

DAIRY FARM MANAGEMENT

NOVEMBER 2012

R.B. 2012-01

BUSINESS SUMMARY NEW YORK STATE 2011



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

**Wayne A. Knoblauch
Linda D. Putnam
Jason Karszes
Richard Overton
Cathryn Dymond**

**Charles H. Dyson School of Applied Economics and Management
Cornell University Agricultural Experiment Station
College of Agriculture and Life Sciences
Cornell University, Ithaca, New York 14853-7801**

It is the Policy of Cornell University actively to support equality of educational and employment opportunity. No person shall be denied admission to any educational program or activity or be denied employment on the basis of any legally prohibited discrimination involving, but not limited to, such factors as race, color, creed, religion, national or ethnic origin, sex, age or handicap. The University is committed to the maintenance of affirmative action programs which will assure the continuation of such equality of opportunity.

The Dairy Farm Business Summary and Analysis Project is funded in part by:



Additional funding is provided by:



For additional copies, please contact:

Dairy Farm Business Summary and Analysis Project
Cornell University
Charles H. Dyson School of Applied Economics and Management
216 Warren Hall
Ithaca, NY 14853-7801

Fax: 607-255-1589

Voice: 607-255-8429

Or visit:

<http://www.dyson.cornell.edu/outreach/order.php>

**Dairy Farm Management
Business Summary, New York State, 2011¹**

Wayne A. Knoblauch*
Linda D. Putnam
Jason Karszes
Richard Overton
Cathryn Dymond

Charles H. Dyson School of Applied Economics and Management
Cornell University, Ithaca, New York 14853-7801 USA

*Author phone: 607-255-1599

*Author e-mail: wak4@cornell.edu

Keywords: BUSINESS ANALYSIS, DAIRY MANAGEMENT, FARM BUSINESS SUMMARY,
NEW YORK FARMS

JEL codes: Q12, Q14

Acknowledgements

The authors wish to acknowledge extension field staff, consultants, and cooperating farmers for their invaluable contributions to this project. In addition, the authors appreciate the comments provided by Loren Tauer and George Conneman.

Dedication

This publication is dedicated to the memory of Cathy Wickswat. Cathy was a long term advocate who supported and used the DFBS extensively as both a Cornell Cooperative Extension educator and Cargill consultant.

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

ABSTRACT

Business and financial records for 2011 from 190 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 531 cows per farm and 24,648 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 21,026 pounds milk production per cow for New York. An average New York herd size per farm of 132 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 \$605,123 per farm. The rate of return to all capital invested in the farm business including appreciation averaged 13.4 percent.

Differences in profitability between farms continue to widen. Average net farm income excluding appreciation of the top 10 percent of farms was \$2,341,294, while the lowest 10 percent was \$-10,917. Rates of return on equity with appreciation ranged from positive 35 percent to negative 18 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 2011 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 2011 than herds milking two times per day (2X). Operating costs per hundredweight of milk were \$0.30 per hundredweight lower for 3X than 2X milking herds, while output per cow was 4,822 pounds higher.

Farms adopting intensive grazing generally produced less milk per cow than non-grazing farms and in 2011 averaged lower labor and management incomes per operator. One should not conclude that adoption of these technologies alone were responsible for differences in performance.

TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION.....	1
Trend Analysis.....	1
Farms Included	1
Features	1
Acknowledgments	1
2011 Regional Summary Publications	2
 FIFTY YEARS OF NEW YORK STATE DAIRY FARM BUSINESS DATA	 3
 FOUR YEARS OF VARIABILITY	 3
 ADJUSTING PROFIT, PRICE AND COSTS FOR INFLATION	 6
 SUMMARY & ANALYSIS OF THE FARM BUSINESS.....	 8
Business Characteristics & Resources Used.....	8
Accounting Procedures	9
Income Statement - Expenses	9
Income Statement - Receipts.....	11
Profitability Analysis	12
Farm & Family Financial Status	15
Cash Flow Summary & Analysis.....	18
Repayment Analysis	20
Cropping Program Analysis.....	21
Dairy Program Analysis.....	24
Cost of Producing Milk.....	28
Milk Income and Marketing Expense Breakdown.....	40
Capital & Labor Efficiency Analysis	42
Farm Business Charts	44
Financial Analysis & Management.....	46
Herd Size Comparisons.....	48
 SUPPLEMENTAL INFORMATION.....	 61
Income & Expense Comparison for Farms Buying Majority of Forages Versus Similar Size Farms Growing Forages	 63
Comparisons by Type of Barn & Herd Size	65
Intensive Grazing Farms vs. Non-Grazing Farms.....	71
Comparison of Farm Business Summary Data, 2002-2011	72
Farm Receipts & Expenses Per Cow & Per Hundredweight for Three Levels of Milk Production & Three Herd Size Categories.....	 74
Comparison of Dairy Farm Business Data by Region	76
Milk Production & Average Cost of Producing Milk by Region.....	77
Comparison of Farms by Milking Frequency	78
Other Comparisons	79
 APPENDIX: PRICES, COSTS AND TRENDS IN THE NEW YORK DAIRY INDUSTRY	 83
 GLOSSARY & LOCATION OF COMMON TERMS.....	 86

LIST OF TABLES

<u>Table Number</u>	<u>Page</u>
1	Comparison of Farm Business Summary Data, New York Dairy Farms, 1961-20114
2	Comparison of Farm Business Summary Data, Same 148 New York Dairy Farms, 2008-20115
3	Business Characteristics & Resources Used, 190 New York Dairy Farms, 20118
4	Cash & Accrual Farm Expenses, 190 New York Dairy Farms, 201110
5	Cash & Accrual Farm Receipts, 190 New York Dairy Farms, 201111
6	Net Farm Income, 190 New York Dairy Farms, 201112
7	Labor & Management Income, 190 New York Dairy Farms, 201113
8	Return to Capital, 190 New York Dairy Farms, 201114
9	Return to All Labor & Management by Return to All Capital With Appreciation, 190 New York Dairy Farms, 201114
10	2011 Farm Business & Nonfarm Balance Sheet, 190 New York Dairy Farms, 201115
11	Farm Balance Sheet Analysis, 190 New York Dairy Farms, 201116
12	Farm Inventory Balance, 190 New York Dairy Farms, 201116
13	Statement of Owner Equity (Reconciliation), 190 New York Dairy Farms, 201117
14	Annual Cash Flow Statement, 190 New York Dairy Farms, 201118
15	Annual Cash Flow Data, 190 New York Dairy Farms, 201119
16	Farm Debt Payments Planned, Same 174 New York Dairy Farms, 2010 & 201120
17	Coverage Ratios, Same 174 New York Dairy Farms, 2010 & 201120
18	Debt to Asset Ratio vs. Cash Flow Coverage, 190 New York Dairy Farms, 201120
19	Land Resources & Crop Production, 190 New York Dairy Farms, 201121
20	Crop Management Factors, 190 New York Dairy Farms, 201121
21	Crop Related Accrual Expenses, 184 New York Dairy Farms That Grow Forages, 201122
22	Accrual Machinery Expenses, 184 New York Dairy Farms That Grow Forages, 201122
23	Dairy Herd Inventory, 190 New York Dairy Farms, 201124
24	Milk Production, 190 New York Dairy Farms, 201125
25	Milk Sold Per Cow & Farm Income Measures, 190 New York Dairy Farms, 201125
26	Culling Rate and Dairy Replacement Information, New York Dairy Farms, 201127
27	Cost of Producing Milk, Whole Farm Method, 190 New York Dairy Farms, 201128
28	Itemized Costs of Producing Milk Per Hundredweight Based on Whole Farm Data, 190 New York Dairy Farms, 201129
29	Itemized Costs of Producing Milk per Hundredweight Based on Whole Farm Data, Same 174 New York Dairy Farms, 2010-201130
30	Cost of Producing Milk, Accrual Receipts from Dairy, and Profitability, 190 New York Dairy Farms, 201131
31	Farm Cost of Producing Milk by Milk Sold Per Cow, 190 New York Dairy Farms, 201131
32	Farm Cost of Producing Milk by Herd Size, 190 New York Dairy Farms, 201133
33	Ten Year Comparison: Average Cost of Producing Milk Per Hundredweight, New York Dairy Farms, 2001 to 201136
34	Ten Year Comparison: Selected Business Factors, New York Dairy Farms, 2002 to 201137
35	Dairy Related Accrual Expenses, 190 New York Dairy Farms, 201138
36	Purchased Feed & Crop Expenses Per Hundredweight of Milk and Farm Income Measures, 190 New York Dairy Farms, 201139
37	Average Milk Income and Marketing Report, 124 New York Dairy Farms, 201140
38	Milk Price Information by Quintile, 124 New York Dairy Farms, 201141
39	Capital Efficiency, 190 New York Dairy Farms, 201142
40	Asset Turnover & Profitability, 190 New York Dairy Farms, 201142
41	Labor Efficiency, 190 New York Dairy Farms, 201142
42	Labor Force Inventory & Cost Analysis, 190 New York Dairy Farms, 201143
43	Milk Sold Per Worker & Net Farm Income, 190 New York Dairy Farms, 201143
44	Farm Business Chart for Farm Management Cooperators, 190 New York Dairy Farms, 201144

45	A Farm Finance Checklist, 190 New York Dairy Farms, 2011	46
46	Financial Analysis Chart, 190 New York Dairy Farms, 2011	47
47	Cows Per Farm and Farm Family Income Measures, 190 New York Dairy Farms, 2011	48
48	Cows Per Farm and Related Farm Factors, 190 New York Dairy Farms, 2011	49
49	Progress of Farm Businesses with Less Than 110 Cows, Same 31 New York Dairy Farms, 2007-2011	50
50	Progress of Farm Businesses with 110-499 Cows, Same 44 New York Dairy Farms, 2007-2011	51
51	Progress of Farm Businesses with More Than 500 Cows, Same 65 New York Dairy Farms, 2007-2011	52
52	Farm Business Summary by Herd Size, 190 New York Dairy Farms, 2011	53
53	Farm Family Financial Situation by Herd Size, 190 New York Dairy Farms, 2011	55
54	Selected Business Factors by Herd Size, 190 New York Dairy Farms, 2011	59
55	Income and Expense Comparison for Farms Buying Majority of Forages Versus Similar Size Farms Growing Forages, 2011	63
56	Selected Business Factors for Farms Buying Majority of Forages Versus Similar Size Farms Growing Forages, 2011	64
57	Selected Business Factors by Type of Barn & Herd Size, 190 New York Dairy Farms, 2011	65
58	Farm Business Chart for Small Conventional Stall Dairy Farms, 19 Conventional Stall Dairy Farms with 60 or Less Cows, New York, 2011	66
59	Farm Business Chart for Large Conventional Stall Dairy Farms, 16 Conventional Stall Dairy Farms with More Than 60 Cows, New York, 2011	67
60	Farm Business Chart for Small Freestall Dairy Farms, 34 Freestall Barn Dairy Farms with 200 or less Cows, New York, 2011	68
61	Farm Business Chart for Medium Freestall Dairy Farms, 29 Freestall Barn Dairy Farms with 201-500 Cows, New York, 2011	69
62	Farm Business Chart for Large Freestall Dairy Farms, 81 Freestall Barn Dairy Farms with 500 or More Cows, New York, 2011	70
63	Intensive Grazing Farms vs. Non-Grazing Farms, New York State Dairy Farms, 2011	71
64	Comparison of Farm Business Data, Same 87 New York Dairy Farms, 2002-2011	72
65	Farm Receipts & Expenses Per Cow & Per Hundredweight for Three Levels of Milk Production, 190 New York Dairy Farms, 2011	74
66	Farm Receipts & Expenses Per Cow & Per Hundredweight for Three Herd Size Categories, 190 New York Dairy Farms, 2011	75
67	Comparison of Dairy Farm Business Data by Region, 192 New York Dairy Farms, 2011	76
68	Milk Production & Average Cost of Producing Milk, Five Regions of New York	77
69	Selected Business Factors by Milking Frequency, New York Dairy Farms, 2010 & 2011	78
70	Farm Business Summary & Farm Family Financial Situation, 13 New York Dairy-Renter Farms, 2011	79
71	Farm Business Summary & Farm Family Financial Situation, Average of 19 Top 10 Percent Farms by Rate of Return on All Capital (without appreciation), 2011	80
72	Farm Business Summary & Farm Family Financial Situation, Average of 190 New York Dairy Farms, 2011	81
A1	Prices Paid by New York Farmers for Selected Items, 1997-2011	84
A2	Values and Indices of New York Dairy Farm Inventory Items, 1995-2011	84
A3	Number of Dairy Farms and Milk Cows by Size of Herd, New York State, 2011	85

LIST OF FIGURES & CHARTS

	<u>Page</u>
Figure 1. Location of the 190 New York Dairy Farms in the 2011 Dairy Farm Business Summary	2
Figure 2. Percent Change in Milk Production, Five Regions in New York, 1990-2010.....	77
Chart 1. Operating Cost of Producing Milk and Price Received for Milk	3
Chart 2. Labor and Management Incomes Per Operator.....	6
Chart 3. Operating Cost of Producing Milk and Milk Price	7
Chart 4. Distribution of Labor & Management Incomes Per Operator.....	13
Chart 5. Crop Expense Per Acre by Total Forage Production Per Acre	22
Chart 6. Real Estate Investment Per Cow by Forage and Grazing Acres Per Cow	23
Chart 7. Labor and Management Incomes/Operator/Cow by Forage and Grazing Acres/Cow	23
Chart 8. Net Farm Income (without appreciation) by Herd Size	24
Chart 9. Net Farm Income by Milk Per Cow	26
Chart 10. Net Farm Income Per Cow by Milk Per Cow	26
Chart 11. Milk Sold Per Cow by Cull Rate	27
Chart 12. Net Farm Income Per Cow Without Appreciation by Cull Rate.....	27
Chart 13. Production Cost by Milk Per Cow	32
Chart 14. Total Cost of Producing Milk Per Cwt. by Milk Per Cow	32
Chart 15. Production Cost by Herd Size.....	33
Chart 16. Net Farm Income Per Cow by Total Cost of Producing Milk Per Hundredweight.....	34
Chart 17. Variation in Average Milk Price	38
Chart 18. Net Milk Income Over Purchased Concentrate Per Cow by Return on Assets.....	39

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, and County and Regional Extension staff, cooperate in sponsoring DFBS projects. In 2011, over 300 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; Cathy Wickswat and Russ Saville from Cargill Animal Nutrition; 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 computer in 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 three regions and 46 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 190 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 230) represent nearly five percent of the milk cow operations in New York (see Appendix Table A3). The 190 specialized dairy farms represent a cross section of better than average commercial dairy farm owner/operators in the State. The DFBS participating farms represent 22 percent of the total New York milk production and 19 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. Organic dairies are summarized in a separate publication.

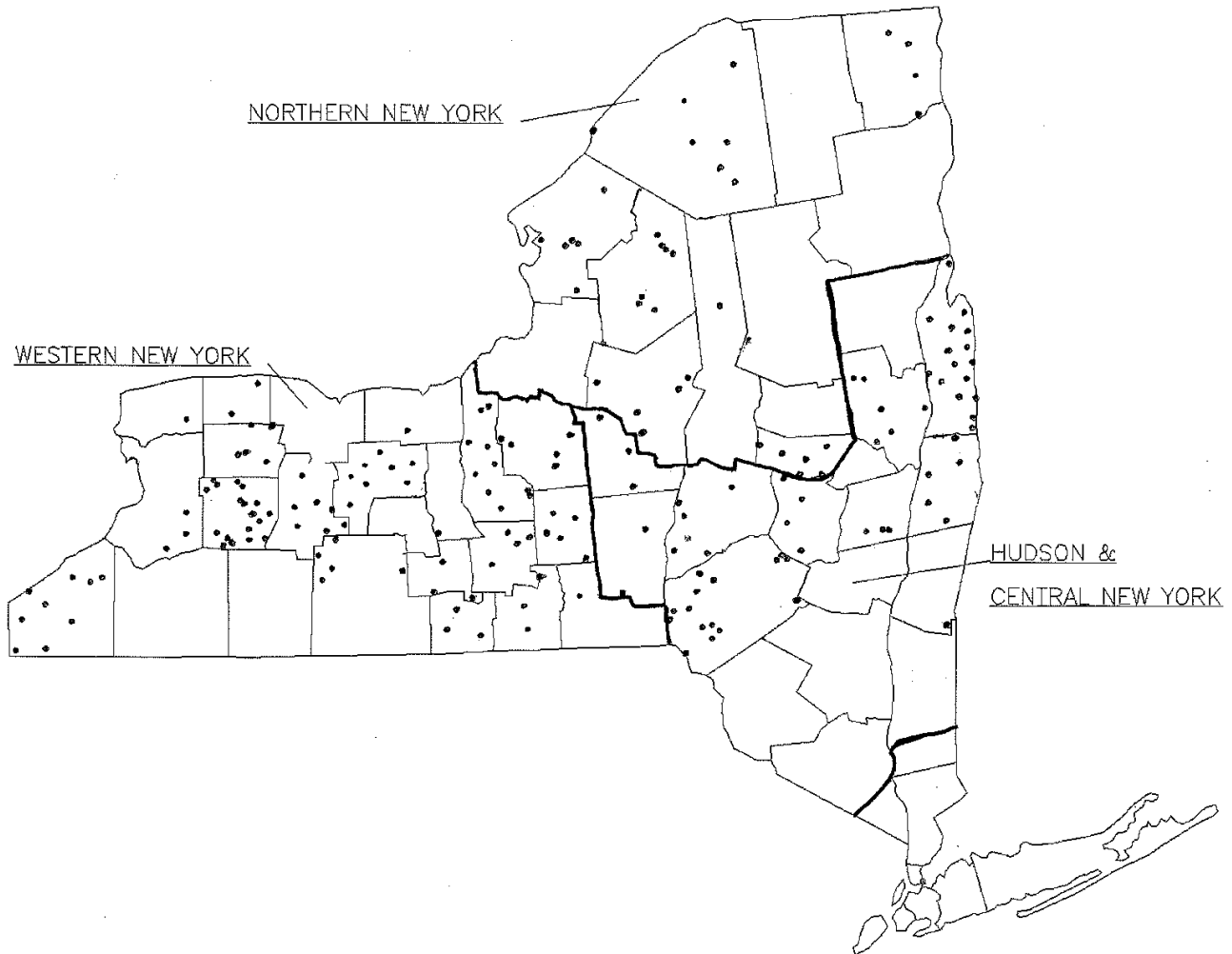
Features

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 14 and 15. 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 190 NEW YORK DAIRY FARMS
IN THE 2011 DAIRY FARM BUSINESS SUMMARY**



2011 Regional Summary Publications

<u>Region</u>	<u>Publications</u>	<u>Author(s)</u>
Western New York	E.B. 2012-03	Wayne A. Knoblauch, Linda D. Putnam, Jason Karszes, John Hanchar, James Grace, Virginia Carlberg, Joan Petzen, Richard Overton, and Cathryn Dymond.
Hudson and Central New York	E.B. 2012-05	Wayne A. Knoblauch, George J. Conneman, Linda D. Putnam, Jason Karszes, Sandy Buxton, Mariane Kiraly, Kirk Shoen, Richard Overton, and Cathryn Dymond.
Northern New York	E.B. 2012-08	Wayne A. Knoblauch, Linda D. Putnam, Jason Karszes, Peggy Murray, Frans Vokey, Anita Deming, David Balbian, Sandy Buxton, Jim Manning, Bonnie Collins, Anita Figueras, Richard Overton, and Cathryn Dymond.

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 14 fold between 1961 and 2011 with nearly a doubling in herd size over the last 10 years. The DFBS sample is not representative of all farms in New York State. Milk output per cow increased 147 percent with the largest increase occurring between 1991 and 2001. Labor efficiency, measured by pounds of milk sold per worker, is up 413 percent on DFBS farms, and the operating cost of producing milk increased more than 720 percent with the largest jump occurring between 1971 and 1981.

There is a large increase in farm capital invested per farm, which is 95 times greater than in 1961. Net farm income per farm increased 1,428 percent (adjusted for 2011 dollars). Labor and management income per operator is up 801 percent from 50 years ago (adjusted for 2011 dollars). This is a reflection of the increased variability over the last 50 years. Some factors could not be calculated with 1961 and 1971 data because liabilities, interest paid, and/or appreciation were not available in those years. Farm net worth excluding deferred taxes is more than 100 times greater than 50 years ago and rate of return on equity capital increased 14.4 percent since 1981.

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 148 DFBS cooperators each year since 2008. 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 2011 still provided dairy farmers with the highest operating margin per hundredweight of \$6.14 over these four years.

Average net farm income without appreciation in 2011 was 88 percent above the 2008 average, and 65 percent above the 2010 average. Net worth increased 5 percent in 2008, decreased 8 percent in 2009, increased 12 percent in 2010, and increased 18 percent in 2011.

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.

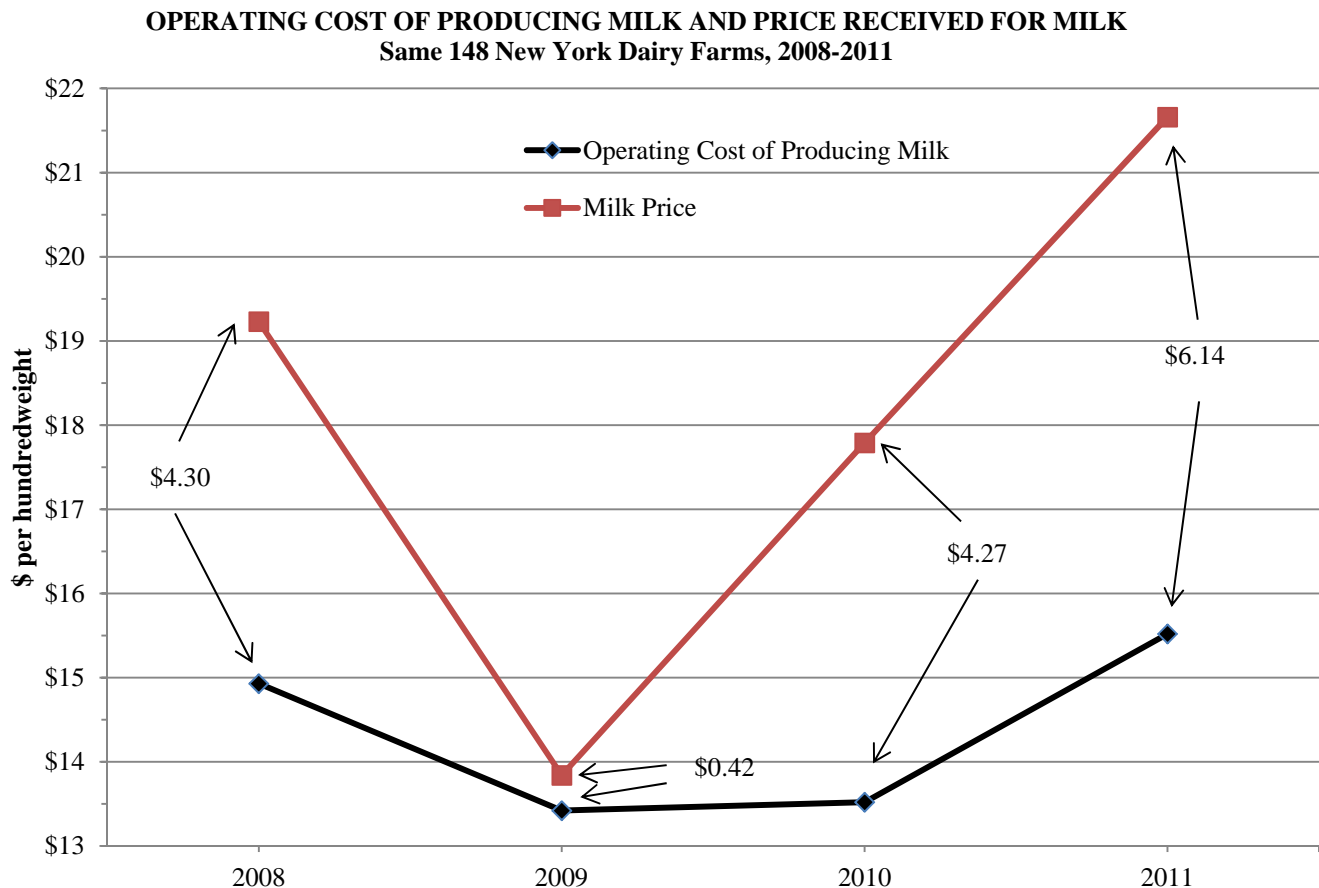


Table 1.

COMPARISON OF FARM BUSINESS SUMMARY DATA
New York Dairy Farms, 1961 - 2011

Selected Factors	1961	1971	1981	1991	2001	2011
Number of farms	490	569	553	407	228	190
<u>Size of Business</u>						
Average number of cows	38	67	79	111	277	531
Average number of heifers	23	44	59	92	207	459
Milk sold, cwt.	3,787	8,617	11,420	20,060	60,290	130,898
Worker equivalent	1.80	2.20	2.80	3.38	6.72 ⁴	12.13 ⁴
Total tillable acres	99 ²	185 ²	257	330	618	1,086
<u>Rates of Production</u>						
Milk sold per cow, lbs.	9,965	12,900	14,456	18,027	21,762	24,648
Hay DM per acre, tons	2.3	2.4	2.5	2.4	2.8	3.4
Corn silage per acre, tons	12	16	15	14	16	17
<u>Labor Efficiency</u>						
Cows per worker	21	30	29	33	41 ⁴	44 ⁴
Milk sold per worker, lbs.	210,380	391,700	415,273	593,297	897,167 ⁴	1,079,423 ⁴
<u>Cost Control</u>						
Grain & conc. as % of milk sales	28%	24%	26%	29%	25%	29%
Dairy feed & crop expense/cwt.	\$1.53	\$1.95	\$4.67	\$4.67	\$5.03	\$7.62
Operating cost of prod. cwt. milk	\$1.90	\$3.27	\$10.05	\$10.35	\$12.21	\$15.66
Total cost of producing cwt. milk	\$4.54	\$5.84	\$15.88	\$14.55	\$15.45	\$19.21
Milk receipts per cwt. milk	\$4.47	\$6.21	\$13.66	\$12.95	\$15.98	\$21.67
<u>Capital Efficiency</u>						
Total farm capital	\$53,722	\$153,305	\$448,404	\$742,368	\$1,871,135	\$5,112,999
Farm capital per cow	\$1,414	\$2,288	\$5,676	\$6,688	\$6,755	\$9,629
Machinery & equipment per cow	\$291	\$480	\$1,078	\$1,267	\$1,222	\$1,614
Real estate per cow	\$680	\$1,125	\$2,693	\$3,063	\$2,713	\$3,951
Livestock investment per cow	\$375	\$527	\$1,538	\$1,478	\$1,720	\$2,199
Asset turnover ratio	0.42	0.42	0.42	0.43	0.63	0.64
<u>Profitability</u>						
Net farm income without apprec. ⁵	NA	NA	\$57,941	\$43,545	\$189,286	\$605,123
Net farm income with apprec. ⁵	\$47,978	\$114,330	\$78,919	\$67,772	\$306,309	\$733,275
Labor & management income per operator/manager ⁵	\$25,207	\$59,085	\$13,343	\$621	\$57,758	\$227,028
Rate of return on:						
Equity capital with appreciation	NA	NA	3.6%	1.4%	16.3%	18.0%
All capital with appreciation	NA	NA	5.6%	3.8%	12.2%	13.4%
All capital without appreciation	NA	NA	3.8%	1.8%	7.3%	10.9%
<u>Financial Summary, End Year</u>						
Farm net worth	\$37,000 ³	\$101,146 ³	\$301,975	\$486,215	\$1,181,055	\$3,759,325
Change in net worth with apprec.	NA	NA	\$14,566	\$12,169	\$161,553	\$592,030
Debt to asset ratio	0.41 ³	0.37 ³	0.37	0.36	0.40	0.30
Farm debt per cow	\$530 ³	\$890 ³	\$2,212	\$2,327	\$2,759	\$3,049

²Acres of cropland harvested.³Average of 74 dairy farm cooperators submitting financial information in 1961; 319 farms in 1971.⁴Based 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—2011 dollars.

Table 2.

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 148 New York Dairy Farms, 2008 - 2011

Selected Factors	2008	2009	2010	2011
Milk receipts per cwt. milk	\$19.23	\$13.84	\$17.79	\$21.66
<u>Size of Business</u>				
Average number of cows	494	519	549	565
Average number of heifers	418	451	476	492
Milk sold, cwt.	120,996	127,023	135,927	140,704
Worker equivalent ⁶	11.52	11.90	12.25	12.95
Total tillable acres	1,050	1,084	1,127	1,160
<u>Rates of Production</u>				
Milk sold per cow, pounds	24,478	24,484	24,759	24,897
Hay DM per acre, tons	3.6	3.4	3.6	3.5
Corn silage per acre, tons	20	19	20	17
<u>Labor Efficiency</u>				
Cows per worker ⁶	43	44	45	44
Milk sold per worker, pounds ⁶	1,050,315	1,067,424	1,109,604	1,086,518
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	30%	37%	28%	28%
Dairy feed & crop expense per cwt. milk	\$7.17	\$6.38	\$6.22	\$7.56
Operating cost of producing cwt. milk	\$14.93	\$13.42	\$13.52	\$15.52
Total cost of producing cwt. milk	\$18.44	\$16.78	\$16.76	\$19.10
Hired labor cost per cwt.	\$2.79	\$2.70	\$2.63	\$2.76
Interest paid per cwt.	\$0.50	\$0.47	\$0.51	\$0.46
Labor & machinery costs per cow	\$1,625	\$1,452	\$1,485	\$1,667
<u>Capital Efficiency, Average for Year</u>				
Farm capital per cow	\$9,226	\$9,164	\$9,048	\$9,700
Machinery & equipment per cow	\$1,568	\$1,608	\$1,569	\$1,660
Real estate per cow	\$3,590	\$3,705	\$3,738	\$3,951
Livestock investment per cow	\$2,342	\$2,248	\$2,168	\$2,200
Asset turnover ratio	0.60	0.44	0.58	0.64
<u>Profitability</u>				
Net farm income without appreciation	\$353,585	\$-111,127	\$403,114	\$663,802
Net farm income with appreciation	\$412,280	\$-108,517	\$510,582	\$802,288
Labor & management income per operator/manager	\$101,917	\$-144,433	\$128,793	\$245,036
Rate return on:				
Equity capital with appreciation	9.8%	-6.7%	12.4%	18.2%
All capital with appreciation	8.3%	-3.2%	9.5%	13.7%
All capital without appreciation	7.0%	-3.3%	7.3%	11.2%
<u>Financial Summary, End Year</u>				
Farm net worth	\$3,294,714	\$3,043,192	\$3,424,160	\$4,088,748
Change in net worth with appreciation	\$165,321	\$-257,111	\$363,264	\$638,253
Debt to asset ratio	0.30	0.36	0.34	0.29
Farm debt per cow	\$2,854	\$3,215	\$3,089	\$2,958

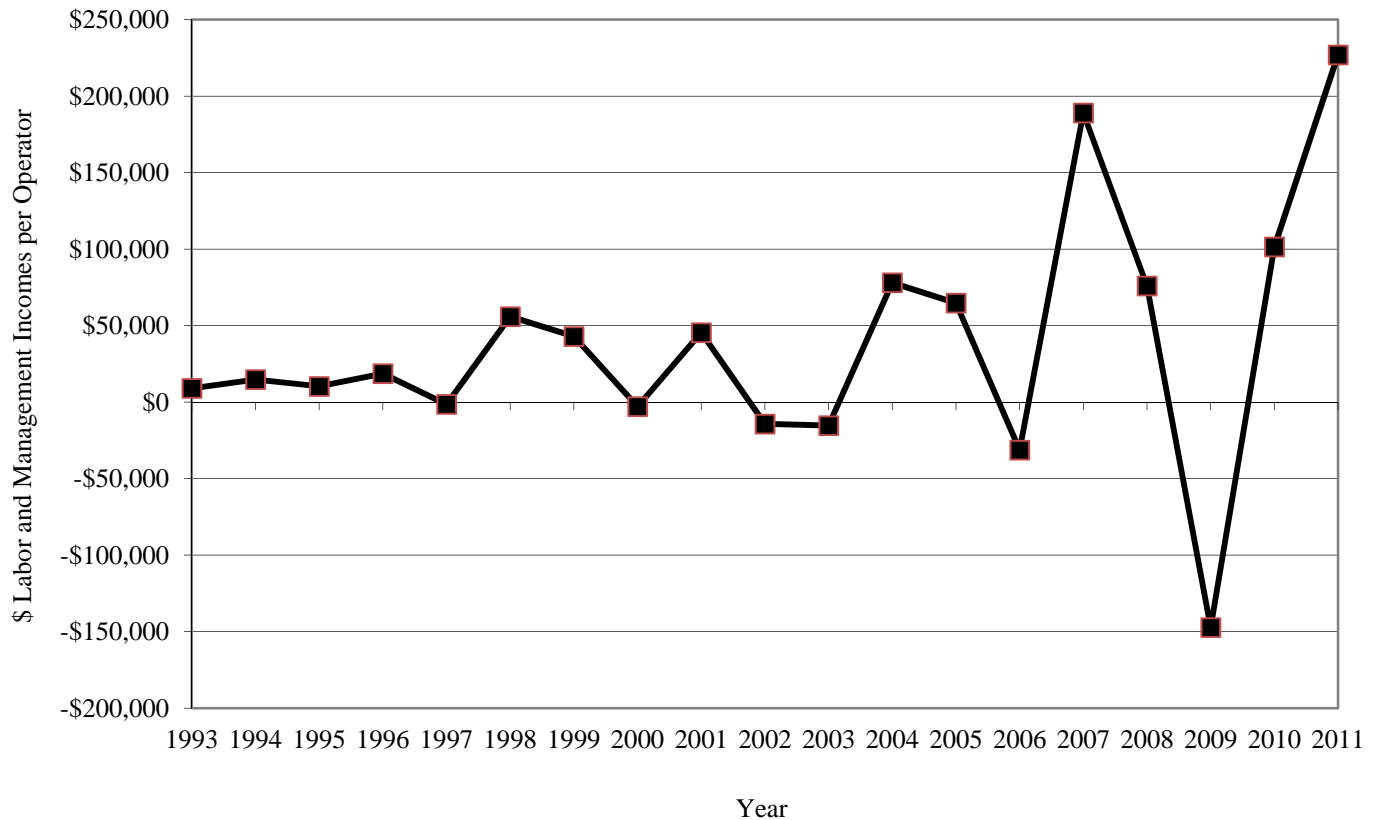
⁶Based on 230 hours per month actually worked by owner/operator instead of standard 12 months per full-time owner/operator.

ADJUSTING PROFIT, PRICE AND COSTS FOR INFLATION

Labor and management incomes per operator in 2011 were much improved over 2009 and 2010, when measured in nominal (actual) values (Chart 2). Over the period 1993 to 2010, labor and management incomes per operator did not exceed \$50,000 except for \$55,000 in 1998, over \$78,000 in 2004, nearly \$65,000 in 2005, \$189,019 in 2007, \$75,945 in 2008, and \$103,752 in 2010. The reader is reminded that the average herd size of DFBS participating farms steadily increased from 130 cows to 531 cows over this period.

Chart 2.

LABOR AND MANAGEMENT INCOMES PER OPERATOR Dairy Farm Business Summary Farms, 1993-2011



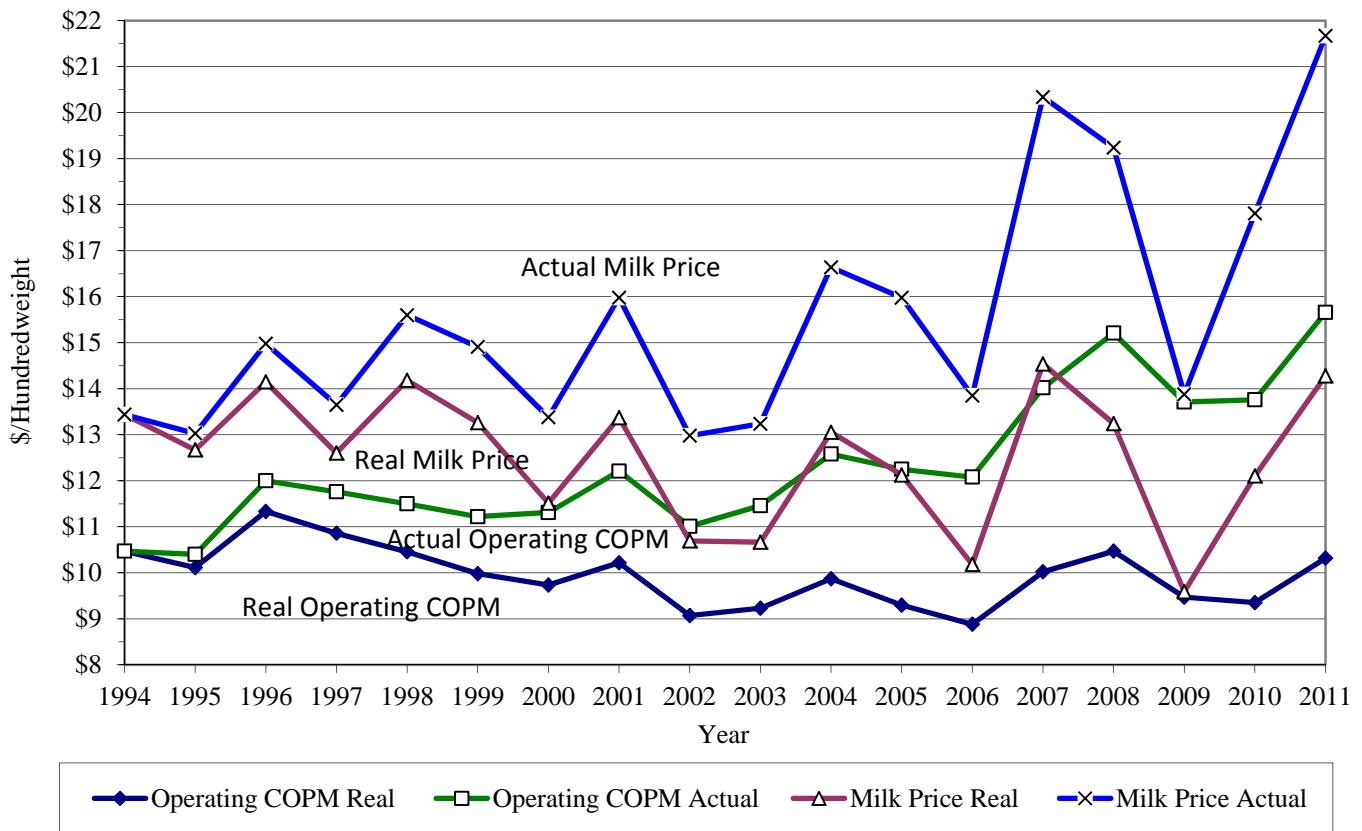
Milk prices in 2011 averaged \$21.67 per hundredweight in actual dollars (Chart 3). However, the 2011 milk price, adjusted for inflation, in 1994 dollars, would have been only \$14.28 per hundredweight.

Operating costs of producing milk (actual) were similar in 1994 and 1995 (Chart 3). Feed costs were higher in 1996 and so were operating costs of producing milk. Operating costs were on a downward trend from 1996 through 2000. Operating costs then increased in 2001, fell in 2002, and increased in 2003 and 2004, but remained higher than the early 1990's. Operating costs decreased slightly in 2005 and 2006 but increased nearly \$2 per hundredweight in 2007 and another \$1.19 in 2008 followed by a \$1.50 decrease in 2009. In 2011, operating costs increased from 2010 to \$15.66 per hundredweight. Real costs of producing milk per hundredweight have been on a downward trend over this 18-year period except for increases in 1996, 2001, 2004, 2007, 2008, and 2011.

Chart 3.

OPERATING COST OF PRODUCING MILK AND MILK PRICE⁷

Dairy Farm Business Summary Farms, 1994-2011



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–1994 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 2011 are presented in the following table.

Table 3.

BUSINESS CHARACTERISTICS AND RESOURCES USED 190 New York Dairy Farms, 2011

<u>Dairy Livestock (number)</u>	<u>Cows</u>	<u>Heifers</u>	<u>Dairy Records</u>	<u>Number</u>	<u>Percent</u>
Beginning of Year	519	449	Testing Service	142	75
End of Year	537	466	On Farm System	26	14
Average for Year	531	459	Other	2	1
			None	19	10
<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	69	36	Used consistently	4	19
Partnership	33	18	Used inconsistently	1	5
Limited Liability Corp.	71	37	Started using in 2011	0	0
Subchapter S Corporation	12	6	Stopped using in 2011	3	14
Subchapter C Corporation	5	3	Not used in 2011	13	62
			Average % usage, if used	36%	
<u>Barn Type</u>	<u>Number</u>	<u>Percent</u>	<u>Labor Force</u>	<u>Average</u>	<u>Percent</u>
Stanchion	35	18	Operators	27.0	19
Freestall	144	76	Family Paid	3.7	3
Combination	11	6	Family Unpaid	2.0	1
			Hired	112.8	77
<u>Milking System</u>	<u>Number</u>	<u>Percent</u>	Total Months	145.5	100
Bucket & Carry	0	0			
Dumping Station	1	1			
Pipeline	36	19			
Herringbone Conventional	53	28			<u>Average</u>
Herringbone Rapid Exit	18	9	<u>Operators</u> (total = 357)		1.88
Parallel	55	29	Age		50
Parabone	8	4	Education		14 years
Rotary	6	3	Estimated value of labor & management/farm		\$105,124
Other	13	7			
<u>Milking Frequency</u>	<u>Number</u>	<u>Percent</u>	<u>Land Used</u>	<u>Number</u>	<u>Average</u>
2 times per day	91	48	Total acres:		
3 times per day	84	44	Owned	190	743
Other	15	8	Rented	176	576
			Tillable acres:		
<u>Business Records</u>	<u>Number</u>	<u>Percent</u>	Owned	190	568
Account Book	21	11	Rented	174	566
Accounting Service	27	14	Total	190	1,086
On-Farm Computer	142	75			
Other	0	0	<u>Breed of Herd</u>		
			Holstein	90%	
			Jersey	4%	
			Other	6%	

There were 357 full-time operator equivalents on the 190 dairy farms for an average of 1.88 operators per farm. The operators averaged 50 years of age and 14 years of formal education. Additional data on the labor force is in Table 44.

All 190 farm businesses included in this dairy summary own farm real estate. Dairy farm renters are summarized separately later in this publication. However, 174 of the dairy farm owners rented an average of 566 acres of tillable land in 2011. The 190 farms averaged 1,086 total tillable acres per farm of which 519 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 190 farms averaged \$6,498 per day and 93 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
190 New York Dairy Farms, 2011

Expense Item	Cash Paid	-	Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses	Percent
<u>Hired Labor</u>	\$360,544		\$1,129 <<		\$1,149		\$360,564	15
<u>Feed</u>								
Dairy grain & concentrate	867,468		49,820		-9,864		807,783	34
Dairy roughage	45,681		-1,434		-1,031		46,084	2
Nondairy livestock	64		0		6		70	<1
Professional nutritional services	659		0 <<		0		659	<1
<u>Machinery</u>								
Machinery hire, rent & lease	53,096		-1 <<		-560		52,536	2
Machinery repairs & farm vehicle expense	127,315		456		-1,384		125,475	5
Fuel, oil & grease	116,175		1,299		-178		114,698	5
<u>Livestock</u>								
Replacement livestock	10,140		0 <<		-61		10,079	<1
Breeding	29,863		449		-117		29,297	1
Veterinary & medicine	89,350		693		-301		88,356	4
Milk marketing	114,394		0 <<		523		114,917	5
Bedding	50,972		58		-276		50,638	2
Milking Supplies	51,011		505		1,195		51,701	2
Cattle lease & rent	2,275		0 <<		-2		2,273	<1
Custom boarding	45,659		911 <<		-410		44,337	2
bST expense	26,173		336 <<		-232		25,605	1
Livestock professional fees	8,428		444 <<		8		7,993	<1
Other livestock expense	11,369		344		-212		10,813	1
<u>Crops</u>								
Fertilizer & lime	65,959		7,799		1,215		59,375	2
Seeds & plants	66,212		13,657		-893		51,662	2
Spray & other crop expense	29,137		692		66		28,511	1
Crop professional fees	3,462		30 <<		8		3,440	<1
<u>Real Estate</u>								
Land, building & fence repair	48,909		228		-344		48,338	2
Taxes	30,179		-71 <<		91		30,341	1
Rent & lease	34,204		465 <<		1,154		34,893	2
<u>Other</u>								
Insurance	23,913		257 <<		-58		23,598	1
Utilities	55,848		80 <<		-197		55,571	2
Interest paid	63,650		44 <<		-591		63,015	3
Other professional fees	13,122		100 <<		-67		12,955	1
Miscellaneous	16,536		59		-379		16,097	1
Total Operating	\$2,461,767		\$78,350		\$-11,744		\$2,371,673	100
Expansion livestock	\$7,479		0 <<		0		\$7,479	
Extraordinary expense	\$524		0		0		\$524	
Machinery depreciation							\$110,214	
Building depreciation							\$70,293	
TOTAL ACCRUAL EXPENSES							\$2,560,183	

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, used dairy roughage inventory from a prior year was \$1434.

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 \$80 per farm in 2011, and that increase is subtracted from cash rent to determine the correct 2011 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 \$78,350 and total change in accounts payable equals \$-11,744.

Income Statement - Receipts

Cash and accrual farm receipts are presented in the following table. Total cash receipts averaged \$3,027,105 per farm. Total accrual receipts averaged \$3,165,306 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 18 head per farm. Homegrown feed inventory per cow increased \$32 from beginning to end of year.

Table 5.

CASH AND ACCRUAL FARM RECEIPTS 190 New York Dairy Farms, 2011

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts	Percent
Milk sales	\$2,750,917				\$85,132		\$2,836,049	90
Dairy cattle	141,203		\$29,949		1,255		172,407	5
Dairy calves	15,606		891		-2		16,495	1
Other livestock	7,987		-681		-71		7,235	<1
Crops	33,861		17,277		2,362		53,499	2
Government receipts	16,069		370		364		16,804	1
Custom machine work	7,854				-24		7,830	<1
Gas tax refund	253				0		253	<1
Other	53,355				1,379		54,733	2
- Nonfarm noncash capital transfer ⁹			(-) 0				(-) 0	
Total	\$3,027,105		\$47,806		\$90,394		\$3,165,306	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 2010 to 2011. 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 2011 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 \$128,151 per farm in 2011. On the average, farm real estate appreciated \$91,272 or 4.6 percent of beginning fair market value. Machinery appreciated 3.3 percent while dairy cattle prices appreciated 0.8 percent in 2011.

Average data from 19 farms with the highest rates of return to all capital (without appreciation) are compared with the 190 farm average in Table 8 and in many of the following tables. Net farm income without appreciation averaged \$1,506,281 per farm on the top 10 percent farms, 149 percent greater than the 190-farm average.

Table 6.

NET FARM INCOME 190 New York Dairy Farms, 2011

Item	Average 190 Farms		Average Top 10% Farms ¹⁰	
	Per Farm	Per Cow	Per Farm	Per Cow
Total accrual receipts	\$3,165,306		\$5,298,737	
+ Appreciation: Livestock	9,512		7,150	
Machinery	26,309		7,051	
Real Estate	91,272		105,286	
Other Stock & Certificates	<u>1,058</u>		<u>3,439</u>	
= Total including appreciation	\$3,293,457		\$ 5,421,663	
- Total accrual expenses	<u>2,560,183</u>		<u>3,792,456</u>	
= Net Farm Income (with appreciation)	\$733,275	\$1,381	\$1,629,207	\$1,984
Net Farm Income (without appreciation)	\$605,123	\$1,139	\$1,506,281	\$1,834

¹⁰ Average of 19 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
190 New York Dairy Farms, 2011**

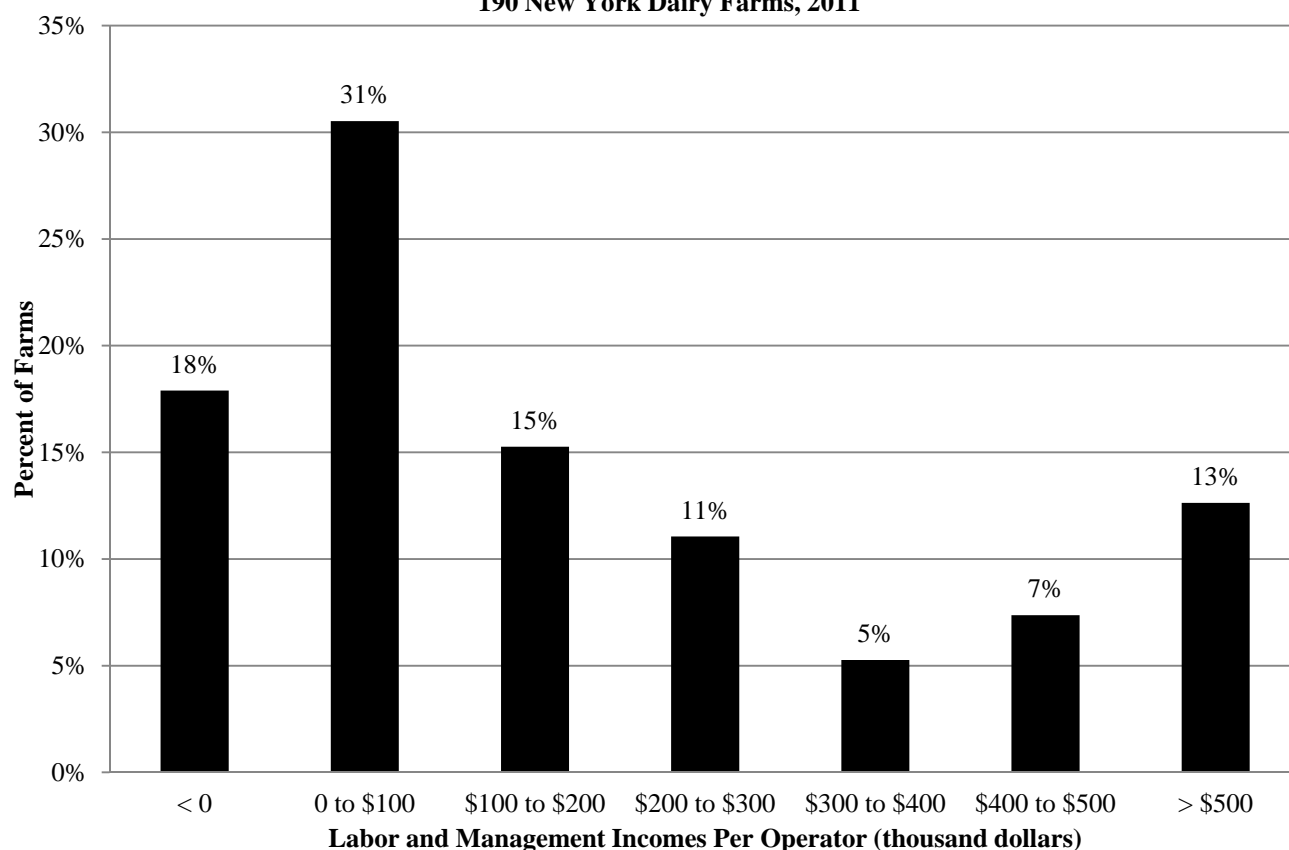
Item	Average 190 Farms	Average Top 10% Farms ¹¹
Net farm income without appreciation	\$ 605,123	\$1,506,281
- Family labor unpaid @ \$2,550 per month	5,144	1,423
- Real interest @ 5% on \$3,463,310 equity capital for average & \$5,857,327 for the top 10% farms	<u>173,165</u>	<u>292,866</u>
= Labor & Management Income (1.88 operators)	\$426,813	(2.32 operators) \$1,211,992
Labor & Management Income per Operator	\$227,028	\$522,410

¹¹ Average of 19 farms with highest rates of return to all capital (without appreciation).

Labor and management income per operator averaged \$227,028 on these 190 dairy farms in 2011. The range in labor and management income per operator was from less than \$-199,000 to more than \$1,330,000. Returns to labor and management were less than \$100,000 on 49 percent of the farms. Labor and management incomes per operator were between \$100,000 and \$300,000 on 26 percent of the farms while 25 percent showed labor and management incomes of \$300,000 or more per operator.

Chart 4.

**DISTRIBUTION OF LABOR AND MANAGEMENT INCOMES PER OPERATOR
190 New York Dairy Farms, 2011**



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
190 New York Dairy Farms, 2011**

Item	Average 190 Farms	Average Top 10% Farms ¹²
Net farm income with appreciation	\$733,275	\$1,629,207
- Family labor unpaid at \$2,550 per month	5,144	1,423
- Value of operators' labor & management	<u>105,124</u>	<u>138,609</u>
= Return to equity capital with appreciation	\$623,007	\$1,489,176
+ Interest paid	<u>63,015</u>	<u>63,099</u>
= Return to all capital with appreciation	\$686,022	\$1,552,275
Return to equity capital without appreciation	\$494,855	\$1,366,249
Return to all capital without appreciation	\$557,870	\$1,429,348
Rate of return on average equity capital:		
with appreciation	18.0%	25.4%
without appreciation	14.3%	23.3%
Rate of return on all capital:		
with appreciation	13.4%	20.3%
without appreciation	10.9%	18.7%
Net farm income from operations ratio	0.19	0.28

¹²Average of 19 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
190 New York Dairy Farms, 2011**

Item	Quartile by Return to All Capital With Appreciation			
	Lowest 25%	3rd 25%	2nd 25%	Top 25%
Return to all capital with appreciation	\$32,102	\$329,215	\$1,017,857	\$1,386,419
Rate of return on all capital with appreciation	1.9%	8.6%	13.4%	18.6%
Total returns to all labor & management	\$71,553	\$452,370	\$1,234,354	\$1,434,387
Worker equivalent	3.95	9.21	17.72	17.86
Return per worker equivalent	\$18,115	\$49,117	\$69,659	\$80,313
Returns/hour (2,760 hours/worker/year)	\$6.56	\$17.80	\$25.24	\$29.10

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.

2011 FARM BUSINESS AND NONFARM BALANCE SHEET 190 New York Dairy Farms, 2011

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$ 45,195	\$ 49,007	Accounts payable	\$ 69,373	\$ 57,629
Accounts receivable	172,536	262,931	Operating debt	86,528	113,352
Prepaid expenses	3,184	6,573	Short term	7,078	5,407
Feed & supplies	<u>540,249</u>	<u>632,488</u>	Advanced gov't. receipt	454	84
Total Current	\$761,165	\$950,998	Current portion:		
			Intermediate	127,235	143,088
			Long term	<u>49,017</u>	<u>52,318</u>
			Total Current	\$339,686	\$371,879
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy Cows:			Structured debt		
owned	\$715,471	\$735,431	1-10 years	\$688,949	\$633,370
leased	6,221	3,309	Financial lease		
Heifers	416,053	437,119	(cattle & machinery)	8,199	4,606
Bulls & other livestock	11,628	10,273	Farm Credit stock	<u>1,005</u>	<u>967</u>
Mach. & equip. owned	800,269	910,257	Total Intermediate	\$698,153	\$638,942
Mach. & equip. leased	1,978	1,297			
Farm Credit stock	1,005	967	<u>Long Term</u>		
Other stock & certificates	<u>115,957</u>	<u>151,892</u>	Structured debt		
Total Intermediate	\$2,068,581	\$2,250,544	≥ 10 years	\$626,230	\$625,471
<u>Long Term</u>			Financial lease		
Land & buildings:			(structures)	<u>128</u>	<u>674</u>
owned	\$2,001,617	\$2,194,074	Total Long Term	\$626,358	\$626,145
leased	<u>128</u>	<u>674</u>			
Total Long Term	\$2,001,746	\$2,194,748	Total Farm Liabilities	\$1,664,197	\$1,636,966
Total Farm Assets	\$4,831,492	\$5,396,290	FARM NET WORTH	\$3,167,295	\$3,759,325
Nonfarm Assets ¹³	Jan.1	Dec. 31	Nonfarm Liabilities ¹³ & Net Worth	Jan. 1	Dec. 31
Personal cash, checking & savings	\$ 11,544	\$ 9,961	Nonfarm Liabilities	\$4,401	\$5,110
Cash value life insurance	40,945	54,949	NONFARM NET WORTH	\$268,798	\$325,676
Nonfarm real estate	120,884	153,275			
Auto (personal share)	6,228	7,568	FARM & NONFARM ¹⁴	Jan. 1	Dec. 31
Stocks & bonds	62,186	70,166	Total Assets	\$5,104,691	\$5,727,075
Household furnishings	7,848	8,254	Total Liabilities	<u>1,668,598</u>	<u>1,642,076</u>
All other	<u>23,564</u>	<u>26,613</u>	TOTAL FARM & NON-		
Total Nonfarm	\$273,199	\$330,785	FARM NET WORTH	\$3,436,093	\$4,084,999

¹³Average of 69 farms completing the nonfarm balance sheet.

¹⁴Sum of average farm values for 190 farms and nonfarm values for 69 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
190 New York Dairy Farms, 2011

Item	Average 190 Farms	Average Top 10% Farms ¹⁵
<u>Farm Financial Ratios:</u>		
Percent equity	70%	78%
Debt/asset ratio: total	0.30	0.22
long term	0.29	0.20
intermediate & current	0.32	0.23
Leverage Ratio:	0.44	0.28
Current Ratio:	2.56	3.78
Working Capital: \$579,120 Dollars as % of Total Expenses:	23%	\$1,217,430 32%
<u>Farm Debt Analysis:</u>		
Accounts payable as % of total debt	4%	1%
Long term liabilities as % of total debt	38%	35%
Current & intermediate liabilities as % of total debt	62%	65%
Cost of term debt (weighted average)	4.2%	3.7%
<u>Farm Debt Levels:</u>	<u>Per Cow</u>	<u>Per Tillable Acre Owned</u>
Total farm debt	\$3,049	\$2,884
Long term debt	1,166	1,103
Intermediate & long term	2,356	2,229
Intermediate & current debt	1,883	1,781
	<u>Per Cow</u>	<u>Per Tillable Acre Owned</u>
Total farm debt	\$2,161	\$2,044
Long term debt	750	709
Intermediate & long term	1,642	1,554
Intermediate & current debt	1,411	1,335

¹⁵Average of 19 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
190 New York Dairy Farms, 2011

Item	Real Estate	Machinery & Equipment	Livestock
Value beginning of year	\$2,001,617	\$800,269	\$1,143,152
Purchases	\$242,654 ¹⁶	\$199,754	
+ nonfarm noncash transfer ¹⁷	3,158	133	
- Lost capital	68,485		
- Net sales	5,850	5,994	
- Depreciation	<u>70,293</u>	<u>110,214</u>	
= Net Investment	101,184	83,678	30,159
+ Appreciation	<u>91,272</u>	<u>26,309</u>	<u>9,512</u>
Value end of year	\$2,194,074	\$901,257	\$1,182,823

¹⁶\$65,318 land and \$177,337 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)
190 New York Dairy Farms, 2011**

Item	Average 190 Farms	Average Top 10% Farms ¹⁹
Beginning of year farm net worth	\$3,167,295	\$5,202,414
Net farm income without appreciation	\$605,123	\$1,506,281
+ Nonfarm cash income	6,463	2,464
- Personal withdrawals & family expenditures and income taxes, excluding nonfarm borrowings	<u>126,751</u>	<u>166,403</u>
RETAINED EARNINGS	+ \$484,835	+ \$1,342,342
Nonfarm noncash transfers to farm	\$ 3,290	\$ 0
+ Cash used in business from nonfarm capital	45,187	22,574
- Note or mortgage from farm real estate sold (nonfarm)	<u>0</u>	<u>0</u>
CONTRIBUTED/WITHDRAWN CAPITAL	+ \$48,477	+ \$22,574
Appreciation	\$ 128,152	\$122,926
- Lost capital	<u>68,485</u>	<u>171,247</u>
CHANGE IN VALUATION EQUITY	+ \$59,667	+ \$-48,320
IMBALANCE/ERROR	- <u>\$949</u>	- <u>\$ 6,771</u>
End of year farm net worth ¹⁸	\$3,759,325	\$6,512,239
<u>Change in Net Worth</u>		
Without appreciation	\$463,878	\$1,186,899
With appreciation	\$592,030	\$1,309,825

¹⁸May not add due to rounding.

¹⁹Average of 19 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 190 New York Dairy Farms, 2011

Item	Average 190 Farms		
<u>Cash Flow from Operating Activities</u>			
Cash farm receipts	\$3,027,105		
- Cash farm expenses	2,461,767		
- Extraordinary expense	<u>524</u>		
= Net cash farm income		\$564,813	
Personal withdrawals & family expenses including nonfarm debt payments	\$127,632		
- Nonfarm income	<u>6,463</u>		
- Net cash withdrawals from the farm		<u>\$ 121,169</u>	
= Net Provided by Operating Activities			\$443,644
<u>Cash Flow From Investing Activities</u>			
Sale of assets: machinery	\$5,994		
+ real estate	5,850		
+ other stock & certificates	<u>729</u>		
= Total asset sales		\$12,573	
Capital purchases: expansion livestock	\$ 7,479		
+ machinery	199,754		
+ real estate	242,654		
+ other stock & certificates	<u>35,606</u>		
- Total invested in farm assets		<u>\$485,493</u>	
+ Net Provided by Investment Activities			\$-472,920
<u>Cash Flow From Financing Activities</u>			
Money borrowed (intermediate & long term)	\$189,028		
+ Money borrowed (short term)	4,282		
+ Increase in operating debt	26,824		
+ Cash from nonfarm capital used in business	45,187		
+ Money borrowed - nonfarm	<u>881</u>		
= Cash inflow from financing		\$266,202	
Principal payments (intermediate & long term)	\$226,214		
+ Principal payments (short term)	5,953		
+ Decrease in operating debt	<u>0</u>		
- Cash outflow for financing		<u>\$232,167</u>	
= Net Provided by Financing Activities			\$34,035
<u>Cash Flow From Reserves</u>			
Beginning farm cash, checking & savings		\$45,195	
- Ending farm cash, checking & savings		<u>\$49,007</u>	
= Net Provided from Reserves			\$-3,812
<u>Imbalance (error)</u>			\$947

Table 15.

ANNUAL CASH FLOW DATA
190 New York Dairy Farms, 2011

Item	Average 190 Farms			Average Top 10% Farms ²¹		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Average number of cows and cwt. milk		531	130,898		821	213,592
<u>Accrual Operating Receipts</u>						
Milk	\$2,836,049	\$5,340	\$21.67	\$4,764,575	\$5,803	\$22.31
Dairy cattle	172,407	325	1.32	308,602	376	1.44
Dairy calves	16,495	31	0.13	10,309	13	0.05
Other livestock	7,235	14	0.06	44,731	54	0.21
Crops	53,499	101	0.41	68,566	84	0.32
Miscellaneous receipts	<u>79,621</u>	<u>150</u>	<u>0.61</u>	<u>101,954</u>	<u>124</u>	<u>0.48</u>
Total	\$3,165,306	\$5,960	\$24.18	\$5,298,737	\$6,453	\$24.81
<u>Accrual Operating Expenses</u>						
Hired labor	\$ 360,564	\$ 679	\$ 2.75	\$ 593,408	\$ 723	\$ 2.78
Dairy grain & concentrate	807,783	1,521	6.17	1,212,924	1,477	5.68
Dairy roughage	46,084	87	0.35	35,466	43	0.17
Nondairy feed	70	0	0.00	0	0	0.00
Professional nutritional services	659	1	0.01	585	1	0.00
Machinery hire, rent & lease	52,536	99	0.40	72,706	89	0.34
Machinery repairs & vehicle expense	125,475	236	0.96	178,230	217	0.83
Fuel, oil & grease	114,698	216	0.88	175,065	213	0.82
Replacement livestock	10,079	19	0.08	3,798	5	0.02
Breeding	29,297	55	0.22	49,879	61	0.23
Veterinary & medicine	88,356	166	0.67	131,823	161	0.62
Milk marketing	114,917	216	0.88	194,204	237	0.91
Bedding	50,638	95	0.39	79,894	97	0.37
Milking supplies	51,701	97	0.39	72,250	88	0.34
Cattle lease	2,273	4	0.02	7,648	9	0.04
Custom boarding	44,337	83	0.34	66,778	81	0.31
bST expense	25,605	48	0.20	25,928	32	0.12
Livestock professional fees	7,993	15	0.06	14,246	17	0.07
Other livestock expense	10,813	20	0.08	15,993	19	0.07
Fertilizer & lime	59,375	112	0.45	80,010	97	0.37
Seeds & plants	51,662	97	0.39	85,471	104	0.40
Spray/other crop expense	28,511	54	0.22	46,586	57	0.22
Crop professional fees	3,440	6	0.03	1,356	2	0.01
Land, building & fence repair	48,338	91	0.37	60,722	74	0.28
Taxes	30,341	57	0.23	44,428	54	0.21
Real estate rent & lease	34,893	66	0.27	42,244	51	0.20
Insurance	23,598	44	0.18	35,261	43	0.17
Utilities	55,571	105	0.42	79,525	97	0.37
Miscellaneous	<u>29,052</u>	<u>55</u>	<u>0.22</u>	<u>48,999</u>	<u>60</u>	<u>0.23</u>
Total Less Interest Paid	\$2,308,657	\$4,347	\$17.64	\$3,455,426	\$4,208	\$16.18
<u>Net Accrual Operating Income</u>						
(without interest paid)	\$ 856,648	\$1,613	\$ 6.54	\$1,843,311	\$2,245	\$ 8.63
- Change in livestock & crop inventory	47,806	90	0.37	132,273	161	0.62
- Change in accounts receivable	90,394	170	0.69	299,930	365	1.40
- Change in feed & supply inventory	78,350	148	0.60	143,327	175	0.67
+ Change in accounts payable ²⁰	<u>-11,153</u>	<u>-21</u>	<u>-0.09</u>	<u>-19,961</u>	<u>-24</u>	<u>-0.09</u>
NET CASH FLOW	\$ 628,945	\$1,184	\$ 4.80	\$1,247,821	\$1,520	\$ 5.84
- Net personal withdrawals & family exp.	<u>119,632</u>	<u>225</u>	<u>0.91</u>	<u>163,939</u>	<u>200</u>	<u>0.77</u>
Available for Farm Debt Payments & Investment	\$ 509,312	\$ 959	\$ 3.89	\$1,083,882	\$1,320	\$ 5.07
- Farm debt payments	<u>332,184</u>	<u>626</u>	<u>2.54</u>	<u>419,292</u>	<u>511</u>	<u>1.96</u>
Cash available for Farm Investments	\$ 177,128	\$ 334	\$ 1.35	\$ 664,590	\$ 809	\$ 3.11

²⁰Exclude change in interest account payable.²¹Average of 19 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 2010 and 2011.

Table 16.

FARM DEBT PAYMENTS PLANNED 174 New York Dairy Farms, 2011

Debt Payments	174 Dairy Farms			18 Top 10% Farms		
	2011 Payments		Planned 2012	2011 Payments		Planned 2012
	Planned	Made		Planned	Made	
Long term	\$ 79,446	\$ 97,666	\$ 80,314	\$ 115,685	\$ 85,821	\$ 88,750
Intermediate term	171,824	199,989	172,026	196,084	269,842	173,363
Short term	4,181	5,604	4,629	14,336	14,737	364
Operating (net reduction)	6,791	20,137	5,598	12,222	30,300	22,222
Accts. payable (net reduction)	3,175	19,167	300	0	22,011	0
Total	\$265,417	\$342,564	\$262,867	\$338,327	\$422,711	\$284,699
Per cow	\$490	\$632		\$407	\$508	
Per hundredweight 2011 milk	\$1.98	\$2.56		\$1.56	\$1.95	
Percent of 2011 milk receipts	9%	12%		7%	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 174 New York Dairy Farms, 2011

Item	Average	Item	Average
<u>Cash Flow Coverage Ratio</u>		<u>Debt Coverage Ratio</u>	
Cash farm receipts	\$3,095,804	Net farm income (without appreciation)	\$619,368
- Cash farm expenses	2,514,283	+ Depreciation	185,901
+ Interest paid (cash)	65,330	+ Interest paid (accrual)	64,657
- Net personal withdrawals from farm ²²	124,492	- Net personal withdrawals from farm ²²	124,492
(A) = Amount Available for Debt Service	\$522,359	(A') = Repayment Capacity	\$745,434
(B) = Debt Payments Planned for 2011		(B) = Debt Payments Planned for 2011	
(as of December 31, 2010)	\$265,417	(as of December 31, 2010)	\$265,417
(A/B)= Cash Flow Coverage Ratio for 2011	1.97	(A'/B)= Debt Coverage Ratio for 2011	2.81

18 Top 10% Dairy Farms, 2011			
(A) = Amount Available for Debt Service	\$1,116,329	(A') = Repayment Capacity	\$1,672,472
(B) = Debt Payments Planned for 2011	338,327	(B) = Debt Payments Planned for 2011	338,327
(A/B)= Cash Flow Coverage Ratio for 2011	3.30	(A'/B)= Debt Coverage Ratio for 2011	4.94

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

Table 18.

DEBT TO ASSET RATIO VS. CASH FLOW COVERAGE 190 New York Dairy Farms, 2011

Debt/Asset Ratio	<u>Cash Flow Coverage Ratio (Farm & Nonfarm)</u>			
	<1.0	1.0 to 1.49	1.5 to 2.0	>=2.0
	percent of farms			
<40%	13.7	10.5	10.0	34.2
40 to 60%	7.4	10.5	6.3	2.6
60% & over	0.5	2.6	0.5	1.10

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 190 New York Dairy Farms, 2011

Item	Average 190 Farms			Average Top 10% Farms ²³		
	<u>Owned</u>	<u>Rented</u>	<u>Total</u>	<u>Owned</u>	<u>Rented</u>	<u>Total</u>
Land						
Tillable	568	519	1,086	893	736	1,629
Nontillable pasture	33	8	41	25	3	28
Other nontillable	<u>142</u>	<u>7</u>	<u>150</u>	<u>174</u>	<u>0</u>	<u>174</u>
Total	743	534	1,276	1,092	739	1,831
<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	182	497	3.4 tn DM	19	721	3.5 tn DM
Corn silage	169	456	16.6 tn	19	674	15.9 tn
			5.8 tn DM			5.5 tn DM
Other forage	22	99	2.7 tn DM	3	250	3.2 tn DM
Total forage	184	922	4.5 tn DM	19	1,434	4.4 tn DM
Corn grain	106	208	130 bu	14	186	130 bu
Oats	10	35	40 bu	1	19	50.0 bu
Wheat	26	107	55 bu	4	95	51.5 bu
Other crops	47	138		7	89	
Tillable pasture	31	90		0	0	
Idle	43	65		4	36	

²³Average of 19 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 eight of the 190 farms produced hay or hay crop silage in 2011. Eighty-nine percent produced corn silage, 56 percent grew and harvested corn grain, and five percent grew oats for grain. Although 31 farms used tillable pasture in 2011, only 26 of the 190 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 184 New York Dairy Farms, 2011

Item	Average 184 Farms	Average Top 10% Farms ²⁴
Total tillable acres per cow	2.06	1.98
Total forage acres per cow	1.70	1.75
Harvested forage dry matter, tons per cow	7.59	7.75

²⁴Average of 19 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.

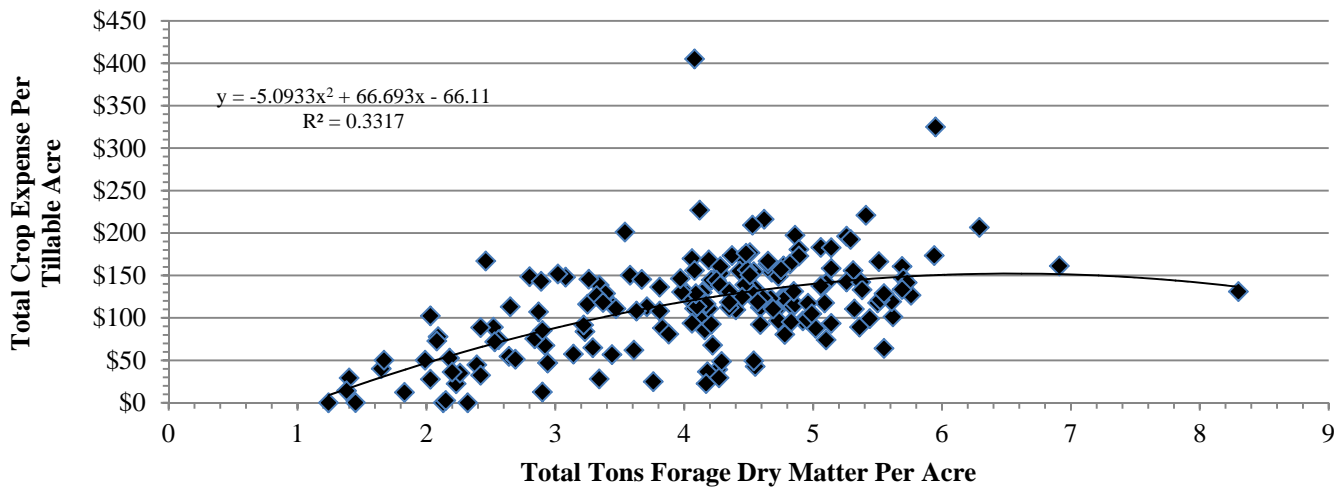
CROP RELATED ACCRUAL EXPENSES
184 New York Dairy Farms That Grow Forages, 2011

Item	Average 184 Farms	Average Top 10% Farms ²⁶
	Total Per Tillable Acre	Total Per Tillable Acre
Number of farm reporting	184	19
Average number of acres	1,116	1,629
Fertilizer and lime expense	\$50.04	\$55.19
Seeds & plants	41.08	50.50
Spray and other crop expense	<u>23.20</u>	<u>27.72</u>
Total	\$114.32	\$133.41

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

Chart 5.

CROP EXPENSE PER ACRE BY TOTAL FORAGE PRODUCTION PER ACRE
184 New York Dairy Farms That Grow Forages, 2011



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
184 New York Dairy Farms That Grow Forages, 2011

Machinery Expense Item	Average 184 Farms		Average Top 10% Farms ²⁶	
	Total Expenses	Per Tillable Acre	Total Expenses	Per Tillable Acre
Fuel, oil & grease	\$ 117,486	\$105.30	\$175,065	\$107.45
Machinery repairs & vehicle expense	128,451	115.13	178,230	109.39
Machine hire, rent & lease	53,562	48.01	72,706	44.62
Interest (5%)	43,734	39.20	61,178	37.55
Depreciation	<u>112,311</u>	<u>100.66</u>	<u>154,092</u>	<u>94.57</u>
Total	\$455,544	\$408.30	\$641,271	\$393.58

²⁶ Average of 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 2011 data.

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

Chart 6.

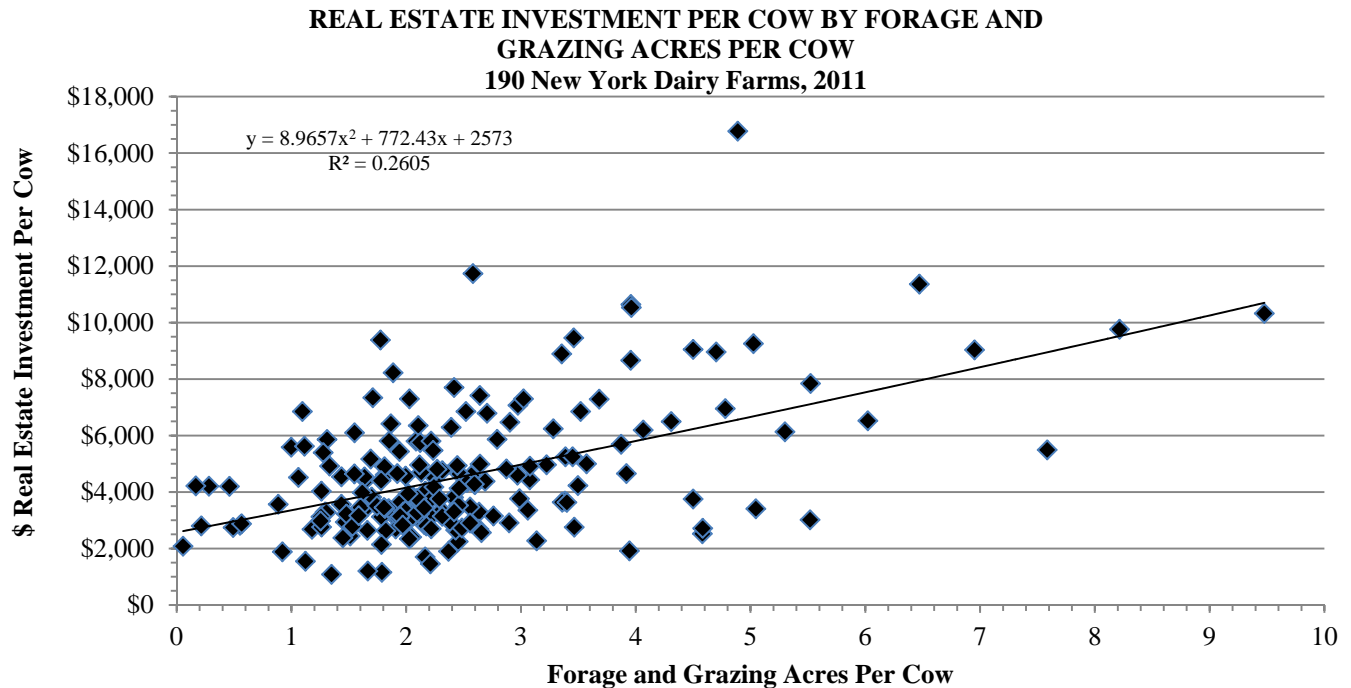
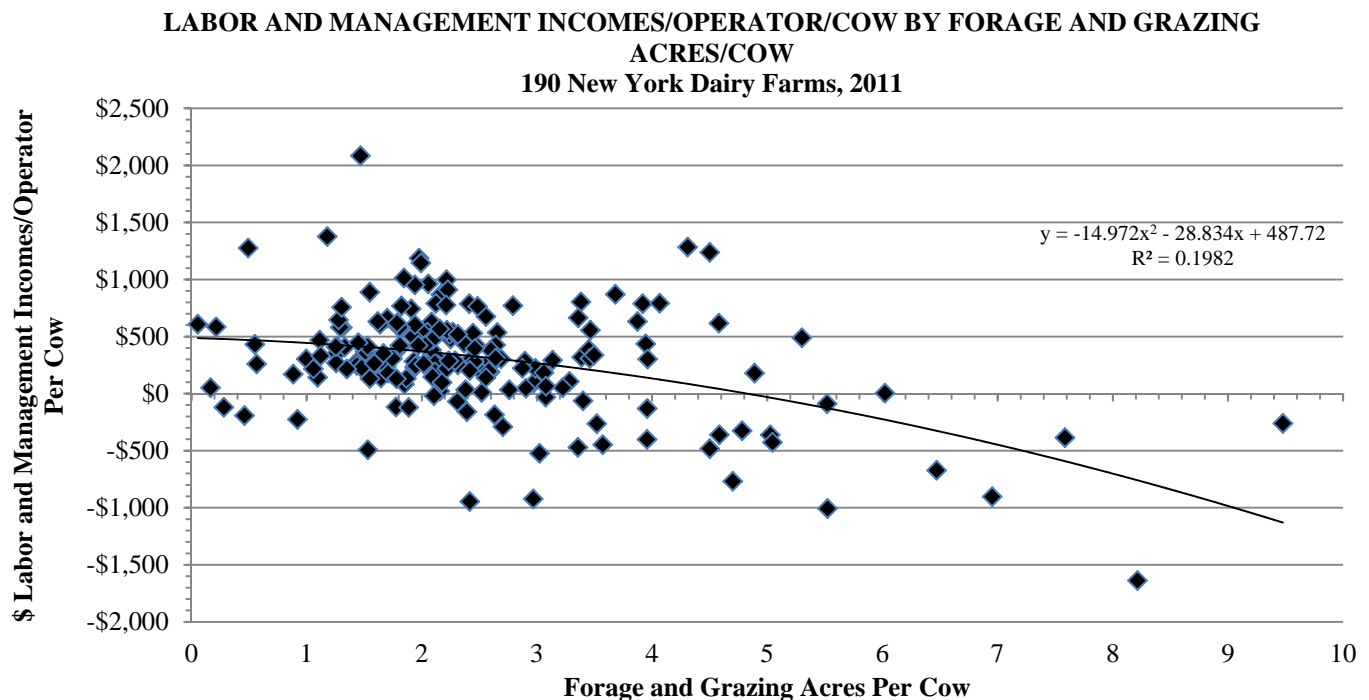


Chart 7.



Dairy Program Analysis

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

Table 23.

DAIRY HERD INVENTORY 190 New York Dairy Farms, 2011

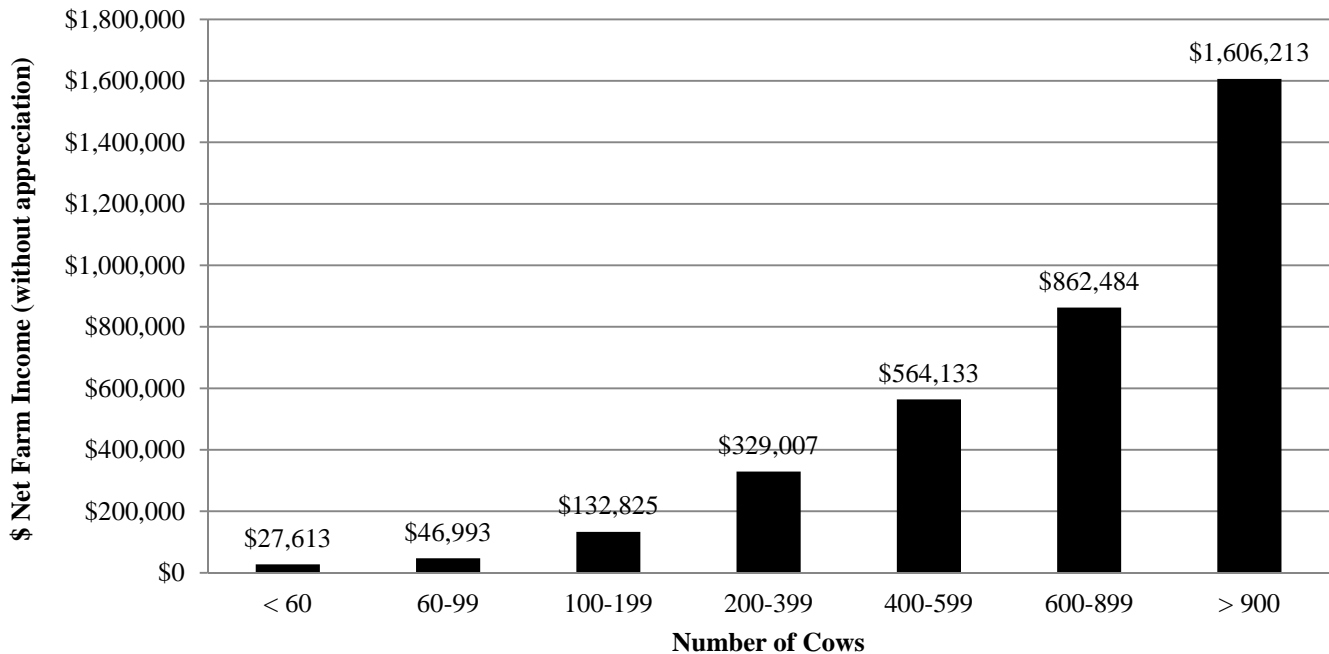
Item	Dairy Cows		Bred		Heifers		Calves	
	No.	Value	No.	Value	No.	Value	No.	Value
Beg. year (owned)	519	\$715,471	163	\$222,296	154	\$129,684	132	\$64,073
+ Change w/o apprec.		13,571		13,644		2,734		891
+ Appreciation		<u>6,389</u>		<u>933</u>		<u>2,056</u>		<u>808</u>
End year (owned)	530	\$735,431	174	\$236,873	157	\$134,474	135	\$65,772
End including leased	537							
Average number	531		459	(all age groups)				
<u>Average Top 10% Farms:²⁷</u>								
Beg. year (owned)	782	\$1,053,955	228	\$297,486	237	\$195,771	226	\$102,705
+ Change w/o apprec.		50,476		41,713		12,453		-6,463
+ Appreciation		<u>8,869</u>		<u>1,873</u>		<u>1,497</u>		<u>843</u>
End year (owned)	819	\$1,113,300	261	\$341,072	250	\$209,720	215	\$97,084
End including leased	845							
Average number	821		709	(all age groups)				

²⁷ Average of 19 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 2011, 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 190 New York Dairy Farms, 2011



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 124 farms that provided the data.

Table 24.

**MILK PRODUCTION
190 New York Dairy Farms, 2011**

Item	Average 190 Farms	Average Top 10% Farms ²⁸
Total milk sold, pounds	13,089,804	21,359,235
Milk sold per cow, pounds	24,648	26,013
	<u>Average 124 Farms</u>	<u>Average 15 Farms</u>
Butterfat per cow, pounds	909	962
Protein per cow, pounds	764	797
Total butterfat and protein per cow, pounds	1,673	1,759
Other solids per cow, pounds	1,432	1,491
Total components per cow, pounds	3,105	3,250

²⁸Average of 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 due to more cows per farm, along with higher net farm incomes per cow. In 2011, 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
190 New York Dairy Farms, 2011**

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	20	137	\$61,596	\$451	\$7,608
16,000 to 18,999	18	128	110,872	866	36,189
19,000 to 20,999	18	147	98,549	670	25,041
21,000 to 22,999	28	430	413,415	962	154,883
23,000 to 24,999	41	571	557,482	977	179,007
25,000 to 26,999	52	876	1,086,142	1,240	358,218
27,000 & over	13	941	1,466,160	1,558	576,234

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 190 farms.

Historically, net farm income per cow has increased as pounds of milk sold per cow increased. This relationship held true in 2011 (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.

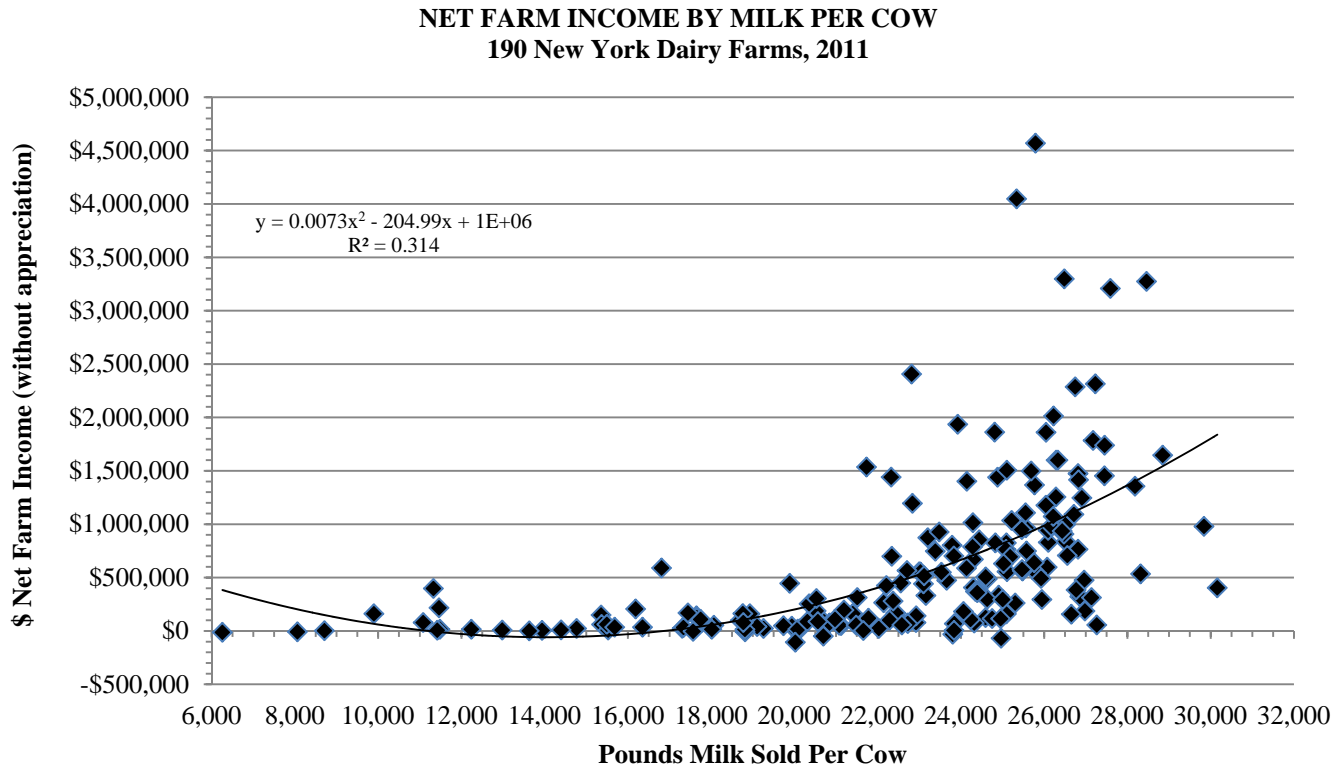
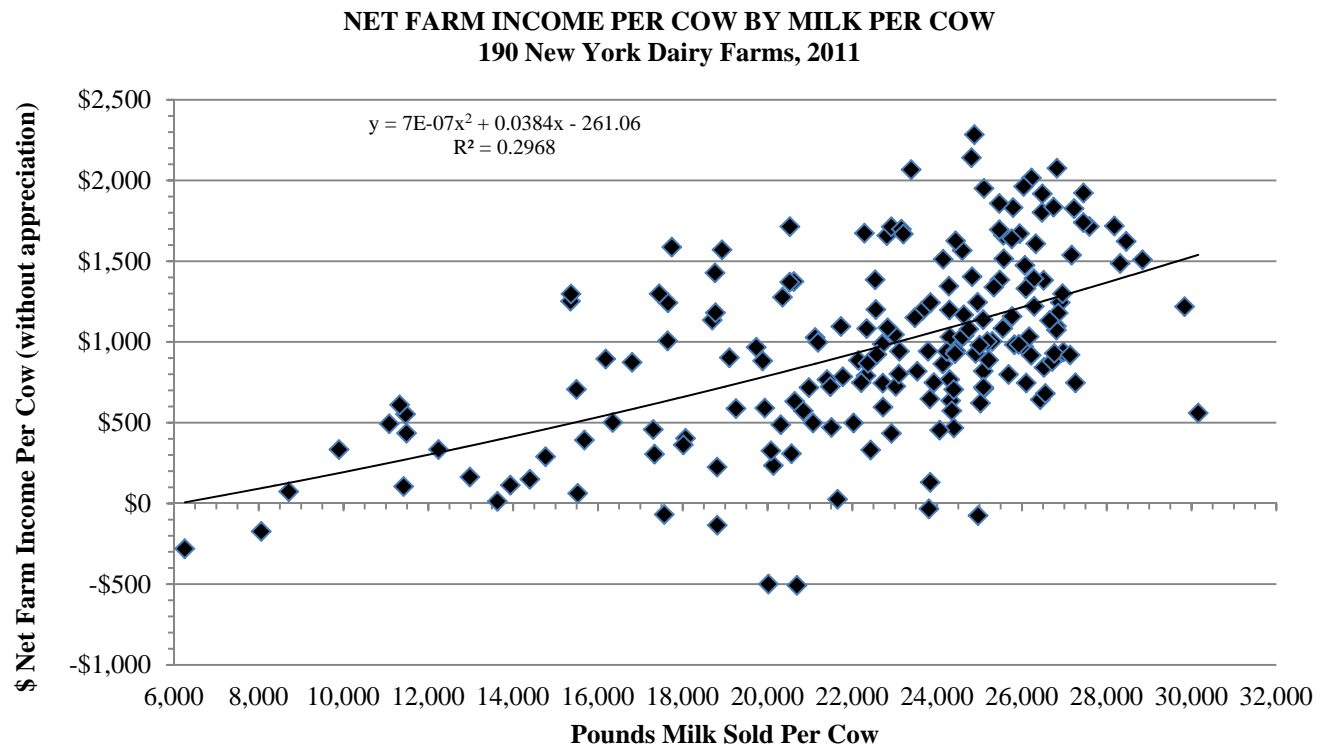


Chart 10.



Charts 11 and 12 show relationships between cull rates and milk production and net farm income per cow. For the 2011 year, supplementary information concerning dairy replacements was collected from 31 participating farms. 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 154, eight cows were sold for dairy, and 34 cows died. Please refer to the glossary for definitions of the different terms and how the measures were calculated.

Chart 11.

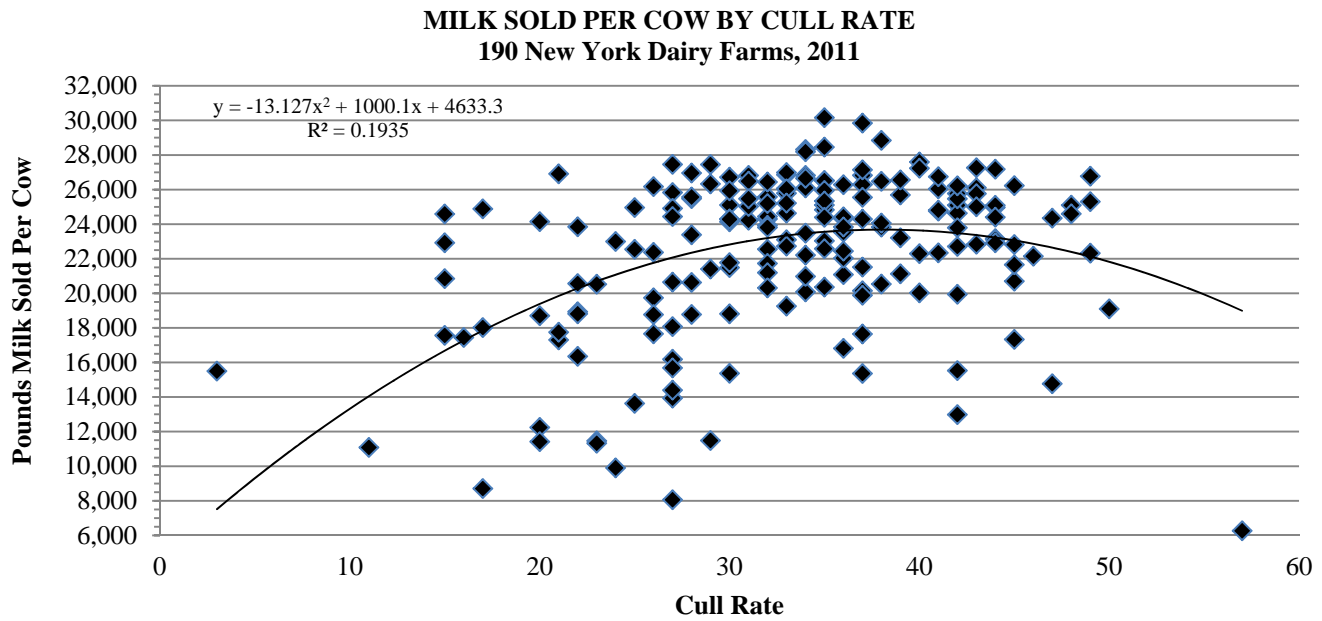


Chart 12.

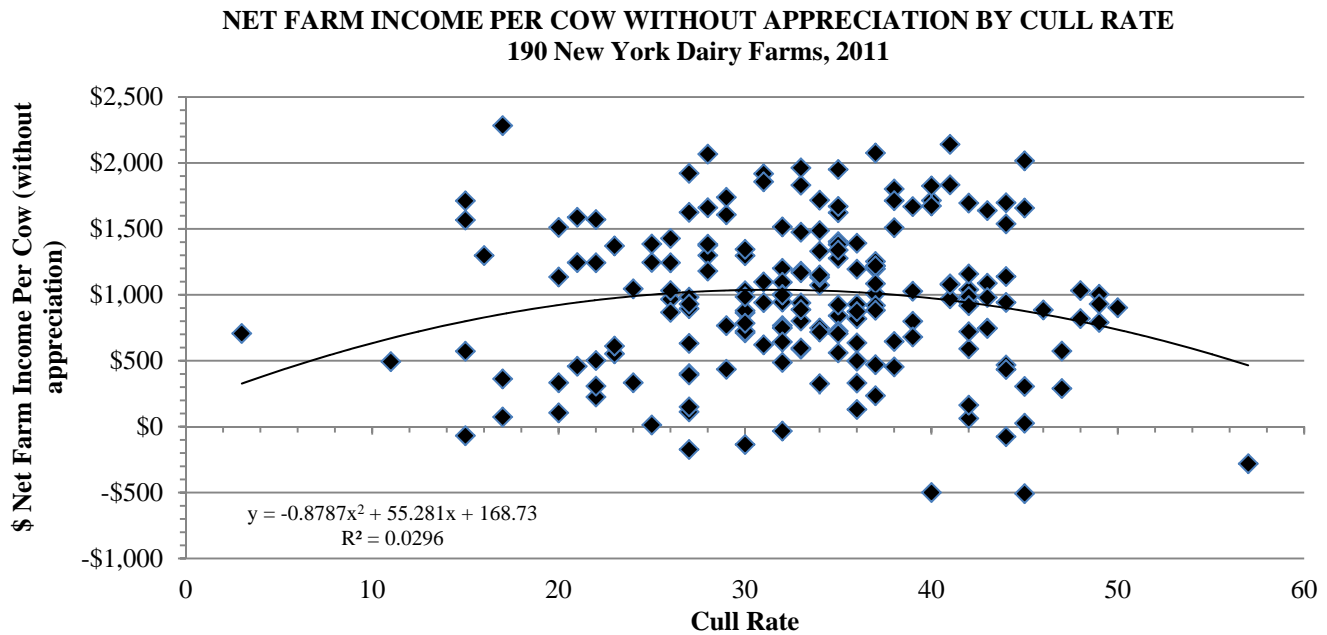


Table 26.

CULLING RATE AND DAIRY REPLACEMENT INFORMATION
New York Dairy Farms, 2011

Decile	Sell Rate	Death Rate	Cull Rate	Value of Cows Sold	Value of Animals Purchased	Percent of Replacements Purchased	Percent of Heifers Custom Raised
-----190 Farms ²⁹ -----				\$ /head (34 Farms)		----- 31 Farms ²⁹ -----	
1	11%	1%	16%	\$415	\$ 790	0%	0%
2	19	3	24	572	1,098	0	0
3	22	3	28	674	1,394	0	0
4	24	4	31	734	1,538	0	0
5	27	5	33	775	1,605	0	0
6	29	6	35	823	1,632	0	0
7	30	7	36	872	1,856	0	4.3
8	33	8	39	943	2,263	1.3	18
9	36	9	43	1,053	2,684	9.0	39
10	42	13	47	1,401	9,899	85.3	94

²⁹190 DFBS farms provided culling information. Thirty-one farms provided supplemental information on heifer acquisitions.

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 costs.
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 190 New York Dairy Farms, 2011

Item	Average 190 Farms	Average Top 10% Farms ³⁰
Total Accrual Operating Expenses	\$2,371,673	\$3,518,525
Expansion Livestock, Accrual	+ 7,479	+ 14,646
1. Total Accrual Operating Expenses, Including Expansion Livestock	\$2,379,152	\$3,533,171
Total Accrual Receipts	\$3,165,306	\$5,298,737
Milk Sales, Accrual	-2,836,049	- 4,764,575
2. Total Accrual Nonmilk Receipts	- \$329,257	- \$ 534,162
3. Operating Cost of Producing Milk	\$2,049,895	\$2,999,009
Machinery Depreciation	+ 110,214	+ 154,092
Building Depreciation	+ 70,293	+ 105,193
Extraordinary Expense	+ 524	+ 0
4. Purchased Inputs Cost of Producing Milk	\$2,230,926	\$3,258,294
Family Labor Unpaid (\$2,550/month)	+ 5,144	+ 1,423
Real Interest on Equity Capital	+ 173,165	+ 292,866
Value of Operator's Labor & Management	+ 105,124	+ 138,609
5. Total Costs of Producing Milk	\$2,514,360	\$3,691,192
6. Costs Per Cwt.:		
Cwt. Milk Sold	130,898	213,592
Operating Cost Per Cwt.	\$15.66	\$14.04
Purchased Inputs Cost Per Cwt.	\$17.04	\$15.25
Total Cost Per Cwt.	\$19.21	\$17.28

³⁰ Average of 19 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 \$17,277 average increase in crop inventories per farm, (\$0.13 per hundredweight of milk), is included in crop sales on the 190 Farms. The top 10 percent farms had a \$22,690 average increase in crop inventories per farm (\$0.11 per hundredweight of milk).

Table 28.

**ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT
BASED ON WHOLE FARM DATA
190 New York Dairy Farms, 2011**

Item	Average 190 Farms		Average Top 10% Farms ³²	
Dairy grain and concentrate	\$6.17		\$5.68	
Dairy roughage	0.35		0.17	
Nondairy feed	0.00		0.00	
Professional nutritional services	<u>0.01</u>		<u>0.00</u>	
Total feed expense	\$6.53		\$5.85	
Crop expense	1.09		1.00	
- Crop sales and government receipts ³¹	<u>0.54</u>		<u>0.43</u>	
Net Feed and Crop Expense		\$7.08		\$6.42
Hired labor	2.75		2.78	
Operator's and family labor	<u>0.84</u>		<u>0.66</u>	
Total Labor Expense		\$3.59		\$3.44
Machine repairs, fuel and hire	2.24		1.99	
Machinery depreciation	0.84		0.72	
- Gas tax refunds and custom work	<u>0.06</u>		<u>0.01</u>	
Net Machinery Expense		\$3.02		\$2.70
Replacement and expansion cattle purchases	0.14		0.09	
- Sales and inventory growth	<u>1.50</u>		<u>1.70</u>	
Net Cattle Purchases		\$-1.36		\$-1.61
Milk marketing costs	0.88		0.91	
All other livestock expense excluding purchases	<u>2.39</u>		<u>2.16</u>	
Net Livestock Expense		\$3.27		\$3.07
Real estate repairs, rent and taxes	0.87		0.69	
Building depreciation	<u>0.54</u>		<u>0.49</u>	
Total Real Estate Expense		\$1.41		\$1.18
Interest paid	0.48		0.30	
Interest on equity	<u>1.32</u>		<u>1.37</u>	
Total Interest Expense		\$1.80		\$1.67
Other operating and miscellaneous expenses	0.82		0.77	
- Miscellaneous income	<u>0.42</u>		<u>0.36</u>	
Net Miscellaneous Expenses		\$ 0.40		\$0.41
Total Cost of Producing Milk		\$19.21		\$17.28
Purchased Inputs Cost of Producing Milk		\$17.04		\$15.25
Total Operating Cost of Producing Milk		\$15.66		\$14.04

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

³²Average of 19 farms with highest rates of return to all capital (without appreciation).

Costs of producing milk per hundredweight are presented in the table below for 174 farms that participated both in 2010 and 2011. Costs of production increased in nearly all expense categories except net cattle purchases and net miscellaneous expenses when 2011 data were compared to 2010.

Table 29.

**ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT
BASED ON WHOLE FARM DATA
Same 174 New York Dairy Farms, 2010 & 2011**

Item	2010	2011	Percent Change
Dairy grain and concentrate	\$5.04	\$6.18	22.6%
Dairy roughage	0.33	0.34	3.0%
Nondairy feed	0.01	0.00	
Professional nutritional services	<u>0.01</u>	<u>0.00</u>	
Total feed expense	\$5.39	\$6.52	21.0%
Crop expense	0.92	1.11	
- Crop sales and government receipts ³³	<u>0.82</u>	<u>0.54</u>	
Net Feed and Crop Expense	\$5.49	\$7.09	29.1%
Hired labor	2.64	2.76	
Operator's and family labor	<u>0.82</u>	<u>0.84</u>	
Total Labor Expense	\$3.50	\$3.60	2.9%
Machine repairs, fuel and hire	1.81	2.22	
Machinery depreciation	0.77	0.84	
- Gas tax refunds and custom work	<u>0.05</u>	<u>0.05</u>	
Net Machinery Expense	\$2.53	\$3.01	19.0%
Replacement and expansion cattle purchases	0.15	0.12	
- Sales and inventory growth	<u>1.39</u>	<u>1.49</u>	
Net Cattle Purchases	\$-1.24	\$-1.37	-10.5%
Milk marketing costs	0.91	0.88	
All other livestock expense excluding purchases	<u>2.30</u>	<u>2.37</u>	
Net Livestock Expense	\$3.21	\$3.25	1.3%
Real estate repairs, rent and taxes	0.74	0.88	
Building depreciation	<u>0.52</u>	<u>0.55</u>	
Total Real Estate Expense	\$1.26	\$1.43	13.5%
Interest paid	0.53	0.48	
Interest on equity	<u>1.12</u>	<u>1.32</u>	
Total Interest Expense	\$1.65	\$1.80	9.1%
Other operating and miscellaneous expenses	0.79	0.82	
- Miscellaneous income	<u>0.29</u>	<u>0.42</u>	
Net Miscellaneous Expenses	<u>\$0.50</u>	<u>\$0.40</u>	-20.0%
Total Cost of Producing Milk	\$16.87	\$19.20	13.8%
Purchased Inputs Cost	\$14.92	\$17.04	14.2%
Total Operating Cost	\$13.62	\$15.65	14.9%
Average Price Received for Milk	\$17.82	\$21.67	21.6%

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

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

Table 30.

**COST OF PRODUCING MILK, ACCRUAL RECEIPTS FROM DAIRY, AND PROFITABILITY
190 New York Dairy Farms, 2011**

Item	Average 190 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	\$2,049,895	\$3,860	\$15.66	\$2,999,009	\$3,652	\$14.04
Purchased Inputs Cost	2,230,926	4,201	17.04	3,258,294	3,968	15.25
Total Cost	2,514,360	4,735	19.21	3,691,192	4,495	17.28
<u>Accrual Receipts from Milk</u>						
Net Milk Receipts	\$2,836,049	\$5,340	\$21.67	\$4,764,575	\$5,803	\$22.31
	2,721,132	5,124	20.79	4,570,371	5,566	21.40
<u>Profitability</u>						
Net Farm Income without Appreciation	\$605,123	\$1,139	\$4.62	\$1,506,281	\$1,834	\$7.05
Net Farm Income with Appreciation	\$733,275	\$1,381	\$5.60	\$1,629,207	\$1,984	\$7.63

³⁴Average of 19 farms with highest rates of return to all capital (without appreciation).

The operating cost of producing milk on all 190 dairy farms averaged \$15.66 per hundredweight, leaving \$6.01 to cover depreciation, unpaid labor and operator resources.

The total cost of producing milk on the 190 dairy farms averaged \$19.21 per hundredweight, \$2.46 less than the average price received for milk sold from these farms during 2011. The imputed costs or charge for the operator's labor, management and equity capital averaged \$2.13 per hundredweight in 2011; however, the farm operator received \$4.67 per hundredweight for these inputs. The 19 most profitable farms held their operating costs to \$14.04 per hundredweight and their total cost of producing milk averaged \$17.28 per hundredweight. This left a return of \$5.03 per hundredweight of milk sold.

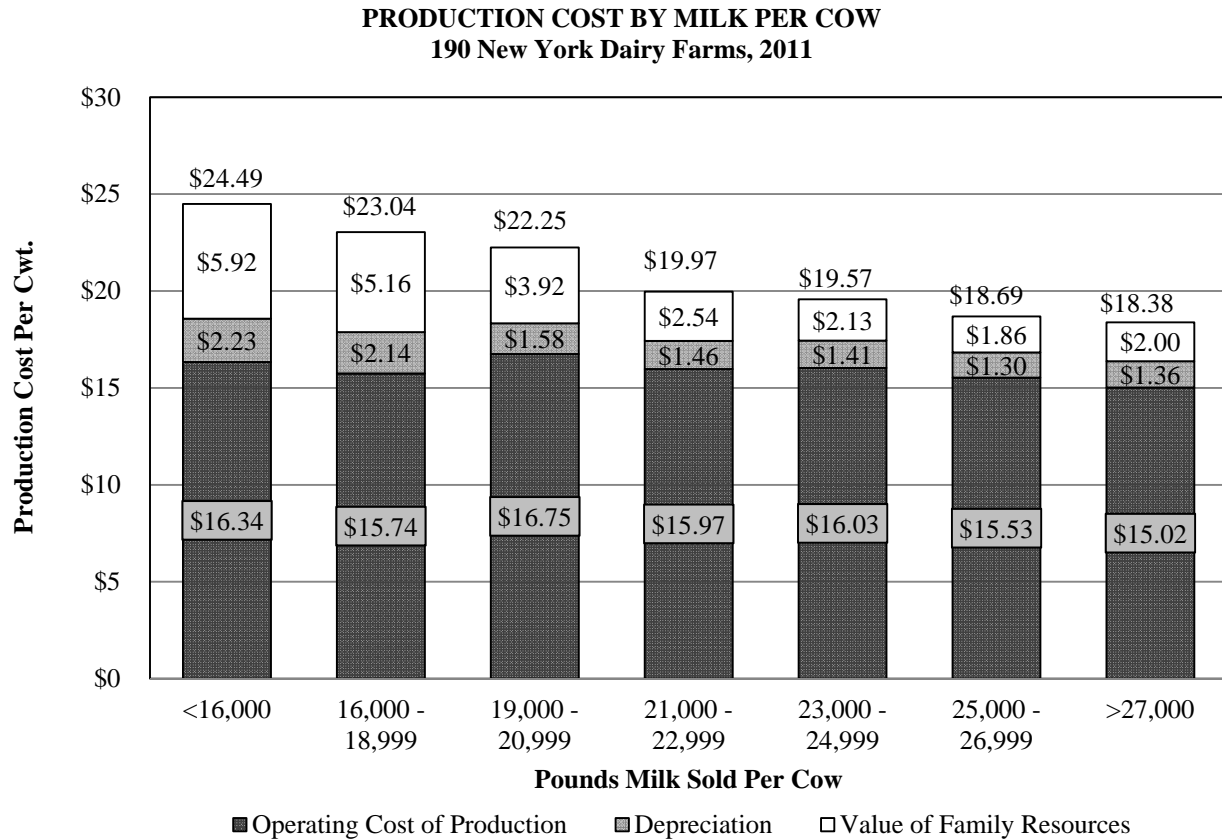
The strong relationship between milk output per cow and the total cost of producing milk is shown in Table 31 and Chart 13 on page 32. Farms selling less than 20,000 pounds of milk per cow had average total costs of production of \$23.36 per hundredweight while those selling 20,000 pounds and over averaged \$19.06 for a difference of \$4.30 per hundredweight.

Table 31.

**FARM COST OF PRODUCING MILK BY MILK SOLD PER COW
190 New York Dairy Farms, 2011**

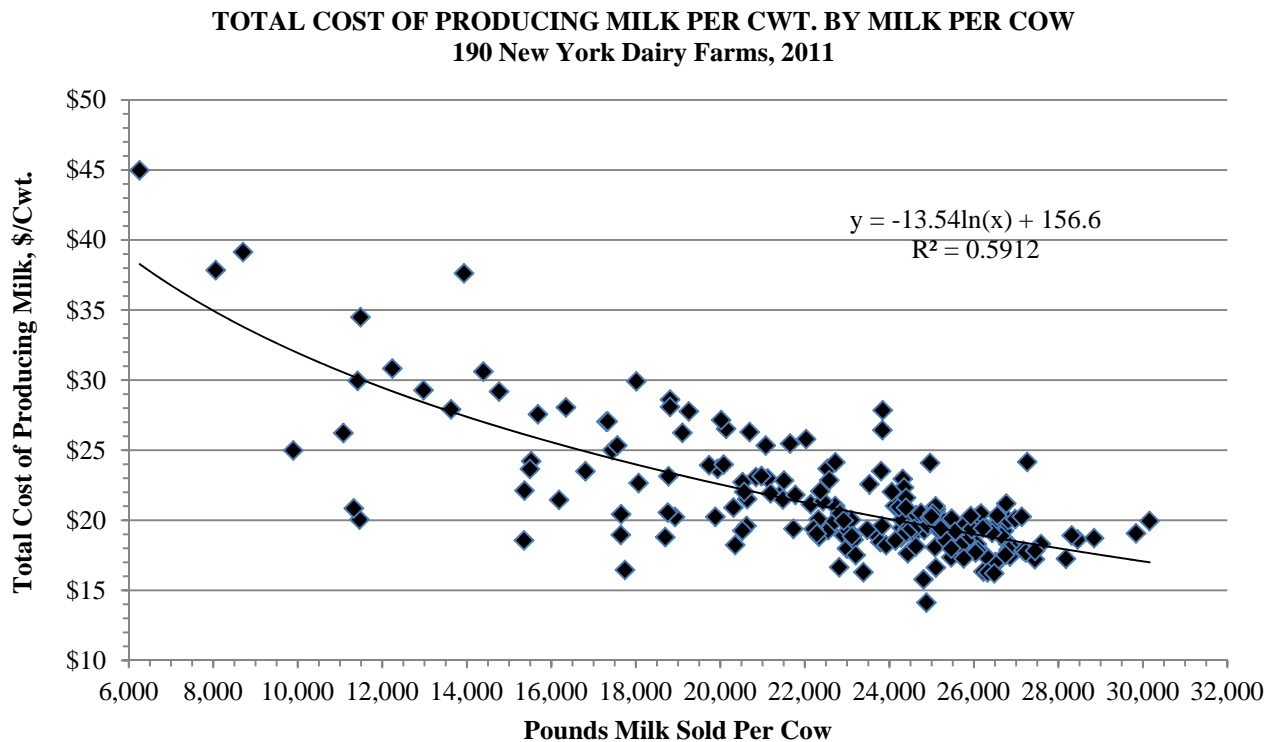
Pounds Milk Sold Per Cow	Costs per Hundredweight					Accrual Receipts From Milk Per Cwt.	Return Per Cwt. To Operator's Labor, Mgmt. & Capital
	Operating Costs		Costs of Producing Milk				
	Hired Labor	Dairy Grain & Concentrate	Total Operating	Purchased Inputs	Total		
Under 16,000	\$2.28	\$6.61	\$16.34	\$18.57	\$24.49	\$22.34	\$2.89
16,000-18,999	1.68	6.00	15.74	17.88	23.04	22.84	4.41
19,000-20,999	2.12	6.43	16.75	18.33	22.25	21.63	3.14
21,000-22,999	2.94	6.22	15.97	17.43	19.97	21.74	4.24
23,000-24,999	2.64	6.07	16.03	17.44	19.57	21.49	4.03
25,000-26,999	2.85	6.26	15.53	16.83	18.69	21.60	4.76
27,000 & over	2.73	5.93	15.02	16.38	18.38	21.93	5.54

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 200 to 399 herd size group and highest at the 60 to 99 herd size group. Hired labor cost increases with herd size, while purchased dairy grain and concentrate are not related to herd size.

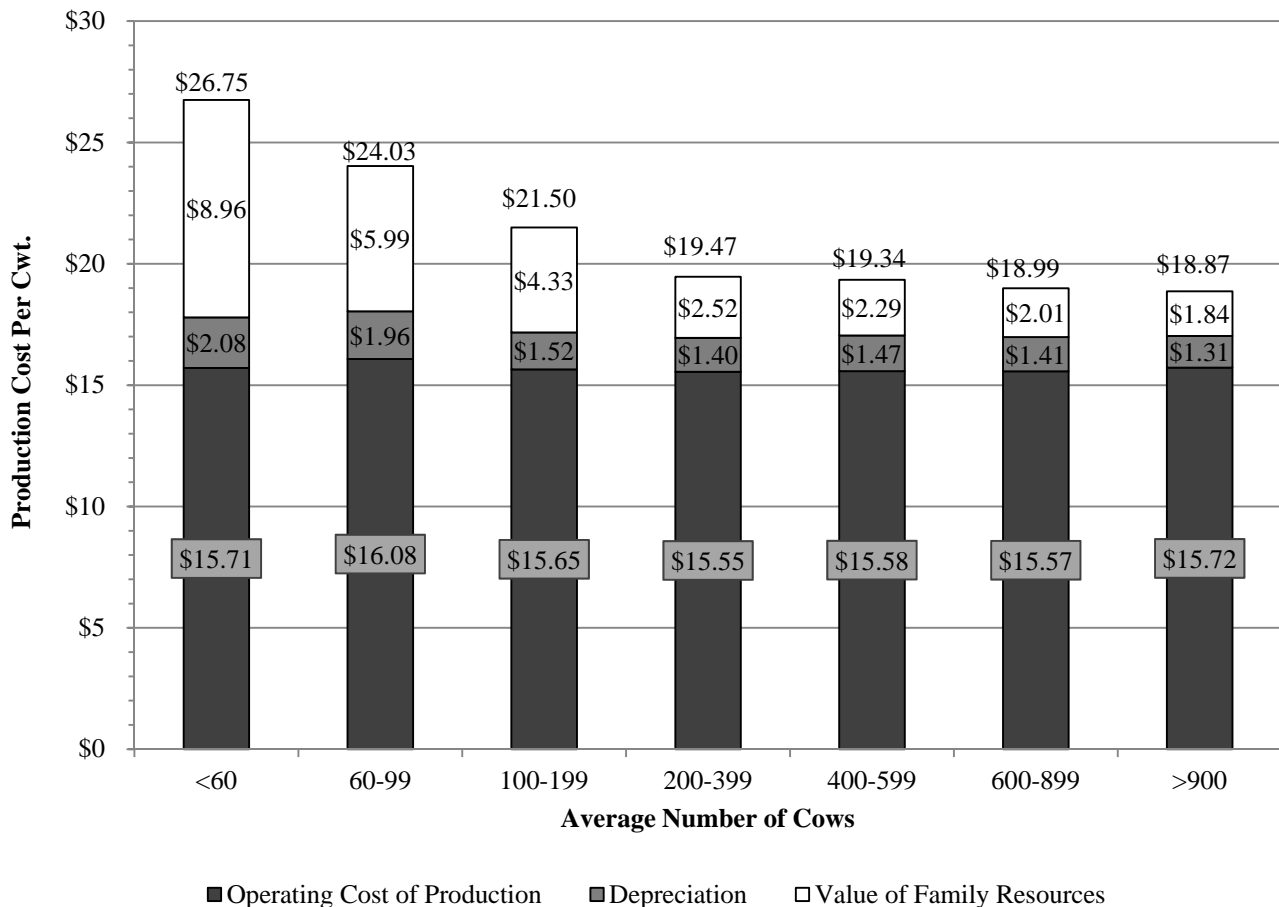
Table 32.

FARM COST OF PRODUCING MILK BY HERD SIZE
190 New York Dairy Farms, 2011

Number of Cows	Costs per Hundredweight					Accrual Receipts From Milk	Return Per Cwt. To Operator's Labor, Mgmt. & Capital
	Operating Costs		Costs of Producing Milk				
	Hired Labor	Dairy Grain & Concentrate	Total Operating	Purchased Inputs	Total		
Under 60	\$0.77	\$5.80	\$15.71	\$17.79	\$26.75	\$21.34	\$2.15
60 to 99	1.41	6.38	16.08	18.04	24.03	21.32	2.41
100 to 199	1.90	6.12	15.65	17.17	21.50	21.67	4.23
200 to 399	2.42	6.07	15.55	16.95	19.47	21.37	4.39
400 to 599	2.74	5.98	15.58	17.05	19.34	21.74	4.66
600 to 899	2.77	6.17	15.57	16.98	18.99	21.77	4.78
900 and over	2.91	6.23	15.72	17.03	18.87	21.66	4.63

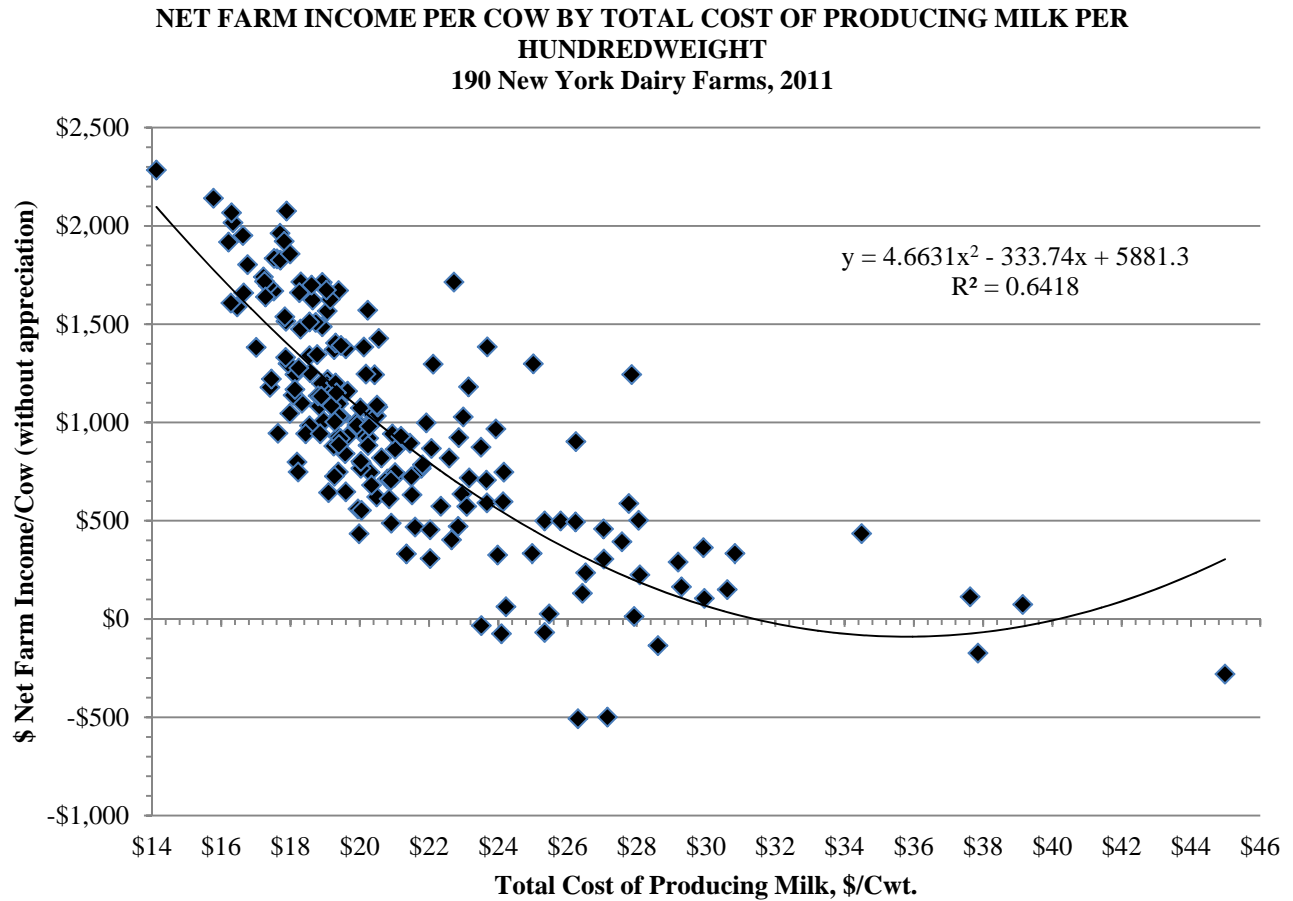
Chart 15.

PRODUCTION COST BY HERD SIZE
190 New York Dairy Farms, 2011



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 2011.

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 2002 through 2011. In 2011, the average operating cost of producing milk increased 13.8 percent after increasing 0.4 percent from 2009 to 2010. The average return per hundredweight to operator labor, management, and capital was \$0.92 higher in 2011, 34 percent greater than 2010. In only four years during the last ten years has milk price exceeded the total cost of producing a hundredweight of milk. The years were 2004, 2007, 2010 and 2011.

Hired labor expense per hundredweight has increased consistently from 2002 to 2004, remained constant in 2005, decreased three percent in 2006, increased five percent in 2007, increased three percent in 2008, decreased three percent in 2009, decreased another three percent in 2010, and increased five percent in 2011. Hired labor expense was \$2.44 in 2002 and has risen to \$2.75 in 2011. Thus, even as pounds of milk sold per worker have increased from 917,854 in 2002 to 1,079,423 in 2011, labor expense per worker has also increased. Some of this effect is due to increasing farm size where a larger portion of the labor force is comprised of hired workers. Another effect is an increase in hired labor cost per worker as shown by a 17 percent increase in hired labor expense per hired worker equivalent from 2002 to 2011.

Purchased feed expense per hundredweight of milk can fluctuate greatly, as much as \$2.43 per hundredweight. At \$4.10 in 2002, it was at its lowest in the past ten years. In 2011, purchased feed expense was at its highest in the past ten years at \$6.53 per hundredweight of milk.

Interest paid on debt per hundredweight of milk sold has fluctuated over this period. In 2002, interest expense was \$0.61 per hundredweight. In 2011, interest expense was at a ten-year low of \$0.48 per hundredweight. Property taxes per hundredweight of milk were fairly constant during this ten-year period. Property taxes were \$0.20 per hundredweight in 2002 and \$0.23 in 2011.

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 79 percent, tillable acres have increased 65 percent, and milk sold per farm has jumped 98 percent since 2002. Capital investment per cow has increased 42 percent over the last ten years. Labor and management income per operator increased 124 percent in 2011 compared to 2010, farm net worth increased 25 percent, and percent equity increased 8 percent in 2011 compared to 2010.

Hay crop yields were 3.1 tons dry matter per acre in 2002 and 3.4 tons dry matter per acre in 2011. 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 18.7 tons per acre in 2009, increased to 19.6 tons per acre in 2010, and decreased to 16.6 tons per acre in 2011. As yields decreased from 2010 to 2011, fertilizer and lime expense increased \$7 per tillable acre, from \$43 to \$50 per acre. Pounds of milk sold per cow increased by 10 percent, from 22,312 pounds in 2002 to 24,648 pounds in 2011.

Average number of workers per farm increased by 4.92 and operators/managers per farm were stable. Cows per worker equivalent increased from 41 in 2002 to 44 in 2011, but labor cost per cow increased from \$725 to \$818 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 57 percent in 2002, was relatively constant over the next four years, increased to 68 percent in 2007 and 2008, decreased to 62 percent in 2009, increased to 65 percent in 2010, and increased to 70 percent in 2011.

Table 33.

TEN YEAR COMPARISON: AVERAGE COST OF PRODUCING MILK PER HUNDREDWEIGHT
New York Dairy Farms, 2002 to 2011

Item	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<u>Operating Expenses</u>										
Hired labor	\$2.44	\$2.51	\$2.67	\$2.66	\$2.58	\$2.70	\$2.79	\$2.70	\$2.61	\$2.75
Purchased feed	4.10	4.29	4.88	4.37	4.30	5.21	6.17	5.45	5.41	6.53
Machinery repair, vehicle expense & rent	1.01	.91	1.09	1.07	1.04	1.27	1.24	1.07	1.16	1.36
Fuel, oil & grease	.28	.33	.41	.53	.58	.67	.91	.57	.65	.88
Replacement livestock	.16	.15	.16	.11	.07	.07	.08	.06	.06	.08
Breeding fees	.21	.19	.21	.22	.23	.24	.26	.21	.21	.22
Veterinary & medicine	.56	.56	.59	.62	.65	.65	.68	.63	.63	.67
Milk marketing	.65	.69	.72	.76	.80	.80	.85	.88	.89	.88
Other dairy expenses	1.25	1.30	1.27	1.32	1.29	1.41	1.52	1.44	1.45	1.48
Fertilizer & lime	.27	.26	.30	.34	.31	.40	.47	.41	.37	.45
Seeds & plants	.20	.20	.24	.22	.23	.28	.33	.35	.36	.39
Spray & other crop expense	.22	.19	.20	.19	.19	.25	.26	.20	.21	.25
Land, building & fence repair	.19	.14	.21	.25	.22	.32	.34	.23	.26	.37
Taxes	.20	.21	.22	.23	.21	.23	.21	.22	.22	.23
Insurance	.16	.15	.16	.16	.17	.19	.18	.17	.17	.18
Utilities (farm share)	.34	.34	.36	.39	.41	.44	.43	.38	.41	.42
Interest paid	.61	.56	.57	.65	.78	.83	.54	.51	.53	.48
Misc. (including rent)	.44	.40	.43	.37	.45	.49	.49	.44	.44	.49
Total Operating Expenses	\$13.27	\$13.39	\$14.67	\$14.54	\$14.51	\$16.46	\$17.77	\$15.90	\$16.04	\$18.12
Less: Nonmilk cash receipts	1.91	1.57	1.70	1.96	1.94	1.75	1.57	1.89	1.62	2.11
Increase in grown feed & supplies	.12	.27	.17	.12	.22	.39	.66	-.04	.36	0.17
Increase in livestock	.23	.09	.22	.21	.27	.30	.33	.34	.30	0.18
OPERATING COST OF MILK PRODUCTION	\$11.01	\$11.46	\$12.58	\$12.25	\$12.08	\$14.02	\$15.21	\$13.71	\$13.76	\$15.66
<u>Overhead Expenses</u>										
Depreciation: machinery & buildings	\$1.39	\$1.23	\$1.32	\$1.32	\$1.26	\$1.32	\$1.38	\$1.28	\$1.32	\$1.38
Unpaid labor	.08	.10	.07	.06	.07	.07	.04	.05	.04	.04
Operator(s) labor ³⁵	.74	.70	.67	.61	.63	.65	.58	.54	.50	.53
Operator(s) management (5% of cash receipts)	.75	.73	.90	.90	.79	1.07	1.10	.80	.96	1.16
Interest on farm equity capital (5%)	.89	.85	.92	1.02	1.06	1.20	1.29	1.21	1.15	1.15
Total Overhead Expenses	\$3.85	\$3.61	\$3.88	\$3.91	\$3.81	\$4.31	\$4.39	\$3.88	\$3.97	\$4.26
TOTAL COST OF MILK PRODUCTION	\$14.86	\$15.07	\$16.46	\$16.16	\$15.89	\$18.33	\$19.60	\$17.59	\$17.73	\$19.92
AVERAGE FARM PRICE OF MILK	\$12.98	\$13.24	\$16.64	\$15.98	\$13.85	\$20.34	\$19.24	\$13.88	\$17.81	\$21.67
Return per cwt. to operator labor, capital & mgmt.	\$0.50	\$0.45	\$2.67	\$2.35	\$0.44	\$4.93	\$2.61	\$-1.16	\$2.69	\$3.61
Rate of return on farm equity capital	-5.6%	-5.7%	6.0%	4.1%	-4.6%	13.4%	3.6%	-10.3%	5.2%	13.6%

³⁵2002 = \$2,100/month, 2003 through 2005 = \$2,200/month, 2006 = \$2,300/month, 2007 = \$2,400/month, 2008 through 2010 = \$2,500/month, and 2011 = \$2,550/month of operator labor.

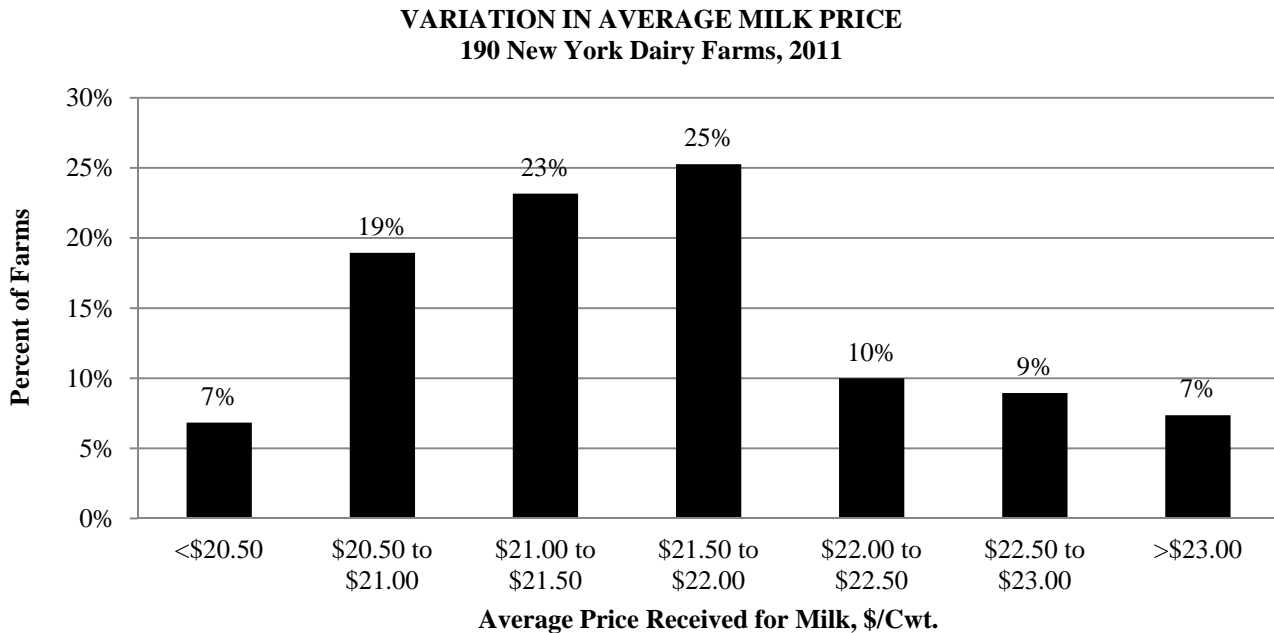
Table 34.

TEN YEAR COMPARISON: SELECTED BUSINESS FACTORS
New York Dairy Farms, 2002 to 2011

Item	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Number of farms	219	201	200	225	240	250	224	204	204	190
<u>Cropping Program</u>										
Total tillable acres	660	659	701	729	730	758	883	965	987	1,086
Tillable acres rented	337	323	345	365	360	385	446	482	493	519
Hay crop acres	323	321	339	361	366	364	421	464	469	477
Corn silage acres	232	233	245	246	249	258	297	348	340	405
Hay crop, tons DM/acre	3.1	3.2	3.5	3.2	3.2	3.0	3.5	3.4	3.5	3.4
Corn silage, tons/acre	15.4	17.2	17.7	18.8	18.4	18.9	19.9	18.7	19.6	16.6
Fertilizer & lime exp./tillable acre	\$27	\$28	\$31	\$33	\$30	\$40	\$49	\$42	\$43	\$50
Machinery cost/cow	\$520	\$497	\$565	\$624	\$618	\$708	\$800	\$660	\$712	\$839
<u>Dairy Analysis</u>										
Number of cows	297	314	334	340	350	358	414	469	489	531
Number of heifers	226	240	260	270	283	289	348	391	415	459
Milk sold, cwt.	66,177	70,105	73,767	78,250	80,862	82,315	99,884	113,555	119,782	130,898
Milk sold/cow, lbs.	22,312	22,302	22,070	22,998	23,083	22,983	24,115	24,208	24,508	24,648
Purchased dairy feed/cwt. milk	\$4.10	\$4.27	\$4.86	\$4.37	\$4.29	\$5.20	\$6.16	\$5.45	\$5.39	\$6.52
Purchased grain & concentrate as % of milk receipts	30%	30%	27%	26%	29%	24%	31%	38%	29%	29%
Purchased feed & crop exp/cwt.milk	\$4.79	\$4.92	\$5.60	\$5.12	\$5.02	\$6.13	\$7.23	\$6.41	\$6.32	\$7.62
<u>Capital Efficiency</u>										
Farm capital/cow	\$6,794	\$6,748	\$7,010	\$7,508	\$7,762	\$8,426	\$9,145	\$9,060	\$9,141	\$9,629
Real estate/cow	\$2,612	\$2,722	\$2,809	\$2,950	\$3,030	\$3,356	\$3,606	\$3,713	\$3,857	\$3,951
Machinery investment/cow	\$1,261	\$1,208	\$1,226	\$1,314	\$1,384	\$1,448	\$1,535	\$1,553	\$1,570	\$1,614
Asset turnover ratio	0.53	0.54	0.64	0.60	0.52	0.67	0.59	0.44	0.56	0.64
<u>Labor Efficiency</u>										
Worker equivalent	7.21	7.50	7.97	8.18	8.19	8.40	9.75	10.74	10.93	12.13
Operator/manager equivalent	1.82	1.86	1.64	1.60	1.63	1.62	1.72	1.83	1.82	1.88
Milk sold/worker, lbs.	917,854	934,733	925,553	956,698	987,530	980,234	1,024,799	1,057,063	1,095,897	1,079,423
Cows/worker	41	42	42	42	43	43	42	44	45	44
Labor cost/cow	\$725	\$738	\$752	\$765	\$757	\$784	\$823	\$794	\$771	\$818
Hired labor exp./hired worker equiv.	\$31,755	\$32,659	\$33,311	\$33,539	\$34,071	\$34,924	\$36,312	\$35,908	\$35,643	\$37,152
<u>Profitability & Financial Analysis</u>										
Labor & mgmt. income/operator	\$-14,243	\$-15,360	\$78,061	\$64,745	\$-31,269	\$189,019	\$75,945	\$-147,313	\$101,484	\$227,028
Farm net worth, end year	\$1,173,836	\$1,207,964	\$1,466,674	\$1,690,427	\$1,736,505	\$2,200,655	\$2,640,168	\$2,639,640	\$3,012,912	\$3,759,325
Percent equity	57%	56%	60%	63%	62%	68%	68%	62%	65%	70%

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 190 farms was \$21.67 but there was considerable variation among the individual farms. The variation in average price received and the distribution of farms around the mean are shown below.

Chart 17.



Forty-eight percent of the farms received from \$21 to \$22 per hundredweight of milk sold. Twenty-six percent of the farms received \$22 or more and 26 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. More 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
190 New York Dairy Farms, 2011

Item	Average 190 Farms		Average Top 10% Farms ³⁶	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	\$1,521	\$6.17	\$1,477	\$5.68
Purchased dairy roughage	87	.35	43	.17
Total Purchased Dairy Feed	\$1,608	\$6.52	\$1,520	\$5.85
Purchased grain & concentrate as % of milk receipts		29%		25%
Purchased feed & crop expense	\$1,877	\$7.62	\$1,780	\$6.84
Purchased feed & crop expense as % of milk receipts		36%		31%
Breeding	\$55	\$.22	\$61	\$.23
Veterinary & medicine	166	.67	161	.62
Milk marketing	216	.88	237	.91
Bedding	95	.39	97	.37
Milking Supplies	97	.39	88	.34
Cattle lease	4	.02	9	.04
Custom boarding	83	.34	81	.31
bST expense	48	.20	32	.12
Other livestock expense	35	.14	36	.14

³⁶Average of 19 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 2011).

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 2011. Net milk income over purchased concentrate per cow shows a similar relationship when compared to rate of return on assets without appreciation (Chart 18).

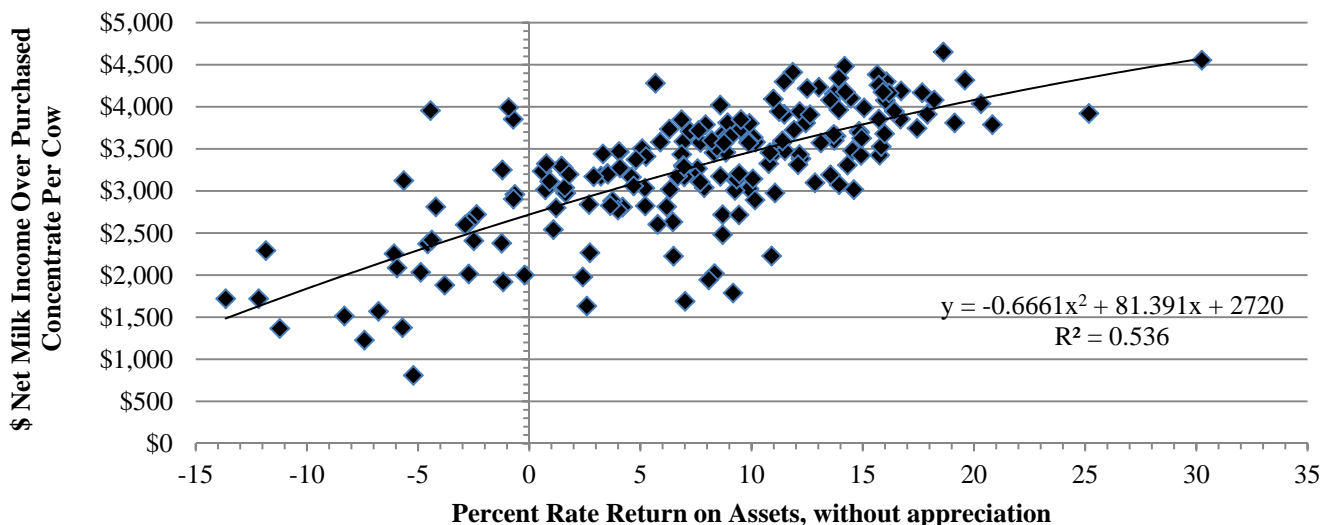
Table 36.

**PURCHASED FEED AND CROP EXPENSE PER HUNDREDWEIGHT
OF MILK AND FARM INCOME MEASURES
190 New York Dairy Farms, 2011**

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	34	359	7.3	21,961	\$263,560	\$104,507	\$291
8.50 to 9.00	18	508	7.3	24,450	410,524	119,950	236
8.00 to 8.49	23	602	7.4	25,310	542,948	154,354	256
7.50 to 7.99	29	589	7.8	25,292	625,919	254,440	432
7.00 to 7.50	34	628	7.3	24,915	852,013	312,533	498
6.49 to 7.00	22	679	7.8	25,496	981,923	375,132	553
Less than 6.50	30	423	8.3	24,397	600,860	236,970	560

Chart 18.

**NET MILK INCOME OVER PURCHASED CONCENTRATE PER COW BY
RETURN ON ASSETS
190 New York Dairy Farms, 2011**



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, 124 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 124 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 124 New York Dairy Farms, 2011

	Pounds	Percent	Price/Pound	Total	\$/Cwt of Milk
BASE FARM PRICE					
Butterfat	593,691	3.67%	\$2.15	\$1,276,349	\$7.89
Protein	498,968	3.08%	\$2.96	\$1,477,334	\$9.13
Solids	935,303	5.78%	\$0.34	\$318,963	\$1.97
Total Component Contribution					\$18.99
PPD	16,184,199			\$240,061	\$1.48
Base Farm Price					\$20.47
Premiums					
Quality				\$42,973	\$0.27
Volume				\$47,916	\$0.30
Market Premiums				\$92,157	\$0.57
Total Premiums					\$1.13
BASE FARM PRICE + PREMIUM					\$21.60
Deductions					
Promotion				\$24,282	\$0.15
Hauling & Stop Charges.				\$105,930	\$0.65
Market Fees & Coop Dues				\$12,154	\$0.08
Total Deductions					\$0.88
BASE FARM PRICE + PREMIUMS – DEDUCTIONS					\$20.72
Marketing Programs					
Futures Contracts, Forward Contracting, Etc.				\$-18,834	\$-0.12
Total Marketing Income					\$-0.12
Patronage Dividends				\$23,847	\$0.15
NET PRICE RECEIVED ON FARM, ALL SOURCES					\$20.75
PPD – Hauling, per cwt.					\$0.83
PPD – Hauling + Market Premiums, per cwt.					\$1.40
Net Marketing Value, per cwt. (PPD + Total Premiums - Total Deductions)					\$1.73

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 124 farms is 653 cows.

Table 38.

MILK PRICE INFORMATION BY QUINTILE³⁸
(Each Category Sorted Independently)
124 New York Dairy Farms, 2011

	Lowest Quintile	←————→			Highest Quintile
Butterfat, %	3.52	3.63	3.69	3.79	4.12
Protein, %	2.97	3.04	3.08	3.12	3.30
Other Solids, %	5.61	5.72	5.74	5.76	6.09
Butterfat, \$ per Cwt.	7.53	7.78	7.93	8.14	8.82
Protein, \$ per Cwt.	8.78	9.01	9.12	9.24	9.69
Other solids, \$ per Cwt.	1.90	1.95	1.97	1.98	2.01
Total Component Value per Cwt.	\$18.39	\$18.76	\$19.00	\$19.31	\$20.39
PPD, \$ per Cwt.	1.15	1.32	1.43	1.55	1.90
Base Farm Price per Cwt.	\$19.75	\$20.20	\$20.44	\$20.78	\$22.00
Quality, \$ per Cwt.	0.02	0.16	0.24	0.31	0.48
Volume, \$ per Cwt.	0.00	0.02	0.16	0.37	0.65
Market premium, \$ per Cwt.	0.02	0.19	0.40	0.69	1.29
Total Premium, \$ per Cwt.	0.39	0.72	0.97	1.26	1.63
Base Farm Price + Premiums per Cwt.	\$20.58	\$21.09	\$21.47	\$21.97	\$23.00
Promotion, \$ per Cwt.	0.15	0.15	0.15	0.15	0.15
Hauling, \$ per Cwt.	0.30	0.49	0.62	0.80	1.17
Market fees & coop dues per Cwt.	0.01	0.03	0.07	0.08	0.19
Total Marketing Expenses per Cwt.	\$0.48	\$0.71	\$0.85	\$1.05	\$1.41
Base + Premiums – Deductions per Cwt.	\$19.80	\$20.31	\$20.64	\$20.97	\$21.90
Futures contract, forward contracting, \$ per Cwt.	-0.39	0.00	0.00	0.00	0.01
Total Marketing Income, \$ per Cwt.	\$-0.39	\$0.00	\$0.00	\$0.00	\$0.01
Patronage Dividends, \$ per Cwt.	\$-0.01	\$0.00	\$0.00	\$0.04	\$0.94
Net Price Received From All Sources, \$ per Cwt.	\$19.79	\$20.38	\$20.76	\$21.11	\$22.17
PPD - Hauling, \$ per cwt.	0.39	0.70	0.80	0.93	1.15
PPD - Hauling + Market Premiums, \$ per cwt.	0.66	1.02	1.22	1.60	2.06
Net Marketing Value, \$ per cwt. (PPD + Total Premiums - Total Deductions)	0.82	1.33	1.57	1.85	2.26

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 190 New York Dairy Farms, 2011				
Item (Average for Year)	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
Farm capital	\$421,590	\$9,629	\$4,707	\$9,008
Real estate		\$3,951		\$3,696
Machinery & equipment	\$70,643	\$1,614	\$789	
<u>Ratios</u>				
Asset turnover	Operating Expense	Interest Expense		Depreciation Expense
0.64	0.73	0.02		0.06
<u>Average Top 10% Farms:</u> ³⁹				
Farm capital	\$438,978	\$9,324	\$4,699	\$8,571
Real estate		\$3,672		\$3,375
Machinery & equipment	\$70,158	\$1,490	\$751	
<u>Ratios</u>				
Asset turnover ratio	Operating Expense	Interest Expense		Depreciation Expense
0.71	0.65	0.01		0.05

³⁹Average of 19 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 190 New York Dairy Farms, 2011						
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	49	815	\$7,908	\$345,916	\$359,664	\$892,138
.60 to .69	48	745	9,889	435,159	339,585	921,774
.50 to .59	41	408	11,377	508,642	163,943	521,831
Less than .50	52	200	12,399	514,680	43,064	170,969

Measures of labor efficiency are key indicators of the work accomplished by an average worker. The 19 farms with the highest rates of return on all capital (without appreciation) were above the average of all 190 farms in all measures of labor efficiency. The top 10 percent averaged three more cows per worker and sold 13 percent more milk per worker than the average of all farms.

Table 41.

LABOR EFFICIENCY 190 New York Dairy Farms, 2011				
Labor Efficiency	Average Farms		Average Top 10% Farms ⁴¹	
	Total	Per Worker ⁴⁰	Total	Per Worker ⁴⁰
Cows, average number	531	44	821	47
Milk sold, pounds	13,089,804	1,079,423	21,359,235	1,224,785
Tillable acres	1,086	90	1,629	93

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

The labor force averaged 12.13 full-time worker equivalents per farm (based on 230 hours per month). Nineteen percent of the labor was supplied by the farm operator/managers. There were two operators on 123 farms, three on 56 farms, and 29 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 \$1,600 per cow and \$6.15 per hundredweight on the 19 farms in the top decile.

Table 42.

**LABOR FORCE INVENTORY AND COST ANALYSIS
190 New York Dairy Farms, 2011**

Labor Force	Months ⁴²	Age	Years of Education	Value of Labor & Management	
Operator number 1	12.9	53	14	\$52,081	
Operator number 2	7.3	48	14	32,821	
Operator number 3	5.2	41	15	14,005	
Operator number 4	1.6	47	15	<u>6,216</u>	
Family paid	3.7			Total \$105,124	
Family unpaid	2.0				
Hired	<u>112.8</u>				
Total	145.5	÷ 12 =	12.13 Worker Equivalent		
			1.88 Operator/Manager Equivalent		
<u>Average Top 10% Farms.</u> ⁴³					
Total	209.3	÷ 12 =	17.44 Worker Equivalent		
Operators'			2.32 Operator/Manager Equivalent		
<hr/>					
	Average 190 Farms			Average Top 10% Farms ⁴³	
Labor Costs	Total	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Value operators' labor (\$2,550/month)	\$ 68,952	\$ 130	\$ 0.53	\$ 95	\$0.36
Family unpaid (\$2,550/month)	5,151	10	0.04	2	0.01
Hired	<u>360,564</u>	<u>679</u>	<u>2.75</u>	<u>723</u>	<u>2.78</u>
Total Labor	\$434,667	\$ 818	\$ 3.32	\$ 819	\$3.15
Machinery Cost	<u>445,767</u>	<u>839</u>	<u>3.41</u>	<u>781</u>	<u>3.00</u>
Total Labor & Machinery	\$880,434	\$1,658	\$ 6.73	\$1,600	\$6.15
Hired labor expense per hired worker equivalent	\$37,152			\$39,958	
Hired labor expense as % of milk sales	12.7%			12.5%	

⁴²See footnote number 40 in Table 41.

⁴³Average of 19 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. In 2011, increased labor efficiency did result in larger net farm incomes.

Table 43.

**MILK SOLD PER WORKER AND NET FARM INCOME
190 New York Dairy Farms, 2011**

Pounds of Milk Sold Per Worker	No. of Farms	No. of Cows	Pounds Milk Per Cow	Net Farm Income (without appreciation)	Labor & Manage- ment Income Per Operator
Under 500,000	22	107	20,515	\$68,951	\$12,887
500,000 to 699,999	31	125	19,152	94,106	24,672
700,000 to 899,999	27	288	23,007	257,453	88,241
900,000 to 1,099,999	48	611	23,834	613,725	217,514
1,100,000 & over	62	931	25,804	1,199,265	393,260

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 190 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 190 New York Dairy Farms, 2011

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
37.4	1,706	43,858,755	27,706	5.3	23	63	1,458,922
22.9	1,021	26,336,021	26,440	4.4	20	51	1,243,329
17.6	785	20,082,453	25,674	3.9	18	48	1,167,110
14.1	612	14,432,284	24,907	3.6	18	45	1,088,025
10.6	466	11,020,599	24,206	3.4	17	42	1,010,627
7.0	325	7,344,654	23,151	3.1	16	40	925,116
4.7	174	3,679,214	21,982	2.8	15	37	793,037
3.1	108	2,120,345	20,278	2.3	14	33	667,413
2.3	69	1,296,787	17,715	2.1	13	28	550,182
1.6	45	726,923	12,283	1.6	10	21	343,454
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		
\$651	18%	\$493	\$1,152	\$898	\$5.24		
1,014	23	651	1,413	1,300	6.42		
1,136	26	716	1,533	1,473	6.94		
1,258	27	779	1,625	1,617	7.24		
1,384	28	843	1,691	1,739	7.55		
1,475	29	901	1,759	1,827	7.82		
1,564	31	960	1,842	1,936	8.19		
1,653	32	1,038	1,933	2,030	8.61		
1,731	34	1,126	2,102	2,150	9.24		
1,947	38	1,384	2,606	2,388	10.66		

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, 200 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
190 New York Dairy Farms, 2011**

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.	
\$6,127	\$23.60	\$1,932	\$12.19	\$3,184	\$16.71	
5,705	22.51	2,646	13.62	3,969	17.95	
5,520	22.08	3,015	14.29	4,328	18.65	
5,369	21.81	3,355	14.98	4,506	19.22	
5,188	21.63	3,601	15.53	4,650	19.75	
<hr/>						
4,959	21.41	3,740	16.05	4,757	20.34	
4,719	21.21	3,881	16.62	4,910	21.30	
4,381	21.00	4,083	17.35	5,104	22.92	
3,837	20.75	4,353	17.88	5,317	25.38	
2,658	20.24	4,711	19.90	5,728	31.41	
<hr/>						
Profitability						
Net Farm Income Without Appreciation			Net Farm Income With Appreciation		Labor & Management Income	
Total	Per Cow	Operations Ratio	Total	Per Cow	Per Farm	Per Operator
\$2,341,294	\$1,900	0.31	\$2,707,050	\$2,395	\$1,794,884	\$864,454
1,264,736	1,606	0.27	1,485,514	1,927	951,356	476,538
867,967	1,344	0.23	1,079,176	1,610	628,200	311,166
616,369	1,165	0.20	792,265	1,395	457,712	212,547
438,110	1,017	0.18	552,379	1,238	289,617	153,689
<hr/>						
274,291	913	0.16	349,944	1,111	150,363	84,765
143,833	773	0.14	185,513	994	66,657	48,741
80,696	612	0.12	109,297	833	29,919	20,449
34,852	399	0.09	56,294	566	-10,042	-8,376
-10,917	-25	-0.01	15,314	222	-90,536	-56,785

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 190 New York Dairy Farms, 2011

	Average 190 farms		Average Top 10% Farms ⁴⁴	
<u>How farm assets are being used (average for the year):</u>				
Total assets (capital) per cow	\$9,629		\$9,324	
Farm assets in livestock	23%		23%	
Farm assets in farm real estate	41%		39%	
Farm assets in machinery	17%		16%	
<u>Measures of debt capacity & debt structure:</u>				
Equity in the business	70%		78%	
Farm debt per cow	\$3,049		\$2,161	
Long term debt/asset ratio ⁴⁵	0.29		0.20	
Intermediate & current term debt/asset ratio ⁴⁵	0.32		0.23	
Intermediate & current term debt as % of total debt	62%		65%	
<u>Debt repayment ability:</u> ⁴⁶				
Cash flow coverage ratio	1.97		3.30	
Debt coverage ratio	2.81		4.94	
Debt payments made per cow	\$632		\$508	
Debt payments made as % of milk receipts	12%		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	+\$564,798	+11.7%	+\$1,365,231	+19.6%
Annual change in farm debt	-\$ 27,231	-1.6%	+\$ 55,406	+3.1%
Annual change in farm net worth	+\$592,030	+18.7%	+\$1,309,825	+25.2%

⁴⁴Twenty 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 174 farms that participated in DFBS both in 2010 and 2011. Eighteen top 10 percent farms that participated both years.

The most profitable farms carried \$888 less debt per cow, the average equity in their businesses was 8 percent higher than that of the average of all 190 farms, and they had a greater ability to make 2012 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 10.1 percentage points faster than debt during 2011 on the 190 dairy farms. Average farm net worth increased 19 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
190 New York Dairy Farms, 2011

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
\$ 63	\$1,607	10.52	13.41	3%	\$ 133	57%	48.32
283	1,339	3.30	4.56	5	1,137	41	6.16
419	1,157	2.47	3.36	7	1,841	31	3.96
485	989	1.96	2.79	9	2,316	26	3.17
575	867	1.64	2.34	10	2,787	21	2.54
642	750	1.45	1.96	11	3,167	17	2.01
703	641	1.23	1.61	13	3,635	13	1.74
799	558	1.02	1.30	15	4,210	10	1.43
932	444	0.88	0.83	17	4,916	4	1.05
1,446	86	0.24	0.08	25	6,691	-13	0.41
Solvency				Operational Ratios			
Leverage Ratio ⁴⁷	Percent Equity	Debt/Asset Ratio		Operating Expense Ratio	Interest Expense Ratio	Depreciation Expense Ratio	
		Current & Intermediate	Long Term				
0.01	99%	0.01	0.00	0.61	0.00	0.02	
0.12	89	0.09	0.00	0.65	0.01	0.04	
0.20	83	0.17	0.01	0.68	0.01	0.04	
0.27	79	0.24	0.10	0.70	0.01	0.05	
0.35	74	0.27	0.19	0.73	0.02	0.06	
0.48	68	0.32	0.30	0.75	0.02	0.06	
0.61	62	0.37	0.39	0.77	0.03	0.07	
0.75	57	0.43	0.49	0.79	0.03	0.08	
0.98	51	0.54	0.59	0.82	0.04	0.10	
1.91	38	0.73	0.83	0.89	0.08	0.14	
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	
0.92	\$1,960	\$662	\$6,389	\$2,323,290	35%	23%	
0.77	2,744	1,032	7,721	1,203,378	25	17	
0.70	3,065	1,335	8,235	886,807	22	15	
0.65	3,357	1,567	8,929	659,342	19	14	
0.61	3,684	1,735	9,627	394,739	16	12	
0.57	4,277	1,884	10,269	256,529	12	10	
0.52	4,745	2,046	11,111	116,070	9	8	
0.47	5,543	2,367	11,989	63,416	6	5	
0.39	6,721	2,816	13,236	23,571	0	1	
0.27	9,736	4,002	16,747	-6,842	-18	-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 190 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 2011. Net farm income without appreciation averaged \$27,613 per farm for the less than 60 cow farms and \$1,606,213 per farm for those with more than 900 cows. Return to all capital without appreciation generally increased as herd size increased. With herd sizes less than 200 cows, many farms find it difficult to find a low cost combination of technology and labor to produce milk. Thus profits are lower for these herds than other herd sizes.

It is more than size of herd that determines profitability on dairy farms. Farms with 900 and more cows averaged \$1,189 net farm income per cow while 60 cows or less dairy farms averaged \$608 net farm income per cow. The over 900 herd size category had the highest net farm income per cow while the under 60 herd size category had the lowest net farm income per cow at \$608. 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 190 New York Dairy Farms, 2011

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	20	45	\$27,613	\$608	\$-5,773	-2.0%
60 to 99	23	75	46,993	628	3,174	0.2%
100 to 199	30	142	132,825	836	40,182	5.1%
200 to 399	24	317	329,007	1,037	127,176	9.3%
400 to 599	26	506	564,133	1,114	184,927	11.0%
600 to 899	28	733	862,484	1,176	305,690	11.6%
900 & over	39	1,351	1,606,213	1,189	444,449	12.2%

This year, net farm income per cow did exhibit the usual increase as herd size increased. 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 25,689 pounds of milk sold per cow, farms in the largest herd size group averaged 9.3 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. Only seven percent of the 43 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 200 cows reported 13 percent of the herds milking more often than two times per day, the 200-399 cow herds reported 67 percent, 400-599 cow herds reported 62 percent, 600-899 cow herds reported 82 percent, and the 900 cow and larger herds reported 95 percent exceeding the two times per day milking frequency.

Table 48.

COWS PER FARM AND RELATED FARM FACTORS
190 New York Dairy Farms, 2011

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	45	17,158	4,213	3.6	7.4	\$13,450	\$15.71	\$26.75
60 to 99	75	19,148	5,840	3.0	8.6	11,391	16.08	24.03
100 to 199	142	20,785	7,307	2.7	8.2	10,973	15.65	21.50
200 to 399	317	23,461	9,967	2.0	7.9	9,745	15.55	19.47
400 to 599	506	23,759	10,347	2.4	8.2	9,137	15.58	19.34
600 to 899	733	24,580	11,105	2.0	7.5	9,714	15.57	18.99
900 & over	1,351	25,689	11,738	1.9	7.4	9,470	15.72	18.87

Milk output per worker has always shown a strong correlation with herd size. The farms with 100 cows or more averaged over 1,111,879 pounds of milk sold per worker while the farms with less than 100 cows averaged less than 519,500 pounds per worker.

In achieving the highest productivity per cow and per worker, the largest farms had the fewest crop acres per cow but also the lowest forage dry matter harvested per cow. The 400 to 599 herd size group had the more efficient use of farm capital with an average investment of \$9,137 per cow.

The 39 farms with 900 or more cows had the lowest total cost of producing milk at \$18.87 per hundredweight. This is \$0.74 below the \$19.61 average for the remaining 151 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 2011. The largest herd size category experienced an increase in net worth of \$1,565,749. However, percent equity varied as herd size increased. The 200 to 399 and 600 to 899 herd size categories had the lowest percent equity at 68 percent; while the 100 to 199 herd size category averaged the highest percent equity at 76 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, 2011. For analysis of smaller herds, see Dairy Farm Business Summary, New York Small Herd Farms, 120 Cows or Fewer, 2011. Both publications are available from the Dairy Farm Business Summary and Analysis Project, Dyson School of Applied Economics and Management, Cornell University, 216 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 31 New York Dairy Farms, 2007 - 2011

Selected Factors	2007	2008	2009	2010	2011
Milk receipts per cwt. milk	\$20.47	\$19.30	\$13.56	\$17.58	\$21.42
<u>Size of Business</u>					
Average number of cows	64	66	66	66	66
Average number of heifers	54	56	56	55	55
Milk sold, cwt.	12,477	13,038	12,855	13,141	12,851
Worker equivalent	2.34	2.33	2.36	2.36	2.36
Total tillable acres	195	194	194	201	205
<u>Rates of Production</u>					
Milk sold per cow, lbs.	19,525	19,841	19,411	19,872	19,500
Hay DM per acre, tons	2.0	2.3	2.4	2.4	2.3
Corn silage per acre, tons	17	18	16	17	13
<u>Labor Efficiency</u>					
Cows per worker	27	28	28	28	28
Milk sold per worker, lbs.	533,205	559,560	544,715	556,827	544,551
<u>Cost Control</u>					
Grain & concn. purchased as % of milk sales	23%	29%	38%	30%	29%
Dairy feed & crop expense per cwt. milk	\$6.17	\$7.53	\$7.03	\$6.97	\$8.11
Operating cost of producing cwt. milk	\$13.07	\$15.13	\$12.79	\$14.01	\$15.89
Total cost of producing cwt. milk	\$20.73	\$22.87	\$20.50	\$21.38	\$24.02
Hired labor cost per cwt.	\$1.21	\$1.19	\$1.15	\$1.28	\$1.39
Interest paid per cwt.	\$0.74	\$0.59	\$0.55	\$0.62	\$0.62
Labor & machinery costs per cow	\$1,854	\$1,934	\$1,732	\$1,845	\$1,968
Replacement livestock expense	\$1,135	\$1,565	\$256	\$1,084	\$1,247
Expansion livestock expense	\$0	\$426	\$39	\$0	\$31
<u>Capital Efficiency</u>					
Farm capital per cow	\$10,363	\$10,759	\$10,896	\$11,121	\$11,387
Machinery & equipment per cow	\$2,209	\$2,339	\$2,420	\$2,466	\$2,586
Real estate per cow	\$4,630	\$4,697	\$4,856	\$5,053	\$5,072
Livestock investment per cow	\$2,364	\$2,401	\$2,344	\$2,271	\$2,284
Asset turnover ratio	0.48	0.41	0.30	0.36	0.44
<u>Profitability</u>					
Net farm income without appreciation	\$71,312	\$29,701	\$-8,974	\$27,397	\$47,393
Net farm income with appreciation	\$91,389	\$38,071	\$-5,908	\$31,851	\$65,227
Labor & management income per operator/manager	\$29,322	\$-8,465	\$-38,609	\$-7,245	\$5,656
Rate return on:					
Equity capital with appreciation	8.2%	-1.8%	-10.6%	-3.2%	2.3%
All capital with appreciation	7.9%	-0.4%	-7.1%	-1.3%	2.8%
All capital without appreciation	4.9%	-1.6%	-7.6%	-1.9%	0.4%
<u>Financial Summary, End Year</u>					
Farm net worth	\$555,548	\$559,628	\$542,617	\$565,094	\$593,701
Change in net worth with appreciation	\$61,548	\$1,851	\$-20,375	\$16,609	\$34,869
Debt to asset ratio	0.20	0.22	0.25	0.24	0.22
Farm debt per cow	\$2,043	\$2,424	\$2,662	\$2,641	\$2,595

Table 50.

PROGRESS OF FARM BUSINESSES WITH 110-499 COWS
Same 44 New York Dairy Farms, 2007 - 2011

Selected Factors	2007	2008	2009	2010	2011
Milk receipts per cwt. milk	\$20.42	\$19.31	\$13.71	\$17.69	\$21.57
<u>Size of Business</u>					
Average number of cows	229	240	250	263	270
Average number of heifers	185	193	207	223	232
Milk sold, cwt.	51,955	54,892	57,602	61,267	62,928
Worker equivalent	5.89	6.20	6.36	6.43	6.77
Total tillable acres	506	528	541	567	582
<u>Rates of Production</u>					
Milk sold per cow, lbs.	22,647	22,872	23,057	23,326	23,293
Hay DM per acre, tons	3.2	3.3	3.4	3.5	3.6
Corn silage per acre, tons	19	20	18	20	17
<u>Labor Efficiency</u>					
Cows per worker	39	39	39	41	40
Milk sold per worker, lbs.	882,085	885,354	905,686	952,838	929,507
<u>Cost Control</u>					
Grain & concn. purchased as % of milk sales	23%	30%	38%	28%	28%
Dairy feed & crop expense per cwt. milk	\$6.13	\$7.43	\$6.59	\$6.33	\$7.65
Operating cost of producing cwt. milk	\$13.57	\$15.06	\$13.04	\$13.53	\$15.71
Total cost of producing cwt. milk	\$17.56	\$19.25	\$16.95	\$17.39	\$19.92
Hired labor cost per cwt.	\$2.33	\$2.57	\$2.49	\$2.38	\$2.52
Interest paid per cwt.	\$0.72	\$0.54	\$0.51	\$0.56	\$0.54
Labor & machinery costs per cow	\$1,562	\$1,686	\$1,491	\$1,531	\$1,707
Replacement livestock expense	\$6,409	\$7,130	\$5,944	\$4,704	\$9,289
Expansion livestock expense	\$6,322	\$10,225	\$5,106	\$14,215	\$5,950
<u>Capital Efficiency</u>					
Farm capital per cow	\$8,434	\$9,062	\$9,056	\$9,165	\$9,770
Machinery & equipment per cow	\$1,565	\$1,692	\$1,723	\$1,746	\$1,837
Real estate per cow	\$3,266	\$3,504	\$3,637	\$3,815	\$4,047
Livestock investment per cow	\$2,195	\$2,237	\$2,136	\$2,037	\$2,087
Asset turnover ratio	0.67	0.58	0.42	0.55	0.60
<u>Profitability</u>					
Net farm income without appreciation	\$287,924	\$156,985	\$-34,928	\$175,880	\$276,325
Net farm income with appreciation	\$381,956	\$196,073	\$-43,861	\$253,287	\$353,125
Labor & management income per operator/manager	\$126,904	\$43,526	\$-68,152	\$54,177	\$104,542
Rate return on:					
Equity capital with appreciation	23.0%	7.7%	-7.7%	11.1%	15.0%
All capital with appreciation	18.0%	6.9%	-3.9%	8.7%	11.6%
All capital without appreciation	13.1%	5.1%	-3.6%	5.5%	8.6%
<u>Financial Summary, End Year</u>					
Farm net worth	\$1,495,013	\$1,589,897	\$1,474,210	\$1,666,983	\$1,938,974
Change in net worth with appreciation	\$293,886	\$85,210	\$-119,015	\$171,400	\$263,962
Debt to asset ratio	0.28	0.30	0.35	0.34	0.30
Farm debt per cow	\$2,502	\$2,744	\$3,109	\$3,157	\$3,012

Table 51.

PROGRESS OF FARM BUSINESSES WITH MORE THAN 500 COWS
Same 65 New York Dairy Farms, 2007 - 2011

Selected Factors	2007	2008	2009	2010	2011
Milk receipts per cwt. milk	\$20.44	\$19.31	\$13.90	\$17.86	\$21.70
<u>Size of Business</u>					
Average number of cows	800	829	874	925	951
Average number of heifers	650	702	758	804	831
Milk sold, cwt.	192,560	205,996	217,504	233,122	240,892
Worker equivalent	17.84	18.69	19.37	20.01	21.35
Total tillable acres	1,617	1,733	1,798	1,868	1,923
<u>Rates of Production</u>					
Milk sold per cow, lbs.	24,068	24,850	24,896	25,194	25,323
Hay DM per acre, tons	3.2	3.8	3.6	3.7	3.6
Corn silage per acre, tons	19	20	19	20	17
<u>Labor Efficiency</u>					
Cows per worker	45	44	45	46	45
Milk sold per worker, lbs.	1,079,374	1,102,171	1,122,891	1,165,028	1,128,302
<u>Cost Control</u>					
Grain & concn. purchased as % of milk sales	24%	30%	37%	28%	29%
Dairy feed & crop expense per cwt. milk	\$6.05	\$7.16	\$6.33	\$6.23	\$7.60
Operating cost of producing cwt. milk	\$13.67	\$15.09	\$13.57	\$13.65	\$15.63
Total cost of producing cwt. milk	\$16.75	\$18.35	\$16.68	\$16.73	\$19.00
Hired labor cost per cwt.	\$2.86	\$2.93	\$2.81	\$2.74	\$2.88
Interest paid per cwt.	\$0.75	\$0.51	\$0.48	\$0.52	\$0.47
Labor & machinery costs per cow	\$1,463	\$1,628	\$1,450	\$1,487	\$1,679
Replacement livestock expense	\$11,550	\$19,284	\$5,435	\$4,915	\$14,381
Expansion livestock expense	\$29,496	\$48,046	\$36,801	\$13,797	\$5,753
<u>Capital Efficiency</u>					
Farm capital per cow	\$8,406	\$9,179	\$9,114	\$8,983	\$9,677
Machinery & equipment per cow	\$1,376	\$1,539	\$1,584	\$1,529	\$1,621
Real estate per cow	\$3,291	\$3,512	\$3,627	\$3,653	\$3,898
Livestock investment per cow	\$2,254	\$2,357	\$2,264	\$2,193	\$2,226
Asset turnover ratio	0.71	0.61	0.45	0.59	0.66
<u>Profitability</u>					
Net farm income without appreciation	\$1,053,563	\$583,695	\$-210,782	\$670,654	\$1,117,186
Net farm income with appreciation	\$1,403,121	\$682,199	\$-190,151	\$849,803	\$1,362,903
Labor & management income per operator/manager	\$390,589	\$149,033	\$-212,137	\$186,068	\$355,796
Rate return on:					
Equity capital with appreciation	28.7%	10.7%	-6.4%	13.4%	19.6%
All capital with appreciation	21.3%	8.7%	-2.8%	9.9%	14.3%
All capital without appreciation	16.1%	7.4%	-3.1%	7.8%	11.7%
<u>Financial Summary, End Year</u>					
Farm net worth	\$5,071,151	\$5,349,987	\$4,915,414	\$5,548,960	\$6,715,419
Change in net worth with appreciation	\$1,184,183	\$258,350	\$-438,962	\$609,146	\$1,108,174
Debt to asset ratio	0.30	0.32	0.38	0.36	0.31
Farm debt per cow	\$2,724	\$3,018	\$3,406	\$3,257	\$3,125

Table 52.

FARM BUSINESS SUMMARY BY HERD SIZE
190 New York Dairy Farms, 2011

Item	Farm Size:	Less than 60 Cows	60 to 99 Cows	100 to 199 Cows	200 to 399 Cows
Number of farms		20	23	30	24
<u>ACCRUAL EXPENSES</u>					
Hired labor		\$6,009	\$20,240	\$55,975	\$180,096
Dairy grain & concentrate		45,231	91,398	180,503	452,191
Dairy roughage		4,399	12,740	12,234	52,087
Nondairy feed		127	325	0	121
Professional nutritional services		0	0	246	0
Machine hire, rent & lease		3,442	7,454	13,570	42,602
Machine repairs & farm vehicle expense		13,963	19,625	36,325	68,959
Fuel, oil & grease		8,987	14,395	31,238	64,978
Replacement livestock		1,632	1,766	1,678	15,143
Breeding		2,674	4,289	8,266	17,147
Veterinary & medicine		4,406	6,941	17,077	41,853
Milk marketing		10,099	14,772	28,509	58,672
Bedding		1,905	3,711	7,855	29,451
Milking supplies		4,162	6,678	13,353	27,294
Cattle lease & rent		0	1	1,226	1,602
Custom boarding		581	2,278	2,834	36,563
bST expense		516	415	1,556	8,376
Livestock professional fees		1,595	1,446	2,540	5,156
Other livestock expense		2,155	4,463	4,792	4,557
Fertilizer & lime		3,917	5,536	19,811	32,378
Seeds & plants		1,835	6,184	10,782	24,273
Spray & other crop expense		1,382	2,921	8,124	12,723
Crop professional fees		249	164	1,244	2,653
Land, building & fence repair		2,824	5,896	7,920	26,427
Taxes & rent		7,205	8,752	18,193	33,353
Utilities		7,256	9,342	15,346	33,715
Interest paid		7,210	9,744	15,812	42,665
Other professional fees		683	1,315	1,614	7891
Misc. (including insurance)		<u>5,098</u>	<u>6,543</u>	<u>11,772</u>	<u>24,375</u>
Total Operating Expenses		\$149,542	\$269,332	\$530,424	\$1,347,304
Expansion livestock		0	172	3,452	8,783
Extraordinary expense		0	3,560	0	0
Machinery depreciation		12,701	17,139	31,440	63,521
Building depreciation		<u>3,587</u>	<u>7,380</u>	<u>13,301</u>	<u>40,480</u>
Total Accrual Expenses		\$165,830	\$297,582	\$578,617	\$1,460,088
<u>ACCRUAL RECEIPTS</u>					
Milk sales		\$166,380	\$305,263	\$639,372	\$1,591,035
Dairy cattle		8,991	17,125	30,365	106,163
Dairy calves		440	2,522	5,303	14,204
Other livestock		895	978	959	1,791
Crops		5,879	4,757	18,192	26,772
Miscellaneous receipts		<u>10,858</u>	<u>13,931</u>	<u>17,251</u>	<u>49,132</u>
Total Accrual Receipts		\$193,443	\$344,575	\$711,442	\$1,789,095
<u>PROFITABILITY ANALYSIS</u>					
Net farm income (without appreciation)		\$27,613	\$46,993	\$132,825	\$329,007
Net farm income (with appreciation)		\$47,516	\$61,418	\$157,377	\$405,329
Labor & management income		\$-6,351	\$3,650	\$65,898	\$223,829
Number of operators		1.10	1.15	1.64	1.76
Labor & management income/operator		\$-5,773	\$3,174	\$40,182	\$127,176
Rates of return on: Equity capital w/o apprec.		-4.2%	-1.3%	5.4%	11.9%
Equity capital with appreciation		0.2%	1.1%	7.5%	15.6%
All capital without appreciation		-2.0%	0.2%	5.1%	9.3%
All capital with appreciation		1.3%	1.9%	6.7%	11.7%

Table 52. (continued)

FARM BUSINESS SUMMARY BY HERD SIZE
190 New York Dairy Farms, 2011

Item	Farm Size:	400 to 599 Cows	600 to 899 Cows	900 or More Cows
Number of farms		26	28	39
<u>ACCRUAL EXPENSES</u>				
Hired labor		\$329,007	\$499,255	\$1,009,910
Dairy grain & concentrate		718,857	1,111,709	2,163,750
Dairy roughage		24,046	58,664	115,106
Nondairy feed		8	8	0
Professional nutritional services		599	1,401	1,614
Machine hire, rent & lease		85,070	76,018	101,839
Machine repairs & farm vehicle expense		131,128	162,143	318,345
Fuel, oil & grease		114,450	160,350	290,246
Replacement livestock		14,858	10,867	18,909
Breeding		27,533	41,931	73,460
Veterinary & medicine		78,281	127,929	241,173
Milk marketing		96,986	145,464	318,831
Bedding		38,951	84,248	132,912
Milking supplies		46,096	65,561	140,934
Cattle lease & rent		237	259	8,800
Custom boarding		35,922	75,289	111,680
bST expense		10,590	27,805	90,858
Livestock professional services		7,102	10,023	20,212
Other livestock expense		12,248	9,536	27,437
Fertilizer & lime		65,348	79,520	148,169
Seeds & plants		54,461	68,951	138,058
Spray & other crop expense		32,658	42,670	69,983
Crop professional fees		4,005	6,186	6,835
Land, building & fence repair		40,191	53,477	143,023
Taxes & rent		68,907	89,463	164,264
Utilities		57,378	70,373	140,173
Interest paid		62,250	88,058	154,414
Other professional fees		12,058	16,228	36,198
Misc. (including insurance)		36,325	50,788	102,177
Total Operating Expenses		\$2,205,551	\$3,234,173	\$6,289,310
Expansion livestock		3,038	15,389	15,201
Extraordinary expense		683	0	0
Machinery depreciation		108,477	154,168	274,041
Building depreciation		68,406	100,886	183,083
Total Accrual Expenses		\$2,386,156	\$3,504,616	\$6,761,636
<u>ACCRUAL RECEIPTS</u>				
Milk sales		\$2,615,171	\$3,923,464	\$7,520,084
Dairy cattle		160,476	254,946	446,511
Dairy calves		18,567	25,176	35,374
Other livestock		3,289	35,392	4,768
Crops		88,465	52,126	127,948
Misc. receipts		64,322	75,995	233,165
Total Accrual Receipts		\$2,950,289	\$4,367,101	\$8,367,849
<u>PROFITABILITY ANALYSIS</u>				
Net farm income (without appreciation)		\$564,133	\$862,484	\$1,606,213
Net farm income (with appreciation)		\$693,978	\$1,096,384	\$1,891,484
Labor & management income		\$403,141	\$626,664	\$1,173,344
Number of operators		2.18	2.05	2.64
Labor & management income/operator		\$184,927	\$305,690	\$444,449
Rates of return on: Equity capital w/o apprec.		14.2%	15.8%	16.2%
Equity capital with appreciation		18.4%	20.8%	19.5%
All capital without appreciation		11.0%	11.6%	12.2%
All capital with appreciation		13.8%	14.8%	14.4%

Table 53.

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
190 New York Dairy Farms, 2011

Item	Farms with:		60 to 99 Cows	
	Less than 60 Cows		Jan. 1	Dec. 31
	Jan. 1	Dec. 31		
<u>ASSETS</u>				
Farm cash, checking & savings	\$ 7,189	\$ 6,338	\$ 5,199	\$ 6,236
Accounts receivable	9,811	10,142	19,880	23,570
Prepaid expenses	0	0	54	56
Feed & supplies	36,504	38,461	63,129	68,584
Livestock ⁴⁹	100,979	100,689	160,200	164,195
Machinery & equipment ⁴⁹	127,693	130,250	169,876	176,435
Farm Credit stock	293	293	821	821
Other stock & certificates	2,488	3,191	14,898	14,271
Land & buildings ⁴⁹	<u>300,704</u>	<u>347,562</u>	<u>403,185</u>	<u>412,191</u>
Total Farm Assets	\$585,662	\$636,925	\$837,242	\$866,358
Nonfarm Assets ⁵⁰	<u>\$106,442</u>	<u>\$120,173</u>	<u>\$ 88,114</u>	<u>\$ 96,250</u>
Farm & Nonfarm Assets	\$692,104	\$757,098	\$925,356	\$962,608
<u>LIABILITIES (excluding deferred taxes)</u>				
Accounts payable	\$5,503	\$7,983	\$24,856	\$18,002
Operating debt	4,241	3,396	6,491	6,342
Short term	1,422	2,350	2,434	1,374
Advanced government receipt	0	0	0	0
Current Portion:				
Intermediate	8,208	11,247	16,559	19,438
Long Term	4,926	5,248	5,458	6,811
Intermediate ⁵¹	63,643	63,140	95,333	87,366
Long term ⁴⁹	<u>49,476</u>	<u>69,311</u>	<u>84,168</u>	<u>90,602</u>
Total Farm Liabilities	\$137,418	\$162,675	\$235,301	\$229,935
Nonfarm Liabilities ⁵⁰	<u>3,073</u>	<u>2,766</u>	<u>1,086</u>	<u>4,512</u>
Farm & Nonfarm Liabilities	\$140,491	\$165,441	\$236,387	\$234,447
Farm Net Worth (Equity Capital)	\$448,244	\$474,250	\$601,941	\$636,422
Farm & Nonfarm Net Worth	\$551,613	\$591,657	\$688,969	\$728,161
<u>FINANCIAL MEASURES</u>				
	<u>Less than 60 Cows</u>		<u>60 to 99 Cows</u>	
Percent Equity	74%		73%	
Debt/asset ratio-long term	0.20		0.22	
Debt/asset ratio-intermediate & current	0.32		0.31	
Debt/asset ratio-total	0.26		0.27	
Leverage ratio	0.34		0.36	
Current ratio	1.82		1.89	
Working capital as % of total expenses	15%		16%	
Accounts payable as % of total debt	5%		8%	
Long-term debt as % of total debt	43%		39%	
Cost of term debt (weighted average)	3.60%		3.96%	
Change in net worth with appreciation	\$26,006		\$34,481	
Total farm debt per cow	\$3,564		\$2,998	
Debt payments made per cow	\$503		\$755	
Debt payments as % of milk sales	13%		18%	
Amount available for debt service	\$33,464		\$33,974	
Cash flow coverage ratio for 2011	1.59		0.99	
Debt coverage ratio for 2011	1.51		1.52	

⁴⁹Includes discounted lease payments.⁵⁰Average of farms reporting nonfarm assets and liabilities for 2011.⁵¹Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 53. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
190 New York Dairy Farms, 2011

Item	Farms with:		200 to 399 Cows	
	100 to 199 Cows		Jan. 1	Dec. 31
ASSETS				
Farm cash, checking & savings	\$ 15,866	\$ 15,672	\$ 35,728	\$ 38,717
Accounts receivable	46,430	52,850	109,625	144,852
Prepaid expenses	80	658	2,245	2,772
Feed & supplies	127,116	149,377	321,742	345,661
Livestock ⁵²	295,189	296,547	658,072	706,015
Machinery & equipment ⁵²	295,523	321,593	573,511	624,513
Farm Credit stock	500	440	625	625
Other stock & certificates	38,370	41,082	63,810	97,149
Land & buildings ⁵²	<u>692,306</u>	<u>726,064</u>	<u>1,179,001</u>	<u>1,280,924</u>
Total Farm Assets	\$1,511,379	\$1,604,284	\$2,944,360	\$3,241,228
Nonfarm Assets ⁵³	<u>\$ 162,985</u>	<u>\$ 166,289</u>	<u>\$ 627,129</u>	<u>\$ 650,651</u>
Farm & Nonfarm Assets	\$1,674,364	\$1,770,573	\$3,571,489	\$3,891,879
LIABILITIES (excluding deferred taxes)				
Accounts payable	\$19,121	\$15,617	\$62,453	\$48,017
Operating debt	25,764	21,125	62,970	51,504
Short term	1,081	2,534	5,836	12,260
Advanced government receipt	670	530	0	0
Current Portion:				
Intermediate	28,877	35,329	58,627	74,579
Long Term	10,118	11,983	35,963	39,689
Intermediate ⁵⁴	152,052	138,468	315,372	306,374
Long term ⁵²	<u>149,004</u>	<u>152,977</u>	<u>503,945</u>	<u>499,933</u>
Total Farm Liabilities	\$386,687	\$378,563	\$1,045,166	\$1,032,356
Nonfarm Liabilities ⁵³	<u>15,876</u>	<u>16,080</u>	<u>6,739</u>	<u>7,780</u>
Farm & Nonfarm Liabilities	\$402,563	\$394,643	\$1,051,905	\$1,040,136
Farm Net Worth (Equity Capital)	\$1,124,692	\$1,225,721	\$1,899,194	\$2,208,872
Farm & Nonfarm Net Worth	\$1,271,801	\$1,375,930	\$2,519,584	\$2,851,743
FINANCIAL MEASURES				
	<u>100 to 199 Cows</u>		<u>200 to 399 Cows</u>	
Percent equity	76%		68%	
Debt/asset ratio-long term	0.21		0.39	
Debt/asset ratio-intermediate & current	0.26		0.27	
Debt/asset ratio-total	0.24		0.32	
Leverage ratio	0.31		0.47	
Current ratio	2.51		2.35	
Working capital as % of total expenses	23%		21%	
Accounts payable as % of total debt	4%		5%	
Long-term debt as % of total debt	40%		48%	
Cost of term debt (weighted average)	5.67%		4.21%	
Change in net worth with appreciation	\$97,037		\$309,678	
Total farm debt per cow	\$2,629		\$3,216	
Debt payments made per cow	\$643		\$626	
Debt payments as % of milk sales	14%		13%	
Amount available for debt service	\$113,873		\$264,690	
Cash flow coverage ratio for 2011	1.74		1.91	
Debt coverage ratio for 2011	2.18		2.67	

⁵²Includes discounted lease payments.⁵³Average of farms reporting nonfarm assets and liabilities for 2011.⁵⁴Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 53. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
190 New York Dairy Farms, 2011

Item	Farms with:		600 to 899 Cows	
	400 to 599 Cows		Jan. 1	Dec. 31
ASSETS				
Farm cash, checking & savings	\$ 34,710	\$ 54,903	\$ 46,393	\$ 40,677
Accounts receivable	163,502	200,025	251,190	398,107
Prepaid expenses	1,970	4,157	2,595	9,901
Feed & supplies	492,137	579,698	763,026	885,663
Livestock ⁵⁵	1,055,600	1,103,675	1,615,601	1,664,790
Machinery & equipment ⁵⁵	740,144	875,218	1,082,540	1,275,328
Farm Credit stock	962	923	929	929
Other stock & certificates	129,749	159,311	193,291	261,476
Land & buildings ⁵⁵	<u>1,703,266</u>	<u>1,951,375</u>	<u>2,732,904</u>	<u>3,020,791</u>
Total Farm Assets	\$4,322,039	\$4,929,286	\$6,688,468	\$7,557,661
Nonfarm Assets ⁵⁶	<u>\$ 249,624</u>	<u>\$ 264,062</u>	<u>\$ 566,362</u>	<u>\$ 799,056</u>
Farm & Nonfarm Assets	\$4,571,663	\$5,193,348	\$7,254,830	\$8,356,717
LIABILITIES (excluding deferred taxes)				
Accounts payable	\$ 74,697	\$60,755	\$85,560	\$64,114
Operating debt	61,053	65,788	94,460	161,776
Short term	9,361	8,498	5,571	2,119
Advanced government receipt	0	0	0	0
Current Portion:				
Intermediate	141,167	158,016	192,018	211,230
Long Term	34,208	40,079	84,429	85,029
Intermediate ⁵⁷	621,175	577,043	1,008,438	858,311
Long term ⁵⁵	<u>521,910</u>	<u>595,989</u>	<u>997,792</u>	<u>1,059,026</u>
Total Farm Liabilities	\$1,463,571	\$1,506,168	\$2,468,269	\$2,441,605
Nonfarm Liabilities ⁵⁶	<u>1,477</u>	<u>1,295</u>	<u>0</u>	<u>0</u>
Farm & Nonfarm Liabilities	\$1,465,048	\$1,507,463	\$2,468,269	\$2,441,605
Farm Net Worth (Equity Capital)	\$2,858,467	\$3,423,118	\$4,220,199	\$5,116,057
Farm & Nonfarm Net Worth	\$3,106,615	\$3,685,885	\$4,786,561	\$5,915,112
FINANCIAL MEASURES				
	<u>400 to 599 Cows</u>		<u>600 to 899 Cows</u>	
Percent equity	69%		68%	
Debt/asset ratio-long term	0.31		0.35	
Debt/asset ratio-intermediate & current	0.31		0.30	
Debt/asset ratio-total	0.31		0.32	
Leverage ratio	0.44		0.48	
Current ratio	2.52		2.55	
Working capital as % of total expenses	21%		23%	
Accounts payable as % of total debt	4%		3%	
Long-term debt as % of total debt	40%		43%	
Cost of term debt (weighted average)	4.00%		4.00%	
Change in net worth with appreciation	\$564,650		\$895,858	
Total farm debt per cow	\$2,926		\$3,312	
Debt payments made per cow	\$583		\$667	
Debt payments as % of milk sales	11%		13%	
Amount available for debt service	\$488,792		\$728,653	
Cash flow coverage ratio for 2011	1.83		1.85	
Debt coverage ratio for 2011	2.48		2.60	

⁵⁵Includes discounted lease payments.⁵⁶Average of farms reporting nonfarm assets and liabilities for 2011.⁵⁷Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 53. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
190 New York Dairy Farms, 2011

Item	Farms with:	More than 900 Cows	
		Jan. 1	Dec. 31
<u>ASSETS</u>			
Farm cash, checking & savings		\$ 122,790	\$ 130,139
Accounts receivable		431,287	712,879
Prepaid expenses		10,862	19,897
Feed & supplies		1,404,352	1,671,234
Livestock ⁵⁸		2,957,558	3,036,521
Machinery & equipment ⁵⁸		1,891,823	2,139,262
Farm Credit stock		2,186	2,070
Other stock & certificates		260,801	344,613
Land & buildings ⁵⁸		<u>5,004,434</u>	<u>5,454,578</u>
Total Farm Assets		\$12,086,092	\$13,511,193
Nonfarm Assets ⁵⁹		<u>\$ 386,851</u>	<u>\$ 537,939</u>
Farm & Nonfarm Assets		\$12,472,943	\$14,049,132
<u>LIABILITIES (excluding deferred taxes)</u>			
Accounts payable		\$156,124	\$137,949
Operating debt		248,456	338,798
Short term		17,656	7,647
Advanced government receipts		1,697	0
Current Portion:			
Intermediate		330,665	349,799
Long Term		119,722	126,768
Intermediate ⁶⁰		1,851,269	1,732,921
Long term ⁵⁸		<u>1,487,436</u>	<u>1,378,494</u>
Total Farm Liabilities		\$4,213,025	\$4,072,377
Nonfarm Liabilities ⁵⁹		<u>0</u>	<u>0</u>
Farm & Nonfarm Liabilities		\$4,213,025	\$4,072,377
Farm Net Worth (Equity Capital)		\$7,873,066	\$9,438,815
Farm & Nonfarm Net Worth		\$8,259,918	\$9,976,755
<u>FINANCIAL MEASURES</u>		<u>More than 900 Cows</u>	
Percent equity		70%	
Debt/asset ratio-long term		0.25	
Debt/asset ratio-intermediate & current		0.33	
Debt/asset ratio-total		0.30	
Leverage ratio		0.43	
Current ratio		2.64	
Working capital as % of total expenses		23%	
Accounts payable as % of total debt		3%	
Long-term debt as % of total debt		34%	
Cost of term debt (weighted average)		3.95%	
Change in net worth with appreciation		\$1,565,749	
Total farm debt per cow		\$2,980	
Debt payments made per cow		\$628	
Debt payments as % of milk sales		11%	
Amount available for debt service		\$1,373,623	
Cash flow coverage ratio for 2011		2.12	
Debt coverage ratio for 2011		3.11	

⁵⁸Includes discounted lease payments.⁵⁹Average of farms reporting nonfarm assets and liabilities for 2011.⁶⁰Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 54.

SELECTED BUSINESS FACTORS BY HERD SIZE
190 New York Dairy Farms, 2011

Item	Farms with:	Less than 60 Cows	60 to 99 Cows	100 to 199 Cows	200 to 399 Cows
Number of farms		20	23	30	24
<u>Cropping Program Analysis</u>					
Total Tillable acres		164	211	374	596
Tillable acres rented ⁶¹		67	79	154	257
Hay crop acres ⁶¹		123	134	219	272
Corn silage acres ⁶¹		20	43	88	195
Hay crop, tons DM/acre		2.0	2.6	2.9	3.7
Corn silage, tons/acre		14	15	16	17
Oats, bushels/acre		36	20	27	62
Forage DM per cow, tons		7.4	8.6	8.2	7.9
Tillable acres/cow		3.6	3.0	2.7	2.0
Fertilizer & lime expense/tillable acre		\$30.02	\$28.30	\$55.27	\$54.61
Total machinery costs		\$45,541	\$70,521	\$130,322	\$272,930
Machinery cost/tillable acre		\$278	\$308	\$337	\$434
<u>Dairy Analysis</u>					
Number of cows		45	75	142	317
Number of heifers		36	63	122	271
Milk sold, pounds		779,840	1,431,875	2,950,861	7,445,906
Milk sold/cow, pounds		17,158	19,148	20,785	23,461
Operating cost of producing milk/cwt.		\$15.71	\$16.08	\$15.65	\$15.55
Total cost of producing milk/cwt.		\$26.75	\$24.03	\$21.50	\$19.47
Price/cwt. milk sold		\$21.34	\$21.32	\$21.67	\$21.37
Purchased dairy feed/cow		\$1,092	\$1,393	\$1,358	\$1,589
Purchased dairy feed/cwt. milk		\$6.36	\$7.27	\$6.53	\$6.77
Purchased grain & concentrate as % of milk receipts		27%	30%	29%	29%
Purchased feed & crop expense/cwt. milk		\$7.31	\$8.31	\$7.89	\$7.74
Cull rate		30%	28%	31%	34%
<u>Capital Efficiency</u>					
Farm capital/worker		\$330,429	\$347,673	\$385,602	\$414,029
Farm capital/cow		\$13,450	\$11,391	\$10,973	\$9,745
Farm capital/tillable acre owned		\$6,273	\$6,479	\$7,055	\$9,122
Real estate/cow		\$7,132	\$5,452	\$4,995	\$3,875
Machinery investment/cow		\$2,838	\$2,316	\$2,173	\$1,887
Asset turnover ratio		0.35	0.42	0.47	0.60
<u>Labor Efficiency</u>					
Worker equivalent		1.85	2.45	4.04	7.47
Operator/manager equivalent		1.10	1.15	1.64	1.76
Milk sold/worker, lbs.		421,345	584,042	730,713	996,663
Cows/worker		25	31	35	42
Labor cost/cow		\$1,188	\$982	\$856	\$766
Labor cost/tillable acre		\$329	\$348	\$325	\$408

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

Table 54. (cont'd)

SELECTED BUSINESS FACTORS BY HERD SIZE
190 New York Dairy Farms, 2011

Item	Farms with:	400 to 599 Cows	600 to 899 Cows	900 or More Cows
Number of farms		26	28	39
<u>Cropping Program Analysis</u>				
Total Tillable acres		1,227	1,483	2,547
Tillable acres rented ⁶²		698	729	1,181
Hay crop acres ⁶²		553	601	1,043
Corn silage acres ⁶²		408	572	1,068
Hay crop, tons DM/acre		3.4	3.7	3.4
Corn silage, tons/acre		16	17	17
Oats, bushels/acre		41	37	0
Forage DM per cow, tons		8.2	7.5	7.4
Tillable acres/cow		2.4	2.0	1.9
Fertilizer & lime exp./tillable acre		\$52.77	\$60.70	\$56.17
Total machinery costs		\$479,509	\$611,625	\$1,085,248
Machinery cost/tillable acre		\$391	\$413	\$426
<u>Dairy Analysis</u>				
Number of cows		506	733	1,351
Number of heifers		426	652	1,168
Milk sold, pounds		12,027,500	18,022,934	34,716,616
Milk sold/cow, pounds		23,759	24,580	25,689
Operating cost of producing milk/cwt.		\$15.58	\$15.57	\$15.72
Total cost of producing milk/cwt.		\$19.34	\$18.99	\$18.87
Price/cwt. milk sold		\$21.74	\$21.77	\$21.66
Purchased dairy feed/cow		\$1,468	\$1,596	\$1,686
Purchased dairy feed/cwt. milk		\$6.18	\$6.49	\$6.56
Purchased grain & concentrate as % of milk receipts		28%	28%	29%
Purchased feed & crop expense/cwt. milk		\$7.48	\$7.59	\$7.61
Cull rate		35%	35%	37%
<u>Capital Efficiency</u>				
Farm capital/worker		\$398,078	\$438,883	\$432,679
Farm capital/cow		\$9,137	\$9,714	\$9,470
Farm capital/tillable acre owned		\$8,744	\$9,457	\$9,368
Real estate/cow		\$3,610	\$3,923	\$3,870
Machinery investment/cow		\$1,595	\$1,608	\$1,491
Asset turnover ratio		0.67	0.65	0.68
<u>Labor Efficiency</u>				
Worker equivalent		11.62	16.23	29.58
Operator/manager equivalent		2.18	2.05	2.64
Milk sold/worker, lbs.		1,034,698	1,110,527	1,173,784
Cows/worker		44	45	46
Labor cost/cow		\$801	\$773	\$833
Labor cost/tillable acre		\$331	\$383	\$442

⁶² Average 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 are a growing trend in New York. In 2011, 11 participating farms purchased the majority of their feed, including most forages. On average, only 16 acres of forage were harvested by these farms. Table 55 highlights the income and expenses for these 11 farms compared to the income and expenses for 91 farms of similar size that grew their forages. Table 56 compares selected business factors for the two groups of farms. In 2011, the 11 farms buying forages had, on average, higher labor and management incomes per operator, rates of return on equity capital, and rates of return on all capital than the similar size farms growing forages. While pounds of milk sold per cow were higher, milk receipts per cow and per hundredweight were lower, and operating costs of producing milk were \$0.42 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 conventional housing. Conventional housing includes stanchion and tiestall barns. 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 45 cows on the small conventional farms to 993 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 2011, 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 2011, 28 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 2011, average profitability was lower on intensive grazing farms. Operating costs of producing milk were \$0.89 per hundredweight lower while total costs were \$0.89 higher than the costs of production on the control farms. A publication containing detailed information on New York farms using intensive grazing is available from the Dyson School of Applied Economics and Management. An order form is included on the department website: <http://www.dyson.cornell.edu/outreach/order.php>.

Comparison of Data, Same Farms, 2002 - 2011

Follow ten years of growth, change and progress made by 87 New York DFBS farms in Table 64, pages 72 and 73. Milk receipts per hundredweight are higher by \$8.70 in 2011 when compared to 2002. Profitability in 2011 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 38 dairy farms selling less than 19,000 pounds of milk per cow, 45 farms with 19,000 to 22,999 pounds of milk sold per cow, and 107 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 43 farms averaging less than 100 cows per farm, 30 farms with 100 to 200 cows and 117 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 as well as the highest average rate of milk production. Dairy farmers in the Western and Central Plain Region have increased milk production 32.7 percent from 2000-2010 and they produced milk for an average total cost of \$19.45 per hundredweight in 2011. Total milk production has declined 3.7 percent from 2000-2010 in the Western and Central Plateau Region (Figure 2). However, this is the region with the highest return per hundredweight to labor, management and capital with \$5.15. Central Valleys Region had the second highest return per hundredweight to labor, management and capital with \$5.06.

Comparison of Farms by Milking Frequency

Forty-four percent of the 190 DFBS farms utilized three times per day (3X) milking in 2011. 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 2011, the 3X farms averaged two less cows per farm, sold slightly more milk per cow, showed an average \$441,920 increase in net farm income, and an increase in total cost of producing milk by \$2.17 compared to the 3X farm averages for 2010. The 2X farms increased milk output per cow two percent, average net farm income increased by \$91,305, and total production costs increased by \$2.06 per hundredweight in 2011 compared to 2010.

The 3X farms averaged 23 percent more milk per cow and 34 percent additional milk per worker in 2011 compared with the 2X farms. Similar differences were found in 2010. In 2011, 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

Thirteen dairy renter farms (Table 70) were smaller, on average, and averaged lower labor and management incomes than the average for 190 owned dairy farms. A publication contains detailed information on New York dairy renters (see <http://www.dyson.cornell.edu/outreach/order.php>). 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 190 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, 2011**

Item	11 Farms Buying Majority of Forages		91 Similar Size Farms Growing Forages	
Number of cows per farm	306		301	
Pounds of milk sold	7,202,311		7,024,255	
<u>Income</u>	<u>Per Cow</u>	<u>Per Cwt.</u>	<u>Per Cow</u>	<u>Per Cwt.</u>
Milk sold	\$4,975	\$21.14	\$5,056	\$21.69
Dairy cattle	532	2.26	314	1.35
Dairy calves	40	0.17	39	0.17
Other livestock	-3	-0.01	40	0.17
Crops	8	0.03	132	0.57
Miscellaneous	<u>166</u>	<u>0.71</u>	<u>124</u>	<u>0.53</u>
Total Accrual Receipts	\$5,718	\$24.29	\$5,705	\$24.47
<u>Expenses</u>				
Hired labor	\$ 441	\$ 1.87	\$ 600	\$ 2.57
Dairy grain & concentrate	1,534	6.52	1,421	6.10
Dairy roughage	648	2.75	49	0.21
Nondairy	3	0.01	0	0.00
Professional nutritional services	0	0.00	1	0.00
Machinery hire, rent/lease	76	0.32	146	0.62
Machinery repairs/vehicle expense.	146	0.62	250	1.07
Fuel, oil & grease	117	0.50	229	0.98
Replacement livestock	156	0.66	22	0.09
Breeding	39	0.16	57	0.24
Veterinary & medicine	128	0.54	146	0.62
Milk marketing	165	0.70	199	0.85
Bedding	79	0.33	87	0.37
Milking supplies	74	0.31	92	0.39
Cattle lease/rent	7	0.03	3	0.01
Custom boarding	150	0.64	58	0.25
bST expense	25	0.11	19	0.08
Livestock professional fees	12	0.05	16	0.07
Other livestock expenses	9	0.04	24	0.11
Fertilizer & lime	20	0.09	128	0.55
Seeds & plants	7	0.03	98	0.42
Spray, other crop expenses	1	0.00	60	0.26
Crop professional fees	1	0.01	8	0.03
Land/bldg/fence repair	63	0.27	78	0.34
Taxes	38	0.16	66	0.28
Rent & lease	18	0.07	67	0.29
Insurance	41	0.17	46	0.20
Utilities	107	0.46	112	0.48
Interest paid	125	0.53	118	0.51
Other professional fees	36	0.15	21	0.09
Miscellaneous	<u>26</u>	<u>0.11</u>	<u>28</u>	<u>0.12</u>
Total Operating Expenses	\$4,290	\$18.23	\$4,252	\$18.22
Expansion livestock	11	0.05	26	0.11
Extraordinary expense	0	0.00	4	0.02
Machinery depreciation	162	0.69	211	0.90
Building depreciation	<u>155</u>	<u>0.66</u>	<u>127</u>	<u>0.54</u>
Total Accrual Expenses	\$4,618	\$19.62	\$4,619	\$19.79
Net Farm Income (without appreciation)	\$1,100	\$ 4.67	\$1,091	\$ 4.68

Table 56.

**SELECTED BUSINESS FACTORS FOR FARMS BUYING MAJORITY OF FORAGES
VERSUS SIMILAR SIZE FARMS GROWING FORAGES
New York Dairy Farms, 2011**

Selected Factors	11 Farms Buying Majority of Forages	91 Similar Size Farms Growing Forages
<u>Size of Business</u>		
Average number of cows	306	301
Average number of heifers	246	260
Milk sold, pounds	7,202,311	7,024,255
Worker equivalent	5.26	7.40
Total tillable acres	137	717
Forage acres harvested	16	594
<u>Rates of Production</u>		
Milk sold per cow, lbs.	23,537	23,312
Hay DM per acre, tons	0.0	3.2
Corn silage per acre, tons	0.0	16.2
<u>Labor Efficiency & Costs</u>		
Cows per worker	58	41
Milk sold/worker, pounds	1,370,129	949,544
Hired labor cost/cwt.	\$1.87	\$2.57
Hired labor cost/worker	\$39,181	\$33,972
Hired labor cost as % of milk sales	8.9%	11.9%
<u>Cost Control</u>		
Grain & concentrate purchased as % of milk sales	31%	28%
Grain & concentrate per cwt. milk	\$6.52	\$6.10
Dairy feed & crop expense per cwt. milk	\$9.39	\$7.56
Labor & machinery costs/cow	\$1,173	\$1,735
Total farm operating costs per cwt. sold	\$18.23	\$18.22
Interest costs per cwt. milk	\$0.53	\$0.51
Milk marketing costs per cwt. milk sold	\$0.70	\$0.85
Operating cost of producing cwt. of milk	\$15.12	\$15.54
<u>Capital Efficiency</u> (average for the year)		
Farm capital per cow	\$7,247	\$9,859
Machinery & equipment per cow	\$1,005	\$1,795
Asset turnover ratio	0.80	0.60
<u>Income Generation</u>		
Gross milk sales per cow	\$4,975	\$5,056
Gross milk sales per cwt.	\$21.14	\$21.69
Net milk sales per cwt.	\$20.44	\$20.83
Dairy cattle sales per cow	\$532	\$314
Dairy calf sales per cow	\$40	\$39
<u>Profitability</u>		
Net farm income without appreciation	\$336,587	\$328,693
Net farm income with appreciation	\$359,470	\$405,585
Labor & management income per operator/manager	\$183,568	\$128,826
Rate of return on equity capital without appreciation	21.1%	11.7%
Rate of return on all capital without appreciation	13.9%	9.4%
<u>Cash flow</u>		
Principal & interest payments per cow, 2011	\$538	\$610
Net cash flow	\$333,226	\$362,446
<u>Financial Summary</u>		
Farm net worth, end year	\$1,413,055	\$2,247,050
Farm net worth change from last year, percent	24%	17%
Debt to asset ratio	0.40	0.28
Farm debt per cow	\$3,022	\$2,909

Table 57.

SELECTED BUSINESS FACTORS BY TYPE OF BARN AND HERD SIZE
190 New York Dairy Farms, 2011

Item	Farms with:	Conventional		Freestall		
		<60 Cows	>=60 Cows	<=200 Cows	201-500 Cows	>=500 Cows
Number of farms		19	16	34	29	81
<u>Cropping Program Analysis</u>						
Total Tillable acres		162	262	314	695	1,971
Tillable acres rented ⁶³		70	111	128	337	961
Hay crop acres ⁶³		126	170	185	322	812
Corn silage acres ⁶³		16	51	77	241	793
Hay crop, tons DM/acre		2.0	2.9	2.8	3.4	3.5
Corn silage, tons/acre		13.8	15.1	15.7	15.5	16.8
Oats, bushels/acre		36	0	26	62	40
Forage DM per cow, tons		7.3	10.0	8.1	7.5	7.6
Tillable acres/cow		3.6	3.3	2.7	2.1	2.0
Fertilizer & lime expense/tillable acre		\$30.12	\$32.10	\$50.37	\$53.43	\$57.47
Total machinery costs		\$42,752	\$76,737	\$117,280	\$305,214	\$827,012
Machinery cost/tillable acre		\$265	\$293	\$341	\$428	\$420
<u>Dairy Analysis</u>						
Number of cows		45	79	122	345	993
Number of heifers		36	69	102	289	865
Milk sold, lbs.		753,119	1,560,301	2,552,966	8,372,391	25,195,786
Milk sold/cow, lbs.		16,736	19,656	20,986	24,278	25,369
Operating cost of producing milk/cwt.		\$15.62	\$15.73	\$15.80	\$15.89	\$15.59
Total cost of producing milk/cwt.		\$26.65	\$23.22	\$22.14	\$19.60	\$18.87
Price/cwt. milk sold		\$21.22	\$21.24	\$21.65	\$21.67	\$21.66
Purchased dairy feed/cow		\$1,092	\$1,228	\$1,441	\$1,612	\$1,642
Purchased dairy feed/cwt. milk		\$6.53	\$6.25	\$6.87	\$6.64	\$6.47
Purchased grain & concentrate as % of milk receipts		28%	28%	30%	29%	28%
Purchased feed & crop expense/cwt. milk		\$7.45	\$7.45	\$8.12	\$7.66	\$7.56
<u>Capital Efficiency</u>						
Farm capital/worker		\$313,036	\$330,689	\$396,926	\$391,603	\$431,126
Farm capital/cow		\$12,939	\$11,498	\$11,485	\$9,187	\$9,559
Farm capital/tillable acre owned		\$6,361	\$6,039	\$7,487	\$8,850	\$9,402
Real estate/cow		\$6,522	\$5,120	\$5,451	\$3,661	\$3,865
Machinery investment/cow		\$2,957	\$2,550	\$2,170	\$1,664	\$1,559
Asset turnover ratio		0.36	0.43	0.46	0.67	0.67
<u>Labor Efficiency</u>						
Worker equivalent		1.87	2.75	3.52	8.09	22.02
Operator/manager equivalent		1.08	1.08	1.56	1.79	2.36
Milk sold/worker, lbs.		403,817	566,524	725,790	1,035,333	1,144,223
Cows/worker		24	29	35	43	45
Labor cost/cow		\$1,206	\$1,000	\$870	\$800	\$817
Labor cost/tillable acre		\$336	\$303	\$337	\$397	\$411
<u>Profitability & Balance Sheet Analysis</u>						
Net farm income (without appreciation)		\$25,530	\$56,823	\$108,118	\$370,111	\$1,187,170
Labor & management income/operator		\$-6,817	\$8,089	\$29,650	\$145,678	\$367,715
Rate return on all capital with appreciation		1.6%	3.2%	5.7%	13.2%	14.5%
Farm debt/cow		\$3,654	\$2,295	\$2,813	\$2,900	\$3,095
Percent equity		73%	80%	76%	69%	69%

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

Table 58.

FARM BUSINESS CHART FOR SMALL CONVENTIONAL STALL DAIRY FARMS
19 Conventional Stall Dairy Farms with 60 or Less Cows, New York, 2011

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
2.45	52	1,060,903	22,928	2.5	19	34	639,886
2.15	49	1,000,778	20,391	2.2	17	29	508,524
1.90	47	830,676	18,419	2.1	15	25	423,294
1.63	43	623,732	13,630	1.9	12	21	303,771
1.36	36	326,453	8,627	1.4	9	18	219,300
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		
\$356	15%	\$532	\$1,445	\$530	\$4.51		
829	26	699	1,957	1,038	6.68		
1,097	30	1,066	2,202	1,316	7.73		
1,228	32	1,193	2,496	1,543	8.74		
1,418	39	1,397	3,016	1,758	10.12		
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			
\$1,896	\$12.62	\$20.91	\$70,861	\$1,462	\$38,133	\$95,059	
2,895	14.37	24.99	41,125	872	9,259	42,317	
3,885	15.88	27.63	19,609	439	-10,914	17,409	
4,353	17.04	33.22	10,766	239	-20,832	8,337	
4,769	22.83	40.66	-3,376	-67	-38,229	-10,918	

Table 59.

FARM BUSINESS CHART FOR LARGE CONVENTIONAL STALL DAIRY FARMS
16 Conventional Stall Dairy Farms with 60 or More Cows, New York, 2011

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
3.54	111	2,141,481	25,602	5.0	23	45	870,097
3.19	86	1,961,529	22,102	3.9	17	34	643,842
3.06	74	1,628,656	19,478	3.3	16	28	593,902
2.56	68	1,266,317	18,345	2.5	14	25	514,001
1.76	63	992,718	14,422	1.8	11	22	376,121
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		
\$724	20%	\$652	\$1,511	\$1,005	\$6.22		
1,024	27	861	1,870	1,367	6.96		
1,183	28	963	1,983	1,481	7.38		
1,336	30	1,093	2,146	1,599	7.85		
1,587	36	1,371	2,573	2,010	9.11		
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			
\$3,022	\$13.06	\$19.27	\$133,426	\$1,604	\$75,235	\$136,406	
3,832	14.95	21.62	99,750	1,271	59,749	68,749	
4,301	16.62	24.02	62,735	869	8,195	28,405	
4,747	17.47	26.56	19,942	292	-21,279	1,732	
5,367	18.48	29.55	-9,598	-102	-53,596	-20,189	

Table 60.

FARM BUSINESS CHART FOR SMALL FREESTALL DAIRY FARMS
34 Freestall Barn Dairy Farms with 200 Cows or Less, New York, 2011

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
6.69	196	4,816,821	26,525	4.4	25	54	1,130,181
5.48	178	3,827,953	24,433	4.0	21	46	967,628
4.85	163	3,592,270	23,241	3.5	20	42	870,368
4.08	142	3,099,431	22,359	3.0	18	40	807,104
3.47	126	2,740,776	21,306	2.8	18	38	741,724

3.28	115	2,418,826	20,714	2.4	17	35	705,607
2.80	108	2,111,667	20,227	2.1	15	34	677,478
2.44	95	1,708,958	18,346	1.9	13	33	632,015
2.13	79	1,354,314	17,028	1.6	12	28	581,307
1.66	62	1,153,216	14,811	1.3	7	24	488,540

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		
\$986	21%	\$492	\$1,233	\$1,202	\$5.70		
1,040	23	661	1,491	1,345	6.91		
1,094	27	759	1,639	1,469	7.30		
1,151	30	800	1,719	1,537	7.82		
1,295	31	868	1,761	1,668	8.49		

1,380	32	940	1,809	1,794	9.01		
1,484	34	1,042	1,878	1,908	9.49		
1,576	35	1,109	1,939	1,980	9.74		
1,679	37	1,236	2,145	2,175	10.22		
1,844	39	1,637	2,664	2,487	11.96		

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			
\$5,623	\$11.64	\$18.13	\$309,645	\$1,695	\$98,221	\$273,142	
5,303	13.76	19.79	189,815	1,462	75,581	135,100	
5,032	14.67	20.73	162,624	1,265	66,482	112,881	
4,879	15.34	21.57	130,902	1,152	44,943	102,419	
4,663	15.92	22.74	112,521	960	38,683	90,235	

4,459	16.25	23.26	100,585	817	30,991	73,605	
4,360	16.82	24.27	71,173	673	17,544	53,753	
4,110	17.83	25.78	55,571	544	129	30,341	
3,642	18.44	27.49	33,286	348	-12,266	16,884	
3,155	20.59	28.57	4,406	35	-41,130	-78	

Table 61.

FARM BUSINESS CHART FOR MEDIUM FREESTALL DAIRY FARMS
29 Freestall Barn Dairy Farms with 201-500 Cows, New York, 2011

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
13.43	492	12,342,242	27,586	5.4	24	66	1,560,317
12.24	429	11,055,460	26,199	5.0	20	53	1,275,873
9.66	403	10,177,139	25,507	4.8	19	50	1,174,836
8.73	394	9,696,525	25,132	3.9	18	48	1,101,010
8.08	373	9,247,542	24,724	3.6	17	45	1,081,307

7.25	348	8,248,830	24,486	3.4	16	43	1,027,021
6.67	311	7,450,754	24,005	3.2	15	41	1,005,557
6.02	285	6,800,439	22,954	3.0	14	39	941,534
5.77	248	5,866,675	21,971	2.4	13	36	855,463
4.81	214	4,161,591	18,924	2.0	10	30	736,578

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		
\$902	19%	\$492	\$1,088	\$1,170	\$5.54		
1,168	24	689	1,384	1,499	6.29		
1,337	26	750	1,557	1,729	7.10		
1,411	26	824	1,620	1,797	7.26		
1,459	28	873	1,669	1,892	7.72		

1,550	29	931	1,727	1,947	7.82		
1,651	30	984	1,823	2,012	8.09		
1,740	33	1,054	1,870	2,043	8.40		
1,782	35	1,095	2,014	2,166	8.99		
1,984	38	1,223	2,113	2,616	11.60		

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			
\$6,223	\$12.91	\$17.00	\$747,370	\$1,963	\$480,762	\$864,087	
5,791	13.89	17.83	603,488	1,547	309,922	637,345	
5,572	14.40	18.45	533,428	1,353	249,929	447,768	
5,415	15.09	19.24	470,467	1,181	207,696	408,127	
5,296	15.57	19.50	388,664	1,035	159,165	357,731	

5,171	15.82	20.00	339,929	976	128,026	313,133	
5,118	16.94	20.54	290,788	929	94,696	271,778	
4,911	17.78	21.26	243,934	883	62,292	169,348	
4,697	18.32	21.95	167,617	647	40,786	111,890	
4,049	20.55	24.61	41,177	81	-61,315	28,523	

Table 62.

FARM BUSINESS CHART FOR LARGE FREESTALL DAIRY FARMS
81 Freestall Barn Dairy Farms with 500 or More Cows, New York, 2011

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
47.61	2,200	56,907,808	28,496	5.6	22	60	1,548,611
30.86	1,403	35,558,525	26,903	4.5	20	53	1,364,857
26.14	1,152	30,049,740	26,449	4.2	19	50	1,264,583
23.01	1,020	26,030,101	26,146	3.8	18	48	1,217,166
20.03	923	23,819,465	25,696	3.6	17	46	1,176,958

18.06	825	21,135,870	25,143	3.4	16	45	1,131,272
16.95	731	18,725,448	24,632	3.2	16	43	1,085,596
15.24	652	15,803,407	24,044	3.0	15	42	1,024,229
13.06	569	13,646,139	23,160	2.7	14	39	951,408
10.68	517	11,938,515	21,472	2.2	13	33	780,879

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		
\$999	19%	\$628	\$1,304	\$1,343	\$5.55		
1,255	24	694	1,458	1,633	6.56		
1,393	26	739	1,515	1,733	6.97		
1,488	27	800	1,558	1,799	7.23		
1,560	28	845	1,646	1,860	7.51		

1,600	29	883	1,690	1,968	7.76		
1,667	30	928	1,754	2,045	7.98		
1,709	32	975	1,837	2,118	8.39		
1,804	33	1,041	1,903	2,225	8.69		
2,037	36	1,149	2,200	2,397	9.39		

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			
\$6,272	\$12.42	\$16.20	\$3,175,353	\$2,034	\$1,101,533	\$3,052,327	
5,958	13.62	17.46	1,805,062	1,771	739,309	1,881,286	
5,740	14.32	17.91	1,493,130	1,612	532,546	1,493,201	
5,596	14.89	18.36	1,301,607	1,369	477,512	1,172,062	
5,508	15.49	18.79	1,034,126	1,160	398,694	1,023,672	

5,420	16.10	19.23	919,036	1,050	304,255	918,412	
5,328	16.58	19.49	803,853	939	246,846	793,469	
5,200	17.13	20.05	657,193	828	194,751	706,356	
4,935	17.61	20.48	525,373	729	156,770	547,226	
4,683	18.43	22.48	271,438	415	30,792	311,863	

Table 63.

INTENSIVE GRAZING FARMS VS. NON-GRAZING FARMS
New York State Dairy Farms, 2011

Item	All Intensive Grazing Farms ⁶⁴	Non-Grazing Farms ⁶⁵
Number of farms	28	58
<u>Business Size & Production</u>		
Number of cows	137	136
Number of heifers	109	114
Milk sold, pounds	2,067,971	3,044,291
Milk sold per cow, pounds	15,087	22,408
Milk plant test, % butterfat ⁶⁶	4.1%	3.8%
Cull rate	26%	34%
Tillable acres, total	313	331
Hay crop, tons DM per acre	2.6	2.8
Corn silage, tons per acre	16.9	15.7
Forage dry matter per cow, tons ⁶⁷	6.1	8.2
<u>Labor & Capital Efficiency</u>		
Worker equivalent	2.95	3.96
Milk sold per worker, pounds	701,602	769,732
Cows per worker	47	34
Farm capital per worker	\$421,175	\$361,327
Farm capital per cow	\$9,064	\$10,505
Farm capital per cwt. milk	\$60	\$47
Machinery and equipment per cow	\$1,567	\$2,096
<u>Milk Production Costs & Returns</u>		
Selected costs per cwt.:		
Hired labor	\$2.04	\$2.01
Grain & concentrate	\$6.19	\$6.33
Purchased roughage	\$0.95	\$0.53
Replacements purchased	\$0.07	\$0.28
Vet & medicine	\$0.49	\$0.60
Milk marketing	\$0.97	\$0.91
Other dairy expenses	\$1.29	\$1.66
Operating cost of producing milk per cwt.	\$15.23	\$16.12
Total labor cost per cwt. (hired, family & operator)	\$4.52	\$4.02
Owner and operator resources per cwt.	\$4.61	\$3.56
Total cost of producing milk per cwt.	\$22.29	\$21.40
Average farm price per cwt.	\$21.90	\$21.45
<u>Related Cost Factors</u>		
Hired labor/cow	\$308	\$450
Total labor/cow	\$683	\$900
Purchased dairy feed/cow	\$1,078	\$1,537
Purchased grain & concentrate as % of milk receipts	30%	29%
Veterinary & medicine/cow	\$73	\$135
Machinery costs/cow	\$668	\$879
Feed & crop expenses/cwt.	\$8.45	\$8.07
<u>Profitability Analysis</u>		
Net farm income (with appreciation)	\$116,539	\$146,864
Net farm income (without appreciation)	\$95,645	\$119,554
Net farm income per cow (without appreciation)	\$698	\$880
Net farm income per cwt. (without appreciation)	\$4.63	\$3.93
Labor & management income per operator	\$30,582	\$40,191
Labor & management income per operator per cow	\$223	\$296
Rates of return on:		
Equity capital with appreciation	6.4%	7.9%
All capital with appreciation	5.8%	6.8%

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 28 rotational grazing farms.

⁶⁶Average of farms reporting this data.

⁶⁷Average of farms that grow forages.

Table 64.

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 87 New York Dairy Farms, 2002 -- 2011

Selected Factors	2002	2003	2004	2005
Milk receipts per cwt. milk	\$13.02	\$13.28	\$16.78	\$16.05
<u>Size of Business</u>				
Average number of cows	375	394	420	436
Average number of heifers	286	302	315	341
Milk sold, cwt.	86,701	90,707	95,417	102,482
Worker equivalent	8.90	9.38	9.93	10.29
Total tillable acres	769	814	862	891
<u>Rates of Production</u>				
Milk sold per cow, lbs.	23,130	23,031	22,723	23,490
Hay DM per acre, tons	3.4	3.4	3.5	3.4
Corn silage per acre, tons	15	17	19	19
<u>Labor Efficiency</u>				
Cows per worker	42	42	42	42
Milk sold per worker, lbs.	974,167	967,029	960,901	995,939
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	29%	31%	27%	26%
Dairy feed & crop expense per cwt. milk	\$4.72	\$4.96	\$5.55	\$5.08
Operating cost of producing cwt. milk	\$10.79	\$11.19	\$12.20	\$11.95
Total cost of producing cwt. milk	\$13.93	\$14.20	\$15.30	\$15.20
Hired labor cost per cwt.	\$2.52	\$2.56	\$2.70	\$2.64
Interest paid per cwt.	\$0.53	\$0.49	\$0.48	\$0.57
Labor & machinery costs per cow	\$1,247	\$1,244	\$1,311	\$1,371
Replacement livestock expense	\$12,138	\$13,606	\$17,175	\$17,422
Expansion livestock expense	\$20,808	\$14,513	\$30,533	\$15,372
<u>Capital Efficiency</u>				
Farm capital per cow	\$6,687	\$6,682	\$6,839	\$7,404
Machinery & equipment per cow	\$1,223	\$1,180	\$1,188	\$1,297
Real estate per cow	\$2,510	\$2,580	\$2,611	\$2,756
Livestock investment per cow	\$1,782	\$1,801	\$1,832	\$1,994
Asset turnover ratio	0.56	0.56	0.68	0.64
<u>Profitability</u>				
Net farm income without appreciation	\$70,144	\$71,343	\$307,034	\$272,178
Net farm income with appreciation	\$137,988	\$140,575	\$422,365	\$438,696
Labor & management income per operator/manager	\$-4,378	\$-6,801	\$129,759	\$93,626
Rate return on:				
Equity capital with appreciation	4.2%	4.1%	19.6%	17.2%
All capital with appreciation	4.3%	4.1%	13.6%	12.9%
All capital without appreciation	1.6%	1.5%	9.6%	7.7%
<u>Financial Summary, End Year</u>				
Farm net worth	\$1,522,222	\$1,587,206	\$1,910,499	\$2,234,618
Change in net worth with appreciation	\$11,878	\$57,066	\$316,467	\$308,353
Debt to asset ratio	0.40	0.41	0.37	0.34
Farm debt per cow	\$2,679	\$2,775	\$2,608	\$2,630

Table 64. (continued)

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 87 New York Dairy Farms, 2002 -- 2011

2006	2007	2008	2009	2010	2011
\$13.88	\$20.45	\$19.33	\$13.95	\$17.86	\$21.72
456	478	493	518	547	559
362	377	406	436	464	480
107,311	113,631	120,076	126,616	134,843	137,745
10.52	11.05	11.48	11.97	12.27	13.08
915	976	1,040	1,081	1,120	1,147
23,517	23,751	24,351	24,439	24,661	24,636
3.4	3.1	3.6	3.4	3.6	3.4
19	19	20	19	19	16
43	43	43	43	45	43
1,020,067	1,028,337	1,045,960	1,057,780	1,098,966	1,053,095
29%	24%	30%	38%	29%	29%
\$5.00	\$6.12	\$7.22	\$6.49	\$6.35	\$7.67
\$12.02	\$13.72	\$15.21	\$13.70	\$13.88	\$15.28
\$15.18	\$16.94	\$18.63	\$16.96	\$17.09	\$19.37
\$2.67	\$2.74	\$2.89	\$2.76	\$2.70	\$2.86
\$0.71	\$0.72	\$0.53	\$0.51	\$0.55	\$0.49
\$1,368	\$1,469	\$1,640	\$1,455	\$1,494	\$1,691
\$10,731	\$12,499	\$14,409	\$8,863	\$10,787	\$19,284
\$21,462	\$11,363	\$28,818	\$20,259	\$8,091	\$4,132
\$7,686	\$8,135	\$8,914	\$8,896	\$8,795	\$9,455
\$1,344	\$1,399	\$1,555	\$1,605	\$1,567	\$1,657
\$2,901	\$3,023	\$3,303	\$3,431	\$3,445	\$3,696
\$2,094	\$2,213	\$2,313	\$2,238	\$2,163	\$2,206
0.54	0.72	0.62	0.45	0.60	0.66
\$58,673	\$618,698	\$327,255	\$-131,471	\$361,652	\$614,074
\$168,278	\$797,424	\$401,475	\$-118,968	\$490,036	\$761,198
\$-33,845	\$270,189	\$95,077	\$-149,722	\$111,148	\$228,166
3.7%	27.2%	10.3%	-7.6%	12.8%	18.4%
4.6%	20.3%	8.5%	-3.4%	9.5%	13.5%
1.4%	15.7%	6.8%	-3.7%	6.8%	10.7%
\$2,276,668	\$2,917,905	\$3,078,660	\$2,798,346	\$3,182,276	\$3,814,699
\$30,899	\$638,857	\$146,980	\$-270,102	\$373,725	\$618,914
0.37	0.30	0.33	0.40	0.36	0.32
\$2,809	\$2,647	\$2,963	\$3,428	\$3,209	\$3,115

Table 65.

**FARM RECEIPTS AND EXPENSES PER COW AND PER
HUNDREDWEIGHT FOR THREE LEVELS OF MILK PRODUCTION
190 New York Dairy Farms, 2011**

Item	38 Dairy Farms Milk/Cow <19,000#		45 Dairy Farms Milk/Cow 19,000-22,999#		107 Dairy Farms Milk/Cow ≥23,000#	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<u>ACCRUAL RECEIPTS</u>						
Milk sales	\$3,275	\$22.61	\$4,770	\$21.72	\$5,567	\$21.62
Dairy cattle	209	1.44	309	1.41	342	1.33
Dairy calves	37	0.25	31	0.14	31	0.12
Other livestock	32	0.22	-11	-0.05	17	0.07
Crops	110	0.76	105	0.48	98	0.38
Government receipts	64	0.44	35	0.16	29	0.11
All other	<u>53</u>	<u>0.37</u>	<u>174</u>	<u>0.79</u>	<u>110</u>	<u>0.43</u>
TOTAL ACCRUAL RECEIPTS	\$3,780	\$26.10	\$5,412	\$24.65	\$6,194	\$24.05
<u>ACCRUAL EXPENSES</u>						
<u>Labor</u> : Hired	\$ 282	\$ 1.95	\$ 615	\$ 2.80	\$ 713	\$ 2.77
<u>Feed</u> : Dairy grain & concentrate	909	6.27	1,373	6.25	1,589	6.17
Dairy roughage	123	0.85	73	0.33	92	0.36
Nondairy	2	0.02	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	92	0.64	82	0.37	102	0.40
Machinery repairs & vehicle expense	179	1.23	224	1.02	240	0.93
Fuel, oil & grease	146	1.01	216	0.98	218	0.85
<u>Livestock</u> : Replacement livestock	9	0.06	41	0.19	22	0.08
Breeding	32	0.22	53	0.24	57	0.22
Vet & medicine	71	0.49	168	0.76	171	0.67
Milk marketing	143	0.99	191	0.87	224	0.87
Bedding	39	0.27	83	0.38	102	0.40
Milking supplies	66	0.46	94	0.43	100	0.39
Cattle lease & rent	9	0.06	2	0.01	5	0.02
Custom boarding	5	0.03	44	0.20	95	0.37
bST expense	5	0.03	7	0.03	58	0.22
Livestock professional fees	15	0.11	16	0.07	15	0.06
Other livestock expense	33	0.23	20	0.09	20	0.08
<u>Crops</u> : Fertilizer & lime	106	0.73	161	0.73	102	0.40
Seeds & plants	43	0.30	98	0.45	99	0.39
Spray & other crop expense	31	0.21	55	0.25	54	0.21
Crop professional fees	7	0.05	7	0.03	6	0.02
<u>Real Estate</u> : Land, building & fence repair	52	0.36	79	0.36	95	0.37
Taxes	76	0.53	62	0.28	55	0.21
Rent & lease	49	0.34	66	0.30	66	0.26
<u>Other</u> : Insurance	45	0.31	49	0.22	43	0.17
Utilities (farm share)	77	0.53	107	0.49	106	0.41
Interest paid	119	0.82	138	0.63	115	0.45
Other professional fees	11	0.08	18	0.08	26	0.10
Miscellaneous	<u>16</u>	<u>0.11</u>	<u>30</u>	<u>0.14</u>	<u>31</u>	<u>0.12</u>
TOTAL OPERATING EXPENSES	\$2,792	\$19.28	\$4,173	\$19.00	\$4,622	\$17.95
Expansion livestock	31	0.21	7	0.03	14	0.06
Extraordinary expense	1	0.00	7	0.03	0	0.00
Machinery depreciation	202	1.39	213	0.97	206	0.80
Building depreciation	<u>114</u>	<u>0.78</u>	<u>105</u>	<u>0.48</u>	<u>140</u>	<u>0.54</u>
TOTAL ACCRUAL EXPENSES	\$3,139	\$21.67	\$4,504	\$20.51	\$4,982	\$19.34

Table 66.

**FARM RECEIPTS AND EXPENSES PER COW AND PER
HUNDREDWEIGHT FOR THREE HERD SIZE CATEGORIES
190 New York Dairy Farms, 2011**

Item	43 Dairy Farms with <100 Cows		30 Dairy Farms with 100-200 Cows		117 Dairy Farms with ≥ 200 Cows	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<u>ACCRUAL RECEIPTS</u>						
Milk sales	\$3,936	\$21.32	\$4,504	\$21.67	\$5,417	\$21.67
Dairy cattle	218	1.18	214	1.03	333	1.33
Dairy calves	25	0.14	37	0.18	31	0.12
Other livestock	15	0.08	7	0.03	14	0.06
Crops	86	0.47	128	0.62	100	0.40
Government receipts	116	0.63	53	0.25	28	0.11
All other	<u>89</u>	<u>0.48</u>	<u>69</u>	<u>0.34</u>	<u>121</u>	<u>0.48</u>
TOTAL ACCRUAL RECEIPTS	\$4,486	\$24.30	\$5,011	\$24.11	\$6,044	\$24.18
<u>ACCRUAL EXPENSES</u>						
Labor: Hired	\$ 223	\$ 1.21	\$ 394	\$ 1.90	\$ 705	\$ 2.82
Feed: Dairy grain & concentrate	1,144	6.20	1,271	6.12	1,543	6.17
Dairy roughage	145	0.79	86	0.42	85	0.34
Nondairy	4	0.02	0	0.00	0	0.00
Professional nutritional services	0	0.00	2	0.01	1	0.01
<u>Machinery</u> : Mach. hire, rent & lease	91	0.50	96	0.46	99	0.40
Mach. repairs & vehicle expense	278	1.51	256	1.23	234	0.94
Fuel, oil & grease	194	1.05	220	1.06	216	0.87
<u>Livestock</u> : Replacement livestock	28	0.15	12	0.06	19	0.08
Breeding	58	0.31	58	0.28	55	0.22
Vet & medicine	94	0.51	120	0.58	170	0.68
Milk marketing	206	1.12	201	0.97	217	0.87
Bedding	47	0.25	55	0.27	99	0.39
Milking supplies	90	0.49	94	0.45	98	0.39
Cattle lease & rent	0	0.00	9	0.04	4	0.02
Custom boarding	24	0.13	20	0.10	88	0.35
bST expense	8	0.04	11	0.05	51	0.20
Livestock professional fees	25	0.13	18	0.09	15	0.06
Other livestock expense	55	0.30	34	0.16	19	0.08
<u>Crops</u> : Fertilizer & lime	78	0.42	140	0.67	111	0.45
Seeds & plants	68	0.37	76	0.37	99	0.40
Spray & other crop expense	36	0.20	57	0.28	54	0.22
Crop professional fees	3	0.02	9	0.04	6	0.03
<u>Real Estate</u> : Land, building & fence repair	73	0.40	56	0.27	93	0.37
Taxes	105	0.57	87	0.42	54	0.22
Rent & lease	26	0.14	41	0.20	68	0.27
<u>Other</u> : Insurance	71	0.38	62	0.30	43	0.17
Utilities (farm share)	137	0.74	108	0.52	104	0.41
Interest paid	140	0.76	111	0.54	118	0.47
Other professional fees	17	0.09	11	0.05	25	0.10
Miscellaneous	<u>25</u>	<u>0.14</u>	<u>21</u>	<u>0.10</u>	<u>31</u>	<u>0.12</u>
TOTAL OPERATING EXPENSES	\$3,502	\$18.93	\$3,735	\$17.98	\$4,526	\$18.11
Expansion livestock	2	0.01	24	0.12	14	0.06
Extraordinary expense	31	0.17	0	0.00	0	0.00
Machinery depreciation	247	1.34	221	1.07	206	0.82
Building depreciation	<u>92</u>	<u>0.50</u>	<u>94</u>	<u>0.45</u>	<u>135</u>	<u>0.54</u>
TOTAL ACCRUAL EXPENSES	\$3,874	\$20.94	\$4,075	\$19.61	\$4,881	\$19.53

Table 67.

COMPARISON OF DAIRY FARM BUSINESS DATA BY REGION
192 New York Dairy Farms, 2011

Item	West. & Cent. Plateau Region	Western & Central Plain Region	Northern New York	Central Valleys	North. Hudson & Southeastern New York
Number of farms	33	57	25	31	46
<u>ACCRUAL EXPENSES</u>					
Hired labor	\$215,864	\$503,502	\$484,134	\$295,066	\$272,546
Feed	559,374	1,185,580	1,185,994	650,100	672,844
Machinery	183,802	356,303	440,651	266,790	228,541
Livestock	277,282	593,926	619,395	338,262	337,731
Crops	78,658	174,950	224,834	132,532	106,281
Real estate	83,864	154,175	147,520	96,619	77,628
Other	95,333	220,199	273,522	149,298	130,268
Total Operating Expenses	\$1,494,176	\$3,188,635	\$3,376,050	\$1,928,667	\$1,825,839
Expansion livestock	14,226	5,387	10,771	6,839	4,251
Extraordinary expense	99	0	288	2,877	0
Machinery depreciation	67,552	142,628	166,165	111,086	69,337
Building depreciation	40,415	107,047	109,739	58,055	37,249
Total Accrual Expenses	\$1,616,468	\$3,443,698	\$3,663,013	\$2,107,523	\$1,936,675
<u>ACCRUAL RECEIPTS</u>					
Milk sales	\$1,904,536	\$3,707,509	\$4,101,723	\$2,445,843	\$2,101,853
Livestock	132,333	287,287	268,280	144,243	145,003
Crops	15,452	67,146	111,423	30,852	45,340
Government Receipts	8,608	25,785	11,488	14,451	15,461
All other	17,406	95,640	94,446	44,485	49,741
Total Accrual Receipts	\$2,078,336	\$4,183,368	\$4,587,360	\$2,679,875	\$2,357,397
<u>PROFITABILITY ANALYSIS</u>					
Net farm income(w/o appreciation)	\$461,868	\$739,670	\$924,347	\$572,352	\$420,722
Net farm income (w/ appreciation)	\$530,372	\$974,337	\$1,036,578	\$669,332	\$481,404
Labor & management income	\$318,499	\$512,513	\$697,603	\$410,590	\$292,790
Number of operators	1.70	2.06	1.87	1.92	1.72
Labor & mgmt. income/operator	\$187,352	\$248,793	\$373,050	\$213,849	\$170,227
<u>BUSINESS FACTORS</u>					
Worker equivalent	8.04	15.18	16.60	10.83	9.80
Number of cows	357	694	768	459	392
Number of heifers	317	600	671	377	339
Acres of hay crops ⁶⁸	389	547	689	455	447
Acres of corn silage ⁶⁸	327	584	605	379	356
Total tillable acres	738	1,249	1,573	1,052	852
Pounds of milk sold	8,872,489	17,084,900	19,447,453	11,210,008	6,484,692
Pounds of milk sold/cow	24,878	24,630	25,310	24,400	24,197
Tons hay crop dry matter/acre	2.9	3.6	3.6	3.4	3.2
Tons corn silage/acre	15.9	16.5	18.6	15.5	16.3
Cows/worker	44	46	46	42	40
Pounds of milk sold/worker	1,103,086	1,125,426	1,171,474	1,035,168	967,414
% grain & conc. of milk receipts	30%	30%	26%	26%	30%
Feed & crop expense/cwt. milk	\$7.19	\$7.95	\$7.25	\$6.98	\$8.21
Fertilizer & lime/crop acre ⁶⁸	\$42.87	\$57.32	\$58.77	\$46.10	\$45.04
Machinery cost/tillable acre ⁶⁸	\$376	\$433	\$415	\$397	\$387

⁶⁸Excludes farms that do not harvest forages.

Figure 2.

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

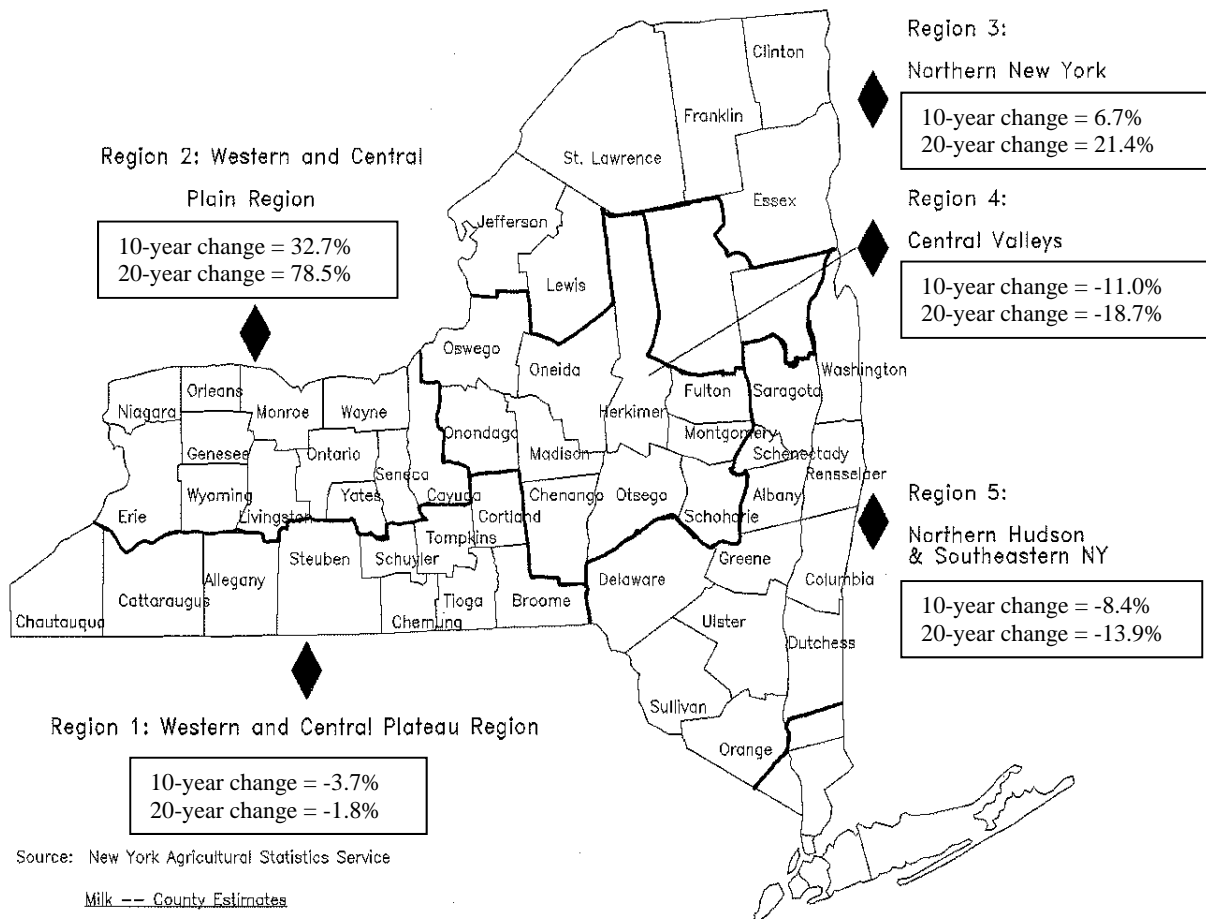


Table 68.

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

Item	Region ⁶⁹				
	1	2	3	4	5
Milk Production⁷⁰	(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%
2011 Cost of Producing Milk⁷¹	(\$ per hundredweight milk)				
Operating cost	\$15.04	\$15.91	\$14.92	\$15.18	\$16.60
Total cost	18.88	19.45	18.12	19.04	19.96
Average price received	21.47	21.70	21.09	21.82	22.16
Return per cwt. to operator labor, management & capital	\$5.15	\$4.32	\$4.73	\$5.06	\$4.35

⁶⁹See Figure 2 for region descriptions.

⁷⁰Source: New York Agricultural Statistics Service, Milk-County Estimates. The data for 2011 was not available.

⁷¹From Dairy Farm Business Summary data.

Table 69.

SELECTED BUSINESS FACTORS BY MILKING FREQUENCY
New York State Dairy Farms, 2010 & 2011

Item	2x/Day Milking		3x/Day Milking	
	2010	2011	2010	2011
Number of farms	111	91	84	84
<u>Business Size & Production</u>				
Number of cows	192	220	867	865
Number of heifers	164	186	734	753
Milk sold, lbs.	3,938,782	4,605,700	22,279,164	22,251,645
Milk sold/cow, lbs.	20,468	20,891	25,707	25,713
Milk plant test, % butterfat	3.77%	3.77%	3.62%	3.65%
Tillable acres, total	473	523	1,652	1,708
Hay crop, tons DM/acre	3.0	3.1	3.6	3.4
Corn silage, tons/acre	18.9	16.4	19.7	16.6
Forage DM/cow, tons	8.1	7.8	8.4	7.5
<u>Labor & Capital Efficiency</u>				
Worker equivalent	4.79	5.38	18.71	19.43
Milk sold/worker, lbs.	822,007	856,078	1,191,081	1,145,025
Cows/worker	40	41	46	45
Farm capital/worker	\$402,504	\$414,413	\$413,759	\$421,062
Farm capital/cow	\$10,019	\$10,113	\$8,932	\$9,454
Farm capital/cwt. milk	\$48.95	\$48.41	\$34.76	\$36.77
<u>Milk Production Costs & Returns</u>				
Selected costs/cwt.:				
Hired labor	\$2.36	\$2.67	\$2.66	\$2.78
Grain & concentrate	\$5.15	\$6.13	\$5.02	\$6.18
Purchased roughage	\$0.35	\$0.34	\$0.31	\$0.36
Replacements purchased	\$0.04	\$0.13	\$0.06	\$0.07
Veterinary & medicine	\$0.59	\$0.71	\$0.64	\$0.68
Milk marketing	\$0.92	\$0.87	\$0.89	\$0.88
Other dairy expenses	\$1.61	\$1.55	\$1.65	\$1.67
Operating cost of milk production/cwt.	\$13.77	\$15.84	\$13.69	\$15.54
Total labor costs/cwt.	\$3.87	\$3.99	\$2.97	\$3.19
Owner/operator resources/cwt.	\$3.31	\$3.16	\$1.64	\$1.92
Total cost of milk production/cwt.	\$18.74	\$20.80	\$16.63	\$18.80
Average farm price/cwt.	\$18.10	\$21.87	\$17.76	\$21.64
Return over total costs/cwt.	\$-0.64	\$1.07	\$1.13	\$2.84
<u>Related Cost Factors</u>				
Hired labor/cow	\$484	\$558	\$683	\$716
Total labor/cow	\$792	\$833	\$764	\$819
Purchased dairy feed/cow	\$1,124	\$1,350	\$1,372	\$1,680
Purchased grain & concentrate as % of milk receipts	29%	28%	28%	29%
Veterinary & medicine/cow	\$121	\$149	\$164	\$174
Machinery costs/cow	\$705	\$838	\$715	\$837
<u>Profitability Analysis</u>				
Net farm income (without appreciation)	\$112,321	\$203,626	\$618,231	\$1,060,151
Labor & management income/operator	\$24,083	\$76,991	\$183,136	\$343,038
Rates of return on:				
Equity capital with appreciation	5.5%	11.7%	13.2%	20.1%
All capital with appreciation	5.2%	9.6%	9.7%	14.8%

Table 70.

FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
13 New York Dairy-Renter Farms,⁷² 2011

<u>ACCRUAL EXPENSES</u>			<u>ACCRUAL RECEIPTS</u>		
Labor: Hired		\$109,817	Milk sales		\$1,195,079
Feed: Dairy grain & concentrate		359,189	Dairy cattle		74,857
Dairy roughage		118,697	Dairy calves		5,431
Nondairy		6	Other livestock		1,542
Professional nutritional services		0	Crops		38,850
Machinery: Machinery hire, rent & lease		17,361	Government receipts		5,244
Machinery repairs & farm vehicle expense		35,189	Custom machine work		4,900
Fuel, oil, grease		35,953	Gas tax refund		0
Livestock: Replacement livestock		6,432	Other		15,102
Breeding		8,891	TOTAL ACCRUAL RECEIPTS		\$1,341,005
Veterinary & medicine		27,315			
Milk marketing		42,411			
Bedding		15,846			
Milking supplies		25,002	<u>PROFITABILITY ANALYSIS</u>		
Cattle lease & rent		633	Net farm income (without appreciation)		\$269,511
Custom boarding		3,697	Net farm income (with appreciation)		\$297,443
bST expense		12,133	Labor & management income/farm		\$232,208
Livestock professional fees		2,950	Number of operators		1.50
Other livestock expense		4,466	Labor & management income/operator		\$154,805
Crops: Fertilizer & lime		20,504	Rate of return on equity capital		
Seeds & plants		8,648	with appreciation		45.1%
Spray & other crop expense		2,732			
Crop professional fees		458			
Real estate: Land, building & fence repair		18,504	<u>BUSINESS FACTORS</u>		
Taxes		2,955	Number of cows		231
Rent & lease		38,613	Number of heifers		201
Other:			Worker equivalent		5.43
Insurance		10,011	Total tillable acres		314
Utilities (farm share)		28,822	Milk sold per cow, lbs.		24,325
Interest paid		36,391	Hay DM per acre, tons		2.2
Miscellaneous		20,653	Corn silage per acre, tons		14.5
TOTAL OPERATING EXPENSES		\$1,014,279	Milk sold per worker, lbs.		1,036,232
			Grain & concentrate as % milk sales		29%
Expansion livestock		\$2,829	Feed & crop expense/cwt. milk		\$9.06
Extraordinary expense		0	Labor & machinery costs/cow		\$1,352
Machinery depreciation		45,211	Average price/cwt. milk		\$21.23
Building depreciation		9,174			
TOTAL ACCRUAL EXPENSES		\$1,071,493			
<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	\$7,073	\$10,864	Current	\$213,257	\$181,849
Accounts receivable	45,715	54,140	Intermediate ⁷⁴	252,040	290,342
Prepaid expenses	0	887	Long term ⁷³	197,204	88,789
Feed & supplies	64,427	126,311	Total Farm Liabilities	\$662,502	\$560,981
Livestock ⁷³	534,088	558,115			
Machinery & equipment ⁷³	197,028	232,810	Nonfarm Liabilities ⁷⁵	29,100	27,333
Farm Credit stock	177	177			
Other stock & certificates	6,225	10,999	Farm & Nonfarm Liabilities	\$691,602	\$588,314
Land & buildings ⁷³	196,176	197,290			
Total Farm Assets	\$1,050,909	\$1,191,594	Farm Net Worth	\$388,407	\$630,614
Nonfarm Assets ⁷⁵	82,316	86,549	Farm & Nonfarm Net Worth	\$441,623	\$689,829
Farm & Nonfarm Assets	\$1,133,225	\$1,278,143			

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 3 farms reporting.

Table 71.

FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
Average of 19 Top Ten Percent Farms by Rate of Return on All Capital
(without appreciation), 2011

<u>ACCRUAL EXPENSES</u>			<u>ACCRUAL RECEIPTS</u>		
Labor: Hired		\$593,408	Milk sales		\$4,764,575
Feed: Dairy grain & concentrate		1,212,924	Dairy cattle		308,602
Dairy roughage		35,466	Dairy calves		10,309
Nondairy		0	Other livestock		44,731
Professional nutritional services		585	Crops		68,566
Machinery: Machinery hire, rent & lease		72,706	Government receipts		23,292
Machinery repairs & farm vehicle expense		178,230	Custom machine work		1,459
Fuel, oil, grease		175,065	Gas tax refund		166
Livestock: Replacement livestock		3,798	Other		77,037
Breeding		49,879	TOTAL ACCRUAL RECEIPTS		\$5,298,737
Veterinary & medicine		131,823			
Milk marketing		194,204			
Bedding		79,894			
Milking supplies		72,250			
Cattle lease & rent		7,648			
Custom boarding		66,778			
bST expense		25,928			
Livestock professional fees		14,246			
Other livestock expense		15,993			
Crops: Fertilizer & lime		80,010			
Seeds & plants		85,471			
Spray & other crop expense		46,586			
Crop professional fees		1,356			
Real estate: Land, building & fence repair		60,722			
Taxes		44,428			
Rent & lease		42,244			
Other:					
Insurance		35,261			
Utilities (farm share)		79,525			
Interest paid		63,099			
Miscellaneous		48,999			
TOTAL OPERATING EXPENSES		\$3,518,525			
Expansion livestock		\$14,646			
Extraordinary expense		0			
Machinery depreciation		154,092			
Building depreciation		105,193			
TOTAL ACCRUAL EXPENSES		\$3,792,456			
			<u>PROFITABILITY ANALYSIS</u>		
			Net farm income (without appreciation)		\$1,506,281
			Net farm income (with appreciation)		1,629,207
			Labor & management income/operator		522,410
			Rate of return on equity		
			capital without appreciation		23.3%
			Rate of return on all		
			capital without appreciation		18.7%
			<u>BUSINESS FACTORS</u>		
			Number of cows		821
			Number of heifers		709
			Worker equivalent		17.44
			Total tillable acres		1,629
			Milk sold per cow, lbs.		26,013
			Hay DM per acre, tons		3.5
			Corn silage per acre, tons		15.9
			Milk sold per worker, lbs.		1,224,785
			Grain & concentrate as % milk sales		25%
			Feed & crop expense/cwt. milk		\$6.84
			Labor & machinery costs/cow		\$1,600
			Average price/cwt. milk		\$22.31
<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	\$ 76,238	\$115,642	Current	\$387,398	\$438,031
Accounts receivable	269,403	569,333	Intermediate ⁷⁷	796,193	754,387
Prepaid expenses	4,618	6,960	Long-term ⁷⁶	587,159	633,739
Feed & supplies	799,852	963,527	Total Farm Liabilities	\$1,770,751	\$1,826,157
Livestock ⁷⁶	1,668,438	1,780,259			
Machinery & equipment ⁷⁶	1,087,827	1,359,272	Nonfarm Liabilities ⁷⁸	1,477	1,295
Farm Credit stock	2,480	2,244			
Other stock & certificates	249,139	326,241	Farm & Nonfarm Liabilities	\$1,772,228	\$1,827,452
Land & buildings ⁷⁶	2,815,169	3,214,920			
Total Farm Assets	\$6,973,165	\$8,338,396	Farm Net Worth	\$5,202,414	\$6,512,239
Nonfarm Assets ⁷⁸	993,188	1,012,895	Farm & Nonfarm Net Worth	\$6,194,125	\$7,523,839
Farm & Nonfarm Assets	\$7,966,353	\$9,351,291			

⁷⁶Includes discounted lease payments.⁷⁷Includes Farm Credit Stock and discounted lease payments for cattle and machinery.⁷⁸Average of 6 farms reporting.

Table 72.

FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
Average of 190 New York Dairy Farms, 2011

<u>ACCRUAL EXPENSES</u>		<u>ACCRUAL RECEIPTS</u>			
Labor: Hired	\$360,564	Milk sales	\$2,836,049		
Feed: Dairy grain & concentrate	807,783	Dairy cattle	172,407		
Dairy roughage	46,084	Dairy calves	16,495		
Nondairy	70	Other livestock	7,235		
Professional nutritional services	659	Crops	53,499		
Machinery: Machinery hire, rent & lease	52,536	Government receipts	16,804		
Machinery repairs & farm vehicle expense	125,475	Custom machine work	7,830		
Fuel, oil, grease	114,698	Gas tax refund	253		
Livestock: Replacement livestock	10,079	Other	54,733		
Breeding	29,297	TOTAL ACCRUAL RECEIPTS	\$3,165,306		
Veterinary & medicine	88,356				
Milk marketing	114,917				
Bedding	50,638				
Milking supplies	51,701				
Cattle lease & rent	2,273				
Custom boarding	44,337				
bST expense	25,605				
Livestock professional fees	7,993				
Other livestock expense	10,813				
Crops: Fertilizer & lime	59,375				
Seeds & plants	51,662				
Spray & other crop expense	28,511				
Crop professional fees	3,440				
Real estate: Land, building & fence repair	48,338				
Taxes	30,341				
Rent & lease	34,893				
Other:					
Insurance	23,598				
Utilities (farm share)	55,571				
Interest paid	63,015				
Miscellaneous	29,052				
TOTAL OPERATING EXPENSES	\$2,371,673				
Expansion livestock	\$7,479				
Extraordinary expense	524				
Machinery depreciation	110,214				
Building depreciation	70,293				
TOTAL ACCRUAL EXPENSES	\$2,560,183				
		<u>PROFITABILITY ANALYSIS</u>			
		Net farm income (without appreciation)	\$605,123		
		Net farm income (with appreciation)	733,275		
		Labor & management income/operator	227,028		
		Rate of return on equity capital without appreciation	14.3%		
		Rate of return on all capital without appreciation	10.9%		
		<u>BUSINESS FACTORS</u>			
		Number of cows	531		
		Number of heifers	459		
		Worker equivalent	12.13		
		Total tillable acres	1,086		
		Milk sold per cow, lbs.	24,648		
		Hay DM per acre, tons	3.4		
		Corn silage per acre, tons	16.6		
		Milk sold per worker, lbs.	1,079,423		
		Grain & concentrate as % milk sales	29%		
		Feed & crop expense/cwt. milk	\$7.62		
		Labor & machinery costs/cow	\$1,658		
		Average price/cwt. milk	\$21.67		
<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	\$45,195	\$49,007	Accounts payable	\$69,373	\$57,629
Accounts receivable	172,536	262,931	Operating debt	86,528	113,352
Prepaid expenses	3,184	6,573	Short-term	7,078	5,407
Feed & supplies	540,249	632,488	Advanced gov't receipts	454	84
Dairy cows ⁷⁹	721,692	738,740	Current Portion:		
Heifers	416,053	437,119	Intermediate	127,235	143,088
Bulls & other livestock	11,628	10,273	Long Term	49,017	52,318
Machinery & equipment ⁷⁹	802,247	911,554	Intermediate ⁸⁰	698,153	638,942
Farm Credit stock	1,005	967	Long-term ⁷⁹	626,358	626,145
Other stock & certificates	115,957	151,892	Total Farm Liabilities	\$1,664,197	\$1,636,966
Land & buildings ⁷⁹	2,001,746	2,194,748	Nonfarm Liabilities ⁸¹	4,401	5,110
Total Farm Assets	\$4,831,492	\$5,396,290	Farm & Nonfarm Liabilities	\$1,668,598	\$1,642,076
Nonfarm Assets ⁸¹	273,199	330,785	Farm Net Worth	\$3,167,295	\$3,759,325
Farm & Nonfarm Assets	\$5,104,691	\$5,727,075	Farm & Nonfarm Net Worth	\$3,436,093	\$4,084,999

⁷⁹Includes discounted lease payments.⁸⁰Includes Farm Credit stock and discounted lease payments for cattle and machinery.⁸¹Average of 69 farms reporting.

NOTES

APPENDIX

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

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

Table A1.**PRICES PAID BY NEW YORK FARMERS FOR SELECTED ITEMS, 1997-2011**

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)
1997	216	287	83.50	0.960	21,200	7.63
1998	199	221	86.90	0.810	21,800	7.63
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

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, 1995-2011**

Year	Dairy Cows		Machinery ⁸⁵	Farm Real Estate ⁸⁶	
	Value/Head	1977=100		Value/Acre	1977=100
1995	1,010	204	258	1,280	218
1996	1,030	208	268	1,260	215
1997	980	198	276	1,250	213
1998	1,050	212	286	1,280	218
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	397	2,020	344
2007	1,930	355	416	2,180	371
2008	1,900	377	456	2,350	400
2009	1,200	268	484	2,400	409
2010	1,300	263	501	2,400	409
2011	1,450	293	521	2,450	417

SOURCE: USDA, NASS, ASB, Agricultural Prices.

⁸⁵United States average; 1995 - 2011 are estimated due to discontinuation of 1977=100 series.

⁸⁶New York average for 2000-2011 excludes Native American Reservation land.

Table A3.

NUMBER OF DAIRY FARMS AND MILK COWS BY SIZE OF HERD New York State, 2011^{87,88}				
Size of Herd	Farms		Milk Cows	
Number of Cows	Number	% of Total	Number	% of Total
1 – 29	800	17.3%	8,000	1.3%
30 – 49	850	18.5%	30,000	4.9%
50 – 99	1,600	34.8%	120,000	19.7%
100 – 199	846	18.4%	108,000	17.7%
200 – 499	250	5.4%	80,000	13.1%
500 – 749	123	2.7%	76,000	12.5%
750 – 999	39	0.8%	34,000	5.6%
1,000 – 1,499	51	1.1%	63,000	10.3%
1,500 – 1,999	21	0.5%	36,000	5.9%
2,000 or more	20	0.5%	55,000	9.0%
Total	4,600	100.0%	610,000	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 2011.
- CAFO (Concentrated Animal Feeding Operations) permit reports for 2011. Some small CAFO farms (farms with 200 plus milk cows) have not applied for or updated the permit. Estimates for these farms were made so as to reflect the total number of dairy farms in New York State; revision from Census in certain size categories.

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 2011, there were 4,600 dairy farms in New York State, and 610,000 milk cows. The table above was prepared based on the NYASS data plus the CAFO permit filing for additional herd size categories.

Eighty-nine percent of the farms (less than 200 cows per farm) had 44 percent of the milk cows. The remaining eleven percent of the farms had 56 percent of the cows.

About 6 percent of the farms (those with 500 or more cows) had 43 percent of the cows.

Farms with less than 50 cows represent 36 percent of all farms but kept only 6 percent of the cows.

Farms with 1,000 or more cows (92 farms) represent about 2.0 percent of the farms but kept over 25 percent of the cows.

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 19 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 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)
2011-03	Dairy Farm Management Business Summary, New York State, 2010	(\$20.00)	Knoblauch, W., Putnam, L., Karszes, J., Overton, R. and C. Dymond
2011-02	Survey of New York Fruit and Vegetable Farm Employers 2009		Maloney, T. and N. Bills
2011-01	Survey of New York Dairy Farm Employers 2009		Maloney, T. and N. Bills
2010-01	Measuring the Impacts of Generic Fluid Milk and Dairy Marketing		H. Kaiser
2009-01	Dairy Farm Management Business Summary, New York State, 2008	(\$20.00)	Knoblauch, W., Putnam, L., Karszes, J. and J. Anderso

Paper copies are being replaced by electronic Portable Document Files (PDFs). To request PDFs of AEM publications, write to (be sure to include your e-mail address): Publications, Department of Applied Economics and Management, Warren Hall, Cornell University, Ithaca, NY 14853-7801. If a fee is indicated, please include a check or money order made payable to Cornell University for the amount of your purchase. Visit our Web site (<http://aem.cornell.edu/research/rb.htm>) for a more complete list of recent bulletins.