

DAIRY FARM MANAGEMENT

BUSINESS SUMMARY NEW YORK STATE 2012



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

**Wayne A. Knoblauch
Cathryn Dymond
Jason Karszes
Richard Kimmich**

**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:

Cathryn Dymond
Cornell University
Charles H. Dyson School of Applied Economics and Management
240F Warren Hall
Ithaca, NY 14853-7801

E-mail: ced72@cornell.edu
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, 2012¹**

Wayne A. Knoblauch*
Cathryn Dymond
Jason Karszes
Richard Kimmich

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 Linda Putnam. Linda was a long term extension support specialist working on the Dairy Farm Business Project as well as an advocate and supporter of the DFBS Program. Linda retired this year after over 35 years of service. The authors would like to acknowledge her service and thank her for all of her contributions to the program over the years.

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

ABSTRACT

Business and financial records for 2012 from 169 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 609 cows per farm and 25,401 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 21,697 pounds milk production per cow for New York. An average New York large dairy has a herd size per farm of 732 and is estimated in Appendix Table A3, page 85.

Net farm income excluding appreciation, which is the return to the operator's labor, management, capital, and other unpaid family labor, averaged \$404,045 per farm. The rate of return to all capital invested in the farm business including appreciation averaged 8.49 percent.

Differences in profitability between farms continue to widen. Average net farm income excluding appreciation of the top 10 percent of farms was \$1,202,092, while the lowest 10 percent was \$-25,488. Rates of return on equity with appreciation ranged from positive 19 percent to negative 9 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 2012 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 2012 than herds milking two times per day (2X). Operating costs per hundredweight of milk were \$0.07 per hundredweight lower for 3X than 2X milking herds, while output per cow was 5,892 pounds higher.

Farms adopting intensive grazing generally produced less milk per cow than non-grazing farms and in 2012 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
2012 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, 2003-2012	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, 1962-20124
2	Comparison of Farm Business Summary Data, Same 148 New York Dairy Farms, 2009-2012.....5
3	Business Characteristics & Resources Used, 169 New York Dairy Farms, 2012.....8
4	Cash & Accrual Farm Expenses, 169 New York Dairy Farms, 2012.....10
5	Cash & Accrual Farm Receipts, 169 New York Dairy Farms, 201211
6	Net Farm Income, 169 New York Dairy Farms, 2012.....12
7	Labor & Management Income, 169 New York Dairy Farms, 2012.....13
8	Return to Capital, 169 New York Dairy Farms, 201214
9	Return to All Labor & Management by Return to All Capital With Appreciation, 169 New York Dairy Farms, 201214
10	2012 Farm Business & Nonfarm Balance Sheet, 169 New York Dairy Farms, 2012.....15
11	Farm Balance Sheet Analysis, 169 New York Dairy Farms, 2012.....16
12	Farm Inventory Balance, 169 New York Dairy Farms, 201216
13	Statement of Owner Equity (Reconciliation), 169 New York Dairy Farms, 2012.....17
14	Annual Cash Flow Statement, 169 New York Dairy Farms, 201218
15	Annual Cash Flow Data, 169 New York Dairy Farms, 2012.....19
16	Farm Debt Payments Planned, Same 155 New York Dairy Farms, 2011 & 2012.....20
17	Coverage Ratios, Same 155 New York Dairy Farms, 2011 & 2012.....20
18	Debt to Asset Ratio vs. Cash Flow Coverage, 169 New York Dairy Farms, 2012.....20
19	Land Resources & Crop Production, 169 New York Dairy Farms, 201221
20	Crop Management Factors, 163 New York Dairy Farms That Grow Forages, 2012.....21
21	Crop Related Accrual Expenses, 163 New York Dairy Farms That Grow Forages, 201222
22	Accrual Machinery Expenses, 163 New York Dairy Farms That Grow Forages, 201222
23	Dairy Herd Inventory, 169 New York Dairy Farms, 201224
24	Milk Production, 169 New York Dairy Farms, 2012.....25
25	Milk Sold Per Cow & Farm Income Measures, 169 New York Dairy Farms, 201225
26	Culling Rate and Dairy Replacement Information, New York Dairy Farms, 201227
27	Cost of Producing Milk, Whole Farm Method, 169 New York Dairy Farms, 201228
28	Itemized Costs of Producing Milk Per Hundredweight Based on Whole Farm Data, 169 New York Dairy Farms, 201229
29	Itemized Costs of Producing Milk per Hundredweight Based on Whole Farm Data, Same 155 New York Dairy Farms, 2011-201230
30	Cost of Producing Milk, Accrual Receipts from Dairy, and Profitability, 169 New York Dairy Farms, 201231
31	Farm Cost of Producing Milk by Milk Sold Per Cow, 169 New York Dairy Farms, 201231
32	Farm Cost of Producing Milk by Herd Size, 169 New York Dairy Farms, 201233
33	Ten Year Comparison: Average Cost of Producing Milk Per Hundredweight, New York Dairy Farms, 2002 to 2012.....36
34	Ten Year Comparison: Selected Business Factors, New York Dairy Farms, 2002 to 201237
35	Dairy Related Accrual Expenses, 169 New York Dairy Farms, 201238
36	Purchased Feed & Crop Expenses Per Hundredweight of Milk and Farm Income Measures, 169 New York Dairy Farms, 201239
37	Average Milk Income and Marketing Report, 124 New York Dairy Farms, 2012.....40
38	Milk Price Information by Quintile, 124 New York Dairy Farms, 201241
39	Capital Efficiency, 169 New York Dairy Farms, 2012.....42
40	Asset Turnover & Profitability, 169 New York Dairy Farms, 201242
41	Labor Efficiency, 169 New York Dairy Farms, 2012.....42
42	Labor Force Inventory & Cost Analysis, 169 New York Dairy Farms, 2012.....43
43	Milk Sold Per Worker & Net Farm Income, 169 New York Dairy Farms, 201243
44	Farm Business Chart for Farm Management Cooperators, 169 New York Dairy Farms, 201244

45	A Farm Finance Checklist, 169 New York Dairy Farms, 2012	46
46	Financial Analysis Chart, 169 New York Dairy Farms, 2012	47
47	Cows Per Farm and Farm Family Income Measures, 169 New York Dairy Farms, 2012.....	48
48	Cows Per Farm and Related Farm Factors, 169 New York Dairy Farms, 2012	49
49	Progress of Farm Businesses with Less Than 110 Cows, Same 15 New York Dairy Farms, 2008-2012....	50
50	Progress of Farm Businesses with 110-499 Cows, Same 31 New York Dairy Farms, 2008-2012.....	51
51	Progress of Farm Businesses with More Than 500 Cows, Same 53 New York Dairy Farms, 2008-2012 ..	52
52	Farm Business Summary by Herd Size, 169 New York Dairy Farms, 2012	53
53	Farm Family Financial Situation by Herd Size, 169 New York Dairy Farms, 2012	55
54	Selected Business Factors by Herd Size, 169 New York Dairy Farms, 2012.....	59
55	Income and Expense Comparison for Farms Buying Majority of Forages Versus Similar Size Farms Growing Forages, 2012.....	63
56	Selected Business Factors for Farms Buying Majority of Forages Versus Similar Size Farms Growing Forages, 2012	64
57	Selected Business Factors by Type of Barn & Herd Size, 169 New York Dairy Farms, 2012.....	65
58	Farm Business Chart for Small Tiestall/Stanchion Dairy Farms, 11 Tiestall/Stanchion Dairy Farms with 60 or Less Cows, New York, 2012	66
59	Farm Business Chart for Large Tiestall/Stanchion Dairy Farms, 10 Tiestall/Stanchion Dairy Farms with More Than 60 Cows, New York, 2012.....	67
60	Farm Business Chart for Small Freestall Dairy Farms, 31 Freestall Barn Dairy Farms with 200 or less Cows, New York, 2012.....	68
61	Farm Business Chart for Medium Freestall Dairy Farms, 26 Freestall Barn Dairy Farms with 201-500 Cows, New York, 2012	69
62	Farm Business Chart for Large Freestall Dairy Farms, 81 Freestall Barn Dairy Farms with 500 or More Cows, New York, 2012.....	70
63	Intensive Grazing Farms vs. Non-Grazing Farms, New York State Dairy Farms, 2012	71
64	Comparison of Farm Business Data, Same 87 New York Dairy Farms, 2003-2012	72
65	Farm Receipts & Expenses Per Cow & Per Hundredweight for Three Levels of Milk Production, 169 New York Dairy Farms, 2012.....	74
66	Farm Receipts & Expenses Per Cow & Per Hundredweight for Three Herd Size Categories, 169 New York Dairy Farms, 2012.....	75
67	Comparison of Dairy Farm Business Data by Region, 169 New York Dairy Farms, 2012.....	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, 2011 & 2012	78
70	Farm Business Summary & Farm Family Financial Situation, 12 New York Dairy-Renter Farms, 2012 ..	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), 2012	80
72	Farm Business Summary & Farm Family Financial Situation, Average of 169 New York Dairy Farms, 2012.....	81
A1	Prices Paid by New York Farmers for Selected Items, 1998-2012.....	84
A2	Values and Indices of New York Dairy Farm Inventory Items, 1996-2012	84
A3	Number of Large Dairy Farms and Milk Cows by Size of Herd, New York State, 2012.....	85

LIST OF FIGURES & CHARTS

	<u>Page</u>
Figure 1. Location of the 169 New York Dairy Farms in the 2012 Dairy Farm Business Summary	2
Figure 2. Percent Change in Milk Production, Five Regions in New York, 1991-2011.....	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, PRO-DAIRY, and County and Regional Extension staff, cooperate in sponsoring DFBS projects. In 2012, over 200 dairy farms participated, including dairy owners, renters, full-time, part-time, organic and out-of-state farms. Business records submitted by dairy farmers from 46 New York counties provide the basis for continuing Extension programs, data for applied studies, and for use in the classroom. Regardless of the use of the data, confidentiality of individual farm data is maintained.

Cornell Cooperative Extension educators enroll the cooperators and collect the records. In addition, assistance is provided by individual consultants Bruce Dehm and Charles Radick; 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 169 specialized dairy farms are included in the main body of this report starting on page 8. These farms do NOT represent the "average" for all dairy farms in the State. Participation was on a voluntary basis, therefore, not all areas or types of operations were proportionately represented (Figure 1, page 2). All New York DFBS participants (nearly 200) represent nearly five percent of the milk cow operations in New York (see Appendix Table A3). The 169 specialized dairy farms represent a cross section of better than average commercial dairy farm owner/operators in the State. The DFBS participating farms represent 23 percent of the total New York milk production and 20 percent of the total cows in the State. Dairy farm renters, dairy-cash crop farmers with crop sales exceeding 10 percent of milk sales, part-time dairy operators, and organic farms are not included in the main body of this report. Data on dairy farm renters are summarized separately in the supplemental information section of the publication.

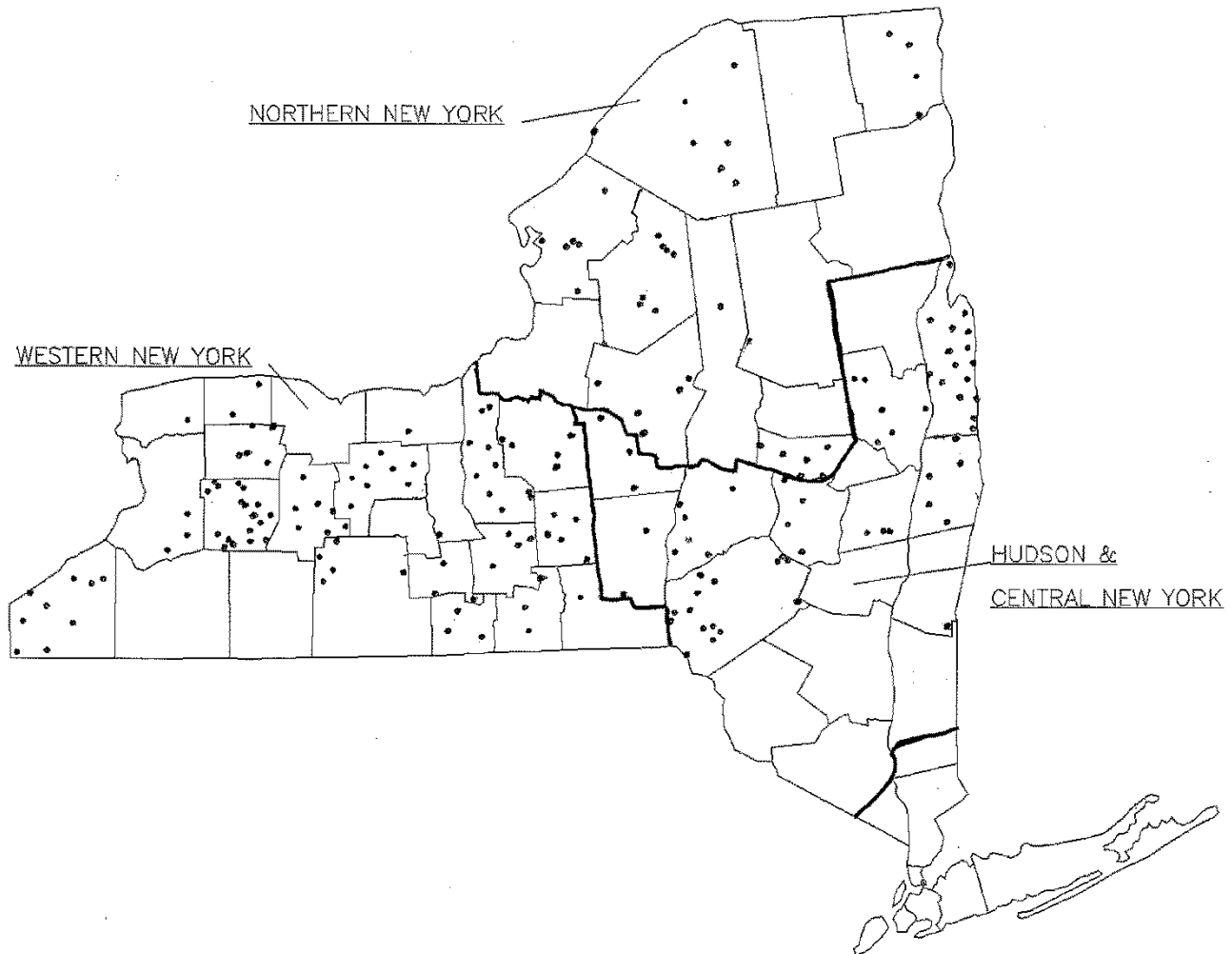
Features

Accrual adjustment procedures have been used to provide the most accurate accounting of farm receipts and farm expenses for measuring farm profits. An explanation of these procedures is found on page 9. Five measures of farm profitability: net farm income, labor and management income, return on equity, return on all capital, and return to all labor and management are calculated on pages 11 through 14. The balance sheet is presented with the current portion of intermediate and long-term debt identified as a current liability, on pages 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 169 NEW YORK DAIRY FARMS
IN THE 2012 DAIRY FARM BUSINESS SUMMARY**



2012 Regional Summary Publications

<u>Region</u>	<u>Publications</u>	<u>Author(s)</u>
Western New York	E.B. 2013-12	Wayne A. Knoblauch, Cathryn Dymond, Jason Karszes, Betsey Howland, Beth Dahl, John Hanchar, Virginia Carlberg, and Joan Petzen.
Hudson and Central New York	E.B. 2013-15	Wayne A. Knoblauch, George J. Conneman, Cathryn Dymond, Jason Karszes, Betsey Howland, Sandy Buxton, Mariane Kiraly, and Kirk Shoen.
Northern New York	E.B. 2013-16	Wayne A. Knoblauch, Cathryn Dymond, Jason Karszes, Betsey Howland, Peggy Murray, Frans Vokey, Anita Deming, David Balbian, Sandy Buxton, Jim Manning, Bonnie Collins, and Anita Figueras.

FIFTY YEARS OF NEW YORK STATE DAIRY FARM BUSINESS DATA

New York dairy farming has changed dramatically over the past 50 years (Table 1, page 4). Dairy cows per farm on cooperating farms increased 16 fold between 1962 and 2012 with herd size doubling over the last 10 years. The DFBS sample is not representative of all farms in New York State. Milk output per cow increased 244 percent with the largest increase occurring between 1992 and 2002. Labor efficiency, measured by pounds of milk sold per worker, is up 519 percent on DFBS farms, and the operating cost of producing milk increased more than 696 percent with the largest jump occurring between 1972 and 1982.

There is a large increase in farm capital invested per farm, which is over 100 times greater than in 1962. Net farm income per farm increased 1,550 percent (adjusted for 2012 dollars). Labor and management income per operator is up 602 percent from 50 years ago (adjusted for 2012 dollars). This is a reflection of the increased variability over the last 50 years. Some factors could not be calculated with 1962 and 1972 data because liabilities, interest paid, and/or appreciation were not available in those years. Farm net worth excluding deferred taxes is more than 85 times greater than 50 years ago and rate of return on equity capital increased 9.7 percent since 1982.

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 124 DFBS cooperators each year since 2009. 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 2012 still provided dairy farmers with the second highest operating margin per hundredweight of \$4.07 over these four years.

Average net farm income without appreciation in 2012 was 24 percent above the 2010 average, and 43 percent below the 2011 average. Net worth increased 13 percent in 2010, increased 20 percent in 2011, and increased 9 percent in 2012.

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.

OPERATING COST OF PRODUCING MILK AND PRICE RECEIVED FOR MILK
Same 124 New York Dairy Farms, 2009-2012

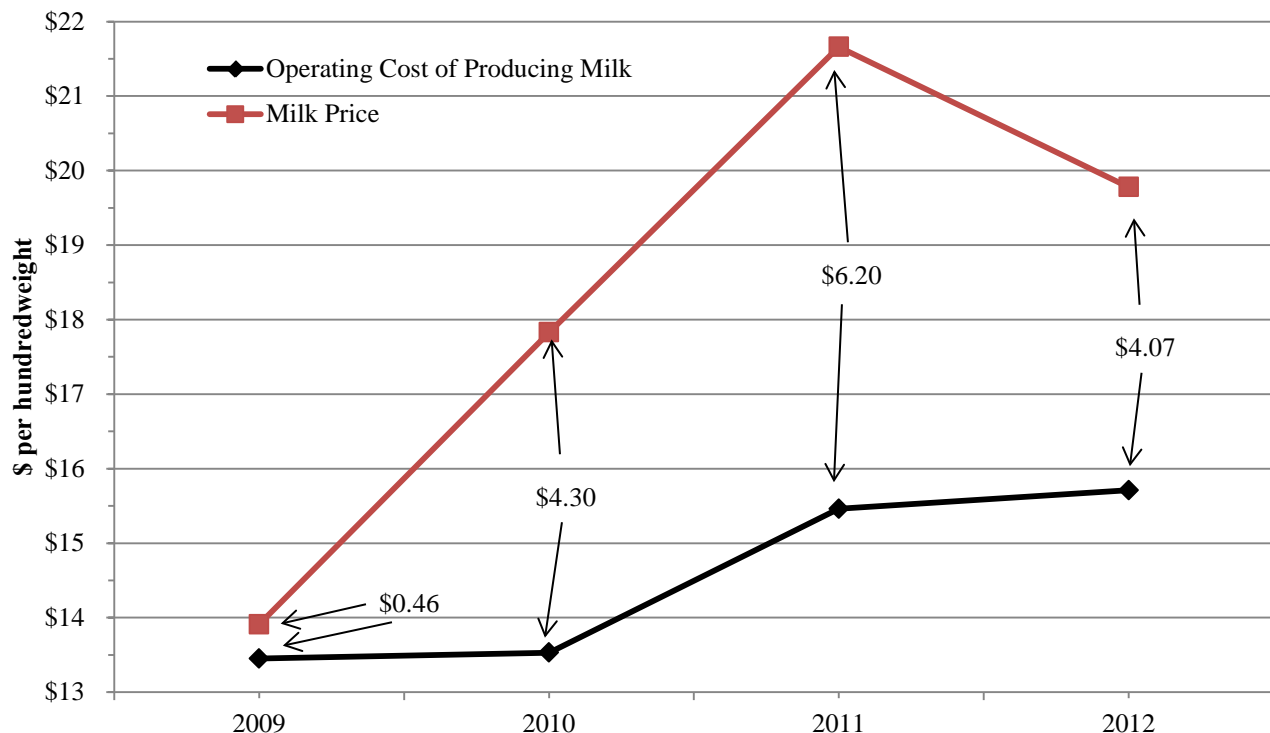


Table 1.

COMPARISON OF FARM BUSINESS SUMMARY DATA
New York Dairy Farms, 1962 - 2012

Selected Factors	1962	1972	1982	1992	2002	2012
Number of farms	503	571	572	357	219	169
<u>Size of Business</u>						
Average number of cows	38	70	82	123	297	609
Average number of heifers	24	45	67	96	226	522
Milk sold, cwt.	3,949	8,875	12,105	23,130	66,177	154,730
Worker equivalent	1.80	2.30	2.83	3.60	7.21 ⁴	13.59 ⁴
Total tillable acres	101 ²	188 ²	262	346	660	1,189
<u>Rates of Production</u>						
Milk sold per cow, lbs.	10,392	12,680	14,762	18,789	22,312	25,401
Hay DM per acre, tons	1.8	2.4	2.6	2.8	3.1	3.0
Corn silage per acre, tons	12	11	14	15	15	17
<u>Labor Efficiency</u>						
Cows per worker	21	30	29	34	41 ⁴	45 ⁴
Milk sold per worker, lbs.	219,385	385,870	427,739	641,893	917,854 ⁴	1,138,769 ⁴
<u>Cost Control</u>						
Grain & conc. as % of milk sales	33%	25%	24%	28%	30%	34%
Dairy feed & crop expense/cwt.	\$1.67	\$2.06	\$4.53	\$4.70	\$4.79	\$8.52
Operating cost of prod. cwt. milk	\$2.26	\$3.62	\$10.19	\$10.43	\$11.01	\$15.73
Total cost of producing cwt. milk	\$4.46	\$6.43	\$14.87	\$14.32	\$14.25	\$19.34
Milk receipts per cwt. milk	\$4.33	\$6.41	\$13.56	\$13.58	\$12.98	\$18.90
<u>Capital Efficiency</u>						
Total farm capital	\$53,541	\$173,780	\$467,676	\$810,201	\$2,017,818	\$6,232,925
Farm capital per cow	\$1,425	\$2,480	\$5,703	\$6,587	\$6,794	\$10,232
Machinery & equipment per cow	\$296	\$489	\$1,081	\$1,203	\$1,261	\$1,686
Real estate per cow	\$675	\$1,213	\$2,735	\$3,015	\$2,612	\$4,193
Livestock investment per cow	\$366	\$576	\$1,488	\$1,473	\$1,827	\$2,281
Asset turnover ratio	0.28	0.40	0.40	0.63	0.53	0.60
<u>Profitability</u>						
Net farm income without apprec. ⁵	NA	NA	\$95,183	\$95,210	\$48,877	\$404,045
Net farm income with apprec. ⁵	\$37,590	\$460,507	\$109,597	\$131,006	\$105,577	\$582,539
Labor & management income per operator/manager ⁵	\$15,352	\$235,993	\$15,311	\$23,175	\$-18,231	\$92,417
Rate of return on:						
Equity capital with appreciation	NA	6.3%	1.0%	5.0%	1.6%	10.7%
All capital with appreciation	NA	6.2%	4.3%	5.7%	2.9%	8.5%
All capital without appreciation	NA	NA	-3.8%	3.6%	0.7%	5.6%
<u>Financial Summary, End Year</u>						
Farm net worth	\$49,465 ³	\$125,031 ³	\$306,589	\$529,858	\$1,173,836	\$4,299,025
Change in net worth with apprec.	NA	NA	572	357	219	169
Debt to asset ratio	0.31 ³	0.36 ³	0.39	0.36	0.43	0.31
Farm debt per cow	\$562 ³	\$1,011 ³	\$2,261	\$2,390	\$2,899	\$3,171

²Acres of cropland harvested.³Average of 138 dairy farm cooperators submitting financial information in 1962; 416 farms in 1972.⁴Based 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—2012 dollars.

Table 2.

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 124 New York Dairy Farms, 2009 - 2012

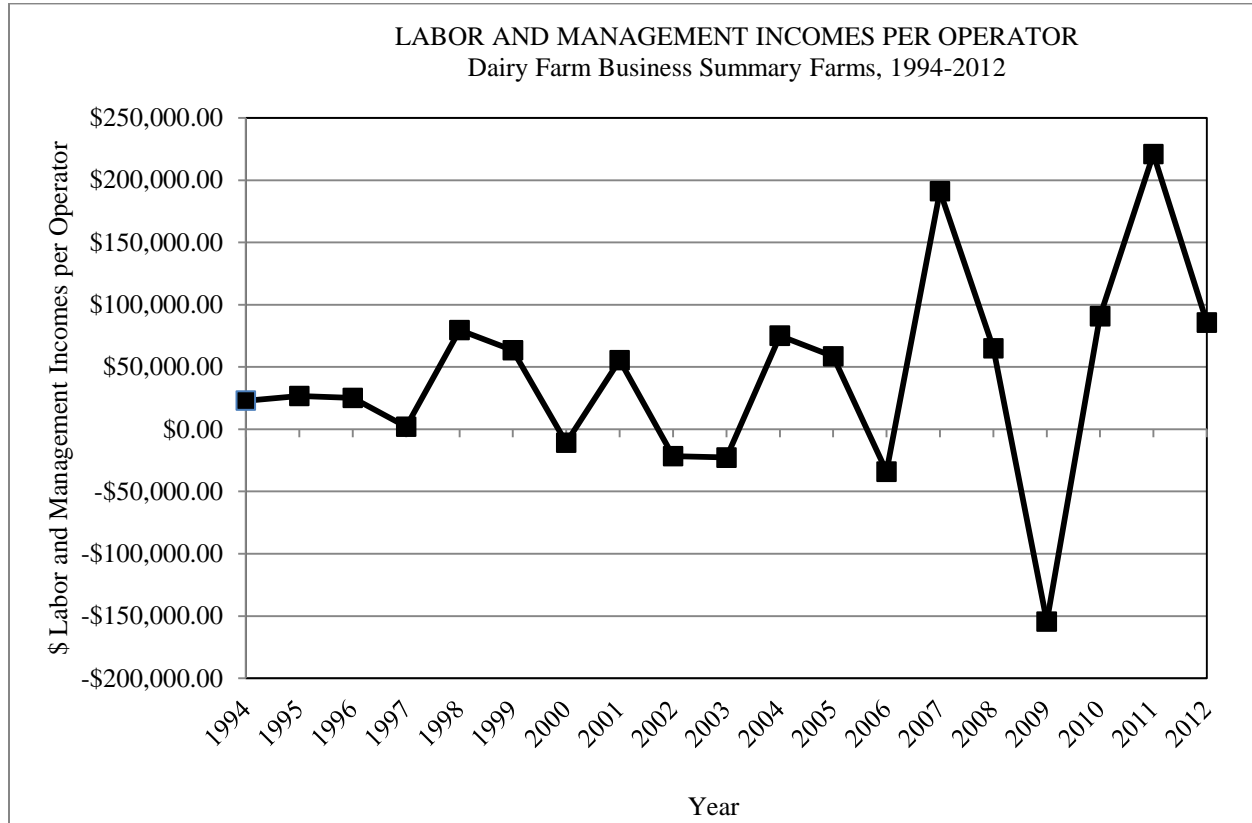
Selected Factors	2009	2010	2011	2012
Milk receipts per cwt. milk	\$13.91	\$17.83	\$21.66	\$19.78
<u>Size of Business</u>				
Average number of cows	576	610	628	650
Average number of heifers	495	527	548	562
Milk sold, cwt.	142,071	152,111	157,295	166,556
Worker equivalent ⁶	13.14	13.53	14.08	14.77
Total tillable acres	1,194	1,242	1,279	1,339
<u>Rates of Production</u>				
Milk sold per cow, pounds	24,671	24,951	25,045	25,620
Hay DM per acre, tons	3.6	3.7	3.6	3.1
Corn silage per acre, tons	19	20	17	17
<u>Labor Efficiency</u>				
Cows per worker ⁶	44	45	45	44
Milk sold per worker, pounds ⁶	1,081,413	1,124,525	1,117,020	1,127,730
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	37%	28%	28%	35%
Dairy feed & crop expense per cwt. milk	\$6.43	\$6.26	\$7.59	\$8.56
Operating cost of producing cwt. milk	\$13.45	\$13.53	\$15.46	\$15.71
Total cost of producing cwt. milk	\$16.70	\$16.75	\$18.99	\$19.40
Hired labor cost per cwt.	\$2.74	\$2.66	\$2.81	\$2.80
Interest paid per cwt.	\$0.51	\$0.54	\$0.49	\$0.46
Labor & machinery costs per cow	\$1,462	\$1,502	\$1,675	\$1,734
<u>Capital Efficiency, Average for Year</u>				
Farm capital per cow	\$9,134	\$9,050	\$9,719	\$10,457
Machinery & equipment per cow	\$1,641	\$1,600	\$1,691	\$1,821
Real estate per cow	\$3,595	\$3,643	\$3,878	\$4,214
Livestock investment per cow	\$2,227	\$2,202	\$2,220	\$2,231
Asset turnover ratio	0.45	0.58	0.65	0.60
<u>Profitability</u>				
Net farm income without appreciation	\$-120,465	\$450,770	\$745,548	\$423,837
Net farm income with appreciation	\$-95,735	\$570,614	\$908,011	\$650,304
Labor & management income per operator/manager	\$-151,157	\$140,596	\$269,444	\$91,584
Rate return on:				
Equity capital with appreciation	-6.0%	13.2%	19.3%	11.2%
All capital with appreciation	-2.5%	9.8%	14.2%	8.8%
All capital without appreciation	-3.0%	7.6%	11.5%	5.5%
<u>Financial Summary, End Year</u>				
Farm net worth	\$3,257,613	\$3,680,989	\$4,436,345	\$4,853,123
Change in net worth with appreciation	\$-262,156	\$404,404	\$715,105	\$377,492
Debt to asset ratio	0.38	0.36	0.31	0.32
Farm debt per cow	\$3,426	\$3,278	\$3,158	\$3,449

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 2012 were down from 2010 and 2011, when measured in nominal (actual) values (Chart 2). Over the period 1994 to 2012, labor and management income per operator has exceeded \$50,000 in about half of the years with the largest five incomes in each reaching over \$70,000. Over \$79,000 in 1998, over \$75,000 in 2004, \$191,283 in 2007, \$90,838 in 2010 and \$221,009 in 2011. The reader is reminded that the average herd size of DFBS participating farms steadily increased from 130 cows to 609 cows over this period.

Chart 2.



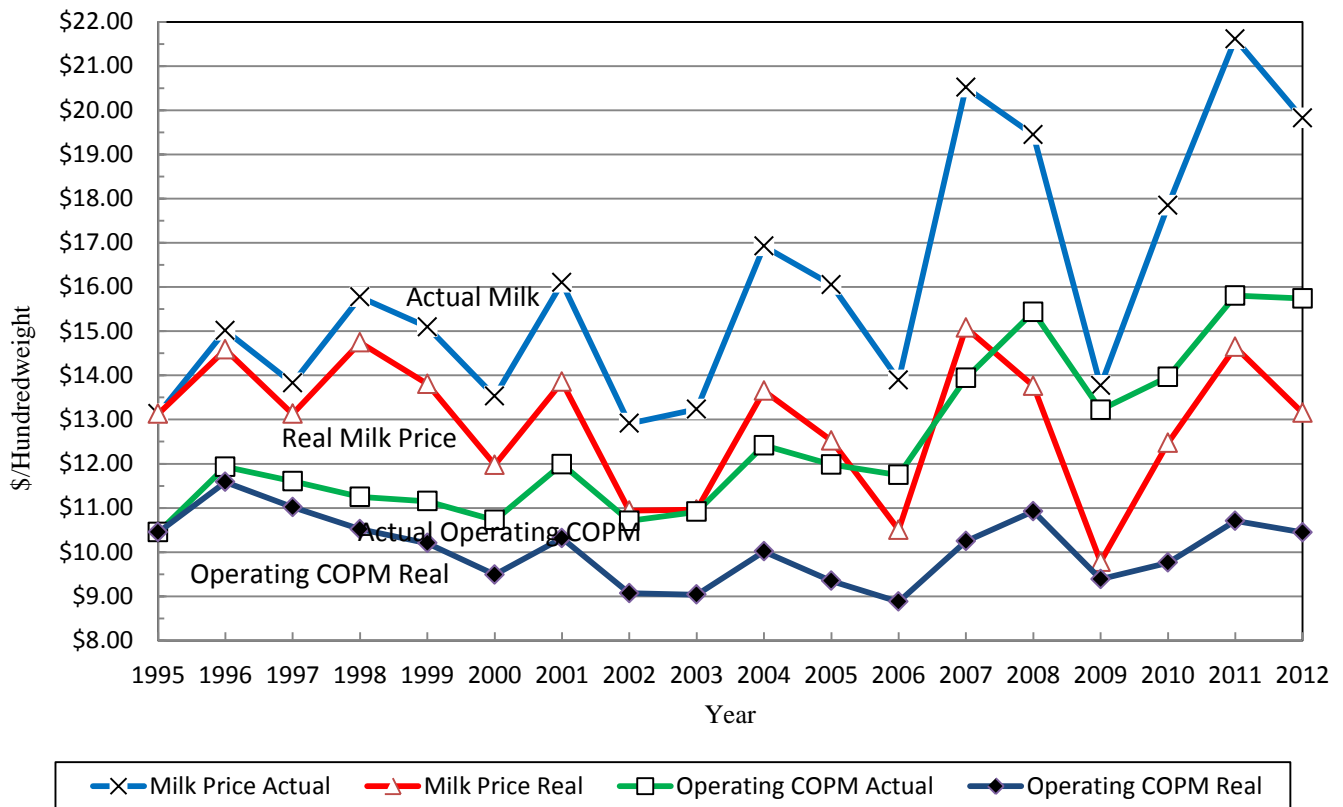
Milk prices in 2012 averaged \$19.82 per hundredweight in actual dollars (Chart 3). However, the 2012 milk price, adjusted for inflation, in 1995 dollars, would have been only \$13.15 per hundredweight.

Operating costs of producing milk (actual) saw an increase between 1995 and 1996 (Chart 3). This was due to feed costs increasing in 1996. Operating costs were on a downward trend after the 1996 increase through 2000. Operating costs then increased in 2001, fell in 2002, then increase in 2004 and decreased through 2006. Operating costs increase nearly \$2 per hundredweight from 2006 to 2008, followed by a \$2.22 decrease in 2009. In 2012, operating costs decreased slightly from 2011 to \$15.74 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, 1995-2012



⁷ Actual operating cost of producing milk as well as milk price are adjusted for inflation, to obtain real values, using the Consumer Price Index–1995 dollars.

SUMMARY AND ANALYSIS OF THE FARM BUSINESS

Business Characteristics and Resources Used

Recognition of important business characteristics and identification of the farm resources used is necessary for evaluating management performance. The combination of resources used and management practices employed is known as farm organization. Important farm business characteristics and the number of farms reporting these characteristics for 2012 are presented in the following table.

Table 3.

**BUSINESS CHARACTERISTICS AND RESOURCES USED
169 New York Dairy Farms, 2012**

<u>Dairy Livestock (number)</u>	<u>Cows</u>	<u>Heifers</u>	<u>Dairy Records</u>	<u>Number</u>	<u>Percent</u>
Beginning of Year	587	515	Testing Service	132	78
End of Year	614	532	On Farm System	26	15
Average for Year	609	522	Other	0	0
			None	11	7
<u>Type of Business</u>	<u>Number</u>	<u>Percent</u>	<u>bST Usage (reporting is optional)</u>	<u>Number</u>	<u>Percent</u>
Sole Proprietorship	47	28	Used consistently	6	23
Partnership	34	20	Used inconsistently	1	4
Limited Liability Corp.	71	42	Started using in 2012	0	0
Subchapter S Corporation	14	8	Stopped using in 2012	0	0
Subchapter C Corporation	3	2	Not used in 2012	19	73
			Average % usage, if used	46%	
<u>Barn Type</u>	<u>Number</u>	<u>Percent</u>	<u>Labor Force</u>	<u>Average</u>	<u>Percent</u>
Stanchion	21	12	Operators	26.6	16
Freestall	137	81	Family Paid	2.6	2
Combination	11	7	Family Unpaid	1.7	1
<u>Milking System</u>	<u>Number</u>	<u>Percent</u>	Hired	132.2	81
Bucket & Carry	0	0	Total Months	163.1	100
Dumping Station	1	1			
Pipeline	21	12			
Herringbone Conventional	50	30			
Herringbone Rapid Exit	13	8			
Parallel	60	36			
Parabone	7	4			
Rotary	5	3			
Other	12	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	73	43	Total acres:		
3 times per day	84	50	Owned	169	820
Other	12	7	Rented	159	567
			Tillable acres:		
			Owned	169	635
			Rented	158	554
			Total	169	1,189
<u>Business Records</u>	<u>Number</u>	<u>Percent</u>	<u>Breed of Herd</u>		
Account Book	12	7	Holstein	93%	
Accounting Service	19	12	Jersey	3%	
On-Farm Computer	137	81	Other	4%	
Other	0	0			

There were 340 full-time operator equivalents on the 169 dairy farms for an average of 2.01 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 169 farm businesses included in this dairy summary own farm real estate. Dairy farm renters are summarized separately later in this publication. However, 158 of the dairy farm owners rented an average of 592 acres of tillable land in 2012. The 169 farms averaged 1,189 total tillable acres per farm of which 554 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 169 farms averaged \$7,932 per day and 92 percent of total farm accrual expenses. Cash paid is the actual amount of money paid out during the year and does not necessarily represent the cost of goods and services actually used.

Table 4.

CASH AND ACCRUAL FARM EXPENSES
169 New York Dairy Farms, 2012

Expense Item	Cash Paid	- Change in Inventory or Prepaid Expense	+ Change in Accounts Payable	= Accrual Expenses	Percent
<u>Hired Labor</u>	\$419,642	\$-1,148 <<	\$-437	\$420,353	15
<u>Feed</u>					
Dairy grain & concentrate	1,035,252	-7,659	13,157	1,056,067	36
Dairy roughage	76,516	6,437	1,589	71,668	2
Nondairy livestock	455	0	0	455	<1
Professional nutritional services	482	0 <<	3	485	<1
<u>Machinery</u>					
Machinery hire, rent & lease	56,490	239 <<	1,017	57,267	2
Machinery repairs & farm vehicle expense	145,374	-35	365	145,775	5
Fuel, oil & grease	129,386	204	379	129,560	4
<u>Livestock</u>					
Replacement livestock	7,623	0 <<	-85	7,538	<1
Breeding	32,399	470	71	31,999	1
Veterinary & medicine	101,154	-86	-204	101,036	3
Milk marketing	134,297	0 <<	920	135,217	5
Bedding	63,668	-127	138	63,933	2
Milking Supplies	54,477	172	97	54,401	2
Cattle lease & rent	2,875	0 <<	0	2,875	<1
Custom boarding	55,670	-993 <<	449	57,112	2
bST expense	27,517	-328 <<	24	27,869	1
Livestock professional fees	9,475	-61 <<	76	9,613	<1
Other livestock expense	12,759	-130	139	13,028	<1
<u>Crops</u>					
Fertilizer & lime	80,445	-3,295	1,314	85,054	3
Seeds & plants	69,121	5,228	463	64,356	2
Spray & other crop expense	33,651	-192	2,707	36,550	1
Crop professional fees	3,965	-14 <<	-7	3,972	<1
<u>Real Estate</u>					
Land, building & fence repair	53,504	330	217	53,392	2
Taxes	36,383	331 <<	107	36,160	1
Rent & lease	37,077	323 <<	345	37,745	1
<u>Other</u>					
Insurance	27,106	38 <<	-148	26,921	1
Utilities	57,762	9 <<	56	57,809	2
Interest paid	69,349	-57 <<	-157	69,248	2
Other professional fees	19,312	-2 <<	4	19,318	1
Miscellaneous	18,525	56	12	18,481	1
Total Operating	\$2,871,710	\$-937	\$22,609	\$2,895,256	100
Expansion livestock	\$23,583	0 <<	1,057	\$24,641	
Extraordinary expense	\$660	0	328	\$988	
Machinery depreciation				\$133,845	
Building depreciation				\$86,993	
TOTAL ACCRUAL EXPENSES				\$3,141,724	

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 grain and concentrate inventory from a prior year was \$7,659.

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 \$9 per farm in 2012, and that increase is subtracted from cash rent to determine the correct 2012 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 \$-937 and total change in accounts payable equals \$22,609.

Income Statement - Receipts

Cash and accrual farm receipts are presented in the following table. Total cash receipts averaged \$3,402,083 per farm. Total accrual receipts averaged \$3,545,769 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 22 head per farm. Homegrown feed inventory per cow increased \$91 from beginning to end of year.

Table 5.

CASH AND ACCRUAL FARM RECEIPTS 169 New York Dairy Farms, 2012

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts	Percent
Milk sales	\$3,020,184				\$39,394		\$3,059,578	86
Dairy cattle	197,257		\$44,780		-445		241,592	7
Dairy calves	24,144		3,089		10		27,243	1
Other livestock	4,814		3,613		207		8,634	<1
Crops	38,149		55,382		-1,695		91,836	3
Government receipts	42,015		0		139		42,154	1
Custom machine work	13,278				373		13,651	<1
Gas tax refund	577				0		577	<1
Other	61,665				-1,160		60,504	2
- Nonfarm noncash capital transfer ⁹			(-) 1				(-) 1	
Total	\$3,402,083		\$106,863		\$36,823		\$3,545,769	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 2011 to 2012. 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 2012 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 \$178,493 per farm in 2012. On the average, farm real estate appreciated \$135,204 or 5.6 percent of beginning fair market value. Machinery appreciated 3.2 percent while dairy cattle prices appreciated 0.9 percent in 2012.

Average data from 16 farms with the highest rates of return to all capital (without appreciation) are compared with the 169 farm average in Table 8 and in many of the following tables. Net farm income without appreciation averaged \$1,202,092 per farm on the top 10 percent farms, 298 percent greater than the 169-farm average.

Table 6.

NET FARM INCOME 169 New York Dairy Farms, 2012

Item	Average 169 Farms		Average Top 10% Farms ¹⁰	
	Per Farm	Per Cow	Per Farm	Per Cow
Total accrual receipts	\$3,545,769		\$5,767,614	
+ Appreciation: Livestock	7,315		14,524	
Machinery	31,072		36,430	
Real Estate	135,204		158,826	
Other Stock & Certificates	<u>4,902</u>		<u>23,233</u>	
= Total including appreciation	\$3,724,262		\$6,000,625	
- Total accrual expenses	<u>3,141,724</u>		<u>4,565,522</u>	
= Net Farm Income (with appreciation)	\$582,539	\$956	\$1,435,104	\$1,519
Net Farm Income (without appreciation)	\$404,045	\$663	\$1,202,092	\$1,273

¹⁰Average of 16 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
169 New York Dairy Farms, 2012**

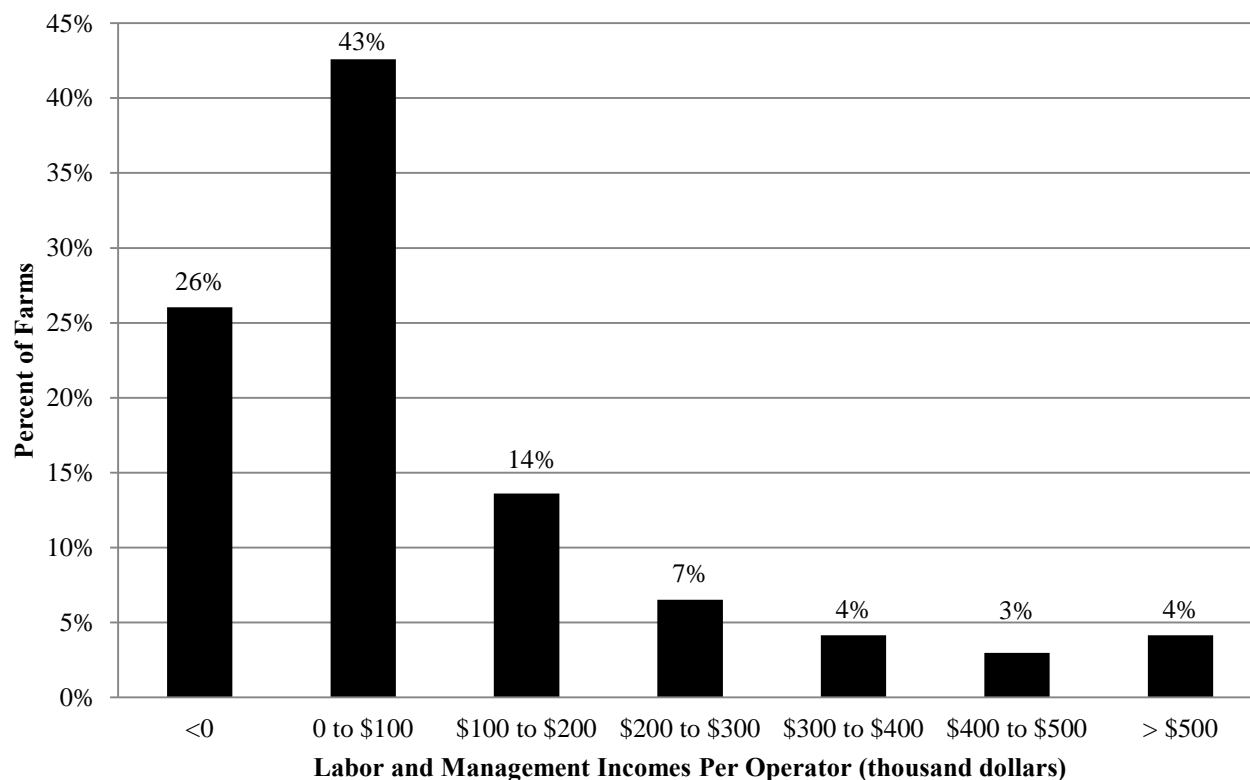
Item	Average 169 Farms	Average Top 10% Farms ¹¹
Net farm income without appreciation	\$ 404,045	\$1,202,092
- Family labor unpaid @ \$2,550 per month	4,395	1,983
- Real interest @ 5% on \$4,319,151 equity capital for average & \$6,726,571 for the top 10% farms	<u>213,891</u>	<u>314,502</u>
= Labor & Management Income (2.21 operators)	\$185,759	(2.01 operators) \$885,607
Labor & Management Income per Operator	\$92,417	\$400,727

¹¹ Average of 16 farms with highest rates of return to all capital (without appreciation).

Labor and management income per operator averaged \$92,417 on these 169 dairy farms in 2012. The range in labor and management income per operator was from less than \$-351,000 to more than \$1,058,000. Returns to labor and management were less than \$100,000 on 69 percent of the farms. Labor and management incomes per operator were between \$100,000 and \$300,000 on 20 percent of the farms while 11 percent showed labor and management incomes of \$300,000 or more per operator.

Chart 4.

**DISTRIBUTION OF LABOR AND MANAGEMENT INCOMES PER OPERATOR
169 New York Dairy Farms, 2012**



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
169 New York Dairy Farms, 2012**

Item	Average 169 Farms	Average Top 10% Farms ¹²
Net farm income with appreciation	\$582,539	\$1,435,104
- Family labor unpaid at \$2,550 per month	4,395	1,983
- Value of operators' labor & management	<u>118,069</u>	<u>143,209</u>
= Return to equity capital with appreciation	\$460,075	\$1,289,912
+ Interest paid	<u>69,248</u>	<u>93,409</u>
= Return to all capital with appreciation	\$529,323	\$1,383,321
Return to equity capital without appreciation	\$281,581	\$1,056,900
Return to all capital without appreciation	\$350,830	\$1,150,309
Rate of return on average equity capital:		
with appreciation	10.7%	19.2%
without appreciation	6.5%	15.7%
Rate of return on all capital:		
with appreciation	8.5%	14.8%
without appreciation	5.6%	12.3%
Net farm income from operations ratio	0.11	0.21

¹²Average of 16 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
169 New York Dairy Farms, 2012**

Item	Quartile by Return to All Capital With Appreciation			
	Lowest 25%	3rd 25%	2nd 25%	Top 25%
Return to all capital with appreciation	\$-49,171	\$133,938	\$475,019	\$1,571,280
Rate of return on all capital with appreciation	-1.3%	5.7%	8.4%	12.8%
Total returns to all labor & management	\$-59,571	\$5,719	\$160,731	\$641,997
Worker equivalent	5.22	7.98	14.62	26.74
Return per worker equivalent	\$-11,412	\$717	\$10,994	\$24,009
Returns/hour (2,760 hours/worker/year)	\$-4.13	\$0.26	\$3.98	\$8.70

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.

2012 FARM BUSINESS AND NONFARM BALANCE SHEET 169 New York Dairy Farms, 2012

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$ 53,671	\$ 52,744	Accounts payable	\$ 54,273	\$ 78,267
Accounts receivable	300,116	336,939	Operating debt	130,120	154,379
Prepaid expenses	7,493	5,512	Short term	6,511	4,482
Feed & supplies	<u>704,273</u>	<u>760,699</u>	Advanced gov't. receipt	0	0
Total Current	\$1,065,553	\$1,155,894	Current portion:		
			Intermediate	158,154	166,413
			Long term	<u>53,412</u>	<u>58,769</u>
			Total Current	\$ 402,470	\$462,309
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy Cows:			Structured debt		
owned	\$ 824,748	\$870,089	1-10 years	\$ 778,572	\$755,027
leased	1,940	1,606	Financial lease		
Heifers	492,854	505,138	(cattle & machinery)	3,901	5,660
Bulls & other livestock	11,265	15,437	Farm Credit stock	<u>1,042</u>	<u>1,094</u>
Mach. & equip. owned	976,760	1,071,618	Total Intermediate	\$ 783,515	\$761,781
Mach. & equip. leased	1,961	4,053			
Farm Credit stock	1,042	1,094	<u>Long Term</u>		
Other stock & certificates	<u>166,802</u>	<u>192,442</u>	Structured debt		
Total Intermediate	\$2,477,371	\$2,658,478	≥ 10 years	\$ 683,021	\$804,473
<u>Long Term</u>			Financial lease		
Land & buildings:			(structures)	<u>1,565</u>	<u>1,094</u>
owned	\$2,407,149	\$2,699,121	Total Long Term	\$ 684,586	\$805,613
leased	<u>1,565</u>	<u>1,140</u>			
Total Long Term	\$2,408,713	\$2,700,261	Total Farm Liabilities	\$1,870,570	\$2,029,703
Total Farm Assets	\$5,951,637	\$6,514,632	FARM NET WORTH	\$4,081,067	\$4,484,930
Nonfarm Assets ¹³	Jan.1	Dec. 31	Nonfarm Liabilities ¹³	Jan. 1	Dec. 31
Personal cash, checking & savings	\$ 11,509	\$ 13,397	Nonfarm Liabilities	\$ 6,960	\$ 5,651
Cash value life insurance	64,700	68,350	NONFARM NET WORTH	\$390,978	\$454,188
Nonfarm real estate	192,035	187,211			
Auto (personal share)	6,789	7,218	FARM & NONFARM ¹⁴	Jan. 1	Dec. 31
Stocks & bonds	86,191	106,832	Total Assets	\$6,349,575	\$6,974,471
Household furnishings	6,728	7,140	Total Liabilities	<u>1,877,530</u>	<u>2,035,354</u>
All other	<u>29,985</u>	<u>69,691</u>	TOTAL FARM & NON-		
Total Nonfarm	\$397,938	\$459,839	FARM NET WORTH	\$4,472,045	\$4,939,117

¹³Average of 57 farms completing the nonfarm balance sheet.

¹⁴Sum of average farm values for 169 farms and nonfarm values for 57 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
169 New York Dairy Farms, 2012

Item	Average 169 Farms	Average Top 10% Farms ¹⁵
<u>Farm Financial Ratios:</u>		
Percent equity	69%	71%
Debt/asset ratio: total	0.31	0.29
long term	0.30	0.25
intermediate & current	0.32	0.31
Leverage Ratio:	0.45	0.40
Current Ratio:	2.50	3.25
Working Capital: \$693,585 Dollars as % of Total Expenses:	22%	\$1,376,812 30%
<u>Farm Debt Analysis:</u>		
Accounts payable as % of total debt	4%	1%
Long term liabilities as % of total debt	40%	36%
Current & intermediate liabilities as % of total debt	60%	64%
Cost of term debt (weighted average)	4.7%	4.0%
<u>Farm Debt Levels:</u>	<u>Per Cow</u>	<u>Per Tillable Acre Owned</u>
Total farm debt	\$3,171	\$3,196
Long term debt	1,259	1,268
Intermediate & long term	2,449	2,468
Intermediate & current debt	1,912	1,927
	<u>Per Cow</u>	<u>Per Tillable Acre Owned</u>
	\$2,998	\$2,918
	1,082	1,053
	2,354	2,290
	1,916	1,865

¹⁵ Average of 16 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
169 New York Dairy Farms, 2012

Item	Real Estate	Machinery & Equipment	Livestock
Value beginning of year	\$2,407,149	\$976,760	\$1,328,867
Purchases	\$344,901	\$209,748	
+ nonfarm noncash transfer ¹⁷	762	0	
- Lost capital	95,870		
- Net sales	6,031	12,117	
- Depreciation	<u>86,993</u>	<u>133,845</u>	
= Net Investment	156,768	63,786	51,482
+ Appreciation	<u>135,204</u>	<u>31,072</u>	<u>7,315</u>
Value end of year	\$2,699,121	\$1,071,618	\$1,387,663

¹⁶ \$133,185 land and \$211,716 buildings and/or depreciable improvements.

¹⁷ Gifts 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)
169 New York Dairy Farms, 2012**

Item	Average 169 Farms	Average Top 10% Farms ¹⁹
Beginning of year farm net worth	\$4,153,372	\$6,304,947
Net farm income without appreciation	\$404,045	\$1,202,092
+ Nonfarm cash income	8,684	9,041
- Personal withdrawals & family expenditures and income taxes, excluding nonfarm borrowings	<u>212,286</u>	<u>405,229</u>
RETAINED EARNINGS	+ \$200,444	+ \$805,904
Nonfarm noncash transfers to farm	\$ 763	\$ 4,791
+ Cash used in business from nonfarm capital	44,249	64,729
- Note or mortgage from farm real estate sold (nonfarm)	<u>0</u>	<u>0</u>
CONTRIBUTED/WITHDRAWN CAPITAL	+ \$45,012	+ \$69,520
Appreciation	\$ 178,493	\$233,012
- Lost capital	<u>95,870</u>	<u>270,929</u>
CHANGE IN VALUATION EQUITY	+ \$82,623	+ \$-37,917
IMBALANCE/ERROR	<u>- \$-3,479</u>	<u>- \$-5,741</u>
End of year farm net worth ¹⁸	\$4,484,930	\$7,148,194
<u>Change in Net Worth</u>		
Without appreciation	\$153,065	\$610,235
With appreciation	\$331,558	\$843,247

¹⁸May not add due to rounding.

¹⁹Average of 16 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 169 New York Dairy Farms, 2012

Item	Average 169 Farms		
<u>Cash Flow from Operating Activities</u>			
Cash farm receipts	\$3,402,083		
- Cash farm expenses	2,871,710		
- Extraordinary expense	<u>660</u>		
= Net cash farm income		\$529,713	
Personal withdrawals & family expenses including nonfarm debt payments	\$212,622		
- Nonfarm income	<u>8,684</u>		
- Net cash withdrawals from the farm		<u>\$ 203,938</u>	
= Net Provided by Operating Activities			\$325,775
<u>Cash Flow From Investing Activities</u>			
Sale of assets: machinery	\$12,117		
+ real estate	6,031		
+ other stock & certificates	<u>5,551</u>		
= Total asset sales		\$23,700	
Capital purchases: expansion livestock	\$ 23,583		
+ machinery	209,748		
+ real estate	344,901		
+ other stock & certificates	<u>26,290</u>		
- Total invested in farm assets		<u>\$604,523</u>	
+ Net Provided by Investment Activities			\$-580,823
<u>Cash Flow From Financing Activities</u>			
Money borrowed (intermediate & long term)	\$407,984		
+ Money borrowed (short term)	2,969		
+ Increase in operating debt	24,258		
+ Cash from nonfarm capital used in business	44,249		
+ Money borrowed - nonfarm	<u>336</u>		
= Cash inflow from financing		\$479,797	
Principal payments (intermediate & long term)	\$224,202		
+ Principal payments (short term)	4,999		
+ Decrease in operating debt	<u>0</u>		
- Cash outflow for financing		<u>\$229,201</u>	
= Net Provided by Financing Activities			\$250,596
<u>Cash Flow From Reserves</u>			
Beginning farm cash, checking & savings		\$53,671	
- Ending farm cash, checking & savings		<u>52,744</u>	
= Net Provided from Reserves			\$927
<u>Imbalance (error)</u>			\$-3,525

Table 15.

ANNUAL CASH FLOW DATA
169 New York Dairy Farms, 2012

Item	Average 169 Farms			Average Top 10% Farms ²¹		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Average number of cows and cwt. milk		609	154,730		945	248,168
<u>Accrual Operating Receipts</u>						
Milk	\$3,059,578	\$5,023	\$19.77	\$4,953,546	\$5,245	\$19.96
Dairy cattle	241,592	397	1.56	361,762	383	1.46
Dairy calves	27,243	45	0.18	44,752	47	0.18
Other livestock	8,634	14	0.06	-1,040	-1	0.00
Crops	91,837	151	0.59	227,002	240	0.91
Miscellaneous receipts	<u>116,885</u>	<u>192</u>	<u>0.76</u>	<u>181,593</u>	<u>192</u>	<u>0.73</u>
Total	\$3,545,769	\$5,821	\$22.92	\$5,767,613	\$6,107	\$23.24
<u>Accrual Operating Expenses</u>						
Hired labor	\$ 420,353	\$ 690	\$ 2.72	\$ 618,516	\$ 655	\$ 2.49
Dairy grain & concentrate	1,056,067	1,734	6.83	1,549,150	1,640	6.24
Dairy roughage	71,668	118	0.46	136,549	145	0.55
Nondairy feed	455	1	0.00	3,002	3	0.01
Professional nutritional services	485	1	0.00	0	0	0.00
Machinery hire, rent & lease	57,267	94	0.37	96,226	102	0.39
Machinery repairs & vehicle expense	145,775	239	0.94	205,719	218	0.83
Fuel, oil & grease	129,560	213	0.84	190,396	202	0.77
Replacement livestock	7,538	12	0.05	7,066	7	0.03
Breeding	31,999	53	0.21	40,881	43	0.16
Veterinary & medicine	101,036	166	0.65	149,731	159	0.60
Milk marketing	135,217	222	0.87	186,587	198	0.75
Bedding	63,933	105	0.41	101,899	108	0.41
Milking supplies	54,401	89	0.35	87,898	93	0.35
Cattle lease	2,875	5	0.02	10,740	11	0.04
Custom boarding	57,112	94	0.37	67,992	72	0.27
bST expense	27,869	46	0.18	37,222	39	0.15
Livestock professional fees	9,613	16	0.06	12,181	13	0.05
Other livestock expense	13,028	21	0.08	13,948	15	0.06
Fertilizer & lime	85,054	140	0.55	116,220	123	0.47
Seeds & plants	64,356	106	0.42	95,105	101	0.38
Spray/other crop expense	36,550	60	0.24	49,797	53	0.20
Crop professional fees	3,972	7	0.03	4,724	5	0.02
Land, building & fence repair	53,392	88	0.35	75,203	80	0.30
Taxes	36,160	59	0.23	46,406	49	0.19
Real estate rent & lease	37,745	62	0.24	56,917	60	0.23
Insurance	26,921	44	0.17	37,426	40	0.15
Utilities	57,809	95	0.37	91,766	97	0.37
Other professional fees	19,318	32	0.12	31,181	33	0.13
Miscellaneous	<u>18,481</u>	<u>30</u>	<u>0.12</u>	<u>25,009</u>	<u>26</u>	<u>0.10</u>
Total Less Interest Paid	\$2,826,007	\$4,639	\$18.26	\$4,145,458	\$4,389	\$16.70
<u>Net Accrual Operating Income</u>						
(without interest paid)	\$ 719,762	\$1,182	\$ 4.65	\$1,622,156	\$1,717	\$ 6.54
- Change in livestock & crop inventory	106,863	175	0.69	273,836	290	1.10
- Change in accounts receivable	36,823	60	0.24	-6,152	-7	-0.02
- Change in feed & supply inventory	-937	-2	-0.01	116,671	124	0.47
+ Change in accounts payable ²⁰	<u>22,766</u>	<u>37</u>	<u>0.15</u>	<u>13,581</u>	<u>14</u>	<u>0.05</u>
NET CASH FLOW	\$ 599,779	\$ 985	\$ 3.88	\$1,251,382	\$1,325	\$ 5.04
- Net personal withdrawals & family exp.	<u>202,943</u>	<u>333</u>	<u>1.31</u>	<u>396,188</u>	<u>419</u>	<u>1.60</u>
Available for Farm Debt Payments & Investment	\$ 396,836	\$ 651	\$ 2.56	\$ 855,194	\$ 905	\$ 3.45
- Farm debt payments	<u>321,156</u>	<u>527</u>	<u>2.08</u>	<u>414,166</u>	<u>439</u>	<u>1.67</u>
Cash available for Farm Investments	\$ 75,680	\$ 124	\$ 0.49	\$ 441,027	\$ 467	\$ 1.78

²⁰Exclude change in interest account payable.²¹Average of 16 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 2011 and 2012.

Table 16.

FARM DEBT PAYMENTS PLANNED 155 New York Dairy Farms, 2012

Debt Payments	155 Dairy Farms			13 Top 10% Farms		
	2012 Payments		Planned 2013	2012 Payments		Planned 2013
	Planned	Made		Planned	Made	
Long term	\$ 89,426	\$ 95,634	\$ 101,067	\$ 91,258	\$ 93,298	\$ 120,378
Intermediate term	195,606	202,605	205,992	279,238	289,989	297,159
Short term	5,152	5,604	1,703	4,489	4,488	3,389
Operating (net reduction)	6,099	22,646	24,102	3,356	10,022	89,323
Accts. payable (net reduction)	337	3,242	1,706	4,015	2,346	2,162
Total	\$296,620	\$329,732	\$334,569	\$382,355	\$400,144	\$512,411
Per cow	\$468	\$521		\$400	\$419	
Per hundredweight 2012 milk	\$1.84	\$2.05		\$1.52	\$1.59	
Percent of 2012 milk receipts	9%	10%		8%	8%	

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 155 New York Dairy Farms, 2012

Item	Average	Item	Average
<u>Cash Flow Coverage Ratio</u>		<u>Debt Coverage Ratio</u>	
Cash farm receipts	\$3,540,501	Net farm income (without appreciation)	\$409,329
- Cash farm expenses	2,990,665	+ Depreciation	232,227
+ Interest paid (cash)	71,703	+ Interest paid (accrual)	71,594
- Net personal withdrawals from farm ²²	214,174	- Net personal withdrawals from farm ²²	214,174
(A) = Amount Available for Debt Service	\$407,366	(A') = Repayment Capacity	\$498,976
(B) = Debt Payments Planned for 2012		(B) = Debt Payments Planned for 2012	
(as of December 31, 2011)	\$296,620	(as of December 31, 2011)	\$296,620
(A/B)= Cash Flow Coverage Ratio for 2012	1.37	(A'/B)= Debt Coverage Ratio for 2012	1.68

13 Top 10% Dairy Farms, 2012			
(A) = Amount Available for Debt Service	\$846,324	(A') = Repayment Capacity	\$1,194,062
(B) = Debt Payments Planned for 2012	382,355	(B) = Debt Payments Planned for 2012	382,355
(A/B)= Cash Flow Coverage Ratio for 2012	2.21	(A'/B)= Debt Coverage Ratio for 2012	3.12

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

Table 18.

DEBT TO ASSET RATIO VS. CASH FLOW COVERAGE 169 New York Dairy Farms, 2012

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%	16.0	14.8	10.1	27.2
40 to 60%	16.0	10.1	1.8	2.4
60% & over	0.6	0.6	0.6	0.0

Cropping Program Analysis

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

Table 19.

LAND RESOURCES AND CROP PRODUCTION 169 New York Dairy Farms, 2012

Item	Average 169 Farms			Average Top 10% Farms ²³		
	<u>Owned</u>	<u>Rented</u>	<u>Total</u>	<u>Owned</u>	<u>Rented</u>	<u>Total</u>
<u>Land</u>						
Tillable	635	554	1,189	977	729	1,705
Nontillable pasture	31	8	39	27	0	27
Other nontillable	<u>154</u>	<u>6</u>	<u>159</u>	<u>129</u>	<u>0</u>	<u>129</u>
Total	820	567	1,387	1,132	729	1,861
<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	163	550	3.0 tn DM	15	807	3.0 tn DM
Corn silage	152	542	16.9 tn	15	807	18.1 tn
			5.8 tn DM			6.2 tn DM
Other forage	29	132	3.0 tn DM	3	180	3.7 tn DM
Total forage	163	1,079	4.3 tn DM	15	1,649	4.6 tn DM
Corn grain	76	202	136 bu	9	255	127 bu
Oats	9	38	55 bu	1	10	85 bu
Wheat	24	116	56 bu	5	130	61 bu
Other crops	35	154		3	118	
Tillable pasture	28	103		1	100	
Idle	28	54		1	9	

²³Average of 16 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 six of the 169 farms produced hay or hay crop silage in 2012. Ninety percent produced corn silage, 45 percent grew and harvested corn grain, and five percent grew oats for grain. Although 28 farms used tillable pasture in 2012, only 18 of the 169 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 163 New York Dairy Farms That Grow Forages, 2012

Item	Average 163 Farms	Average Top 10% Farms ²⁴
Total tillable acres per cow	2.00	1.91
Total forage acres per cow	1.76	1.73
Harvested forage dry matter, tons per cow	7.57	7.99

²⁴Average of 16 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.

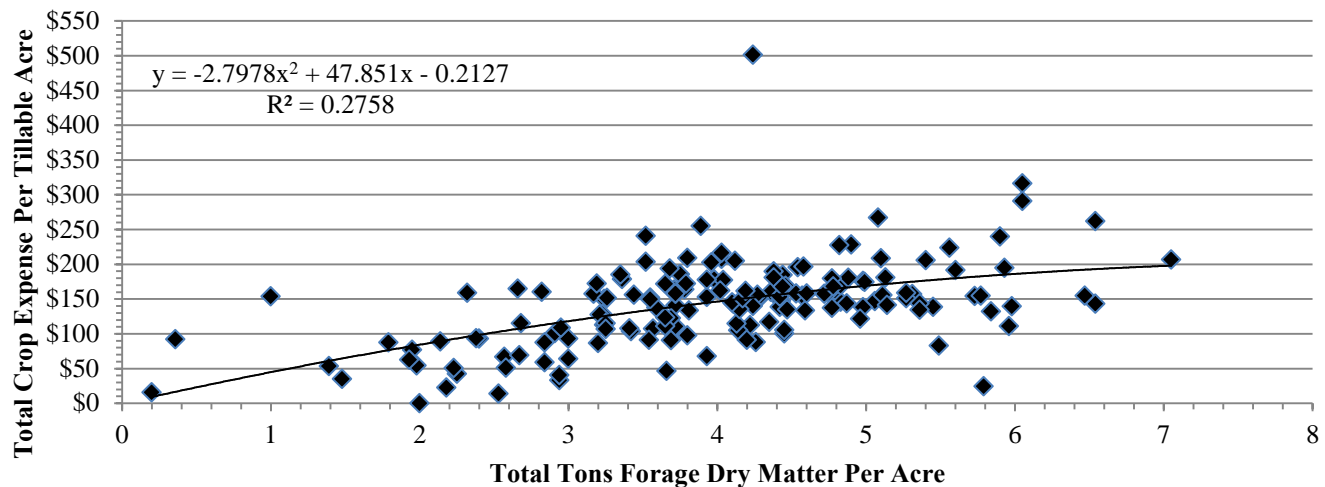
CROP RELATED ACCRUAL EXPENSES
163 New York Dairy Farms That Grow Forages, 2012

Item	Average 163 Farms	Average Top 10% Farms ²⁶
	Total Per Tillable Acre	Total Per Tillable Acre
Number of farm reporting	163	15
Average number of acres	1,226	1,819
Fertilizer and lime expense	\$65.63	\$67.64
Seeds & plants	47.81	51.41
Spray and other crop expense	<u>29.07</u>	<u>30.76</u>
Total	\$142.51	\$149.81

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
163 New York Dairy Farms That Grow Forages, 2012



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
163 New York Dairy Farms That Grow Forages, 2012

Machinery Expense Item	Average 163 Farms		Average Top 10% Farms ²⁶	
	Total Expenses	Per Tillable Acre	Total Expenses	Per Tillable Acre
Fuel, oil & grease	\$132,104	\$107.77	\$194,559	\$106.96
Machinery repairs & vehicle expense	148,404	121.07	209,193	115.00
Machine hire, rent & lease	58,135	47.43	102,641	56.43
Interest (5%)	52,129	42.53	65,582	36.05
Depreciation	<u>135,701</u>	<u>110.71</u>	<u>189,593</u>	<u>104.23</u>
Total	\$526,473	\$429.51	\$761,568	\$418.67

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 2012 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.

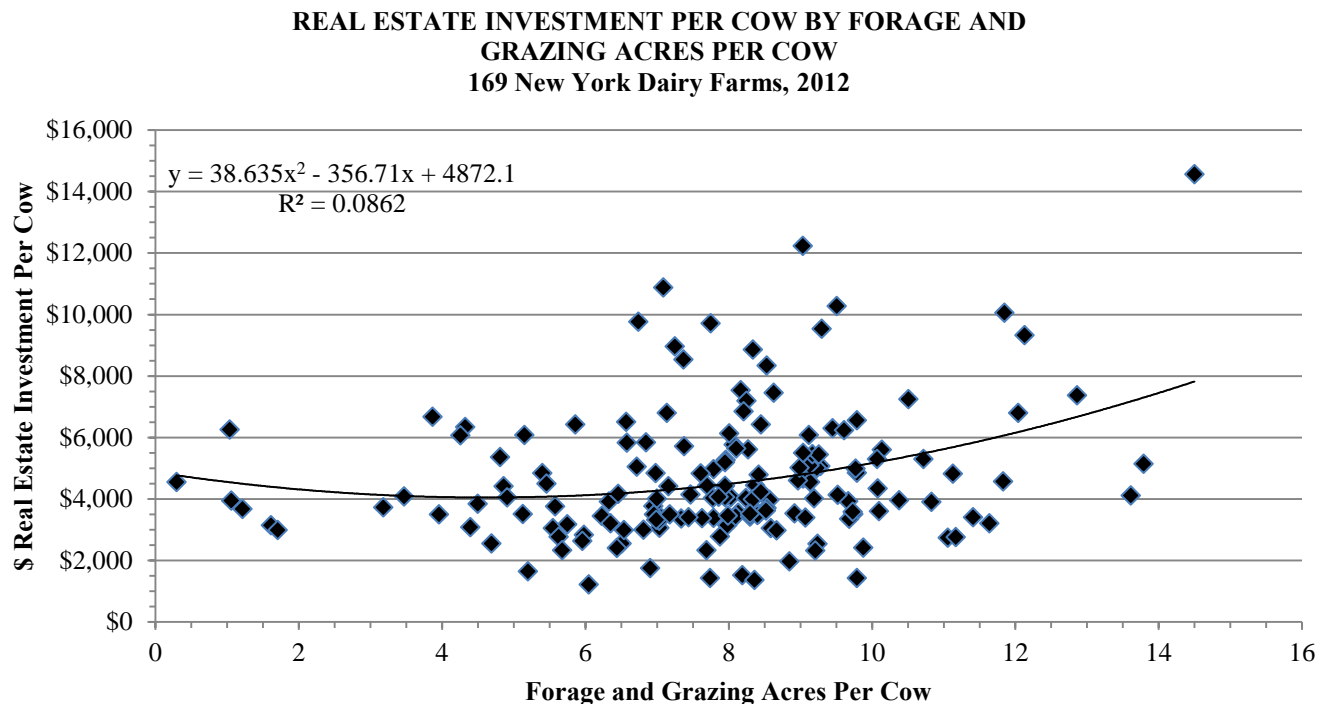
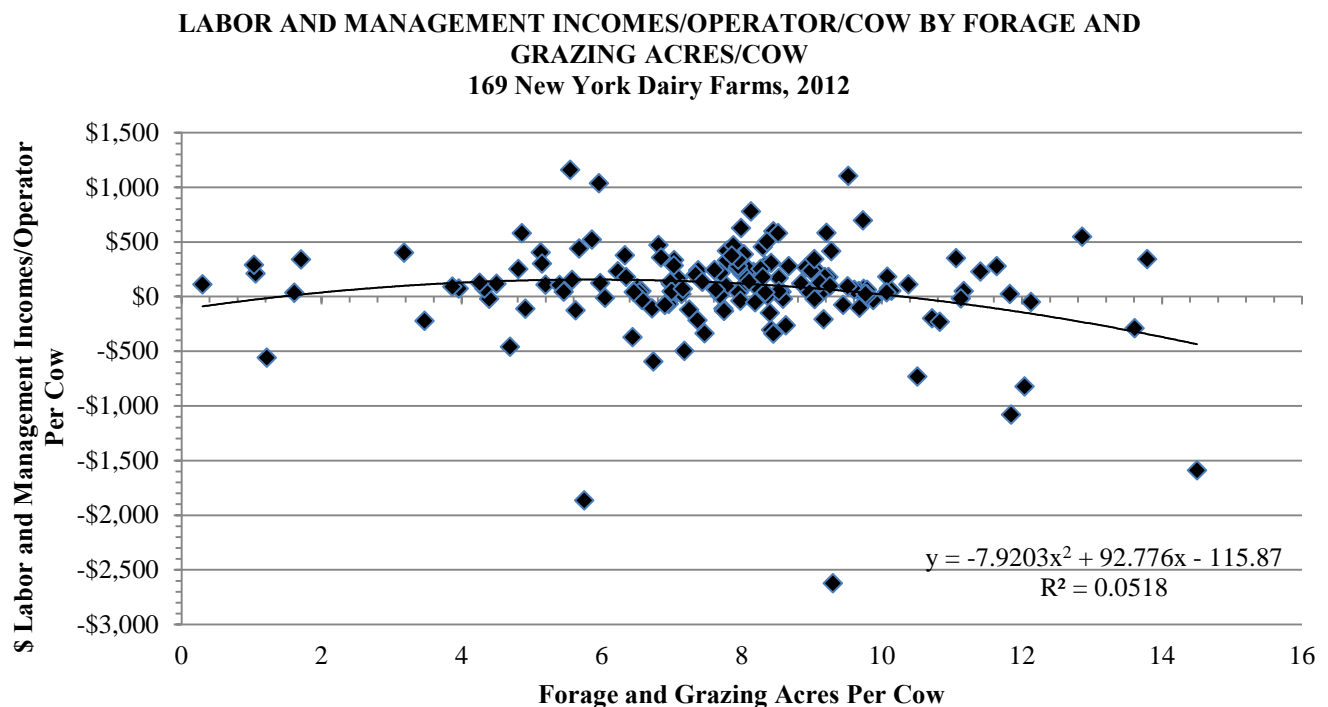


Chart 7.



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 169 New York Dairy Farms, 2012

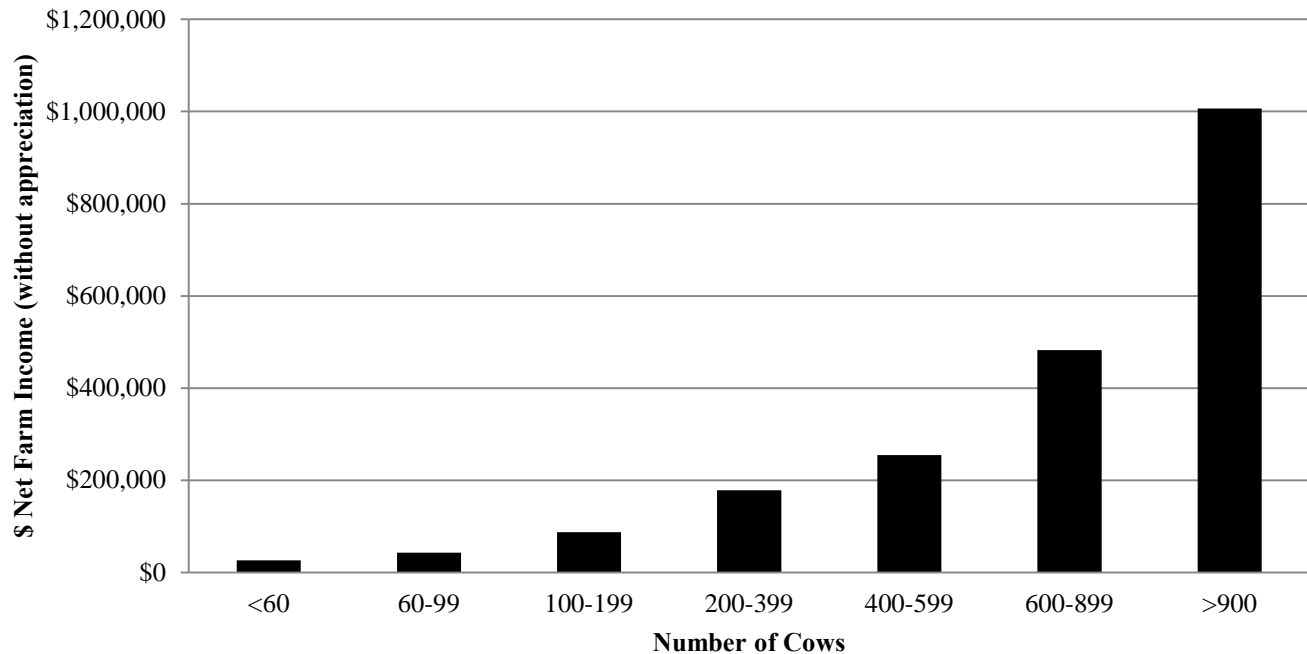
Item	Dairy Cows		Bred		Heifers		Calves	
	No.	Value	No.	Value	No.	Value	No.	Value
Beg. year (owned)	587	\$824,748	193	\$268,346	175	\$151,869	147	\$72,640
+ Change w/o apprec.		34,992		4,182		5,605		3,089
+ Appreciation		<u>7,349</u>		<u>-1,202</u>		<u>1,510</u>		<u>-900</u>
End year (owned)	614	\$867,089	196	\$271,326	182	\$158,983	154	\$74,829
End including leased	640							
Average number	609		522	(all age groups)				
<u>Average Top 10% Farms:</u> ²⁷								
Beg. year (owned)	873	\$1,246,772	313	\$453,447	243	\$224,578	223	\$109,970
+ Change w/o apprec.		100,284		-22,126		20,489		12,385
+ Appreciation		<u>13,919</u>		<u>3,156</u>		<u>0</u>		<u>-3,051</u>
End year (owned)	946	\$1,360,975	297	\$434,477	264	\$245,067	249	\$119,304
End including leased	951							
Average number	945		798	(all age groups)				

²⁷ Average of 16 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 2012, 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 169 New York Dairy Farms, 2012



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
169 New York Dairy Farms, 2012**

Item	Average 169 Farms	Average Top 10% Farms ²⁸
Total milk sold, pounds	15,473,020	24,816,790
Milk sold per cow, pounds	25,401	26,275
	<u>Average 124 Farms</u>	<u>Average 15 Farms</u>
Butterfat per cow, pounds	952	969
Protein per cow, pounds	791	816
Total butterfat and protein per cow, pounds	1,743	1,785
Other solids per cow, pounds	1,496	1,532
Total components per cow, pounds	3,239	3,317

²⁸ Average 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 2012, 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
169 New York Dairy Farms, 2012**

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	12	183	\$-2,681	\$-100	\$-67,365
16,000 to 18,999	15	137	65,861	643	9,501
19,000 to 20,999	10	136	62,517	721	2,528
21,000 to 22,999	19	383	132,548	642	18,771
23,000 to 24,999	40	606	332,071	576	59,077
25,000 to 26,999	44	795	618,438	739	138,334
27,000 & over	29	1,065	816,905	692	218,126

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 169 farms.

Historically, net farm income per cow has increased as pounds of milk sold per cow increased. This relationship held true in 2012 (see Table 25 and Charts 9 and 10). As pounds of milk sold per cow increased, total net farm income increased as did net farm income per cow, with some fluctuation.

Chart 9.

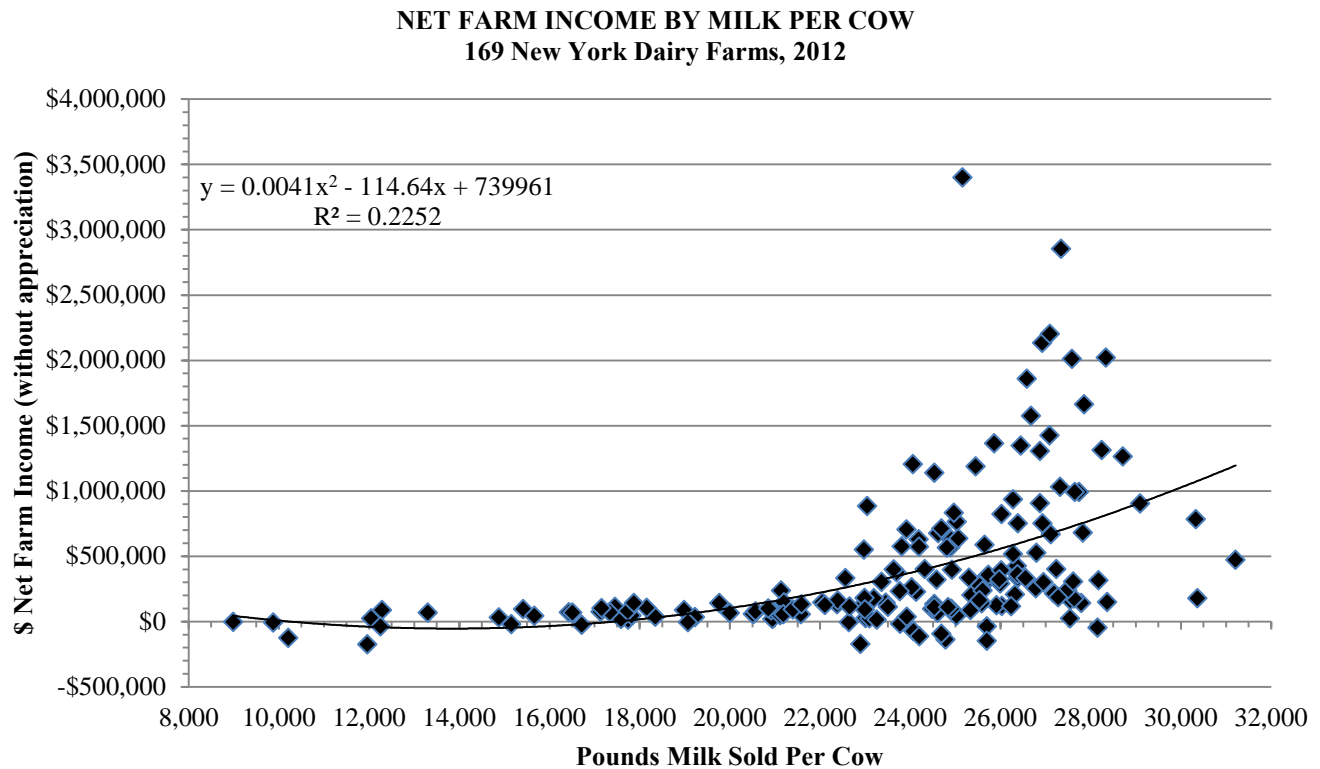
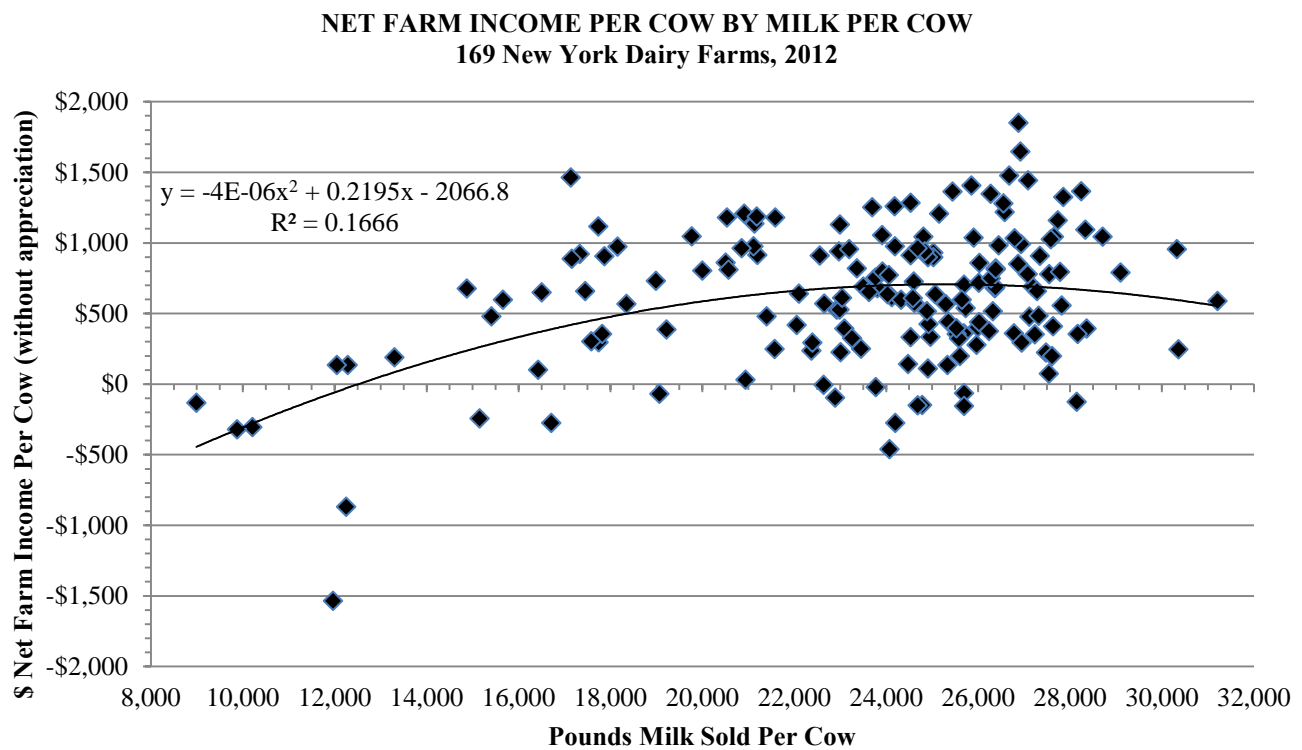


Chart 10.



Charts 11 and 12 show relationships between cull rates and milk production and net farm income per cow. The culling chart (Table 26) reports the decile range of reported factors for the different information that was collected. The average culling rate was 35 percent, sell rate was 29 percent, and death rate was 6 percent. The average number of cows sold for beef equaled 178, 11 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.

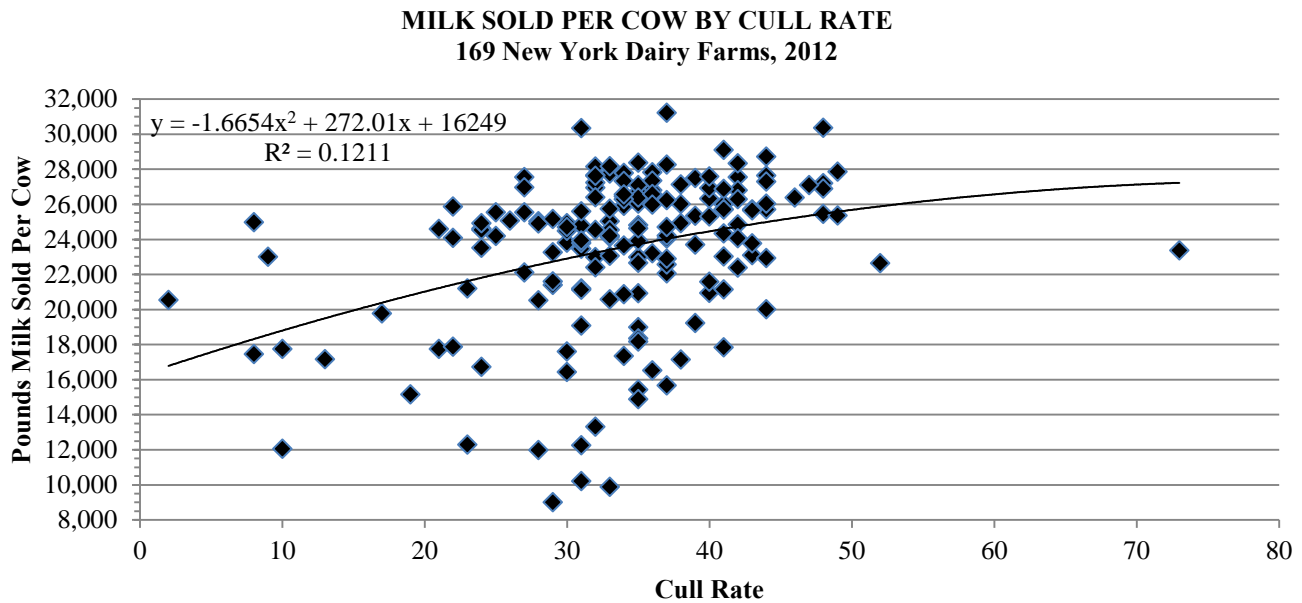


Chart 12.

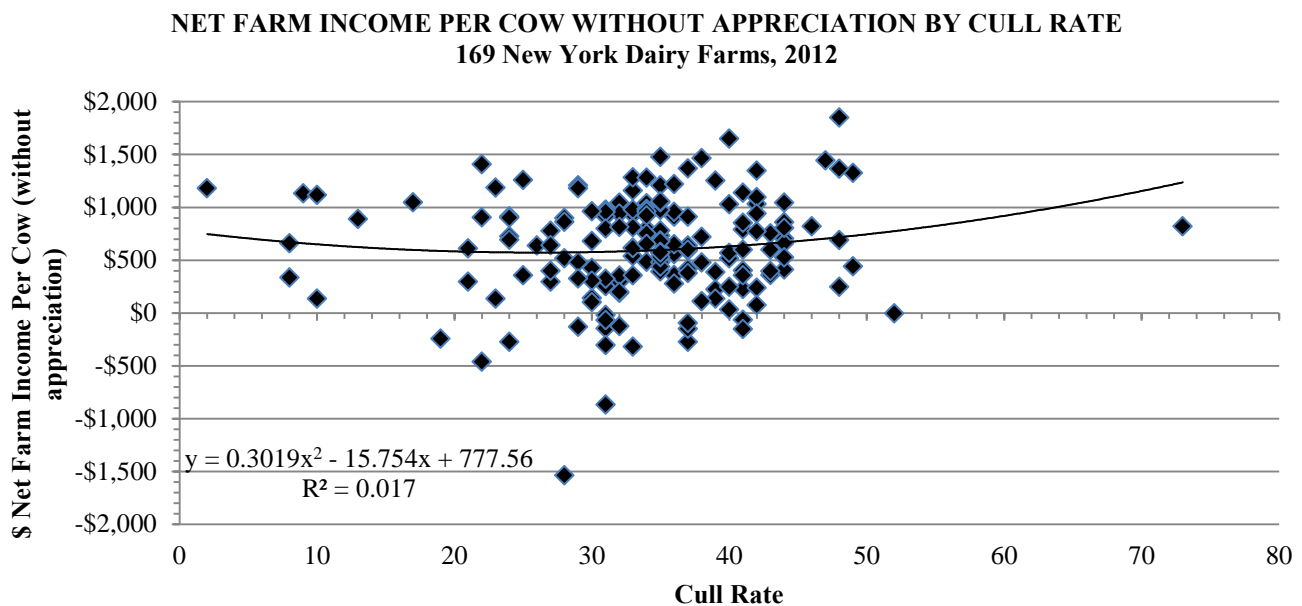


Table 26.

CULLING RATE AND DAIRY REPLACEMENT INFORMATION
New York Dairy Farms, 2012

Decile	Sell Rate	Death Rate	Cull Rate	Value of Cows Sold	Value of Animals Purchased
-----169 Farms ²⁹ -----					
1	11%	1%	15%	\$ 493	\$ 781
2	21	2	26	716	1,187
3	24	3	30	794	1,349
4	26	4	32	860	1,507
5	28	5	34	918	1,588
6	30	5	35	982	1,662
7	32	6	37	1,034	1,789
8	35	7	40	1,108	2,170
9	37	8	42	1,239	3,953
10	44	11	48	1,505	9,110

²⁹169 DFBS farms provided culling information.

Cost of Producing Milk

The cost of producing milk has been compiled below using the whole farm method. The following steps are used in the calculations.

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

Table 27.

COST OF PRODUCING MILK, WHOLE FARM METHOD 169 New York Dairy Farms, 2012

Item	Average 169 Farms	Average Top 10% Farms ³⁰
Total Accrual Operating Expenses	\$3,141,724	\$4,565,522
Expansion Livestock, Accrual	<u>+ 24,641</u>	<u>+ 12,593</u>
1. Total Accrual Operating Expenses, Including Expansion Livestock	\$3,166,365	\$4,578,115
Total Accrual Receipts	\$3,545,769	\$5,767,614
Milk Sales, Accrual	<u>-3,059,578</u>	<u>- 4,953,546</u>
2. Total Accrual Nonmilk Receipts	<u>- \$486,191</u>	<u>-\$ 814,068</u>
3. Operating Cost of Producing Milk	\$2,433,706	\$3,437,391
Machinery Depreciation	+ 133,845	+ 183,642
Building Depreciation	+ 86,993	+ 127,741
Extraordinary Expense	<u>+ 988</u>	<u>+ 2,679</u>
4. Purchased Inputs Cost of Producing Milk	\$2,655,533	\$3,751,454
Family Labor Unpaid (\$2,550/month)	+ 4,395	+ 1,983
Real Interest on Equity Capital	+ 213,891	+ 314,502
Value of Operator's Labor & Management	<u>+ 118,069</u>	<u>+ 143,209</u>
5. Total Costs of Producing Milk	\$2,991,888	\$4,211,148
6. Costs Per Cwt.:		
Cwt. Milk Sold	154,730	248,168
Operating Cost Per Cwt.	\$15.73	\$13.85
Purchased Inputs Cost Per Cwt.	\$17.16	\$15.12
Total Cost Per Cwt.	\$19.34	\$16.97

³⁰ Average of 16 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 \$55,382 average increase in crop inventories per farm, (\$0.36 per hundredweight of milk), is included in crop sales on the 169 Farms. The top 10 percent farms had a \$164,044 average increase in crop inventories per farm (\$0.66 per hundredweight of milk).

Table 28.

**ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT
BASED ON WHOLE FARM DATA
169 New York Dairy Farms, 2012**

Item	Average 169 Farms	Average Top 10% Farms ³²
Dairy grain and concentrate	\$6.83	\$6.24
Dairy roughage	0.46	0.55
Nondairy feed	0.00	0.00
Professional nutritional services	<u>0.00</u>	<u>0.00</u>
Total feed expense	\$7.29	\$6.79
Crop expense	1.23	1.07
- Crop sales and government receipts ³¹	<u>0.87</u>	<u>1.08</u>
Net Feed and Crop Expense	\$8.52	\$6.78
Hired labor	2.72	2.49
Operator's and family labor	<u>0.47</u>	<u>0.30</u>
Total Labor Expense	\$3.19	\$2.79
Machine repairs, fuel and hire	2.15	2.02
Machinery depreciation	0.87	0.74
- Gas tax refunds and custom work	<u>0.09</u>	<u>0.12</u>
Net Machinery Expense	\$2.93	\$2.64
Replacement and expansion cattle purchases	0.21	0.08
- Sales and inventory growth	<u>1.81</u>	<u>1.68</u>
Net Cattle Purchases	\$-1.60	\$-1.60
Milk marketing costs	0.87	0.75
All other livestock expense excluding purchases	<u>2.34</u>	<u>2.11</u>
Net Livestock Expense	\$3.21	\$2.86
Real estate repairs, rent and taxes	0.83	0.79
Building depreciation	<u>0.56</u>	<u>0.51</u>
Total Real Estate Expense	\$1.39	\$1.30
Interest paid	0.44	0.36
Interest on equity	<u>1.38</u>	<u>1.27</u>
Total Interest Expense	\$1.82	\$1.63
Other operating and miscellaneous expenses	0.80	0.80
- Miscellaneous income	<u>0.39</u>	<u>0.45</u>
Net Miscellaneous Expenses	\$ 0.41	\$0.35
Total Cost of Producing Milk	\$19.34	\$16.97
Purchased Inputs Cost of Producing Milk	\$17.16	\$15.12
Total Operating Cost of Producing Milk	\$15.73	\$13.85

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

³²Average of 16 farms with highest rates of return to all capital (without appreciation).

Costs of producing milk per hundredweight are presented in the table below for 155 farms that participated both in 2011 and 2012. Costs of production increased in nearly all expense categories except total real estate expense with total labor expense and net livestock expense staying constant.

Table 29.

**ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT
BASED ON WHOLE FARM DATA
Same 155 New York Dairy Farms, 2011 & 2012**

Item	2011	2012	Percent Change
Dairy grain and concentrate	\$6.17	\$6.83	10.7%
Dairy roughage	0.40	0.46	15.0%
Nondairy feed	0.00	0.00	
Professional nutritional services	<u>0.00</u>	<u>0.00</u>	
Total feed expense	\$6.57	\$7.29	11.0%
Crop expense	1.05	1.23	
- Crop sales and government receipts ³³	<u>0.47</u>	<u>0.86</u>	
Net Feed and Crop Expense	\$7.15	\$7.66	7.1%
Hired labor	2.71	2.73	
Operator's and family labor	<u>0.47</u>	<u>0.45</u>	
Total Labor Expense	\$3.18	\$3.18	0.0%
Machine repairs, fuel and hire	2.14	2.15	
Machinery depreciation	0.83	0.87	
- Gas tax refunds and custom work	<u>0.05</u>	<u>0.08</u>	
Net Machinery Expense	\$2.92	\$2.94	0.7%
Replacement and expansion cattle purchases	0.16	0.22	
- Sales and inventory growth	<u>1.54</u>	1.81	
Net Cattle Purchases	\$-1.38	\$-1.59	-15.2%
Milk marketing costs	0.86	0.87	
All other livestock expense excluding purchases	<u>2.36</u>	<u>2.35</u>	
Net Livestock Expense	\$3.22	\$3.22	0.0%
Real estate repairs, rent and taxes	0.87	0.83	
Building depreciation	<u>0.55</u>	<u>0.57</u>	
Total Real Estate Expense	\$1.42	\$1.40	13.5%
Interest paid	0.47	0.44	
Interest on equity	<u>1.30</u>	<u>1.38</u>	
Total Interest Expense	\$1.77	\$1.82	2.8%
Other operating and miscellaneous expenses	0.82	0.80	
- Miscellaneous income	<u>0.42</u>	<u>0.39</u>	
Net Miscellaneous Expenses	\$0.40	\$0.41	-2.5%
Total Cost of Producing Milk	\$19.01	\$19.40	2.1%
Purchased Inputs Cost	\$16.93	\$17.24	1.8%
Total Operating Cost	\$15.54	\$15.79	1.6%
Average Price Received for Milk	\$21.68	\$19.78	-8.8%

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
169 New York Dairy Farms, 2012**

Item	Average 169 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	\$2,433,706	\$3,995	\$15.73	\$3,437,391	\$3,639	\$13.85
Purchased Inputs Cost	2,655,533	4,359	17.16	3,751,454	3,972	15.12
Total Cost	2,991,888	4,911	19.34	4,211,148	4,459	16.97
<u>Accrual Receipts from Milk</u>						
Net Milk Receipts	\$3,059,578	\$5,023	\$19.77	\$4,953,546	\$5,245	\$19.96
	2,924,361	4,801	18.90	4,766,959	5,047	19.21
<u>Profitability</u>						
Net Farm Income without Appreciation	\$404,045	\$663	\$2.61	\$1,202,092	\$1,273	\$4.84
Net Farm Income with Appreciation	\$582,539	\$956	\$3.76	\$1,435,104	\$1,519	\$5.78

³⁴ Average of 16 farms with highest rates of return to all capital (without appreciation).

The operating cost of producing milk on all 169 dairy farms averaged \$15.73 per hundredweight, leaving \$4.04 to cover depreciation, unpaid labor and operator resources.

The total cost of producing milk on the 169 dairy farms averaged \$19.34 per hundredweight, \$0.43 less than the average price received for milk sold from these farms during 2012. The inputted costs or charge for the operator's labor, management and equity capital averaged \$1.77 per hundredweight in 2012; however, the farm operator received \$2.61 per hundredweight for these inputs. The 16 most profitable farms held their operating costs to \$13.85 per hundredweight and their total cost of producing milk averaged \$16.97 per hundredweight. This left a return of \$2.99 per hundredweight of milk sold.

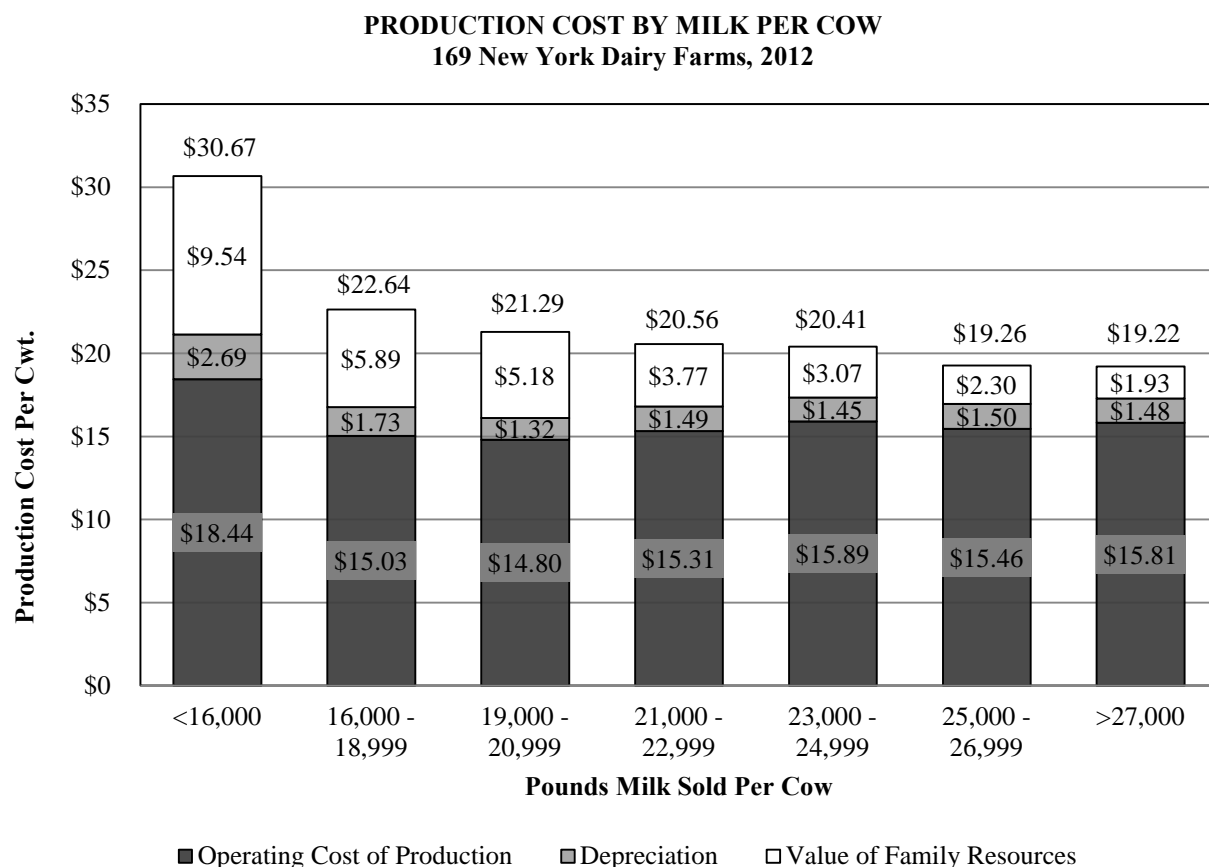
The strong relationship between milk output per cow and the total cost of producing milk is shown in Table 31 and Chart 13 on page 32. Farms selling less than 20,000 pounds of milk per cow had average total costs of production of \$24.08 per hundredweight while those selling 20,000 pounds and over averaged \$19.21 for a difference of \$4.87 per hundredweight.

Table 31.

**FARM COST OF PRODUCING MILK BY MILK SOLD PER COW
169 New York Dairy Farms, 2012**

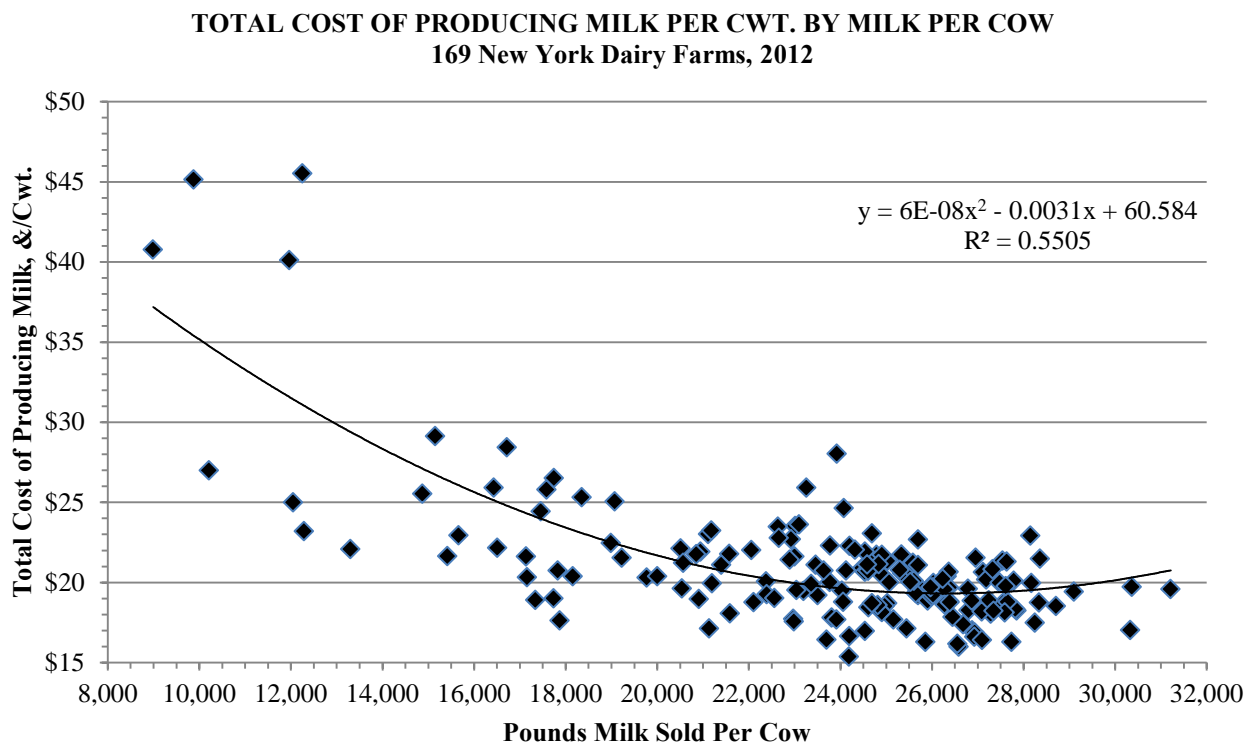
Pounds Milk Sold Per Cow	Costs per Hundredweight					Accrual Receipts From Milk Per Cwt.	Return Per Cwt. To Operator's Labor, Mgmt. & Capital
	Operating Costs		Costs of Producing Milk				
	Hired Labor	Dairy Grain & Concentrate	Total Operating	Purchased Inputs	Total		
Under 16,000	\$2.94	\$5.78	\$18.30	\$20.55	\$25.56	\$20.44	\$0.55
16,000-18,999	1.78	7.46	16.55	18.54	23.28	21.34	3.10
19,000-20,999	2.23	6.95	16.73	17.86	21.57	20.12	2.72
21,000-22,999	2.91	7.08	16.72	18.16	20.72	19.70	2.33
23,000-24,999	2.62	6.71	15.85	17.31	19.59	19.57	3.03
25,000-26,999	2.70	6.89	15.45	16.85	18.93	19.84	3.76
27,000 & over	2.81	6.79	15.60	17.01	18.91	19.76	3.45

Chart 13.



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

Chart 14.



Data in Table 32 and Chart 15 show that the average total cost of production generally declines as herd size increases. This is attributable to spreading fixed costs over more units of output.

Total operating costs are lowest at the Under 60 herd size group and highest at the 400 to 599 herd size group. Hired labor cost increases with herd size, while purchased dairy grain and concentrate are not related to herd size.

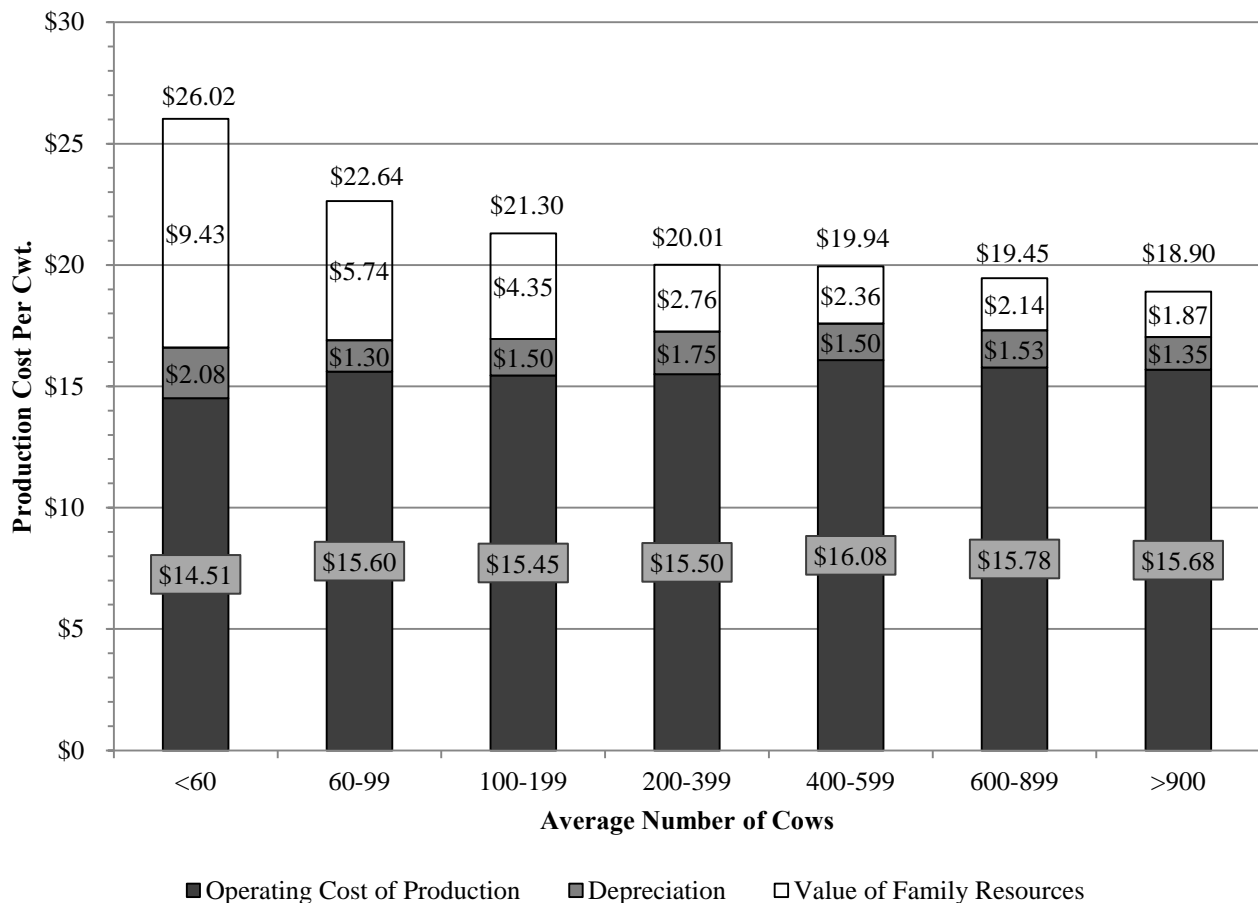
Table 32.

FARM COST OF PRODUCING MILK BY HERD SIZE
169 New York Dairy Farms, 2012

Number of Cows	Costs per Hundredweight					Accrual Receipts From Milk	Return Per Cwt. To Operator's Labor, Mgmt. & Capital
	Operating Costs		Costs of Producing Milk				
	Hired Labor	Dairy Grain & Concentrate	Total Operating	Purchased Inputs	Total		
Under 60	\$1.18	\$6.47	\$14.51	\$16.59	\$26.02	\$19.91	\$3.58
60 to 99	1.77	6.85	15.60	16.90	22.64	19.76	3.16
100 to 199	1.79	6.90	15.45	16.95	21.30	19.88	3.53
200 to 399	2.58	6.81	15.50	17.25	20.01	19.65	3.22
400 to 599	2.64	6.42	16.08	17.58	19.94	19.70	2.89
600 to 899	2.68	7.04	15.78	17.31	19.45	19.86	3.29
900 and over	2.83	6.82	15.68	17.03	18.90	19.76	3.50

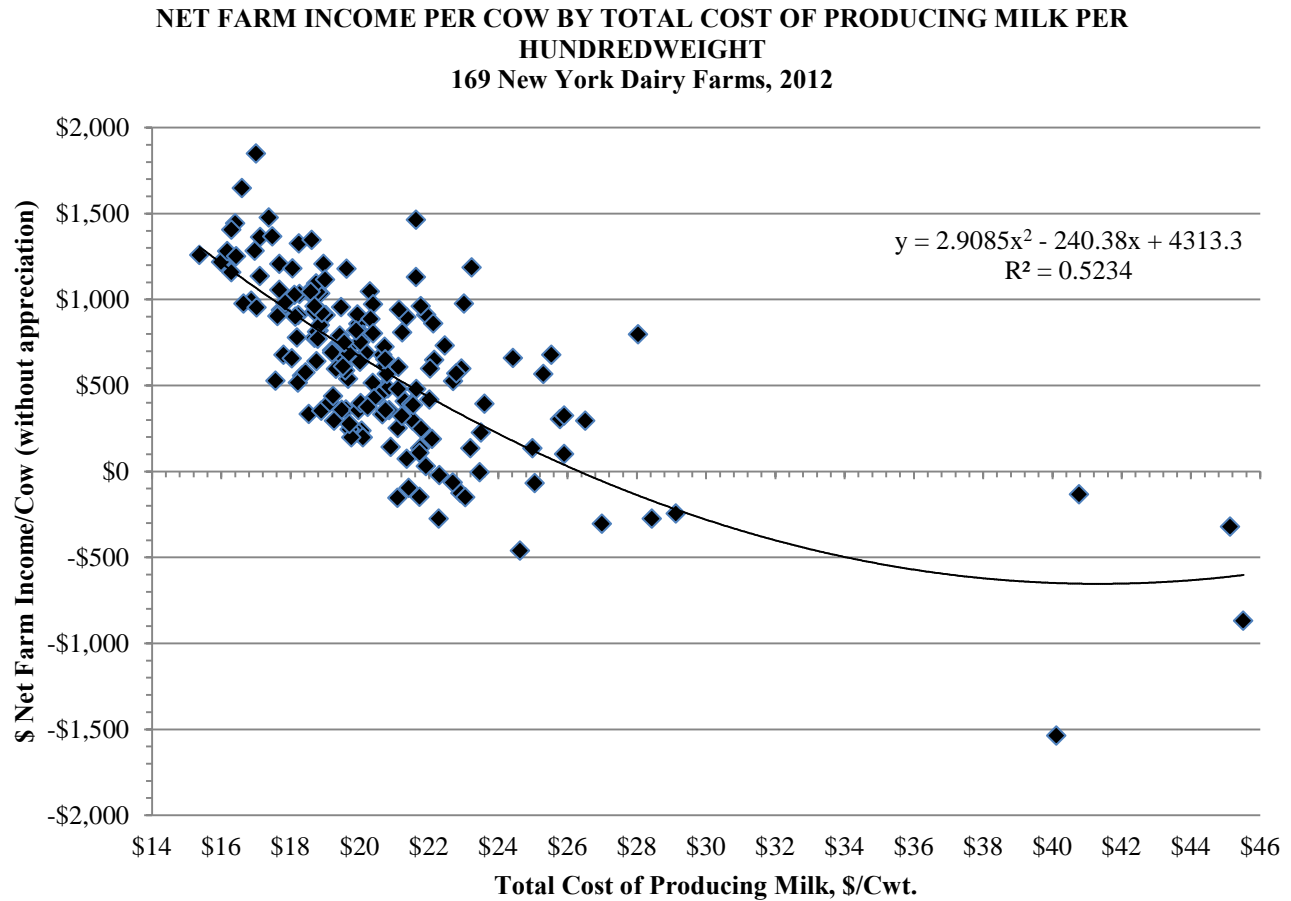
Chart 15.

PRODUCTION COST BY HERD SIZE
169 New York Dairy Farms, 2012



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 \$21 per hundredweight. The majority of the farms experienced positive net farm incomes per cow in 2012.

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 2003 through 2012. In 2012, the average operating cost of producing milk increased 0.5 percent after increasing 13.8 percent from 2010 to 2011. The average return per hundredweight to operator labor, management, and capital was \$1.00 lower in 2012, 28 percent less than 2011. In only four years during the last ten years has milk price exceeded the total cost of producing a hundredweight of milk. Those years were 2004, 2007, 2010 and 2011.

Hired labor expense per hundredweight increased from 2003 to 2004, decreased in 2005 and 2006, increased in 2007 and 2008, decreased in 2009 and 2010, increased five percent in 2011, and decreased one percent in 2012. Hired labor expense was \$2.51 in 2003 and has risen to \$2.72 in 2012. Thus, even as pounds of milk sold per worker have increased from 934,733 in 2003 to 1,138,769 in 2012, labor expense per worker has also increased. Some of this effect is due to increasing farm size where a larger portion of the labor force is comprised of hired workers. Another effect is an increase in hired labor cost per worker as shown by a 15 percent increase in hired labor expense per hired worker equivalent from 2003 to 2012.

Purchased feed expense per hundredweight of milk can fluctuate greatly, as much as \$3.02 per hundredweight. At \$4.27 in 2003, it was at its lowest in the past ten years. In 2012, purchased feed expense was at its highest in the past ten years at \$7.29 per hundredweight of milk.

Interest paid on debt per hundredweight of milk sold has fluctuated over this period. In 2003, interest expense was \$0.56 per hundredweight. In 2012, interest expense was at a ten-year low of \$0.45 per hundredweight. Property taxes per hundredweight of milk were fairly constant during this ten-year period. Property taxes were \$0.21 per hundredweight in 2003 and \$0.23 in 2012.

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 94 percent, tillable acres have increased 80 percent, and milk sold per farm has jumped 121 percent since 2003. Capital investment per cow has increased 52 percent over the last ten years. Labor and management income per operator decreased 59 percent in 2012 compared to 2011, farm net worth increased 19 percent, and percent equity decreased 1 percent in 2012 compared to 2011.

Hay crop yields were 3.2 tons dry matter per acre in 2003 and 3.0 tons dry matter per acre in 2012. 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, decreased to 16.6 tons per acre in 2011, and increased to 16.9 tons per acre in 2012. As yields increased from 2011 to 2012, fertilizer and lime expense increased \$16 per tillable acre, from \$50 to \$66 per acre. Pounds of milk sold per cow increased by 14 percent, from 22,302 pounds in 2003 to 25,401 pounds in 2012.

Average number of workers per farm increased by 6.09 and operators/managers per farm were stable. Cows per worker equivalent increased from 42 in 2003 to 45 in 2012, but labor cost per cow increased from \$738 to \$810 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 56 percent in 2003, was relatively constant over the next three years, increased to 68 percent in 2007 and 2008, decreased to 62 percent in 2009, increased to 65 percent in 2010, increased to 70 percent in 2011, and decreased to 69 percent in 2012.

Table 33.

TEN YEAR COMPARISON: AVERAGE COST OF PRODUCING MILK PER HUNDREDWEIGHT
New York Dairy Farms, 2003 to 2012

Item	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<u>Operating Expenses</u>										
Hired labor	\$2.51	\$2.67	\$2.66	\$2.58	\$2.70	\$2.79	\$2.70	\$2.61	\$2.75	\$2.72
Purchased feed	4.29	4.88	4.37	4.30	5.21	6.17	5.45	5.41	6.53	7.29
Machinery repair, vehicle expense & rent	.91	1.09	1.07	1.04	1.27	1.24	1.07	1.16	1.36	1.31
Fuel, oil & grease	.33	.41	.53	.58	.67	.91	.57	.65	.88	.84
Replacement livestock	.15	.16	.11	.07	.07	.08	.06	.06	.08	.05
Breeding fees	.19	.21	.22	.23	.24	.26	.21	.21	.22	.21
Veterinary & medicine	.56	.59	.62	.65	.65	.68	.63	.63	.67	.65
Milk marketing	.69	.72	.76	.80	.80	.85	.88	.89	.88	.87
Other dairy expenses	1.30	1.27	1.32	1.29	1.41	1.52	1.44	1.45	1.48	1.48
Fertilizer & lime	.26	.30	.34	.31	.40	.47	.41	.37	.45	.55
Seeds & plants	.20	.24	.22	.23	.28	.33	.35	.36	.39	.42
Spray & other crop expense	.19	.20	.19	.19	.25	.26	.20	.21	.25	.27
Land, building & fence repair	.14	.21	.25	.22	.32	.34	.23	.26	.37	.35
Taxes	.21	.22	.23	.21	.23	.21	.22	.22	.23	.23
Insurance	.15	.16	.16	.17	.19	.18	.17	.17	.18	.17
Utilities (farm share)	.34	.36	.39	.41	.44	.43	.38	.41	.42	.37
Interest paid	.56	.57	.65	.78	.83	.54	.51	.53	.48	.45
Misc. (including rent)	.40	.43	.37	.45	.49	.49	.44	.44	.49	.49
Total Operating Expenses	\$13.39	\$14.67	\$14.54	\$14.51	\$16.46	\$17.77	\$15.90	\$16.04	\$18.12	\$18.71
Less: Nonmilk cash receipts	1.57	1.70	1.96	1.94	1.75	1.57	1.89	1.62	2.11	2.47
Increase in grown feed & supplies	.27	.17	.12	.22	.39	.66	-.04	.36	0.17	0.34
Increase in livestock	.09	.22	.21	.27	.30	.33	.34	.30	0.18	0.17
OPERATING COST OF MILK PRODUCTION	\$11.46	\$12.58	\$12.25	\$12.08	\$14.02	\$15.21	\$13.71	\$13.76	\$15.66	\$15.73
<u>Overhead Expenses</u>										
Depreciation: machinery & buildings	\$1.23	\$1.32	\$1.32	\$1.26	\$1.32	\$1.38	\$1.28	\$1.32	\$1.38	\$1.43
Unpaid labor	.10	.07	.06	.07	.07	.04	.05	.04	.04	.03
Operator(s) labor ³⁵	.70	.67	.61	.63	.65	.58	.54	.50	.53	.44
Operator(s) management (5% of cash receipts)	.73	.90	.90	.79	1.07	1.10	.80	.96	1.16	1.10
Interest on farm equity capital (5%)	.85	.92	1.02	1.06	1.20	1.29	1.21	1.15	1.15	1.38
Total Overhead Expenses	\$3.61	\$3.88	\$3.91	\$3.81	\$4.31	\$4.39	\$3.88	\$3.97	\$4.26	+\$4.38
TOTAL COST OF MILK PRODUCTION	\$15.07	\$16.46	\$16.16	\$15.89	\$18.33	\$19.60	\$17.59	\$17.73	\$19.92	\$20.11
AVERAGE FARM PRICE OF MILK	\$13.24	\$16.64	\$15.98	\$13.85	\$20.34	\$19.24	\$13.88	\$17.81	\$21.67	\$19.77
Return per cwt. to operator labor, capital & mgmt.	\$0.45	\$2.67	\$2.35	\$0.44	\$4.93	\$2.61	-\$1.16	\$2.69	\$3.61	\$3.35
Rate of return on farm equity capital	-5.7%	6.0%	4.1%	-4.6%	13.4%	3.6%	-10.3%	5.2%	13.6%	6.48%

³⁵2003 through 2005 = \$2,200/month, 2006 = \$2,300/month, 2007 = \$2,400/month, 2008 through 2010 = \$2,500/month, 2011 = \$2,550/month, and 2012 = \$2,600/month of operator labor.

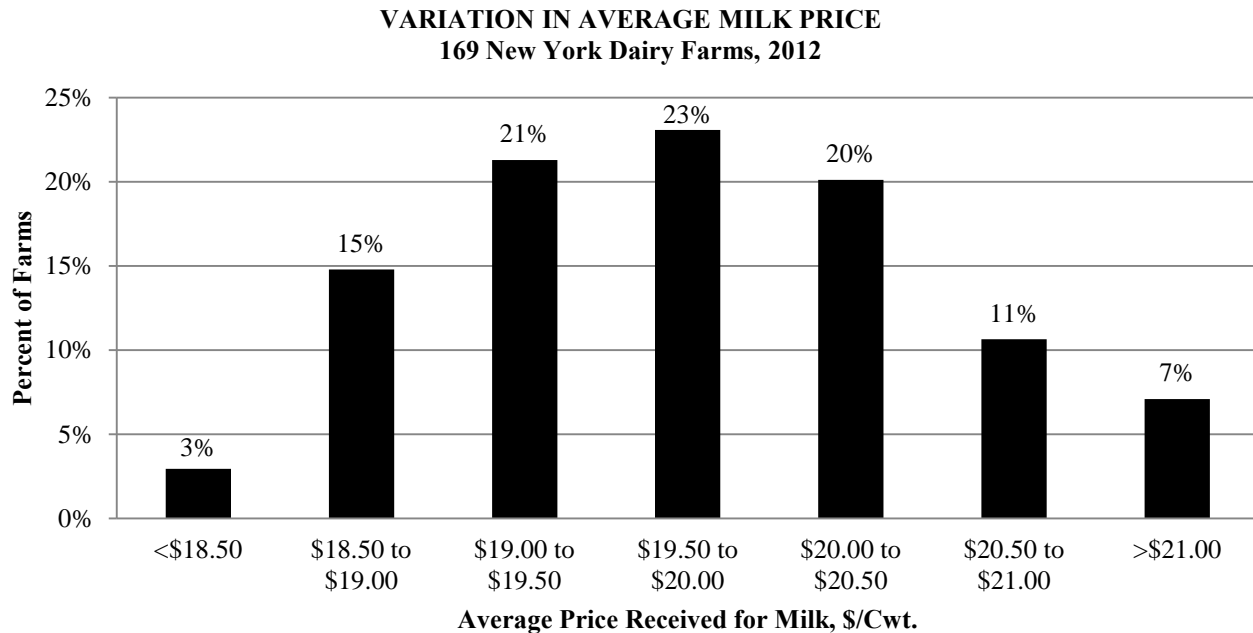
Table 34.

TEN YEAR COMPARISON: SELECTED BUSINESS FACTORS
New York Dairy Farms, 2003 to 2012

Item	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Number of farms	201	200	225	240	250	224	204	204	190	169
<u>Cropping Program</u>										
Total tillable acres	659	701	729	730	758	883	965	987	1,086	1,189
Tillable acres rented	323	345	365	360	385	446	482	493	519	554
Hay crop acres	321	339	361	366	364	421	464	469	477	530
Corn silage acres	233	245	246	249	258	297	348	340	405	488
Hay crop, tons DM/acre	3.2	3.5	3.2	3.2	3.0	3.5	3.4	3.5	3.4	3.0
Corn silage, tons/acre	17.2	17.7	18.8	18.4	18.9	19.9	18.7	19.6	16.6	16.9
Fertilizer & lime exp./tillable acre	\$28	\$31	\$33	\$30	\$40	\$49	\$42	\$43	\$50	\$66
Machinery cost/cow	\$497	\$565	\$624	\$618	\$708	\$800	\$660	\$712	\$839	\$864
<u>Dairy Analysis</u>										
Number of cows	314	334	340	350	358	414	469	489	531	609
Number of heifers	240	260	270	283	289	348	391	415	459	522
Milk sold, cwt.	70,105	73,767	78,250	80,862	82,315	99,884	113,555	119,782	130,898	154,730
Milk sold/cow, lbs.	22,302	22,070	22,998	23,083	22,983	24,115	24,208	24,508	24,648	25,401
Purchased dairy feed/cwt. milk	\$4.27	\$4.86	\$4.37	\$4.29	\$5.20	\$6.16	\$5.45	\$5.39	\$6.52	\$7.29
Purchased grain & concentrate as % of milk receipts	30%	27%	26%	29%	24%	31%	38%	29%	29%	34%
Purchased feed & crop exp/cwt.milk	\$4.92	\$5.60	\$5.12	\$5.02	\$6.13	\$7.23	\$6.41	\$6.32	\$7.62	\$8.52
<u>Capital Efficiency</u>										
Farm capital/cow	\$6,748	\$7,010	\$7,508	\$7,762	\$8,426	\$9,145	\$9,060	\$9,141	\$9,629	\$10,232
Real estate/cow	\$2,722	\$2,809	\$2,950	\$3,030	\$3,356	\$3,606	\$3,713	\$3,857	\$3,951	\$4,193
Machinery investment/cow	\$1,208	\$1,226	\$1,314	\$1,384	\$1,448	\$1,535	\$1,553	\$1,570	\$1,614	\$1,686
Asset turnover ratio	0.54	0.64	0.60	0.52	0.67	0.59	0.44	0.56	0.64	0.60
<u>Labor Efficiency</u>										
Worker equivalent	7.50	7.97	8.18	8.19	8.40	9.75	10.74	10.93	12.13	13.59
Operator/manager equivalent	1.86	1.64	1.60	1.63	1.62	1.72	1.83	1.82	1.88	2.01
Milk sold/worker, lbs.	934,733	925,553	956,698	987,530	980,234	1,024,799	1,057,063	1,095,897	1,079,423	1,138,769
Cows/worker	42	42	42	43	43	42	44	45	44	45
Labor cost/cow	\$738	\$752	\$765	\$757	\$784	\$823	\$794	\$771	\$818	\$810
Hired labor exp./hired worker equiv.	\$32,659	\$33,311	\$33,539	\$34,071	\$34,924	\$36,312	\$35,908	\$35,643	\$37,152	\$37,406
<u>Profitability & Financial Analysis</u>										
Labor & mgmt. income/operator	\$-15,360	\$78,061	\$64,745	\$-31,269	\$189,019	\$75,945	\$-147,313	\$101,484	\$227,028	\$92,417
Farm net worth, end year	\$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	\$4,484,930
Percent equity	56%	60%	63%	62%	68%	68%	62%	65%	70%	69%

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 169 farms was \$19.77 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-four percent of the farms received from \$19 to \$20 per hundredweight of milk sold. Thirty-eight percent of the farms received \$20 or more and 18 percent received less than \$19 per hundredweight. Location and organization of markets are factors contributing to the difference in average milk prices on these dairy farms. Management practices on farms as well as in milk companies also affect farm milk prices. Seasonality of production and milk components are two variables that affect milk price. Additional milk price analysis can be found on pages 40 and 41.

The accrual operating expenses most commonly associated with the dairy enterprise are listed in the table below. Evaluating these costs per unit of production enables the comparison of different size dairy farms for strengths and areas for improvement.

Table 35.

DAIRY RELATED ACCRUAL EXPENSES
169 New York Dairy Farms, 2012

Item	Average 169 Farms		Average Top 10% Farms ³⁶	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	\$1,734	\$6.83	\$1,640	\$6.24
Purchased dairy roughage	118	.46	145	.55
Total Purchased Dairy Feed	\$1,851	\$7.29	\$1,785	\$6.79
Purchased grain & concentrate as % of milk receipts		34%		32%
Purchased feed & crop expense	\$2,163	\$8.52	\$2,066	\$7.86
Purchased feed & crop expense as % of milk receipts		44%		40%
Breeding	\$53	\$.21	\$43	\$.16
Veterinary & medicine	166	.65	159	.60
Milk marketing	222	.87	198	.75
Bedding	105	.41	108	.41
Milking Supplies	89	.35	93	.35
Cattle lease	5	.02	11	.04
Custom boarding	94	.37	72	.27
bST expense	46	.18	39	.15
Other livestock expense	37	.14	28	.11

³⁶Average of 16 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 2012).

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 2012. Farms reporting less than \$8.00 per hundredweight generally showed above average profits. However, reducing feed and crop expenses does not necessarily lead to higher profits particularly when milk output per cow falls below average as can be seen in the farms in the group reporting less than \$7.00 per hundredweight. Net milk income over purchased concentrate per cow shows a similar relationship when compared to rate of return on assets without appreciation (Chart 18).

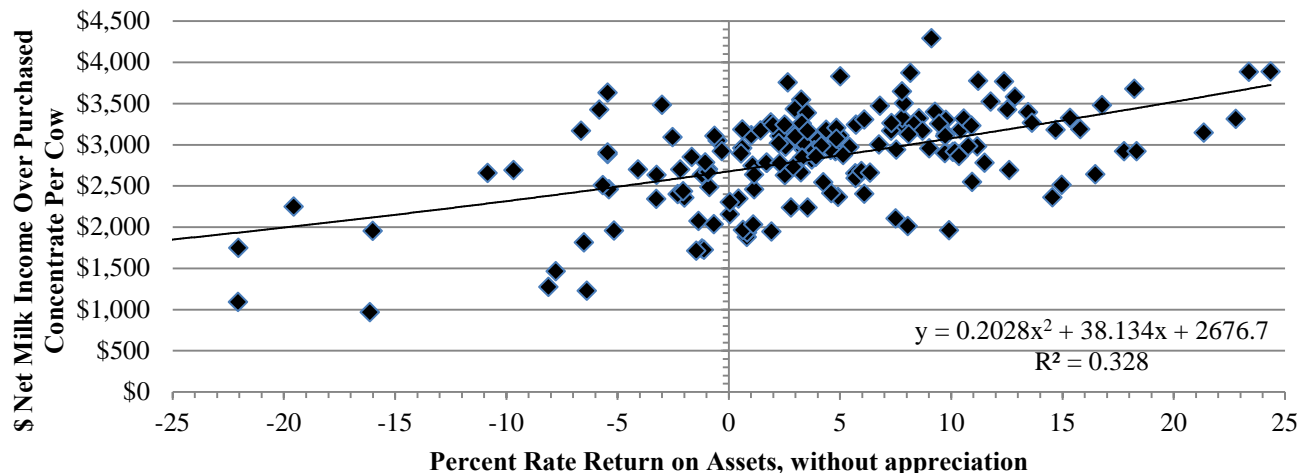
Table 36.

**PURCHASED FEED AND CROP EXPENSE PER HUNDREDWEIGHT
OF MILK AND FARM INCOME MEASURES
169 New York Dairy Farms, 2012**

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	61	545	6.9	22,975	\$251,877	\$23,051	\$42
8.50 to 9.00	27	636	7.4	24,041	392,358	77,033	121
8.00 to 8.49	25	684	8.3	24,294	461,000	99,191	145
7.50 to 7.99	23	731	7.4	24,675	555,840	138,249	189
7.00 to 7.50	17	719	7.0	24,147	658,769	247,286	344
Less than 7.00	16	399	9.4	20,387	426,071	71,386	179

Chart 18.

**NET MILK INCOME OVER PURCHASED CONCENTRATE PER COW BY
RETURN ON ASSETS
169 New York Dairy Farms, 2012**



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, 2012

	Pounds	Percent	Price/Pound	Total	\$/Cwt of Milk
BASE FARM PRICE					
Butterfat	636,591	3.73%	\$1.71	\$1,090,837	\$6.39
Protein	526,760	3.08%	\$3.04	\$1,602,367	\$9.38
Solids	996,070	5.83%	\$0.40	\$400,403	\$2.34
Total Component Contribution					\$18.11
PPD	17,079,177			\$63,413	\$0.37
Base Farm Price					\$18.48
Premiums					
Quality				\$53,401	\$0.31
Volume				\$50,809	\$0.30
Market Premiums				\$97,690	\$0.57
Total Premiums					\$1.18
BASE FARM PRICE + PREMIUM					\$19.67
Deductions					
Promotion				\$25,666	\$0.15
Hauling & Stop Charges.				\$11,620	\$0.65
Market Fees & Coop Dues				\$10,723	\$0.06
Total Deductions					\$0.87
BASE FARM PRICE + PREMIUMS – DEDUCTIONS					\$18.80
Marketing Programs					
Futures Contracts, Forward Contracting, Etc.				\$-8,142	\$-0.05
Total Marketing Income					\$-0.05
Patronage Dividends				\$36,497	\$0.21
NET PRICE RECEIVED ON FARM, ALL SOURCES					\$18.97
PPD – Hauling, per cwt.					\$-0.28
PPD – Hauling + Market Premiums, per cwt.					\$0.29
Net Marketing Value, per cwt. (PPD + Total Premiums - Total Deductions)					\$0.69

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 670 cows.

Table 38.

MILK PRICE INFORMATION BY QUINTILE³⁸
(Each Category Sorted Independently)
124 New York Dairy Farms, 2012

	Lowest Quintile	←————→			Highest Quintile
Butterfat, %	3.57	3.67	3.73	3.81	4.15
Protein, %	2.97	3.05	3.09	3.12	3.25
Other Solids, %	5.69	5.75	5.78	5.81	6.16
Butterfat, \$ per Cwt.	6.11	6.30	6.41	6.56	7.02
Protein, \$ per Cwt.	9.02	9.28	9.40	9.50	9.90
Other solids, \$ per Cwt.	2.21	2.33	2.35	2.35	2.42
Total Component Value per Cwt.	\$17.53	\$17.91	\$18.13	\$18.38	\$19.21
PPD, \$ per Cwt.	0.12	0.22	0.34	0.50	0.85
Base Farm Price per Cwt.	\$17.77	\$18.21	\$18.54	\$18.93	\$19.73
Quality, \$ per Cwt.	0.10	0.21	0.29	0.38	0.55
Volume, \$ per Cwt.	0.00	0.04	0.18	0.34	0.61
Market premium, \$ per Cwt.	0.00	0.21	0.41	0.75	1.22
Total Premium, \$ per Cwt.	0.43	0.77	1.03	1.32	1.73
Base Farm Price + Premiums per Cwt.	\$18.59	\$19.14	\$19.61	\$20.12	\$20.96
Promotion, \$ per Cwt.	0.15	0.15	0.15	0.15	0.15
Hauling, \$ per Cwt.	0.30	0.49	0.65	0.87	1.25
Market fees & coop dues per Cwt.	0.00	0.02	0.06	0.09	0.16
Total Marketing Expenses per Cwt.	\$0.48	\$0.70	\$0.87	\$1.12	\$1.47
Base + Premiums – Deductions per Cwt.	\$17.76	\$18.38	\$18.70	\$19.10	\$19.86
Futures contract, forward contracting, \$ per Cwt.	-0.18	0.00	0.00	0.00	0.03
Total Marketing Income, \$ per Cwt.	\$-0.18	\$0.00	\$0.00	\$0.00	\$0.03
Patronage Dividends, \$ per Cwt.	\$0.00	\$0.00	\$0.00	\$0.16	\$0.93
Net Price Received From All Sources, \$ per Cwt.	\$17.94	\$18.54	\$18.90	\$19.27	\$20.05
PPD - Hauling, \$ per cwt.	-0.67	-0.42	-0.31	-0.18	0.07
PPD - Hauling + Market Premiums, \$ per cwt.	-0.46	-0.10	0.17	0.52	0.95
Net Marketing Value, \$ per cwt. (PPD + Total Premiums - Total Deductions)	-0.25	0.29	0.56	0.80	1.25

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

Capital and Labor Efficiency Analysis

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

Table 39.

CAPITAL EFFICIENCY 169 New York Dairy Farms, 2012				
Item (Average for Year)	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
Farm capital	\$458,656	\$10,232	\$5,242	\$9,814
Real estate		\$4,193		\$4,022
Machinery & equipment	\$75,585	\$1,686	\$864	
<u>Ratios</u>				
Asset Turnover	Operating Expense	Interest Expense		Depreciation Expense
0.60	0.80	0.02		0.06
<u>Average Top 10% Farms:</u> ³⁹				
Farm capital	\$496,881	\$9,906	\$5,486	\$9,579
Real estate		\$4,028		\$3,895
Machinery & equipment	\$69,048	\$1,377	\$762	
<u>Ratios</u>				
Asset Turnover	Operating Expense	Interest Expense		Depreciation Expense
0.64	0.72	0.02		0.05

³⁹Average of 16 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 169 New York Dairy Farms, 2012						
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	36	802	\$8,111	\$370,517	\$139,134	\$458,723
.60 to .69	32	787	9,537	412,640	156,063	545,903
.50 to .59	46	656	10,518	453,107	100,631	505,321
Less than .50	55	340	13,441	486,967	-2,552	201,017

Measures of labor efficiency are key indicators of the work accomplished by an average worker. The 16 farms with the highest rates of return on all capital (without appreciation) were above the average of all 169 farms in all measures of labor efficiency. The top 10 percent averaged five more cows per worker and sold 15 percent more milk per worker than the average of all farms.

Table 41.

LABOR EFFICIENCY 169 New York Dairy Farms, 2012				
Labor Efficiency	Average Farms		Average Top 10% Farms ⁴¹	
	Total	Per Worker ⁴⁰	Total	Per Worker ⁴⁰
Cows, average number	609	45	945	50
Milk sold, pounds	15,473,020	1,138,769	24,816,790	1,318,056
Tillable acres	1,189	88	1,705	91

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

The labor force averaged 13.59 full-time worker equivalents per farm (based on 230 hours per month). Sixteen percent of the labor was supplied by the farm operator/managers. There were two operators on 58 farms, three on 33 farms, and 15 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 \$1,515 per cow and \$5.77 per hundredweight on the 16 farms in the top decile.

Table 42.

**LABOR FORCE INVENTORY AND COST ANALYSIS
169 New York Dairy Farms, 2012**

Labor Force	Months ⁴²	Age	Years of Education	Value of Labor & Management	
Operator number 1	12.7	54	14	\$56,052	
Operator number 2	8.1	48	14	36,693	
Operator number 3	3.8	42	14	17,547	
Operator number 4	1.9	48	15	<u>7,777</u>	
Family paid	2.6			Total \$118,069	
Family unpaid	1.7				
Hired	<u>132.2</u>				
Total	163.1	÷ 12 =	13.59 Worker Equivalent 2.01 Operator/Manager Equivalent		
<u>Average Top 10% Farms:</u> ⁴³					
Total	225.9	÷ 12 =	18.83 Worker Equivalent 2.21 Operator/Manager Equivalent		
	<u>Average 169 Farms</u>			<u>Average Top 10% Farms</u> ⁴³	
Labor Costs	Total	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Value operators' labor (\$2,550/month)	\$68,518	\$112	\$0.44	\$76	\$0.29
Family unpaid (\$2,550/month)	4,368	7	0.03	2	0.01
Hired	<u>420,353</u>	<u>690</u>	<u>2.72</u>	<u>655</u>	<u>2.49</u>
Total Labor	\$493,240	\$810	\$3.19	\$733	\$2.79
Machinery Cost	<u>517,641</u>	<u>850</u>	<u>3.35</u>	<u>783</u>	<u>2.98</u>
Total Labor & Machinery	\$1,010,881	\$1,659	\$6.53	\$1,515	\$5.77
Hired labor expense per hired worker equivalent	\$37,406			\$37,909	
Hired labor expense as % of milk sales	13.7%			12.5%	

⁴²See footnote number 40 in Table 41.

⁴³Average of 16 farms with highest rates of return to all capital (without appreciation).

The relationship of labor efficiency to net farm income and labor and management income per operator is usually positive over the range of efficiency levels. The higher outputs of milk sold per worker are partially attributable to higher producing cows and larger herd size. In 2012, increased labor efficiency did result in larger net farm incomes.

Table 43.

**MILK SOLD PER WORKER AND NET FARM INCOME
169 New York Dairy Farms, 2012**

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	12	58	16,349	\$22,336	\$-15,906
500,000 to 699,999	26	123	19,395	44,174	-17,380
700,000 to 899,999	26	362	23,410	153,215	15,129
900,000 to 1,099,999	33	595	24,443	245,330	30,977
1,100,000 & over	72	972	25,645	760,939	190,537

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 169 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 169 New York Dairy Farms, 2012

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
38.8	1,892	49,665,166	28,592	5.0	24	63	1,531,309
24.7	1,127	30,054,041	27,243	3.7	20	52	1,318,166
19.8	897	23,485,084	26,437	3.4	19	49	1,204,845
16.4	708	18,126,241	25,705	3.1	18	46	1,143,274
13.3	573	13,534,712	24,938	2.9	17	44	1,081,089
9.4	412	10,081,569	24,243	2.6	16	42	992,845
6.5	269	6,058,011	23,270	2.3	15	38	879,393
4.0	149	3,101,862	21,688	2.0	14	34	750,865
2.8	92	1,729,237	18,750	1.7	12	31	606,893
1.8	49	905,580	13,882	0.6	0	23	417,411

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
\$797	23%	\$489	\$1,130	\$1,058	\$6.23
1,150	28	624	1,404	1,559	7.27
1,355	31	706	1,521	1,793	7.64
1,500	32	779	1,613	1,932	8.08
1,613	33	838	1,678	2,026	8.41
1,692	35	908	1,754	2,120	8.73
1,788	37	959	1,852	2,229	9.06
1,873	38	1,035	1,942	2,339	9.52
1,985	40	1,119	2,084	2,468	10.18
2,245	45	1,351	2,592	2,742	11.50

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
169 New York Dairy Farms, 2012**

Milk Receipts Per Cow	Milk Receipts Per Cwt.	Operating Cost Milk Production Per Cow	Operating Cost Milk Production Per Cwt.	Total Cost Milk Production Per Cow	Total Cost Milk Production Per Cwt.
\$5,759	\$21.55	\$2,125	\$12.06	\$3,385	\$16.66
5,393	20.69	2,750	13.28	4,070	17.99
5,227	20.27	3,157	14.18	4,376	18.71
5,055	20.08	3,421	14.77	4,558	19.28
4,924	19.86	3,675	15.36	4,775	19.84
4,799	19.62	3,917	15.96	4,961	20.45
4,540	19.43	4,077	16.41	5,106	21.12
4,259	19.19	4,219	16.95	5,256	21.83
3,757	18.98	4,476	17.92	5,445	23.13
2,769	18.62	4,978	20.78	5,936	30.58

Net Farm Income Without Appreciation			Profitability Net Farm Income With Appreciation		Labor & Management Income	
Total	Per Cow	Operations Ratio	Total	Per Cow	Per Farm	Per Operator
\$1,807,809	\$1,386	0.24	\$2,487,315	\$2,304	\$1,181,869	\$573,326
886,507	1,100	0.21	1,237,868	1,481	511,491	245,759
568,370	947	0.17	797,437	1,206	304,614	144,784
348,335	833	0.15	590,220	1,072	140,219	71,062
235,665	698	0.13	392,856	923	73,424	39,068
146,642	589	0.11	234,808	825	38,075	23,796
105,991	445	0.08	156,704	680	16,294	9,585
70,666	325	0.06	100,114	546	-7,327	-5,009
27,227	154	0.03	57,168	363	-64,605	-40,246
-74,185	-309	-0.11	-117,058	-289	-277,870	-175,959

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 169 New York Dairy Farms, 2012

	Average 169 farms	Average Top 10% Farms ⁴⁴		
<u>How farm assets are being used (average for the year):</u>				
Total assets (capital) per cow	\$10,232	\$9,906		
Farm assets in livestock	22%	23%		
Farm assets in farm real estate	41%	41%		
Farm assets in machinery	16%	14%		
<u>Measures of debt capacity & debt structure:</u>				
Equity in the business	69%	71%		
Farm debt per cow	\$3,171	\$2,998		
Long term debt/asset ratio ⁴⁵	0.30	0.25		
Intermediate & current term debt/asset ratio ⁴⁵	0.32	0.31		
Intermediate & current term debt as % of total debt	60%	64%		
<u>Debt repayment ability:</u> ⁴⁶				
Cash flow coverage ratio	1.37	2.21		
Debt coverage ratio	1.68	3.12		
Debt payments made per cow	\$521	\$419		
Debt payments made as % of milk receipts	10%	7.93%		
<u>Indicators of annual financial progress:</u>	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>
Annual change in farm assets	+\$562,995	+9.5%	+\$1,283,848	+14.7%
Annual change in farm debt	+\$159,133	+8.5%	+\$ 213,401	+ 8.1%
Annual change in farm net worth	+\$403,863	+9.9%	+\$1,070,446	+17.6%

⁴⁴Sixteen 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 155 farms that participated in DFBS both in 2011 and 2012. Thirteen top 10 percent farms that participated both years.

The most profitable farms carried \$173 less debt per cow, the average equity in their businesses was 2 percent higher than that of the average of all 169 farms, and they had a greater ability to make 2013 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 1 percentage point faster than debt during 2012 on the 169 dairy farms. Average farm net worth increased 10 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
169 New York Dairy Farms, 2012

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
\$ 37	\$1,400	19.36	25.95	0%	\$ 184	62%	141.98
205	1,051	2.86	3.24	2	1,291	41	6.77
296	891	2.11	2.44	5	1,853	33	4.38
411	772	1.61	1.99	7	2,462	28	3.16
492	679	1.41	1.58	9	2,996	23	2.55
592	600	1.17	1.35	11	3,436	19	2.06
667	483	1.00	1.10	13	3,947	14	1.67
759	378	0.85	0.77	15	4,470	9	1.32
878	210	0.53	0.32	17	5,109	3	0.98
1,316	-118	-0.31	-0.57	29	6,543	-11	-0.22
Solvency				Operational Ratios			
Leverage Ratio ⁴⁷	Percent Equity	Debt/Asset Ratio		Operating Expense Ratio	Interest Expense Ratio	Depreciation Expense Ratio	
		Current & Intermediate	Long Term			Expense Ratio	Expense Ratio
0.02	98%	0.01	0.00	0.67	0.00	0.02	0.02
0.12	90	0.10	0.00	0.71	0.01	0.04	0.04
0.21	83	0.18	0.06	0.75	0.01	0.05	0.05
0.28	78	0.23	0.14	0.77	0.01	0.05	0.05
0.39	72	0.29	0.22	0.78	0.02	0.06	0.06
0.50	67	0.33	0.33	0.81	0.02	0.06	0.06
0.61	63	0.38	0.40	0.83	0.03	0.07	0.07
0.80	56	0.43	0.51	0.85	0.03	0.09	0.09
0.99	50	0.50	0.60	0.88	0.04	0.09	0.09
1.49	42	0.64	0.77	0.99	0.07	0.14	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	
0.86	\$1,998	\$697	\$6,641	\$1,823,101	28%	20%	
0.74	2,911	1,047	8,039	808,038	15	12	
0.67	3,349	1,330	8,645	544,071	13	10	
0.62	3,552	1,579	9,283	296,500	11	8	
0.58	3,949	1,819	10,115	185,991	9	7	
0.55	4,302	1,956	10,810	113,516	7	6	
0.51	4,864	2,112	11,361	62,170	5	4	
0.45	5,528	2,332	12,501	26,207	2	3	
0.40	6,519	2,688	13,593	-17,545	-1	1	
0.28	9,584	4,233	17,095	-438,730	-14	-6	

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 169 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 2012. Net farm income without appreciation averaged \$26,548 per farm for the less than 60 cow farms and \$1,006,695 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 \$718 net farm income per cow while 60 cows or less dairy farms averaged \$619 net farm income per cow. The over 900 herd size category had the highest net farm income per cow while the 400 to 599 herd size category had the lowest net farm income per cow at \$515. 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 169 New York Dairy Farms, 2012

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	12	43	\$26,548	\$619	\$-9,517	-2.5%
60 to 99	16	77	42,788	553	3,195	-0.2%
100 to 199	26	145	87,695	606	12,416	1.9%
200 to 399	19	307	178,617	582	31,121	4.0%
400 to 599	25	495	254,973	515	39,220	4.1%
600 to 899	31	746	482,727	647	92,785	5.4%
900 & over	40	1,402	1,006,695	718	207,649	6.8%

This year, net farm income per cow showed a positive correlation with herd size, however some size categories varied from the expected relationship slightly. All herd size categories saw an decrease in operating cost of producing milk from a year earlier except for herds in the 400 to 599 and 600 to 899 size categories (Table 48). Net farm income per cow will increase as farms become larger if the costs of increased purchased inputs are offset by greater and more efficient output.

The farms with more than 900 cows averaged more milk sold per cow than any other size category (Table 48). With 26,310 pounds of milk sold per cow, farms in the largest herd size group averaged 16.6 percent more milk output per cow than the average of all herds in the summary with less than 900 cows.

Many dairy farmers who have been willing and able to employ and manage the labor required to milk three times per day have been successful. Only four percent of the 28 DFBS farms with less than 100 cows used a milking frequency greater than two times per day. As herd size increased, the percent of herds using a higher milking frequency increased. Farms with 100 to 199 cows reported 8 percent of the herds milking more often than two times per day, the 200-399 cow herds reported 58 percent, 400-599 cow herds reported 72 percent, 600-899 cow herds reported 84 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
169 New York Dairy Farms, 2012

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	43	18,592	4,032	4.1	7.8	\$15,718	\$14.51	\$26.02
60 to 99	77	19,370	6,321	2.6	7.6	11,037	15.60	22.64
100 to 199	145	20,667	7,517	2.7	8.2	10,338	15.45	21.30
200 to 399	307	24,226	9,494	2.1	7.3	11,041	15.50	20.01
400 to 599	495	24,230	10,400	2.3	7.7	9,781	16.08	19.94
600 to 899	746	25,362	11,340	2.0	7.8	10,588	15.78	19.45
900 & over	1,402	26,310	12,542	1.8	7.5	10,026	15.68	18.90

Milk output per worker has always shown a strong correlation with herd size. The farms with 100 cows or more averaged over 1,155,068 pounds of milk sold per worker while the farms with less than 100 cows averaged less than 544,000 pounds per worker.

In achieving the highest productivity per cow and per worker, the largest farms had the fewest crop acres per cow. The 400 to 599 herd size group had the more efficient use of farm capital with an average investment of \$9,781 per cow.

The 40 farms with 900 or more cows had the lowest total cost of producing milk at \$18.90 per hundredweight. This is \$0.99 below the \$19.89 average for the remaining 129 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 2012. The largest herd size category experienced an increase in net worth of \$900,599. However, percent equity varied as herd size increased. The 200 to 399, 600 to 899, and more than 900 herd size categories had the lowest percent equity at 68 percent; while the less than 60 herd size category averaged the highest percent equity at 83 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, 2012. For analysis of smaller herds, see Dairy Farm Business Summary, New York Small Herd Farms, 120 Cows or Fewer, 2012. Both publications are available from the Dairy Farm Business Summary and Analysis Project, Dyson School of Applied Economics and Management, Cornell University, 240F Warren Hall, Ithaca, New York 14853-7801; phone 607-255-8429. Visit the Charles H. Dyson School of Applied Economics and Management website <http://www.dyson.cornell.edu/outreach/> for a list of all department publications and a publication order form.

Table 49.

PROGRESS OF FARM BUSINESSES WITH LESS THAN 110 COWS
Same 15 New York Dairy Farms, 2008 - 2012

Selected Factors	2008	2009	2010	2011	2012
Milk receipts per cwt. milk	\$19.11	\$13.54	\$17.60	\$21.42	\$19.57
<u>Size of Business</u>					
Average number of cows	55	55	55	55	54
Average number of heifers	44	43	44	45	45
Milk sold, cwt.	10,723	10,497	10,487	10,566	10,216
Worker equivalent	1.95	1.98	1.98	2.00	1.99
Total tillable acres	151	150	155	155	163
<u>Rates of Production</u>					
Milk sold per cow, lbs.	19,594	18,993	19,207	19,352	18,989
Hay DM per acre, tons	2.2	2.6	2.2	2.2	1.9
Corn silage per acre, tons	19	16	15	14	16
<u>Labor Efficiency</u>					
Cows per worker	28	29	28	27	27
Milk sold per worker, lbs.	549,694	543,671	529,434	528,761	512,524
<u>Cost Control</u>					
Grain & concn. purchased as % of milk sales	29%	35%	28%	28%	33%
Dairy feed & crop expense per cwt. milk	\$7.75	\$6.92	\$7.09	\$8.37	\$9.04
Operating cost of producing cwt. milk	\$14.69	\$12.89	\$14.14	\$15.26	\$14.20
Total cost of producing cwt. milk	\$22.22	\$20.85	\$21.78	\$23.42	\$23.24
Hired labor cost per cwt.	\$0.94	\$0.84	\$1.08	\$1.08	\$1.07
Interest paid per cwt.	\$0.54	\$0.64	\$0.67	\$0.67	\$0.56
Labor & machinery costs per cow	\$1,706	\$1,618	\$1,687	\$1,887	\$1,930
Replacement livestock expense	\$520	\$173	\$1,100	\$913	\$550
Expansion livestock expense	\$0	\$80	\$0	\$63	\$0
<u>Capital Efficiency</u>					
Farm capital per cow	\$10,993	\$11,039	\$11,237	\$11,568	\$12,481
Machinery & equipment per cow	\$2,223	\$2,269	\$2,332	\$2,439	\$2,519
Real estate per cow	\$5,115	\$5,191	\$5,330	\$5,448	\$6,062
Livestock investment per cow	\$2,246	\$2,130	\$2,106	\$2,135	\$2,116
Asset turnover ratio	0.38	0.28	0.34	0.42	0.42
<u>Profitability</u>					
Net farm income without appreciation	\$33,040	\$-7,293	\$22,877	\$48,249	\$38,053
Net farm income with appreciation	\$35,194	\$-7,530	\$22,969	\$55,311	\$71,784
Labor & management income per operator/manager	\$-162	\$-36,296	\$-8,708	\$12,735	\$931
Rate return on:					
Equity capital with appreciation	-1.2%	-10.7%	-4.0%	2.2%	4.3%
All capital with appreciation	-0.1%	-7.5%	-2.0%	2.9%	4.3%
All capital without appreciation	-0.4%	-7.5%	-2.0%	1.8%	-0.7%
<u>Financial Summary, End Year</u>					
Farm net worth	\$500,164	\$483,166	\$489,924	\$511,957	\$562,462
Change in net worth with appreciation	\$-2,124	\$-16,543	\$5,244	\$15,410	\$50,470
Debt to asset ratio	0.18	0.21	0.21	0.20	0.20
Farm debt per cow	\$1,979	\$2,248	\$2,322	\$2,351	\$2,559

Table 50.

PROGRESS OF FARM BUSINESSES WITH 110-499 COWS
Same 31 New York Dairy Farms, 2008 - 2012

Selected Factors	2008	2009	2010	2011	2012
Milk receipts per cwt. milk	\$19.39	\$13.75	\$17.68	\$21.55	\$19.70
<u>Size of Business</u>					
Average number of cows	242	250	260	263	266
Average number of heifers	196	207	220	226	222
Milk sold, cwt.	56,056	57,543	60,701	61,546	63,721
Worker equivalent	6.35	6.44	6.45	6.78	6.98
Total tillable acres	471	496	506	521	552
<u>Rates of Production</u>					
Milk sold per cow, lbs.	23,170	23,038	23,373	23,425	23,970
Hay DM per acre, tons	3.3	3.3	3.4	3.6	2.6
Corn silage per acre, tons	19	18	19	16	18
<u>Labor Efficiency</u>					
Cows per worker	38	39	40	39	38
Milk sold per worker, lbs.	882,315	892,940	941,585	907,310	913,566
<u>Cost Control</u>					
Grain & concn. purchased as % of milk sales	31%	39%	28%	29%	35%
Dairy feed & crop expense per cwt. milk	\$7.58	\$6.82	\$6.32	\$7.67	\$8.69
Operating cost of producing cwt. milk	\$15.51	\$13.33	\$13.75	\$15.78	\$15.94
Total cost of producing cwt. milk	\$19.57	\$17.17	\$17.50	\$19.88	\$20.39
Hired labor cost per cwt.	\$2.46	\$2.41	\$2.26	\$2.47	\$2.59
Interest paid per cwt.	\$0.52	\$0.50	\$0.51	\$0.49	\$0.47
Labor & machinery costs per cow	\$1,640	\$1,438	\$1,487	\$1,664	\$1,801
Replacement livestock expense	\$9,870	\$6,700	\$6,645	\$12,880	\$8,631
Expansion livestock expense	\$8,248	\$792	\$7,421	\$551	\$2,124
<u>Capital Efficiency</u>					
Farm capital per cow	\$8,884	\$8,861	\$8,978	\$9,580	\$10,307
Machinery & equipment per cow	\$1,701	\$1,733	\$1,764	\$1,851	\$2,055
Real estate per cow	\$3,366	\$3,484	\$3,637	\$3,817	\$4,111
Livestock investment per cow	\$2,209	\$2,068	\$2,037	\$2,074	\$2,017
Asset turnover ratio	0.59	0.43	0.54	0.60	0.56
<u>Profitability</u>					
Net farm income without appreciation	\$144,065	\$-44,274	\$168,883	\$272,748	\$134,585
Net farm income with appreciation	\$190,914	\$-49,516	\$213,415	\$329,922	\$211,782
Labor & management income per operator/manager	\$34,900	\$-69,404	\$48,545	\$99,623	\$17,559
Rate return on:					
Equity capital with appreciation	7.4%	-8.3%	8.6%	14.1%	6.7%
All capital with appreciation	6.6%	-4.4%	7.1%	11.1%	5.9%
All capital without appreciation	4.5%	-4.2%	5.2%	8.8%	3.1%
<u>Financial Summary, End Year</u>					
Farm net worth	\$1,579,402	\$1,464,814	\$1,632,621	\$1,896,096	\$2,026,994
Change in net worth with appreciation	\$95,987	\$-110,031	\$138,019	\$253,248	\$105,031
Debt to asset ratio	0.29	0.33	0.32	0.28	0.28
Farm debt per cow	\$2,651	\$2,933	\$2,947	\$2,769	\$3,071

Table 51.

PROGRESS OF FARM BUSINESSES WITH MORE THAN 500 COWS
Same 53 New York Dairy Farms, 2008 - 2012

Selected Factors	2008	2009	2010	2011	2012
Milk receipts per cwt. milk	\$19.26	\$13.90	\$17.81	\$21.65	\$19.79
<u>Size of Business</u>					
Average number of cows	958	1,000	1,050	1,078	1,099
Average number of heifers	805	862	897	936	956
Milk sold, cwt.	240,556	251,655	266,084	276,357	288,924
Worker equivalent	20.98	21.81	22.33	23.12	24.11
Total tillable acres	1,813	1,886	1,975	2,033	2,124
<u>Rates of Production</u>					
Milk sold per cow, lbs.	25,121	25,171	25,349	25,627	26,282
Hay DM per acre, tons	3.9	3.6	3.7	3.6	3.1
Corn silage per acre, tons	21	20	20	17	17
<u>Labor Efficiency</u>					
Cows per worker	46	46	47	47	46
Milk sold per worker, lbs.	1,146,870	1,154,115	1,191,689	1,195,533	1,198,563
<u>Cost Control</u>					
Grain & concn. purchased as % of milk sales	30%	37%	28%	28%	35%
Dairy feed & crop expense per cwt. milk	\$7.15	\$6.39	\$6.24	\$7.52	\$8.45
Operating cost of producing cwt. milk	\$15.00	\$13.81	\$13.71	\$15.62	\$15.87
Total cost of producing cwt. milk	\$18.14	\$16.81	\$16.62	\$18.88	\$19.29
Hired labor cost per cwt.	\$2.87	\$2.79	\$2.72	\$2.83	\$2.83
Interest paid per cwt.	\$0.50	\$0.48	\$0.51	\$0.45	\$0.43
Labor & machinery costs per cow	\$1,570	\$1,424	\$1,448	\$1,620	\$1,690
Replacement livestock expense	\$29,834	\$13,305	\$12,153	\$29,022	\$9,758
Expansion livestock expense	\$52,841	\$32,556	\$21,780	\$9,863	\$36,465
<u>Capital Efficiency</u>					
Farm capital per cow	\$8,890	\$8,831	\$9,729	\$9,385	\$10,236
Machinery & equipment per cow	\$1,479	\$1,534	\$1,500	\$1,599	\$1,734
Real estate per cow	\$3,274	\$3,397	\$3,469	\$3,681	\$4,061
Livestock investment per cow	\$2,377	\$2,256	\$2,229	\$2,237	\$2,289
Asset turnover ratio	0.63	0.46	0.61	0.68	0.62
<u>Profitability</u>					
Net farm income without appreciation	\$694,276	\$-300,958	\$743,679	\$1,278,616	\$711,573
Net farm income with appreciation	\$786,100	\$-262,492	\$937,090	\$1,527,724	\$1,102,513
Labor & management income per operator/manager	\$183,097	\$-263,842	\$216,122	\$405,827	\$134,005
Rate return on:					
Equity capital with appreciation	11.2%	-7.2%	13.5%	20.0%	11.8%
All capital with appreciation	9.1%	-3.3%	10.0%	14.6%	9.2%
All capital without appreciation	8.0%	-3.7%	7.9%	12.2%	5.8%
<u>Financial Summary, End Year</u>					
Farm net worth	\$5,946,903	\$5,411,636	\$6,109,786	\$7,389,625	\$8,064,396
Change in net worth with appreciation	\$315,341	\$-528,878	\$674,752	\$1,224,242	\$611,191
Debt to asset ratio	0.33	0.39	0.36	0.31	0.32
Farm debt per cow	\$2,947	\$3,301	\$3,168	\$3,022	\$3,335

Table 52.

FARM BUSINESS SUMMARY BY HERD SIZE
169 New York Dairy Farms, 2012

Item	Farm Size:	Less than 60 Cows	60 to 99 Cows	100 to 199 Cows	200 to 399 Cows
Number of farms		12	16	26	19
<u>ACCRUAL EXPENSES</u>					
Hired labor		\$9,451	26,477	\$53,469	\$191,733
Dairy grain & concentrate		51,605	102,542	206,485	505,703
Dairy roughage		1,179	18,777	10,787	47,953
Nondairy feed		113	0	0	2,528
Professional nutritional services		0	0	154	0
Machine hire, rent & lease		2,213	10,319	14,364	40,609
Machine repairs & farm vehicle expense		9,928	16,627	32,104	75,578
Fuel, oil & grease		10,024	13,573	31,615	65,837
Replacement livestock		1,253	2,179	2,014	12,878
Breeding		2,971	3,355	7,559	16,839
Veterinary & medicine		4,347	6,502	17,149	43,541
Milk marketing		10,624	17,495	30,117	55,755
Bedding		1,345	4,145	10,847	35,952
Milking supplies		3,942	6,551	11,909	30,484
Cattle lease & rent		0	137	1,385	259
Custom boarding		40	1,645	279	8,785
bST expense		399	452	655	7,723
Livestock professional fees		1,348	1,517	2,774	3,905
Other livestock expense		2,819	3,756	6,718	4,766
Fertilizer & lime		4,754	5,708	24,125	43,806
Seeds & plants		3,944	5,285	12,999	32,296
Spray & other crop expense		2,423	2,416	8,844	18,632
Crop professional fees		768	5	768	2,787
Land, building & fence repair		2,376	5,056	10,036	15,721
Taxes & rent		8,108	9,627	20,791	35,930
Utilities		6,314	8,202	13,740	32,189
Interest paid		4,017	10,225	16,225	44,856
Other professional fees		1,292	884	2,133	8,716
Misc. (including insurance)		4,083	6,004	11,325	24,856
Total Operating Expenses		\$150,910	\$289,463	\$561,368	\$1,410,617
Expansion livestock		0	1,284	3,560	3,053
Extraordinary expense		0	0	2,242	3,162
Machinery depreciation		13,951	13,491	30,929	76,320
Building depreciation		2,647	6,041	11,624	50,523
Total Accrual Expenses		\$167,507	\$310,279	\$609,723	\$1,543,675
<u>ACCRUAL RECEIPTS</u>					
Milk sales		\$158,896	\$295,875	\$594,763	\$1,460,464
Dairy cattle		6,483	24,474	44,519	99,250
Dairy calves		1,607	925	3,646	11,701
Other livestock		1,422	1,379	1,557	4,254
Crops		9,605	10,860	21,512	71,211
Miscellaneous receipts		16,043	19,555	31,421	75,412
Total Accrual Receipts		\$194,055	\$353,067	\$697,418	\$1,722,293
<u>PROFITABILITY ANALYSIS</u>					
Net farm income (without appreciation)		\$26,548	\$42,788	\$87,695	\$178,617
Net farm income (with appreciation)		\$38,270	\$82,415	\$103,437	\$283,223
Labor & management income		\$-11,230	\$3,866	\$20,983	\$58,197
Number of operators		1.18	1.21	1.69	1.87
Labor & management income/operator		\$-9,517	\$3,195	\$12,416	\$31,121
Rates of return on: Equity capital w/o apprec.		-3.7%	-1.8%	1.1%	3.9%
Equity capital with appreciation		-1.6%	4.4%	2.6%	8.4%
All capital without appreciation		-2.5%	-0.2%	1.9%	4.0%
All capital with appreciation		-0.7%	4.5%	3.0%	7.1%

*May not add due to rounding.

Table 52. (continued)

FARM BUSINESS SUMMARY BY HERD SIZE
169 New York Dairy Farms, 2012

Item	Farm Size:	400 to 599 Cows	600 to 899 Cows	900 or More Cows
Number of farms		25	31	40
<u>ACCRUAL EXPENSES</u>				
Hired labor		\$317,301	\$507,396	\$1,045,194
Dairy grain & concentrate		770,645	1,332,039	2,516,977
Dairy roughage		54,017	84,238	166,101
Nondairy feed		11	876	0
Professional nutritional services		582	1,115	721
Machine hire, rent & lease		78,035	70,615	105,039
Machine repairs & farm vehicle expense		113,642	172,429	344,843
Fuel, oil & grease		107,000	163,237	293,751
Replacement livestock		11,381	3,921	13,020
Breeding		26,931	41,712	70,893
Veterinary & medicine		73,150	127,737	246,427
Milk marketing		105,563	166,096	320,346
Bedding		42,603	89,282	148,108
Milking supplies		36,143	69,219	127,587
Cattle lease & rent		168	1,375	9,898
Custom boarding		55,691	96,196	126,915
bST expense		14,060	24,785	85,357
Livestock professional services		9,584	10,578	21,756
Other livestock expense		14,260	11,643	28,128
Fertilizer & lime		77,732	114,508	181,829
Seeds & plants		59,535	81,631	144,343
Spray & other crop expense		35,594	49,671	77,389
Crop professional fees		3,791	4,674	8,966
Land, building & fence repair		42,403	57,279	137,962
Taxes & rent		64,442	82,663	171,043
Utilities		48,381	68,157	131,787
Interest paid		50,392	90,630	153,694
Other professional fees		17,219	25,738	44,641
Misc. (including insurance)		37,017	58,709	100,396
Total Operating Expenses		\$2,267,274	\$3,608,146	\$6,823,106
Expansion livestock		7,417	25,156	75,698
Extraordinary expense		1,323	502	0
Machinery depreciation		110,688	167,716	300,399
Building depreciation		67,443	120,845	196,975
Total Accrual Expenses		\$2,454,146	\$3,922,365	\$7,396,179
<u>ACCRUAL RECEIPTS</u>				
Milk sales		\$2,365,347	\$3,758,092	\$7,289,520
Dairy cattle		170,256	292,153	600,081
Dairy calves		21,856	35,631	65,049
Other livestock		6,109	28,021	6,934
Crops		37,783	148,110	194,576
Misc. receipts		107,768	143,085	246,713
Total Accrual Receipts		\$2,709,119	\$4,405,092	\$8,402,874
<u>PROFITABILITY ANALYSIS</u>				
Net farm income (without appreciation)		\$254,973	\$482,727	\$1,006,695
Net farm income (with appreciation)		\$408,659	\$721,405	\$1,400,513
Labor & management income		\$79,225	\$222,683	\$523,276
Number of operators		2.02	2.40	2.52
Labor & management income/operator		\$39,220	\$92,785	\$207,649
Rates of return on: Equity capital w/o apprec.		4.2%	6.2%	8.3%
Equity capital with appreciation		8.6%	10.7%	12.3%
All capital without appreciation		4.1%	5.4%	6.8%
All capital with appreciation		7.2%	8.4%	9.6%

*May not add due to rounding.

Table 53.

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
169 New York Dairy Farms, 2012

Item	Farms with:		60 to 99 Cows	
	Less than 60 Cows		Jan. 1	Dec. 31
	Jan. 1	Dec. 31		
ASSETS				
Farm cash, checking & savings	\$ 8,588	\$ 6,359	\$ 6,936	\$ 8,016
Accounts receivable	12,096	11,759	21,662	24,308
Prepaid expenses	0	0	80	419
Feed & supplies	42,337	47,982	68,243	80,006
Livestock ⁴⁹	103,573	100,377	154,674	165,911
Machinery & equipment ⁴⁹	151,495	153,144	157,774	161,191
Farm Credit stock	562	562	856	856
Other stock & certificates	2,506	2,419	12,566	13,759
Land & buildings ⁴⁹	<u>337,250</u>	<u>368,258</u>	<u>393,381</u>	<u>435,888</u>
Total Farm Assets	\$658,407	\$690,859	\$816,171	\$ 890,353
Nonfarm Assets ⁵⁰	<u>\$160,121</u>	<u>\$164,176</u>	<u>\$150,321</u>	<u>\$ 153,312</u>
Farm & Nonfarm Assets	\$818,528	\$855,035	\$966,492	\$1,043,665
LIABILITIES (excluding deferred taxes)				
Accounts payable	\$7,726	\$8,155	\$10,712	\$17,478
Operating debt	2,786	2,704	4,483	8,004
Short term	0	0	2,981	3,423
Advanced government receipt	0	0	0	0
Current Portion:				
Intermediate	10,454	11,514	16,911	19,541
Long Term	720	1,276	-7,004	-6,230
Intermediate ⁵¹	70,981	53,480	93,087	73,891
Long term ⁴⁹	<u>29,188</u>	<u>43,207</u>	<u>111,962</u>	<u>109,405</u>
Total Farm Liabilities	\$121,856	\$120,336	\$233,132	\$225,512
Nonfarm Liabilities ⁵⁰	<u>3,960</u>	<u>2,476</u>	<u>18,895</u>	<u>16,714</u>
Farm & Nonfarm Liabilities	\$125,816	\$122,812	\$252,027	\$242,226
Farm Net Worth (Equity Capital)	\$536,552	\$570,523	\$583,039	\$664,842
Farm & Nonfarm Net Worth	\$692,713	\$732,223	\$714,465	\$801,439
FINANCIAL MEASURES				
	Less than 60 Cows		60 to 99 Cows	
Percent Equity	83%		75%	
Debt/asset ratio-long term	0.17		0.25	
Debt/asset ratio-intermediate & current	0.12		0.25	
Debt/asset ratio-total	0.24		0.26	
Leverage ratio	0.21		0.34	
Current ratio	2.80		2.67	
Working capital as % of total expenses	25%		23%	
Accounts payable as % of total debt	7%		8%	
Long-term debt as % of total debt	36%		49%	
Cost of term debt (weighted average)	2.92%		7.19%	
Change in net worth with appreciation	\$19,942		\$65,295	
Total farm debt per cow	\$2,756		\$2,880	
Debt payments made per cow	\$466		\$486	
Debt payments as % of milk sales	13%		12%	
Amount available for debt service	\$16,926		\$35,738	
Cash flow coverage ratio for 2012	0.82		1.05	
Debt coverage ratio for 2012	0.86		1.68	

⁴⁹Includes discounted lease payments.⁵⁰Average of farms reporting nonfarm assets and liabilities for 2012.⁵¹Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 53. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
169 New York Dairy Farms, 2012

	Farms with:	100 to 199 Cows		200 to 399 Cows	
Item		Jan. 1	Dec. 31	Jan. 1	Dec. 31
<u>ASSETS</u>					
Farm cash, checking & savings	\$	15,711	\$ 16,934	\$ 21,675	\$ 39,533
Accounts receivable		49,587	55,195	129,259	153,018
Prepaid expenses		658	364	1,188	1,128
Feed & supplies		149,440	161,544	347,075	370,532
Livestock ⁵²		303,196	307,271	637,191	648,534
Machinery & equipment ⁵²		284,252	288,922	647,241	752,025
Farm Credit stock		539	539	526	579
Other stock & certificates		43,004	50,899	86,205	97,417
Land & buildings ⁵²		<u>605,088</u>	<u>660,155</u>	<u>1,363,365</u>	<u>1,477,202</u>
Total Farm Assets		\$1,451,475	\$1,541,825	\$3,233,725	\$3,539,967
Nonfarm Assets ⁵³		<u>\$ 233,210</u>	<u>\$ 243,347</u>	<u>\$ 757,609</u>	<u>\$ 789,693</u>
Farm & Nonfarm Assets		\$1,684,685	\$1,785,172	\$3,991,334	\$4,329,660
<u>LIABILITIES (excluding deferred taxes)</u>					
Accounts payable		\$16,297	\$23,244	\$38,858	\$79,845
Operating debt		24,162	26,800	61,622	74,891
Short term		2,201	1,866	8,373	6,056
Advanced government receipt		0	0	0	0
Current Portion:					
Intermediate		29,227	33,808	88,991	102,719
Long Term		8,924	9,994	10,498	16,522
Intermediate ⁵⁴		162,928	120,733	335,109	348,818
Long term ⁵²		<u>155,870</u>	<u>207,501</u>	<u>486,623</u>	<u>505,979</u>
Total Farm Liabilities		\$399,608	\$423,945	\$1,030,075	\$1,134,830
Nonfarm Liabilities ⁵³		<u>18,155</u>	<u>11,291</u>	<u>12,635</u>	<u>10,912</u>
Farm & Nonfarm Liabilities		\$417,763	\$435,236	\$1,042,710	\$1,145,742
Farm Net Worth (Equity Capital)		\$1,051,868	\$1,117,879	\$2,203,650	\$2,405,137
Farm & Nonfarm Net Worth		\$1,266,923	\$1,349,934	\$2,948,598	\$3,183,918
<u>FINANCIAL MEASURES</u>					
		<u>100 to 199 Cows</u>		<u>200 to 399 Cows</u>	
Percent equity		73%		68%	
Debt/asset ratio-long term		0.27		0.32	
Debt/asset ratio-intermediate & current		0.31		0.34	
Debt/asset ratio-total		0.25		0.30	
Leverage ratio		0.38		0.47	
Current ratio		2.45		2.01	
Working capital as % of total expenses		23%		18%	
Accounts payable as % of total debt		5%		7%	
Long-term debt as % of total debt		49%		45%	
Cost of term debt (weighted average)		5.35%		6.47%	
Change in net worth with appreciation		\$46,892		\$168,063	
Total farm debt per cow		\$1,336		\$3,774	
Debt payments made per cow		\$550		\$616	
Debt payments as % of milk sales		14%		13%	
Amount available for debt service		\$78,243		\$266,940	
Cash flow coverage ratio for 2012		1.27		1.45	
Debt coverage ratio for 2012		1.46		1.45	

⁵²Includes discounted lease payments.⁵³Average of farms reporting nonfarm assets and liabilities for 2012.⁵⁴Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 53. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
169 New York Dairy Farms, 2012

Item	Farms with:		600 to 899 Cows	
	400 to 599 Cows		Jan. 1	Dec. 31
ASSETS				
Farm cash, checking & savings	\$ 58,185	\$ 54,440	\$ 50,651	\$ 69,753
Accounts receivable	208,390	238,864	389,525	395,237
Prepaid expenses	5,566	5,677	9,818	6,208
Feed & supplies	536,034	533,006	881,778	984,456
Livestock ⁵⁵	1,066,556	1,086,299	1,704,721	1,767,843
Machinery & equipment ⁵⁵	851,350	915,953	1,234,114	1,352,483
Farm Credit stock	960	1,000	1,065	1,161
Other stock & certificates	154,745	173,765	213,027	252,678
Land & buildings ⁵⁵	<u>1,793,549</u>	<u>2,008,608</u>	<u>3,056,853</u>	<u>3,432,007</u>
Total Farm Assets	\$4,675,334	\$5,017,612	\$7,541,251	\$8,261,827
Nonfarm Assets ⁵⁶	<u>\$ 294,281</u>	<u>\$ 346,897</u>	<u>\$ 722,874</u>	<u>\$ 702,858</u>
Farm & Nonfarm Assets	\$4,969,615	\$5,364,509	\$8,264,125	\$8,964,685
LIABILITIES (excluding deferred taxes)				
Accounts payable	\$ 51,481	\$84,270	\$59,311	\$79,120
Operating debt	69,421	79,868	119,892	177,860
Short term	19,149	5,410	1914	3,664
Advanced government receipt	0	0	0	0
Current Portion:				
Intermediate	114,855	132,109	197,594	201,723
Long Term	45,439	51,058	78,081	99,140
Intermediate ⁵⁷	464,470	461,800	941,003	900,641
Long term ⁵⁵	<u>578,092</u>	<u>610,194</u>	<u>1,036,185</u>	<u>1,211,335</u>
Total Farm Liabilities	\$1,342,908	\$1,424,709	\$2,433,980	\$2,673,482
Nonfarm Liabilities ⁵⁶	<u>1,553</u>	<u>5,404</u>	<u>0</u>	<u>0</u>
Farm & Nonfarm Liabilities	\$1,344,461	\$1,430,113	\$2,433,980	\$2,673,482
Farm Net Worth (Equity Capital)	\$3,332,426	\$3,592,903	\$5,107,272	\$5,588,344
Farm & Nonfarm Net Worth	\$3,625,154	\$3,934,396	\$5,830,146	\$6,291,202
FINANCIAL MEASURES				
	<u>400 to 599 Cows</u>		<u>600 to 899 Cows</u>	
Percent equity	72%		68%	
Debt/asset ratio-long term	0.28		0.32	
Debt/asset ratio-intermediate & current	0.30		0.35	
Debt/asset ratio-total	0.27		0.30	
Leverage ratio	0.40		0.48	
Current ratio	2.36		2.59	
Working capital as % of total expenses	20%		23%	
Accounts payable as % of total debt	6%		3%	
Long-term debt as % of total debt	43%		45%	
Cost of term debt (weighted average)	3.84%		4.10%	
Change in net worth with appreciation	\$222,428		\$405,523	
Total farm debt per cow	\$2,922		\$3,574	
Debt payments made per cow	\$600		\$561	
Debt payments as % of milk sales	13%		11%	
Amount available for debt service	\$345,822		\$525,113	
Cash flow coverage ratio for 2012	1.51		1.43	
Debt coverage ratio for 2012	1.52		1.77	

⁵⁵Includes discounted lease payments.⁵⁶Average of farms reporting nonfarm assets and liabilities for 2012.⁵⁷Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 53. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
169 New York Dairy Farms, 2012

Item	Farms with:	More than 900 Cows	
		Jan. 1	Dec. 31
<u>ASSETS</u>			
Farm cash, checking & savings		\$ 125,283	\$ 99,861
Accounts receivable		729,941	846,156
Prepaid expenses		19,546	13,988
Feed & supplies		1,655,158	1,790,467
Livestock ⁵⁸		3,042,449	3,216,393
Machinery & equipment ⁵⁸		2,045,804	2,268,635
Farm Credit stock		1,866	1,961
Other stock & certificates		368,247	423,055
Land & buildings ⁵⁸		<u>5,387,353</u>	<u>6,077,815</u>
Total Farm Assets		\$13,375,645	\$14,738,329
Nonfarm Assets ⁵⁹		<u>\$ 395,885</u>	<u>\$ 682,655</u>
Farm & Nonfarm Assets		\$13,771,530	\$15,420,984
<u>LIABILITIES (excluding deferred taxes)</u>			
Accounts payable		\$ 115,508	\$ 154,221
Operating debt		365,849	407,485
Short term		7,456	7,255
Advanced government receipts		0	0
Current Portion:			
Intermediate		372,113	382,152
Long Term		128,550	127,319
Intermediate ⁶⁰		1,878,605	1,942,136
Long term ⁵⁸		<u>1,342,022</u>	<u>1,651,621</u>
Total Farm Liabilities		\$ 4,210,103	\$ 4,672,188
Nonfarm Liabilities ⁵⁹		<u>0</u>	<u>0</u>
Farm & Nonfarm Liabilities		\$ 4,210,103	\$ 4,672,188
Farm Net Worth (Equity Capital)		\$ 9,165,543	\$10,066,142
Farm & Nonfarm Net Worth		\$ 9,561,428	\$10,748,797
<u>FINANCIAL MEASURES</u>		<u>More than 900 Cows</u>	
Percent equity		68%	
Debt/asset ratio-long term		0.32	
Debt/asset ratio-intermediate & current		0.27	
Debt/asset ratio-total		0.35	
Leverage ratio		0.46	
Current ratio		2.55	
Working capital as % of total expenses		23%	
Accounts payable as % of total debt		3%	
Long-term debt as % of total debt		35%	
Cost of term debt (weighted average)		3.88%	
Change in net worth with appreciation		\$805,125	
Total farm debt per cow		\$3,275	
Debt payments made per cow		\$476	
Debt payments as % of milk sales		9%	
Amount available for debt service		\$838,643	
Cash flow coverage ratio for 2012		1.32	
Debt coverage ratio for 2012		1.73	

⁵⁸Includes discounted lease payments.⁵⁹Average of farms reporting nonfarm assets and liabilities for 2012.⁶⁰Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 54.

SELECTED BUSINESS FACTORS BY HERD SIZE
169 New York Dairy Farms, 2012

Item	Farms with:	Less than 60 Cows	60 to 99 Cows	100 to 199 Cows	200 to 399 Cows
Number of farms		12	16	26	19
<u>Cropping Program Analysis</u>					
Total Tillable acres		175	198	388	615
Tillable acres rented ⁶¹		67	78	199	304
Hay crop acres ⁶¹		118	125	223	288
Corn silage acres ⁶¹		24	36	114	207
Hay crop, tons DM/acre		1.9	2.5	2.3	2.7
Corn silage, tons/acre		14	17	17	18
Oats, bushels/acre		0	0	93	62
Forage DM per cow, tons		7.8	7.6	8.2	7.3
Tillable acres/cow		4.1	2.8	2.7	2.1
Fertilizer & lime expense/tillable acre		\$34.42	\$33.52	\$62.32	\$72.19
Total machinery costs		\$43,731	\$66,200	\$123,340	\$297,865
Machinery cost/tillable acre		\$250	\$295	\$318	\$472
<u>Dairy Analysis</u>					
Number of cows		43	77	145	307
Number of heifers		37	63	120	255
Milk sold, pounds		797,978	1,497,500	2,991,936	7,431,010
Milk sold/cow, pounds		18,592	19,370	20,667	24,226
Operating cost of producing milk/cwt.		\$14.51	\$15.60	\$15.45	\$15.50
Total cost of producing milk/cwt.		\$26.02	\$22.64	\$21.30	\$20.01
Price/cwt. milk sold		\$19.91	\$19.76	\$19.88	\$19.65
Purchased dairy feed/cow		\$1,230	\$1,569	\$1,501	\$1,805
Purchased dairy feed/cwt. milk		\$6.61	\$8.10	\$7.26	\$7.45
Purchased grain & concentrate as % of milk receipts		32%	34%	35%	34%
Purchased feed & crop expense/cwt. milk		\$8.01	\$9.00	\$8.82	\$8.76
Cull rate		27%	29%	29%	40%
<u>Capital Efficiency</u>					
Farm capital/worker		\$340,724	\$360,026	\$376,043	\$432,547
Farm capital/cow		\$15,718	\$11,037	\$10,338	\$11,041
Farm capital/tillable acre owned		\$6,242	\$7,107	\$7,914	\$10,918
Real estate/cow		\$8,219	\$5,363	\$4,370	\$4,630
Machinery investment/cow		\$3,549	\$2,063	\$1,980	\$2,281
Asset turnover ratio		0.31	0.46	0.48	0.54
<u>Labor Efficiency</u>					
Worker equivalent		1.98	2.37	3.98	7.83
Operator/manager equivalent		1.18	1.21	1.69	1.87
Milk sold/worker, lbs.		403,189	632,079	751,743	949,448
Cows/worker		22	33	36	39
Labor cost/cow		\$1,372	\$980	\$865	\$857
Labor cost/tillable acre		\$337	\$382	\$323	\$428

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

Table 54. (cont'd)

SELECTED BUSINESS FACTORS BY HERD SIZE
169 New York Dairy Farms, 2012

Item	Farms with:	400 to 599 Cows	600 to 899 Cows	900 or More Cows
Number of farms		25	31	40
<u>Cropping Program Analysis</u>				
Total Tillable acres		1,145	1,469	2,493
Tillable acres rented ⁶²		607	671	1,116
Hay crop acres ⁶²		564	620	1,040
Corn silage acres ⁶²		412	604	1,141
Hay crop, tons DM/acre		2.5	3.1	3.2
Corn silage, tons/acre		16	18	17
Oats, bushels/acre		37	81	0
Forage DM per cow, tons		7.7	7.8	7.6
Tillable acres/cow		2.3	2.0	1.8
Fertilizer & lime exp./tillable acre		\$65.58	\$86.57	\$69.85
Total machinery costs		\$455,449	\$645,539	\$1,166,619
Machinery cost/tillable acre		\$390	\$425	\$457
<u>Dairy Analysis</u>				
Number of cows		495	746	1,402
Number of heifers		431	647	1,199
Milk sold, pounds		12,005,254	18,926,603	36,889,227
Milk sold/cow, pounds		24,230	25,362	26,310
Operating cost of producing milk/cwt.		\$16.08	\$15.78	\$15.68
Total cost of producing milk/cwt.		\$19.94	\$19.45	\$18.90
Price/cwt. milk sold		\$19.70	\$19.86	\$19.76
Purchased dairy feed/cow		\$1,664	\$1,898	\$1,914
Purchased dairy feed/cwt. milk		\$6.87	\$7.48	\$7.27
Purchased grain & concentrate as % of milk receipts		32%	35%	35%
Purchased feed & crop expense/cwt. milk		\$8.34	\$8.81	\$8.39
Cull rate		36%	35%	34%
<u>Capital Efficiency</u>				
Farm capital/worker		\$419,972	\$473,430	\$477,804
Farm capital/cow		\$9,781	\$10,588	\$10,026
Farm capital/tillable acre owned		\$9,004	\$9,896	\$10,205
Real estate/cow		\$3,837	\$4,348	\$4,089
Machinery investment/cow		\$1,783	\$1,733	\$1,539
Asset turnover ratio		0.59	0.59	0.63
<u>Labor Efficiency</u>				
Worker equivalent		11.54	16.69	29.41
Operator/manager equivalent		2.02	2.40	2.52
Milk sold/worker, lbs.		1,040,016	1,134,009	1,254,167
Cows/worker		43	45	48
Labor cost/cow		\$784	\$784	\$808
Labor cost/tillable acre		\$339	\$398	\$455

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 2012, 3 participating farms purchased the majority of their feed, including most forages. On average, only 297 acres of forage were harvested by these farms. Table 55 highlights the income and expenses for these 6 farms compared to the income and expenses for 49 farms of similar size that grew their forages. Table 56 compares selected business factors for the two groups of farms. In 2012, the 3 farms buying forages had, on average, higher pounds of milk sold per worker and dairy calf sales per cow than the similar size farms growing forages. While pounds of milk sold per cow were similar, interest costs per cwt were higher, and operating costs of producing milk were \$1.12 per hundredweight higher 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 43 cows on the small conventional farms to 1,037 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 2012, 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 2012, 18 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 2012, average profitability was lower on intensive grazing farms. Operating costs of producing milk were \$0.59 per hundredweight lower while total costs were \$1.75 higher than the costs of production on the control farms.

Comparison of Data, Same Farms, 2002 - 2012

Follow ten years of growth, change and progress made by 76 New York DFBS farms in Table 64, pages 72 and 73. Milk receipts per hundredweight are higher by \$6.43 in 2012 when compared to 2003. Profitability in 2012 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 27 dairy farms selling less than 19,000 pounds of milk per cow, 29 farms with 19,000 to 22,999 pounds of milk sold per cow, and 113 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 28 farms averaging less than 100 cows per farm, 26 farms with 100 to 200 cows and 115 farms with 200 cows or more.

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

Comparison of Dairy Farm Business Data by Region

Average farm business summary data from five regions of the State are compared in Tables 67 and 68. The Northern New York Region averaged the highest profitability and the largest average farm size whereas the Western and Central Plateau Region had the highest average rate of milk production. Dairy farmers in the Western and Central Plain Region have increased milk production 32.7 percent from 2000-2011 and they produced milk for an average total cost of \$19.45 per hundredweight in 2012. Total milk production has declined 3.7 percent from 2000-2011 in the Western and Central Plateau Region (Figure 2). The Central Valleys Region had the highest return per hundredweight to labor, management and capital with \$3.83 and the Northern New York Region was second at \$3.46.

Comparison of Farms by Milking Frequency

Fifty percent of the 169 DFBS farms utilized three times per day (3X) milking in 2012. 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 2012, the 3X farms averaged 52 more cows per farm, sold just over 400lbs more milk per cow yet showed an average \$413,558 decrease in net farm income, and an increase in total cost of producing milk by \$0.30 compared to the 3X farm averages for 2011. The 2X farms increased milk output per cow six percent, average net farm income decreased by \$100,397, and total production costs decreased by \$0.36 per hundredweight in 2012 compared to 2011.

The 3X farms averaged 33 percent more milk per cow and 52 percent additional milk per worker in 2012 compared with the 2X farms. Similar differences were found in 2011. In 2012, the average total cost of producing milk was 19 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

Twelve dairy renter farms (Table 70) were smaller, on average, and averaged lower labor and management incomes than the average for 169 owned dairy farms. Data for the top 10 percent of farms by rate of return on all capital without appreciation are presented in Table 71. Additional data for the top 10 percent of farms are presented in many of the first 46 tables of this publication. Summary data for the 169 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, 2012**

Item	3 Farms Buying Majority of Forages		11 Similar Size Farms Growing Forages	
Number of cows per farm	260		267	
Pounds of milk sold	6,543,146		6,746,973	
<u>Income</u>	<u>Per Cow</u>	<u>Per Cwt.</u>	<u>Per Cow</u>	<u>Per Cwt.</u>
Milk sold	\$4,854.70	\$ 19.27	\$4,891.14	\$ 19.39
Dairy cattle	306.60	1.22	349.71	1.39
Dairy calves	72.33	0.29	48.71	0.19
Other livestock	1.81	0.01	5.09	0.02
Crops	26.01	0.10	368.87	1.46
Miscellaneous	<u>685.53</u>	<u>2.72</u>	<u>253.46</u>	<u>1.00</u>
Total Accrual Receipts	5,946.97	23.60	5,916.98	23.45
<u>Expenses</u>				
Hired labor	\$ 435.32	\$ 1.73	\$ 637.01	2.53
Dairy grain & concentrate	1,646.59	6.53	1,775.50	7.04
Dairy roughage	907.01	3.60	218.89	0.87
Nondairy	0.00	0.00	16.33	0.06
Professional nutritional services	0.00	0.00	0.00	0.00
Machinery hire, rent/lease	67.12	0.27	143.29	0.57
Machinery repairs/vehicle expense.	180.89	0.72	214.26	0.85
Fuel, oil & grease	183.26	0.73	210.98	0.84
Replacement livestock	0.00	0.00	0.75	0.00
Breeding	46.34	0.18	60.05	0.24
Veterinary & medicine	130.04	0.52	144.14	0.57
Milk marketing	231.59	0.92	186.03	0.74
Bedding	70.94	0.28	127.55	0.51
Milking supplies	88.54	0.35	100.85	0.40
Cattle lease/rent	0.00	0.00	1.67	0.01
Custom boarding	617.71	2.45	55.25	0.22
bST expense	0.00	0.00	37.76	0.15
Livestock professional fees	18.88	0.07	13.61	0.05
Other livestock expenses	12.31	0.05	22.36	0.09
Fertilizer & lime	0.00	0.00	134.55	0.53
Seeds & plants	0.00	0.00	99.64	0.39
Spray, other crop expenses	0.00	0.00	58.99	0.23
Crop professional fees	2.76	0.01	15.10	0.06
Land/bldg/fence repair	51.25	0.20	43.34	0.17
Taxes	70.66	0.28	75.82	0.30
Rent & lease	2.39	0.01	53.19	0.21
Insurance	57.88	0.23	49.96	0.20
Utilities	90.31	0.36	108.56	0.43
Interest paid	143.39	0.57	127.25	0.50
Other professional fees	35.47	0.14	18.56	0.07
Miscellaneous	<u>45.97</u>	<u>0.18</u>	<u>24.82</u>	<u>0.10</u>
Total Operating Expenses	\$5,136.62	\$20.39	\$4,775.57	\$18.93
Expansion livestock	0	0.00	18	0.07
Extraordinary expense	0	0.00	20	0.08
Machinery depreciation	296	1.17	237	0.94
Building depreciation	<u>134</u>	<u>0.53</u>	<u>172</u>	<u>0.68</u>
Total Accrual Expenses	\$5,567	\$22.09	\$5,223	\$20.70
Net Farm Income (without appreciation)	\$381	\$ 1.51	\$695	\$ 2.75

Table 56.

**SELECTED BUSINESS FACTORS FOR FARMS BUYING MAJORITY OF FORAGES
VERSUS SIMILAR SIZE FARMS GROWING FORAGES
New York Dairy Farms, 2012**

Selected Factors	3 Farms Buying Majority of Forages	11 Similar Size Farms Growing Forages
<u>Size of Business</u>		
Average number of cows	260	267
Average number of heifers	219	239
Milk sold, pounds	6,543,146	6,746,973
Worker equivalent	5.41	7.09
Total tillable acres	303	509
Forage acres harvested	297	505
<u>Rates of Production</u>		
Milk sold per cow, lbs.	25,198	25,227
Hay DM per acre, tons	0.0	2.67
Corn silage per acre, tons	0.0	20.19
<u>Labor Efficiency & Costs</u>		
Cows per worker	48	38
Milk sold/worker, pounds	1,209,827	951,059
Hired labor cost/cwt.	\$1.73	\$2.53
Hired labor cost/worker	\$43,200	\$35,013
Hired labor cost as % of milk sales	8.97%	13.02%
<u>Cost Control</u>		
Grain & concentrate purchased as % of milk sales	34%	36%
Grain & concentrate per cwt. milk	\$6.53	\$7.04
Dairy feed & crop expense per cwt. milk	\$10.15	\$9.13
Labor & machinery costs/cow	\$1,600	\$1,804
Total farm operating costs per cwt. sold	\$20.42	\$19.34
Interest costs per cwt. milk	\$0.57	\$0.50
Milk marketing costs per cwt. milk sold	\$0.92	\$0.74
Operating cost of producing cwt. of milk	\$16.05	\$14.93
<u>Capital Efficiency</u> (average for the year)		
Farm capital per cow	\$9,193	\$10,271
Machinery & equipment per cow	\$2,040	\$2,025
Asset turnover ratio	0.67	0.61
<u>Income Generation</u>		
Gross milk sales per cow	\$4,855	\$4,891
Gross milk sales per cwt.	\$19.27	\$19.39
Net milk sales per cwt.	\$18.35	\$18.65
Dairy cattle sales per cow	\$307	\$350
Dairy calf sales per cow	\$72	\$49
<u>Profitability</u>		
Net farm income without appreciation	\$98,914	\$185,781
Net farm income with appreciation	\$157,435	\$281,705
Labor & management income per operator/manager	\$11,802	\$47,010
Rate of return on equity capital without appreciation	-0.34%	5.2%
Rate of return on all capital without appreciation	1.36%	4.9%
<u>Cash flow</u>		
Principal & interest payments per cow, 2012	\$391	\$591
Net cash flow	\$262,616	\$301,445
<u>Financial Summary</u>		
Farm net worth, end year	\$1,409,769	\$1,783,315
Farm net worth change from last year, percent	-4.7%	3.7%
Debt to asset ratio	0.44	0.31
Farm debt per cow	\$4,402	\$3,436

Table 57.

SELECTED BUSINESS FACTORS BY TYPE OF BARN AND HERD SIZE
169 New York Dairy Farms, 2012

Item	Farms with:	Tiestall/Stanchion		Freestall		
		<60 Cows	>=60 Cows	<=200 Cows	201-500 Cows	>=500 Cows
Number of farms		11	10	31	26	81
<u>Cropping Program Analysis</u>						
Total Tillable acres		174	242	334	722	1,962
Tillable acres rented ⁶³		68	113	164	357	909
Hay crop acres ⁶³		117	154	197	352	840
Corn silage acres ⁶³		21	47	96	260	855
Hay crop, tons DM/acre		1.9	2.2	2.4	2.7	3.1
Corn silage, tons/acre		13.8	17.7	16.7	16.8	16.9
Oats, bushels/acre		0	0	93	62	42
Forage DM per cow, tons		7.4	7.6	8.5	7.4	7.7
Tillable acres/cow		4.1	2.89	2.8	2.1	1.9
Fertilizer & lime expense/tillable acre		\$34.76	\$35.23	\$56.88	\$66.89	\$74.97
Total machinery costs		\$42,279	\$70,079	\$115,352	\$338,321	\$887,623
Machinery cost/tillable acre		\$243	\$290	\$324	\$454	\$442
<u>Dairy Analysis</u>						
Number of cows		43	84	125	359	1,037
Number of heifers		36	72	103	294	894
Milk sold, lbs.		772,658	1,529,326	2,665,505	8,975,562	26,950,796
Milk sold/cow, lbs.		18,082	18,272	21,314	25,028	25,999
Operating cost of producing milk/cwt.		\$14.28	\$16.38	\$15.34	\$15.72	\$15.69
Total cost of producing milk/cwt.		\$25.76	\$23.33	\$21.43	\$19.77	\$19.09
Price/cwt. milk sold		\$19.64	\$19.76	\$19.89	\$19.74	\$19.75
Purchased dairy feed/cow		\$1,205	\$1,344	\$1,566	\$1,870	\$1,883
Purchased dairy feed/cwt. milk		\$6.66	\$7.36	\$7.35	\$7.47	\$7.24
Purchased grain & concentrate as % of milk receipts		32%	34%	34%	34%	35%
Purchased feed & crop expense/cwt. milk		\$8.00	\$8.43	\$8.82	\$8.68	\$8.46
<u>Capital Efficiency</u>						
Farm capital/worker		\$349,437	\$337,519	\$382,523	\$415,462	\$472,171
Farm capital/cow		\$15,292	\$10,525	\$10,920	\$10,067	\$10,240
Farm capital/tillable acre owned		\$6,186	\$6,850	\$8,022	\$9,875	\$10,078
Real estate/cow		\$8,113	\$4,585	\$4,769	\$4,121	\$4,173
Machinery investment/cow		\$3,331	\$2,274	\$2,091	\$1,903	\$1,646
Asset turnover ratio		0.31	0.44	0.47	0.61	0.61
<u>Labor Efficiency</u>						
Worker equivalent		1.87	2.61	3.57	8.69	22.47
Operator/manager equivalent		1.11	1.11	1.63	1.89	2.45
Milk sold/worker, lbs.		413,554	585,762	747,687	1,033,158	1,199,234
Cows/worker		23	32	35	41	46
Labor cost/cow		\$1,293	\$973	\$904	\$840	\$802
Labor cost/tillable acre		\$317	\$336	\$338	\$417	\$424
<u>Profitability & Balance Sheet Analysis</u>						
Net farm income (without appreciation)		\$25,701	\$31,230	\$81,426	\$214,791	\$713,932
Labor & management income/operator		\$-10,666	\$-11,853	\$12,581	\$45,823	\$143,693
Rate return on all capital with appreciation		-0.6%	3.5%	3.2%	7.8%	9.21%
Farm debt/cow		\$2,858	\$2,178	\$1,415	\$3,375	\$3,355
Percent equity		81%	81%	73%	68%	68%

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

Table 58.

FARM BUSINESS CHART FOR SMALL TIESTALL/STANCHION DAIRY FARMS
11 Tiestall/Stanchion Dairy Farms with 60 or Less Cows, New York, 2012

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
2.44	51	1,099,397	24,144	2.4	19	32	617,082
2.22	48	1,004,574	21,149	2.0	15	29	504,290
1.91	46	905,298	19,145	1.8	15	24	457,492
1.63	43	707,410	16,007	1.7	11	20	392,546
1.39	33	355,292	10,373	1.5	2	18	205,593
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		
\$486	21%	\$557	\$1,495	\$726	\$5.80		
1,088	29	698	2,333	1,279	7.25		
1,164	33	1,125	2,438	1,452	8.08		
1,362	36	1,326	2,720	1,722	8.83		
1,816	49	1,507	3,017	2,094	10.78		
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			
\$1,928	\$11.53	\$20.87	\$66,660	\$1,325	\$28,505	\$54,159	
3,171	13.65	23.13	51,276	1,077	9,862	41,314	
3,759	14.71	25.73	35,876	787	4,972	3,580	
4,194	16.32	33.65	12,848	310	-16,891	-7,691	
4,804	19.28	45.33	-16,869	-441	-63,225	-22,395	

Table 59.

FARM BUSINESS CHART FOR LARGE TIESTALL/STANCHION DAIRY FARMS
10 Tiestall/Stanchion Dairy Farms with 60 or More Cows, New York, 2012

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
3.60	115	2,118,482	22,760	3.2	20	48	907,797
3.25	94	1,703,704	19,869	2.8	18	37	662,395
2.75	77	1,409,589	18,711	2.5	16	35	591,694
2.03	70	1,297,735	17,449	1.8	15	27	522,236
1.44	64	1,117,122	13,815	1.2	0	25	438,954
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	
\$893	24%		\$490	\$1,311	\$1,105	\$5.78	
1,050	28		629	1,509	1,286	7.29	
1,130	35		881	1,735	1,383	8.34	
1,402	39		926	1,985	1,913	10.19	
1,685	45		1,154	2,346	2,249	11.63	
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			
\$2,812	\$11.85	\$18.99	\$92,631	\$1,161	\$42,362	\$241,259	
3,471	13.80	20.52	72,361	874	23,395	70,699	
3,648	15.49	21.84	49,277	661	7,785	44,158	
3,794	16.11	24.00	33,562	476	630	10,392	
4,535	25.27	32.72	-91,678	-803	-141,907	-114,271	

Table 60.

FARM BUSINESS CHART FOR SMALL FREESTALL DAIRY FARMS
31 Freestall Barn Dairy Farms with 200 Cows or Less, New York, 2012

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
6.70	197	4,579,557	26,576	5.0	23	55	1,109,123
5.08	184	4,078,702	24,483	3.4	20	48	1,030,125
4.33	164	3,591,053	23,541	2.9	20	42	939,403
3.72	144	3,025,756	23,035	2.7	18	38	843,602
3.47	123	2,824,879	22,119	2.3	17	37	726,613
<hr/>							
3.12	115	2,400,226	21,152	2.1	16	34	686,522
2.82	106	2,134,466	20,115	1.9	15	33	659,247
2.72	97	1,816,223	18,325	1.7	13	31	633,156
2.50	82	1,513,547	17,460	1.4	8	29	583,881
1.80	60	1,184,361	15,949	0.3	0	23	482,718
<hr/>							
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		
\$809	23%	\$548	\$1,265	\$1,032	\$6.16		
1,077	29	657	1,498	1,504	7.17		
1,202	31	686	1,549	1,673	7.74		
1,398	32	768	1,630	1,889	8.35		
1,461	33	807	1,729	1,960	8.67		
<hr/>							
1,601	35	861	1,806	1,993	9.37		
1,679	37	945	1,890	2,050	9.74		
1,773	40	1,016	1,979	2,201	10.03		
1,815	42	1,191	2,246	2,345	10.65		
1,994	46	1,481	2,800	2,495	12.57		
<hr/>							
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			
\$5,357	\$12.62	\$18.65	\$154,167	\$1,119	\$66,076	\$172,727	
4,947	13.34	19.54	131,616	990	44,769	127,157	
4,691	13.62	20.12	118,231	939	34,460	102,706	
4,504	14.05	20.51	110,788	894	27,002	85,266	
4,365	14.79	21.16	104,002	803	16,473	61,640	
<hr/>							
4,138	15.29	21.68	91,937	739	8,921	47,813	
3,977	15.91	22.18	78,203	649	6,850	32,438	
3,836	16.32	23.30	58,821	509	1,561	19,590	
3,527	17.21	24.95	28,003	350	-18,889	11,057	
3,134	21.62	28.54	-25,774	-189	-58,275	-51,177	

Table 61.

FARM BUSINESS CHART FOR MEDIUM FREESTALL DAIRY FARMS
26 Freestall Barn Dairy Farms with 201-500 Cows, New York, 2012

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
13.87	495	12,329,374	27,998	3.9	24	64	1,564,831
12.67	442	11,692,326	27,415	3.6	23	54	1,343,334
11.13	420	10,805,436	26,872	3.5	21	50	1,271,722
9.33	410	10,623,697	26,355	3.4	20	49	1,205,301
8.82	404	10,150,046	25,840	3.3	18	48	1,151,950
8.38	371	9,093,718	25,142	2.9	17	44	1,073,088
7.57	351	8,237,865	24,170	2.3	15	38	990,903
6.88	308	7,704,426	23,833	2.1	14	36	891,931
6.35	280	7,102,700	23,093	1.9	13	34	841,429
5.96	217	5,198,893	22,064	0.3	0	28	703,463
Cost Control							
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk		
\$1,200	25%	\$576	\$1,227	\$1,692	\$7.14		
1,364	30	747	1,456	1,869	7.60		
1,507	31	796	1,688	2,000	7.98		
1,591	32	891	1,761	2,076	8.29		
1,700	36	950	1,852	2,101	8.62		
1,821	37	1,004	1,912	2,242	8.81		
1,932	38	1,067	1,954	2,452	9.09		
1,975	39	1,208	1,996	2,526	9.94		
2,009	41	1,274	2,162	2,588	10.59		
2,193	42	1,336	2,430	2,822	11.28		
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			
\$5,827	\$12.18	\$16.00	\$502,282	\$1,269	\$164,772	\$834,122	
5,344	13.36	18.10	338,708	1,081	143,113	364,795	
5,230	14.68	19.02	332,086	819	121,566	258,951	
5,164	15.34	19.80	280,427	765	113,937	202,812	
5,087	15.76	20.15	223,631	684	63,799	192,750	
4,931	16.02	20.54	197,836	593	38,795	150,331	
4,826	16.25	20.99	171,928	494	27,748	93,715	
4,735	17.25	21.40	151,725	407	14,344	57,635	
4,429	18.10	21.90	128,846	366	-1,853	11,178	
4,268	19.55	22.50	18,555	98	-89,664	-93,314	

Table 62.

FARM BUSINESS CHART FOR LARGE FREESTALL DAIRY FARMS
81 Freestall Barn Dairy Farms with 500 or More Cows, New York, 2012

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
46.40	2,263	60,289,397	29,309	5.4	25	60	1,606,174
31.21	1,521	39,040,936	27,637	4.1	20	53	1,389,915
26.24	1,207	32,748,186	27,084	3.7	19	50	1,321,936
23.52	1,065	27,961,562	26,680	3.4	18	48	1,231,299
20.99	945	24,798,633	26,164	3.1	17	46	1,193,752

19.11	861	22,556,058	25,633	3.0	16	45	1,160,915
17.74	750	19,733,257	25,086	2.8	16	44	1,115,817
15.88	683	17,075,435	24,702	2.5	15	42	1,065,573
13.90	599	14,511,626	23,987	2.2	14	40	985,725
11.18	535	12,588,196	21,906	1.5	10	34	841,681

Cost Control							
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk		
\$1,243	25%	\$554	\$1,212	\$1,667	\$6.67		
1,460	29	684	1,447	1,841	7.45		
1,585	32	751	1,546	1,971	7.68		
1,650	33	809	1,611	2,079	8.05		
1,737	34	859	1,649	2,159	8.35		

1,803	35	913	1,698	2,231	8.73		
1,866	37	957	1,759	2,306	8.98		
1,921	38	1,013	1,842	2,382	9.27		
2,049	39	1,073	1,934	2,516	9.63		
2,358	44	1,135	2,060	2,808	10.48		

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			
\$5,842	\$12.36	\$16.46	\$2,266,759	\$1,477	\$672,724	\$2,399,931	
5,583	13.96	17.49	1,326,685	1,165	387,869	1,227,999	
5,361	14.55	18.16	971,270	1,006	275,376	872,461	
5,269	15.04	18.56	760,450	863	207,134	706,318	
5,136	15.71	18.97	620,419	696	154,087	569,879	

5,039	16.28	19.52	502,288	587	91,455	452,986	
4,955	16.65	19.82	369,849	455	40,376	292,602	
4,832	16.95	20.53	295,128	327	13,314	205,847	
4,676	17.41	21.22	159,783	203	-37,044	55,840	
4,331	19.26	22.73	-39,172	-28	-182,782	-711,388	

Table 63.

INTENSIVE GRAZING FARMS VS. NON-GRAZING FARMS
New York State Dairy Farms, 2012

Item	All Intensive Grazing Farms ⁶⁴	Non-Grazing Farms ⁶⁵
Number of farms	18	27
<u>Business Size & Production</u>		
Number of cows	156	145
Number of heifers	133	120
Milk sold, pounds	2,449,879	2,991,936
Milk sold per cow, pounds	17,804	20,611
Milk plant test, % butterfat ⁶⁶	1.97	2.66%
Cull rate	30%	29%
Tillable acres, total	361	388
Hay crop, tons DM per acre	1.9	2.5
Corn silage, tons per acre	10.9	16.8
Forage dry matter per cow, tons ⁶⁷	5.4	8.3
<u>Labor & Capital Efficiency</u>		
Worker equivalent	3.38	3.98
Milk sold per worker, pounds	710,579	768,019
Cows per worker	42	38
Farm capital per worker	\$413,078	\$394,163
Farm capital per cow	\$10,848	\$10,427
Farm capital per cwt. milk	\$69	\$51
Machinery and equipment per cow	\$2,377	\$2,018
<u>Milk Production Costs & Returns</u>		
Selected costs per cwt.:		
Hired labor	\$1.38	\$1.64
Grain & concentrate	\$6.57	\$6.96
Purchased roughage	\$1.16	\$0.40
Replacements purchased	\$0.09	\$0.10
Vet & medicine	\$0.43	\$0.54
Milk marketing	\$1.09	\$1.05
Other dairy expenses	\$0.16	\$0.22
Operating cost of producing milk per cwt.	\$15.09	\$15.68
Total labor cost per cwt. (hired, family & operator)	\$5.18	\$4.27
Owner and operator resources per cwt.	\$7.88	\$5.49
Total cost of producing milk per cwt.	\$23.54	\$21.79
Average farm price per cwt.	\$19.86	\$19.97
<u>Related Cost Factors</u>		
Hired labor/cow	\$219	\$347
Total labor/cow	\$894	\$866
Purchased dairy feed/cow	\$1,400	\$1,503
Purchased grain & concentrate as % of milk receipts	33%	35%
Veterinary & medicine/cow	\$75	\$115
Machinery costs/cow	\$806	\$868
Feed & crop expenses/cwt.	\$9.05	\$8.90
<u>Profitability Analysis</u>		
Net farm income (with appreciation)	\$75,461	\$103,437
Net farm income (without appreciation)	\$50,755	\$87,695
Net farm income per cow (without appreciation)	\$565	\$614
Net farm income per cwt. (without appreciation)	\$2.75	\$2.75
Labor & management income per operator	\$-16,546	\$7,093
Labor & management income per operator per cow	\$-106	\$48.92
Rates of return on:		
Equity capital with appreciation	2.91	2.3%
All capital with appreciation	3.04	2.7%

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

⁶⁵Farms with similar herd size as the 18 rotational grazing farms.

⁶⁶Average of farms reporting this data.

⁶⁷Average of farms that grow forages.

Table 64.

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 76 New York Dairy Farms, 2003 -- 2012

Selected Factors	2003	2004	2005	2006
Milk receipts per cwt. milk	\$13.32	\$16.69	\$15.99	\$13.85
<u>Size of Business</u>				
Average number of cows	503	536	556	584
Average number of heifers	384	404	437	465
Milk sold, cwt.	117,264	123,191	132,272	139,189
Worker equivalent	11.52	12.20	12.63	13.00
Total tillable acres	963	1,016	1,045	1,077
<u>Rates of Production</u>				
Milk sold per cow, lbs.	23,328	22,980	23,777	23,839
Hay DM per acre, tons	3.5	3.8	3.7	3.4
Corn silage per acre, tons	17	18	19	19
<u>Labor Efficiency</u>				
Cows per worker	44	44	44	45
Milk sold per worker, lbs.	1,017,626	1,009,760	1,047,212	1,070,549
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	30%	27%	26%	29%
Dairy feed & crop expense per cwt. milk	\$4.93	\$5.61	\$5.11	\$5.00
Operating cost of producing cwt. milk	\$11.53	\$12.52	\$12.21	\$12.22
Total cost of producing cwt. milk	\$14.23	\$15.34	\$15.12	\$15.10
Hired labor cost per cwt.	\$2.66	\$2.79	\$2.73	\$2.70
Interest paid per cwt.	\$0.50	\$0.50	\$0.60	\$0.74
Labor & machinery costs per cow	\$1,221	\$1,288	\$1,342	\$1,332
Replacement livestock expense	\$16,578	\$24,284	\$20,027	\$12,295
Expansion livestock expense	\$36,182	\$40,906	\$23,466	\$27,833
<u>Capital Efficiency</u>				
Farm capital per cow	\$6,453	\$6,608	\$7,121	\$7,382
Machinery & equipment per cow	\$1,094	\$1,106	\$1,200	\$1,245
Real estate per cow	\$2,534	\$2,544	\$2,653	\$2,781
Livestock investment per cow	\$1,823	\$1,904	\$2,095	\$2,142
Asset turnover ratio	0.59	0.70	0.66	0.56
<u>Profitability</u>				
Net farm income without appreciation	\$66,144	\$353,195	\$325,135	\$53,124
Net farm income with appreciation	\$154,193	\$485,799	\$529,073	\$193,254
Labor & management income per operator/manager	\$-17,121	\$1743,172	\$108,940	\$-44,966
Rate return on:				
Equity capital with appreciation	3.9%	19.7%	18.2%	3.7%
All capital with appreciation	4.0%	13.0%	13.1%	4.7%
All capital without appreciation	1.3%	9.3%	8.0%	1.4%
<u>Financial Summary, End Year</u>				
Farm net worth	\$1,852,290	\$2,220,239	\$2,599,905	\$2,641,022
Change in net worth with appreciation	\$60,256	\$366,646	\$374,230	\$26,909
Debt to asset ratio	0.45	0.41	0.38	0.40
Farm debt per cow	\$2,926	\$2,760	\$2,771	\$2,969

Table 64. (continued)

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 76 New York Dairy Farms, 2003 -- 2012

2007	2008	2009	2010	2011	2012
\$20.40	\$19.33	\$13.95	\$17.86	\$21.67	\$19.75
582	599	627	661	676	694
464	496	530	561	582	594
140,019	147,901	155,318	164,944	169,608	177,043
13.05	13.54	14.05	14.47	14.97	15.64
1,109	1,182	1,230	1,279	1,311	1,370
24,058	24,676	24,765	24,951	25,081	25,526
3.2	3.7	3.5	3.6	3.5	3.0
19	19	19	19	16	17
45	44	45	46	45	44
1,073,288	1,092,526	1,105,272	1,139,576	1,133,050	1,131,989
24%	30%	38%	29%	29%	35%
\$6.09	\$7.30	\$6.55	\$6.34	\$7.70	\$8.63
\$13.77	\$15.39	\$13.86	\$13.99	\$15.83	\$16.13
\$16.80	\$16.76	\$16.94	\$17.03	\$19.18	\$19.67
\$2.79	\$2.89	\$2.76	\$2.70	\$2.86	\$2.85
\$0.74	\$0.53	\$0.52	\$0.53	\$0.48	\$0.46
\$1,447	\$1,612	\$1,435	\$1,481	\$1,654	\$1,704
\$14,807	\$21,164	\$10,309	\$10,893	\$24,491	\$8,031
\$13,835	\$33,356	\$21,827	\$6,386	\$4,859	\$25,214
\$7,946	\$8,694	\$8,691	\$8,575	\$9,221	\$9,974
\$1,349	\$1,505	\$1,565	\$1,531	\$1,610	\$1,726
\$2,937	\$3,191	\$3,319	\$3,326	\$3,570	\$3,916
\$2,333	\$2,308	\$2,207	\$2,167	\$2,197	\$2,233
0.74	0.64	0.47	0.61	0.69	0.62
\$749,449	\$380,414	\$-184,794	\$427,007	\$752,586	\$378,028
\$963,512	\$477,867	\$-156,056	\$565,805	\$930,050	\$641,892
\$318,878	\$108,031	\$-183,328	\$130,170	\$272,752	\$69,923
29.1%	10.9%	-7.9%	13.0%	19.8%	11.0%
21.0%	8.8%	-3.4%	9.5%	14.2%	8.6%
16.4%	6.9%	-3.9%	7.0%	11.3%	4.8%
\$3,366,183	\$3,559,855	\$3,227,096	\$3,664,458	\$4,436,549	\$4,846,067
\$781,541	\$184,178	\$-316,918	\$425,061	\$750,500	\$390,563
0.33	0.34	0.41	0.37	0.33	0.33
\$2,761	\$3,036	\$3,474	\$3,231	\$3,162	\$3,358

Table 65.

**FARM RECEIPTS AND EXPENSES PER COW AND PER
HUNDREDWEIGHT FOR THREE LEVELS OF MILK PRODUCTION
169 New York Dairy Farms, 2012**

Item	27 Dairy Farms Milk/Cow <19,000#		29 Dairy Farms Milk/Cow 19,000-22,999#		113 Dairy Farms Milk/Cow ≥23,000#	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<u>ACCRUAL RECEIPTS</u>						
Milk sales	\$3,108	\$20.20	\$4,233	\$19.69	\$5,113	\$19.76
Dairy cattle	225	1.40	373	1.71	366	1.42
Dairy calves	14	0.08	27	0.12	47	0.18
Other livestock	47	0.36	14	0.07	13	0.05
Crops	62	0.37	202	0.95	178	0.69
Government receipts	105	0.71	104	0.47	64	0.24
All other	<u>100</u>	<u>0.62</u>	<u>129</u>	<u>0.62</u>	<u>160</u>	<u>0.63</u>
TOTAL ACCRUAL RECEIPTS	\$3,661	\$23.74	\$5,082	\$23.64	\$5,941	\$22.97
<u>ACCRUAL EXPENSES</u>						
<u>Labor:</u> Hired	\$ 211	\$ 1.45	\$ 438	\$ 2.03	\$ 682	\$ 2.63
<u>Feed:</u> Dairy grain & concentrate	1,030	6.66	1,470	6.84	1,764	6.82
Dairy roughage	107	0.68	149	0.71	120	0.46
Nondairy	1	0.01	1	0.00	2	0.01
Professional nutritional services	0	0.00	0	0.00	1	0.00
<u>Machinery:</u> Mach. hire, rent & lease	83	0.53	129	0.59	106	0.41
Machinery repairs & vehicle expense	198	1.31	210	0.98	247	0.96
Fuel, oil & grease	177	1.19	196	0.91	225	0.88
<u>Livestock:</u> Replacement livestock	30	0.22	36	0.16	12	0.05
Breeding	33	0.21	59	0.28	57	0.22
Vet & medicine	66	0.43	128	0.59	167	0.65
Milk marketing	186	1.23	212	0.99	231	0.89
Bedding	37	0.23	84	0.38	106	0.41
Milking supplies	61	0.39	91	0.43	93	0.36
Cattle lease & rent	1	0.01	1	0.00	5	0.02
Custom boarding	9	0.07	21	0.10	94	0.36
bST expense	5	0.03	13	0.06	38	0.14
Livestock professional fees	13	0.09	22	0.10	18	0.07
Other livestock expense	36	0.22	37	0.18	26	0.10
<u>Crops:</u> Fertilizer & lime	117	0.77	129	0.59	145	0.56
Seeds & plants	61	0.40	88	0.41	113	0.44
Spray & other crop expense	38	0.40	59	0.28	66	0.26
Crop professional fees	3	0.26	3	0.01	7	0.03
<u>Real Estate:</u> Land, building & fence repair	57	0.02	54	0.25	84	0.32
Taxes	97	0.37	86	0.40	64	0.25
Rent & lease	40	0.65	57	0.26	61	0.24
<u>Other:</u> Insurance	43	0.28	57	0.26	52	0.20
Utilities (farm share)	86	0.29	107	0.50	103	0.40
Interest paid	128	0.57	108	0.51	117	0.46
Other professional fees	19	0.90	20	0.09	33	0.13
Miscellaneous	<u>19</u>	<u>0.13</u>	<u>27</u>	<u>0.12</u>	<u>28</u>	<u>0.11</u>
TOTAL OPERATING EXPENSES	\$2,993	\$19.74	\$4,092	\$19.03	\$4,864	\$18.81
Expansion livestock	48	0.35	12	0.05	26	0.10
Extraordinary expense	6	0.05	14	0.06	1	0.00
Machinery depreciation	220	1.55	189	0.89	240	0.93
Building depreciation	<u>81</u>	<u>0.56</u>	<u>105</u>	<u>0.48</u>	<u>141</u>	<u>0.54</u>
TOTAL ACCRUAL EXPENSES	\$3,348	\$22.24	\$4,412	\$20.51	\$5,272	\$20.39

Table 66.

**FARM RECEIPTS AND EXPENSES PER COW AND PER
HUNDREDWEIGHT FOR THREE HERD SIZE CATEGORIES
169 New York Dairy Farms, 2012**

Item	28 Dairy Farms with <100 Cows		26 Dairy Farms with 100-200 Cows		115 Dairy Farms with ≥ 200 Cows	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<u>ACCRUAL RECEIPTS</u>						
Milk sales	\$3,790	\$19.80	\$4,108	\$19.88	\$5,080	\$19.77
Dairy cattle	268	1.40	308	1.49	402	1.57
Dairy calves	19	0.10	25	0.12	46	0.18
Other livestock	22	0.12	11	0.05	14	0.06
Crops	165	0.86	149	0.72	151	0.59
Government receipts	288	1.51	217	1.05	189	0.74
All other	<u>268</u>	<u>1.40</u>	<u>308</u>	<u>1.49</u>	<u>402</u>	<u>1.57</u>
TOTAL ACCRUAL RECEIPTS	\$4,554	\$23.79	\$4,817	\$23.31	\$5,882	\$22.89
<u>ACCRUAL EXPENSES</u>						
<u>Labor</u> : Hired	\$ 307	\$ 1.60	\$ 369	\$ 1.79	\$ 709	\$ 2.76
<u>Feed</u> : Dairy grain & concentrate	1,290	6.74	1,426	6.90	1,754	6.82
Dairy roughage	180	0.94	75	0.36	118	0.46
Nondairy	1	0.00	0	0.00	1	0.00
Professional nutritional services	0	0.00	1	0.01	1	0.00
<u>Machinery</u> : Mach. hire, rent & lease	109	0.57	99	0.48	94	0.36
Mach. repairs & vehicle expense	220	1.15	222	1.07	240	0.94
Fuel, oil & grease	193	1.01	218	1.06	213	0.83
<u>Livestock</u> : Replacement livestock	28	0.15	14	0.07	12	0.05
Breeding	51	0.27	52	0.25	53	0.20
Vet & medicine	89	0.47	118	0.57	169	0.66
Milk marketing	233	1.21	208	1.01	222	0.87
Bedding	47	0.25	75	0.36	107	0.42
Milking supplies	87	0.45	82	0.40	90	0.35
Cattle lease & rent	1	0.01	10	0.05	5	0.02
Custom boarding	15	0.08	2	0.01	99	0.38
bST expense	7	0.04	5	0.02	48	0.19
Livestock professional fees	23	0.12	19	0.09	16	0.06
Other livestock expense	54	0.28	46	0.22	20	0.08
<u>Crops</u> : Fertilizer & lime	85	0.44	167	0.81	140	0.54
Seeds & plants	75	0.39	90	0.43	107	0.42
Spray & other crop expense	39	0.20	61	0.30	60	0.23
Crop professional fees	0	0.00	5	0.03	7	0.03
<u>Real Estate</u> : Land, building & fence repair	62	0.33	69	0.34	89	0.35
Taxes	115	0.60	85	0.41	57	0.22
Rent & lease	29	0.15	59	0.29	63	0.24
<u>Other</u> : Insurance	62	0.32	61	0.29	43	0.17
Utilities (farm share)	118	0.62	95	0.46	94	0.37
Interest paid	121	0.63	112	0.54	114	0.44
Other professional fees	17	0.09	15	0.07	33	0.13
Miscellaneous	<u>21</u>	<u>0.11</u>	<u>18</u>	<u>0.09</u>	<u>31</u>	<u>0.12</u>
TOTAL OPERATING EXPENSES	\$3,677	\$19.21	\$3,878	\$18.76	\$4,806	\$18.70
Expansion livestock	12	0.06	25	0.12	42	0.16
Extraordinary expense	0	0.00	15	0.07	1	0.00
Machinery depreciation	219	1.14	214	1.03	220	0.86
Building depreciation	<u>73</u>	<u>0.38</u>	<u>80</u>	<u>0.39</u>	<u>146</u>	<u>0.57</u>
TOTAL ACCRUAL EXPENSES	\$3,981	\$20.80	\$4,212	\$20.38	\$5,215	\$20.30

Table 67.

COMPARISON OF DAIRY FARM BUSINESS DATA BY REGION
169 New York Dairy Farms, 2012

Item	West. & Cent. Plateau Region	Western & Central Plain Region	Northern New York	Central Valleys	North. Hudson & Southeastern New York
Number of farms	21	53	26	29	40
<u>ACCRUAL EXPENSES</u>					
Hired labor	\$383,505	\$561,998	\$485,372	\$360,479	\$253,167
Feed	1,058,752	1,428,576	1,433,025	923,645	718,834
Machinery	304,907	392,283	402,803	336,189	219,834
Livestock	428,663	641,661	660,700	433,889	312,746
Crops	141,902	219,950	279,800	200,652	109,188
Real estate	132,826	167,995	129,864	118,572	75,124
Other	135,759	245,925	270,204	170,167	114,131
Total Operating Expenses	\$2,586,314	\$3,658,388	\$3,661,768	\$2,543,594	\$1,803,022
Expansion livestock	10,611	57,284	15,412	7,118	7,457
Extraordinary expense	2,652	104	0	1,972	1,215
Machinery depreciation	105,939	168,313	171,259	135,590	77,243
Building depreciation	71,845	121,811	129,788	59,765	40,736
Total Accrual Expenses	\$2,777,362	\$4,005,900	\$3,978,226	\$2,748,039	\$1,929,674
<u>ACCRUAL RECEIPTS</u>					
Milk sales	\$2,801,038	\$3,821,337	\$3,935,795	\$2,788,768	\$1,812,778
Livestock	242,818	396,795	322,246	190,339	171,619
Crops	56,772	120,071	154,231	77,910	42,375
Government Receipts	34,668	53,147	33,650	48,934	32,131
All other	24,408	110,379	83,806	78,338	45,367
Total Accrual Receipts	\$3,159,785	\$4,501,730	\$4,529,728	\$3,184,288	\$2,104,262
<u>PROFITABILITY ANALYSIS</u>					
Net farm income(w/o appreciation)	\$382,423	\$495,829	\$551,502	\$436,249	\$174,588
Net farm income (w/ appreciation)	\$495,528	\$798,551	\$840,235	\$538,711	\$206,275
Labor & management income	\$166,502	\$222,627	\$290,313	\$230,133	\$46,887
Number of operators	1.96	2.17	2.01	2.01	1.80
Labor & mgmt. income/operator	\$84,950	\$102,593	\$144,434	\$114,494	\$26,049
<u>BUSINESS FACTORS</u>					
Worker equivalent	12.55	16.16	16.64	12.73	9.37
Number of cows	543	764	785	557	362
Number of heifers	492	652	684	455	308
Acres of hay crops ⁶⁸	517	597	751	547	386
Acres of corn silage ⁶⁸	528	671	661	501	348
Total tillable acres	1,049	1,313	1,628	1,234	780
Pounds of milk sold	14,209,784	19,452,061	20,200,911	13,906,689	8,926,451
Pounds of milk sold/cow	26,148	25,469	25,734	24,966	24,635
Tons hay crop dry matter/acre	2.5	3.2	2.9	2.8	2.9
Tons corn silage/acre	16.3	17.1	17.2	16.9	16.3
Cows/worker	43	47	47	44	39
Pounds of milk sold/worker	1,132,555	1,204,027	1,213,875	1,092,720	952,324
% grain & conc. of milk receipts	36%	34%	33%	32%	36%
Feed & crop expense/cwt. milk	\$8.44	\$8.46	\$8.48	\$8.08	\$9.28
Fertilizer & lime/crop acre ⁶⁸	\$65,30	\$75.64	\$71.94	\$69.14	\$47.29
Machinery cost/tillable acre ⁶⁸	\$431	\$464	\$382	\$423	\$423

⁶⁸Excludes farms that do not harvest forages.

Figure 2.

**Percent Change in Milk Production, Five Regions in New York,
1990-2011**

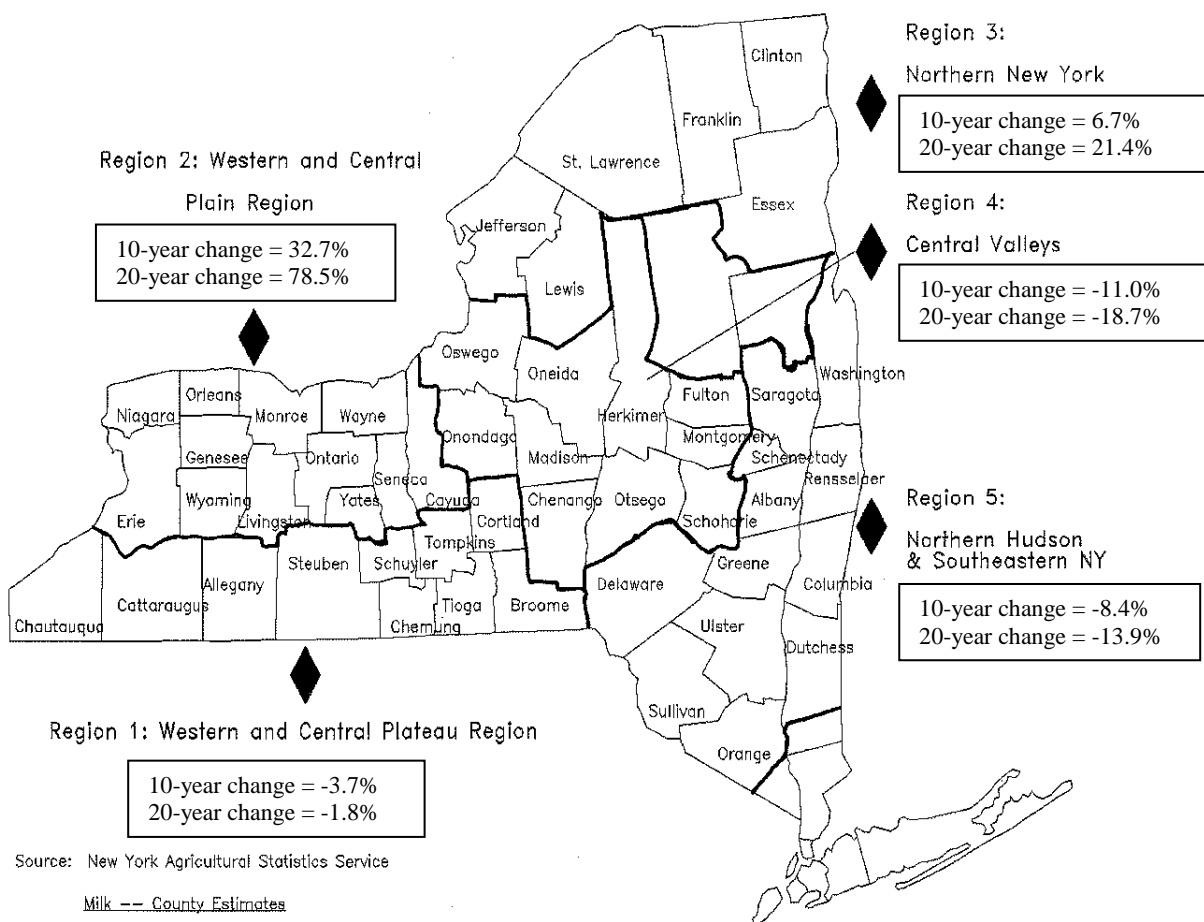


Table 68.

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

Item	Region ⁶⁹				
	1	2	3	4	5
<u>Milk Production</u> ⁷⁰	(million pounds)				
1990	2,062.0	2,539.0	2,085.2	2,823.0	1,545.4
2000	2,103.8	3,415.2	2,372.3	2,576.1	1,452.6
2010	2,025.5	4,531.5	2,530.5	2,294.0	1,331.3
Percent change, 2000 to 2010	-3.7%	+32.7%	+6.7%	-11.0%	-8.4%
Percent change, 1990 to 2010	-1.8%	+78.5%	+21.4%	-18.7%	-13.9%
<u>2012 Cost of Producing Milk</u> ⁷¹	(\$ per hundredweight milk)				
Operating cost	\$15.75	\$15.60	\$15.26	\$15.50	\$17.02
Total cost	19.37	19.20	18.71	19.23	20.76
Average price received	19.71	19.64	19.48	20.05	20.31
Return per cwt. to operator labor, management & capital	\$3.40	\$3.32	\$3.46	\$3.83	\$2.70

⁶⁹See Figure 2 for region descriptions.

⁷⁰Source: New York Agricultural Statistics Service, Milk-County Estimates. The data for 2012 was not available.

⁷¹From Dairy Farm Business Summary data.

Table 69.

SELECTED BUSINESS FACTORS BY MILKING FREQUENCY
New York State Dairy Farms, 2011 & 2012

Item	2x/Day Milking		3x/Day Milking	
	2011	2012	2011	2012
Number of farms	92	73	86	84
<u>Business Size & Production</u>				
Number of cows	220	241	877	929
Number of heifers	183	199	761	803
Milk sold, lbs.	4,593,507	5,143,049	22,575,781	24,429,750
Milk sold/cow, lbs.	19,497	20,131	25,588	26,023
Milk plant test, % butterfat	2.69%	2.91%	3.49%	3.54%
Tillable acres, total	514	553	1,677	1,749
Hay crop, tons DM/acre	3.0	2.3	3.3	3.0
Corn silage, tons/acre	13.2	14.2	15.7	16.15
Forage DM/cow, tons	7.8	7.4	7.6	7.6
<u>Labor & Capital Efficiency</u>				
Worker equivalent	5.36	5.69	19.12	20.47
Milk sold/worker, lbs.	718,267	764,183	1,156,317	1,159,757
Cows/worker	37	38	45	45
Farm capital/worker	\$392,637	\$409,827	\$427,957	\$451,920
Farm capital/cow	\$11,134	\$11,233	\$9,562	\$10,261
Farm capital/cwt. milk	\$53.32	\$52.64	\$37.15	\$39.02
<u>Milk Production Costs & Returns</u>				
Selected costs/cwt.:				
Hired labor	\$1.64	\$1.88	\$2.70	\$2.75
Grain & concentrate	\$6.12	\$6.84	\$6.15	\$6.74
Purchased roughage	\$0.58	\$0.61	\$0.44	\$0.43
Replacements purchased	\$0.13	\$0.11	\$0.13	\$0.09
Veterinary & medicine	\$0.57	\$0.55	\$0.67	\$0.66
Milk marketing	\$1.04	\$1.06	\$0.87	\$0.89
Other dairy expenses	\$0.20	\$0.20	\$0.09	\$0.09
Operating cost of milk production/cwt.	\$15.83	\$15.83	\$15.60	\$15.76
Total labor costs/cwt.	\$5.11	\$5.00	\$3.20	\$3.20
Owner/operator resources/cwt.	\$3.81	\$2.70	\$3.84	\$2.68
Total cost of milk production/cwt.	\$23.39	\$23.03	\$19.02	\$19.32
Average farm price/cwt.	\$21.68	\$19.93	\$21.55	\$19.75
Return over total costs/cwt.	\$-0.33	-\$1.52	\$3.99	\$2.08
<u>Related Cost Factors</u>				
Hired labor/cow	\$340	\$390	\$692	\$716
Total labor/cow	\$929	\$943	\$819	\$831
Purchased dairy feed/cow	\$1,294	\$1,505	\$1,686	\$1,867
Purchased grain & concentrate				
as % of milk receipts	28%	34%	29%	34%
Veterinary & medicine/cow	\$116	\$114	\$170	\$171
Machinery costs/cow	\$896	\$847	\$869	\$902
<u>Profitability Analysis</u>				
Net farm income (without appreciation)	\$203,325	\$102,928	\$1,069,175	\$655,617
Labor & management income/operator	\$63,520	-\$1,626	\$384,768	\$153,183
Rates of return on:				
Equity capital with appreciation	4.7%	1.6%	20.6%	11.9%
All capital with appreciation	5.8%	2.8%	14.3%	9.3%

Table 70.

FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
12 New York Dairy-Renter Farms,⁷² 2012

<u>ACCRUAL EXPENSES</u>		<u>ACCRUAL RECEIPTS</u>			
<u>Labor:</u> Hired	\$97,506	Milk sales	\$899,661		
<u>Feed:</u> Dairy grain & concentrate	328,011	Dairy cattle	75,626		
Dairy roughage	92,668	Dairy calves	6,629		
Nondairy	0	Other livestock	142		
Professional nutritional services	2.75	Crops	24,428		
<u>Machinery:</u> Machinery hire, rent & lease	17,067	Government receipts	13,855		
Machinery repairs & farm vehicle expense	23,312	Custom machine work	7,009		
Fuel, oil, grease	34,729	Gas tax refund	0		
<u>Livestock:</u> Replacement livestock	8,281	Other	4,783		
Breeding	8,074	TOTAL ACCRUAL RECEIPTS	\$1,032,131		
Veterinary & medicine	23,559				
Milk marketing	38,992				
Bedding	16,485				
Milking supplies	21,985	<u>PROFITABILITY ANALYSIS</u>			
Cattle lease & rent	0.25	Net farm income (without appreciation)	\$120,102		
Custom boarding	4,687	Net farm income (with appreciation)	\$156,660		
bST expense	9,580	Labor & management income/farm	\$90,711		
Livestock professional fees	3,244	Number of operators	1.40		
Other livestock expense	4,382	Labor & management income/operator	\$54,784		
<u>Crops:</u> Fertilizer & lime	12,700	Rate of return on equity capital			
Seeds & plants	8,780	with appreciation	8.0%		
Spray & other crop expense	6,727				
Crop professional fees	0				
<u>Real estate:</u> Land, building & fence repair	12,054	<u>BUSINESS FACTORS</u>			
Taxes	1,798	Number of cows	192		
Rent & lease	46,124	Number of heifers	164		
<u>Other:</u>		Worker equivalent	4.86		
Insurance	9,205	Total tillable acres	261		
Utilities (farm share)	17,461	Milk sold per cow, lbs.	19,466		
Interest paid	28,837	Hay DM per acre, tons	1.1		
Miscellaneous	6,123	Corn silage per acre, tons	8.57		
TOTAL OPERATING EXPENSES	\$886,474	Milk sold per worker, lbs.	704,311		
		Grain & concentrate as % milk sales	38%		
Expansion livestock	\$1,336	Feed & crop expense/cwt. milk	\$9.84		
Extraordinary expense	0	Labor & machinery costs/cow	\$1,510		
Machinery depreciation	22,722	Average price/cwt. milk	\$20.02		
Building depreciation	1,795				
TOTAL ACCRUAL EXPENSES	\$912,029				
<hr/>					
<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	\$8,972	\$12,020	Current	\$206,432	\$208,161
Accounts receivable	54,373	72,644	Intermediate ⁷⁴	381,040	384,807
Prepaid expenses	0	0	Long term ⁷⁵	4,552	1,470
Feed & supplies	100,390	126,984	Total Farm Liabilities	\$588,989	\$593,703
Livestock ⁷³	436,030	454,477			
Machinery & equipment ⁷³	181,589	214,696	Nonfarm Liabilities ⁷⁵	37,009	33,475
Farm Credit stock	292	292			
Other stock & certificates	6,988	8,039	Farm & Nonfarm Liabilities	\$601,325	\$604,861
Land & buildings ⁷³	25,017	39,645			
Total Farm Assets	\$813,650	\$928,797	Farm Net Worth	\$224,661	\$335,094
Nonfarm Assets ⁷⁵	19,136	19,186	Farm & Nonfarm Net Worth	\$231,461	\$343,122
Farm & Nonfarm Assets	\$832,786	\$947,983			

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.

⁷⁵ Average of 4 farms reporting. Average of 6 farms reporting for LT liabilities in December 2012.

<u>ACCRUAL EXPENSES</u>			<u>ACCRUAL RECEIPTS</u>		
Labor: Hired	\$618,516		Milk sales	\$4,953,546	
Feed: Dairy grain & concentrate	1,549,150		Dairy cattle	361,762	
Dairy roughage	136,549		Dairy calves	44,752	
Nondairy	3,002		Other livestock	-1,040	
Professional nutritional services	0		Crops	227,002	
Machinery: Machinery hire, rent & lease	96,226		Government receipts	40,368	
Machinery repairs & farm vehicle expense	205,719		Custom machine work	29,142	
Fuel, oil, grease	190,396		Gas tax refund	481	
Livestock: Replacement livestock	7,066		Other	111,602	
Breeding	40,881		TOTAL ACCRUAL RECEIPTS	\$5,767,614	
Veterinary & medicine	149,731				
Milk marketing	186,587				
Bedding	101,899		<u>PROFITABILITY ANALYSIS</u>		
Milking supplies	87,898		Net farm income (without appreciation)	\$1,202,092	
Cattle lease & rent	10,740		Net farm income (with appreciation)	1,435,104	
Custom boarding	67,992		Labor & management income/operator	400,727	
bST expense	37,222		Rate of return on equity		
Livestock professional fees	12,181		capital without appreciation	15.7%	
Other livestock expense	13,948		Rate of return on all		
Crops: Fertilizer & lime	116,220		capital without appreciation	19.2%	
Seeds & plants	95,105				
Spray & other crop expense	49,797				
Crop professional fees	4,724		<u>BUSINESS FACTORS</u>		
Real estate: Land, building & fence repair	75,203		Number of cows	945	
Taxes	46,406		Number of heifers	798	
Rent & lease	56,917		Worker equivalent	18.83	
Other:			Total tillable acres	1,705	
Insurance	37,426		Milk sold per cow, lbs.	26,275	
Utilities (farm share)	91,766		Hay DM per acre, tons	3.0	
Interest paid	93,409		Corn silage per acre, tons	18.1	
Miscellaneous	56,191		Milk sold per worker, lbs.	1,318,056	
TOTAL OPERATING EXPENSES	\$4,238,867		Grain & concentrate as % milk sales	32%	
Expansion livestock	\$12,593		Feed & crop expense/cwt. milk	\$7.86	
Extraordinary expense	2,679		Labor & machinery costs/cow	\$1,515	
Machinery depreciation	183,642		Average price/cwt. milk	\$19.96	
Building depreciation	127,741				
TOTAL ACCRUAL EXPENSES	\$4,565,522				
<hr/>			<hr/>		
<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	\$ 55,537	\$127,051	Current	\$535,193	\$662,310
Accounts receivable	580,139	573,986	Intermediate ⁷⁷	1,487,451	1,328,753
Prepaid expenses	3,732	5,958	Long-term ⁷⁶	848,433	1,147,857
Feed & supplies	1,004,119	1,282,609	Total Farm Liabilities	\$2,871,077	\$3,138,919
Livestock ⁷⁶	2,040,348	2,163,815			
Machinery & equipment ⁷⁶	1,210,353	1,390,004	Nonfarm Liabilities ⁷⁸	6,784	3,432
Farm Credit stock	813	1,438			
Other stock & certificates	290,751	372,924	Farm & Nonfarm Liabilities	\$2,877,861	\$3,142,351
Land & buildings ⁷⁶	3,528,559	4,080,414			
Total Farm Assets	\$8,528,559	\$9,998,198	Farm Net Worth	\$5,843,273	\$6,859,279
Nonfarm Assets ⁷⁸	267,000	281,000	Farm & Nonfarm Net Worth	\$6,103,490	\$7,136,847
Farm & Nonfarm Assets	\$8,528,826	\$10,279,198			

⁷⁸ Average of 2 farms reporting.

Table 72.

FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
Average of 169 New York Dairy Farms, 2012

<u>ACCRUAL EXPENSES</u>		<u>ACCRUAL RECEIPTS</u>	
Labor: Hired	\$420,353	Milk sales	\$3,059,578
Feed: Dairy grain & concentrate	1,056,067	Dairy cattle	241,592
Dairy roughage	71,668	Dairy calves	27,243
Nondairy	455	Other livestock	8,634
Professional nutritional services	485	Crops	91,837
Machinery: Machinery hire, rent & lease	57,267	Government receipts	42,154
Machinery repairs & farm vehicle expense	145,775	Custom machine work	13,651
Fuel, oil, grease	129,560	Gas tax refund	577
Livestock: Replacement livestock	7,538	Other	60,504
Breeding	31,999	TOTAL ACCRUAL RECEIPTS	\$3,545,769
Veterinary & medicine	101,036		
Milk marketing	135,217		
Bedding	63,933		
Milking supplies	54,401		
Cattle lease & rent	2,875		
Custom boarding	57,112		
bST expense	27,869		
Livestock professional fees	9,613		
Other livestock expense	13,028		
Crops: Fertilizer & lime	85,054		
Seeds & plants	64,356		
Spray & other crop expense	36,550		
Crop professional fees	3,972		
Real estate: Land, building & fence repair	53,392		
Taxes	36,160		
Rent & lease	37,745		
Other:			
Insurance	26,921		
Utilities (farm share)	57,809		
Interest paid	69,248		
Miscellaneous	37,799		
TOTAL OPERATING EXPENSES	\$2,895,256		
Expansion livestock	24,641		
Extraordinary expense	988		
Machinery depreciation	133,845		
Building depreciation	86,993		
TOTAL ACCRUAL EXPENSES	\$3,141,724		

<u>PROFITABILITY ANALYSIS</u>	
Net farm income (without appreciation)	\$404,045
Net farm income (with appreciation)	582,539
Labor & management income/operator	92,417
Rate of return on equity	
capital without appreciation	6.5%
Rate of return on all	
capital without appreciation	5.6%

<u>BUSINESS FACTORS</u>	
Number of cows	609
Number of heifers	522
Worker equivalent	13.59
Total tillable acres	1,189
Milk sold per cow, lbs.	25,401
Hay DM per acre, tons	3.0
Corn silage per acre, tons	16.9
Milk sold per worker, lbs.	1,138,769
Grain & concentrate as % milk sales	34%
Feed & crop expense/cwt. milk	\$8.52
Labor & machinery costs/cow	\$1,659
Average price/cwt. milk	\$19.77

<u>ASSETS</u>			<u>LIABILITIES</u>		
	<u>Jan. 1</u>	<u>Dec. 31</u>		<u>Jan. 1</u>	<u>Dec. 31</u>
Farm cash, checking & savings	\$53,671	\$52,744	Accounts payable	\$54,273	\$78,267
Accounts receivable	300,116	336,939	Operating debt	130,120	154,379
Prepaid expenses	7,493	5,512	Short-term	6,511	4,482
Feed & supplies	704,273	760,699	Advanced gov't receipts	0	0
Dairy cows ⁷⁹	826,687	868,695	Current Portion:		
Heifers	492,854	505,138	Intermediate	158,154	166,413
Bulls & other livestock	11,265	15,437	Long Term	53,412	58,769
Machinery & equipment ⁷⁹	978,721	1,075,671	Intermediate ⁸⁰	783,515	761,781
Farm Credit stock	1,042	1,094	Long-term ⁷⁹	684,586	805,613
Other stock & certificates	166,802	192,442	Total Farm Liabilities	\$1,870,570	\$2,029,703
Land & buildings ⁷⁹	2,408,713	2,700,261	Nonfarm Liabilities ⁸¹	6,960	5,651
Total Farm Assets	\$5,951,637	\$6,514,632	Farm & Nonfarm Liabilities	\$1,877,530	\$203,5354
Nonfarm Assets ⁸¹	397,938	459,839	Farm Net Worth	\$4,081,067	\$4,484,930
Farm & Nonfarm Assets	\$6,349,575	\$6,974,471	Farm & Nonfarm Net Worth	\$4,472,045	\$4,939,118

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, 1998-2012**

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)
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
2012	359	623	252.00	3.888	26,300	11.48

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, 1996-2012**

Year	Dairy Cows		Machinery ⁸⁵	Farm Real Estate ⁸⁶	
	Value/Head	1977=100	1977=100	Value/Acre	1977=100
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	398	2,020	344
2007	1,930	390	416	2,180	371
2008	1,900	384	456	2,350	400
2009	1,200	242	484	2,400	409
2010	1,300	263	501	2,400	409
2011	1,410	293	532	2,450	417
2012	1,450	285	549	2,650	451

SOURCE: USDA, NASS, ASB, Agricultural Prices.

⁸⁵United States average; 1996 - 2012 are estimated due to discontinuation of 1977=100 series.

⁸⁶New York average for 2001-2012 excludes Native American Reservation land.

Table A3.

NUMBER OF LARGE DAIRY FARMS AND MILK COWS BY SIZE OF HERD New York State, 2012^{87,88}				
Size of Herd	Farms		Milk Cows	
Number of Cows	Number	% of Total	Number	% of Total
200 – 499	208	44.5%	71,000	20.8%
500 – 749	115	24.6%	70,000	20.8%
750 – 999	48	10.3%	42,000	12.2%
1,000 – 1,499	53	11.4%	64,000	18.7%
1,500 – 1,999	22	4.7%	37,000	10.8%
2,000-2,999	14	3.0%	32,000	9.4%
3,000 or more	7	1.5%	26,000	7.6%
Total	467	100.0%	342,000	100.0%
⁸⁷ This 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 2012. - CAFO (Concentrated Animal Feeding Operations) permit reports for 2012. ⁸⁸ The 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 2012, there were 467 large dairy farms (farms with 200 or more cows) in New York State. Those farms reported housing 342,000 milk cows total in the State of New York. The table above was prepared based on the NYASS data plus the CAFO permit filing for additional herd size categories.

Farms with 1,000 or more cows (96 farms) represent about 21 percent of the farms but kept over 46 percent of the cows.

Ten-Year Comparisons

Ten years ago (2003) there were 40 herds with 1,000 or more cows and only 3 with over 2,000. The total number of farms in NYS in 2003 was 7000, and in 2012 there were almost 5,000.

The total cost of producing milk on DFBS farms has increased \$4.27 per hundredweight over the past 10 years. In the intervening years, total cost of production increased from 2003 to 2005, decreased in 2006, increased in 2007 and 2008, decreased in 2009, increased in 2010 and again to 19.92 in 2011, and decreased to \$19.34 in 2012. It is interesting to note that costs of production decrease in low milk price years and increase in high milk price years. Over the 10 years, milk sold per cow increased 14 percent and cows per worker increased 7 percent on DFBS farms. Farm net worth has increased significantly, while percent equity has been fairly stable.

GLOSSARY AND LOCATION OF COMMON TERMS

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

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

Accrual Accounting: (defined on page 9).

Accrual Expenses: (defined on page 11).

Accrual Receipts: (defined on page 11).

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

Appreciation: (defined on page 12).

Asset Turnover Ratio: (defined on page 42).

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

Average Top 10% Farms: Average of 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)
2012-01	Dairy Farm Management Business Summary, New York State 2011	(\$20.00)	Knoblauch, W., Putnam, L., Karszes, J., Overton, R. and C. Dymond
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.