINANCIAL MEASURES				
	<u>400 to 599 Cows</u>		<u>600 to 899 Cows</u>	
Percent equity	73%		70%	
Debt/asset ratio-long term	0.28		0.33	
Debt/asset ratio-intermediate & current	0.25		0.28	
Debt/asset ratio-total	0.27		0.30	
Leverage ratio	0.36		0.43	
Current ratio	2.66		2.82	
Working capital as % of total expenses	21%		27%	
Accounts payable as % of total debt	5%		2%	
Long-term debt as % of total debt	43%		45%	
Cost of term debt (weighted average)	3.50%		3.86%	
Change in net worth with appreciation	\$187,861		\$555,372	
Total farm debt per cow	\$2,743		\$3,478	
Debt payments made per cow	\$763		\$659	
Debt payments as % of milk sales	14%		12%	
Amount available for debt service	\$354,955		\$490,482	
Cash flow coverage ratio for 2013	1.53		1.32	
Debt coverage ratio for 2013	1.86		1.99	

⁵⁵Includes discounted lease payments.⁵⁶Average of farms reporting nonfarm assets and liabilities for 2013.⁵⁷Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 53. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
171 New York Dairy Farms, 2013

Item	Farms with:	More than 900 Cows	
		Jan. 1	Dec. 31
<u>ASSETS</u>			
Farm cash, checking & savings		\$ 96,382	\$ 151,543
Accounts receivable		778,340	907,239
Prepaid expenses		13,517	15,080
Feed & supplies		1,622,412	1,817,658
Livestock ⁵⁸		3,035,376	3,206,026
Machinery & equipment ⁵⁸		2,154,947	2,449,658
Farm Credit stock		1,608	1,748
Other stock & certificates		391,682	467,637
Land & buildings ⁵⁸		<u>5,608,353</u>	<u>6,039,175</u>
Total Farm Assets		\$13,702,618	\$15,055,765
Nonfarm Assets ⁵⁹		<u>\$ 434,205</u>	<u>\$ 963,105</u>
Farm & Nonfarm Assets		\$14,136,823	\$16,018,870
<u>LIABILITIES (excluding deferred taxes)</u>			
Accounts payable		\$ 149,221	\$ 142,799
Operating debt		392,570	505,810
Short term		8,076	7,229
Advanced government receipts		0	0
Current Portion:			
Intermediate		414,585	446,473
Long Term		129,653	138,622
Intermediate ⁶⁰		1,916,125	2,128,303
Long term ⁵⁸		<u>1,711,266</u>	<u>1,705,787</u>
Total Farm Liabilities		\$ 4,721,495	\$ 5,075,023
Nonfarm Liabilities ⁵⁹		<u>0</u>	<u>0</u>
Farm & Nonfarm Liabilities		\$ 4,721,495	\$ 5,075,023
Farm Net Worth (Equity Capital)		\$ 8,981,123	\$9,980,742
Farm & Nonfarm Net Worth		\$ 9,415,328	\$10,943,847
<u>FINANCIAL MEASURES</u>		<u>More than 900 Cows</u>	
Percent equity		66%	
Debt/asset ratio-long term		0.28	
Debt/asset ratio-intermediate & current		0.37	
Debt/asset ratio-total		0.34	
Leverage ratio		0.51	
Current ratio		2.33	
Working capital as % of total expenses		22%	
Accounts payable as % of total debt		3%	
Long-term debt as % of total debt		34%	
Cost of term debt (weighted average)		3.64%	
Change in net worth with appreciation		\$924,421	
Total farm debt per cow		\$3,598	
Debt payments made per cow		\$560	
Debt payments as % of milk sales		10%	
Amount available for debt service		\$1,025,064	
Cash flow coverage ratio for 2013		1.51	
Debt coverage ratio for 2013		2.12	

⁵⁸Includes discounted lease payments.⁵⁹Average of farms reporting nonfarm assets and liabilities for 2013.⁶⁰Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 54.

**SELECTED BUSINESS FACTORS BY HERD SIZE
171 New York Dairy Farms, 2013**

Item	Farms with:	Less than 60 Cows	60 to 99 Cows	100 to 199 Cows	200 to 399 Cows
Number of farms		14	13	24	22
<u>Cropping Program Analysis</u>					
Total Tillable acres		181	282	393	673
Tillable acres rented ⁶¹		84	153	168	326
Hay crop acres ⁶¹		130	190	225	344
Corn silage acres ⁶¹		19	40	122	228
Hay crop, tons DM/acre		1.6	1.9	2.5	3.3
Corn silage, tons/acre		15	14	16	18
Oats, bushels/acre		0	65	72	50
Forage DM per cow, tons		8.0	8.5	9.2	9.0
Tillable acres/cow		4.1	3.6	2.7	2.3
Fertilizer & lime expense/tillable acre		\$33.97	\$47.75	\$62.60	\$81.67
Total machinery costs		\$45,541	\$66,153	\$140,772	\$312,704
Machinery cost/tillable acre		\$238	\$236	\$367	\$465
<u>Dairy Analysis</u>					
Number of cows		47	77	143	298
Number of heifers		36	59	118	243
Milk sold, pounds		796,226	1,417,101	3,065,668	7,055,318
Milk sold/cow, pounds		17,097	18,515	21,456	23,701
Operating cost of producing milk/cwt.		\$16.13	\$17.89	\$16.42	\$17.07
Total cost of producing milk/cwt.		\$28.08	\$25.36	\$22.22	\$21.74
Price/cwt. milk sold		\$21.48	\$21.46	\$21.63	\$21.59
Purchased dairy feed/cow		\$1,189	\$1,278	\$1,520	\$1,861
Purchased dairy feed/cwt. milk		\$6.96	\$6.90	\$7.09	\$7.85
Purchased grain & concentrate as % of milk receipts		27%	31%	32%	34%
Purchased feed & crop expense/cwt. milk		\$8.01	\$8.43	\$8.80	\$9.24
Cull rate		33%	26%	30%	33%
<u>Capital Efficiency</u>					
Farm capital/worker		\$335,026	\$309,014	\$418,543	\$419,049
Farm capital/cow		\$15,036	\$11,183	\$12,010	\$11,093
Farm capital/tillable acre owned		\$7,267	\$6,635	\$7,611	\$9,512
Real estate/cow		\$8,268	\$4,866	\$5,412	\$4,664
Machinery investment/cow		\$3,081	\$2,402	\$2,273	\$2,306
Asset turnover ratio		0.31	0.41	0.45	0.55
<u>Labor Efficiency</u>					
Worker equivalent		2.09	2.77	4.09	7.88
Operator/manager equivalent		1.24	1.52	1.40	1.97
Milk sold/worker, lbs.		381,426	512,360	748,942	895,534
Cows/worker		22	28	35	38
Labor cost/cow		\$1,185	\$1,027	\$807	\$876
Labor cost/tillable acre		\$306	\$279	\$293	\$387

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

Table 54. (cont'd)

SELECTED BUSINESS FACTORS BY HERD SIZE
171 New York Dairy Farms, 2013

Item	Farms with:	400 to 599 Cows	600 to 899 Cows	900 or More Cows
Number of farms		20	28	50
<u>Cropping Program Analysis</u>				
Total Tillable acres		1,029	1,492	2,511
Tillable acres rented ⁶²		497	695	1,186
Hay crop acres ⁶²		484	634	1,037
Corn silage acres ⁶²		352	590	1,077
Hay crop, tons DM/acre		3.2	3.5	3.9
Corn silage, tons/acre		18	18	18
Oats, bushels/acre		0	73	0
Forage DM per cow, tons		8.0	8.3	8.3
Tillable acres/cow		2.1	2.1	1.9
Fertilizer & lime exp./tillable acre		\$75.42	\$86.52	\$73.28
Total machinery costs		\$476,789	\$668,188	\$1,221,134
Machinery cost/tillable acre		\$453	\$448	\$468
<u>Dairy Analysis</u>				
Number of cows		491	729	1,387
Number of heifers		401	646	1,194
Milk sold, pounds		12,376,027	18,383,750	36,360,957
Milk sold/cow, pounds		25,195	25,228	26,225
Operating cost of producing milk/cwt.		\$16.94	\$16.60	\$16.50
Total cost of producing milk/cwt.		\$21.04	\$20.52	\$19.85
Price/cwt. milk sold		\$21.56	\$21.69	\$21.67
Purchased dairy feed/cow		\$1,940	\$1,890	\$1,983
Purchased dairy feed/cwt. milk		\$7.70	\$7.49	\$7.56
Purchased grain & concentrate as % of milk receipts		32%	33%	32%
Purchased feed & crop expense/cwt. milk		\$9.07	\$8.93	\$8.80
Cull rate		34%	34%	35%
<u>Capital Efficiency</u>				
Farm capital/worker		\$440,665	\$495,969	\$498,246
Farm capital/cow		\$10,299	\$11,148	\$10,371
Farm capital/tillable acre owned		\$9,513	\$10,191	\$10,858
Real estate/cow		\$4,188	\$4,603	\$4,200
Machinery investment/cow		\$1,873	\$1,788	\$1,660
Asset turnover ratio		0.62	0.58	0.64
<u>Labor Efficiency</u>				
Worker equivalent		11.48	16.38	28.86
Operator/manager equivalent		2.03	2.38	2.43
Milk sold/worker, lbs.		1,078,286	1,122,329	1,259,945
Cows/worker		43	44	48
Labor cost/cow		\$839	\$809	\$815
Labor cost/tillable acre		\$400	\$395	\$450

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 2013, 7 participating farms purchased the majority of their feed, including most forages. On average, these farms did not harvest any forages in 2013. Table 55 highlights the income and expenses for these 7 farms compared to the income and expenses for 15 farms of similar size that grew their forages. Table 56 compares selected business factors for the two groups of farms. In 2013, the 7 farms buying forages had, on average, higher pounds of milk sold per worker and dairy calf sales per cow than the similar size farms growing forages. While pounds of milk sold per cow were similar, rBST costs per cwt were higher, and operating costs of producing milk were \$0.57 per hundredweight lower than farms growing forages.

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 57 on page 65 includes the average values for the resulting five groups of dairy farms. The average size in the five groups ranges from 46 cows on the small tiestall/stanchion farms to 1,097 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 2013, 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 66-70. 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 2013, 17 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 63. The control group is a selection of non-grazing dairy farms of similar size. In 2013, average profitability was slightly higher on intensive grazing farms. Operating costs of producing milk were \$1.18 per hundredweight lower while total costs were \$1.32 lower than the costs of production on the control farms.

Comparison of Data, Same Farms, 2002 - 2013

Follow ten years of growth, change and progress made by 76 New York DFBS farms in Table 64, pages 72 and 73. Milk receipts per hundredweight are higher by \$4.95 in 2013 when compared to 2004. Profitability in 2013 is higher than most 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 29 dairy farms selling less than 19,000 pounds of milk per cow, 24 farms with 19,000 to 22,999 pounds of milk sold per cow, and 118 dairy farms selling 23,000 pounds and more in Table 65 on page 74. Table 66 on page 75 provides the list of average accrual receipts and expenses for 27 farms averaging less than 100 cows per farm, 24 farms with 100 to 200 cows and 120 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 67 and 68. The Northern New York Region averaged the highest profitability and the largest average farm size whereas the Western and Central Plateau Region had the highest average rate of milk production. Dairy farmers in the Western and Central Plain Region have increased milk production 32.7 percent from 2000-2012 and they produced milk for an average total cost of \$20.35 per hundredweight in 2013. Total milk production has declined 3.7 percent from 2000-2012 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 \$2.69 and the Western and Central Plain Region was second at \$2.83. 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 171 DFBS farms utilized three times per day (3X) milking in 2013. 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 69.

In 2013, the 3X farms averaged 8 more cows per farm, sold just over 65lbs more milk per cow and showed an average \$214,429 increase in net farm income, and an increase in total cost of producing milk by \$1.14 compared to the 2X farm averages for 2012. The 2X farms increased milk output per cow by 1,091lbs, average net farm income increased by \$59,224, and total production costs increased by \$0.77 per hundredweight in 2013 compared to 2012.

The 3X farms averaged 22 percent more milk per cow and 34 percent additional milk per worker in 2013 compared with the 2X farms. Similar differences were found in 2012. In 2013, the average total cost of producing milk was 10 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 70) were smaller, on average, and averaged lower labor and management incomes than the average for 171 owned dairy farms. Data for the top 10 percent of farms by rate of return on all capital without appreciation are presented in Table 71. 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 171 specialized dairy farms are presented in Table 72.

Table 55.

**INCOME & EXPENSE COMPARISON FOR
FARMS BUYING MAJORITY OF FORAGES VERSUS SIMILAR SIZE FARMS GROWING FORAGES
New York State Dairy Farms, 2013**

Item	7 Farms Buying Majority of Forages		15 Similar Size Farms Growing Forages	
Number of cows per farm	411		412	
Pounds of milk sold	10,519,841		10,390,098	
<u>Income</u>	<u>Per Cow</u>	<u>Per Cwt.</u>	<u>Per Cow</u>	<u>Per Cwt.</u>
Milk sold	\$5,490.51	\$ 21.46	\$5,557.95	\$ 22.03
Dairy cattle	339.85	1.33	375.58	1.49
Dairy calves	42.84	0.17	39.53	0.16
Other livestock	0.58	0.00	35.87	0.14
Crops	-22.36	-0.09	176.39	0.70
Miscellaneous	<u>186.83</u>	<u>0.73</u>	<u>155.31</u>	<u>0.62</u>
Total Accrual Receipts	6,038.25	23.60	6,340.63	25.13
<u>Expenses</u>				
Hired labor	\$ 553.54	\$ 2.16	\$ 720.17	2.85
Dairy grain & concentrate	1,845.69	7.21	1,760.09	6.98
Dairy roughage	697.76	2.73	196.57	0.78
Nondairy	0.00	0.00	0.00	0.00
Professional nutritional services	0.00	0.00	0.02	0.00
Machinery hire, rent/lease	73.77	0.29	215.07	0.85
Machinery repairs/vehicle expense.	136.95	0.54	226.66	0.90
Fuel, oil & grease	108.60	0.42	223.65	0.89
Replacement livestock	65.24	0.25	47.64	0.19
Breeding	44.07	0.17	60.03	0.24
Veterinary & medicine	137.73	0.54	160.27	0.64
Milk marketing	177.95	0.70	263.74	1.05
Bedding	52.78	0.21	108.13	0.43
Milking supplies	110.31	0.43	94.40	0.37
Cattle lease/rent	0.00	0.00	0.00	0.00
Custom boarding	167.09	0.65	44.19	0.18
bST expense	38.89	0.15	27.18	0.11
Livestock professional fees	13.59	0.05	23.17	0.09
Other livestock expenses	7.00	0.03	21.68	0.09
Fertilizer & lime	21.47	0.08	134.44	0.53
Seeds & plants	19.02	0.07	127.37	0.50
Spray, other crop expenses	8.75	0.03	58.71	0.23
Crop professional fees	0.00	0.00	9.43	0.04
Land/bldg/fence repair	59.74	0.23	57.68	0.23
Taxes	38.51	0.15	58.86	0.23
Rent & lease	16.24	0.06	73.86	0.29
Insurance	49.63	0.19	40.94	0.16
Utilities	131.26	0.51	115.76	0.46
Interest paid	104.56	0.41	116.58	0.46
Other professional fees	31.76	0.12	32.27	0.13
Miscellaneous	<u>35.92</u>	<u>0.14</u>	<u>21.16</u>	<u>0.08</u>
Total Operating Expenses	\$4,747.83	\$18.56	\$5,039.75	\$19.97
Expansion livestock	13.23	0.05	43.45	0.17
Extraordinary expense	0.00	0.00	0.00	0.00
Machinery depreciation	153.89	0.60	268.98	1.07
Building depreciation	<u>201.54</u>	<u>0.79</u>	<u>187.38</u>	<u>0.74</u>
Total Accrual Expenses	\$5,116.49	\$20.00	\$5,539.56	\$21.95
Net Farm Income (without appreciation)	\$921.76	\$ 3.60	\$801.07	\$ 3.18

Table 56.

**SELECTED BUSINESS FACTORS FOR FARMS BUYING MAJORITY OF FORAGES
VERSUS SIMILAR SIZE FARMS GROWING FORAGES
New York Dairy Farms, 2013**

Selected Factors	7 Farms Buying Majority of Forages	15 Similar Size Farms Growing Forages
<u>Size of Business</u>		
Average number of cows	411	412
Average number of heifers	311	341
Milk sold, pounds	10,519,841	10,390,098
Worker equivalent	7.59	10.41
Total tillable acres	278	857
Forage acres harvested	0	802
<u>Rates of Production</u>		
Milk sold per cow, lbs.	25,587	25,231
Hay DM per acre, tons	0.0	3.54
Corn silage per acre, tons	0.0	17.49
<u>Labor Efficiency & Costs</u>		
Cows per worker	54	40
Milk sold/worker, pounds	1,385,557	997,928
Hired labor cost/cwt.	\$2.16	\$2.85
Hired labor cost/worker	\$36,384	\$35,334
Hired labor cost as % of milk sales	10.08%	12.96%
<u>Cost Control</u>		
Grain & concentrate purchased as % of milk sales	31%	31%
Grain & concentrate per cwt. milk	\$7.21	\$6.98
Dairy feed & crop expense per cwt. milk	\$10.13	\$9.06
Labor & machinery costs/cow	\$1,166	\$1,912
Total farm operating costs per cwt. sold	\$19.42	\$21.23
Interest costs per cwt. milk	\$0.41	\$0.46
Milk marketing costs per cwt. milk sold	\$0.70	\$1.05
Operating cost of producing cwt. of milk	\$16.47	\$17.04
<u>Capital Efficiency(average for the year)</u>		
Farm capital per cow	\$8,004	\$10,374
Machinery & equipment per cow	\$1,091	\$2,088
Asset turnover ratio	0.81	0.64
<u>Income Generation</u>		
Gross milk sales per cow	\$5,491	\$5,558
Gross milk sales per cwt.	\$21.46	\$22.03
Net milk sales per cwt.	\$20.76	\$20.98
Dairy cattle sales per cow	\$340	\$376
Dairy calf sales per cow	\$43	\$40
<u>Profitability</u>		
Net farm income without appreciation	\$378,969	\$329,877
Net farm income with appreciation	\$576,511	\$434,765
Labor & management income per operator/manager	\$219,376	\$99,269
Rate of return on equity capital without appreciation	15.2%	7.8%
Rate of return on all capital without appreciation	10.9%	6.6%
<u>Cash flow</u>		
Principal & interest payments per cow, 2013	\$471	\$757
Net cash flow	\$488,472	\$482,289
<u>Financial Summary</u>		
Farm net worth, end year	\$2,268,811	\$3,128,957
Farm net worth change from last year, percent	17.8%	10.0%
Debt to asset ratio	0.35	0.29
Farm debt per cow	\$2,963	\$3,007

Table 57.

SELECTED BUSINESS FACTORS BY TYPE OF BARN AND HERD SIZE
171 New York Dairy Farms, 2013

Item	Farms with:	Tiestall/Stanchion		Freestall		
		<60 Cows	>=60 Cows	<=200 Cows	201-500 Cows	>=500 Cows
Number of farms		13	10	25	27	84
<u>Cropping Program Analysis</u>						
Total Tillable acres		193	301	363	680	2,087
Tillable acres rented ⁶³		91	178	159	313	992
Hay crop acres ⁶³		140	177	216	322	884
Corn silage acres ⁶³		21	58	104	259	867
Hay crop, tons DM/acre		1.6	1.8	2.5	3.3	3.7
Corn silage, tons/acre		15.2	15.5	15.1	17.4	18.1
Oats, bushels/acre		0	65	72	50	74
Forage DM per cow, tons		8.0	8.6	9.3	8.4	8.4
Tillable acres/cow		4.1	3.5	2.9	2.0	1.9
Fertilizer & lime expense/tillable acre		\$33.97	\$68.66	\$54.86	\$83.02	\$77.22
Total machinery costs		\$45,541	\$84,103	\$125,551	\$334,055	\$986,915
Machinery cost/tillable acre		\$238	\$279	\$342	\$488	\$462
<u>Dairy Analysis</u>						
Number of cows		46	85	127	343	1,097
Number of heifers		35	71	101	276	953
Milk sold, lbs.		790,724	1,832,536	2,613,050	8,647,161	28,629,982
Milk sold/cow, lbs.		17,276	21,483	20,556	25,210	26,098
Operating cost of producing milk/cwt.		\$15.66	\$15.83	\$17.15	\$17.06	\$16.52
Total cost of producing milk/cwt.		\$27.70	\$22.62	\$23.27	\$21.23	\$20.02
Price/cwt. milk sold		\$21.45	\$21.18	\$21.77	\$21.73	\$21.64
Purchased dairy feed/cow		\$1,068	\$1,446	\$1,472	\$1,985	\$1,964
Purchased dairy feed/cwt. milk		\$6.18	\$6.73	\$8.85	\$7.87	\$7.53
Purchased grain & concentrate as % of milk receipts		27%	29%	32%	33%	33%
Purchased feed & crop expense/cwt. milk		\$7.33	\$8.51	\$8.85	\$9.11	\$8.83
<u>Capital Efficiency</u>						
Farm capital/worker		\$340,187	\$314,853	\$412,594	\$414,822	\$494,969
Farm capital/cow		\$15,608	\$11,000	\$12,139	\$10,461	\$10,612
Farm capital/tillable acre owned		\$6,978	\$7,597	\$7,591	\$9,771	\$10,624
Real estate/cow		\$8,595	\$4,548	\$5,508	\$4,247	\$4,325
Machinery investment/cow		\$3,279	\$2,364	\$2,328	\$2,006	\$1,735
Asset turnover ratio		0.30	0.51	0.42	0.62	0.62
<u>Labor Efficiency</u>						
Worker equivalent		2.10	2.97	3.74	8.65	23.52
Operator/manager equivalent		1.21	1.63	1.36	1.88	2.41
Milk sold/worker, lbs.		376,237	616,151	699,456	999,961	1,217,261
Cows/worker		22	29	34	40	47
Labor cost/cow		\$1,199	\$1,070	\$810	\$856	\$815
Labor cost/tillable acre		\$284	\$303	\$284	\$431	\$429
<u>Profitability & Balance Sheet Analysis</u>						
Net farm income (without appreciation)		\$29,450	\$72,696	\$77,264	\$264,116	\$1,044,477
Labor & management income/operator		\$-2,780	\$17,243	\$10,485	\$71,814	\$270,468
Rate return on all capital with appreciation		0.9%	3.7%	2.8%	9.1%	10.6%
Farm debt/cow		\$3,152	\$3,217	\$3,003	\$3,148	\$3,561
Percent equity		80%	73%	76%	72%	67%

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

Table 58.

FARM BUSINESS CHART FOR SMALL TIESTALL/STANCHION DAIRY FARMS
13 Tiestall/Stanchion Dairy Farms with 60 or Less Cows, New York, 2013

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
3.46	56	1,107,897	24,207	2.7	19	27	541,836
2.17	51	960,743	20,546	2.2	18	26	516,533
2.00	47	865,621	17,828	1.9	16	25	434,512
1.80	43	692,338	15,008	1.4	10	22	323,855
1.56	37	489,420	12,090	0.7	0	18	249,497

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	
\$429	14%	\$482	\$1,540	\$626	\$4.64	
946	25	766	1,944	1,126	6.58	
1,072	29	1,091	2,326	1,265	7.66	
1,301	33	1,275	2,585	1,690	8.69	
1,604	40	1,437	2,797	1,891	9.38	

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		
\$5,179	\$12.43	\$21.75	\$67,973	\$1,345	\$35,038	\$114,591
4,454	14.08	25.08	47,346	1,078	13,655	55,745
3,806	15.36	28.69	35,926	734	5,340	11,833
3,230	17.49	33.80	22,936	502	-12,587	7,668
2,515	21.99	39.80	-8,125	-203	-38,785	-14,229

Table 59.

FARM BUSINESS CHART FOR LARGE TIESTALL/STANCHION DAIRY FARMS
10 Tiestall/Stanchion Dairy Farms with 60 or More Cows, New York, 2013

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
4.16	127	3,057,738	26,350	3.4	22	48	971,679
3.67	88	1,800,277	22,660	2.8	17	33	701,912
2.95	74	1,544,981	21,339	2.4	16	31	614,768
2.40	72	1,508,254	19,425	1.9	14	24	521,095
1.71	67	1,251,433	16,325	0.0	0	20	415,908

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	
\$923	22%	\$646	\$1,332	\$1,214	\$5.90	
1,178	25	861	1,641	1,495	7.10	
1,279	27	999	2,045	1,572	8.01	
1,352	32	1,101	2,406	1,958	9.52	
1,799	41	1,268	2,840	2,670	11.47	

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		
\$5,624	\$11.89	\$18.73	\$179,215	\$1,709	\$79,003	\$118,436
4,859	14.29	21.08	108,787	1,189	29,455	86,741
4,559	16.62	24.18	45,205	672	15,568	20,360
4,169	18.39	24.79	27,200	378	-10,367	12,371
3,320	19.92	27.38	3,073	34	-23,008	-2,819

Table 60.

FARM BUSINESS CHART FOR SMALL FREESTALL DAIRY FARMS
25 Freestall Barn Dairy Farms with 200 Cows or Less, New York, 2013

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	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
8.54	198	5,182,611	26,978	4.8	26	66	1,189,312
5.65	184	4,108,652	25,637	3.9	24	51	945,040
5.11	172	3,486,569	23,481	3.4	21	44	822,454
3.84	156	3,057,254	22,894	3.2	20	39	813,049
3.55	135	2,674,287	21,941	3.1	19	37	780,801

3.28	121	2,499,886	21,262	3.0	16	35	723,986
3.02	113	2,324,455	18,961	2.7	15	33	662,604
2.73	105	1,996,233	17,204	2.2	13	30	626,628
2.36	92	1,543,980	16,229	1.7	7	29	523,811
1.97	66	1,071,282	13,489	0.4	0	24	450,287

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		
\$810	22%	\$440	\$955	\$1,130	\$6.59		
1,125	26	687	1,432	1,466	7.38		
1,242	29	726	1,524	1,666	8.30		
1,369	32	800	1,645	1,765	8.57		
1,428	34	887	1,757	1,833	8.94		

1,520	35	942	1,837	1,928	9.24		
1,603	35	1,030	1,970	2,008	9.79		
1,642	39	1,122	2,080	2,052	10.29		
1,838	41	1,327	2,204	2,352	11.21		
2,109	42	1,556	2,498	2,536	14.67		

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			
\$5,805	\$13.62	\$19.71	\$214,078	\$1,381	\$94,226	\$224,269	
5,411	14.47	21.15	175,114	1,147	67,023	168,631	
5,108	15.58	21.66	134,065	1,079	44,869	111,075	
5,045	16.23	22.96	119,630	898	34,128	89,941	
4,652	17.41	23.89	104,117	789	20,833	78,262	

4,531	18.83	24.41	78,069	646	10,324	34,995	
4,242	19.41	25.64	51,551	502	3,964	3,699	
3,839	20.89	25.95	26,617	183	-18,167	-8,284	
3,490	21.53	26.60	9,167	70	-26,662	-15,825	
3,067	23.01	32.80	-19,540	-256	-64,814	-61,809	

Table 61.

FARM BUSINESS CHART FOR MEDIUM FREESTALL DAIRY FARMS
27 Freestall Barn Dairy Farms with 201-500 Cows, New York, 2013

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
14.77	477	12,550,700	28,870	4.9	25	58	1,401,737
13.33	455	12,081,379	27,886	4.5	21	53	1,276,640
11.57	432	11,553,406	27,392	4.4	20	51	1,249,662
9.58	410	10,862,817	26,650	4.3	20	48	1,158,356
9.10	383	9,813,488	26,112	3.8	18	45	1,110,327

7.86	354	8,623,972	25,635	3.2	17	43	1,041,951
7.27	306	7,590,141	24,278	2.8	17	39	968,549
6.76	274	6,873,567	23,375	2.2	15	35	901,880
6.28	243	5,605,715	21,583	2.1	14	32	813,061
4.52	208	4,331,094	20,234	1.1	4	26	651,527

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		
\$1,397	26%	\$519	\$1,173	\$1,851	\$7.64		
1,546	29	720	1,476	1,980	8.12		
1,590	31	815	1,594	2,095	8.28		
1,653	31	933	1,780	2,158	8.65		
1,762	32	996	1,865	2,219	9.17		

1,855	34	1,082	1,959	2,335	9.49		
1,938	35	1,143	2,045	2,475	10.00		
1,995	38	1,198	2,123	2,568	10.08		
2,081	40	1,249	2,266	2,620	10.73		
2,304	42	1,472	2,414	2,878	11.30		

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			
\$6,412	\$12.87	\$18.08	\$634,175	\$1,802	\$349,137	\$820,315	
6,089	14.33	19.21	548,498	1,446	215,578	496,142	
5,990	14.91	19.78	460,254	1,313	139,493	402,840	
5,791	15.98	20.25	394,614	1,169	114,077	320,293	
5,591	17.21	21.18	269,957	867	92,263	265,454	

5,470	17.76	22.24	212,745	608	49,457	214,014	
5,300	18.52	22.91	185,326	545	27,034	151,222	
4,940	19.81	23.29	134,985	459	8,785	108,126	
4,696	20.12	23.64	92,762	239	-14,090	43,970	
4,383	20.59	24.50	-8,631	-24	-83,573	-224	

Table 62.

FARM BUSINESS CHART FOR LARGE FREESTALL DAIRY FARMS
84 Freestall Barn Dairy Farms with 501 or More Cows, New York, 2013

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
48.18	2,383	64,332,803	29,179	5.6	24	60	1,630,655
33.09	1,641	41,898,886	27,625	4.9	22	54	1,438,723
27.36	1,283	34,752,619	27,280	4.5	21	51	1,316,944
25.38	1,145	29,300,359	26,861	4.2	20	49	1,243,736
22.71	1,033	26,938,645	26,391	3.9	19	47	1,200,316

20.30	938	24,566,699	26,068	3.7	18	45	1,176,314
18.61	834	21,980,430	25,460	3.4	17	43	1,130,905
17.09	722	18,454,170	24,866	3.2	16	42	1,089,213
14.41	648	16,301,578	24,217	2.7	14	40	1,024,313
12.06	549	13,330,311	22,272	1.8	9	35	867,591

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		
\$1,310	25%	\$595	\$1,256	\$1,728	\$7.20		
1,572	28	732	1,487	1,982	7.78		
1,673	30	790	1,591	2,125	8.23		
1,759	31	853	1,672	2,190	8.55		
1,830	33	911	1,705	2,286	8.85		

1,886	34	951	1,750	2,356	9.12		
1,942	35	977	1,827	2,424	9.35		
2,024	36	1,033	1,917	2,510	9.65		
2,122	38	1,117	2,028	2,635	9.84		
2,368	40	1,309	2,218	2,883	10.43		

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			
\$6,269	\$13.75	\$17.61	\$2,935,571	\$1,710	\$989,685	\$2,511,238	
6,101	14.52	18.48	1,741,280	1,484	585,613	1,590,073	
5,968	15.21	18.97	1,458,569	1,329	454,127	1,117,485	
5,826	15.74	19.52	1,220,876	1,156	399,604	896,084	
5,721	16.49	19.87	996,019	1,015	290,737	755,529	

5,623	17.05	20.29	800,145	869	218,982	591,616	
5,507	17.57	20.83	668,442	745	179,204	436,312	
5,363	18.07	21.51	489,892	578	106,230	211,942	
5,122	18.67	22.19	306,009	400	13,934	23,231	
4,799	19.77	23.79	148,587	180	-104,180	-511,443	

Table 63.

INTENSIVE GRAZING FARMS VS. NON-GRAZING FARMS
New York State Dairy Farms, 2013

Item	All Intensive Grazing Farms ⁶⁴	Non-Grazing Farms ⁶⁵
Number of farms	17	21
<u>Business Size & Production</u>		
Number of cows	165	164
Number of heifers	127	133
Milk sold, pounds	2,626,306	3,784,478
Milk sold per cow, pounds	15,929	23,069
Milk plant test, % butterfat ⁶⁶	4.14	3.19%
Cull rate	22%	32%
Tillable acres, total	394	420
Hay crop, tons DM per acre	2.35	2.71
Corn silage, tons per acre	17.32	17.44
Forage dry matter per cow, tons ⁶⁷	3.13	3.88
<u>Labor & Capital Efficiency</u>		
Worker equivalent	3.62	4.66
Milk sold per worker, pounds	725,833	811,829
Cows per worker	46	35
Farm capital per worker	\$448,237	\$433,611
Farm capital per cow	\$9,841	\$12,317
Farm capital per cwt. milk	\$62	\$53
Machinery and equipment per cow	\$1,546	\$2,448
<u>Milk Production Costs & Returns</u>		
Selected costs per cwt.:		
Hired labor	\$2.24	\$1.90
Grain & concentrate	\$6.72	\$7.07
Purchased roughage	\$0.55	\$0.18
Replacements purchased	\$0.15	\$0.12
Vet & medicine	\$0.40	\$0.59
Milk marketing	\$1.03	\$0.87
Other dairy expenses	\$0.84	\$0.78
Operating cost of producing milk per cwt.	\$15.35	\$16.53
Total labor cost per cwt. (hired, family & operator)	\$4.17	\$3.59
Owner and operator resources per cwt.	\$6.02	\$2.66
Total cost of producing milk per cwt.	\$21.67	\$22.99
Average farm price per cwt.	\$22.26	\$21.32
<u>Related Cost Factors</u>		
Hired labor/cow	\$356	\$438
Total labor/cow	\$665	\$828
Purchased dairy feed/cow	\$1,158	\$1,673
Purchased grain & concentrate as % of milk receipts	30%	32%
Veterinary & medicine/cow	\$64	\$135
Machinery costs/cow	\$715	\$1,080
Feed & crop expenses/cwt.	\$8.89	\$8.93
<u>Profitability Analysis</u>		
Net farm income (with appreciation)	\$170,078	\$147,959
Net farm income (without appreciation)	\$134,598	\$117,615
Net farm income per cow (without appreciation)	\$816	\$717
Net farm income per cwt. (without appreciation)	\$0.20	\$0.32
Labor & management income per operator	\$50,293	\$22,021
Labor & management income per operator per cow	\$305	\$134
Rates of return on:		
Equity capital with appreciation	8.91	5.1%
All capital with appreciation	7.78	4.8%

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 18 rotational grazing farms.

⁶⁶Average of farms reporting this data.

⁶⁷Average of farms that grow forages.

Table 64.

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 83 New York Dairy Farms, 2004 -- 2013

Selected Factors	2004	2005	2006	2007
Milk receipts per cwt. milk	\$16.71	\$15.98	\$13.83	\$20.41
<u>Size of Business</u>				
Average number of cows	506	527	555	556
Average number of heifers	382	412	441	443
Milk sold, cwt.	116,547	125,676	132,583	133,585
Worker equivalent	11.64	12.03	12.38	12.55
Total tillable acres	990	1,019	1,051	1,080
<u>Rates of Production</u>				
Milk sold per cow, lbs.	23,012	23,858	23,900	24,043
Hay DM per acre, tons	3.8	3.7	3.4	3.1
Corn silage per acre, tons	18	19	19	19
<u>Labor Efficiency</u>				
Cows per worker	44	44	45	45
Milk sold per worker, lbs.	1,001,623	1,044,907	1,070,875	1,064,703
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	27%	25%	29%	23%
Dairy feed & crop expense per cwt. milk	\$5.53	\$5.05	\$4.96	\$6.02
Operating cost of producing cwt. milk	\$12.51	\$12.12	\$12.07	\$13.77
Total cost of producing cwt. milk	\$15.29	\$14.98	\$14.93	\$16.78
Hired labor cost per cwt.	\$3.34	\$3.21	\$3.17	\$3.28
Interest paid per cwt.	\$0.49	\$0.59	\$0.72	\$0.72
Labor & machinery costs per cow	\$1,305	\$1,353	\$1,336	\$1,454
Replacement livestock expense	\$22,452	\$16,460	\$10,510	\$14,269
Expansion livestock expense	\$36,672	\$22,281	\$25,567	\$13,955
<u>Capital Efficiency</u>				
Farm capital per cow	\$6,570	\$7,083	\$7,323	\$7,877
Machinery & equipment per cow	\$1,119	\$1,215	\$1,246	\$1,344
Real estate per cow	\$2,513	\$2,629	\$2,751	\$2,888
Livestock investment per cow	\$1,692	\$2,062	\$2,115	\$2,305
Asset turnover ratio	0.70	0.67	0.56	0.74
<u>Profitability</u>				
Net farm income without appreciation	\$343,350	\$326,260	\$72,106	\$717,413
Net farm income with appreciation	\$458,395	\$504,710	\$190,590	\$917,409
Labor & management income per operator/manager	\$144,960	\$119,033	\$-32,085	\$326,598
Rate return on:				
Equity capital with appreciation	19.6%	18.3%	3.9%	29.1%
All capital with appreciation	13.0%	13.2%	4.8%	21.1%
All capital without appreciation	9.6%	8.4%	1.9%	16.5%
<u>Financial Summary, End Year</u>				
Farm net worth	\$2,095,778	\$2,469,231	\$2,513,118	\$3,209,447
Change in net worth with appreciation	\$345,315	\$362,202	\$22,552	\$736,131
Debt to asset ratio	0.40	0.37	0.40	0.32
Farm debt per cow	\$2,715	\$2,723	\$2,884	\$2,711

Table 64. (continued)

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 83 New York Dairy Farms, 2004 -- 2013

2008	2009	2010	2011	2012	2013
\$19.31	\$13.93	\$17.85	\$21.67	\$19.77	\$21.66
573	603	640	659	679	703
475	509	541	567	584	601
141,754	149,614	160,403	165,450	173,642	181,460
13.09	13.59	14.00	14.52	15.23	15.59
1,147	1,193	1,237	1,266	1,324	1,362
24,718	24,810	25,045	25,104	25,576	25,816
3.8	3.6	3.7	3.5	3.0	3.6
20	19	19	16	16	17
44	44	46	45	45	45
1,083,057	1,101,252	1,145,869	1,139,137	1,139,946	1,164,199
30%	37%	28%	28%	35%	32%
\$7.27	\$6.47	\$6.23	\$7.58	\$8.60	\$9.01
\$15.27	\$13.66	\$13.76	\$15.68	\$16.06	\$16.92
\$18.46	\$16.72	\$16.80	\$19.02	\$19.57	\$20.56
\$3.37	\$3.23	\$3.12	\$3.28	\$3.26	\$3.31
\$0.53	\$0.51	\$0.52	\$0.48	\$0.47	\$0.46
\$780	\$1,439	\$1,483	\$1,651	\$1,695	\$1,769
\$19,304	\$8,792	\$10,424	\$21,959	\$7,401	\$12,030
\$32,871	\$24,061	\$12,385	\$5,304	\$23,910	\$5,676
\$8,622	\$8,632	\$8,523	\$9,162	\$9,886	\$10,403
\$1,507	\$1,559	\$1,528	\$1,614	\$1,730	\$1,807
\$3,122	\$3,270	\$3,291	\$3,519	\$3,857	\$4,162
\$2,305	\$2,207	\$2,174	\$2,212	\$2,246	\$2,236
0.65	0.47	0.62	0.69	0.62	0.63
\$379,728	\$-148,922	\$450,414	\$758,423	\$387,478	\$578,475
\$477,144	\$-121,968	\$596,487	\$922,965	\$613,220	\$740,286
\$120,285	\$-171,377	\$150,370	\$290,690	\$80,634	\$167,734
11.6%	-7.0%	14.4%	20.4%	10.8%	12.4%
9.2%	-2.9%	10.4%	14.6%	8.4%	9.5%
7.3%	-3.5%	7.7%	11.8%	5.0%	7.3%
\$3,398,683	\$3,100,637	\$3,569,144	\$4,271,388	\$4,639,703	\$5,062,164
\$190,965	\$-292,917	\$457,568	\$705,879	\$361,500	\$392,215
0.34	0.41	0.37	0.33	0.34	0.33
\$2,995	\$3,427	\$3,188	\$3,204	\$3,420	\$3,535

Table 65.

**FARM RECEIPTS AND EXPENSES PER COW AND PER
HUNDREDWEIGHT FOR THREE LEVELS OF MILK PRODUCTION
171 New York Dairy Farms, 2013**

Item	29 Dairy Farms Milk/Cow <19,000#		24 Dairy Farms Milk/Cow 19,000-22,999#		118 Dairy Farms Milk/Cow ≥23,000#	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<u>ACCRUAL RECEIPTS</u>						
Milk sales	3,283	\$22.82	\$4,739	\$21.69	\$5,673	\$21.63
Dairy cattle	234	1.63	359	1.64	394	1.50
Dairy calves	45	0.32	30	0.14	43	0.16
Other livestock	53	0.37	6	0.03	10	0.04
Crops	84	0.58	116	0.53	124	0.47
Government receipts	53	0.37	87	0.40	55	0.21
All other	<u>62</u>	<u>0.43</u>	<u>56</u>	<u>0.26</u>	<u>119</u>	<u>0.45</u>
TOTAL ACCRUAL RECEIPTS	\$3,813	\$26.50	\$5,393	\$24.68	\$6,417	\$24.47
<u>ACCRUAL EXPENSES</u>						
<u>Labor:</u> Hired	\$ 358	\$ 2.49	\$ 535	\$ 2.45	\$ 735	\$ 2.80
<u>Feed:</u> Dairy grain & concentrate	931	6.47	1,505	6.89	1,860	7.09
Dairy roughage	113	0.79	47	0.21	131	0.50
Nondairy	0	0.00	0	0.00	0	0.00
Professional nutritional services	0	0.00	0	0.00	1	0.01
<u>Machinery:</u> Mach. hire, rent & lease	148	1.03	228	1.04	97	0.37
Machinery repairs & vehicle expense	179	1.25	228	1.04	255	0.97
Fuel, oil & grease	134	0.93	228	1.04	218	0.83
<u>Livestock:</u> Replacement livestock	40	0.28	12	0.06	18	0.07
Breeding	29	0.20	50	0.23	55	0.21
Vet & medicine	72	0.50	119	0.54	181	0.69
Milk marketing	141	0.98	200	0.91	224	0.86
Bedding	46	0.32	100	0.46	106	0.40
Milking supplies	67	0.46	86	0.39	99	0.38
Cattle lease & rent	4	0.03	0	0.00	5	0.02
Custom boarding	1	0.00	26	0.12	99	0.38
bST expense	7	0.05	16	0.07	45	0.17
Livestock professional fees	11	0.08	16	0.07	20	0.08
Other livestock expense	29	0.20	34	0.16	20	0.08
<u>Crops:</u> Fertilizer & lime	154	1.07	172	0.79	144	0.55
Seeds & plants	65	0.45	126	0.58	125	0.47
Spray & other crop expense	45	0.31	63	0.29	58	0.22
Crop professional fees	3	0.02	6	0.03	9	0.03
<u>Real Estate:</u> Land, building & fence repair	37	0.26	44	0.20	96	0.36
Taxes	84	0.58	75	0.34	60	0.23
Rent & lease	60	0.42	80	0.36	73	0.28
<u>Other:</u> Insurance	44	0.31	49	0.23	43	0.17
Utilities (farm share)	75	0.52	129	0.59	102	0.39
Interest paid	113	0.79	106	0.48	122	0.46
Other professional fees	28	0.20	19	0.09	31	0.12
Miscellaneous	<u>23</u>	<u>0.16</u>	<u>18</u>	<u>0.08</u>	<u>30</u>	<u>0.12</u>
TOTAL OPERATING EXPENSES	\$3,044	\$21.16	\$4,317	\$19.76	\$5,063	\$19.30
Expansion livestock	26	0.18	12	0.05	25	0.10
Extraordinary expense	0	0.00	15	0.07	1	0.00
Machinery depreciation	177	1.23	199	0.91	238	0.91
Building depreciation	103	0.72	<u>101</u>	<u>0.46</u>	<u>151</u>	<u>0.58</u>
TOTAL ACCRUAL EXPENSES	\$3,350	\$23.29	\$4,643	\$21.25	\$5,477	\$20.88

Table 66.

**FARM RECEIPTS AND EXPENSES PER COW AND PER
HUNDREDWEIGHT FOR THREE HERD SIZE CATEGORIES
171 New York Dairy Farms, 2013**

Item	27 Dairy Farms with <100 Cows		24 Dairy Farms with 100-200 Cows		120 Dairy Farms with ≥ 200 Cows	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<u>ACCRUAL RECEIPTS</u>						
Milk sales	\$3,854	\$21.47	\$4,641	\$21.63	\$5,584	\$21.66
Dairy cattle	193	1.07	304	1.42	392	1.52
Dairy calves	21	0.12	31	0.14	43	0.17
Other livestock	22	0.12	8	0.04	11	0.04
Crops	6	0.04	132	0.62	123	0.48
Government receipts	153	0.85	82	0.38	54	0.21
All other	<u>64</u>	<u>0.35</u>	<u>89</u>	<u>0.42</u>	<u>116</u>	<u>0.44</u>
TOTAL ACCRUAL RECEIPTS	\$4,314	\$24.03	\$5,287	\$24.64	\$6,322	\$24.52
<u>ACCRUAL EXPENSES</u>						
<u>Labor:</u> Hired	\$ 247	\$ 1.38	\$ 418	\$ 1.95	\$ 726	\$ 2.82
<u>Feed:</u> Dairy grain & concentrate	1,134	6.32	1,495	6.97	1,825	7.08
Dairy roughage	109	0.60	25	0.12	129	0.50
Nondairy	0	0.00	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	88	0.49	138	0.64	106	0.41
Mach. repairs & vehicle expense	254	1.42	230	1.07	251	0.97
Fuel, oil & grease	188	1.05	231	1.08	215	0.83
<u>Livestock:</u> Replacement livestock	85	0.48	29	0.14	17	0.07
Breeding	59	0.33	58	0.27	53	0.21
Vet & medicine	86	0.48	130	0.61	176	0.68
Milk marketing	196	1.09	210	0.98	221	0.86
Bedding	40	0.23	77	0.36	105	0.41
Milking supplies	108	0.60	97	0.45	97	0.38
Cattle lease & rent	0	0.00	11	0.05	4	0.02
Custom boarding	8	0.05	5	0.02	95	0.37
bST expense	6	0.04	14	0.07	44	0.17
Livestock professional fees	27	0.15	23	0.11	20	0.08
Other livestock expense	42	0.24	54	0.25	20	0.08
<u>Crops:</u> Fertilizer & lime	133	0.74	168	0.78	146	0.56
Seeds & plants	72	0.40	116	0.54	123	0.48
Spray & other crop expense	36	0.20	80	0.37	57	0.22
Crop professional fees	1	0.01	4	0.02	9	0.03
<u>Real Estate:</u> Land, building & fence repair	56	0.31	76	0.36	92	0.35
Taxes	118	0.65	102	0.47	60	0.23
Rent & lease	50	0.28	47	0.22	74	0.29
<u>Other:</u> Insurance	78	0.43	59	0.27	43	0.17
Utilities (farm share)	145	0.81	107	0.50	102	0.39
Interest paid	123	0.69	118	0.55	121	0.47
Other professional fees	33	0.19	21	0.10	31	0.12
Miscellaneous	<u>28</u>	<u>0.16</u>	<u>22</u>	<u>0.10</u>	<u>30</u>	<u>0.11</u>
TOTAL OPERATING EXPENSES	\$3,553	\$19.79	\$4,166	\$19.42	\$4,991	\$19.36
Expansion livestock	0	0.00	4	0.02	26	0.10
Extraordinary expense	3	0.02	29	0.14	1	0.00
Machinery depreciation	220	1.23	252	1.17	233	0.90
Building depreciation	<u>58</u>	<u>0.32</u>	<u>71</u>	<u>0.33</u>	<u>150</u>	<u>0.58</u>
TOTAL ACCRUAL EXPENSES	\$3,834	\$21.35	\$4,522	\$21.08	\$5,400	\$20.94

Table 67.

COMPARISON OF DAIRY FARM BUSINESS DATA BY REGION
171 New York Dairy Farms, 2013

Item	West. & Cent. Plateau Region	Western & Central Plain Region	Northern New York	Central Valleys	North. Hudson & Southeastern New York
Number of farms	20	54	27	29	41
<u>ACCRUAL EXPENSES</u>					
Hired labor	\$377,892	\$654,943	\$520,713	\$378,808	\$265,916
Feed	1,214,399	1,688,906	1,486,611	1,022,058	717,366
Machinery	314,191	451,550	473,138	364,769	233,455
Livestock	490,465	739,853	678,734	444,251	315,968
Crops	169,815	255,932	297,777	236,471	123,410
Real estate	132,732	203,810	159,826	131,756	80,081
Other	<u>159,925</u>	<u>275,247</u>	<u>280,037</u>	<u>189,532</u>	<u>127,065</u>
Total Operating Expenses	\$2,859,420	\$4,270,242	\$3,896,835	\$2,767,645	\$1,863,260
Expansion livestock	54,279	11,879	18,186	9,441	5,592
Extraordinary expense	0	1,610	148	276	2,433
Machinery depreciation	123,040	193,153	193,906	151,723	82,736
Building depreciation	<u>61,986</u>	<u>140,101</u>	<u>137,345</u>	<u>72,003</u>	<u>40,706</u>
Total Accrual Expenses	\$3,098,725	\$4,616,986	\$4,246,420	\$3,001,088	\$1,994,726
<u>ACCRUAL RECEIPTS</u>					
Milk sales	\$3,347,429	\$4,669,303	\$4,487,947	\$3,204,253	\$1,988,405
Livestock	303,641	403,035	312,220	208,202	160,518
Crops	67,562	116,053	103,672	75,982	22,689
Government Receipts	28,114	50,512	26,232	50,737	20,052
All other	<u>26,315</u>	<u>103,826</u>	<u>77,821</u>	<u>85,832</u>	<u>46,152</u>
Total Accrual Receipts	\$4,076,703	\$5,745,765	\$5,320,113	\$3,833,209	\$2,398,335
<u>PROFITABILITY ANALYSIS</u>					
Net farm income(w/o appreciation)	\$674,336	\$725,744	\$761,473	\$623,919	\$243,090
Net farm income (w/ appreciation)	\$772,816	\$948,131	\$924,618	\$773,653	\$312,160
Labor & management income	\$740,641	\$814,567	\$794,568	\$603,942	\$275,217
Number of operators	2.06	2.16	1.89	2.03	1.83
Labor & mgmt. income/operator	\$359,535	\$377,114	\$420,406	\$297,508	\$150,392
<u>BUSINESS FACTORS</u>					
Worker equivalent	12.91	18.04	16.83	13.18	9.73
Number of cows	589	846	822	573	363
Number of heifers	542	728	707	461	307
Acres of hay crops ⁶⁸	552	623	799	558	423
Acres of corn silage ⁶⁸	534	628	710	478	366
Total tillable acres	1,098	1,468	1,736	1,278	809
Pounds of milk sold	15,398,548	21,672,835	20,962,747	14,705,036	8,973,943
Pounds of milk sold/cow	26,157	25,609	25,488	25,649	24,740
Tons hay crop dry matter/acre	3.3	4.1	3.5	3.3	2.9
Tons corn silage/acre	21.0	18.6	18.8	17.1	14.4
Cows/worker	46	47	49	43	37
Pounds of milk sold/worker	1,192,838	1,201,321	1,245,929	1,115,356	922,454
% grain & conc. of milk receipts	33%	32%	31%	30%	33%
Feed & crop expense/cwt. milk	\$8.98	\$8.97	\$8.51	\$8.56	\$9.37
Fertilizer & lime/crop acre ⁶⁸	\$73.43	\$76.60	\$71.03	\$77.46	\$56.65
Machinery cost/tillable acre ⁶⁸	\$443	\$481	\$417	\$449	\$441

⁶⁸Excludes farms that do not harvest forages.

Figure 2.

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

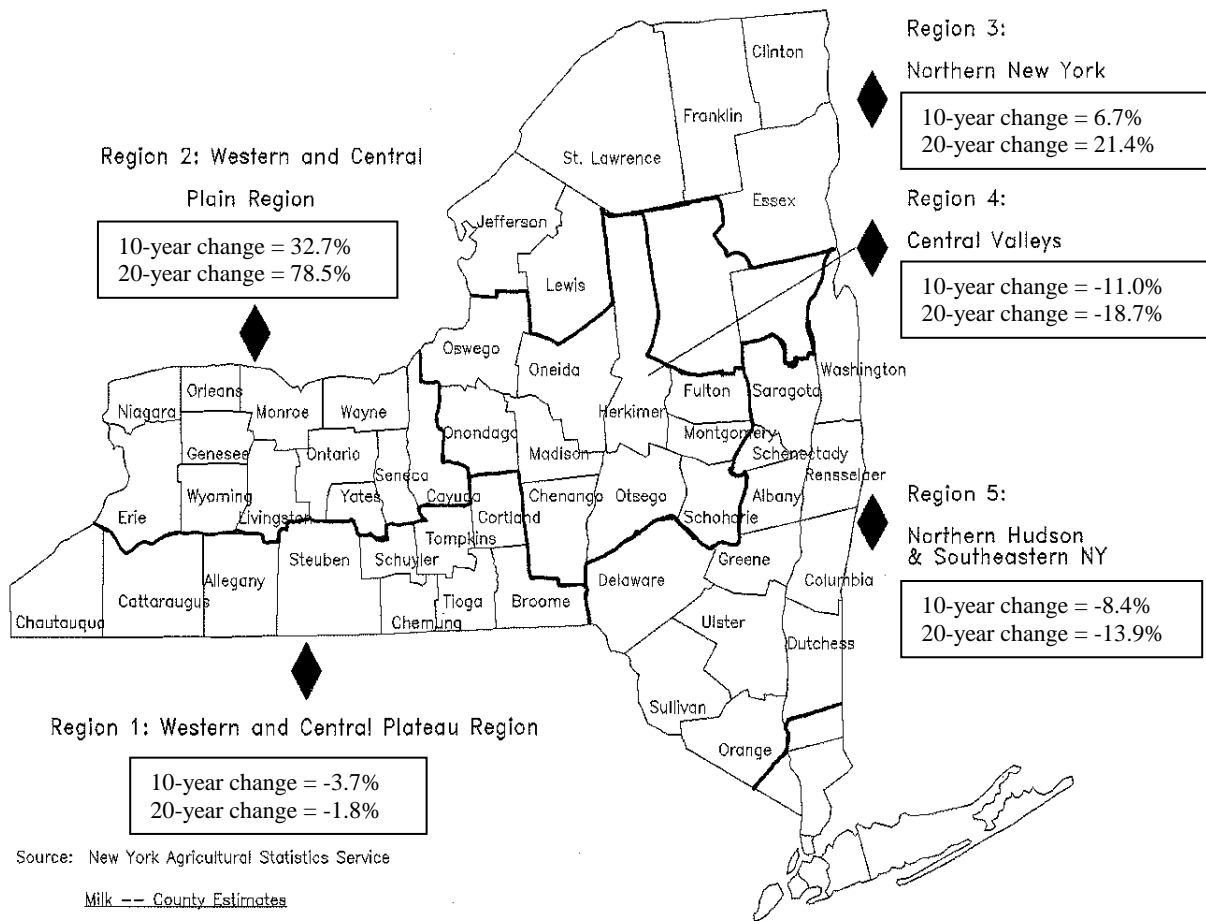


Table 68.

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

Item	Region ⁶⁹				
	1	2	3	4	5
<u>Milk Production</u> ⁷⁰	(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>2013 Cost of Producing Milk</u> ⁷¹	(\$ per hundredweight milk)				
Operating cost	\$16.16	\$16.65	\$16.20	\$16.02	\$18.05
Total cost	19.74	20.35	19.76	19.96	21.89
Average price received	21.74	21.54	21.41	21.79	22.16
Return per cwt. to operator labor, management & capital	\$2.83	\$1.90	\$2.30	\$2.69	\$1.28

⁶⁹See Figure 2 for region descriptions.

⁷⁰Source: New York Agricultural Statistics Service, Milk-County Estimates. The data for 2013 was not available.

⁷¹From Dairy Farm Business Summary data.

Table 69.

SELECTED BUSINESS FACTORS BY MILKING FREQUENCY
New York State Dairy Farms, 2012 & 2013

Item	2x/Day Milking		3x/Day Milking	
	2012	2013	2012	2013
Number of farms	73	67	83	95
<u>Business Size & Production</u>				
Number of cows	241	235	938	946
Number of heifers	199	195	809	810
Milk sold, lbs.	5,143,049	5,038,603	24,663,316	24,809,793
Milk sold/cow, lbs.	20,384	21,475	26,298	26,233
Milk plant test, % butterfat	3.93%	2.47%	3.54%	3.52%
Tillable acres, total	553	540	1,762	1,805
Hay crop, tons DM/acre	2.4	2.8	3.1	3.7
Corn silage, tons/acre	16.8	17.7	16.6	18.03
Forage DM/cow, tons	6.9	7.7	7.4	8.28
<u>Labor & Capital Efficiency</u>				
Worker equivalent	5.69	5.63	20.64	20.74
Milk sold/worker, lbs.	903,346	895,752	1,194,832	1,196,133
Cows/worker	42	42	45	46
Farm capital/worker	\$442,568	\$449,030	\$458,404	\$481,315
Farm capital/cow	\$10,470	\$10,775	\$10,089	\$10,555
Farm capital/cwt. milk	\$48.99	\$50.13	\$38.36	\$40.23
<u>Milk Production Costs & Returns</u>				
Selected costs/cwt.:				
Hired labor	\$2.57	\$2.55	\$2.78	\$2.84
Grain & concentrate	\$6.98	\$6.99	\$6.77	\$7.11
Purchased roughage	\$0.44	\$0.42	\$0.46	\$0.49
Replacements purchased	\$0.04	\$0.07	\$0.05	\$0.07
Veterinary & medicine	\$0.67	\$0.68	\$0.66	\$0.69
Milk marketing	\$0.85	\$0.87	\$0.88	\$0.85
Other dairy expenses	\$0.62	\$0.64	\$0.76	\$0.77
Operating cost of milk production/cwt.	\$16.34	\$16.97	\$15.67	\$16.62
Total labor costs/cwt.	\$3.85	\$3.77	\$3.09	\$3.17
Owner/operator resources/cwt.	\$0.97	\$3.42	\$3.87	\$5.47
Total cost of milk production/cwt.	\$21.31	\$22.08	\$19.01	\$20.15
Average farm price/cwt.	\$19.93	\$21.87	\$19.76	\$21.64
Return over total costs/cwt.	\$0.05	\$0.11	\$0.13	\$0.17
<u>Related Cost Factors</u>				
Hired labor/cow	\$550	\$547	\$730	\$744
Total labor/cow	\$822	\$810	\$812	\$832
Purchased dairy feed/cow	\$1,585	\$1,591	\$1,901	\$1,995
Purchased grain & concentrate as % of milk receipts	34%	31%	34%	33%
Veterinary & medicine/cow	\$143	\$146	\$173	\$181
Machinery costs/cow	\$807	\$885	\$860	\$901
<u>Profitability Analysis</u>				
Net farm income (without appreciation)	\$102,928	\$162,152	\$664,847	\$879,276
Labor & management income/operator	\$643	\$39,618	\$151,001	\$236,490
Rates of return on:				
Equity capital with appreciation	4.2%	6.6%	12.0%	13.7%
All capital with appreciation	4.2%	5.9%	9.4%	10.4%

Table 70.

FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
7 New York Dairy-Renter Farms,⁷² 2013

<u>ACCRUAL EXPENSES</u>		<u>ACCRUAL RECEIPTS</u>			
Labor: Hired	\$161,900	Milk sales	\$1,284,934		
Feed: Dairy grain & concentrate	463,585	Dairy cattle	118,105		
Dairy roughage	131,107	Dairy calves	-2,759		
Nondairy	0	Other livestock	-736		
Professional nutritional services	0	Crops	-10,963		
Machinery: Machinery hire, rent & lease	29,207	Government receipts	37,763		
Machinery repairs & farm vehicle expense	42,732	Custom machine work	26,037		
Fuel, oil, grease	49,190	Gas tax refund	0		
Livestock: Replacement livestock	1,846	Other	<u>3,547</u>		
Breeding	9,018	TOTAL ACCRUAL RECEIPTS	\$1,455,928		
Veterinary & medicine	25,700				
Milk marketing	50,361				
Bedding	29,063	<u>PROFITABILITY ANALYSIS</u>			
Milking supplies	31,002	Net farm income (without appreciation)	\$125,999		
Cattle lease & rent	0.29	Net farm income (with appreciation)	\$157,093		
Custom boarding	5,294	Labor & management income/farm	\$89,951		
bST expense	13,977	Number of operators	1.40		
Livestock professional fees	3,040	Labor & management income/operator	\$64,251		
Other livestock expense	2,490	Rate of return on equity capital			
Crops: Fertilizer & lime	41,326	with appreciation	14.9%		
Seeds & plants	10,040				
Spray & other crop expense	4,257	<u>BUSINESS FACTORS</u>			
Crop professional fees	0	Number of cows	256		
Real estate: Land, building & fence repair	14,982	Number of heifers	238		
Taxes	4,837	Worker equivalent	6.31		
Rent & lease	56,942	Total tillable acres	307		
Other:		Milk sold per cow, lbs.	23,843		
Insurance	10,264	Hay DM per acre, tons	3.7		
Utilities (farm share)	24,444	Corn silage per acre, tons	18.86		
Interest paid	37,518	Milk sold per worker, lbs.	969,602		
Miscellaneous	<u>18,190</u>	Grain & concentrate as % milk sales	36%		
TOTAL OPERATING EXPENSES	\$1,276,686	Feed & crop expense/cwt. milk	\$10.64		
		Labor & machinery costs/cow	\$1,520		
Expansion livestock	\$2,200	Average price/cwt. milk	\$21.02		
Extraordinary expense	0				
Machinery depreciation	39,948				
Building depreciation	<u>11,094</u>				
TOTAL ACCRUAL EXPENSES	\$1,329,929				
<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	\$16,651	\$21,019	Current	\$281,263	\$287,895
Accounts receivable	96,977	105,542	Intermediate ⁷⁴	689,002	550,786
Prepaid expenses	0	0	Long term ⁷⁵	<u>8,702</u>	<u>8,756</u>
Feed & supplies	178,046	151,878	Total Farm Liabilities	\$978,967	\$847,436
Livestock ⁷³	595,269	629,218			
Machinery & equipment ⁷³	296,376	301,130	Nonfarm Liabilities ⁷⁵	<u>0</u>	<u>0</u>
Farm Credit stock	71	214			
Other stock & certificates	17,684	15,777	Farm & Nonfarm Liabilities	\$978,967	\$847,436
Land & buildings ⁷³	<u>53,013</u>	<u>97,061</u>			
Total Farm Assets	\$1,254,088	\$1,321,839	Farm Net Worth	\$275,122	\$474,403
Nonfarm Assets ⁷⁵	<u>54,648</u>	<u>54,000</u>	Farm & Nonfarm Net Worth	\$329,770	\$528,403
Farm & Nonfarm Assets	\$1,308,736	\$1,375,839			

⁷²A renter owns no farm real estate or tillable land at the end of year.

⁷³Includes discounted lease payments.

⁷⁴Includes Farm Credit stock and discounted lease payments for cattle and machinery.

⁷⁵Average of 4 farms reporting. Average of 6 farms reporting for LT liabilities in December 2013.

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, 1999-2013**

Year	Mixed Dairy Feed 16% Protein ⁸² (\$/ton)	Fertilizer, Urea 45-46%N ⁸² (\$/ton)	Seed Corn, Hybrid ⁸³ (\$/80,000 kernels)	Diesel Fuel ⁸² (\$/gal)	Tractor 50-59 PTO ⁸³ (\$)	Wage Rate All Hired Farm Workers ⁸⁴ (\$/hr)
1999	175	180	88.10	0.750	21,900	8.12
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

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

⁸²Northeast region average. ⁸³United States average. ⁸⁴New 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, 1997-2013**

Year	Dairy Cows		Machinery ⁸⁵	Farm Real Estate ⁸⁶	
	Value/Head	1977=100	1977=100	Value/Acre	1977=100
1999	1,250	253	294	1,340	228
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

SOURCE: USDA, NASS, ASB, Agricultural Prices.

⁸⁵United States average; 1999 - 2013 are estimated due to discontinuation of 1977=100 series.

⁸⁶New York average for 2001-2013 excludes Native American Reservation land.

Table A3.

NUMBER OF LARGE DAIRY FARMS AND MILK COWS BY SIZE OF HERD New York State, 2013^{87,88}				
Size of Herd	Farms		Milk Cows	
Number of Cows	Number	% of Total	Number	% of Total
200 – 499	188	42.1%	65,000	19.2%
500 – 749	113	25.3%	69,000	20.4%
750 – 999	45	10.1%	38,000	11.1%
1,000 – 1,499	56	12.5%	66,000	19.5%
1,500 – 1,999	23	5.1%	40,000	11.8%
2,000-2,999	15	3.4%	35,000	10.3%
3,000 or more	7	1.5%	26,000	7.7%
Total	447	100.0%	339,000	100.0%

⁸⁷This information on number of farms and number of cows by size of herd is derived from several sources:
- Dairy Statistics as published by the New York Agricultural Statistics Services for 2013.
- CAFO (Concentrated Animal Feeding Operations) permit reports for 2013.

⁸⁸The author wishes to thank everyone who provided some data as well as providing valuable advice and perspectives. However, any errors, omissions or misstatements are solely the responsibility of the author, Professor George Conneman, e-mail GJC4@cornell.edu.

In 2013, there were 447 large dairy farms (farms with 200 or more cows) in New York State. Those farms reported housing 339,000 milk cows total in the State of New York. The table above was prepared based on the NYASS data plus the CAFO permit filing for additional herd size categories.

Farms with 1,000 or more cows (101 farms) represent about 22 percent of the farms but kept over 47 percent of the cows.

Ten-Year Comparisons

Ten years ago (2004) there were 50 herds with 1,000 or more cows and only 6 with over 2,000. The total number of farms in NYS in 2004 was 6,500, and in 2013 there were almost 5,000.

The total cost of producing milk on DFBS farms has increased \$5.27 per hundredweight over the past 10 years. In the intervening years, total cost of production increased from 2004 to 2005, decreased in 2006, increased from 2007 to 2008, decreased in 2009 to \$16.72, and has been increasing each year since to \$20.56 in 2013. It is interesting to note that costs of production decrease in low milk price years and increase in high milk price years. Over the 10 years, milk sold per cow increased 12 percent and cows per worker increased 2 percent on DFBS farms. Farm net worth has increased significantly, while percent equity has been fairly stable.

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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2012-01	Dairy Farm Management Business Summary, New York State 2011	(\$20.00)	Knoblauch, W., Putnam, L., Karsze J., Overton, R. and C. Dymond
2011-03	Dairy Farm Management Business Summary, New York State, 2010	(\$20.00)	Knoblauch, W., Putnam, L., Karsze J., Overton, R. and C. Dymond
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2011-01	Survey of New York Dairy Farm Employers 2009		Maloney, T. and N. Bills
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