DAIRY FARM MANAGEMENT

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BUSINESS SUMMARY NEW YORK STATE 2006

Wayne A. Knoblauch
Linda D. Putnam
Jason Karszes

Department of Applied Economics and Management
Cornell University Agricultural Experiment Station
College of Agriculture and Life Sciences
Cornell University, Ithaca, New York 14853-7801

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For additional copies, please contact:

Linda Putnam
Cornell University
Department of Applied Economics and Management
305 Warren Hall
Ithaca, NY 14853-7801

E-mail: ldp2@cornell.edu
Fax: 607-255-1589
Voice: 607-255-8429

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Wayne A. Knoblauch*
Linda D. Putnam
Jason Karszes

Department of Applied Economics and Management
Cornell University, Ithaca, New York 14853-7801 USA
*Author phone: 607-255-1599
*Author e-mail: wak4@cornell.edu

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ABSTRACT

Business and financial records for 2006 from 240 New York dairy farm businesses are summarized and analyzed. This analysis demonstrates the use of 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 350 cows per farm and 23,083 pounds of milk sold per cow, which represent above average size and management level for New York dairy farms. Net farm income excluding appreciation, which is the return to the operator's labor, management, capital, and other unpaid family labor, averaged $41,144 per farm. The rate of return to all capital invested in the farm business including appreciation averaged 4.0 percent.

Differences in profitability between farms continue to widen. Average net farm income excluding appreciation of the top 10 percent of farms was $322,100, while the lowest 10 percent was a negative $183,853. Rates of return on equity with appreciation ranged from positive 16 percent to negative 27 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, the lowest total cost of production and investment per cow, and the greatest 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 than herds milking two times per day (2X). Operating costs per hundredweight of milk were $0.54 per hundredweight higher for 3X than 2X milking herds, while output per cow was 4,153 pounds higher. In 2006, farms supplementing the herd with bovine somatotropin (bST) attained higher rates of milk production per cow, had larger herds and were more profitable than farms not supplementing with bST for most measures of profitability. Farms adopting intensive grazing generally produced less milk per cow than non-grazing farms but had lower costs of production and higher profitability. One should not conclude that adoption of these technologies alone were responsible for differences in performance.

TABLE OF CONTENTS

Page

INTRODUCTION 1

Farms Included 1
Features 1
Acknowledgments 1
2006 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

Comparison for Farms That Buy All Feed Versus Farms That Grow Forages 63
Comparisons by Type of Barn & Herd Size 65
Comparison of Farms by bST Usage 71
Comparison of Farm Business Summary Data, 1997-2006 72
Farm Receipts & Expenses Per Cow & Per Hundredweight for Three Levels of Milk Production & Three Herd Size Categories 74
Intensive Grazing Farms vs. Non-Grazing Farms 76
Comparison of Farms by Milking Frequency 77
Comparison of Dairy Farm Business Data by Region 78
Milk Production & Average Cost of Producing Milk by Region 79
Other Comparisons 80

APPENDIX: PRICES, COSTS AND TRENDS IN THE NEW YORK DAIRY INDUSTRY 83

GLOSSARY & LOCATION OF COMMON TERMS 86

LIST OF TABLES

Table Number		Page
1	Comparison of Farm Business Summary Data, New York Dairy Farms, 1956-2006	4
2	Comparison of Farm Business Summary Data, Same 140 New York Dairy Farms, 2003-2006	5
3	Business Characteristics & Resources Used, 240 New York Dairy Farms, 2006	8
4	Cash & Accrual Farm Expenses, 240 New York Dairy Farms, 2006	10
5	Cash & Accrual Farm Receipts, 240 New York Dairy Farms, 2006	11
6	Net Farm Income, 240 New York Dairy Farms, 2006	12
7	Labor & Management Income, 240 New York Dairy Farms, 2006	13
8	Return to Capital, 240 New York Dairy Farms, 2006	14
9	Returns to All Labor & Management by Return to All Capital With Appreciation, 240 New York Dairy Farms, 2006	14
10	2006 Farm Business & Nonfarm Balance Sheet, 240 New York Dairy Farms, 2006	15
11	Farm Balance Sheet Analysis, 240 New York Dairy Farms, 2006	16
12	Farm Inventory Balance, 240 New York Dairy Farms, 2006	16
13	Statement of Owner Equity (Reconciliation), 240 New York Dairy Farms, 2006	17
14	Annual Cash Flow Statement, 240 New York Dairy Farms, 2006	18
15	Annual Cash Flow Data, 240 New York Dairy Farms, 2006	19
16	Farm Debt Payments Planned, Same 191 New York Dairy Farms, 2005 & 2006	20
17	Coverage Ratios, Same 191 New York Dairy Farms, 2005 & 2006	20
18	Debt to Asset Ratio vs. Cash Flow Coverage, 191 New York Dairy Farms, 2006	20
19	Land Resources & Crop Production, 240 New York Dairy Farms, 2006	21
20	Crop Management Factors, 240 New York Dairy Farms, 2006	21
21	Crop Related Accrual Expenses, New York Dairy Farms, 2006	22
22	Accrual Machinery Expenses, 233 New York Dairy Farms That Grow Forages, 2006	22
23	Crop Related Accrual Expenses by Hay Crop Production Per Acre, 29 New York Dairy Farms, 2006	23
24	Crop Related Accrual Expense by Corn Production Per Acre, 29 New York Dairy Farms, 2006	23
25	Dairy Herd Inventory, 240 New York Dairy Farms, 2006	24
26	Milk Production, 240 New York Dairy Farms, 2006	25
27	Milk Sold Per Cow & Farm Income Measures, 240 New York Dairy Farms, 2006	25
28	Culling Rate and Dairy Replacement Information, New York Dairy Farms, 2006	27
29	Cost of Producing Milk, Whole Farm Method, 240 New York Dairy Farms, 2006	28
30	Itemized Costs of Producing Milk Per Hundredweight Based on Whole Farm Data, 240 New York Dairy Farms, 2006	29
31	Itemized Costs of Producing Milk per Hundredweight Based on Whole Farm Data, Same 191 New York Dairy Farms, 2005-2006	30
32	Cost of Producing Milk, Accrual Receipts from Dairy, and Profitability, 240 New York Dairy Farms, 2006	31
33	Farm Cost of Producing Milk by Milk Sold Per Cow, 240 New York Dairy Farms, 2006	31
34	Farm Cost of Producing Milk by Herd Size, 240 New York Dairy Farms, 2006	33
35	Ten Year Comparison: Average Cost of Producing Milk Per Hundredweight, New York Dairy Farms, 1997 to 2006	36
36	Ten Year Comparison: Selected Business Factors, New York Dairy Farms, 1997 to 2006	37
37	Dairy Related Accrual Expenses, 240 New York Dairy Farms, 2006	38
38	Purchased Feed & Crop Expenses Per Hundredweight of Milk and Farm Income Measures, 240 New York Dairy Farms, 2006	39
39	Average Milk Income and Marketing Report, 170 New York Dairy Farms, 2006	40
40	Milk Price Information by Quintile, 170 New York Dairy Farms, 2006	41
41	Capital Efficiency, 240 New York Dairy Farms, 2006	42
42	Asset Turnover & Profitability, 240 New York Dairy Farms, 2006	42
43	Labor Efficiency, 240 New York Dairy Farms, 2006	42
44	Labor Force Inventory & Cost Analysis, 240 New York Dairy Farms, 2006	43
45	Milk Sold Per Worker & Net Farm Income, 240 New York Dairy Farms, 2006	43
46	Farm Business Chart for Farm Management Cooperators, 240 New York Dairy Farms, 2006	44

Table Number		Page
47	A Farm Finance Checklist, 240 New York Dairy Farms, 2006	46
48	Financial Analysis Chart, 240 New York Dairy Farms, 2006	47
49	Cows Per Farm and Farm Family Income Measures, 240 New York Dairy Farms, 2006	48
50	Cows Per Farm and Related Farm Factors, 240 New York Dairy Farms, 2006	49
51	Progress of Farm Businesses with Less Than 100 Cows, Same 38 New York Dairy Farms, 2002-2006	50
52	Progress of Farm Businesses with 100-499 Cows, Same 55 New York Dairy Farms, 2002-2006	51
53	Progress of Farm Businesses with More Than 500 Cows, Same 40 New York Dairy Farms, 2002-2006	52
54	Farm Business Summary by Herd Size, 240 New York Dairy Farms, 2006	53
55	Farm Family Financial Situation by Herd Size, 240 New York Dairy Farms, 2006	55
56	Selected Business Factors by Herd Size, 240 New York Dairy Farms, 2006	59
57	Income and Expense Comparison for Farms Buying Majority of Forages Versus Similar Size Farms Growing Forages, 2006	63
58	Selected Business Factors for Farms Buying Majority of Forages Versus Similar Size Farms Growing Forages, 2006	64
59	Selected Business Factors by Type of Barn & Herd Size, 226 New York Dairy Farms, 2006	65
60	Farm Business Chart for Small Conventional Stall Dairy Farms, 33 Conventional Stall Dairy Farms with 60 or Less Cows, New York, 2006	66
61	Farm Business Chart for Large Conventional Stall Dairy Farms, 31 Conventional Stall Dairy Farms with More Than 60 Cows, New York, 2006	67
62	Farm Business Chart for Small Freestall Dairy Farms, 40 Freestall Barn Dairy Farms with 150 or less Cows, New York, 2006	68
63	Farm Business Chart for Medium Freestall Dairy Farms, 32 Freestall Barn Dairy Farms with 151-300 Cows, New York, 2006	69
64	Farm Business Chart for Large Freestall Dairy Farms, 90 Freestall Barn Dairy Farms with 300 or More Cows, New York, 2006	70
65	bST Non-users vs. Users, Same 57 Farms, 2002-2006	71
66	Comparison of Farm Business Data, Same 53 New York Dairy Farms, 1997-2006	72
67	Farm Receipts & Expenses Per Cow & Per Hundredweight for Three Levels of Milk Production, 240 New York Dairy Farms, 2006	74
68	Farm Receipts & Expenses Per Cow & Per Hundredweight for Three Herd Size Categories, 240 New York Dairy Farms, 2006	75
69	Intensive Grazing Farms vs. Non-Grazing Farms, New York State Dairy Farms, 2006	76
70	Selected Business Factors by Milking Frequency, New York Dairy Farms, 2005 & 2006	77
71	Comparison of Dairy Farm Business Data by Region, 240 New York Dairy Farms, 2006	78
72	Milk Production & Average Cost of Producing Milk, Five Regions of New York	79
73	Farm Business Summary & Farm Family Financial Situation, 22 New York Dairy-Renter Farms, 2006	80
74	Farm Business Summary & Farm Family Financial Situation, Average of 24 Top 10 Percent Farms by Rate of Return on All Capital (without appreciation), 2006	81
75	Farm Business Summary & Farm Family Financial Situation, Average of 240 New York Dairy Farms, 2006	82
A1	Prices Paid by New York Farmers for Selected Items, 1993-2006	84
A2	Values of New York Dairy Farm Inventory Items, 1990-2006	84
A3	Number of Dairy Farms and Milk Cows by Size of Herd, New York State, 2005	85

LIST OF FIGURES & CHARTS

Page

Figure 1. Location of the 240 New York Dairy Farms in the 2006 Dairy Farm Business Summary 2

Figure 2. Percent Change in Milk Production, Five Regions in New York, 1996-2006 79

Chart 1. Operating Cost of Producing Milk and Price Received for Milk 3

Chart 2. Labor and Management Income 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. Net Farm Income (without appreciation) by Herd Size 24

Chart 6. Net Farm Income & Milk Per Cow 26

Chart 7. Net Farm Income Per Cow & Milk Per Cow 26

Chart 8. Milk Sold Per Cow and Cull Rate 27

Chart 9. Net Farm Income Per Cow Without Appreciation and Cull Rate 27

Chart 10. Production Cost by Milk Per Cow 32

Chart 11. Total Cost of Producing Milk/Cwt. & Milk Per Cow 32

Chart 12. Production Cost by Herd Size 33

Chart 13. Net Farm Income Per Cow & Total Cost of Producing Milk Per Hundredweight. 34

Chart 14. Variation in Average Milk Price 38

Chart 15. Net Milk Income Over Purchased Concentrate Per Cow Versus Return on Assets 39

INTRODUCTION[1]

Dairy farm business summary (DFBS) projects are an integral part of Cornell Cooperative Extension's agricultural educational program in New York State. The Department of Applied Economics and Management of the College of Agriculture and Life Sciences at Cornell University, and County and Regional Extension staff, cooperate in sponsoring DFBS projects. In 2006, over 300 dairy farms participated, including dairy owners, renters, full-time, part-time, and out-of-state farms. Business records submitted by dairy farmers from 45 New York counties provide the basis for continuing Extension programs, data for applied studies, and for use in the classroom. Regardless of the use of the data, confidentiality of individual farm data is maintained.

Cornell Cooperative Extension educators enroll the cooperators and collect the records. In addition, assistance is provided by individual consultants Bruce Dehm and Charles Radick, and by consultants from Farm Credit of Western New York and First Pioneer Farm Credit. 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.aem.cornell.edu

Individual farm records from the 6 regions and 45 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.

Farms Included

Data from 240 specialized dairy farms are included in the main body of this report. 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). Participants represent more than 3 percent of the milk cow operations in New York (see Appendix Table A3). The 240 specialized dairy farms represent a cross section of better than average commercial dairy farm owner/operators 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 63 through 67. Specific studies of the performance of dairy farms using bST, rotational grazing and three times (3X) a day milking are presented on pages 71, 76 and 77.

Acknowledgements

The authors wish to acknowledge extension field staff and cooperating farmers for their invaluable contributions to this project. In addition, the authors appreciate the comments provided by Loren Tauer and George Conneman. Loree McOwen's assistance with preparing the publication is appreciated.

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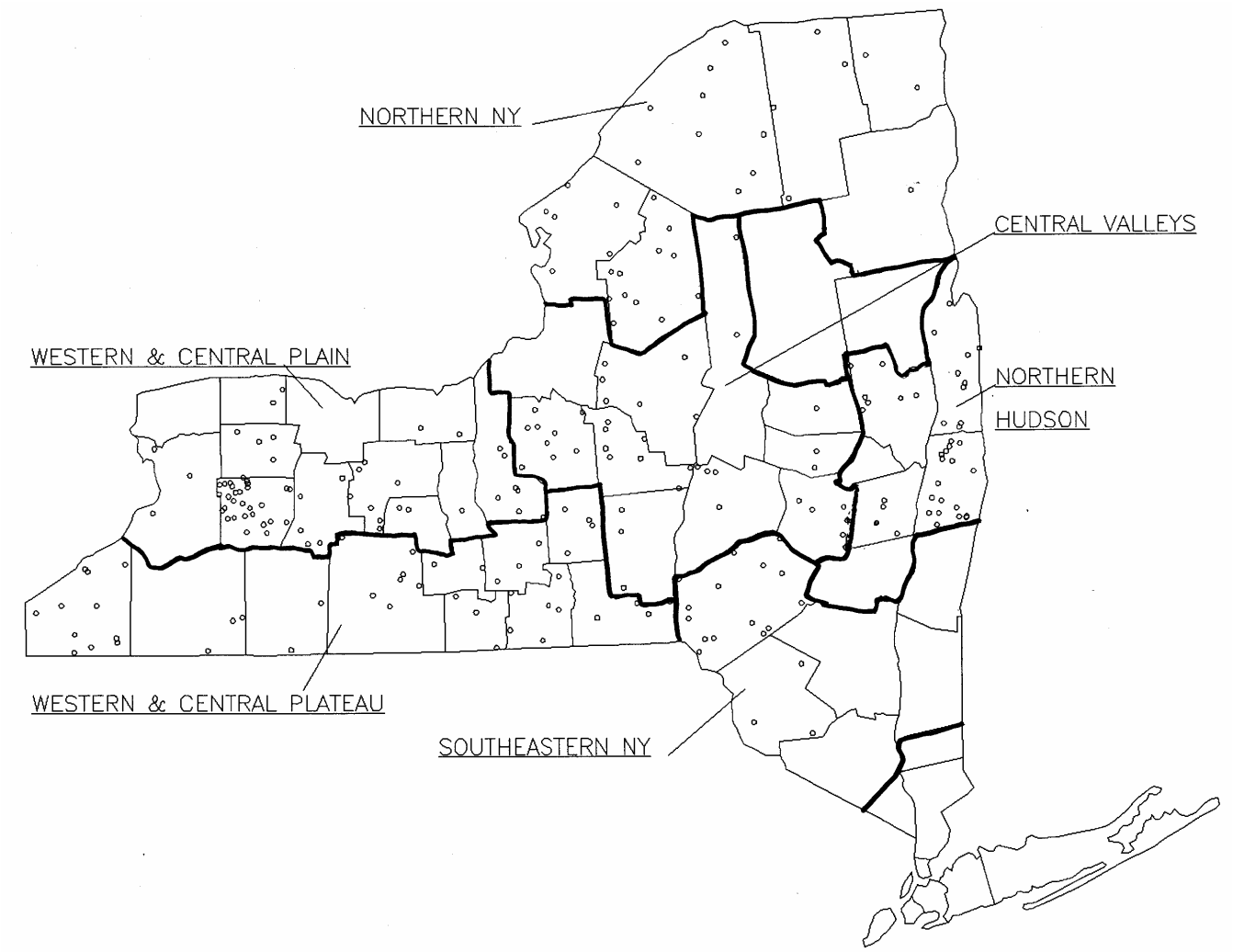
[1]This report was written by Wayne A. Knoblauch, Professor; Linda D. Putnam, Extension Support Specialist, in the Dept. of Applied Economics and Management at Cornell University, and Jason Karszes, Senior Extension Associate, Pro-Dairy.

Figure 1.

LOCATION OF THE 240 NEW YORK DAIRY FARMS IN THE 2006 DAIRY FARM BUSINESS SUMMARY



2006 Regional Summary Publications

Region	Publications	Author(s)
Western and Central Plain	E.B. 2007-06	Wayne A. Knoblauch, Linda D. Putnam, Jason Karszes, John Hanchar, Griffin Moag, Kyle Getty, and Zachary Waite
Northern Hudson	E.B. 2007-07	George J. Conneman, Linda D. Putnam, Cathy S. Wickswat, Sandra Buxton, Richard C. Smith & Jason Karszes
Western and Central Plateau	E.B. 2007-10	Wayne A. Knoblauch, Linda D. Putnam, Jason Karszes, James W. Grace, David L. Munsee & Joan S. Petzen
Northern New York	E.B. 2007-11	Wayne A. Knoblauch, Linda D. Putnam, Jason Karszes, Peggy Murray, Frans Vokey, Molly Ames, William Van Loo, Anita Deming, and Jessica Prosper
Central Valleys	E.B. 2007-14	Wayne A. Knoblauch, Jason Karszes , Charles Z. Radick, Cathy S Wichswat, James P Manning, David Balbian, George Allhusen, Sandra Buxton & Linda D. Putnam
Southeastern New York	E.B. 2007-18	Wayne A. Knoblauch, Linda D. Putnam, Mariane Kiraly, Joseph J. Walsh, Stephen E. Hadcock & Larry R. Hulle

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 10 fold between 1956 and 2006 with more than a doubling in herd size over the last 10 years. The DFBS sample is not representative of all farms in New York State. New York Agricultural Statistics Service data indicate the average herd in the state increased in size about two and a half times over the same 50-year period. Milk output per cow increased more than 159 percent with the largest increase occurring between 1986 and 1996. Labor efficiency, measured by pounds of milk sold per worker, was up 487 percent on DFBS farms, and the operating cost of producing milk increased more than 655 percent with the largest jump occurring between 1966 and 1976.

There is a large increase in farm capital invested per farm, up 660 percent since 1956. Net farm income per farm increased 104 percent (adjusted for 2006 dollars). Labor and management income per operator is down 176 percent from 50 years ago (adjusted for 2006 dollars) as 2006 was a very low income year. This is a reflection of the increased variability over the last 10 years. Some factors could not be calculated with 1956 and 1966 data because liabilities, interest paid, and appreciation were not available in those years. Farm net worth excluding deferred taxes has increased 874 percent over the last 30 years and return on equity capital decreased 67 percent since 1976.

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 140 farms that have been DFBS cooperators each year since 2003. Chart 1 shows the price received for milk in comparison to the operating cost of producing a hundredweight of milk for these farms. The low milk price and higher costs in 2006 provided dairy farmers with a challenge. The highest operating margin per hundredweight was $4.11 in 2004.

Average net farm income without appreciation in 2006 was 13 percent below the 2003 average, and 84 percent below the 2004 average. Net worth increased 3 percent in 2003, increased 18 percent in 2004, increased 16 percent in 2005, and increased 2 percent in 2006.

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

Chart 1.

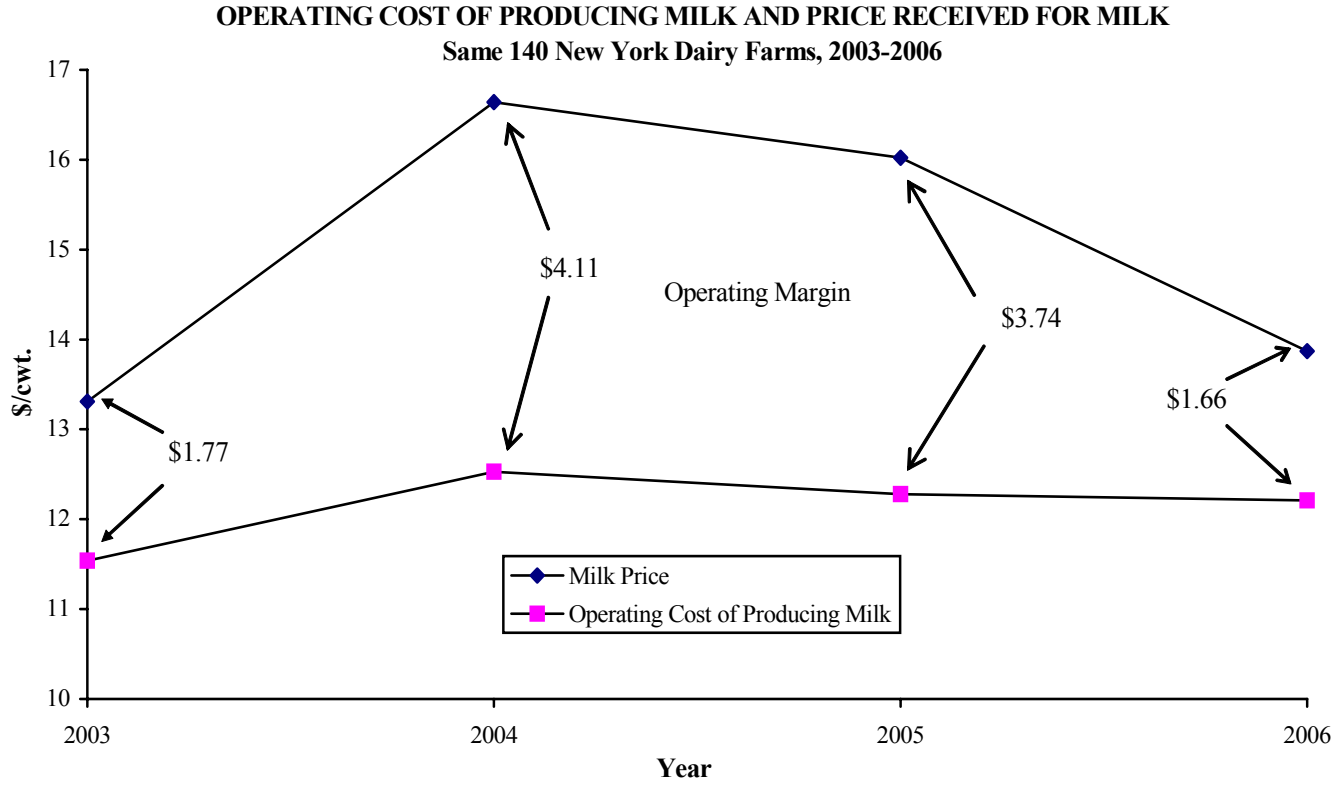


Table 1.

COMPARISON OF FARM BUSINESS SUMMARY DATA
New York Dairy Farms, 1956 - 2006

Selected Factors	1956	1966	1976	1986	1996	2006
Number of farms	342	731	615	414	300	240
Size of Business						
Average number of cows	34	47	71	95	167	350
Average number of heifers	20	30	52	77	124	283
Milk sold, cwt.	3,025	5,610	9,506	15,374	33,504	80,862
Worker equivalent	1.80	1.80	2.50	3.09	4.48	8.19[4]
Total tillable acres	98[2]	138[2]	265[2]	288	415	730
Rates of Production						
Milk sold per cow, lbs.	8,897	11,900	13,400	16,237	20,113	23,083
Hay DM per acre, tons	2.1	2.5	2.8	2.7	2.8	3.2
Corn silage per acre, tons	10.0	14.0	13.1	14.3	16	18
Labor Efficiency						
Cows per worker	19	26	28	31	37	43[4]
Milk sold per worker, lbs.	168,100	311,700	380,200	497,555	747,861	987,530[4]
Cost Control						
Grain & conc. as % of milk sales	26%	27%	27%	24%	30%	29%
Dairy feed & crop expense/cwt.	$1.38	$1.68	$3.47	$4.00	$5.46	$5.02
Operating cost of prod. cwt. milk	$1.60	$2.81	$6.85	$9.48	$12.00	$12.08
Total cost of producing cwt. milk	$2.04	$4.54	$10.42	$13.90	$15.23	$15.30
Milk receipts per cwt. milk	$4.18	$4.91	$9.90	$12.65	$14.98	$13.85
Capital Efficiency						
Total farm capital	$40,598	$80,567	$275,297	$550,240	$1,038,406	$2,719,207
Farm capital per cow	$1,194	$1,710	$3,877	$5,792	$6,218	$7,762
Machinery & equipment per cow	$248	$375	$691	$1,062	$1,107	$1,384
Real estate per cow	$556	$796	$1,959	$2,758	$2,701	$3,030
Livestock investment per cow	$285	$415	$756	$1,176	$1,469	$2,130
Asset turnover ratio	0.43	0.48	0.40	0.43	0.55	0.52
Profitability						
Net farm income without apprec.[5]	NA	NA	NA	$43,890	$82,988	$41,144
Net farm income with apprec.[5]	$57,583	$117,919	$82,808	$74,991	$97,709	$117,452
Labor & management income per operator/manager[5]	$41,007	$91,534	$28,178	$7,060	$23,873	$-31,269
Rate of return on:						
Equity capital with appreciation	NA	NA	7.9%	4.3%	5.5%	2.6%
All capital with appreciation	NA	NA	7.5%	6.0%	6.3%	4.0%
All capital without appreciation	NA	NA	5.6%	-2.9%	5.2%	1.2%
Financial Summary, End Year						
Farm net worth	NA	NA	$178,300	$348,909	$648,186	$1,736,505
Change in net worth with apprec.	NA	NA	NA	$20,275	$40,797	$27,158
Debt to asset ratio	NA	NA	0.35[3]	0.38	0.39	0.38
Farm debt per cow	NA	NA	$1,366[3]	$2,171	$2,451	$2,927

[2]Acres of cropland harvested.
[3]Average of 608 dairy farm cooperators submitting financial information in 1976.
[4]Based on hours actually worked by owner/operator instead of standard 12 months per full-time owner/operator.
[5]Adjusted for inflation using Consumer Price Index – 2006 dollars. NA = not available.

Table 2.

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 140 New York Dairy Farms, 2003 - 2006

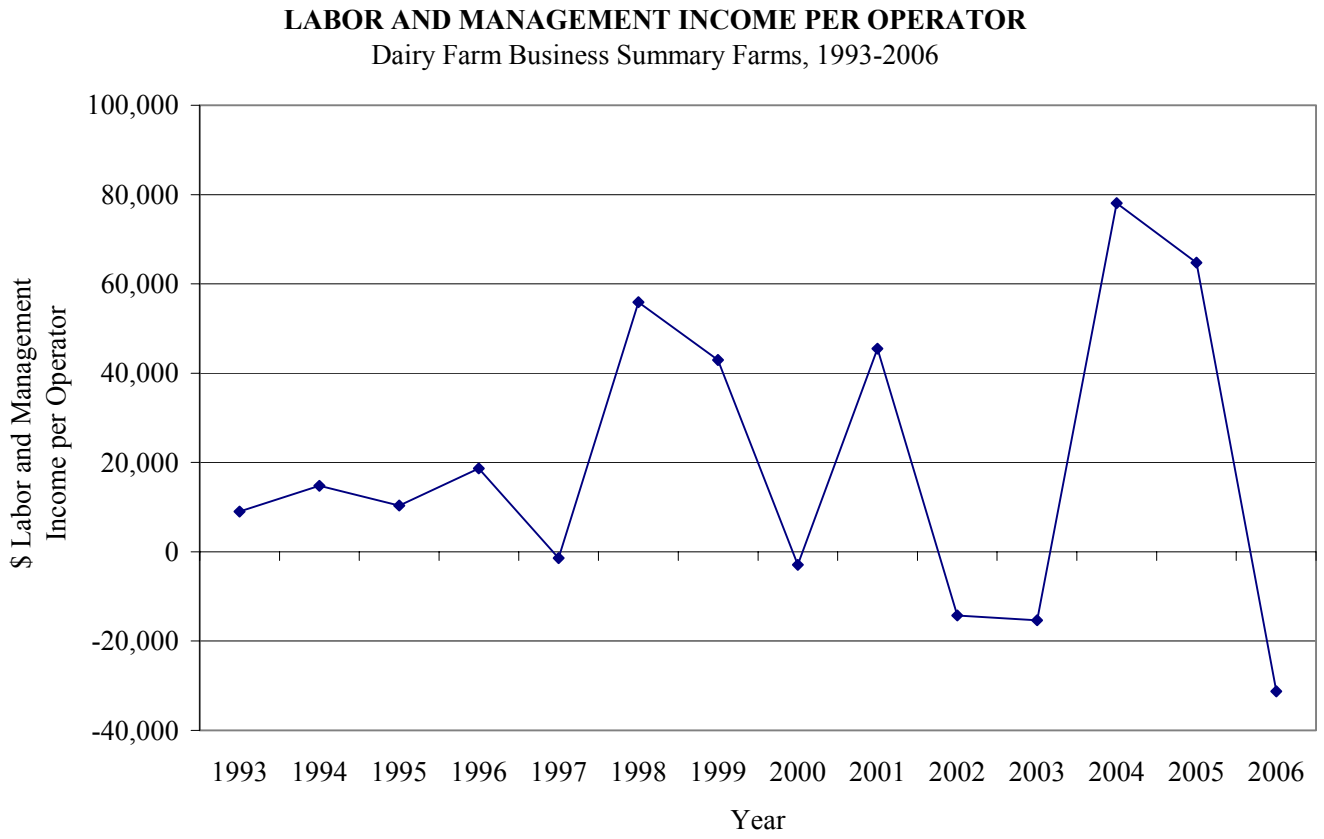
Selected Factors	2003	2004	2005	2006
Milk receipts per cwt. milk	$13.31	$16.64	$16.02	$13.87
Size of Business				
Average number of cows	380	400	415	435
Average number of heifers	292	308	329	350
Milk sold, cwt.	86,840	90,409	96,955	101,634
Worker equivalent[6]	8.98	9.45	9.68	9.95
Total tillable acres	766	803	828	853
Rates of Production				
Milk sold per cow, lbs.	22,849	22,599	23,349	23,359
Hay DM per acre, tons	3.3	3.6	3.5	3.3
Corn silage per acre, tons	17	18	19	19
Labor Efficiency				
Cows per worker[6]	42	42	43	44
Milk sold per worker, lbs.[6]	967,033	956,712	1,001,602	1,021,450
Cost Control				
Grain & concentrate purchased as % of milk sales	30%	28%	26%	29%
Dairy feed & crop expense per cwt. milk	$5.00	$5.59	$5.13	$5.02
Operating cost of producing cwt. milk	$11.54	$12.53	$12.28	$12.21
Total cost of producing cwt. milk	$14.39	$15.48	$15.34	$15.22
Hired labor cost per cwt.	$2.61	$2.74	$2.69	$2.65
Interest paid per cwt.	$0.52	$0.53	$0.63	$0.78
Labor & machinery costs per cow	$1,241	$1,316	$1,364	$1,355
Capital Efficiency, Average for Year				
Farm capital per cow	$6,605	$6,822	$7,289	$7,530
Machinery & equipment per cow	$1,168	$1,190	$1,272	$1,314
Real estate per cow	$2,610	$2,652	$2,769	$2,885
Livestock investment per cow	$1,792	$1,858	$2,006	$2,100
Asset turnover ratio	0.56	0.67	0.63	0.54
Profitability				
Net farm income without appreciation	$47,708	$255,067	$232,451	$41,457
Net farm income with appreciation	$114,364	$357,958	$369,135	$137,342
Labor & management income per operator/manager	$-18,779	$109,591	$81,625	$-38,515
Rate return on:				
Equity capital with appreciation	3.1%	18.1%	15.9%	2.9%
All capital with appreciation	3.6%	12.3%	11.8%	4.2%
All capital without appreciation	1.0%	8.5%	7.3%	1.3%
Financial Summary, End Year				
Farm net worth	$1,455,583	$1,715,703	$1,987,017	$2,027,368
Change in net worth with appreciation	$49,156	$265,512	$259,377	$22,777
Debt to asset ratio	0.44	0.40	0.37	0.40
Farm debt per cow	$2,960	$2,804	$2,801	$2,983

[6]Based on hours 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 income per operator in 2006 was at an all-time low, when measured in nominal (actual) value (Chart 2). Over the period 1993 to 2006, labor and management incomes per operator did not exceed $25,000 except for $55,000 in 1998, nearly $43,000 in 1999, over $45,000 in 2001, over $78,000 in 2004, and nearly $65,000 in 2005. The reader is reminded that the average herd size of DFBS participating farms steadily increased from 130 cows to 350 cows over this period.

Chart 2.



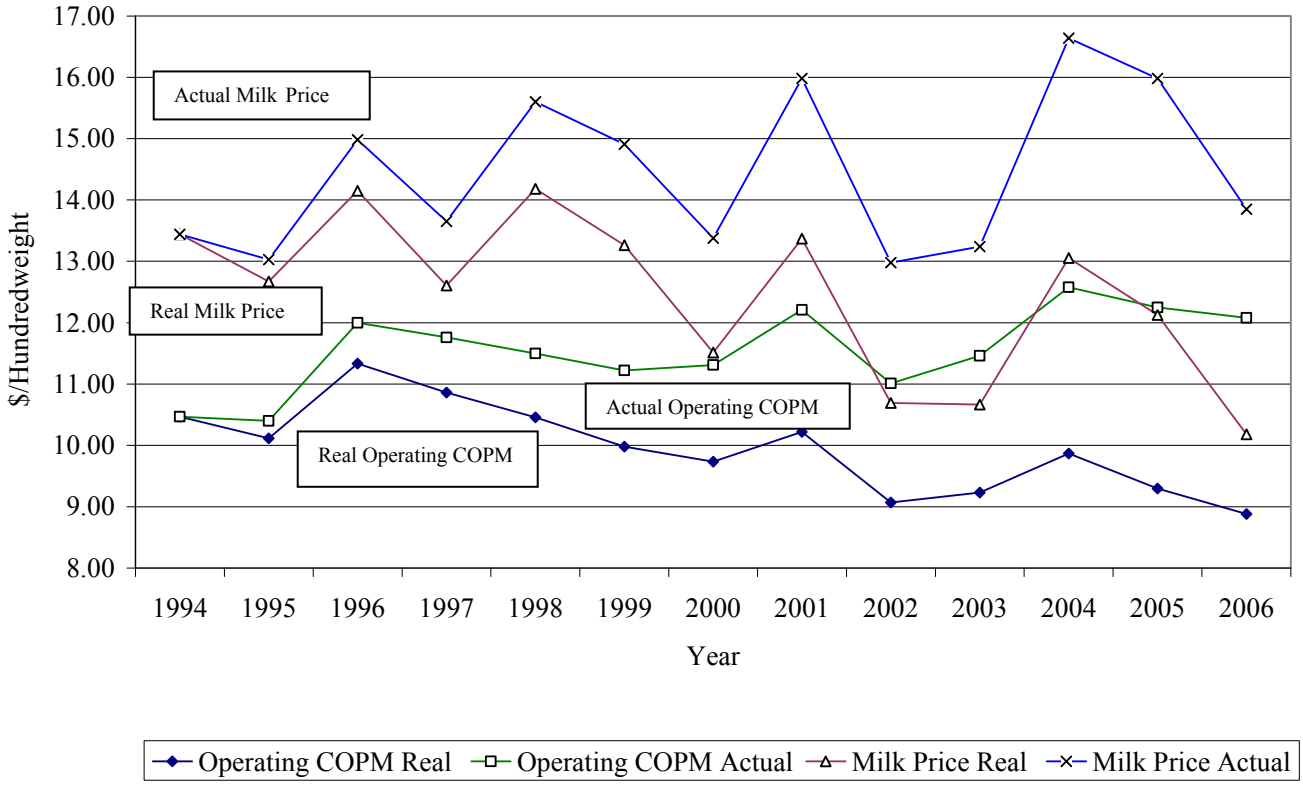
Milk prices in 2006 averaged $13.85 per hundredweight in actual dollars (Chart 3). However, the 2006 milk price, adjusted for inflation, in 1994 dollars, would have been about $10.18 per hundredweight.

Operating cost of producing milk (actual) had been very constant from 1993 through 1995 (Chart 3, page 7). Feed costs were higher in 1996 and so were operating costs of producing milk. Operating costs were on a downward trend from 1996 through 2000. Operating costs then increased in 2001, fell in 2002, and increased in 2003 and 2004, but remained higher than the early 1990's. Operating costs decreased slightly in 2005 and 2006. Real costs of producing milk per hundredweight have been on a downward trend over this 13-year period.

Chart 3.

OPERATING COST OF PRODUCING MILK AND MILK PRICE[7]

Dairy Farm Business Summary Farms, 1994-2006



[7] Actual operating cost of producing milk as well as milk price are adjusted for inflation, to obtain real values, using the Consumer Price Index–1994 dollars.

SUMMARY AND ANALYSIS OF THE FARM BUSINESS

Business Characteristics and Resources Used

Recognition of important business characteristics and identification of the farm resources used is necessary for evaluating management performance. The combination of resources used and management practices employed is known as farm organization. Important farm business characteristics and the number of farms reporting these characteristics for 2006 are presented in the following table.

Table 3.

BUSINESS CHARACTERISTICS AND RESOURCES USED
240 New York Dairy Farms, 2006

Dairy Livestock (number)	Cows	Heifers
Beginning of Year	337	276
End of Year	357	288
Average for Year	350	283

Type of Business	Number	Percent
Sole Proprietorship	116	48
Partnership	56	23
Limited Liability Corp.	51	21
Subchapter S Corporation	16	7
Subchapter C Corporation	1	1

Barn Type	Number	Percent
Stanchion	64	27
Freestall	162	67
Combination	14	6

Milking System	Number	Percent
Bucket & Carry	0	0
Dumping Station	2	1
Pipeline	68	28
Herringbone Conventional	69	29
Herringbone Rapid Exit	18	8
Parallel	58	24
Parabone	6	3
Rotary	1	1
Other	18	7

Milking Frequency	Number	Percent
2 times per day	157	65
3 times per day	76	32
Other	7	3

Business Records	Number	Percent
Account Book	38	16
Accounting Service	45	19
On-Farm Computer	155	64
Other	2	1

Dairy Records	Number	Percent
Testing Service	178	74
On Farm System	31	13
Other	2	1
None	28	12

bST Usage	Number	Percent
Used consistently	93	39
Used inconsistently	13	5
Started using in 2006	1	1
Stopped using in 2006	8	3
Not used in 2006	126	52
Average % usage, if used	42%	

Labor Force	Average	Percent
Operators	22.3	23
Family Paid	4.2	4
Family Unpaid	2.6	3
Hired	69.2	70
Total Months	98.3	100

	Average
Operators (total = 391)	1.63
Age	51
Education	15 years
Estimated value of labor & management/farm	$66,503

	Farms Reporting	
Land Used	Number	Average
Total acres:		
Owned	240	551
Rented	219	412
Tillable acres:		
Owned	240	370
Rented	216	400
Total	240	730

Breed of Herd	
Holstein	91%
Jersey	5%
Other	4%

There were 391 full-time operator equivalents on the 240 dairy farms for an average of 1.63 operators per farm. The operators averaged 51 years of age and 15 years of formal education. Additional data on the labor force is in Table 44.

All 240 farm businesses included in this dairy summary own farm real estate. Dairy farm renters are summarized separately later in this publication. However, 216 of the dairy farm owners rented an average of 400 acres of tillable land in 2006. The 240 farms averaged 730 total tillable acres per farm of which 360 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 240 farms averaged $3,118 per day and 91 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
240 New York Dairy Farms, 2006

Expense Item	Cash Paid	-	Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses	Per-cent
Hired Labor	$207,625		$-311 <<		$349		$208,284	18
Feed								
Dairy grain & concentrate	295,897		-19,333		9,609		324,840	28
Dairy roughage	21,596		227		735		22,105	2
Nondairy livestock	113		1		0		113	<1
Professional nutritional services	298		-231 <<		1		531	<1
Machinery								
Machinery hire, rent & lease	22,968		-40 <<		766		23,774	2
Machinery repairs & farm vehicle expense	58,778		-770		1,345		60,893	5
Fuel, oil & grease	46,130		-137		464		46,731	4
Livestock								
Replacement livestock	5,462		0 <<		-4		5,458	1
Breeding	18,273		-11		108		18,392	2
Veterinary & medicine	51,187		-842		669		52,698	4
Milk marketing	64,486		0 <<		47		64,533	6
Bedding	24,104		171		220		24,154	2
Milking Supplies	27,758		-429		423		28,610	2
Cattle lease & rent	1,252		0 <<		1		1,253	<1
Custom boarding	23,017		-84 <<		417		23,518	2
bST expense	16,655		83 <<		-81		16,491	1
Livestock professional fees	3,897		-136 <<		23		4,055	<1
Other livestock expense	6,284		-34		-22		6,295	1
Crops								
Fertilizer & lime	21,092		-2,657		951		24,699	2
Seeds & plants	16,524		-2,265		29		18,817	2
Spray & other crop expense	12,318		-827		338		13,482	1
Crop professional fees	1,443		-140 <<		88		1,671	<1
Real Estate								
Land, building & fence repair	18,042		42		140		18,140	2
Taxes	17,226		78 <<		-116		17,033	1
Rent & lease	20,875		-239 <<		206		21,321	2
Other								
Insurance	13,788		-159 <<		74		14,020	1
Utilities	32,669		-6 <<		246		32,920	3
Interest paid	62,543		-82<<		154		62,779	5
Other professional fees	6,633		-22 <<		83		6,738	1
Miscellaneous	8,371		-84		153		8,608	1
Total Operating	$1,127,305		$-28,236		$17,415		$1,172,956	100
Expansion livestock	$15,979		$0 <<		-25		$15,954	
Extraordinary expense	681				0		$681	
Machinery depreciation							$60,817	
Building depreciation							$40,989	
TOTAL ACCRUAL EXPENSES							$1,291,397	

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, purchased dairy grain and concentrate inventory decreased $19,333.

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 rent decreased an average of $239 per farm in 2006, and that decrease is subtracted from cash rent to determine the correct 2006 accrual rental 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 $-28,236 and total change in accounts payable equals $17,415.

Income Statement - Receipts

Cash and accrual farm receipts are presented in the following table. Total cash receipts averaged $1,281,116 per farm. Total accrual receipts averaged $1,332,542 per farm. Accrual receipts were greater than cash receipts due primarily to dairy herd growth and increases in crop inventory. Cow numbers increased an average of 20 head per farm and the homegrown feed inventory per farm increased $17,652. Homegrown feed inventory per cow increased $19 from beginning to end of year.

Table 5.

CASH AND ACCRUAL FARM RECEIPTS
240 New York Dairy Farms, 2006

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts	Percent
Milk sales	$1,123,652				$-3,531		$1,120,121	87
Dairy cattle	57,619		$34,385		-496		91,507	6
Dairy calves	19,846		3,617		-25		23,438	2
Other livestock	2,389		592		-17		2,964	<1
Crops	11,212		17,652		-604		28,259	2
Government receipts	42,616		0[8]		-288		42,327	3
Custom machine work	3,470				20		3,490	<1
Gas tax refund	207				0		207	<1
Other	20,106				554		20,661	1
- Nonfarm noncash Capital[9]			(-) 433				(-) 433	
Total	$1,281,116		$55,813		$-4387		$1,332,542	100

[8]Change in advanced government receipts.
[9]Gifts or inheritances of cattle or crops included in inventory.

Cash receipts include the gross value of milk checks received during the year plus all other payments received 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 2005 to 2006. 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 2006 marketings and the previous January's check, and other delayed payments.

Nonfarm noncash capital 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 $76,308 per farm in 2005. On the average, farm real estate appreciated $48,913 or 5 percent of beginning fair market value. Machinery appreciated 3.4 percent while dairy cattle prices appreciated 1.5 percent in 2006.

Average data from 24 farms with the highest rates of return to all capital (without appreciation) are compared with the 240 farm average in Table 8 and in many of the following tables. Net farm income without appreciation averaged $259,888 per farm on the top 10 percent farms, 532 percent greater than the 240-farm average.

Table 6.

NET FARM INCOME
240 New York Dairy Farms, 2006

	Average 240 Farms		Average Top 10% Farms[10]	
Item	Per Farm	Per Cow	Per Farm	Per Cow
Total accrual receipts	$1,332,542		$1,904,931	
+ Appreciation: Livestock	10,883		-7,232	
Machinery	15,862		25,544	
Real Estate	48,913		45,682	
Other Stock & Certificates	650		2,677	
= Total including appreciation	$1,408,850		$ 1,971,602	
- Total accrual expenses	1,291,397		1,645,043	
= Net Farm Income (with appreciation)	$117,452	$335	$326,558	$676
Net Farm Income (without appreciation)	$41,144	$117	$259,888	$538

[10]Average of 24 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 5 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.

Table 7.

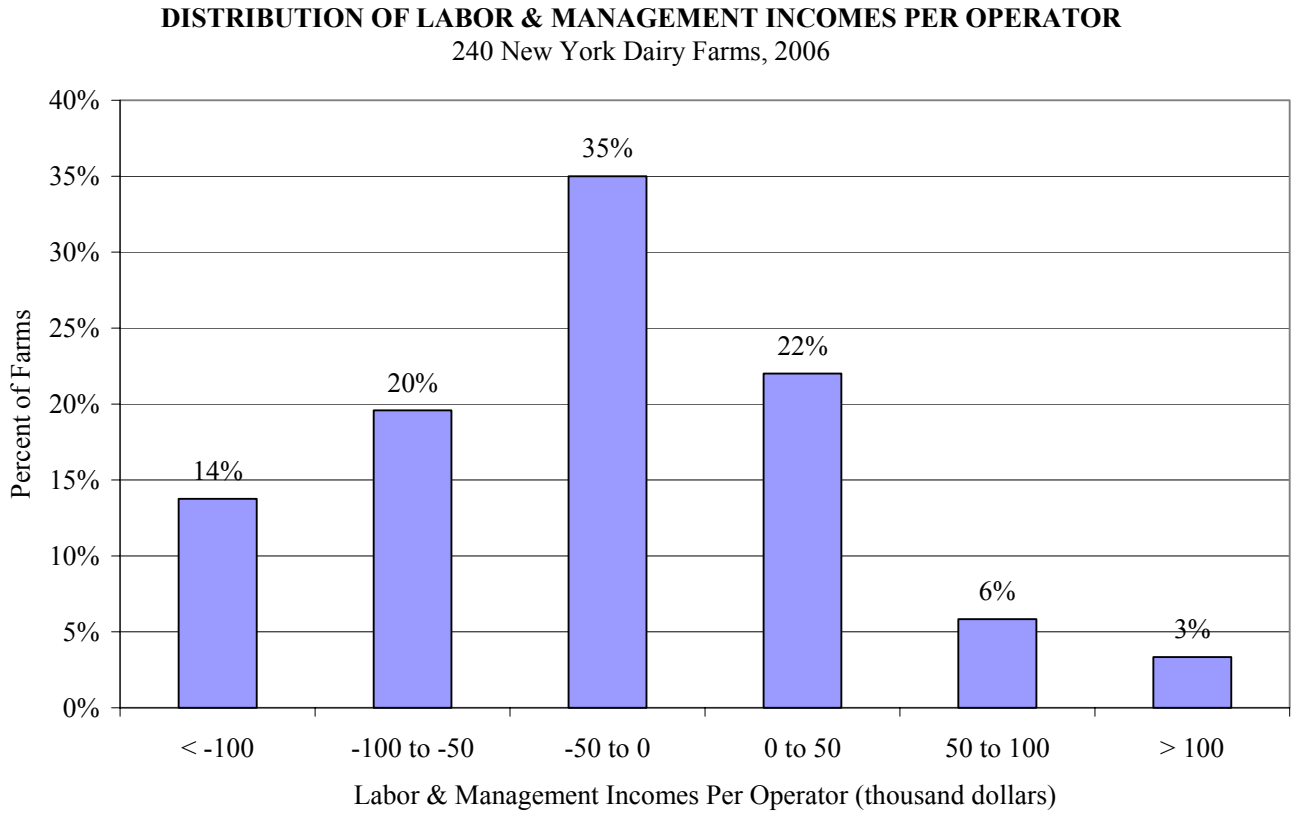
LABOR AND MANAGEMENT INCOME
240 New York Dairy Farms, 2006

Item	Average 240 Farms		Average Top 10% Farms[11]
Net farm income without appreciation	$ 41,144		$259,888
- Family labor unpaid @ $2,300 per month	6,057		5,165
- Real interest @ 5% on $1,722,926 equity capital for average & $2,215,330 for the top 10% farms	86,056		110,767
= Labor & Management Income (1.63 operators)	$-50,968	(1.43 operators)	$143,956
Labor & Management Income per Operator	$-31,269		$100,668

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

Labor and management income per operator averaged $-31,269 on these 240 dairy farms in 2006. The range in labor and management income per operator was from less than $-510,000 to more than $250,000. Returns to labor and management were negative on 69 percent of the farms. Labor and management incomes per operator were between $0 and $50,000 on 22 percent of the farms while 9 percent showed labor and management incomes of $50,000 or more per operator.

Chart 4.



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
240 New York Dairy Farms, 2006

Item	Average 240 Farms	Average Top 10% Farms[12]
Net farm income with appreciation	$117,452	$326,558
- Family labor unpaid at $2,300 per month	6,057	5.165
- Value of operators' labor & management	66,503	68,831
= Return to equity capital with appreciation	$44,893	$252,562
+ Interest paid	62,779	86,352
= Return to all capital with appreciation	$107,672	$338,914
Return to equity capital without appreciation	$-31,415	$185,892
Return to all capital without appreciation	$31,364	$272,244
Rate of return on average equity capital:		
with appreciation	2.6%	11.4%
without appreciation	-1.8%	8.4%
Rate of return on all capital:		
with appreciation	4.0%	9.3%
without appreciation	1.2%	7.5%
Net farm income from operations ratio	0.03	0.14

[12]Average of 24 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
240 New York Dairy Farms, 2006

	Quartile by Return to All Capital With Appreciation			
Item	Lowest 25%	3rd 25%	2nd 25%	Top 25%
Return to all capital with appreciation	$-56,515	$7,892	$86,452	$392,857
Rate of return on all capital with appreciation	-4.3%	0.7%	3.4%	6.7%
Total returns to all labor & management	$16,859	$31,791	$152,858	$524,387
Worker equivalent	4.51	3.37	7.71	17.18
Return per worker equivalent	$3,742	$9,443	$19,834	$30,526
Returns/hour (2,760 hours/worker/year)	$1.36	$3.42	$7.19	$11.06

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.

2006 FARM BUSINESS AND NONFARM BALANCE SHEET
240 New York Dairy Farms, 2006

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
Current			Current		
Farm cash, checking & savings	$20,172	$19,298	Accounts payable	$33,561	$50,951
Accounts receivable	86,396	82,009	Operating debt	50,484	62,706
Prepaid expenses	3,413	2,041	Short term	1,980	5,078
Feed & supplies	261,087	251,874	Advanced gov't. receipt	0	0
Total Current	$371,068	$355,222	Current portion:		
			Intermediate	68,714	77,923
			Long term	19,659	22,383
			Total Current	$174,398	$219,041
Intermediate			Intermediate		
Dairy Cows:			Structured debt		
owned	$452,243	$486,712	1-10 years	$396,476	$436,158
leased	892	696	Financial lease		
Heifers	264,922	279,314	(cattle & machinery)	3,669	3,844
Bulls & other livestock	2,796	3,412	Farm Credit stock	6,329	3,670
Mach. & equip. owned	467,738	496,217	Total Intermediate	$406,474	$443,672
Mach. & equip. leased	2,777	3,148			
Farm Credit stock	6,329	3,670	Long Term		
Other stock & certificates	56,722	61,571	Structured debt		
Total Intermediate	$1,254,418	$1,334,740	≥ 10 years	$350,685	$389,624
Long Term			Financial lease		
Land & buildings:			(structures)	4,364	4,304
owned	$1,015,416	$1,098,879	Total Long Term	$355,049	$393,928
leased	4,364	4,304			
Total Long Term	$1,019,780	$1,103,184	Total Farm Liabilities	$935,921	$1,056,641
Total Farm Assets	$2,645,267	$2,793,146	FARM NET WORTH	$1,709,346	$1,736,505

Nonfarm Assets[13]	Jan.1	Dec. 31	Nonfarm Liabilities[13] & Net Worth	Jan. 1	Dec. 31
Personal cash, checking & savings	$8,790	$8,798	Nonfarm Liabilities	$2,152	$2,511
Cash value life insurance	21,184	23,243	NONFARM NET WORTH	$223,474	$254,652
Nonfarm real estate	92,559	97,766	FARM & NONFARM[14]	Jan. 1	Dec. 31
Auto (personal share)	14,644	14,036	Total Assets	$2,870,893	$3,050,309
Stocks & bonds	47,648	56,546	Total Liabilities	938,073	1,059,152
Household furnishings	7,860	7,936			
All other	32,941	48,837	TOTAL FARM & NON-FARM NET WORTH	$1,932,820	$1,991,157
Total Nonfarm	$225,626	$257,163			

[13]Average of 117 farms completing the nonfarm balance sheet.
[14]Sum of average farm values for 240 farms and nonfarm values for 117 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. 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
240 New York Dairy Farms, 2006

Item		Average 240 Farms		Average Top 10% Farms[15]	
Farm Financial Ratios:					
Percent equity			62%		61%
Debt/asset ratio: total			0.38		0.39
long term			0.36		0.42
intermediate & current			0.39		0.38
Leverage Ratio:			0.61		0.65
Current Ratio:			1.62		1.85
Working Capital: $135,654	Dollars as % of Total Expenses:		11%	$242,378	15%
Farm Debt Analysis:					
Accounts payable as % of total debt			5%		4%
Long term liabilities as % of total debt			37%		42%
Current & intermediate liabilities as % of total debt			63%		58%
Cost of term debt (weighted average)			6.3%		6.5%
Farm Debt Levels:		Per Cow	Per Tillable Acre Owned	Per Cow	Per Tillable Acre Owned
Total farm debt		$2,927	$2,854	$2,984	$3,009
Long term debt		1,089	1,062	1,268	1,279
Intermediate & long term		2,319	2,261	2,417	2,437
Intermediate & current debt		1,838	1,792	1,716	1,731

[15]Average of 24 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
240 New York Dairy Farms, 2006

Item	Real Estate		Machinery & Equipment		Livestock
Value beginning of year		$1,015,416		$467,738	$719,961
Purchases	$113,788[16]		$78,844		
+ nonfarm noncash transfer[17]	858		163		
- Lost capital	35,782				
- Net sales	3,325		5,573		
- Depreciation	40,989		60,817		
= Net Investment		34,550		12,617	38,594
+ Appreciation		48,913		15,862	10,883
Value end of year		$1,098,879		$496,217	$769,438

[16]$20,166 land and $93,622 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)
240 New York Dairy Farms, 2006

Item	Average 240 Farms		Average Top 10% Farms[19]	
Beginning of year farm net worth		$1,709,346		$2,118,682
Net farm income without appreciation	$41,144		$259,888	
+ Nonfarm cash income	6,654		8,803	
- Personal withdrawals & family expenditures and income taxes, excluding nonfarm borrowings	73,830		79,615	
RETAINED EARNINGS		+ $-26,031		+ $189,076
Nonfarm noncash transfers to farm	$1,454		$2,083	
+ Cash used in business from nonfarm capital	12,118		31,145	
- Note or mortgage from farm real estate sold (nonfarm)	0		0	
CONTRIBUTED/WITHDRAWN CAPITAL		+ $13,572		+ $33,228
Appreciation	$76,308		$66,671	
- Lost capital	35,782		93,146	
CHANGE IN VALUATION EQUITY		+ $40,526		+ $-26,475
IMBALANCE/ERROR		- $908		- $ 2,534
End of year farm net worth[18]		$1,736,505		$2,311,978

Change in Net Worth		
Without appreciation	$-49,150	$126,625
With appreciation	$ 27,158	$193,296

[18]May not add due to rounding.
[19]Average of 24 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
240 New York Dairy Farms, 2006

Item		Average 240 farms	
Cash Flow from Operating Activities			
Cash farm receipts	$1,281,116		
- Cash farm expenses	1,127,305		
- Extraordinary expense	681		
= Net cash farm income		$153,130	
Personal withdrawals & family expenses including nonfarm debt payments	$74,498		
- Nonfarm income	6,654		
- Net cash withdrawals from the farm		$67,844	
= Net Provided by Operating Activities			$85,286
Cash Flow From Investing Activities			
Sale of assets: machinery	$5,573		
+ real estate	3,325		
+ other stock & certificates	1,760		
= Total asset sales		$10,657	
Capital purchases: expansion livestock	$15,979		
+ machinery	78,844		
+ real estate	113,788		
+ other stock & certificates	5,960		
- Total invested in farm assets		$214,571	
+ Net Provided by Investment Activities			$-203,914
Cash Flow From Financing Activities			
Money borrowed (intermediate & long term)	$194,398		
+ Money borrowed (short term)	5,402		
+ Increase in operating debt	12,222		
+ Cash from nonfarm capital used in business	12,118		
+ Money borrowed - nonfarm	668		
= Cash inflow from financing		$224,809	
Principal payments (intermediate & long term)	$103,843		
+ Principal payments (short term)	2,305		
+ Decrease in operating debt	0		
- Cash outflow for financing		$106,148	
= Net Provided by Financing Activities			$118,661
Cash Flow From Reserves			
Beginning farm cash, checking & savings		$20,172	
- Ending farm cash, checking & savings		$19,298	
= Net Provided from Reserves			$875
Imbalance (error)			$908

Table 15.

ANNUAL CASH FLOW DATA
240 New York Dairy Farms, 2006

Item	Average 240 Farms Total	Average 240 Farms Per Cow	Average 240 Farms Per Cwt.	Average Top 10% Farms[21] Total	Average Top 10% Farms[21] Per Cow	Average Top 10% Farms[21] Per Cwt.
Average number of cows and cwt. milk		350	80,862		483	109,129
Accrual Operating Receipts						
Milk	$1,120,121	$3,198	$13.85	$1,514,796	$3,135	$13.88
Dairy cattle	91,507	261	1.13	177,011	366	1.62
Dairy calves	23,438	67	0.29	35,439	73	0.32
Other livestock	2,964	8	0.04	7,874	16	0.07
Crops	28,259	81	0.35	78,874	163	0.72
Miscellaneous receipts	66,252	189	0.82	90,937	188	0.83
Total	$1,332,542	$3,804	$16.48	$1,904,931	$3,943	$17.46
Accrual Operating Expenses						
Hired labor	$ 208,284	$ 595	$ 2.58	$ 300,079	$ 621	$ 2.75
Dairy grain & concentrate	324,840	927	4.02	389,470	806	3.57
Dairy roughage	22,105	63	0.27	21,766	45	0.20
Nondairy feed	113	0	0.00	788	2	0.01
Professional nutritional services	531	2	0.01	903	2	0.01
Machinery hire, rent & lease	23,774	68	0.29	36,313	75	0.33
Machinery repairs & vehicle expense	60,893	174	0.75	74,913	155	0.69
Fuel, oil & grease	46,731	133	0.58	59,068	122	0.54
Replacement livestock	5,458	16	0.07	6,585	14	0.06
Breeding	18,392	53	0.23	22,825	47	0.21
Veterinary & medicine	52,698	150	0.65	62,398	129	0.57
Milk marketing	64,533	184	0.80	79,651	165	0.73
Bedding	24,154	69	0.30	25,478	53	0.23
Milking supplies	28,610	82	0.35	32,184	67	0.29
Cattle lease	1,253	4	0.02	6,073	13	0.06
Custom boarding	23,518	67	0.29	28,263	58	0.26
bST expense	16,491	47	0.20	18,160	38	0.17
Livestock professional fees	4,055	12	0.05	3,736	8	0.03
Other livestock expense	6,295	18	0.08	7,314	15	0.07
Fertilizer & lime	24,699	71	0.31	30,150	62	0.28
Seeds & plants	18,817	54	0.23	26,588	55	0.24
Spray/other crop expense	13,482	38	0.17	15,977	33	0.15
Crop professional fees	1,671	5	0.02	3,931	8	0.04
Land, building & fence repair	18,140	52	0.22	25,251	52	0.23
Taxes	17,033	49	0.21	18,569	38	0.17
Real estate rent & lease	21,321	61	0.26	29,906	62	0.27
Insurance	14,020	40	0.17	13,545	28	0.12
Utilities	32,920	94	0.41	43,862	91	0.40
Miscellaneous	15,346	44	0.19	22,467	46	0.21
Total Less Interest Paid	$1,110,177	$3,169	$13.73	$1,406,212	$2,910	$12.89
Net Accrual Operating Income (without interest paid)	$ 222,365	$ 635	$ 2.75	$ 498,719	$1,032	$ 4.57
- Change in livestock & crop inventory	55,813	159	0.69	170,467	353	1.56
- Change in accounts receivable	-4,387	-13	-0.05	994	2	0.01
- Change in feed & supply inventory	-28,236	-81	-0.35	-32,107	-66	-0.29
+ Change in accounts payable[20]	17,260	49	0.21	17,735	37	0.16
NET CASH FLOW	$ 216,435	$ 618	$ 2.68	$ 377,100	$ 780	$ 3.46
- Net personal withdrawals & family exp.	66,667	190	0.82	70,812	147	0.65
Available for Farm Debt Payments & Invest.	$ 149,768	$ 428	$ 1.85	$ 306,288	$ 634	$ 2.81
- Farm debt payments	176,461	504	2.18	329,725	682	3.02
Cash available for Farm Investments	$ -26,693	$ -76	$ -0.33	$ -23,437	$ -48	$ -0.21

[20]Exclude change in interest account payable.
[21]Average of 24 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 2005 and 2006.

Table 16.

FARM DEBT PAYMENTS PLANNED
Same 191 New York Dairy Farms, 2005 & 2006

	Same 191 Dairy Farms			Same 21 Top 10% Farms		
	2006 Payments		Planned	2006 Payments		Planned
Debt Payments	Planned	Made	2007	Planned	Made	2007
Long term	$53,300	$60,686	$57,979	$81,016	$124,869	$91,337
Intermediate term	120,129	119,604	125,174	139,034	200,208	161,326
Short term	2,135	2,865	3,333	5,436	9,422	17,404
Operating (net reduction)	6,557	9,500	6,611	20,798	20,120	13,858
Accts. payable (net reduction)	670	1,459	775	4,526	764	952
Total	$182,792	$194,114	$193,872	$250,810	$355,382	$284,878
Per cow	$466	$494		$475	$673	
Per cwt. 2006 milk	$2.00	$2.31		$2.09	$2.96	
% of 2006 milk receipts	14%	15%		15%	21%	

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

Table 17.

COVERAGE RATIOS
Same 191 New York Dairy Farms, 2005 & 2006

Item	Average	Item	Average
Cash Flow Coverage Ratio		Debt Coverage Ratio	
Cash farm receipts	$1,447,185	Net farm income (without apprec.)	$ 43,593
- Cash farm expenses	1,272,964	+ Depreciation	113,998
+ Interest paid (cash)	70,859	+ Interest paid (accrual)	71,155
- Net personal withdrawals from farm[22]	73,346	- Net personal withdrawals from farm[22]	73,346
(A) = Amount Available for Debt Service	$171,733	(A') = Repayment Capacity	$155,400
(B) = Debt Payments Planned for 2006 (as of December 31, 2005)	$182,792	(B) = Debt Payments Planned for 2006 (as of December 31, 2005)	$182,792
(A/ B)= Cash Flow Coverage Ratio for 2006	0.94	(A'/B)= Debt Coverage Ratio for 2006	0.85
Same 21 Top 10% Dairy Farms, 2005 & 2006			
(A) = Amount Available for Debt Service	$336,056	(A') = Repayment Capacity	$424,812
(B) = Debt Payments Planned for 2006	250,810	(B) = Debt Payments Planned for 2006	250,810
(A/ B)= Cash Flow Coverage Ratio for 2006	1.34	(A'/B)= Debt Coverage Ratio for 2006	1.69

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

The debt to asset ratio is a good measure of the current relationship between assets and liabilities, but not the business' ability to meet cash flow obligations. Even with a debt to asset ratio of less than 40 percent, 13 percent of the farms had a cash flow coverage ratio less than 1.0.

Table 18.

DEBT TO ASSET RATIO VS. CASH FLOW COVERAGE
191 New York Dairy Farms, 2006

	Cash Flow Coverage Ratio (Farm & Nonfarm)			
Debt/Asset Ratio	<.5	.5 to .99	1 to 1.49	>=1.5
	percent of farms			
<40%	17.8	20.4	12.4	12.9
40 to 70%	7.5	14.0	8.6	3.8
70% & over	0.5	1.6	0.0	0.5

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
240 New York Dairy Farms, 2006

Item	Average 240 Farms			Average Top 10% Farms[23]		
Land	Owned	Rented	Total	Owned	Rented	Total
Tillable	370	360	730	499	476	975
Nontillable pasture	43	11	54	37	28	65
Other nontillable	137	5	142	140	2	142
Total	550	376	926	676	506	1,182
Crop Yields	Farms	Acres	Prod/Acre	Farms	Acres	Prod/Acre
Hay crop	232	378	3.2 tn DM	24	449	3.8 tn DM
Corn silage	209	286	18.4 tn	22	319	21.2 tn
			6.3 tn DM			7.3 tn DM
Other forage	19	56	1.5 tn DM	2	282	1.1 tn DM
Total forage	233	638	4.4 tn DM	24	765	5.0 tn DM
Corn grain	91	153	132 bu	15	210	141 bu
Oats	18	36	61 bu	1	43	88 bu
Wheat	17	64	64 bu	4	60	66 bu
Other crops	56	100		10	131	
Tillable pasture	45	60		2	113	
Idle	43	72		4	20	

[23]Average of 24 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 8 of the 240 farms produced hay or hay crop silage in 2006. Eighty-seven percent produced corn silage, 38 percent grew and harvested corn grain, and 8 percent grew oats for grain. Although 45 farms used tillable pasture in 2006, only 39 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
240 New York Dairy Farms, 2006

Item	Average 240 Farms	Average Top 10% Farms[24]
Total tillable acres per cow	2.12	2.02
Total forage acres per cow	1.81	1.58
Harvested forage dry matter, tons per cow	8.03	7.96

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

Twenty-nine cooperators allocated direct crop related expenses to hay crop and corn. The data in Table 21 have been compiled to show the average crop related production expenses per acre and per unit for these crops. Note that labor and machinery costs have not been included. Total corn expenses are allocated to corn silage and corn grain based on the proportion of acres in each crop. In Table 21, the total per tillable acre represents 233 farms that grew forages. The expenses for hay and corn crops are for 29 farms.

Table 21.

CROP RELATED ACCRUAL EXPENSES
New York Dairy Farms, 2006

	Average 233 Farms	Average 29 Farms		Average 29 Farms		
	Total per Tillable Acre	Hay Crop Per Acre	Hay Crop Per Ton DM	All Corn Per Acre	Corn Silage Per Ton DM	Corn Grain Per Dry Shell Bu.
Espenses						
Fertilizer & lime	$30.47	$23.12	$15.29	$ 49.54	$9.97	$0.21
Seeds & plants	21.34	11.90	3.32	45.75	8.35	0.21
Spray & other crop exp.	15.12	3.88	0.81	48.51	8.76	0.17
Total	$66.93	$38.90	$19.42	$143.80	$27.08	$0.59
Ave. Top 10% Farms:[25]	Average 24 Farms					
Fertilizer & lime	$31.03	----------Only 3 Farms Reported----------				
Seeds & plants	28.53					
Spray & other crop exp.	15.62					
Total	$75.18					

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

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
233 New York Dairy Farms That Grow Forages, 2006

	Average 233 Farms		Average Top 10% Farms[26]	
Machinery Expense Item	Total Expenses	Per Tillable Acre	Total Expenses	Per Tillable Acre
Fuel, oil & grease	$47,481	$63.38	$59,068	$60.60
Machinery repairs & vehicle expense	61,801	82.49	74,913	76.86
Machine hire, rent & lease	23,656	31.58	36,313	37.25
Interest (5%)	24,605	32.84	28,961	29.71
Depreciation	61,630	82.27	72,068	73.94
Total	$219,173	$292.56	$271,324	$278.36

[26]Average of 24 farms that grow forages with highest rates of return to all capital (without appreciation).

Table 23.

CROP RELATED ACCRUAL EXPENSES FOR HAY CROP PRODUCTION PER ACRE
29 New York Dairy Farms, 2006

Item	Tons of Hay Crop Dry Matter Per Acre			
	<2.0	2.0-2.5	2.5-3.0	≥3.0
Hay crop, tons DM per acre	1.5	2.2	2.9	3.7
Farms reporting crop expense breakdowns	5	9	6	9
Average number hay crop acres for farms reporting	239	320	363	453
Accrual Crop Expenses Per Acre				
Fertilizer & lime	$11.28	$20.39	$39.99	$21.17
Seeds & plants	6.20	10.67	8.67	18.44
Spray & other crop expenses	2.33	2.13	0.33	8.85
Total	$19.81	$33.19	$48.99	$48.46
Accrual Crop Expenses Per Ton DM				
Fertilizer & lime	$6.85	$9.61	$14.00	$5.72
Seeds & plants	3.86	4.82	3.06	5.05
Spray & other crop expenses	1.55	0.97	0.11	2.32
Total	$12.26	$15.40	$17.17	$13.04

Table 24.

CROP RELATED ACCRUAL EXPENSES FOR CORN PRODUCTION PER ACRE
29 New York Dairy Farms, 2006

Item	Tons Corn Silage Per Acre			Dry Shelled Bushels of Corn Grain Per Acre		
	<15	15-20	≥20	<110	110-140	≥140
Corn yield per acre	12.4	17.3	22.3	93	124	151
Farms reporting crop expense breakdowns	10	9	10	5	4	6
Average number corn acres for farms reporting	186	197	315	41	176	153
Accrual Crop Expenses Per Acre						
Fertilizer & lime	$59.28	$35.48	$52.45	$54.95	$38.05	$47.85
Seeds & plants	45.90	41.05	49.82	51.42	39.74	54.37
Spray & other crop expenses	43.59	31.61	68.64	33.58	33.23	50.53
Total	$148.77	$108.14	$170.91	$139.95	$111.02	$152.75
Accrual Crop Expenses Per Ton DM or Bushel[27]	Per Ton DM of Corn Silage			Per Dry Shell Bushel of Corn Grain		
Fertilizer & lime	$16.77	$6.14	$7.20	$0.60	$0.31	$0.31
Seeds & plants	11.58	6.95	6.78	0.54	0.32	0.36
Spray & other crop expense	10.75	5.41	9.79	0.37	0.28	0.34
Total	$38.10	$18.50	$23.77	$1.51	$0.91	$1.01

[27]Total corn expenses are allocated to corn silage and corn grain based on the proportion of acres in each crop.

It is important to observe that as hay crop yields per acre increased, crop related expenses per acre increased. Hay crop expenses per ton of dry matter varied as yields increased. However, the highest cost per ton of dry matter is reported for the yield of 2.5-3.0 tons per dry matter. For corn silage, crop expenses per ton of dry matter are lowest at the middle level of production. Corn grain shows the highest cost per acre for the high yield, with the middle yield category producing the lowest cost per bushel. A limited number of cooperators providing data by crop limits the strength of these conclusions.

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 25.

DAIRY HERD INVENTORY
240 New York Dairy Farms, 2006

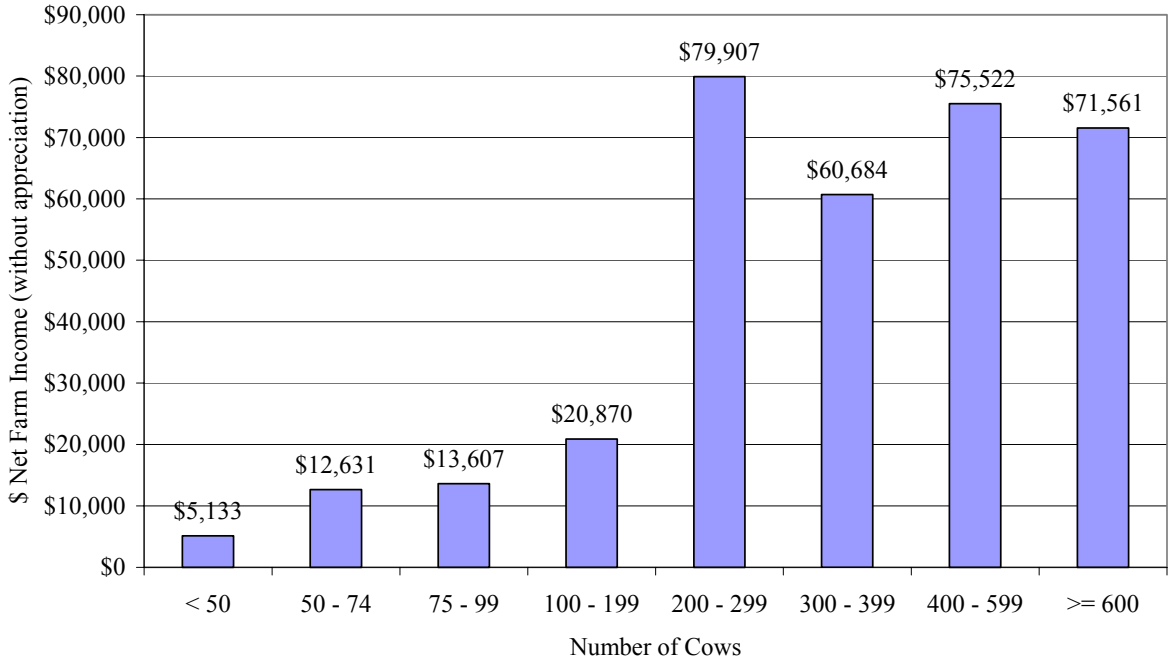
	Dairy Cows		Heifers					
			Bred		Open		Calves	
Item	No.	Value	No.	Value	No.	Value	No.	Value
Beg. year (owned)	337	$452,243	103	$140,085	92	$81,042	81	$43,796
+ Change w/o apprec.		27,742		2,313		4,331		3,617
+ Appreciation		6,727		2,008		1,426		698
End year (owned)	357	$486,712	104	$144,405	97	$86,798	87	$48,111
End including leased	361							
Average number	350		283	(all age groups)				
Average Top 10% Farms:[28]								
Beg. year (owned)	440	$586,960	141	$195,597	107	$96,897	114	$66,481
+ Change w/o apprec.		75,452		14,164		12,927		6,461
+ Appreciation		681		-1,462		-4,194		-2,217
End year (owned)	488	$663,092	149	$208,299	117	$105,630	122	$70,724
End including leased	503							
Average number	483		376	(all age groups)				

[28]Average of 24 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 2006, there was a consistent increase in net farm incomes up to the 200-cow herd size (Chart 5). Herds less than 200 cows had net farm incomes less than $21,000. Larger farms had considerably larger incomes but there was not a strong relationship between size and income. For more information on herd size comparisons, see pages 48-57.

Chart 5.

NET FARM INCOME (WITHOUT APPRECIATION) BY HERD SIZE
240 New York Dairy Farms, 2006



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.

Table 26.

MILK PRODUCTION
240 New York Dairy Farms, 2006

Item	Average 240 Farms	Average Top 10% Farms[29]
Total milk sold, lbs.	8,086,224	10,912,943
Milk sold per cow, lbs.	23,083	22,586

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

Farms with higher rates of production tend to have higher net farm income. This is due to more cows per farm, not necessarily higher net farm income per cow. In 2006, farms with higher milk production per cow and more cows did not have higher labor and management incomes per operator.

Table 27.

MILK SOLD PER COW AND FARM INCOME MEASURES
240 New York Dairy Farms, 2006

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	31	114	$12,613	$111	$-24,223
16,000 to 16,999	8	160	27,390	171	-12,920
17,000 to 17,999	13	82	10,253	126	-17,070
18,000 to 18,999	16	112	6,188	55	-26,970
19,000 to 19,999	24	158	30,976	196	-14,755
20,000 to 20,999	15	237	66,941	282	-3,127
21,000 to 21,999	21	441	-21,381	-49	-63,961
22,000 to 22,999	26	340	66,443	196	-22,172
23,000 to 23,999	29	418	54,871	131	-27,362
24,000 & over	57	681	77,454	114	-44,590

The relationship between milk output per cow and net farm income on all dairy farms is shown in Table 27 above and is diagrammed in Charts 6 and 7 on page 26. Each spot on each scatter diagram represents one of the 240 farms.

Historically, net farm income per cow has increased as pounds of milk sold per cow increased. This relationship did not hold true in 2006 (see Table 27 and Charts 6 and 7). As pounds of milk sold per cow increased, total net farm income and also net farm income per cow were relatively constant. This was in part due to the low margins on dairy farms for 2006. With profit per hundredweight close to zero, the total profit for the farm and the profit per cow were close to zero.

The trend lines on charts on the 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 7 indicates that there is little statistical relationship in the 2006 data.

Chart 6.

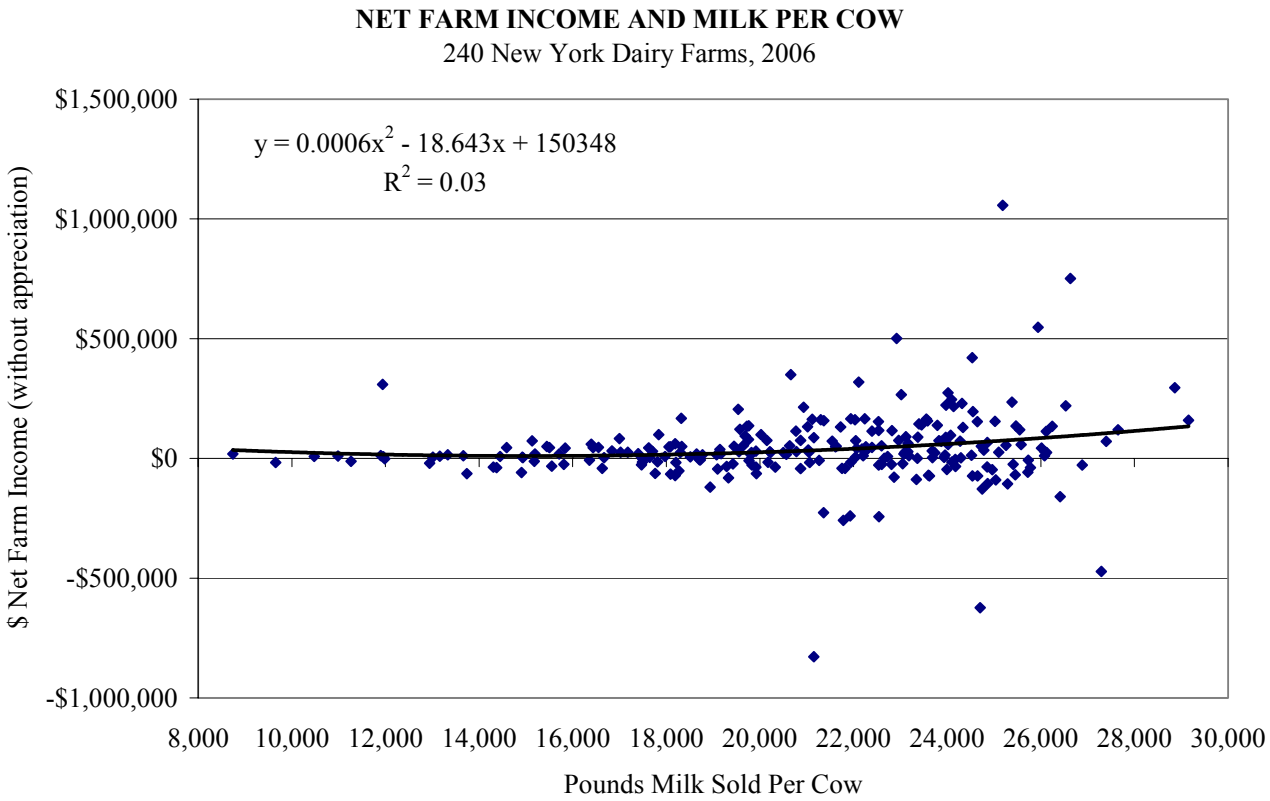
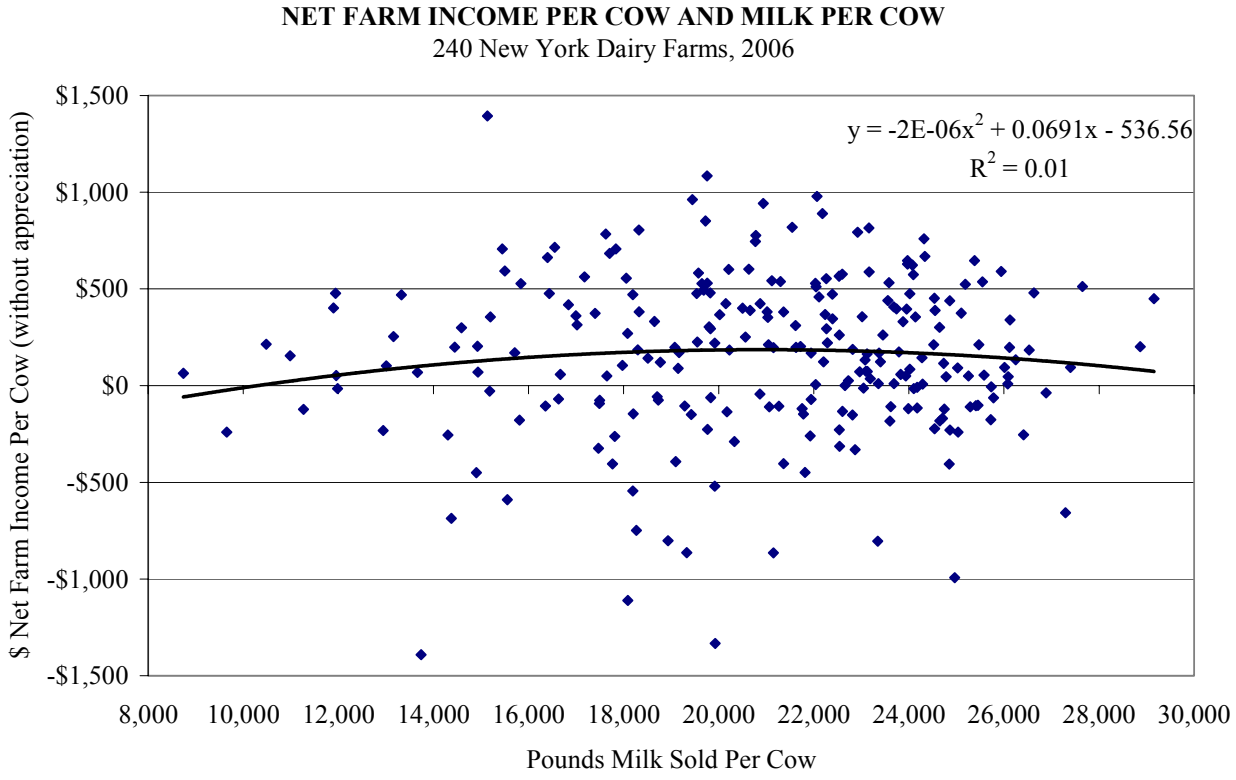


Chart 7.



Charts 8 and 9 look at relationships between cull rates and milk production and net farm income per cow. For the 2006 year, supplementary information concerning dairy replacements was collected from 56 participating farms. The culling chart (Table 28) reports the decile range of reported factors for the different information that was collected. The average culling rate was 31.7 percent, sell rate was 25.2 percent, and death rate was 6.5 percent. The average number of cows sold for beef equaled 88, three cows were sold for dairy, and 23 cows died. Please refer to the glossary for definitions of the different terms and how the measures were calculated.

Chart 8.

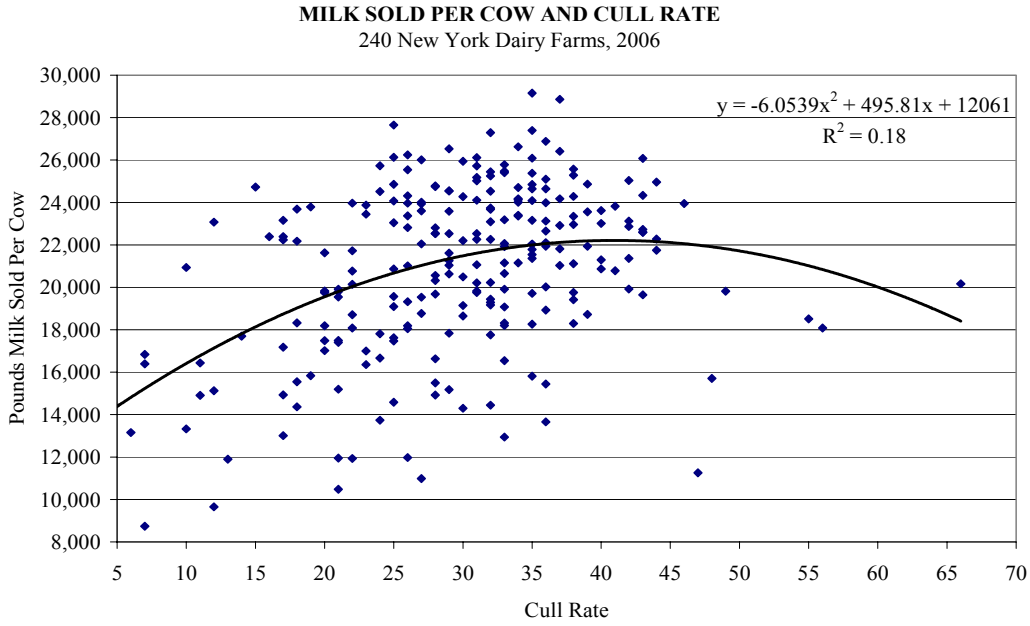


Chart 9.

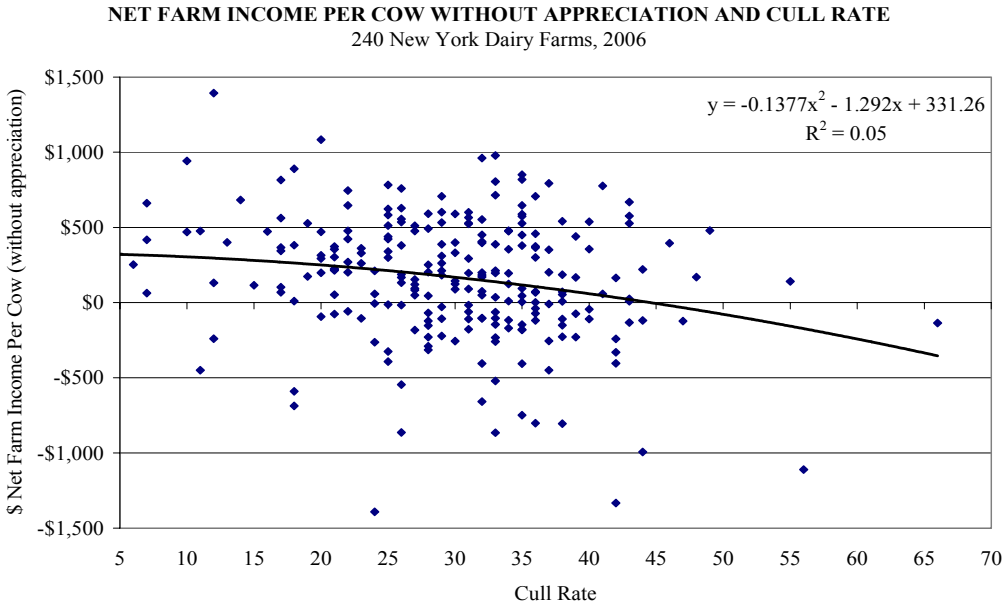


Table 28.

CULLING RATE AND DAIRY REPLACEMENT INFORMATION
New York Dairy Farms, 2006

Decile	Sell Rate	Death Rate	Cull Rate	Value of Cows Sold	Value of Animals Purchased	Percent of Replacements Purchased	Percent of Heifers Custom Raised
	- - - - - - - - -238 Farms[30]- - - - - - - - -				$/head (44 Farms)	- - - - - - - - - - - - 56 Farms[30] - - - - - - - - - - -	
1	7%	0%	12%	$141	$809	0%	0%
2	15	2	20	377	1,134	0	0
3	18	3	24	463	1,379	0	0
4	20	4	27	513	1,573	0	0
5	23	5	29	563	1,704	0	0
6	25	6	32	606	1,928	0	0
7	27	7	34	681	2,117	0	0
8	29	9	35	798	2,386	1	7
9	32	10	38	1,088	3,270	7	38
10	38	17	45	2,765	4,231	40	90

[30]238 participating farms provided culling information. Fifty-six farms provided supplemental information on heifer acquisitions.

Cost of Producing Milk

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

1. The cost of expansion livestock is added to total accrual operating expenses to offset any related inventory increase included in accrual receipts.

2. Accrual milk sales are deducted from total accrual receipts to get total accrual nonmilk receipts, which are used to represent total nonmilk operating costs. This assumes that costs equal revenues for nonmilk costs.

3. Total accrual nonmilk receipts are subtracted from total accrual operating expenses including expansion livestock to calculate the operating cost of producing milk.

4. Machinery depreciation and building depreciation are added to operating costs to determine the purchased inputs cost of producing milk.

5. The opportunity cost of equity capital, operator's labor and operator's management and the value of unpaid family labor are added to all other costs to obtain the total cost of producing milk. This cost includes all the operating, depreciation, and imputed costs of producing milk.

Table 29.

COST OF PRODUCING MILK, WHOLE FARM METHOD
240 New York Dairy Farms, 2006

Item	Average 240 Farms		Average Top 10% Farms[31]	
Total Accrual Operating Expenses	$1,172,956		$1,492,564	
Expansion Livestock, Accrual	+ 15,954		+ 32,096	
1. Total Accrual Operating Expenses, Including Expansion Livestock		$1,188,910		$1,524,660
Total Accrual Receipts	$1,332,542		$1,904,931	
Milk Sales, Accrual	- 1,120,121		- 1,514,796	
2. Total Accrual Nonmilk Receipts		- $212,421		-$390,135
3. Operating Cost of Producing Milk		$976,489		$1,134,525
Machinery Depreciation		+ 60,817		+72,068
Building Depreciation		+ 40,989		+ 47,658
Extraordinary Expense		+ 681		+ 657
4. Purchased Inputs Cost of Producing Milk		$1,078,976		$1,254,908
Family Labor Unpaid ($2,200/month)		+ 6,057		+ 5,165
Real Interest on Equity Capital		+ 86,056		+110,767
Value of Operator's Labor & Management		+ 66,503		+ 68,831
5. Total Costs of Producing Milk		$1,237,592		$1,439,671
6. Costs Per Cwt.:				
Cwt. Milk Sold	80,862		109,129	
Operating Cost Per Cwt.	$12.08		$10.40	
Purchased Inputs Cost Per Cwt.	$13.34		$11.50	
Total Cost Per Cwt.	$15.30		$13.19	

[31]Average of 24 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 30. The whole farm method assumption that accrual nonmilk receipts represent nonmilk operating costs is used in computing net costs. A $17,652 average increase in crop inventories per farm, ($0.22 per hundredweight of milk), is included in crop sales on the 240 farms. The top 10 percent farms had a $60,971 average increase in crop inventories per farm ($0.56 per hundredweight of milk).

Table 30.

ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT
BASED ON WHOLE FARM DATA
240 New York Dairy Farms, 2006

Item	Average 240 Farms			Average Top 10% Farms[33]		
Dairy grain and concentrate	$4.02			$3.57		
Dairy roughage	0.27			0.20		
Nondairy feed	0.00			0.01		
Professional nutritional services	0.01			0.01		
Total feed expense		$4.30			$3.79	
Crop expense		0.73			0.71	
- Crop sales and government receipts[32]		0.87			1.32	
Net Feed and Crop Expense			$4.16			$3.18
Hired labor		2.58			2.75	
Operator's and family labor		0.90			0.68	
Total Labor Expense			$3.48			$3.43
Machine repairs, fuel and hire		1.62			1.56	
Machinery depreciation		0.75			0.66	
- Gas tax refunds and custom work		0.05			0.03	
Net Machinery Expense			$2.32			$2.19
Replacement and expansion cattle purchases		0.26			0.35	
- Sales and inventory growth		1.46			2.02	
Net Cattle Purchases			$-1.20			$-1.67
Milk marketing costs		0.80			0.73	
All other livestock expense excluding purchases		2.17			1.89	
Net Livestock Expense			$2.97			$2.62
Real estate repairs, rent and taxes		0.69			0.67	
Building depreciation		0.51			0.44	
Total Real Estate Expense			$1.20			$1.11
Interest paid		0.78			0.79	
Interest on equity		1.06			1.02	
Total Interest Expense			$1.84			$1.81
Other operating and miscellaneous expenses		0.77			0.73	
- Miscellaneous income		0.25			0.20	
Net Miscellaneous Expenses			$ 0.52			$0.53
Total Cost of Producing Milk			$15.30			$13.19
Purchased Inputs Cost			$13.34			$11.50
Total Operating Cost			$12.08			$10.40

[32]Non-crop related government payments may bias the results.
[33]Average of 24 farms with highest rates of return to all capital (without appreciation).

Costs of producing milk per hundredweight are presented in the table below for 191 farms that participated both in 2005 and 2006. Costs of production increased in net machinery, net livestock, real estate, and interest expense categories when 2006 data were compared to 2005.

Table 31.

ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT
BASED ON WHOLE FARM DATA
Same 191 New York Dairy Farms, 2005 & 2006

Item	2005		2006		Percent Change
Dairy grain and concentrate	$4.10		$4.03		-1.7%
Dairy roughage	0.28		0.29		3.6%
Nondairy feed	0.00		0.00		
Professional nutritional services	0.00		0.00		
Total feed expense		$4.38		$4.32	-1.4%
Crop expense		0.73		0.70	
- Crop sales and government receipts[34]		0.72		0.84	
Net Feed and Crop Expense		$4.39		$4.18	-4.8%
Hired labor		2.66		2.63	
Operator's and family labor		0.81		0.81	
Total Labor Expense		$3.47		$3.44	-0.9%
Machine repairs, fuel and hire		1.56		1.60	
Machinery depreciation		0.81		0.73	
- Gas tax refunds and custom work		0.05		0.05	
Net Machinery Expense		$2.32		$2.28	-1.7%
Replacement and expansion cattle purchases		0.27		0.27	
- Sales and inventory growth		1.43		1.48	
Net Cattle Purchases		$-1.16		$-1.21	-4.3%
Milk marketing costs		0.75		0.80	
All other livestock expense excluding purchases		2.16		2.20	
Net Livestock Expense		$2.91		$3.00	3.1%
Real estate repairs, rent and taxes		0.75		0.70	
Building depreciation		0.51		0.52	
Total Real Estate Expense		$1.26		$1.22	-3.2%
Interest paid		0.63		0.78	
Interest on equity		0.99		1.02	
Total Interest Expense		$1.62		$1.80	11.1%
Other operating and miscellaneous expenses		0.72		0.75	
- Miscellaneous income		0.22		0.26	
Net Miscellaneous Expenses		$0.50		$0.49	2.0%
Total Cost of Producing Milk		$15.33		$15.19	-14.0%
Purchased Inputs Cost		$13.53		$13.36	-1.3%
Total Operating Cost		$12.20		$12.10	-0.8%
Average Price Received for Milk		$15.98		$13.84	-13.4%

[34]Non-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 32.

Table 32.

COST OF PRODUCING MILK, ACCRUAL RECEIPTS FROM DAIRY, AND PROFITABILITY
240 New York Dairy Farms, 2006

	Average 240 Farms			Average Top 10% Farms[35]		
Item	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Accrual Cost of Producing Milk						
Operating Cost	$976,489	$2,788	$12.08	$1,134,525	$2,348	$10.40
Purchased Inputs Cost	1,078,976	3,080	13.34	1,254,908	2,597	11.50
Total Cost	1,237,592	3,533	15.30	1,439,671	2,980	13.19
Accrual Receipts from Milk	$1,120,121	$3,198	$13.85	$1,514,796	$3,135	$13.88
Net Milk Receipts	1,055,588	2,706	13.05	1,435,145	2,853	13.15
Profitability						
Net Farm Income without Appreciation	$41,144	$117	$0.51	$259,888	$538	$2.38
Net Farm Income with Appreciation	$117,452	$335	$1.45	$326,558	$676	$2.99

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

The operating cost of producing milk on all 240 dairy farms averaged $12.08 per hundredweight, leaving $1.77 to cover depreciation, unpaid labor and operator resources.

The total cost of producing milk on all 240 dairy farms averaged $15.30 per hundredweight, $1.45 more than the average price received for milk sold from these farms during 2006. The imputed costs or charge for the operator's labor, management and equity capital averaged $1.89 per hundredweight in 2006. But the farmer received $0.44 per hundredweight for these inputs. The 24 most profitable farms held their operating costs to $10.40 per hundredweight and their total cost of producing milk averaged $13.19 per hundredweight. This left a profit of $0.69 per hundredweight of milk sold.

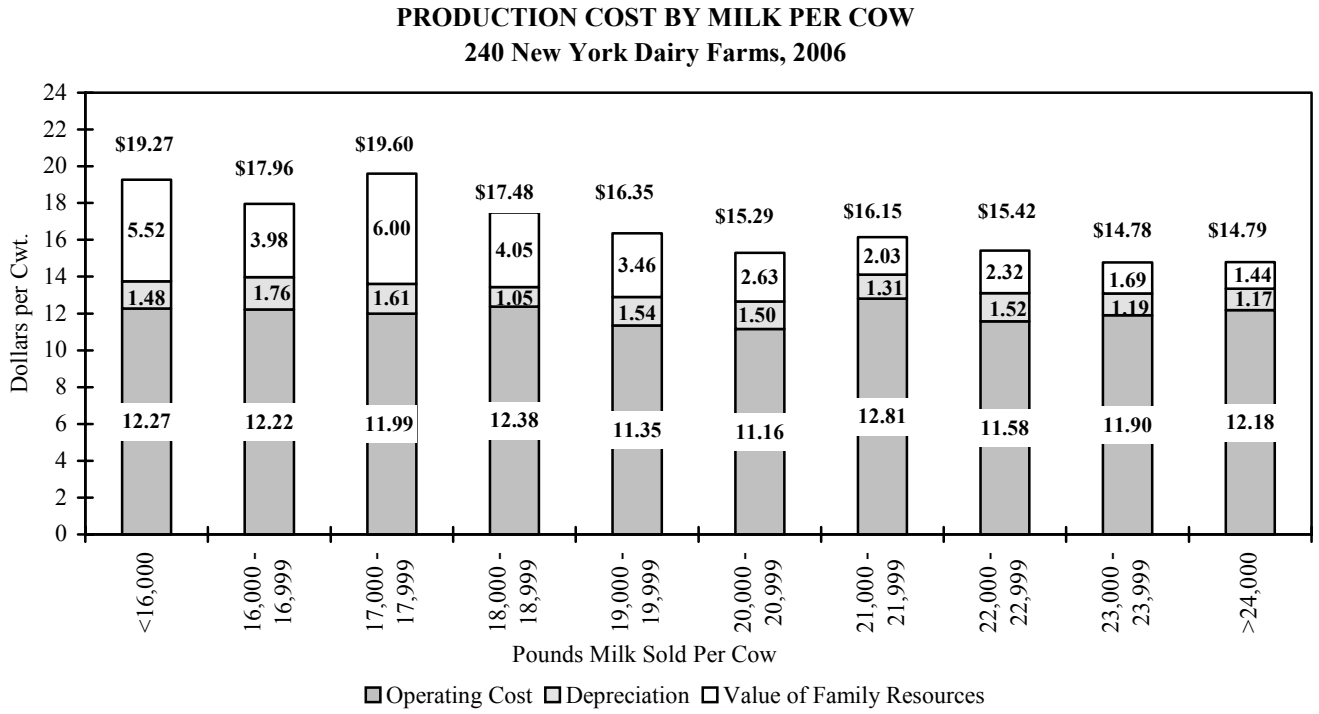
The strong relationship between milk output per cow and the total cost of producing milk is shown in Table 33 and Chart 10 on page 32. Farms selling less than 19,000 pounds of milk per cow had average total costs of production of $18.58 per hundredweight while those selling 19,000 pounds and over averaged $15.46 for a difference of $3.12 per hundredweight.

Table 33.

FARM COST OF PRODUCING MILK BY MILK SOLD PER COW
240 New York Dairy Farms, 2006

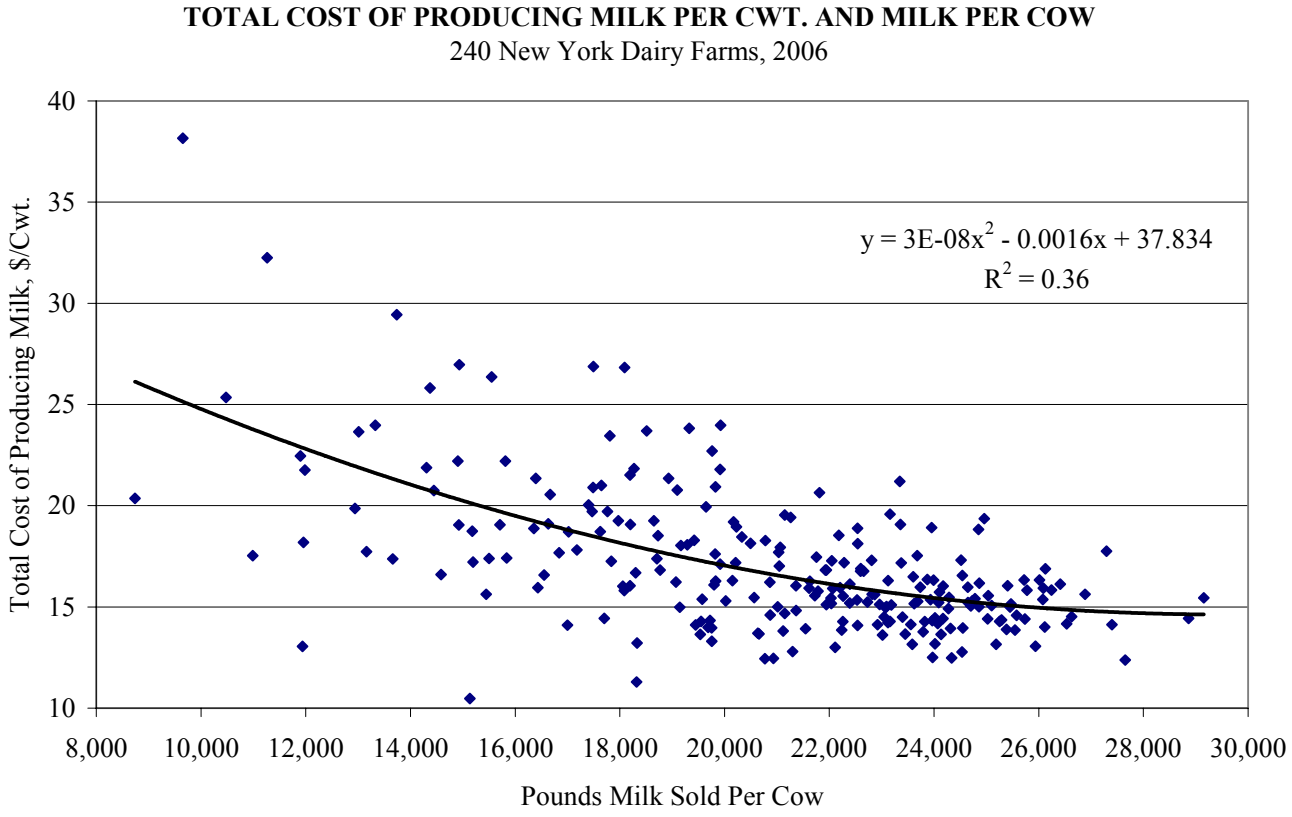
	Costs per Hundredweight					Accrual Receipts From Milk Per Cwt.	Return Per Cwt. To Operator's Labor, Mgmt. & Capital
	Operating Costs		Costs of Producing Milk				
Pounds Milk Sold Per Cow	Hired Labor	Dairy Grain & Concentrate	Total Operating	Purchased Inputs	Total		
Under 16,000	$1.81	$4.19	$12.27	$13.75	$19.27	$14.59	$0.10
16,000-16,999	2.86	3.92	12.22	13.98	17.96	15.00	0.83
17,000-17,999	1.50	4.26	11.99	13.60	19.60	14.32	0.19
18,000-18,999	1.10	4.51	12.38	13.43	17.48	13.73	0.23
19,000-19,999	1.51	4.20	11.35	12.89	16.35	13.89	0.79
20,000-20,999	2.44	3.69	11.16	12.66	15.29	14.03	1.25
21,000-21,999	2.80	4.38	12.81	14.12	16.15	13.90	0.26
22,000-22,999	2.50	4.05	11.58	13.10	15.42	13.97	0.81
23,000-23,999	2.55	3.84	11.90	13.09	14.78	13.65	0.52
24,000 & over	2.74	3.97	12.18	13.35	14.79	13.80	0.43

Chart 10.



The relationship between total cost of producing milk and milk sold per cow is diagrammed in Chart 11. It shows that as milk sold per cow increases, on the average, total cost of production generally decreases.

Chart 11.



Data in Table 34 and Chart 12 show that the average total cost of production generally declines as herd size increases. This is attributable to spreading fixed costs over more units of output.

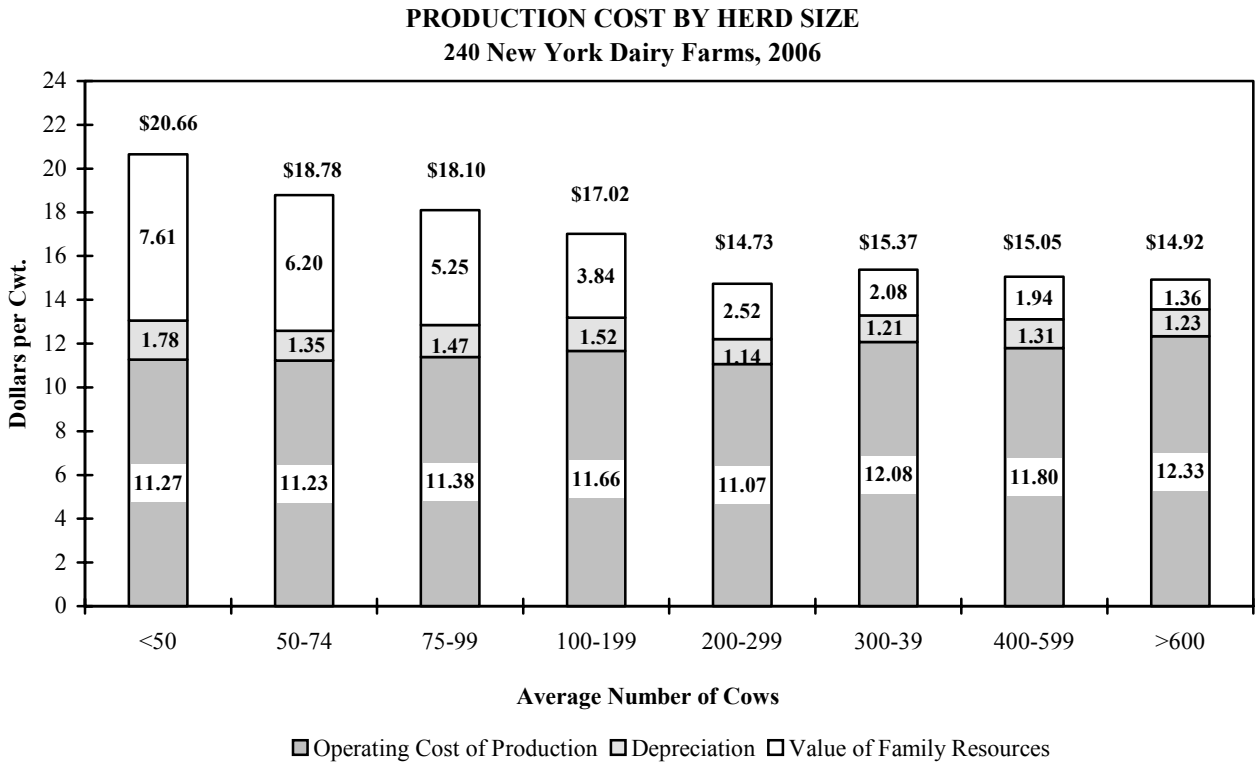
Total operating costs are lowest at the 200-299 herd size group followed by the two lowest herd size categories. Hired labor cost generally increases with herd size, while purchased dairy grain and concentrate are not related to herd size.

Table 34.

FARM COST OF PRODUCING MILK BY HERD SIZE
240 New York Dairy Farms, 2006

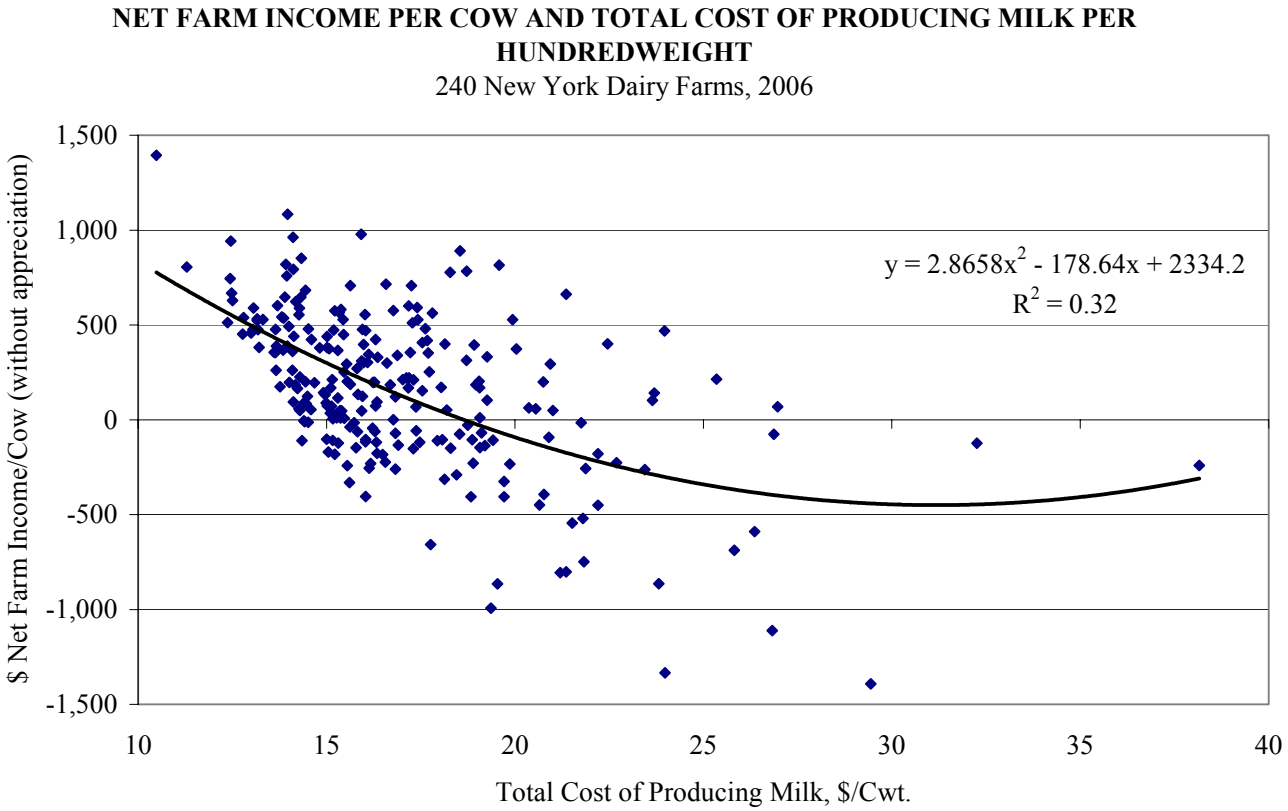
	Costs per Hundredweight						Return Per Cwt.
	Operating Costs		Costs of Producing Milk			Accrual	To Operator's
Number of Cows	Hired Labor	Dairy Grain & Concentrate	Total Operating	Purchased Inputs	Total	Receipts From Milk	Labor, Mgmt. & Capital
Under 50	$0.54	$4.24	$11.27	$13.05	$20.66	$13.77	$0.45
50 to 74	0.77	4.04	11.23	12.58	18.78	13.70	0.30
75 to 99	1.44	4.19	11.38	12.85	18.10	13.69	0.22
100 to 199	1.86	4.13	11.66	13.18	17.02	13.92	0.53
200 to 299	2.00	3.87	11.07	12.21	14.73	13.72	1.38
300 to 399	2.75	4.07	12.08	13.29	15.37	14.05	0.73
400 to 599	2.41	3.89	11.80	13.11	15.05	13.80	0.65
600 and over	2.84	4.03	12.33	13.56	14.92	13.85	0.28

Chart 12.



The importance of cost control and its impact on farm profitability are illustrated in Chart 13. 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 $14 per hundredweight. The majority of the farms with costs greater than $18 per hundredweight experienced negative net farm incomes per cow.

Chart 13.



Cost of Producing Milk (continued)

A ten-year comparison of the average costs and returns of producing milk per hundredweight is presented in Table 35 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 1997 through 2006. In 2006 the average operating cost of producing milk decreased 1.4 percent after decreasing three percent from 2004 to 2005. The average return per hundredweight to operator labor, management, and capital was $1.91 lower in 2006, 81 percent below 2005. In only three years during the last ten years has milk price exceeded the total cost of producing milk. The years were 1998, 2001, and 2004.

Hired labor expense per hundredweight has increased consistently from 1997 to 2004, remained constant in 2005 and decreased eight percent in 2006. Hired labor expense was $1.97 in 1997 and has risen to $2.58 in 2006. Thus, even as pounds of milk sold per worker have increased from 784,604 in 1997 to 987,530 in 2006, labor expense per worker has increased even more rapidly. 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 35 percent increase in hired labor expense per hired worker equivalent from 1997 to 2006.

Purchased feed expense per hundredweight of milk can fluctuate greatly, as much as $1.00 per hundredweight. At $3.91 in 2000, it was at its lowest in the past ten years. In 2004, purchased feed expense was at its highest in the past ten years at $4.88, due mostly to drought conditions during the growing season. In 2006, purchased feed expense dropped to $4.30 per hundredweight.

Interest paid on debt per hundredweight of milk sold has fluctuated over this period. In 1997, interest expense was $0.90 per hundredweight. In 2003, interest expense was at a ten-year low of $0.56 per hundredweight, increasing to $0.78 in 2006. Property taxes per hundredweight of milk have decreased by 9 percent during this ten-year period. Property taxes were $0.23 per hundredweight in 1997, but were only $0.21 in 2006. This is due to productivity increases and more of the land resources being rented, rather than owned, and fewer acres per cow.

A ten-year comparison of selected average business factors for all specialized DFBS farms is presented in Table 36 on page 37. The reader is reminded that the same farms are not in the survey each year. Average cow numbers are up 84 percent, tillable acres have increased 58 percent, and milk sold per farm has jumped 106 percent since 1997. Capital investment per cow has increased 25 percent over the last ten years. Labor and management income per operator decreased 148 percent in 2006 compared to 2005, farm net worth increased three percent, and percent equity decreased slightly in 2006 compared to 2005.

Hay crop yields were 2.5 tons dry matter per acre in 1997 and 3.2 tons dry matter per acre in 2006. Corn silage yields, as fed, have varied more widely and were 18.4 tons per acre in 2006. As yields increased, fertilizer and lime expense increased $2.00 per tillable acre, from $28 to $30 per acre. Pounds of milk sold per cow increased by 12 percent, from 20,651 pounds in 1997 to 23,083 pounds in 2006.

Average number of workers per farm increased by 3.18 and operators/managers per farm increased by 0.03. Cows per worker equivalent increased from 38 in 1997 to 43 in 2006, but labor cost per cow increased from $598 to $757 over the same time period.

The asset turnover ratio ranged from 0.52 to 0.64. Total accrual receipts as a proportion of total farm assets equals asset turnover ratio. Percent equity was 57 percent in 1997, was relatively constant over the next eight years, and increased to 62 percent in 2006.

Table 35.

TEN YEAR COMPARISON: AVERAGE COST OF PRODUCING MILK PER HUNDREDWEIGHT
New York Dairy Farms, 1997 to 2006

Item	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Operating Expenses										
Hired labor	$1.97	$2.06	$2.14	$2.25	$2.41	$2.44	$2.51	$2.67	$2.66	$2.58
Purchased feed	4.63	4.18	3.96	3.91	4.25	4.10	4.29	4.88	4.37	4.30
Machinery repair, vehicle expense & rent	.94	1.12	1.18	1.06	1.21	1.01	.91	1.09	1.07	1.04
Fuel, oil & grease	.28	.25	.24	.34	.32	.28	.33	.41	.53	.58
Replacement livestock	.18	.24	.24	.23	.20	.16	.15	.16	.11	.07
Breeding fees	.15	.16	.17	.17	.19	.21	.19	.21	.22	.23
Veterinary & medicine	.41	.45	.47	.51	.54	.56	.56	.59	.62	.65
Milk marketing	.52	.53	.49	.69	.63	.65	.69	.72	.76	.80
Other dairy expenses	1.05	1.09	1.13	1.16	1.26	1.25	1.30	1.27	1.32	1.29
Fertilizer & lime	.33	.35	.35	.29	.33	.27	.26	.30	.34	.31
Seeds & plants	.21	.22	.20	.19	.20	.20	.20	.24	.22	.23
Spray & other crop expense	.23	.24	.24	.22	.25	.22	.19	.20	.19	.19
Land, building & fence repair	.19	.27	.27	.21	.26	.19	.14	.21	.25	.22
Taxes	.23	.21	.21	.20	.21	.20	.21	.22	.23	.21
Insurance	.16	.17	.16	.16	.14	.16	.15	.16	.16	.17
Utilities (farm share)	.35	.32	.31	.32	.33	.34	.34	.36	.39	.41
Interest paid	.90	.89	.83	.95	.82	.61	.56	.57	.65	.78
Misc. (including rent)	.38	.41	.44	.45	.42	.44	.40	.43	.37	.45
Total Operating Expenses	$13.12	$13.15	$13.02	$13.31	$13.98	$13.27	$13.39	$14.67	$14.54	$14.51
Less: Nonmilk cash receipts	1.14	1.18	1.44	1.83	1.49	1.91	1.57	1.70	1.96	1.94
Increase in grown feed & supplies	.07	.25	.25	.11	.10	.12	.27	.17	.12	.22
Increase in livestock	.15	.22	.11	.06	.52	.23	.09	.22	.21	.27
OPERATING COST OF MILK PRODUCTION	$11.76	$11.50	$11.22	$11.31	$11.87	$11.01	$11.46	$12.58	$12.25	$12.08
Overhead Expenses										
Depreciation: machinery & buildings	$0.95	$1.08	$1.14	$1.20	$1.30	$1.39	$1.23	$1.32	$1.32	$1.26
Unpaid labor	.13	.11	.11	.10	.10	.08	.10	.07	.06	.07
Operator(s) labor [36]	.79	.74	.80	.79	.74	.74	.70	.67	.61	.63
Operator(s) management (5% of cash receipts)	.73	.82	.83	.76	.87	.75	.73	.90	.90	.79
Interest on farm equity capital (5%)	.87	.85	.86	.88	.91	.89	.85	.92	1.02	1.06
Total Overhead Expenses	$3.47	$3.60	$3.74	$3.73	$3.92	$3.85	$3.61	$3.88	$3.91	$3.81
TOTAL COST OF MILK PRODUCTION	$15.23	$15.10	$14.96	$15.04	$15.79	$14.86	$15.07	$16.46	$16.16	$15.89
AVERAGE FARM PRICE OF MILK	$13.65	$15.60	$14.91	$13.38	$15.98	$12.98	$13.24	$16.64	$15.98	$13.85
Return per cwt. to operator labor, capital & mgmt.	$0.81	$2.91	$2.44	$0.77	$2.71	$0.50	$0.45	$2.67	$2.35	$0.44
Rate of return on farm equity capital	-4.1%	8.0%	4.7%	-4.4%	6.0%	-5.6%	-5.7%	6.0%	4.1%	-4.6%

[36] 1997 = $1,550/month, 1998 = $1,600/month, 1999 = $1,800/month, 2000 = $1,900/month, 2001 = $2,000/month, 2002 = $2,100/month, 2003 through 2005 = $2,200/month, and 2006 = $2,300/month of operator labor.

Table 36.

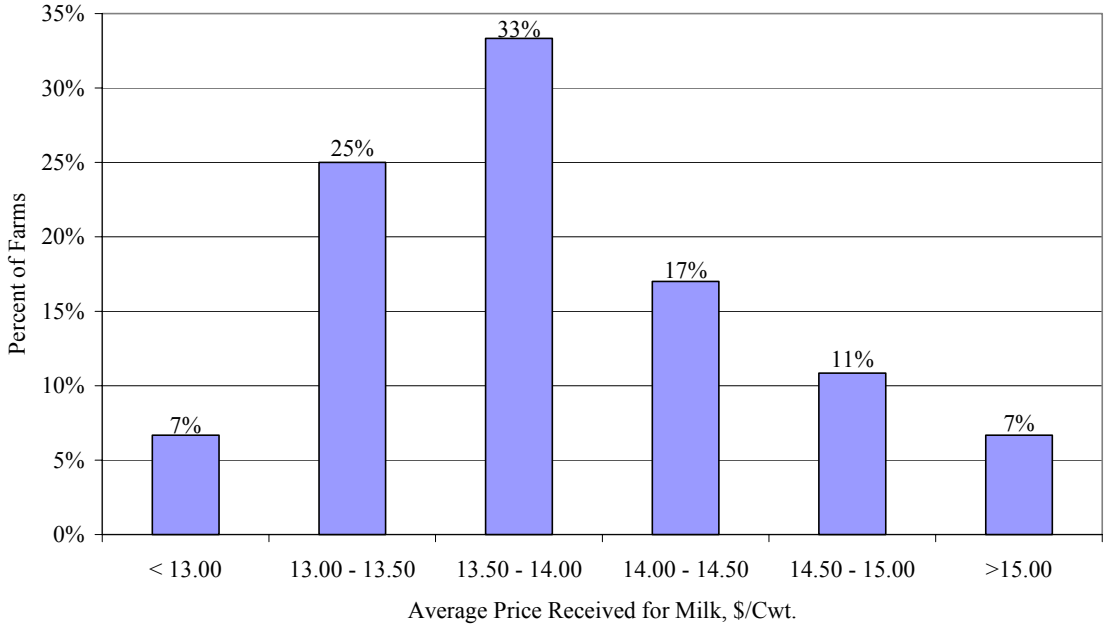
TEN YEAR COMPARISON: SELECTED BUSINESS FACTORS
New York Dairy Farms, 1997 to 2006

Item	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Number of farms	253	305	314	294	228	219	201	200	225	240
Cropping Program										
Total tillable acres	462	497	516	566	618	660	659	701	729	730
Tillable acres rented	207	232	234	262	290	337	323	345	365	360
Hay crop acres	219	239	248	274	302	323	321	339	361	366
Corn silage acres	156	175	186	192	210	232	233	245	246	249
Hay crop, tons DM/acre	2.5	3.1	2.9	3.3	2.8	3.1	3.2	3.5	3.2	3.2
Corn silage, tons/acre	16.1	18.0	16.3	15.1	16.5	15.4	17.2	17.7	18.8	18.4
Fertilizer & lime exp./tillable acre	$28	$31	$32	$27	$32	$27	$28	$31	$33	$30
Machinery cost/cow	$429	$471	$502	$513	$554	$520	$497	$565	$624	$618
Dairy Analysis										
Number of cows	190	210	224	246	277	297	314	334	340	350
Number of heifers	139	155	164	186	207	226	240	260	270	283
Milk sold, cwt.	39,309	43,954	47,932	52,871	60,290	66,177	70,105	73,767	78,250	80,862
Milk sold/cow, lbs.	20,651	20,900	21,439	21,516	21,762	22,312	22,302	22,070	22,998	23,083
Purchased dairy feed/cwt. milk	$4.63	$4.18	$3.96	$3.91	$4.25	$4.10	$4.27	$4.86	$4.37	$4.29
Purchased grain & concentrate as % of milk receipts	33%	26%	25%	27%	25%	30%	30%	27%	26%	29%
Purchased feed & crop exp/cwt.milk	$5.39	$5.00	$4.75	$4.61	$5.03	$4.79	$4.92	$5.60	$5.12	$5.02
Capital Efficiency										
Farm capital/cow	$6,196	$6,161	$6,368	$6,535	$6,755	$6,794	$6,748	$7,010	$7,508	$7,762
Real estate/cow	$2,650	$2,537	$2,562	$2,615	$2,713	$2,612	$2,722	$2,809	$2,950	$3,030
Machinery investment/cow	$1,108	$1,118	$1,163	$1,225	$1,222	$1,261	$1,208	$1,226	$1,314	$1,384
Asset turnover ratio	0.52	0.61	0.59	0.54	0.63	0.53	0.54	0.64	0.60	0.52
Labor Efficiency										
Worker equivalent	5.01	5.35	5.71	6.11	6.72	7.21	7.50	7.97	8.18	8.19
Operator/manager equivalent	1.60	1.62	1.76	1.83	1.94	1.82	1.86	1.64	1.60	1.63
Milk sold/worker, lbs.	784,604	821,565	839,432	865,325	897,167	917,854	934,733	925,553	956,698	987,530
Cows/worker	38	39	39	40	41	41	42	42	42	43
Labor cost/cow	$598	$609	$653	$674	$706	$725	$738	$752	$765	$757
Hired labor exp./hired worker equiv.	$25,241	$31,092	$27,910	$29,309	$31,448	$31,755	$32,659	$33,311	$33,539	$34,071
Profitability & Financial Analysis										
Labor & mgmt. income/operator	$-1,424	$55,917	$42,942	$-2,908	$45,479	$-14,243	$-15,360	$78,061	$64,745	$-31,269
Farm net worth, end year	$685,665	$798,297	$865,626	$942,881	$1,181,055	$1,173,836	$1,207,964	$1,466,674	$1,690,427	$1,736,505
Percent equity	57%	59%	58%	57%	60%	57%	56%	60%	63%	62%

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 240 farms was $13.85 but there was considerable variation among the individual farms. The variation in average price received and the distribution of farms around the mean is shown below.

Chart 14.

VARIATION IN AVERAGE MILK PRICE
240 New York Dairy Farms, 2006



Fifty-eight percent of the farms received from $13.00 to $14.00 per hundredweight of milk sold. Thirty-five percent of the farms received $14.00 or more and 7 percent received less than $13.00 per hundredweight. Location and organization of markets are factors contributing to the difference in average milk prices on these dairy farms. Management practices on farms as well as in milk companies also affect farm milk prices. Seasonality of production and milk components are two variables that affect milk price. More milk price analysis by component 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 37.

DAIRY RELATED ACCRUAL EXPENSES
240 New York Dairy Farms, 2006

	Average 240 Farms		Average Top 10% Farms[37]	
Item	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	$927	$4.02	$806	$3.57
Purchased dairy roughage	63	.27	45	.20
Total Purchased Dairy Feed	$990	$4.29	$851	$3.77
Purchased grain & concentrate as % of milk receipts	29%		27%	
Purchased feed & crop expense	$1,158	$5.02	$1,010	$4.47
Purchased feed & crop expense as % of milk receipts	37%		34%	
Breeding	$53	$.23	$47	$.21
Veterinary & medicine	150	.65	129	.57
Milk marketing	184	.80	165	.73
Bedding	69	.30	53	.23
Milking Supplies	82	.35	67	.29
Cattle lease	4	.02	13	.06
Custom boarding	67	.29	58	.26
bST expense	47	.20	38	.17
Other livestock expense	30	.13	23	.10

[37]Average of 24 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 0.79 animals in 2005).

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.

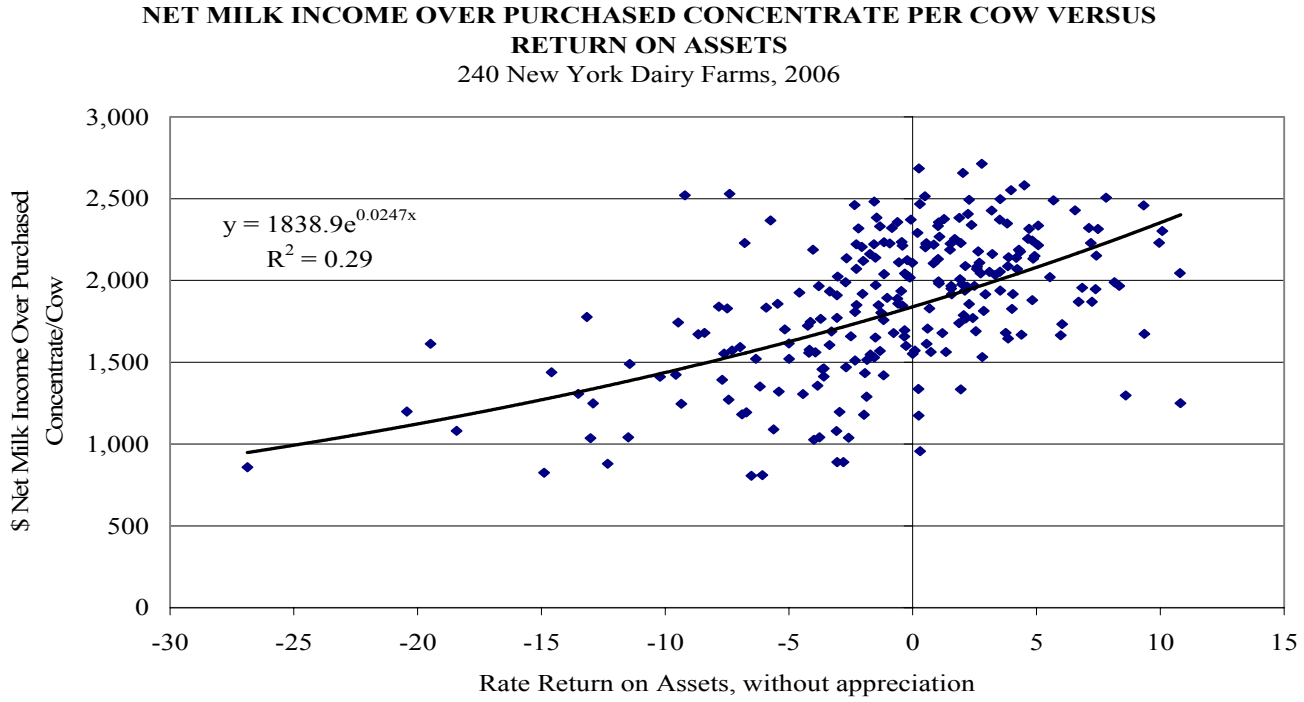
Cost control has an important effect on farm profitability. The relationship between purchased feed and crop expense per hundredweight of milk and farm profitability is shown below. On average, farms with feed and crop expenses exceeding $6.00 reported well below average profits. Net milk income over purchased concentrate per cow shows a similar relationship when compared to rate of return on assets without appreciation (Chart 15).

Table 38.

PURCHASED FEED AND CROP EXPENSE PER HUNDREDWEIGHT OF MILK AND FARM INCOME MEASURES
240 New York Dairy Farms, 2006

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
$6.50 or more	30	91	7.3	18,831	$-6,342	$-30,046	$-330
6.00 to 6.49	14	378	5.3	19,862	-56,041	-96,646	-256
5.50 to 5.99	31	436	7.6	23,414	39,456	-37,781	-87
5.00 to 5.49	56	358	8.0	22,945	34,417	-30,694	-86
4.50 to 4.99	47	513	8.9	24,356	46,274	-54,749	-107
4.00 to 4.49	32	368	8.6	23,606	104,915	3,055	8
Less than 4.00	30	220	7.5	21,572	72,227	1,530	7

Chart 15.



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, 170 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 39 reports the averages for the 170 farms providing the data. Table 40 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 39.

AVERAGE[38] MILK INCOME AND MARKETING REPORT
170 New York Dairy Farms, 2006

	Pounds	Percent	Price/Pound	Total	$/Cwt of Milk	
BASE FARM PRICE						
Butterfat	357,587.38	3.66%	$1.33	$474,166.53	$4.85	
Protein	293,026.90	3.00%	$2.09	$613,127.16	$6.27	
Solids	558,465.98	5.71%	$0.17	$97,008.96	$0.99	
Total Component Contribution						$12.12
PPD	9,772,182.68			$76,084.46	$0.78	
Base Farm Price						$12.90
Premiums						
Quality				$19,637.86	$0.20	
Volume				$25,345.70	$0.26	
Market Premiums				$34,729.80	$0.36	
Total Premiums					$0.82	
BASE FARM PRICE + PREMIUM						$13.71
Deductions						
Promotion				$14,901.94	$0.15	
Hauling + Stop Charges.				$51,558.09	$0.53	
Market Fees & Coop Dues				$10,305.89	$0.11	
Total Deductions					$0.79	
BASE FARM PRICE + PREMIUMS – DEDUCTIONS						$12.93
Marketing Programs						
Futures Contracts, Forward Contracting, Etc.				$3,295.10	$0.03	
Total Marketing Income					$0.03	
Patronage Dividends				$6,115.92	$0.06	
NET PRICE RECEIVED ON FARM, ALL SOURCES						**$13.02**
PPD – Hauling, per cwt.					$0.25	
PPD – Hauling + Market Premiums, per cwt.					$0.61	
Net Marketing Value, per cwt. (PPD + Total Premiums - Total Deductions)					$0.81	

[38]Each calculation of an average is independent of all others. Therefore, math operations on the detail will not result in the totals. However, detail in the "$/Cwt of Milk" column will result in the totals. Average herd size for these 170 farms is 417 cows.

Table 40.

MILK PRICE INFORMATION BY QUINTILE[39]
(Each Category Sorted Independently)
170 New York Dairy Farms, 2006

	Lowest Quintile	←		→	Highest Quintile
Butterfat, %	3.49	3.64	3.71	3.79	4.11
Protein, %	2.89	2.97	3.02	3.08	3.22
Other Solids, %	5.50	5.69	5.72	5.75	5.81
Butterfat, $ per Cwt.	4.66	4.82	4.92	5.04	5.40
Protein, $ per Cwt.	6.08	6.21	6.32	6.43	6.76
Other solids, $ per Cwt.	0.95	0.98	1.00	1.00	1.06
Total Component Value per Cwt.	**$11.78**	**$12.07**	**$12.23**	**$12.43**	**$13.14**
PPD, $ per Cwt.	0.56	0.65	0.75	0.89	1.22
Base Farm Price per Cwt.	**$12.46**	**$12.80**	**$13.03**	**$13.35**	**$14.07**
Quality, $ per Cwt.	0.02	0.11	0.17	0.25	0.39
Volume, $ per Cwt.	-0.01	0.03	0.12	0.26	0.51
Market premium, $ per Cwt.	0.01	0.08	0.16	0.30	0.77
Total Premium, $ per Cwt.	**0.22**	**0.41**	**0.61**	**0.81**	**1.11**
Base Farm Price + Premiums per Cwt.	**$13.04**	**$13.39**	**$13.63**	**$13.97**	**$14.84**
Promotion, $ per Cwt.	0.13	0.15	0.15	0.15	0.24
Hauling, $ per Cwt.	0.32	0.44	0.54	0.66	1.03
Market fees & coop dues per Cwt.	0.01	0.05	0.08	0.13	0.24
Total Marketing Expenses per Cwt.	**$0.54**	**$0.69**	**$0.79**	**$0.96**	**$1.34**
Base + Premiums – Deductions per Cwt.	**$12.22**	**$12.61**	**$12.81**	**$13.09**	**$13.83**
Futures contract, forward contracting, $ per Cwt.	0.00	0.00	0.00	0.00	0.11
Total Marketing Income, $ per Cwt.	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.11**
Patronage Dividends, $ per Cwt.	**$0.00**	**$0.00**	**$0.00**	**$0.02**	**$0.37**
Net Price Received From All Sources, $ per Cwt.	**$12.31**	**$12.69**	**$12.93**	**$13.21**	**$13.95**
PPD - Hauling, $ per cwt.	**-0.04**	**0.12**	**0.21**	**0.31**	**0.47**
PPD - Hauling + Market Premiums, $ per cwt.	**0.07**	**0.25**	**0.39**	**0.62**	**1.05**
Net Marketing Value, $ per cwt. (PPD + Total Premiums - Total Deductions)	**-0.02**	**0.36**	**0.63**	**0.80**	**1.14**

[39]Data 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 41.

CAPITAL EFFICIENCY
240 New York Dairy Farms, 2006

Item (Average for Year)	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
Farm capital	$332,006	$7,762	$3,724	$7,346
Real estate		$3,030		$2,868
Machinery & equipment	$59,211	$1,384	$664	
Ratios				
Asset turnover	Operating Expense	Interest Expense		Depreciation Expense
0.52	0.85	0.05		0.08
Average Top 10% Farms:[40]				
Farm capital	$356,377	$7,545	$3,740	$7,311
Real estate		$3,001		$2,908
Machinery & equipment	$56,620	$1,199	$594	
Ratios				
Asset turnover ratio	Operating Expense	Interest Expense		Depreciation Expense
0.54	0.76	0.05		0.06

[40]Average of 24 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 42.

ASSET TURNOVER AND PROFITABILITY
240 New York Dairy Farms, 2006

Ratio	Number of Farms	Number of Cows	Farm Capital (average for year) Per Cow	Farm Capital (average for year) Per Worker	Labor & Management Income Per Operator	Net Farm Income (without appreciation)
≥ .70	14	669	$5,393	$263,222	$-12,561	$85,365
.60 to .69	26	804	6,495	295,642	-46,786	52,064
.50 to .59	43	527	7,769	341,378	-21,422	96,186
.40 to .49	63	318	8,524	355,241	-35,993	29,787
.30 to .39	62	137	10,075	372,826	-25,592	20,479
Less than .30	32	80	13,080	382,924	-37,434	1,362

Measures of labor efficiency are key indicators of the work accomplished by an average worker. The 24 farms with the highest rates of return on all capital (without appreciation) were above the average of all 240 farms in all measures of labor efficiency. The top 10 percent averaged 4 more cows per worker and sold eight percent more milk per worker than the average of all farms.

Table 43.

LABOR EFFICIENCY
240 New York Dairy Farms, 2006

Labor Efficiency	Average Farms Total	Average Farms Per Worker[41]	Average Top 10% Farms[42] Total	Average Top 10% Farms[42] Per Worker[41]
Cows, average number	350	43	483	47
Milk sold, pounds	8,086,224	987,530	10,912,943	1,067,194
Tillable acres	730	89	975	95

[41]The method used to calculate worker equivalent incorporates the number of hours actually worked by the owner/operators, instead of using a standard 12 months for each full-time owner/operator of the business. A full-time month is specified to be 230 hours of labor per month.

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

The labor force averaged 8.19 full-time worker equivalents per farm (based on 230 hours per month). Twenty-three percent of the labor was supplied by the farm operator/managers. There were two operators on 131 farms, three on 37 farms, and 13 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 $1,286 per cow and $5.69 per hundredweight on the 24 farms in the top decile.

Table 44.

LABOR FORCE INVENTORY AND COST ANALYSIS
240 New York Dairy Farms, 2006

Labor Force	Months[43]	Age	Years of Education	Value of Labor & Management
Operator number 1	13.6	52	15	$39,503
Operator number 2	6.4	49	15	19,601
Operator number 3	1.7	45	15	5,522
Operator number 4	0.6	43	16	1,877
Family paid	4.2			Total $66,503
Family unpaid	2.6			
Hired	69.2			
Total	98.3	÷ 12 =	8.19 Worker Equivalent	
			1.63 Operator/Manager Equivalent	
Average Top 10% Farms:[44]				
Total	122.7	÷ 12 =	10.23 Worker Equivalent	
Operators'			1.43 Operator/Manager Equivalent	

	Average 240 Farms			Avg. Top 10% Farms[44]	
Labor Costs	Total	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Value operators' labor ($2,300/mo.)	$50,794	$145	$.63	$92	$.41
Family unpaid ($2,300/mo.)	5,999	17	.07	11	.05
Hired	208,284	595	2.58	621	2.75
Total Labor	$265,077	$757	$3.28	$724	$3.21
Machinery Cost	216,445	618	2.68	562	2.49
Total Labor & Machinery	$481,522	$1,375	$5.96	$1,286	$5.70
Hired labor exp. per hired worker equiv.	$34,071			$35,646	
Hired labor exp. as % of milk sales	18.6%			19.8%	

[43]See footnote number 41 in Table 43.
[44]Average of 24 farms with highest rates of return to all capital (without appreciation).

The relationship of labor efficiency to net farm income is positive over the range in efficiency levels. The higher outputs of milk sold per worker are partially attributable to higher producing cows. In 2006, increased labor efficiency generally resulted in larger net farm incomes.

Table 45.

MILK SOLD PER WORKER AND NET FARM INCOME
240 New York Dairy Farm, 2006

Pounds of Milk Sold Per Worker	No. of Farms	No. of Cows	Pounds Milk Per Cow	Net Farm Income (without appreciation)	Labor & Management Income Per Operator
Under 400,000	26	52	15,901	$9	$-28,733
400,000 to 499,999	12	70	17,032	13,846	-11,722
500,000 to 599,999	27	106	17,512	7,948	-28,419
600,000 to 699,999	34	146	19,972	27,353	-16,124
700,000 to 799,999	29	247	21,842	-12,650	-52,261
800,000 to 899,999	16	311	23,957	1,621	-53,737
900,000 to 999,999	27	433	23,711	84,003	-16,479
1,000,000 to 1,099,999	20	528	22,980	101,878	-6,246
1,100,000 & over	49	809	24,206	93,855	-44,440

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 240 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 46.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS
240 New York Dairy Farms, 2006

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
28.1	1,334	32,838,030	26,422	5.7	26	63	1,408,635
16.3	709	16,957,054	24,798	4.1	22	51	1,164,573
11.0	477	10,783,772	23,910	3.7	20	47	1,039,317
7.6	331	7,448,566	23,018	3.4	19	42	954,496
5.2	214	4,585,983	22,109	3.1	18	39	826,233
4.0	146	2,847,092	20,965	2.7	17	36	731,278
3.4	110	2,130,985	19,752	2.4	16	33	650,759
2.8	81	1,531,301	18,425	2.2	14	30	585,305
2.1	60	1,068,877	16,623	1.9	12	26	478,008
1.5	40	670,582	12,981	1.3	9	20	321,457

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
$405	17%	$340	$951	$570	$3.30
622	23	464	1,148	800	4.11
706	26	530	1,255	884	4.48
782	27	573	1,336	988	4.76
842	29	621	1,396	1,061	4.99
892	30	658	1,462	1,125	5.17
945	31	702	1,544	1,174	5.36
1,006	33	760	1,679	1,255	5.70
1,057	36	855	1,849	1,325	6.24
1,221	42	1,139	2,320	1,501	7.37

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 150 cows or less, 150 to 300 cows, and more than 300 cows, and farms with conventional barns with 60 cows or less and more than 60 cows are discussed in the supplemental section on pages 66-70.

Table 46. (continued)

FARM BUSINESS CHART FOR
FARM MANAGEMENT COOPERATORS
240 New York Dairy Farms, 2006

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.
$3,700	$15.39	$1,328	$8.24	$2,373	$12.93
3,413	14.56	1,738	9.69	2,865	14.08
3,274	14.26	2,026	10.30	3,118	14.66
3,163	14.00	2,231	10.74	3,306	15.28
3,061	13.83	2,369	11.27	3,444	15.83
2,909	13.68	2,564	11.93	3,546	16.43
2,720	13.54	2,707	12.44	3,712	17.35
2,565	13.40	2,901	12.94	3,839	18.55
2,338	13.24	3,131	13.62	4,062	20.16
1,808	12.88	3,465	15.95	4,500	24.96

Profitability

Net Farm Income Without Appreciation			Net Farm Income With Appreciation		Labor & Management Income	
Total	Per Cow	Operations Ratio	Total	Per Cow	Per Farm	Per Operator
$322,100	$811	0.23	$580,521	$1,156	$152,400	$103,004
140,266	557	0.16	251,067	777	43,564	25,997
85,016	444	0.12	162,504	628	12,316	7,456
51,109	344	0.10	103,202	523	-3,736	-2,485
32,171	214	0.06	69,484	416	-18,707	-13,358
18,126	125	0.03	45,567	309	-37,164	-26,146
4,697	34	0.01	29,036	228	-62,910	-45,584
-16,215	-80	-0.02	15,548	100	-88,972	-65,273
-41,972	-194	-0.06	-5,920	-40	-137,571	-96,575
-183,853	-653	-0.25	-76,486	-442	-368,899	-215,708

Table 50.

COWS PER FARM AND RELATED FARM FACTORS
240 New York Dairy Farms, 2006

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	Cost of Producing Milk Per Cwt. Total
Under 50	40	18,070	3,948	3.9	6.6	$12,192	$11.27	$20.66
50 to 74	62	18,326	4,825	3.5	7.6	9,588	11.23	18.78
75 to 99	86	18,936	5,679	3.0	8.6	9,302	11.38	18.10
100 to 199	141	19,818	7,334	2.8	8.7	9,575	11.66	17.02
200 to 299	247	21,454	9,491	2.3	7.2	7,712	11.07	14.73
300 to 399	339	23,538	9,262	2.3	9.4	8,305	12.08	15.37
400 to 599	477	22,913	9,768	2.3	8.4	7,593	11.80	15.05
600 & over	1,021	24,152	11,393	1.8	7.7	7,246	12.33	14.92

Bovine somatotropin (bST), was used to a greater extent on the large herd farms. bST was used consistently during 2006 on 11 percent of the herds with less than 100 cows, 32 percent of the farms with 100 to 299 cows and on 67 percent of the farms with 300 cows and more.

Milk output per worker has always shown a strong correlation with net farm income. The farms with 100 cows or more averaged over 944,900 pounds of milk sold per worker while the farms with less than 100 cows averaged less than 481,800 pounds per worker.

In achieving the highest productivity per cow and per worker, the largest farms had the fewest crop acres per cow and below average forage dry matter harvested per cow. However, the larger farms generally purchased more roughage per cow. The largest farms had the most efficient use of farm capital with an average investment of $7,246 per cow.

The 19 farms with 200-299 cows had the lowest total cost of producing milk at $14.73 per hundredweight. The 48 farms with more than 600 cows held their average total costs of producing milk to $14.92 per hundredweight, $2.18 below the $17.10 average for the remaining 192 dairy farms. The lower average costs of production plus a similar milk price gave the managers of the largest dairy farms profit margins (milk price less total cost of producing milk) that averaged $2.22 per hundredweight above the average of the other 192 DFBS farms. However, all herd size categories averaged a negative profit margin in 2006.

Tables 51 through 53 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 54, on pages 53 and 54 for the eight 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 55 on pages 55-58. All herd size categories saw an increase in net worth during 2005. The largest herd size category experienced an increase in net worth of nearly $716,000. However, percent equity went down as assets increased. The largest herds had the lowest percent equity; while the smaller herds averaged 78 percent.

Selected business factors by herd size group are presented in Table 56 on pages 59 and 60. George Warren, father of farm business management at Cornell, said in his 1918 farm management text that 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, 2006. For analysis of smaller herds, see Dairy Farm Business Summary, New York Small Herd Farms, 80 Cows or Fewer, 2006. Both publications are available from Linda Putnam, Department of Applied Economics and Management, Cornell University, 305 Warren Hall, Ithaca, New York 14853-7801; phone 607-255-8429; e-mail ldp2@cornell.edu. Visit the Department of Applied Economics and Management website http://aem.cornell.edu for a list of all department publications and a publication order form.

Table 51.

PROGRESS OF FARM BUSINESSES WITH LESS THAN 100 COWS

Same 38 New York Dairy Farms, 2002 - 2006

Selected Factors	2002	2003	2004	2005	2006
Milk receipts per cwt. milk	$12.83	$13.11	$16.81	$15.82	$13.83
Size of Business					
Average number of cows	63	63	62	62	62
Average number of heifers	46	48	48	51	53
Milk sold, cwt.	11,440	11,343	11,090	11,589	11,404
Worker equivalent	2.43	2.32	2.27	2.36	2.31
Total tillable acres	191	193	197	194	193
Rates of Production					
Milk sold per cow, lbs.	18,252	18,056	17,963	18,614	18,285
Hay DM per acre, tons	3.6	2.1	2.3	2.2	2.3
Corn silage per acre, tons	13	15	16	16	14
Labor Efficiency					
Cows per worker	26	27	27	26	27
Milk sold per worker, lbs.	471,269	489,626	487,669	491,410	493,682
Cost Control					
Grain & concen. purchased as % of milk sales	30%	33%	29%	28%	33%
Dairy feed & crop expense per cwt. milk	$5.13	$5.33	$5.96	$5.72	$5.87
Operating cost of producing cwt. milk	$9.65	$10.22	$12.28	$11.52	$11.71
Total cost of producing cwt. milk	$16.13	$16.77	$19.18	$18.23	$18.80
Hired labor cost per cwt.	$0.76	$0.76	$0.79	$0.89	$0.78
Interest paid per cwt.	$0.57	$0.53	$0.56	$0.65	$0.80
Labor & machinery costs per cow	$1,461	$1,502	$1,594	$1,600	$1,628
Replacement livestock expense	$2,630	$2,187	$2,802	$2,316	$1,760
Expansion livestock expense	$406	$544	$966	$1,459	$847
Capital Efficiency					
Farm capital per cow	$8,231	$8,501	$9,028	$9,412	$9,830
Machinery & equipment per cow	$1,818	$1,830	$1,925	$2,025	$2,122
Real estate per cow	$3,603	$3,850	$4,129	$4,231	$4,433
Livestock investment per cow	$1,804	$1, 796	$1,856	$2,005	$2,145
Asset turnover ratio	0.36	0.37	0.41	0.41	0.34
Profitability					
Net farm income without appreciation	$22,066	$20,340	$35,679	$35,167	$10,107
Net farm income with appreciation	$25,510	$31,845	$48,928	$54,191	$19,364
Labor & management income per operator/manager	$-7,364	$-11,145	$3,203	$1,387	$-22,484
Rate return on:					
Equity capital with appreciation	-3.7%	-2.5%	1.9%	3.0%	-5.1%
All capital with appreciation	-1.6%	-0.7%	2.6%	3.6%	-2.4%
All capital without appreciation	-2.2%	-2.9%	0.2%	0.4%	-3.9%
Financial Summary, End Year					
Farm net worth	$394,899	$406,930	$435,029	$463,105	$464,447
Change in net worth with appreciation	$4,861	$11,081	$28,937	$30,528	$-1,111
Debt to asset ratio	0.24	0.25	0.24	0.23	0.24
Farm debt per cow	$1,966	$2,185	$2,156	$2,192	$2,403

Table 52.

PROGRESS OF FARM BUSINESSES WITH 100-499 COWS
Same 55 New York Dairy Farms, 2002 - 2006

Selected Factors	2002	2003	2004	2005	2006
Milk receipts per cwt. milk	$12.93	$13.29	$16.88	$16.12	$13.94
Size of Business					
Average number of cows	245	250	256	263	271
Average number of heifers	182	192	195	208	221
Milk sold, cwt.	53,160	53,210	54,183	57,101	58,943
Worker equivalent	6.21	6.35	6.66	6.71	6.79
Total tillable acres	580	587	599	630	647
Rates of Production					
Milk sold per cow, lbs.	21,714	21,322	21,203	21,735	21,722
Hay DM per acre, tons	3.0	3.4	3.4	3.1	3.2
Corn silage per acre, tons	15	17	18	19	18
Labor Efficiency					
Cows per worker	39	39	38	39	40
Milk sold per worker, lbs.	856,497	837,737	814,176	850,561	868,291
Cost Control					
Grain & concen. purchased as % of milk sales	30%	31%	28%	25%	29%
Dairy feed & crop expense per cwt. milk	$4.82	$4.99	$5.59	$5.12	$4.99
Operating cost of producing cwt. milk	$10.70	$11.28	$12.50	$12.03	$12.03
Total cost of producing cwt. milk	$14.34	$14.85	$16.25	$15.93	$15.80
Hired labor cost per cwt.	$2.23	$2.28	$2.48	$2.44	$2.48
Interest paid per cwt.	$0.56	$0.53	$0.55	$0.65	$0.81
Labor & machinery costs per cow	$1,259	$1,260	$1,364	$1,407	$1,389
Replacement livestock expense	$8,543	$8,292	$7,662	$9,554	$6,731
Expansion livestock expense	$8,697	$1,592	$8,409	$4,449	$14,143
Capital Efficiency					
Farm capital per cow	$6,922	$7,046	$7,434	$8,001	$8,266
Machinery & equipment per cow	$1,452	$1,459	$1,523	$1,615	$1,644
Real estate per cow	$2,662	$2,752	$2,927	$3,209	$3,365
Livestock investment per cow	$1,765	$1,806	$1,869	$1,980	$2,067
Asset turnover ratio	0.51	0.50	0.59	0.55	0.47
Profitability					
Net farm income without appreciation	$40,783	$34,636	$156,853	$144,624	$32,850
Net farm income with appreciation	$81,370	$82,759	$235,234	$227,320	$88,909
Labor & management income per operator/manager	$-8,988	$-15,240	$61,726	$43,381	$-27,498
Rate return on:					
Equity capital with appreciation	1.8%	1.9%	14.2%	11.6%	1.5%
All capital with appreciation	2.9%	2.8%	10.7%	9.6%	3.1%
All capital without appreciation	0.5%	0.1%	6.6%	5.7%	0.6%
Financial Summary, End Year					
Farm net worth	$1,100,439	$1,135,518	$1,317,102	$1,485,023	$1,514,942
Change in net worth with appreciation	$22,323	$35,751	$175,625	$141,744	$8,333
Debt to asset ratio	0.36	0.37	0.34	0.32	0.34
Farm debt per cow	$2,466	$2,646	$2,572	$2,645	$2,777

Table 53.

PROGRESS OF FARM BUSINESSES WITH MORE THAN 500 COWS

Same 40 New York Dairy Farms, 2002 - 2006

Selected Factors	2002	2003	2004	2005	2006
Milk receipts per cwt. milk	$13.05	$13.31	$16.62	$16.05	$13.88
Size of Business					
Average number of cows	745	809	868	910	961
Average number of heifers	576	614	659	713	761
Milk sold, cwt.	176,262	190,334	201,703	219,391	231,480
Worker equivalent	16.28	17.77	19.01	19.77	20.66
Total tillable acres	1,407	1,499	1,604	1,654	1,723
Rates of Production					
Milk sold per cow, lbs.	23,670	23,534	23,246	24,108	24,092
Hay DM per acre, tons	3.6	3.5	3.6	3.6	3.6
Corn silage per acre, tons	15	17	18	19	19
Labor Efficiency					
Cows per worker	46	46	46	46	47
Milk sold per worker, lbs.	1,082,580	1,070,849	1,061,313	1,109,997	1,120,562
Cost Control					
Grain & concen. purchased as % of milk sales	29%	30%	27%	26%	29%
Dairy feed & crop expense per cwt. milk	$4.75	$5.04	$5.59	$5.13	$5.02
Operating cost of producing cwt. milk	$11.15	$11.57	$12.37	$12.22	$12.16
Total cost of producing cwt. milk	$13.85	$14.10	$15.00	$14.97	$14.86
Hired labor cost per cwt.	$2.74	$2.78	$2.90	$2.79	$2.78
Interest paid per cwt.	$0.59	$0.55	$0.55	$0.63	$0.78
Labor & machinery costs per cow	$1,232	$1,219	$1,286	$1,331	$1,335
Replacement livestock expense	$17,699	$27,413	$33,859	$30,332	$15,900
Expansion livestock expense	$50,958	$80,093	$75,197	$43,816	$56,831
Capital Efficiency					
Farm capital per cow	$6,493	$6,388	$6,575	$7,030	$7,275
Machinery & equipment per cow	$1,123	$1,068	$1,080	$1,167	$1,220
Real estate per cow	$2,401	$2,428	$2,442	$2,515	$2,632
Livestock investment per cow	$1,811	$1,801	$1,872	$2,031	$2,126
Asset turnover ratio	0.59	0.60	0.72	0.68	0.58
Profitability					
Net farm income without appreciation	$90,225	$90,527	$590,001	$539,468	$98,291
Net farm income with appreciation	$212,748	$236,290	$828,190	$852,260	$323,973
Labor & management income per operator/manager	$-20,587	$-22,039	$215,155	$168,354	$-51,528
Rate return on:					
Equity capital with appreciation	4.1%	5.0%	23.5%	19.9%	5.0%
All capital with appreciation	4.4%	4.6%	14.5%	13.6%	5.5%
All capital without appreciation	1.9%	1.8%	10.4%	8.8%	2.3%
Financial Summary, End Year					
Farm net worth	$2,639,048	$2,751,305	$3,378,288	$4,025,143	$4,134,268
Change in net worth with appreciation	$-9,253	$103,974	$642,739	$639,239	$83,546
Debt to asset ratio	0.47	0.49	0.44	0.40	0.43
Farm debt per cow	$3,006	$3,200	$2,979	$2,914	$3,095

Table 54.

FARM BUSINESS SUMMARY BY HERD SIZE
240 New York Dairy Farms, 2006

Item Farm Size:	Less than 50 Cows	50 to 74 Cows	75 to 99 Cows	100 to 199 Cows
Number of farms	23	29	27	50
ACCRUAL EXPENSES				
Hired labor	$3,892	$8,741	$23,512	$52,313
Dairy grain & concentrate	30,478	45,694	68,099	116,155
Dairy roughage	3,115	5,025	4,121	2,331
Nondairy feed	58	25	132	25
Professional nutritional services	0	0	700	1,121
Machine hire, rent & lease	1,928	2,803	5,620	9,482
Machine repairs & farm vehicle expense	8,125	11,442	18,003	26,279
Fuel, oil & grease	5,865	8,407	11,788	21,507
Replacement livestock	1,195	1,936	620	1,128
Breeding	2,604	2,567	4,402	6,861
Veterinary & medicine	3,496	5,387	8,384	15,057
Milk marketing	8,577	10,996	16,776	25,393
Bedding	1,365	2,235	1,903	5,261
Milking supplies	3,575	5,124	8,228	11,172
Cattle lease & rent	0	0	243	18
Custom boarding	56	1,398	2,778	4,381
bST expense	614	754	1,250	3,199
Livestock professional fees	736	768	981	1,520
Other livestock expense	1,643	1,939	2,981	4,349
Fertilizer & lime	1,933	4,187	7,665	11,218
Seeds & plants	1,116	2,431	4,822	8,497
Spray & other crop expense	910	2,102	2,414	5,999
Crop professional fees	9	76	96	365
Land, building & fence repair	1,623	3,147	4,129	5,107
Taxes & rent	5,728	7,590	9,146	17,761
Utilities	5,234	7,261	9,568	15,015
Interest paid	6,675	10,560	12,287	21,987
Other professional fees	541	597	1,268	1,284
Misc. (including insurance)	3,687	5,991	6,719	11,392
Total Operating Expenses	$104,778	$159,184	$238,637	$406,178
Expansion livestock	3,324	1,461	1,193	1,442
Extraordinary expense	468	808	105	1,829
Machinery depreciation	8,792	9,441	17,123	27,696
Building depreciation	3,518	5,062	6,684	13,287
Total Accrual Expenses	$120,880	$175,957	$263,741	$450,433
ACCRUAL RECEIPTS				
Milk sales	$98,947	$155,035	$222,746	$391,657
Dairy cattle	11,134	12,036	21,184	28,528
Dairy calves	3,088	4,762	3,842	9,658
Other livestock	1,288	1,336	692	321
Crops	-1,368	546	7,528	4,484
Miscellaneous receipts	12,923	14,873	21,357	36,655
Total Accrual Receipts	$126,013	$188,588	$277,348	$471,303
PROFITABILITY ANALYSIS				
Net farm income (without appreciation)	$5,133	$12,631	$13,607	$20,870
Net farm income (with appreciation)	$9,399	$28,344	$33,442	$50,783
Labor & management income	$-21,521	$-18,034	$-26,532	$-36,388
Number of operators	1.11	1.37	1.37	1.58
Labor & management income/operator	$-19,389	$-13,164	$-19,366	$-23,030
Rates of return on: Equity capital w/o apprec.	-8.6%	-8.4%	-7.0%	-3.5%
Equity capital with appreciation	-7.5%	-4.8%	-3.7%	-0.6%
All capital without appreciation	-5.2%	-4.3%	-3.7%	-1.0%
All capital with appreciation	-4.3%	-1.7%	-1.3%	1.2%