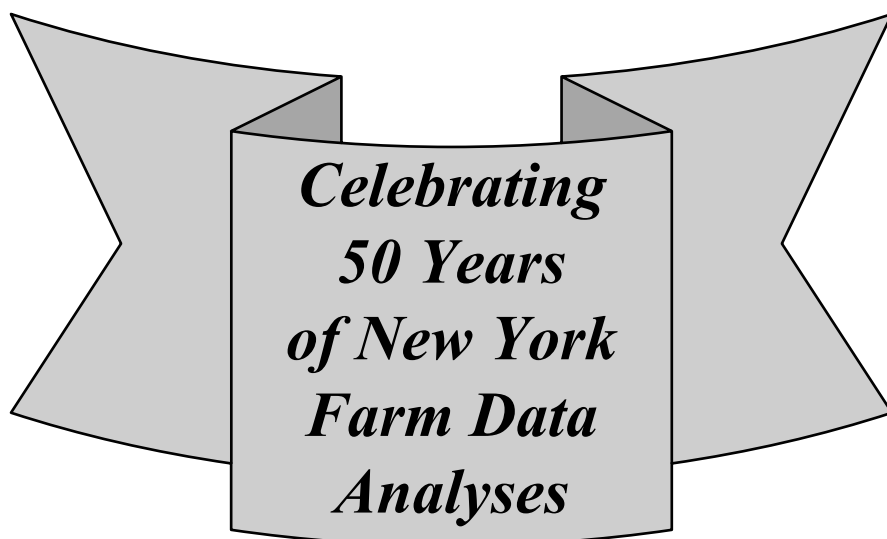


# ***DAIRY FARM MANAGEMENT***

## ***BUSINESS SUMMARY NEW YORK STATE 2005***



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## ABSTRACT

Business and financial records for 2005 from 225 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 340 cows per farm and 22,998 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 \$187,446 per farm. The rate of return to all capital invested in the farm business including appreciation averaged 10.7 percent.

Differences in profitability between farms continue to widen. Average net farm income excluding appreciation of the top 10 percent of farms was \$838,892, while the lowest 10 percent was a negative \$23,283. Rates of return on equity with appreciation ranged from 35 percent to negative 10 percent for the highest decile and the lowest decile of farms, respectively.

Large freestall farms averaged the highest milk output per cow and per worker, 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 \$0.28 per hundredweight higher for 3X than 2X milking herds, while output per cow was 3,787 pounds higher. In 2005, 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 all measures of profitability. Farms adopting rotational 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

	<u>Page</u>
INTRODUCTION .....	1
Farms Included .....	1
Features .....	1
Acknowledgments .....	1
2005 Regional Summary Publications .....	2
THIRTY YEARS OF NEW YORK STATE DAIRY FARM BUSINESS DATA .....	3
FOUR YEARS OF VARIABILITY .....	3
ADJUSTING PROFIT, PRICE AND COSTS FOR INFLATION .....	6
MILK INCOME AND MARKETING EXPENSE BREAKDOWN .....	7
SUMMARY & ANALYSIS OF THE FARM BUSINESS .....	10
Business Characteristics & Resources Used .....	10
Accounting Procedures .....	11
Income Statement - Expenses .....	11
Income Statement - Receipts .....	13
Profitability Analysis .....	14
Farm & Family Financial Status .....	17
Cash Flow Summary & Analysis .....	20
Repayment Analysis .....	22
Cropping Program Analysis .....	23
Dairy Program Analysis .....	26
Cost of Producing Milk .....	30
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, 1996-2005 .....	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

<u>Table Number</u>		<u>Page</u>
1	Comparison of Farm Business Summary Data, New York Dairy Farms, 1975-2005 .....	4
2	Comparison of Farm Business Summary Data, Same 139 New York Dairy Farms, 2002-2005 .....	5
3	Average Milk Income and Marketing Report, 165 New York Dairy Farms, 2005 .....	8
4	Milk Price Information by Quintile, 165 New York Dairy Farms, 2005 .....	9
5	Business Characteristics & Resources Used, 225 New York Dairy Farms, 2005 .....	10
6	Cash & Accrual Farm Expenses, 225 New York Dairy Farms, 2005 .....	12
7	Cash & Accrual Farm Receipts, 225 New York Dairy Farms, 2005 .....	13
8	Net Farm Income, 225 New York Dairy Farms, 2005 .....	14
9	Labor & Management Income, 225 New York Dairy Farms, 2005 .....	15
10	Return to Capital, 225 New York Dairy Farms, 2005 .....	16
11	Returns to All Labor & Management by Return to All Capital With Appreciation, 225 New York Dairy Farms, 2005 .....	16
12	2005 Farm Business & Nonfarm Balance Sheet, 225 New York Dairy Farms, 2005 .....	17
13	Farm Balance Sheet Analysis, 225 New York Dairy Farms, 2005 .....	18
14	Farm Inventory Balance, 225 New York Dairy Farms, 2005 .....	18
15	Statement of Owner Equity (Reconciliation), 225 New York Dairy Farms, 2005 .....	19
16	Annual Cash Flow Statement, 225 New York Dairy Farms, 2005 .....	20
17	Annual Cash Flow Data, 225 New York Dairy Farms, 2005 .....	21
18	Farm Debt Payments Planned, Same 184 New York Dairy Farms, 2003 & 2005 .....	22
19	Coverage Ratios, Same 184 New York Dairy Farms, 2003 & 2005 .....	22
20	Debt to Asset Ratio vs. Cash Flow Coverage, 184 New York Dairy Farms, 2005 .....	22
21	Land Resources & Crop Production, 225 New York Dairy Farms, 2005 .....	23
22	Crop Management Factors, 225 New York Dairy Farms, 2005 .....	23
23	Crop Related Accrual Expenses, New York Dairy Farms, 2005 .....	24
24	Accrual Machinery Expenses, 215 New York Dairy Farms That Grow Forages, 2005 .....	24
25	Crop Related Accrual Expenses by Hay Crop Production Per Acre, 38 New York Dairy Farms, 2005 .....	25
26	Crop Related Accrual Expense by Corn Production Per Acre, 35 New York Dairy Farms, 2005 .....	25
27	Dairy Herd Inventory, 225 New York Dairy Farms, 2005 .....	26
28	Milk Production, 225 New York Dairy Farms, 2005 .....	27
29	Milk Sold Per Cow & Farm Income Measures, 225 New York Dairy Farms, 2005 .....	27
30	Culling Rate and Dairy Replacement Information, New York Dairy Farms, 2005 .....	29
31	Cost of Producing Milk, Whole Farm Method, 225 New York Dairy Farms, 2005 .....	30
32	Itemized Costs of Producing Milk Per Hundredweight Based on Whole Farm Data, 225 New York Dairy Farms, 2005 .....	31
33	Itemized Costs of Producing Milk per Hundredweight Based on Whole Farm Data, Same 184 New York Dairy Farms, 2001-2005 .....	32
34	Cost of Producing Milk, Accrual Receipts from Dairy, and Profitability, 225 New York Dairy Farms, 2005 .....	33
35	Farm Cost of Producing Milk by Milk Sold Per Cow, 225 New York Dairy Farms, 2005 .....	33
36	Farm Cost of Producing Milk by Herd Size, 225 New York Dairy Farms, 2005 .....	35
37	Ten Year Comparison: Average Cost of Producing Milk Per Hundredweight, New York Dairy Farms, 1996 to 2005 .....	38
38	Ten Year Comparison: Selected Business Factors, New York Dairy Farms, 1996 to 2005 .....	39
39	Dairy Related Accrual Expenses, 225 New York Dairy Farms, 2005 .....	40
40	Purchased Feed & Crop Expenses Per Hundredweight of Milk and Farm Income Measures, 225 New York Dairy Farms, 2005 .....	41
41	Capital Efficiency, 225 New York Dairy Farms, 2005 .....	42
42	Asset Turnover & Profitability, 225 New York Dairy Farms, 2005 .....	42
43	Labor Efficiency, 225 New York Dairy Farms, 2005 .....	42
44	Labor Force Inventory & Cost Analysis, 225 New York Dairy Farms, 2005 .....	43
45	Milk Sold Per Worker & Net Farm Income, 225 New York Dairy Farms, 2005 .....	43
46	Farm Business Chart for Farm Management Cooperators, 225 New York Dairy Farms, 2005 .....	44

<u>Table Number</u>		<u>Page</u>
47	A Farm Finance Checklist, 225 New York Dairy Farms, 2005 .....	46
48	Financial Analysis Chart, 225 New York Dairy Farms, 2005 .....	47
49	Cows Per Farm and Farm Family Income Measures, 225 New York Dairy Farms, 2005 .....	48
50	Cows Per Farm and Related Farm Factors, 225 New York Dairy Farms, 2005 .....	49
51	Progress of Farm Businesses with Less Than 100 Cows, Same 36 New York Dairy Farms, 2001-2005 ..	50
52	Progress of Farm Businesses with 100-499 Cows, Same 53 New York Dairy Farms, 2001-2005 .....	51
53	Progress of Farm Businesses with More Than 500 Cows, Same 38 New York Dairy Farms, 2001-2005..	52
54	Farm Business Summary by Herd Size, 225 New York Dairy Farms, 2005 .....	53
55	Farm Family Financial Situation by Herd Size, 225 New York Dairy Farms, 2005 .....	55
56	Selected Business Factors by Herd Size, 225 New York Dairy Farms, 2005 .....	59
57	Income and Expense Comparison for Farms Buying Majority of Forages Versus Similar Size Farms Growing Forages, 2005 .....	63
58	Selected Business Factors for Farms Buying Majority of Forages Versus Similar Size Farms Growing Forages, 2005 .....	64
59	Selected Business Factors by Type of Barn & Herd Size, 212 New York Dairy Farms, 2005 .....	65
60	Farm Business Chart for Small Conventional Stall Dairy Farms, 31 Conventional Stall Dairy Farms with 60 or Less Cows, New York, 2005 .....	66
61	Farm Business Chart for Large Conventional Stall Dairy Farms, 31 Conventional Stall Dairy Farms with More Than 60 Cows, New York, 2005 .....	67
62	Farm Business Chart for Small Freestall Dairy Farms, 38 Freestall Barn Dairy Farms with 150 or less Cows, New York, 2005 .....	68
63	Farm Business Chart for Medium Freestall Dairy Farms, 28 Freestall Barn Dairy Farms with 151-300 Cows, New York, 2005 .....	69
64	Farm Business Chart for Large Freestall Dairy Farms, 84 Freestall Barn Dairy Farms with 300 or More Cows, New York, 2005 .....	70
65	bST Non-users vs. Users, Same 60 Farms, 2001-2005 .....	71
66	Comparison of Farm Business Data, Same 61 New York Dairy Farms, 1996-2005 .....	72
67	Farm Receipts & Expenses Per Cow & Per Hundredweight for Three Levels of Milk Production, 225 New York Dairy Farms, 2005 .....	74
68	Farm Receipts & Expenses Per Cow & Per Hundredweight for Three Herd Size Categories, 225 New York Dairy Farms, 2005 .....	75
69	Intensive Grazing Farms vs. Non-Grazing Farms, New York State Dairy Farms, 2005 .....	76
70	Selected Business Factors by Milking Frequency, New York Dairy Farms, 2004 & 2005 .....	77
71	Comparison of Dairy Farm Business Data by Region, 225 New York Dairy Farms, 2005 .....	78
72	Milk Production & Average Cost of Producing Milk, Five Regions of New York .....	79
73	Farm Business Summary & Farm Family Financial Situation, 20 New York Dairy-Renter Farms, 2005 .....	80
74	Farm Business Summary & Farm Family Financial Situation, Average of 20 Top 10 Percent Farms by Rate of Return on All Capital (without appreciation), 2005 .....	81
75	Farm Business Summary & Farm Family Financial Situation, Average of 225 New York Dairy Farms, 2005 .....	82
A1	Prices Paid by New York Farmers for Selected Items, 1993-2005 .....	84
A2	Values of New York Dairy Farm Inventory Items, 1990-2005 .....	84
A3	Number of Dairy Farms and Milk Cows by Size of Herd, New York State, 2004 .....	85

## LIST OF FIGURES & CHARTS

	<u>Page</u>
Figure 1. Location of the 225 New York Dairy Farms in the 2005 Dairy Farm Business Summary .....	2
Figure 2. Percent Change in Milk Production, Five Regions in New York, 1995-2005.....	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 .....	15
Chart 5. Net Farm Income (without appreciation) by Herd Size .....	26
Chart 6. Net Farm Income & Milk Per Cow.....	28
Chart 7. Net Farm Income Per Cow & Milk Per Cow.....	28
Chart 8. Milk Sold Per Cow and Cull Rate.....	29
Chart 9. Net Farm Income Per Cow Without Appreciation and Cull Rate.....	29
Chart 10. Production Cost by Milk Per Cow.....	34
Chart 11. Total Cost of Producing Milk/Cwt. & Milk Per Cow.....	34
Chart 12. Production Cost by Herd Size.....	35
Chart 13. Net Farm Income Per Cow & Total Cost of Producing Milk Per Hundredweight. ....	36
Chart 14. Variation in Average Milk Price.....	40
Chart 15. Net Milk Income Over Purchased Concentrate Per Cow Versus Return on Assets .....	41



## INTRODUCTION<sup>1</sup>

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 Extension staff, cooperate in sponsoring DFBS projects. In 2005, 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 46 New York counties provide the basis for continuing Extension programs, data for applied studies, and for use in the classroom. Regardless of the use of the data, confidentiality of individual farm data is maintained.

Cornell Cooperative Extension educators enroll the cooperators and collect the records. In addition, assistance is provided by individual consultants Bruce Dehm and Charles Radick, and by consultants from Farm Credit 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.

Individual farm records from the 6 regions and 46 counties of the State (Figure 1, page 2) have been combined and the total data set analyzed to determine the effects of different levels of price, technology, and management on dairy farm incomes. This study provides current dairy farm business information for use by farmers, Cooperative Extension staff, teachers, and others concerned with the New York dairy industry.

### **Farms Included**

Data from 225 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 225 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 have been excluded from 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 11. 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 13 through 16. The balance sheet is presented with the current portion of intermediate and long-term debt identified as a current liability, on pages 16 and 17. The statement of owner equity, which shows the interrelationship between farm profitability, non-farm cash flows and net worth is presented on page 19. A detailed cash flow statement, as well as budgeting data and debt repayment analysis is presented on pages 20 through 22.

The whole farm method of calculating the cost of producing milk is detailed on pages 30 through 35. 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**

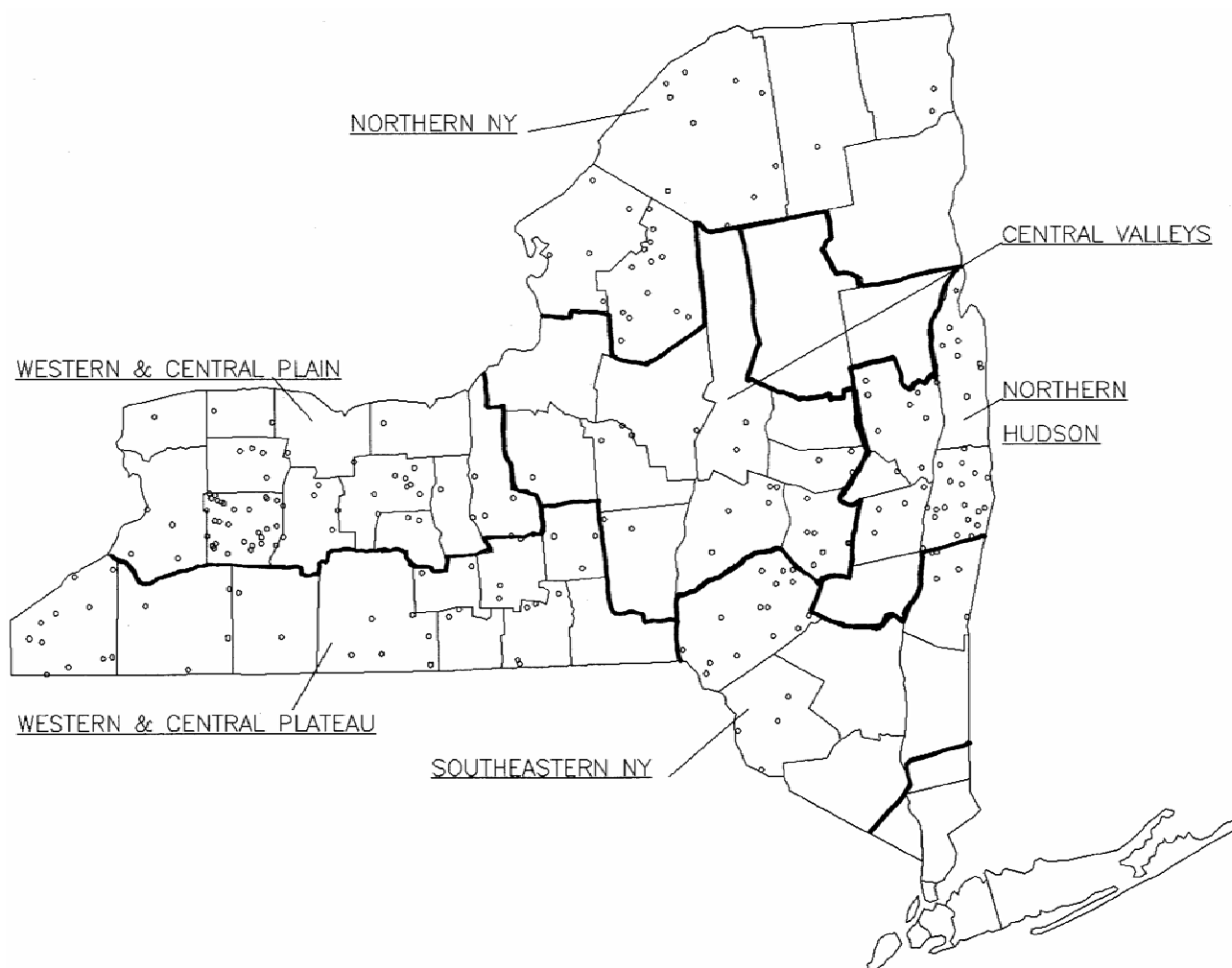
The authors wish to acknowledge extension field staff and cooperating farmers for their invaluable cooperation on this project. In addition, the authors appreciate the comments provided by Loren Tauer and Gerald White.

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<sup>1</sup>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 225 NEW YORK DAIRY FARMS  
IN THE 2005 DAIRY FARM BUSINESS SUMMARY**



**2005 Regional Summary Publications**

<u>Region</u>	<u>Publications</u>	<u>Author(s)</u>
Northern Hudson	E.B. 2006-04	George J. Conneman, Linda D. Putnam, Cathy S. Wickswat, Sandra Buxton, Richard C. Smith & Jason Karszes
Western and Central Plain	E.B. 2006-05	Wayne A. Knoblauch, Linda D. Putnam, Jason Karszes, John Hanchar, Griffin Moag & Josh Sauter
Western and Central Plateau	E.B. 2006-06	Wayne A. Knoblauch, Linda D. Putnam, Jason Karszes, James W. Grace, David L. Munsee, Jacob Schuelke & Joan S. Petzen
Southeastern New York	E.B. 2006-08	Wayne A. Knoblauch, Linda D. Putnam, Mariane Kiraly, Joseph J. Walsh, Stephen E. Hadcock & Larry R. Hulle
Northern New York	E.B. 2006-12	Wayne A. Knoblauch, Linda D. Putnam, Jason Karszes, Peggy Murray, Frans Vokey, Molly Ames, William Van Loo, Anita Deming, Carl Tillinghast & Julie Viveiros
Central Valleys	E.B. 2006-13	Wayne A. Knoblauch, Charles Z. Radick, George Allhusen, Jason Karszes & Linda D. Putnam

### THIRTY YEARS OF NEW YORK STATE DAIRY FARM BUSINESS DATA

New York dairy farming has changed dramatically over the past 30 years (Table 1, page 4). Dairy cows per farm on cooperating farms increased 372 percent between 1975 and 2005 and more than one-half of that increase occurred in the last 10 years. Milk output per cow increased more than 76 percent and the largest increase occurred between 1985 and 1995. The DFBS sample is not representative of all farms in New York State. State census data indicate the average herd in the state increased in size 112 percent over the 30-year period. Labor efficiency, measured by pounds milk sold per worker, was up 145 percent on DFBS farms, and the operating cost of producing milk increased more than 78 percent with the big jump occurring between 1975 and 1985.

There is a large increase in farm capital invested per farm, up 876 percent since 1975. Farm net worth excluding deferred taxes has increased 894 percent over the last 30 years. Net farm income per farm increased 356 percent (adjusted for 2005 dollars) and return on equity capital increased 176 percent since 1975. Labor and management income per operator is up 381 percent from 30 years ago (adjusted for 2005 dollars).

### 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 139 farms that have been DFBS cooperators each year since 2002. Chart 1 shows the price received for milk in comparison to the operating cost of producing a hundredweight of milk for these farms. The high milk price and lower costs in 2005 provided dairy farmers with excellent returns, yet 2004 saw the highest operating margin per hundredweight at \$4.26.

Average net farm income without appreciation in 2005 was 394 percent above the 2002 average, and 356 percent above the 2003 average. Net worth remained constant in 2002, decreased 4 percent in 2003, increased 20 percent in 2004, and increased 15 percent in 2005.

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

**Chart 1.**

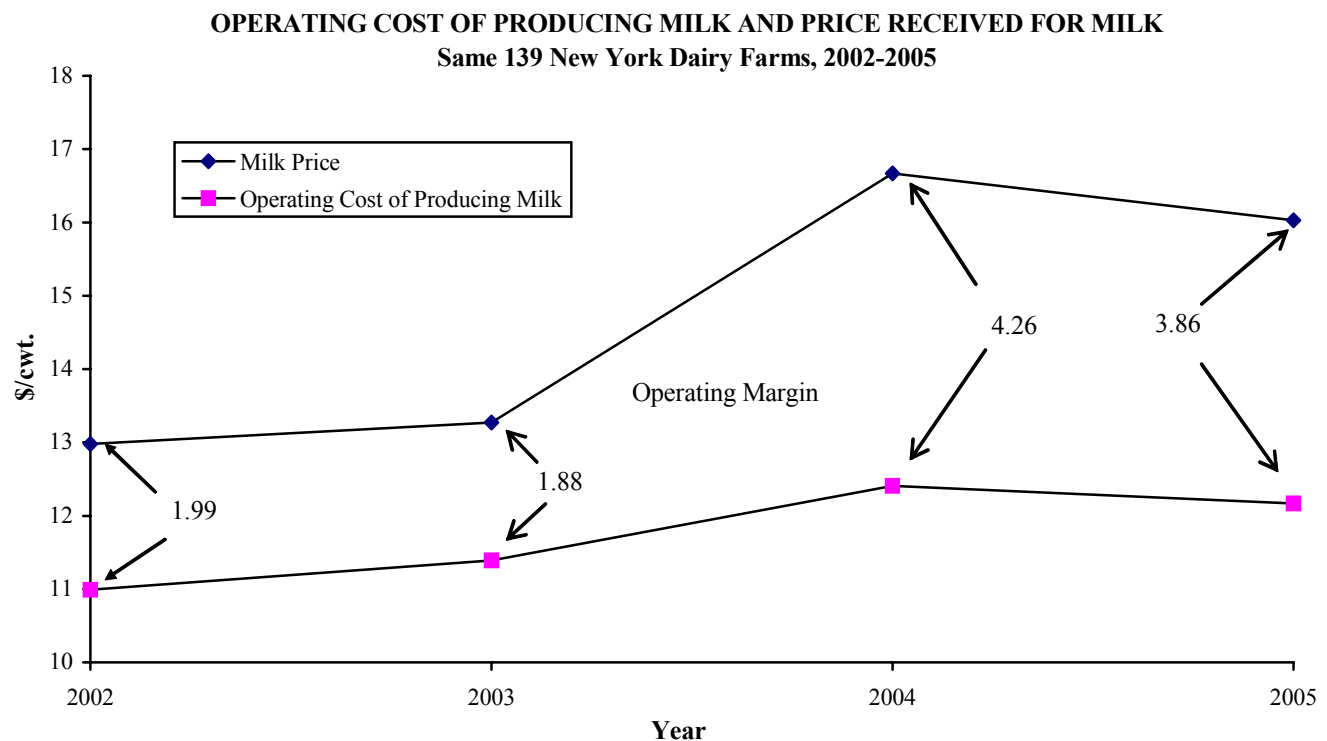


Table 1.

**COMPARISON OF FARM BUSINESS SUMMARY DATA**  
**New York Dairy Farms, 1975 - 2005**

Selected Factors	1975	1985	1995	2005
Number of farms	605	404	321	225
<u>Size of Business</u>				
Average number of cows	72	89	160	340
Average number of heifers	54	73	121	270
Milk sold, cwt.	9,386	14,000	32,362	78,250
Worker equivalent	2.40	3.17	4.40	8.18 <sup>4</sup>
Total tillable acres	217 <sup>2</sup>	280	399	729
<u>Rates of Production</u>				
Milk sold per cow, lbs.	13,036	15,679	20,269	22,998
Hay DM per acre, tons	2.6	2.7	2.8	3.2
Corn silage per acre, tons	14	14	16	19
<u>Labor Efficiency</u>				
Cows per worker	30	28	36	42 <sup>4</sup>
Milk sold per worker, lbs.	391,083	442,125	736,269	956,698 <sup>4</sup>
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	28%	23%	27%	26%
Dairy feed & crop expense per cwt. milk	\$3.18	\$4.13	\$4.39	\$5.12
Operating cost of producing cwt. milk	\$6.89	\$9.57	\$10.40	\$12.25
Total cost of producing cwt. milk	\$9.55	\$14.23	\$13.69	\$15.45
Milk receipts per cwt. milk	\$8.65	\$12.90	\$13.03	\$15.98
<u>Capital Efficiency</u>				
Total farm capital	\$261,628	\$517,993	\$1,000,299	\$2,554,493
Farm capital per cow	\$3,634	\$5,820	\$6,252	\$7,513
Machinery & equipment per cow	\$615	\$1,083	\$1,098	\$1,314
Real estate per cow	\$1,833	\$2,726	\$2,763	\$2,950
Livestock investment per cow	\$718	\$1,222	\$1,490	\$2,018
Asset turnover ratio	0.38	0.49	0.49	0.60
<u>Profitability</u>				
Net farm income without appreciation <sup>5</sup>	-----	\$39,985	\$64,835	\$187,446
Net farm income with appreciation <sup>5</sup>	\$63,492	\$36,305	\$79,401	\$289,779
Labor & management income per operator/manager <sup>5</sup>	\$13,474	\$5,187	\$13,243	\$64,745
Rate of return on:				
Equity capital with appreciation	5.1%	-1.3%	3.4%	14.1%
All capital with appreciation	5.7%	2.5%	5.1%	10.7%
All capital without appreciation	-----	2.9%	4.0%	6.7%
<u>Financial Summary, End Year</u>				
Farm net worth	\$170,108 <sup>3</sup>	\$325,664	\$624,261	\$1,690,427
Change in net worth with appreciation	-----	\$-2,351	\$26,393	\$204,076
Debt to asset ratio	0.35 <sup>3</sup>	0.37	0.39	0.37
Farm debt per cow	\$1,250 <sup>3</sup>	\$2,090	\$2,381	\$2,818

<sup>2</sup>Acres of cropland harvested.

<sup>3</sup>Average of 590 dairy farm cooperators submitting financial information in 1975.

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

<sup>5</sup>Adjusted for inflation using Consumer Price Index – 2005 dollars.

Table 2.

**COMPARISON OF FARM BUSINESS SUMMARY DATA**  
**Same 139 New York Dairy Farms, 2002 - 2005**

Selected Factors	2002	2003	2004	2005
Milk receipts per cwt. milk	\$12.98	\$13.27	\$16.67	\$16.03
<u>Size of Business</u>				
Average number of cows	340	360	379	394
Average number of heifers	261	276	291	312
Milk sold, cwt.	77,778	81,828	85,262	91,674
Worker equivalent <sup>6</sup>	8.15	8.60	9.05	9.34
Total tillable acres	725	755	794	818
<u>Rates of Production</u>				
Milk sold per cow, lbs.	22,889	22,713	22,485	23,241
Hay DM per acre, tons	3.4	3.3	3.4	3.3
Corn silage per acre, tons	15	17	18	19
<u>Labor Efficiency</u>				
Cows per worker <sup>6</sup>	42	42	42	42
Milk sold per worker, lbs. <sup>6</sup>	954,429	951,122	942,207	982,051
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	30%	31%	27%	26%
Dairy feed & crop expense per cwt. milk	\$4.76	\$5.01	\$5.59	\$5.13
Operating cost of producing cwt. milk	\$10.99	\$11.39	\$12.41	\$12.17
Total cost of producing cwt. milk	\$14.12	\$14.37	\$15.50	\$15.36
Hired labor cost per cwt.	\$2.51	\$2.56	\$2.70	\$2.64
Interest paid per cwt.	\$0.59	\$0.55	\$0.56	\$0.64
Labor & machinery costs per cow	\$1,260	\$1,252	\$1,328	\$1,372
<u>Capital Efficiency, Average for Year</u>				
Farm capital per cow	\$6,770	\$6,733	\$6,988	\$7,458
Machinery & equipment per cow	\$1,273	\$1,235	\$1,258	\$1,344
Real estate per cow	\$2,574	\$2,617	\$2,692	\$2,818
Livestock investment per cow	\$1,801	\$1,807	\$1,874	\$2,019
Asset turnover ratio	0.54	0.55	0.65	0.62
<u>Profitability</u>				
Net farm income without appreciation	\$45,473	\$49,203	\$246,868	\$224,476
Net farm income with appreciation	\$98,542	\$115,075	\$352,434	\$355,111
Labor & management income per operator/manager	\$-15,108	\$-14,923	\$97,098	\$78,647
Rate return on:				
Equity capital with appreciation	2.2%	3.3%	18.3%	15.6%
All capital with appreciation	3.3%	3.7%	12.4%	11.6%
All capital without appreciation	1.0%	1.0%	8.5%	7.2%
<u>Financial Summary, End Year</u>				
Farm net worth	\$1,354,934	\$1,406,096	\$1,675,550	\$1,941,544
Change in net worth with appreciation	\$359	\$54,340	\$276,446	\$252,874
Debt to asset ratio	0.42	0.44	0.40	0.37
Farm debt per cow	\$2,828	\$3,021	\$2,855	\$2,832

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

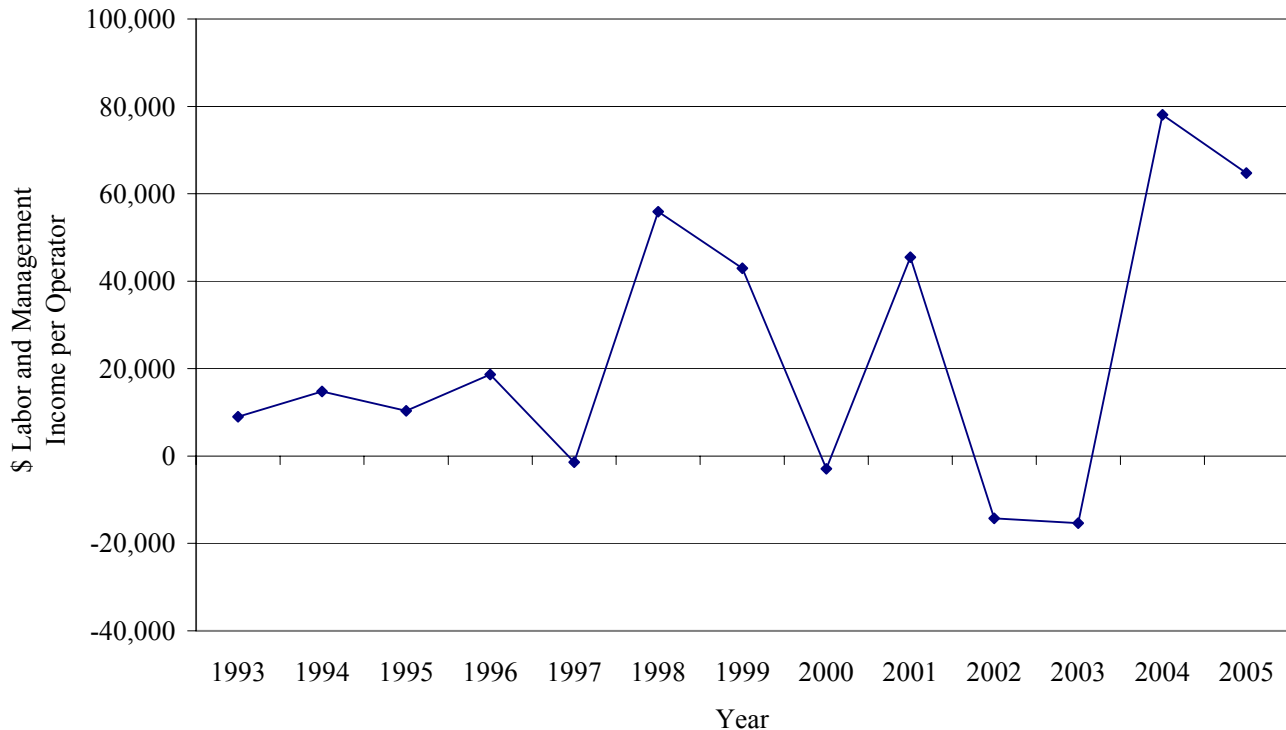
## ADJUSTING PROFIT, PRICE AND COSTS FOR INFLATION

Labor and management income per operator in 2005 was at a second all-time high following 2004, when measured in nominal (actual) value (Chart 2). Over the period 1993 to 2005, 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 340 cows over this period.

**Chart 2.**

### LABOR AND MANAGEMENT INCOME PER OPERATOR

Dairy Farm Business Summary Farms, 1993-2005

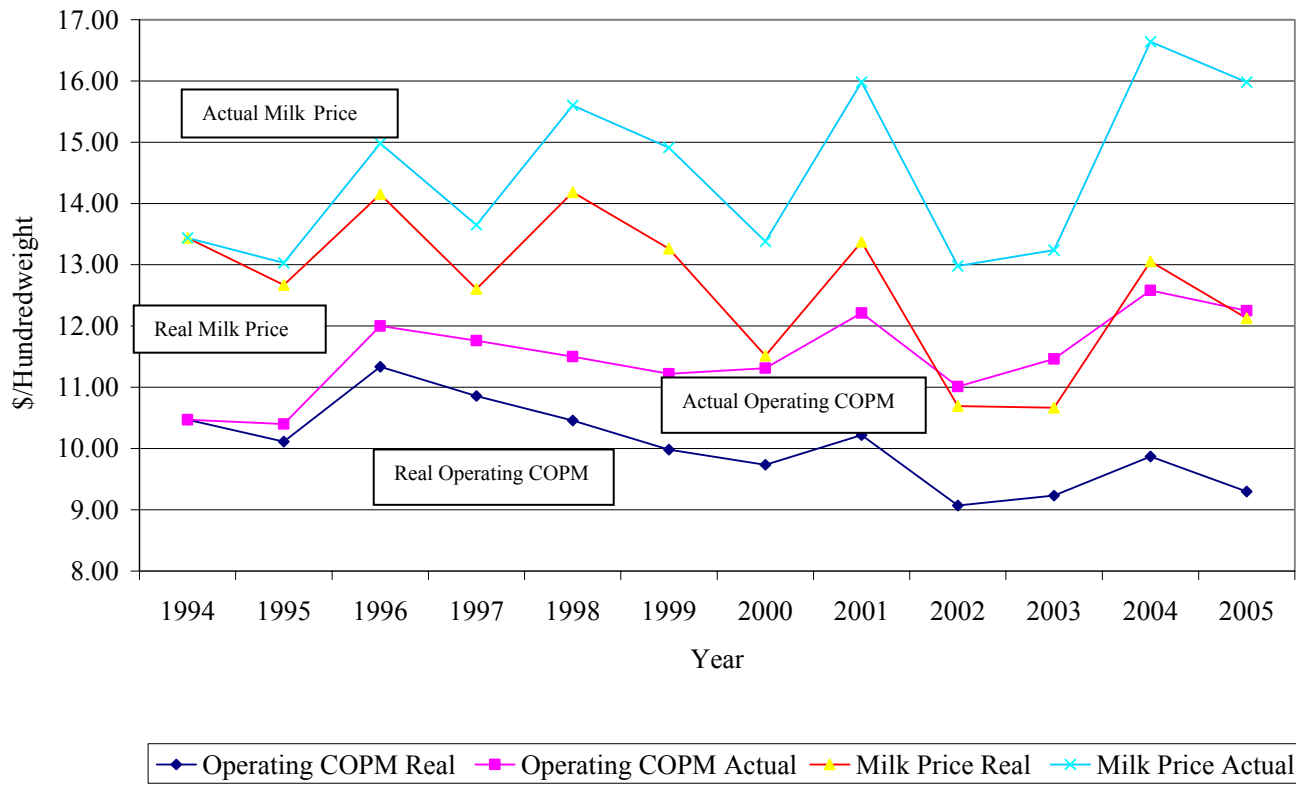


Milk prices in 2005 averaged \$15.98 per hundredweight in actual dollars (Chart 3, page 7). However, the 2005 milk price, adjusted for inflation, in 1994 dollars, would have been about \$12.13 per hundredweight.

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 nineties. Operating costs decreased slightly in 2005. Real costs of producing milk per hundredweight have been on a downward trend over this 12-year period.

Chart 3.

**OPERATING COST OF PRODUCING MILK AND MILK PRICE<sup>7</sup>**  
Dairy Farm Business Summary Farms, 1994-2005



<sup>7</sup> Actual operating cost of producing milk and milk price are adjusted for inflation, to obtain real values, using the Consumer Price Index-1994 dollars.

### MILK INCOME AND MARKETING EXPENSE BREAKDOWN

Starting January 1<sup>st</sup>, 2000, the Northeast switched to multiple components 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, 165 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 first section looks at the value of the milk components on a per hundredweight basis. The second section looks at the Producer Price Differential. The third section looks at the premiums a farm receives. Any premiums not specifically noted as quality or volume related are included in market premiums. The fourth section looks at the expenses associated with marketing milk. Expenses associated with utilizing forward contracting or hedging programs to market milk, such as commission or broker fees are included in market fees and cooperative dues. The fifth section is income from forward contracting or hedging programs. The sixth section is the patronage dividends or refunds from the milk cooperatives. Equity purchased in the milk cooperative utilizing a monthly deduction from the milk check or a percent of the patronage dividend is treated as a capital purchase and is not a milk marketing 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 payment.

Table 3 on page 8 reports the averages for these different sections. Table 4 on page 9 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 is presented on page 40.

Table 3.

**AVERAGE<sup>8</sup> MILK INCOME AND MARKETING REPORT**  
**165 New York Dairy Farms, 2005**

	Pounds	Percent	Price/Pound	Total	\$/Cwt of Milk
<b>BASE FARM PRICE</b>					
Butterfat	303,030.60	3.63%	\$1.72	\$520,521.00	\$6.23
Protein	251,294.80	3.01%	\$2.46	\$618,817.00	\$7.40
Solids	481,412.20	5.76%	\$0.12	\$59,442.80	<u>\$0.71</u>
Total Component Contribution					<u>\$14.34</u>
<b>PPD</b>	8,358,129.00			\$64,245.76	<u>\$0.77</u>
<b>Base Farm Price</b>					<u>\$15.11</u>
Premiums					
Quality				\$18,001.54	\$0.22
Volume				\$25,508.48	\$0.31
Market Premiums				\$25,646.41	<u>\$0.31</u>
<b>Total Premiums</b>					<u>\$0.84</u>
<b>BASE FARM PRICE + PREMIUM</b>					<u>\$15.95</u>
<hr style="border-top: 1px dashed black;"/>					
Deductions					
Promo				\$13,567.92	\$0.16
Hauling + Stop Charges.				\$44,003.22	\$0.53
Market Fees & Coop Dues				\$6,247.50	\$0.07
<b>Total Deductions</b>					<u>\$0.76</u>
<b>BASE FARM PRICE + PREMIUMS – DEDUCTIONS</b>					<u>\$15.19</u>
Marketing Programs					
Futures Contracts, Forward Contracting, Etc.				\$-3,080.47	<u>\$-0.04</u>
<b>Total Marketing Income</b>					<u>\$-0.04</u>
<b>Patronage Dividends</b>				\$7,851.99	<u>\$0.09</u>
<b>NET PRICE RECEIVED ON FARM, ALL SOURCES</b>					<u>\$15.24</u>
<b>PPD – Hauling, per cwt.</b>					\$0.24
<b>PPD – Hauling + Market Premiums, per cwt.</b>					\$0.55
<b>Net Marketing Value, per cwt. (PPD + Total Premiums - Total Deductions)</b>					\$0.85

<sup>8</sup>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 165 farms is 361 cows.



	Lowest Quintile				Highest Quintile
Butterfat, %	3.43	3.58	3.66	3.75	4.01
Protein, %	2.91	2.97	3.01	3.07	3.22
Other Solids, %	5.29	5.66	5.69	5.72	6.02
Butterfat, \$ per Cwt.	5.87	6.14	6.27	6.45	6.96
Protein, \$ per Cwt.	7.12	7.30	7.41	7.57	7.97
Other solids, \$ per Cwt.	0.66	0.69	0.70	0.71	0.79
<b>Total Component Value per Cwt.</b>	<b>\$13.80</b>	<b>\$14.18</b>	<b>\$14.40</b>	<b>\$14.66</b>	<b>\$15.58</b>
PPD, \$ per Cwt.	0.51	0.60	0.74	0.97	1.36
<b>Base Farm Price per Cwt.</b>	<b>\$14.43</b>	<b>\$14.92</b>	<b>\$15.28</b>	<b>\$15.63</b>	<b>\$16.56</b>
Quality, \$ per Cwt.	0.01	0.08	0.15	0.23	0.45
Volume, \$ per Cwt.	0.00	0.02	0.12	0.25	0.54
Market premium, \$ per Cwt.	-0.02	0.08	0.18	0.35	0.70
Total Premium, \$ per Cwt.	<b>0.16</b>	<b>0.40</b>	<b>0.63</b>	<b>0.81</b>	<b>1.13</b>
<b>Base Farm Price + Premiums per Cwt.</b>	<b>\$15.04</b>	<b>\$15.52</b>	<b>\$15.85</b>	<b>\$16.25</b>	<b>\$17.30</b>
Promotion, \$ per Cwt.	0.14	0.15	0.15	0.16	0.24
Hauling, \$ per Cwt.	0.30	0.44	0.54	0.72	1.11
Market fees & coop dues per Cwt.	0.00	0.04	0.06	0.10	0.15
<b>Total Marketing Expenses per Cwt.</b>	<b>\$0.51</b>	<b>\$0.68</b>	<b>\$0.78</b>	<b>\$0.97</b>	<b>\$1.36</b>
<b>Base + Premiums – Deductions per Cwt.</b>	<b>\$14.28</b>	<b>\$14.72</b>	<b>\$15.04</b>	<b>\$15.38</b>	<b>\$16.24</b>
Futures contract, forward contracting, \$ per Cwt.	-0.08	0.00	0.00	0.00	0.02
<b>Total Marketing Income, \$ per Cwt.</b>	<b>\$-0.08</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.02</b>
<b>Patronage Dividends, \$ per Cwt.</b>	<b>\$-0.01</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.03</b>	<b>\$0.45</b>
<b>Net Price Received From All Sources, \$ per Cwt.</b>	<b>\$14.36</b>	<b>\$14.83</b>	<b>\$15.15</b>	<b>\$15.46</b>	<b>\$16.30</b>
<b>PPD - Hauling, \$ per cwt.</b>	<b>-0.04</b>	<b>0.12</b>	<b>0.20</b>	<b>0.31</b>	<b>0.49</b>
<b>PPD - Hauling + Market Premiums, \$ per cwt.</b>	<b>0.05</b>	<b>0.26</b>	<b>0.40</b>	<b>0.61</b>	<b>1.04</b>
<b>Net Marketing Value, \$ per cwt. (PPD + Total Premiums - Total Deductions)</b>	<b>-0.05</b>	<b>0.25</b>	<b>0.58</b>	<b>0.82</b>	<b>1.52</b>

<sup>9</sup>Data for each category are calculated independently of all others. Therefore, summation of individual categories will not equal total categories.

## 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 2005 are presented in the following table.

**Table 5.**

**BUSINESS CHARACTERISTICS AND RESOURCES USED  
225 New York Dairy Farms, 2005**

<u>Dairy Livestock (number)</u>	<u>Cows</u>	<u>Heifers</u>	<u>Dairy Records</u>	<u>Number</u>	<u>Percent</u>
Beginning of Year	332	261	Testing Service	172	76
End of Year	346	278	On Farm System	27	12
Average for Year	340	270	Other	2	1
			None	24	11
<u>Type of Business</u>	<u>Number</u>	<u>Percent</u>	<u>bST Usage</u>	<u>Number</u>	<u>Percent</u>
Sole Proprietorship	107	47	Used consistently	93	41
Partnership	58	26	Used inconsistently	16	7
Limited Liability Corp.	44	20	Started using in 2005	1	<1
Subchapter S Corporation	14	6	Stopped using in 2005	4	2
Subchapter C Corporation	2	1	Not used in 2005	113	50
<u>Barn Type</u>	<u>Number</u>	<u>Percent</u>	Average % usage, if used	57%	
Stanchion	61	27	<u>Labor Force</u>	<u>Average</u>	<u>Percent</u>
Freestall	150	67	Operators	21.8	22
Combination	14	6	Family Paid	5.2	5
<u>Milking System</u>	<u>Number</u>	<u>Percent</u>	Family Unpaid	2.0	2
Bucket & Carry	0	0	Hired	69.1	71
Dumping Station	2	1	Total Months	98.1	100
Pipeline	66	29			
Herringbone Conventional	65	29			<u>Average</u>
Herringbone Rapid Exit	20	9	<u>Operators</u> (total = 360)		1.60
Parallel	52	23	Age		47
Parabone	4	2	Education		13 years
Rotary	1	<1	Estimated value of labor & management/farm		\$61,761
Other	15	7			
<u>Milking Frequency</u>	<u>Number</u>	<u>Percent</u>	<u>Land Used</u>	<u>Number</u>	<u>Average</u>
2 times per day	148	66	Total acres:		
3 times per day	73	32	Owned	225	553
Other	4	2	Rented	208	384
<u>Business Records</u>	<u>Number</u>	<u>Percent</u>	Tillable acres:		
Account Book	34	15	Owned	225	364
Accounting Service	39	17	Rented	204	402
On-Farm Computer	148	66	Total	225	729
Other	4	2	<u>Breed of Herd</u>		
			Holstein	91%	
			Jersey	5%	
			Other	4%	

There were 360 full-time operator equivalents on the 225 dairy farms for an average of 1.60 operators per farm. The operators averaged 47 years of age and 13 years of formal education. Additional data on the labor force is in Table 44.

All 225 farm businesses included in this dairy summary own farm real estate. Dairy farm renters are summarized separately later in this publication. However, 204 of the dairy farm owners rented an average of 402 acres of tillable land in 2005. The 225 farms averaged 729 total tillable acres per farm of which 365 acres were rented. Tables 21 and 27 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 on the following pages begin 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 24.
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 farmland 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 225 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 6.

**CASH AND ACCRUAL FARM EXPENSES**  
**225 New York Dairy Farms, 2005**

Expense Item	Cash Paid	-	Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses	Per- cent
<u>Hired Labor</u>	\$208,328		\$479 <<		\$-72		\$207,777	18
<u>Feed</u>								
Dairy grain & concentrate	341,502		16,663		-4,211		320,628	28
Dairy roughage	22,003		518		-135		21,350	2
Nondairy livestock	26		-9		0		35	<1
Professional nutritional services	330		0 <<		-1		329	<1
<u>Machinery</u>								
Machinery hire, rent & lease	22,263		74 <<		-797		21,392	2
Machinery repairs & farm vehicle expense	63,819		913		-413		62,493	5
Fuel, oil & grease	42,251		658		230		41,823	4
<u>Livestock</u>								
Replacement livestock	8,587		0 <<		0		8,587	1
Breeding	17,540		299		-46		17,195	2
Veterinary & medicine	48,550		178		56		48,428	4
Milk marketing	58,869		0 <<		376		59,245	5
Bedding	22,964		208		205		22,961	2
Milking Supplies	27,724		666		-67		26,991	2
Cattle lease & rent	1,321		0 <<		-1		1,320	<1
Custom boarding	23,344		33 <<		156		23,467	2
bST expense	16,147		230 <<		337		16,254	1
Livestock professional fees	3,881		151 <<		30		3,760	<1
Other livestock expense	8,237		-66		-80		8,223	1
<u>Crops</u>								
Fertilizer & lime	29,114		1,898		-833		26,383	2
Seeds & plants	19,457		2,216		51		17,292	2
Spray & other crop expense	13,901		543		48		13,406	1
Crop professional fees	1,769		88 <<		35		1,716	<1
<u>Real Estate</u>								
Land, building & fence repair	19,517		-2		272		19,791	2
Taxes	17,330		-278 <<		52		17,660	2
Rent & lease	21,411		239 <<		56		21,228	2
<u>Other</u>								
Insurance	12,568		-130 <<		-8		12,690	1
Utilities	30,635		49 <<		96		30,682	3
Interest paid	50,397		87 <<		448		50,758	4
Other professional fees	6,516		-7 <<		-71		6,452	1
Miscellaneous	8,056		46		-385		7,625	1
Total Operating	\$1,168,357		\$25,747		\$-4,672		\$1,137,938	100
Expansion livestock	\$11,558		\$0 <<		-13		\$11,545	
Extraordinary expense	969				-32		\$937	
Machinery depreciation							\$64,419	
Building depreciation							\$39,225	
<b>TOTAL ACCRUAL EXPENSES</b>							<b>\$1,254,062</b>	

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 increased \$16,663.

Prepaid expenses (noted by « in Table 6) are advance payments made for services and noninventory items to be used in future years. For example, advance payments for rent increased an average of \$239 per farm in 2005, and that increase is subtracted from cash rent to determine the correct 2005 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 \$25,747 and total change in accounts payable equals \$-4,672.

### **Income Statement - Receipts**

Cash and accrual farm receipts are presented in the following table. Total cash receipts averaged \$1,402,159 per farm. Total accrual receipts averaged \$1,441,508 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 14 head per farm and the homegrown feed inventory per farm increased \$9,152. Homegrown feed inventory per cow increased \$27 from beginning to end of year.

**Table 7.**

#### **CASH AND ACCRUAL FARM RECEIPTS 225 New York Dairy Farms, 2005**

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts	Percent
Milk sales	\$1,250,337				\$220		\$1,250,557	87
Dairy cattle	59,019		\$25,774		383		85,176	6
Dairy calves	19,243		3,211		1		22,455	2
Other livestock	2,732		-296		91		2,527	<1
Crops	11,913		9,152		919		21,984	2
Government receipts	36,240		0 <sup>10</sup>		448		36,688	3
Custom machine work	4,018				-369		3,649	<1
Gas tax refund	200				0		200	<1
Other	18,456				181		18,637	1
- Nonfarm noncash Capital <sup>11</sup>			(-) 366				(-) 366	
Total	\$1,402,159		\$37,476		\$1,873		\$1,441,508	100

<sup>10</sup>Change in advanced government receipts.

<sup>11</sup>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 2004 to 2005. 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 2005 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 14.

## **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 \$102,334 per farm in 2005. On the average, farm real estate appreciated \$40,535 or 4 percent of beginning fair market value. Machinery appreciated 4.0 percent while dairy cattle prices appreciated 7 percent in 2005.

Average data from 23 farms with the highest rates of return to all capital (without appreciation) are compared with the 225 farm average in Table 8 and in many of the following tables. Net farm income without appreciation averaged \$648,814 per farm on the top 10 percent farms, 246 percent greater than the 225-farm average.

**Table 8.**

### **NET FARM INCOME 225 New York Dairy Farms, 2005**

Item	Average 225 Farms		Average Top 10% Farms <sup>12</sup>	
	Per Farm	Per Cow	Per Farm	Per Cow
Total accrual receipts	\$1,441,508		\$3,322,033	
+ Appreciation: Livestock	44,084		60,014	
Machinery	16,792		31,655	
Real Estate	40,535		57,919	
Other Stock & Certificates	<u>923</u>		<u>-3,172</u>	
= Total including appreciation	\$1,543,841		\$ 3,468,449	
- Total accrual expenses	<u>1,254,062</u>		<u>2,673,219</u>	
= Net Farm Income (with appreciation)	\$289,779	\$852	\$795,231	\$1,089
Net Farm Income (without appreciation)	\$187,446	\$551	\$648,814	\$888

<sup>12</sup>Average of 23 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 9.**

**LABOR AND MANAGEMENT INCOME**  
**225 New York Dairy Farms, 2005**

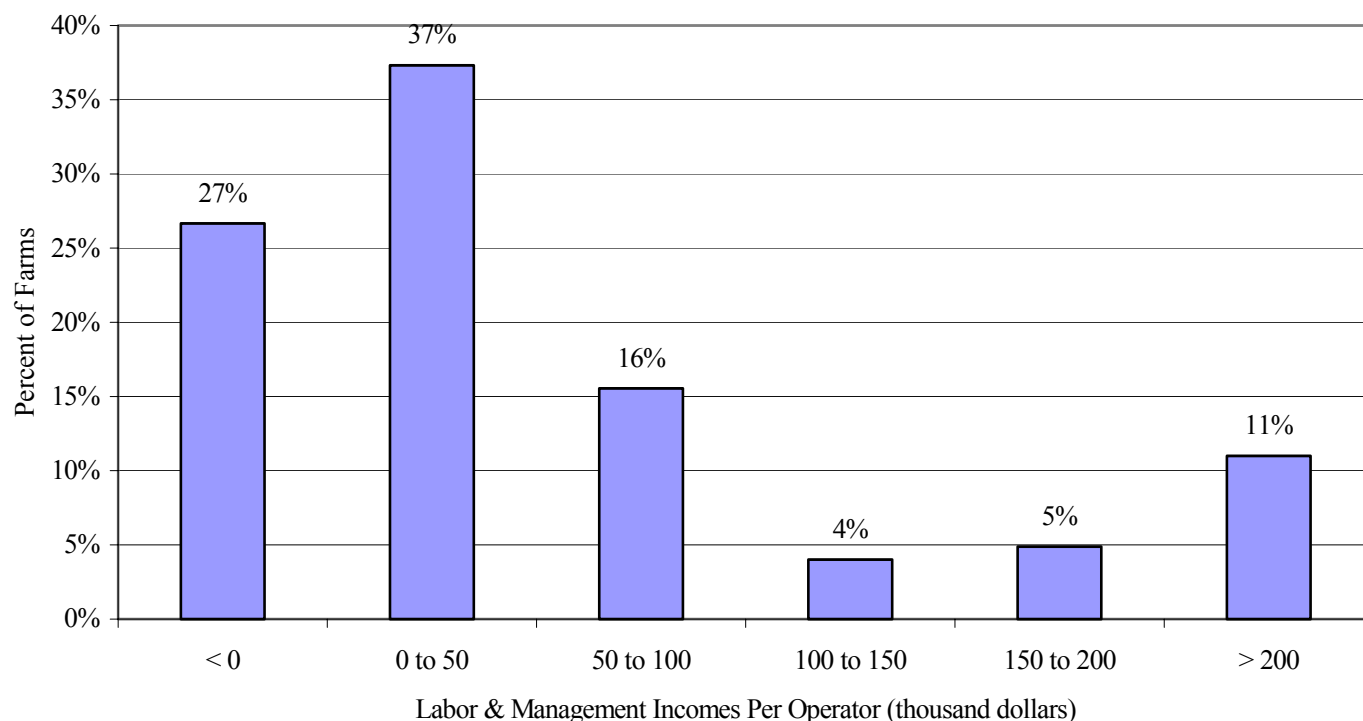
Item	Average 225 Farms	Average Top 10% Farms <sup>13</sup>
Net farm income without appreciation	\$187,446	\$648,814
- Family labor unpaid @ \$2,200 per month	4,400	1,406
- Real interest @ 5% on \$1,589,074 equity capital for average & \$2,760,485 for the top 10% farms	<u>79,454</u>	<u>138,024</u>
= Labor & Management Income (1.60 operators)	\$103,592	(1.91 operators) \$509,384
Labor & Management Income per Operator	\$64,745	\$266,693

<sup>13</sup> Average of 23 farms with highest rates of return to all capital (without appreciation).

Labor and management income per operator averaged \$64,745 on these 225 dairy farms in 2005. The range in labor and management income per operator was from less than \$-188,000 to more than \$690,000. Returns to labor and management were negative on 27 percent of the farms. Labor and management income per operator was between \$0 and \$100,000 on 53 percent of the farms while 20 percent showed labor and management incomes of \$100,000 or more per operator.

**Chart 4.**

**DISTRIBUTION OF LABOR & MANAGEMENT INCOMES PER OPERATOR**  
**225 New York Dairy Farms, 2005**



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 10.**

**RETURN TO CAPITAL  
225 New York Dairy Farms, 2005**

Item	Average 225 Farms	Average Top 10% Farms <sup>14</sup>
Net farm income with appreciation	\$289,779	\$795,231
- Family labor unpaid at \$2,200 per month	4,400	1,406
- Value of operators' labor & management	<u>61,761</u>	<u>94,391</u>
= Return to equity capital with appreciation	\$223,618	\$699,433
+ Interest paid	<u>50,758</u>	<u>104,136</u>
= Return to all capital with appreciation	\$274,376	\$803,569
Return to equity capital without appreciation	\$121,285	\$553,017
Return to all capital without appreciation	\$172,043	\$657,152
Rate of return on average equity capital:		
with appreciation	14.1%	25.3%
without appreciation	7.6%	20.0%
Rate of return on all capital:		
with appreciation	10.7%	17.1%
without appreciation	6.7%	14.0%
Net farm income from operations ratio	0.13	0.20

<sup>14</sup>Average of 23 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 11 shows that farms with higher return to all capital with appreciation also had significantly higher return per hour to all labor and management.

**Table 11.**

**RETURN TO ALL LABOR AND MANAGEMENT BY RETURN  
TO ALL CAPITAL WITH APPRECIATION  
225 New York Dairy Farms, 2005**

Item	Quartile by Return to All Capital With Appreciation			
	Lowest 25%	3rd 25%	2nd 25%	Top 25%
Return to all capital with appreciation	\$-3,188	\$59,792	\$221,087	\$821,889
Rate of return on all capital with appreciation	-0.4%	5.3%	9.6%	13.9%
Total returns to all labor & management	\$28,057	\$68,024	\$265,403	\$903,203
Worker equivalent	3.41	3.46	7.70	18.17
Return per worker equivalent	\$8,235	\$19,678	\$34,462	\$49,721
Returns/hour (2,760 hours/worker/year)	\$2.98	\$7.13	\$12.49	\$18.01



### 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 12.**

#### **2005 FARM BUSINESS AND NONFARM BALANCE SHEET 225 New York Dairy Farms, 2005**

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$14,329	\$16,751	Accounts payable	\$41,337	\$36,619
Accounts receivable	88,118	89,991	Operating debt	63,810	54,490
Prepaid expenses	2,299	3,085	Short term	4,763	2,877
Feed & supplies	227,405	261,518	Advanced gov't. receipt	0	0
Total Current	\$332,151	\$371,345	Current portion:		
			Intermediate	71,688	80,493
			Long term	21,091	25,779
			Total Current	\$202,689	\$200,257
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy Cows:			Structured debt		
owned	\$420,789	\$453,770	1-10 years	\$384,253	\$387,372
leased	827	436	Financial lease		
Heifers	225,236	265,291	(cattle & machinery)	5,011	4,154
Bulls & other livestock	3,081	2,818	Farm Credit stock	6,234	6,690
Mach. & equip. owned	422,050	464,025	Total Intermediate	\$395,498	\$398,216
Mach. & equip. leased	4,184	3,718			
Farm Credit stock	6,234	6,690	<u>Long Term</u>		
Other stock & certificates	57,102	61,423	Structured debt		
Total Intermediate	\$1,139,503	\$1,258,172	≥ 10 years	\$354,053	\$372,612
<u>Long Term</u>			Financial lease		
Land & buildings:			(structures)	4,479	4,402
owned	\$966,937	\$1,031,995	Total Long Term	\$358,532	\$377,014
leased	4,479	4,402			
Total Long Term	\$971,416	\$1,036,397	Total Farm Liabilities	\$956,719	\$975,487
Total Farm Assets	\$2,443,070	\$2,665,914	FARM NET WORTH	\$1,486,351	\$1,690,427
Nonfarm Assets <sup>15</sup>	Jan.1	Dec. 31	Nonfarm Liabilities <sup>15</sup> & Net Worth	Jan. 1	Dec. 31
Personal cash, checking & savings	\$8,400	\$10,470	Nonfarm Liabilities	\$2,198	\$2,620
Cash value life insurance	19,250	21,955	NONFARM NET WORTH	\$218,603	\$239,434
Nonfarm real estate	98,997	105,558			
Auto (personal share)	8,632	9,228	FARM & NONFARM <sup>16</sup>	Jan. 1	Dec. 31
Stocks & bonds	33,208	40,724	Total Assets	\$2,663,871	\$2,907,968
Household furnishings	8,750	9,091	Total Liabilities	958,917	978,107
All other	43,564	45,028	TOTAL FARM & NON-		
Total Nonfarm	\$220,801	\$242,054	FARM NET WORTH	\$1,704,954	\$1,929,861

<sup>15</sup>Average of 102 farms completing the nonfarm balance sheet.

<sup>16</sup>Sum of average farm values for 225 farms and nonfarm values for 102 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 make 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 13.**

**FARM BALANCE SHEET ANALYSIS**  
**225 New York Dairy Farms, 2005**

Item	Average 225 Farms	Average Top 10% Farms <sup>17</sup>
<u>Farm Financial Ratios:</u>		
Percent equity	63%	62%
Debt/asset ratio: total	0.37	0.38
long term	0.36	0.34
intermediate & current	0.37	0.41
Leverage Ratio:	0.58	0.62
Current Ratio:	1.85	2.40
Working Capital: \$171,088    Dollars as % of Total Expenses:	14%	\$556,494    21%
<u>Farm Debt Analysis:</u>		
Accounts payable as % of total debt	4%	3%
Long term liabilities as % of total debt	39%	28%
Current & intermediate liabilities as % of total debt	61%	72%
Cost of term debt (weighted average)	5.6%	5.8%
<u>Farm Debt Levels:</u>	<u>Per Cow</u> <u>Per Tillable Acre Owned</u>	<u>Per Cow</u> <u>Per Tillable Acre Owned</u>
Total farm debt	\$2,818      \$2,677	\$2,568      \$3,536
Long term debt	1,089      1,035	722      995
Intermediate & long term	2,240      2,127	2,032      2,799
Intermediate & current debt	1,729      1,642	1,846      2,542

<sup>17</sup>Average of 23 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 14.**

**FARM INVENTORY BALANCE**  
**225 New York Dairy Farms, 2005**

Item	Real Estate	Machinery & Equipment	Livestock
Value beginning of year	\$ 966,937	\$422,050	\$649,106
Purchases	\$95,764 <sup>18</sup>	\$93,355	
+ nonfarm noncash transfer <sup>19</sup>	0	94	
- Lost capital	29,857		
- Net sales	2,159	3,847	
- Depreciation	<u>39,225</u>	<u>64,419</u>	
= Net Investment	24,524	25,183	28,690
+ Appreciation	<u>40,535</u>	<u>16,792</u>	<u>44,084</u>
Value end of year	\$1,031,995	\$464,025	\$721,880

<sup>18</sup>\$17,093 land and \$78,672 buildings and/or depreciable improvements.

<sup>19</sup>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) earning from the business, and nonfarm income, (in excess of withdrawals) being retained in the business (retained earnings), (2) outside capital being invested in the business or farm capital being 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 15.**

**STATEMENT OF OWNER EQUITY (RECONCILIATION)  
225 New York Dairy Farms, 2005**

Item	Average 225 Farms	Average Top 10% Farms <sup>21</sup>
Beginning of year farm net worth	\$1,486,351	\$2,462,142
Net farm income without appreciation	\$187,446	\$648,814
+ Nonfarm cash income	5,838	6,082
- Personal withdrawals & family expenditures and income taxes, excluding nonfarm borrowings	<u>84,800</u>	<u>176,337</u>
RETAINED EARNINGS	+ \$108,483	+ \$478,560
Nonfarm noncash transfers to farm	\$460	\$202
+ Cash used in business from nonfarm capital	21,505	22,023
- Note or mortgage from farm real estate sold (nonfarm)	<u>0</u>	<u>0</u>
CONTRIBUTED/WITHDRAWN CAPITAL	+ \$21,965	+ \$22,225
Appreciation	\$102,333	\$146,416
- Lost capital	<u>29,857</u>	<u>49,650</u>
CHANGE IN VALUATION EQUITY	+ \$72,476	+ \$96,766
IMBALANCE/ERROR	- <u>\$-1,152</u>	- <u>\$ 864</u>
End of year farm net worth <sup>20</sup>	\$1,690,427	\$3,058,828
<u>Change in Net Worth</u>		
Without appreciation	\$101,743	\$450,270
With appreciation	\$204,076	\$596,687

<sup>20</sup>May not add due to rounding.

<sup>21</sup>Average of 23 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 toward 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 inflows/outflows.

**Table 16.**

#### **ANNUAL CASH FLOW STATEMENT 225 New York Dairy Farms, 2005**

Item	Average 225 Farms	
<u>Cash Flow from Operating Activities</u>		
Cash farm receipts	\$1,402,159	
- Cash farm expenses	1,168,357	
- Extraordinary expense	<u>969</u>	
= Net cash farm income		\$232,833
Personal withdrawals & family expenses including nonfarm debt payments	\$85,329	
- Nonfarm income	<u>5,838</u>	
- Net cash withdrawals from the farm		<u>\$79,491</u>
= Net Provided by Operating Activities		\$153,342
<u>Cash Flow From Investing Activities</u>		
Sale of assets: machinery	\$3,847	
+ real estate	2,159	
+ other stock & certificates	<u>3,812</u>	
= Total asset sales		\$9,818
Capital purchases: expansion livestock	\$11,558	
+ machinery	93,355	
+ real estate	95,764	
+ other stock & certificates	<u>7,210</u>	
- Total invested in farm assets		<u>\$207,887</u>
+ Net Provided by Investment Activities		\$-198,069
<u>Cash Flow From Financing Activities</u>		
Money borrowed (intermediate & long term)	\$150,007	
+ Money borrowed (short term)	1,556	
+ Increase in operating debt	0	
+ Cash from nonfarm capital used in business	21,505	
+ Money borrowed - nonfarm	<u>528</u>	
= Cash inflow from financing		\$173,596
Principal payments (intermediate & long term)	\$114,837	
+ Principal payments (short term)	3,442	
+ Decrease in operating debt	<u>9,320</u>	
- Cash outflow for financing		<u>\$127,599</u>
= Net Provided by Financing Activities		\$45,997
<u>Cash Flow From Reserves</u>		
Beginning farm cash, checking & savings		\$14,329
- Ending farm cash, checking & savings		<u>\$16,751</u>
= Net Provided from Reserves		\$-2,422
<u>Imbalance (error)</u>		\$-1,152

Table 17.

**ANNUAL CASH FLOW DATA**  
**225 New York Dairy Farms, 2005**

Item	Average 225 Farms			Average Top 10% Farms <sup>23</sup>		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Average number of cows and cwt. milk		340	78,250		730	180,337
<u>Accrual Operating Receipts</u>						
Milk	\$1,250,557	\$3,675	\$15.98	\$2,918,631	\$3,995	\$16.18
Dairy cattle	85,176	250	1.09	202,254	277	1.12
Dairy calves	22,455	66	0.29	43,325	59	0.24
Other livestock	2,527	7	0.03	1,629	2	0.01
Crops	21,984	65	0.28	53,893	74	0.30
Miscellaneous receipts	58,808	173	0.75	102,301	140	0.57
Total	\$1,441,508	\$4,237	\$18.42	\$3,322,033	\$4,548	\$18.42
<u>Accrual Operating Expenses</u>						
Hired labor	\$ 207,777	\$ 611	\$ 2.66	\$ 485,153	\$ 664	\$ 2.69
Dairy grain & concentrate	320,628	942	4.10	699,867	958	3.88
Dairy roughage	21,350	63	0.27	65,709	90	0.36
Nondairy feed	35	0	0.00	200	0	0.00
Professional nutritional services	329	1	0.00	177	0	0.00
Machinery hire, rent & lease	21,392	63	0.27	55,136	75	0.31
Machinery repairs & vehicle expense	62,493	184	0.80	119,571	164	0.66
Fuel, oil & grease	41,823	123	0.53	85,492	117	0.47
Replacement livestock	8,587	25	0.11	28,025	38	0.16
Breeding	17,195	51	0.22	37,065	51	0.21
Vet & medicine	48,428	142	0.62	108,588	149	0.60
Milk marketing	59,245	174	0.76	119,422	163	0.66
Bedding	22,961	67	0.29	48,791	67	0.27
Milking supplies	26,990	79	0.34	54,369	74	0.30
Cattle lease	1,320	4	0.02	6,240	9	0.03
Custom boarding	23,467	69	0.30	52,498	72	0.29
bST expense	16,254	48	0.21	40,658	56	0.23
Livestock professional fees	3,760	11	0.05	5,943	8	0.03
Other livestock expense	8,223	24	0.11	12,424	17	0.07
Fertilizer & lime	26,383	78	0.34	41,205	56	0.23
Seeds & plants	17,292	51	0.22	32,312	44	0.18
Spray/other crop expense	13,406	39	0.17	19,294	26	0.11
Crop professional fees	1,716	5	0.02	4,556	6	0.03
Land, building & fence repair	19,791	58	0.25	51,891	71	0.29
Taxes	17,660	52	0.23	27,676	38	0.15
Real estate rent & lease	21,228	62	0.27	44,123	60	0.24
Insurance	12,689	37	0.16	22,668	31	0.13
Utilities	30,682	90	0.39	60,287	83	0.33
Miscellaneous	14,077	41	0.18	26,215	36	0.14
Total Less Interest Paid	\$1,087,180	\$3,195	\$13.89	\$2,355,555	\$3,225	\$13.06
<u>Net Accrual Operating Income</u>						
(without interest paid)	\$ 354,328	\$1,041	\$ 4.53	\$ 966,478	\$1,323	\$ 5.36
- Change in livestock & crop inventory	37,476	110	0.48	123,397	169	0.68
- Change in accounts receivable	1,873	6	0.02	22,463	31	0.12
- Change in feed & supply inventory	25,747	76	0.33	156,685	214	0.87
+ Change in accounts payable <sup>22</sup>	-5,120	-15	-0.07	-20,449	-28	-0.11
NET CASH FLOW	\$ 284,111	\$ 835	\$ 3.63	\$ 643,483	\$ 881	\$ 3.57
- Net personal withdrawals & family exp.	78,564	231	1.00	170,255	233	0.94
Available for Farm Debt Payments & Invest.	\$ 205,547	\$ 604	\$ 2.63	\$ 473,229	\$ 648	\$ 2.62
- Farm debt payments	200,563	589	2.56	486,662	666	2.70
Cash available for Farm Investments	\$ 4,984	\$ 15	\$ 0.06	\$ -13,434	\$ -18	\$ -0.07

<sup>22</sup>Exclude change in interest account payable.<sup>23</sup>Average of 23 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 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 2004 and 2005.

**Table 18.**

#### FARM DEBT PAYMENTS PLANNED Same 184 New York Dairy Farms, 2004 & 2005

Debt Payments	Same 184 Dairy Farms			Same 21 Top 10% Farms		
	2005 Payments		Planned 2006	2005 Payments		Planned 2006
	Planned	Made		Planned	Made	
Long term	\$46,770	\$56,604	\$54,540	\$50,695	\$76,231	\$68,647
Intermediate term	111,191	116,346	117,517	275,594	299,958	270,155
Short term	1,927	3,693	2,295	4,689	4,457	3,220
Operating (net reduction)	4,748	28,429	6,147	8,317	100,910	4,765
Accts. payable (net reduction)	1,657	8,964	369	0	25,315	0
Total	\$166,294	\$214,036	\$180,868	\$339,295	\$506,871	\$346,787
Per cow	\$451	\$581		\$443	\$661	
Per cwt. 2004 milk	\$1.95	\$2.51		\$1.79	\$2.67	
% of 2004 milk receipts	12%	16%		11%	17%	

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

**Table 19.**

#### COVERAGE RATIOS Same 184 New York Dairy Farms, 2004 & 2005

Item	Average	Item	Average
<u>Cash Flow Coverage Ratio</u>		<u>Debt Coverage Ratio</u>	
Cash farm receipts	\$1,528,228	Net farm income (without apprec.)	\$201,733
- Cash farm expenses	1,270,393	+ Depreciation	113,470
+ Interest paid (cash)	53,599	+ Interest paid (accrual)	54,175
- Net personal withdrawals from farm <sup>24</sup>	83,177	- Net personal withdrawals from farm <sup>24</sup>	83,177
(A) = Amount Available for Debt Service	\$228,256	(A') = Repayment Capacity	\$286,201
(B) = Debt Payments Planned for 2005 (as of December 31, 2004)	\$166,294	(B) = Debt Payments Planned for 2005 (as of December 31, 2004)	\$166,294
(A/B)= Cash Flow Coverage Ratio for 2005	1.37	(A'/B)= Debt Coverage Ratio for 2005	1.72
Same 21 Top 10% Dairy Farms, 2004 & 2005			
(A) = Amount Available for Debt Service	\$503,252	(A') = Repayment Capacity	\$817,470
(B) = Debt Payments Planned for 2005	339,295	(B) = Debt Payments Planned for 2005	339,295
(A/B)= Cash Flow Coverage Ratio for 2005	1.48	(A'/B)= Debt Coverage Ratio for 2005	2.41

<sup>24</sup>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 20.**

#### DEBT TO ASSET RATIO VS. CASH FLOW COVERAGE 184 New York Dairy Farms, 2005

Debt/Asset Ratio	Cash Flow Coverage Ratio (Farm & Nonfarm)			
	<.5	.5 to .99	1 to 1.49	>=1.5
	percent of farms			
<40%	4.3	8.7	13.0	38.0
40 to 70%	2.2	9.2	15.2	7.6
70% & over	0.0	0.0	1.6	0.0

### Cropping Program Analysis

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

**Table 21.**

#### **LAND RESOURCES AND CROP PRODUCTION 225 New York Dairy Farms, 2005**

Item	Average 225 Farms			Average Top 10% Farms <sup>25</sup>		
	<u>Owned</u>	<u>Rented</u>	<u>Total</u>	<u>Owned</u>	<u>Rented</u>	<u>Total</u>
<u>Land</u>						
Tillable	364	365	729	540	738	1,278
Nontillable pasture	46	12	58	21	10	31
Other nontillable	<u>143</u>	<u>7</u>	<u>150</u>	<u>185</u>	<u>14</u>	<u>199</u>
Total	553	384	937	746	762	1,508
<u>Crop Yields</u>	<u>Farms</u>	<u>Acres</u>	<u>Prod/Acre</u>	<u>Farms</u>	<u>Acres</u>	<u>Prod/Acre</u>
Hay crop	215	378	3.2 tn DM	20	718	3.9 tn DM
Corn silage	195	283	18.8 tn	21	565	19.5 tn
			6.3 tn DM			6.6 tn DM
Other forage	16	54	2.2 tn DM	0	0	0.0 tn DM
Total forage	217	633	4.5 tn DM	21	1,248	5.1 tn DM
Corn grain	84	151	138 bu	6	291	150 bu
Oats	17	42	57 bu	0	0	0 bu
Wheat	20	84	54 bu	2	91	47 bu
Other crops	57	100		8	128	
Tillable pasture	55	72		3	67	
Idle	51	44		2	6	

<sup>25</sup>Average of 23 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 10 of the 225 farms produced hay or hay crop silage in 2005. Eighty-seven percent produced corn silage, 37 percent grew and harvested corn grain, and 8 percent grew oats for grain. Although 55 farms used tillable pasture in 2005, only 41 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 22.**

#### **CROP MANAGEMENT FACTORS 225 New York Dairy Farms, 2005**

Item	Average 225 Farms	Average Top 10% Farms <sup>26</sup>
Total tillable acres per cow	2.19	1.87
Total forage acres per cow	1.84	1.69
Harvested forage dry matter, tons per cow	8.22	8.63

<sup>26</sup>Average of 23 farms with highest rates of return to all capital (without appreciation).

Thirty-eight cooperators allocated direct crop related expenses to hay crop and corn. The data in Table 23 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 23, the total per tillable acre represents 215 farms that grew forages, the expenses for hay are for 38 farms and corn crops are for 35 farms..

**Table 23.**

**CROP RELATED ACCRUAL EXPENSES**  
**New York Dairy Farms, 2005**

Expenses	Average 215 Farms	Average 38 Farms		Average 35 Farms		
	Total per Tillable Acre	Hay Crop		All Corn Per Acre	Corn Silage Per Ton DM	Corn Grain Per Dry Shell Bu.
		Per Acre	Per Ton DM			
Fertilizer & lime	\$32.70	\$29.29	\$12.40	\$ 55.37	\$9.32	\$0.37
Seeds & plants	19.27	11.24	4.94	39.56	7.09	0.32
Spray & other crop exp.	<u>15.57</u>	<u>4.54</u>	<u>1.72</u>	<u>40.79</u>	<u>7.46</u>	<u>0.35</u>
Total	\$67.55	\$45.07	\$19.06	\$135.72	\$23.87	\$1.04
Ave. Top 10% Farms: <sup>27</sup>	Average 20 Farms					
Fertilizer & lime	\$30.40	-----None Reported-----				
Seeds & plants	23.07					
Spray & other crop exp.	<u>17.36</u>					
Total	\$70.83					

<sup>27</sup> 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 24.**

**ACCRUAL MACHINERY EXPENSES**  
**215 New York Dairy Farms That Grow Forages, 2005**

Machinery Expense Item	Average 215 Farms		Average Top 10% Farms <sup>28</sup>	
	Total Expenses	Per Tillable Acre	Total Expenses	Per Tillable Acre
Fuel, oil & grease	\$42,763	\$56.81	\$89,939	\$64.85
Machinery repairs & vehicle expense	63,925	84.92	125,029	90.15
Machine hire, rent & lease	21,370	28.39	52,897	38.14
Interest (5%)	22,809	30.30	36,062	26.00
Depreciation	<u>65,604</u>	<u>87.15</u>	<u>114,665</u>	<u>82.68</u>
Total	\$216,471	\$287.57	\$418,592	\$301.82

<sup>28</sup> Average of 20 farms that grow forages with highest rates of return to all capital (without appreciation).



**Table 25.**

**CROP RELATED ACCRUAL EXPENSES BY HAY CROP PRODUCTION PER ACRE**  
**38 New York Dairy Farms, 2005**

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	2.7	3.9
Farms reporting crop expense breakdowns	15	7	6	10
Average number hay crop acres for farms reporting	275	259	358	361
<u>Accrual Crop Expenses Per Acre</u>				
Fertilizer & lime	\$18.93	\$31.31	\$31.91	\$41.84
Seeds & plants	8.73	8.00	12.33	16.60
Spray & other crop expenses	<u>3.29</u>	<u>2.37</u>	<u>0.48</u>	<u>10.38</u>
Total	\$30.95	\$41.68	\$44.72	\$68.82
<u>Accrual Crop Expenses Per Ton DM</u>				
Fertilizer & lime	\$12.15	\$13.89	\$11.83	\$12.07
Seeds & plants	6.02	3.65	4.53	4.46
Spray & other crop expenses	<u>1.88</u>	<u>1.12</u>	<u>0.17</u>	<u>2.82</u>
Total	\$20.05	\$18.66	\$16.53	\$19.35

**Table 26.**

**CROP RELATED ACCRUAL EXPENSES BY CORN PRODUCTION PER ACRE**  
**35 New York Dairy Farms, 2005**

Item	Tons Corn Silage Per Acre			Dry Shelled Bushels of Corn Grain Per Acre		
	<15	15-20	≥20	<115	115-135	≥135
Corn yield per acre	12.3	17.5	23.2	103	122	149
Farms reporting crop expense breakdowns	9	16	10	4	5	5
Average number corn acres for farms reporting	170	176	245	80	89	85
<u>Accrual Crop Expenses Per Acre</u>						
Fertilizer & lime	\$40.08	\$51.46	\$75.41	\$42.34	\$45.28	\$49.93
Seeds & plants	37.00	40.74	39.96	33.59	37.03	46.18
Spray & other crop expenses	<u>38.38</u>	<u>45.81</u>	<u>34.94</u>	<u>47.65</u>	<u>40.56</u>	<u>39.32</u>
Total	\$115.46	\$138.01	\$150.31	\$123.58	\$122.87	\$135.43
<u>Accrual Crop Expenses Per Ton DM or Bushel<sup>29</sup></u>						
	Per Ton DM of Corn Silage			Per Dry Shell Bushel of Corn Grain		
Fertilizer & lime	\$9.88	\$8.65	\$9.87	\$0.41	\$0.37	\$0.33
Seeds & plants	9.59	6.72	5.43	0.33	0.30	0.31
Spray & other crop expense	<u>9.71</u>	<u>7.61</u>	<u>5.20</u>	<u>0.47</u>	<u>0.34</u>	<u>0.27</u>
Total	\$29.18	\$22.98	\$20.50	\$1.21	\$1.01	\$0.91

<sup>29</sup>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 with less than 2.0 tons per dry matter. For corn silage, crop expenses per ton of dry matter are lowest at the high level of production. Corn grain shows the highest cost per acre for the high yield, with the high yield category producing the lowest cost per bushel. A limited number of cooperators providing data by crop limits the strengths 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 27.**

#### **DAIRY HERD INVENTORY 225 New York Dairy Farms, 2005**

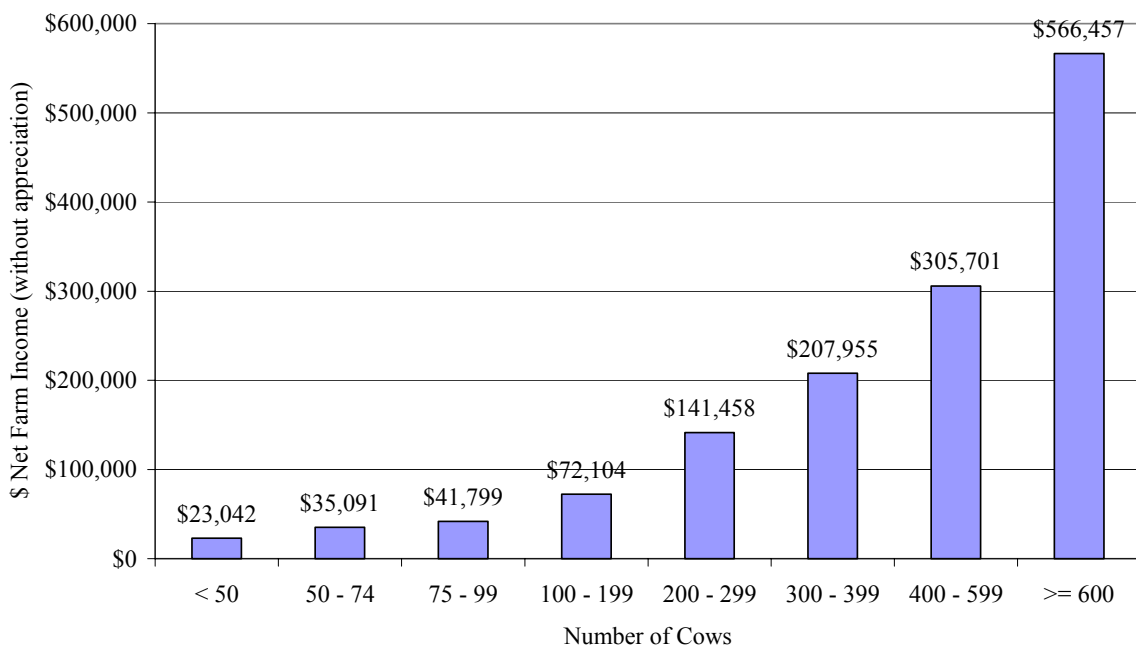
Item	Dairy Cows		Heifers					
	No.	Value	Bred		Open		Calves	
			No.	Value	No.	Value	No.	Value
Beg. year (owned)	332	\$420,789	96	\$117,740	90	\$72,247	75	\$35,248
+ Change w/o apprec.		13,090		10,284		2,401		3,211
+ Appreciation		<u>19,891</u>		<u>12,466</u>		<u>6,819</u>		<u>4,875</u>
End year (owned)	342	\$453,770	104	\$140,490	93	\$81,467	81	\$43,334
End including leased	346							
Average number	340		270	(all age groups)				
<u>Average Top 10% Farms:<sup>30</sup></u>								
Beg. year (owned)	690	\$873,896	185	\$228,298	174	\$150,326	162	\$73,393
+ Change w/o apprec.		45,512		29,147		12,202		2,832
+ Appreciation		<u>18,583</u>		<u>21,097</u>		<u>12,816</u>		<u>7,440</u>
End year (owned)	723	\$937,991	207	\$278,542	187	\$175,344	167	\$83,666
End including leased	744							
Average number	730		534	(all age groups)				

<sup>30</sup>Average of 23 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 2005, there was a consistent increase in net farm incomes as herd size increased (Chart 5). Herds less than 200 cows had net farm incomes less than \$100,000. Larger farms had considerably larger incomes. For more information on herd size comparisons, see pages 48-57.

**Chart 5.**

#### **NET FARM INCOME (WITHOUT APPRECIATION) BY HERD SIZE 225 New York Dairy Farms, 2005**



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 28.**

**MILK PRODUCTION  
225 New York Dairy Farms, 2005**

Item	Average 225 Farms	Average Top 10% Farms <sup>31</sup>
Total milk sold, lbs.	7,824,996	18,033,689
Milk sold per cow, lbs.	22,998	24,687

<sup>31</sup> Average of 23 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 2005, farms with higher milk production per cow and more cows had higher labor and management incomes per operator.

**Table 29.**

**MILK SOLD PER COW AND FARM INCOME MEASURES  
225 New York Dairy Farms, 2005**

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	29	115	\$46,787	\$407	\$4,242
16,000 to 16,999	10	125	34,576	277	-2,294
17,000 to 17,999	11	132	46,400	351	545
18,000 to 18,999	15	116	57,257	492	11,440
19,000 to 19,999	21	148	78,410	528	14,886
20,000 to 20,999	16	149	94,988	636	24,785
21,000 to 21,999	21	312	140,342	450	38,280
22,000 to 22,999	33	449	183,472	409	53,301
23,000 to 23,999	24	409	248,260	607	89,195
24,000 & over	45	713	466,108	654	175,596

The relationship between milk output per cow and net farm income on all dairy farms is shown in Table 29 above and is diagrammed in Charts 6 and 7 on page 28. Each spot on each scatter diagram represents one of the 225 farms.

Historically, net farm income per cow has increased as pounds of milk sold per cow increased. This relationship did not hold in 2005 (see Table 29 and Charts 6 and 7). As pounds of milk sold per cow increases, net farm income without appreciation and labor and management income per operator increases. Net farm income per cow does trend higher as milk sold per cow increases, but the relationship with milk production is not as strong.

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 2005 data.

Chart 6.

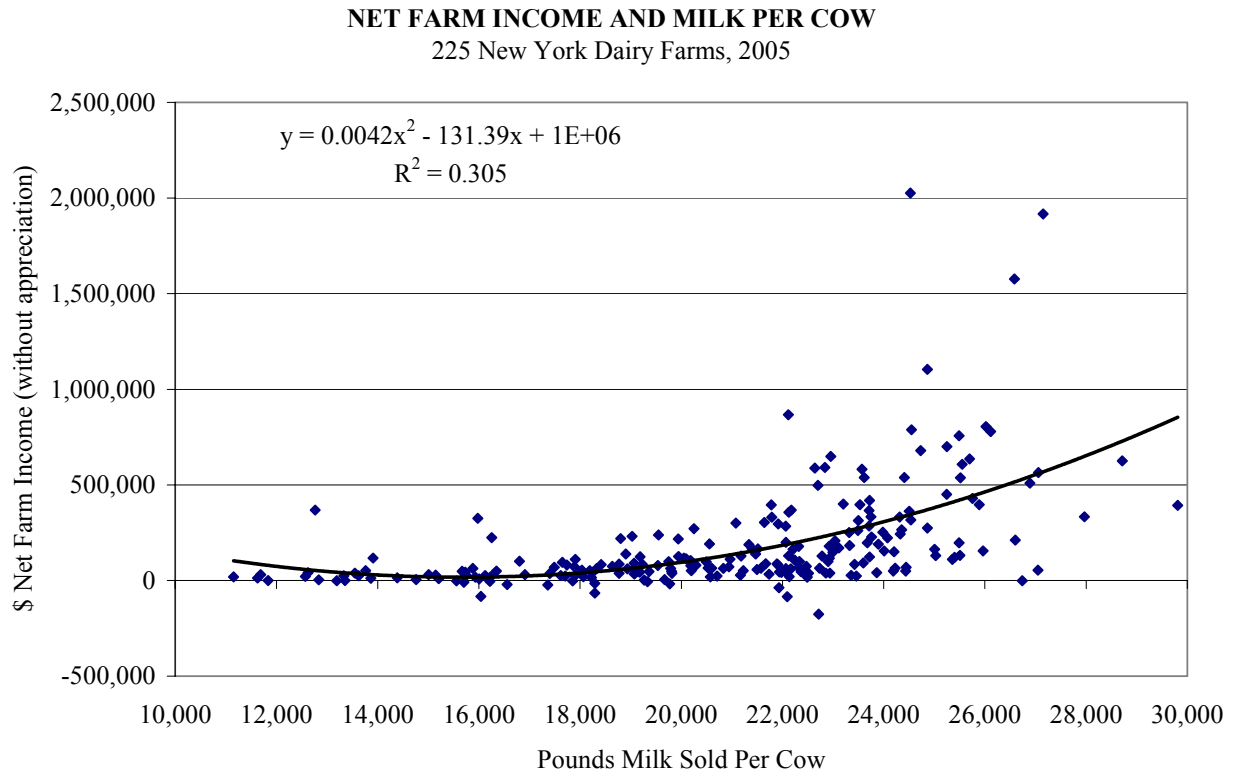
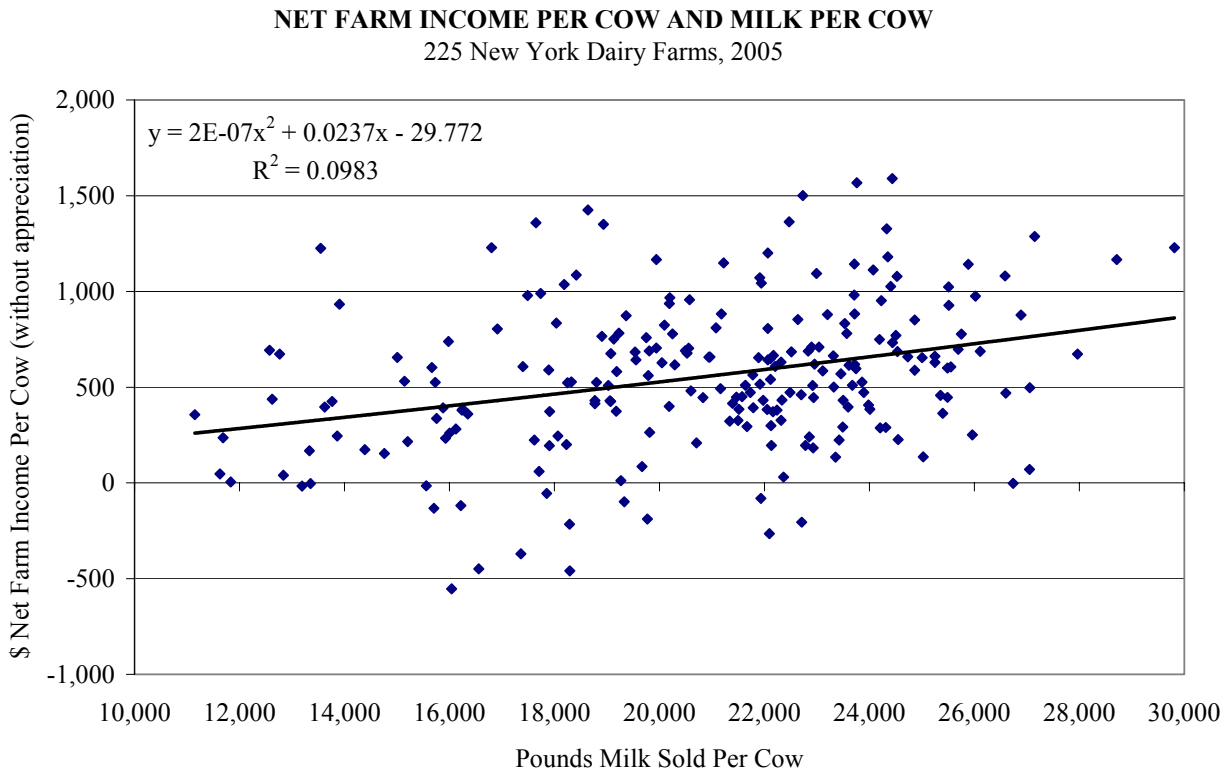


Chart 7.



Charts 8 and 9 look at relationships between cull rates and milk production and net farm income per cow. For the 2005 year, supplementary information concerning dairy replacements was collected from 53 participating farms. The culling chart (Table 30) reports the decile range of reported factors for the different information that was collected. The average culling rate was 31.6 percent, sell rate was 25.8 percent, and death rate was 5.8 percent. The average number of cows sold for beef equaled 88, six cows were sold for dairy, and 20 cows died. Please refer to the glossary for definitions of the different terms and how the measures were calculated.

Chart 8.

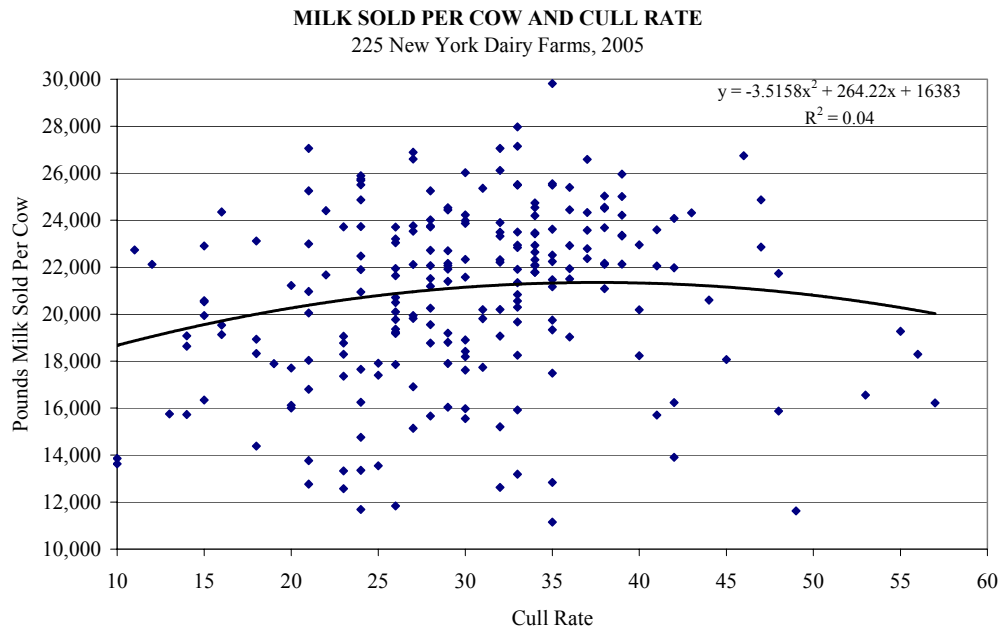


Chart 9.

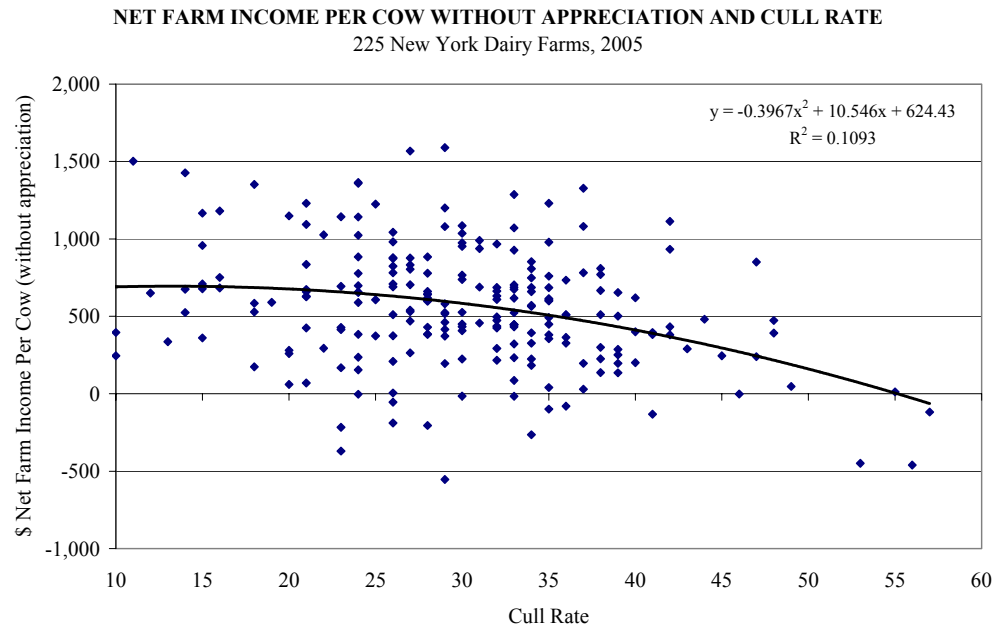


Table 30.

**CULLING RATE AND DAIRY REPLACEMENT INFORMATION**  
**New York Dairy Farms, 2005**

Decile	Sell Rate	Death Rate	Cull Rate	Value of Cows Sold	Value of Animals Purchased	Percent of Replacements Purchased	Percent of Heifers Custom Raised
	-----225 Farms <sup>32</sup> -----				\$/head (60 Farms)	-----43 Farms <sup>32</sup> -----	
1	8%	1%	12%	\$330	\$760	0%	0%
2	16	2	21	453	1,195	0	0
3	19	3	25	503	1,418	0	0
4	21	4	27	538	1,551	0	0
5	24	5	29	577	1,765	0	0
6	25	6	31	616	1,929	0	0
7	27	6	33	658	2,173	0	3
8	29	7	35	769	2,409	10	15
9	31	9	38	1,031	2,847	21	38
10	39	15	46	2,504	4,230	54	94

<sup>32</sup>All 225 participating farms provided culling information. Forty-three 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 31.**

**COST OF PRODUCING MILK, WHOLE FARM METHOD  
225 New York Dairy Farms, 2005**

Item	Average 225 Farms	Average Top 10% Farms <sup>33</sup>
Total Accrual Operating Expenses	\$1,137,938	\$2,459,691
Expansion Livestock, Accrual	+ 11,545	+ 21,070
1. Total Accrual Operating Expenses, Including Expansion Livestock	\$1,149,483	\$2,480,761
Total Accrual Receipts	\$1,441,508	\$3,322,033
Milk Sales, Accrual	- 1,250,557	- 2,918,631
2. Total Accrual Nonmilk Receipts	- \$190,951	- \$403,402
3. Operating Cost of Producing Milk	\$958,532	\$2,077,359
Machinery Depreciation	+ 64,419	+ 111,314
Building Depreciation	+ 39,225	+ 79,437
Extraordinary Expense	+ 936	+ 1,706
4. Purchased Inputs Cost of Producing Milk	\$1,063,112	\$2,269,816
Family Labor Unpaid (\$2,200/month)	+ 4,400	+ 1,406
Real Interest on Equity Capital	+ 79,454	+ 138,024
Value of Operator's Labor & Management	+ 61,761	+ 94,391
5. Total Costs of Producing Milk	\$1,208,727	\$2,503,637
6. Costs Per Cwt.:		
Cwt. Milk Sold	78,250	180,337
Operating Cost Per Cwt.	\$12.25	\$11.52
Purchased Inputs Cost Per Cwt.	\$13.59	\$12.59
Total Cost Per Cwt.	\$15.45	\$13.88

<sup>33</sup> Average of 23 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 32. The whole farm method assumption that accrual nonmilk receipts represent nonmilk operating costs is used in computing net costs. A \$9,152 average increase in crop inventories per farm, (\$0.12 per hundredweight of milk), is included in crop sales on the 225 farms. The top 10 percent farms had a \$35,384 average increase in crop inventories per farm (\$0.20 per hundredweight of milk).

**Table 32.**

**ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT  
BASED ON WHOLE FARM DATA  
225 New York Dairy Farms, 2005**

Item	Average 225 Farms	Average Top 10% Farms <sup>35</sup>
Dairy grain and concentrate	\$4.10	\$3.88
Dairy roughage	0.27	0.36
Nondairy feed	0.00	0.00
Professional nutritional services	<u>0.00</u>	<u>0.00</u>
Total feed expense	\$4.37	\$4.24
Crop expense	0.75	0.55
- Crop sales and government receipts <sup>34</sup>	<u>0.75</u>	<u>0.66</u>
Net Feed and Crop Expense	\$4.37	\$4.13
Hired labor	2.66	2.69
Operator's and family labor	<u>0.85</u>	<u>0.53</u>
Total Labor Expense	\$3.51	\$3.22
Machine repairs, fuel and hire	1.60	1.44
Machinery depreciation	0.82	0.62
- Gas tax refunds and custom work	<u>0.05</u>	<u>0.02</u>
Net Machinery Expense	\$2.37	\$2.04
Replacement and expansion cattle purchases	0.26	0.27
- Sales and inventory growth	<u>1.40</u>	<u>1.37</u>
Net Cattle Purchases	\$-1.14	\$-1.10
Milk marketing costs	0.76	0.66
All other livestock expense excluding purchases	<u>2.16</u>	<u>2.03</u>
Net Livestock Expense	\$2.92	\$2.69
Real estate repairs, rent and taxes	0.75	0.68
Building depreciation	<u>0.50</u>	<u>0.44</u>
Total Real Estate Expense	\$1.25	\$1.12
Interest paid	0.65	0.58
Interest on equity	<u>1.02</u>	<u>0.77</u>
Total Interest Expense	\$1.67	\$1.35
Other operating and miscellaneous expenses	0.74	0.61
- Miscellaneous income	<u>0.24</u>	<u>0.18</u>
Net Miscellaneous Expenses	\$ 0.50	\$0.43
Total Cost of Producing Milk	\$15.45	\$13.88
Purchased Inputs Cost	\$13.59	\$12.59
Total Operating Cost	\$12.25	\$11.52

<sup>34</sup>Non-crop related government payments may bias the results.

<sup>35</sup>Average of 23 farms with highest rates of return to all capital (without appreciation).

Costs of producing milk per hundredweight are presented in the table below for 184 farms that participated both in 2004 and 2005. Costs of production increased in net machinery, net livestock, real estate, and interest expense categories when 2005 data were compared to 2004.

**Table 33.**

**ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT  
BASED ON WHOLE FARM DATA  
Same 184 New York Dairy Farms, 2004 & 2005**

Item	2004	2005	Percent Change
Dairy grain and concentrate	\$4.58	\$4.10	-10.5%
Dairy roughage	0.28	0.28	0.0
Nondairy feed	0.00	0.00	
Professional nutritional services	<u>0.01</u>	<u>0.00</u>	
Total feed expense	\$4.87	\$4.38	-10.1
Crop expense	0.72	0.75	
- Crop sales and government receipts <sup>36</sup>	<u>0.63</u>	<u>0.73</u>	
Net Feed and Crop Expense	\$4.96	\$4.40	-11.3%
Hired labor	2.73	2.68	
Operator's and family labor	<u>0.86</u>	<u>0.82</u>	
Total Labor Expense	\$3.59	\$3.50	-2.5%
Machine repairs, fuel and hire	1.49	1.57	
Machinery depreciation	0.77	0.82	
- Gas tax refunds and custom work	<u>0.06</u>	<u>0.05</u>	
Net Machinery Expense	\$2.20	\$2.34	6.4%
Replacement and expansion cattle purchases	0.40	0.28	
- Sales and inventory growth	<u>1.49</u>	<u>1.40</u>	
Net Cattle Purchases	\$-1.09	\$-1.12	-2.8%
Milk marketing costs	0.72	0.76	
All other livestock expense excluding purchases	<u>2.05</u>	<u>2.19</u>	
Net Livestock Expense	\$2.77	\$2.95	6.5%
Real estate repairs, rent and taxes	0.67	0.73	
Building depreciation	<u>0.52</u>	<u>0.51</u>	
Total Real Estate Expense	\$1.19	\$1.24	4.2%
Interest paid	0.54	0.64	
Interest on equity	<u>0.91</u>	<u>0.99</u>	
Total Interest Expense	\$1.45	\$1.63	12.4%
Other operating and miscellaneous expenses	0.73	0.73	
- Miscellaneous income	<u>0.22</u>	<u>0.22</u>	
Net Miscellaneous Expenses	<u>\$0.51</u>	<u>\$0.51</u>	0.0%
Total Cost of Producing Milk	\$15.58	\$15.45	-0.8%
Purchased Inputs Cost	\$13.81	\$13.64	-1.2%
Total Operating Cost	\$12.50	\$12.30	-1.6%
Average Price Received for Milk	\$16.67	\$16.01	-4.0%

<sup>36</sup>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 34.

**Table 34.**

**COST OF PRODUCING MILK, ACCRUAL RECEIPTS FROM DAIRY, AND PROFITABILITY  
225 New York Dairy Farms, 2005**

Item	Average 225 Farms			Average Top 10% Farms <sup>37</sup>		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
<u>Accrual Cost of Producing Milk</u>						
Operating Cost	\$958,532	\$2,819	\$12.25	\$2,077,359	\$2,844	\$11.52
Purchased Inputs Cost	1,063,112	3,127	13.59	2,269,816	3,107	12.59
Total Cost	1,208,727	3,555	15.45	2,503,637	3,427	13.88
<u>Accrual Receipts from Milk</u>						
Net Milk Receipts	\$1,250,557	\$3,675	\$15.98	\$2,918,631	\$3,996	\$16.18
	1,191,312	3,158	15.22	2,799,209	3,751	15.52
<u>Profitability</u>						
Net Farm Income without Appreciation	\$187,446	\$551	\$2.40	\$648,814	\$888	\$3.60
Net Farm Income with Appreciation	\$289,779	\$852	\$3.70	\$795,231	\$1,089	\$4.41

<sup>37</sup> Average of 23 farms with highest rates of return to all capital (without appreciation).

The operating cost of producing milk on all 225 dairy farms averaged \$12.26 per hundredweight, leaving \$3.72 to cover depreciation, unpaid labor and operator resources.

The total cost of producing milk on all 225 dairy farms averaged \$15.45 per hundredweight, \$0.53 less than the average price received for milk sold from these farms during 2005. The imputed costs or charge for the operator's labor, management and equity capital averaged \$1.80 per hundredweight in 2005. But the farmer received \$2.33 per hundredweight for these inputs. The 23 most profitable farms held their operating costs to \$11.52 per hundredweight and their total cost of producing milk averaged \$13.88 per hundredweight. This left a profit of \$2.30 per hundredweight of milk sold.

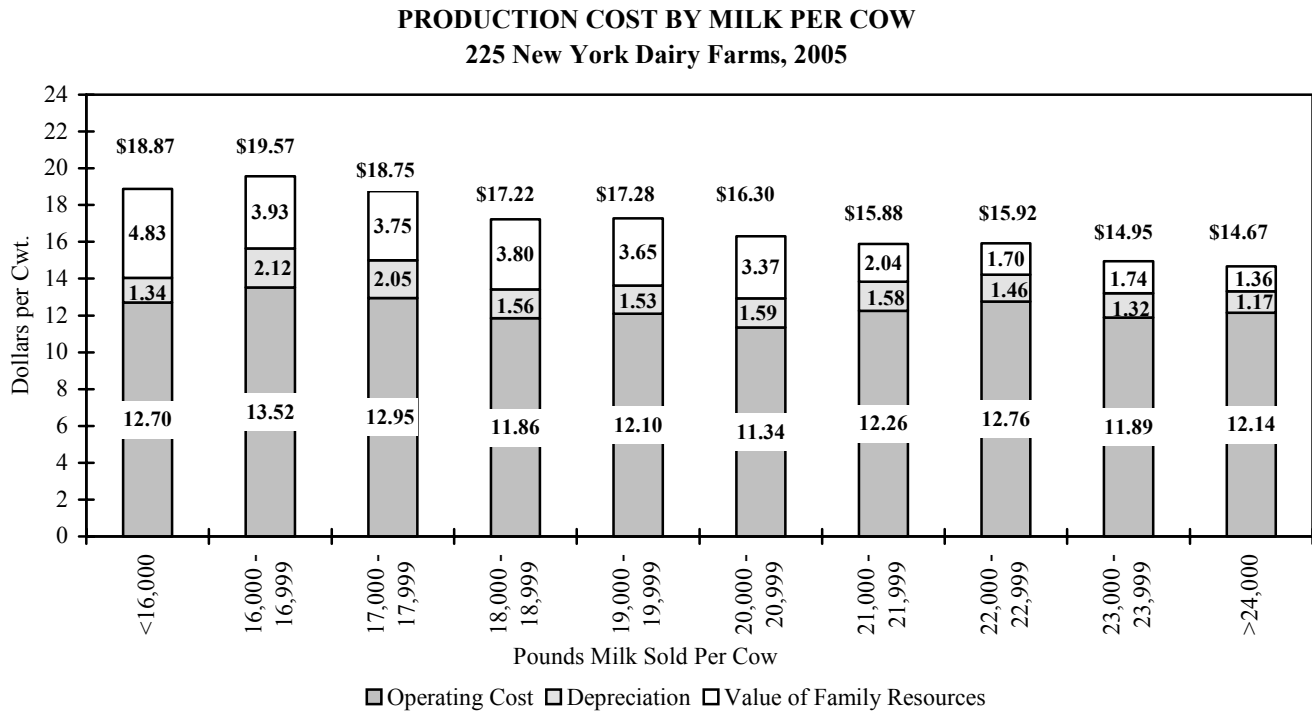
The strong relationship between milk output per cow and the total cost of producing milk is shown in Table 35 and Chart 10 on page 34. Farms selling less than 19,000 pounds of milk per cow had average total costs of production of \$18.60 per hundredweight while those selling 19,000 pounds and over averaged \$15.83 for a difference of \$2.77 per hundredweight.

**Table 35.**

**FARM COST OF PRODUCING MILK BY MILK SOLD PER COW  
225 New York Dairy Farms, 2005**

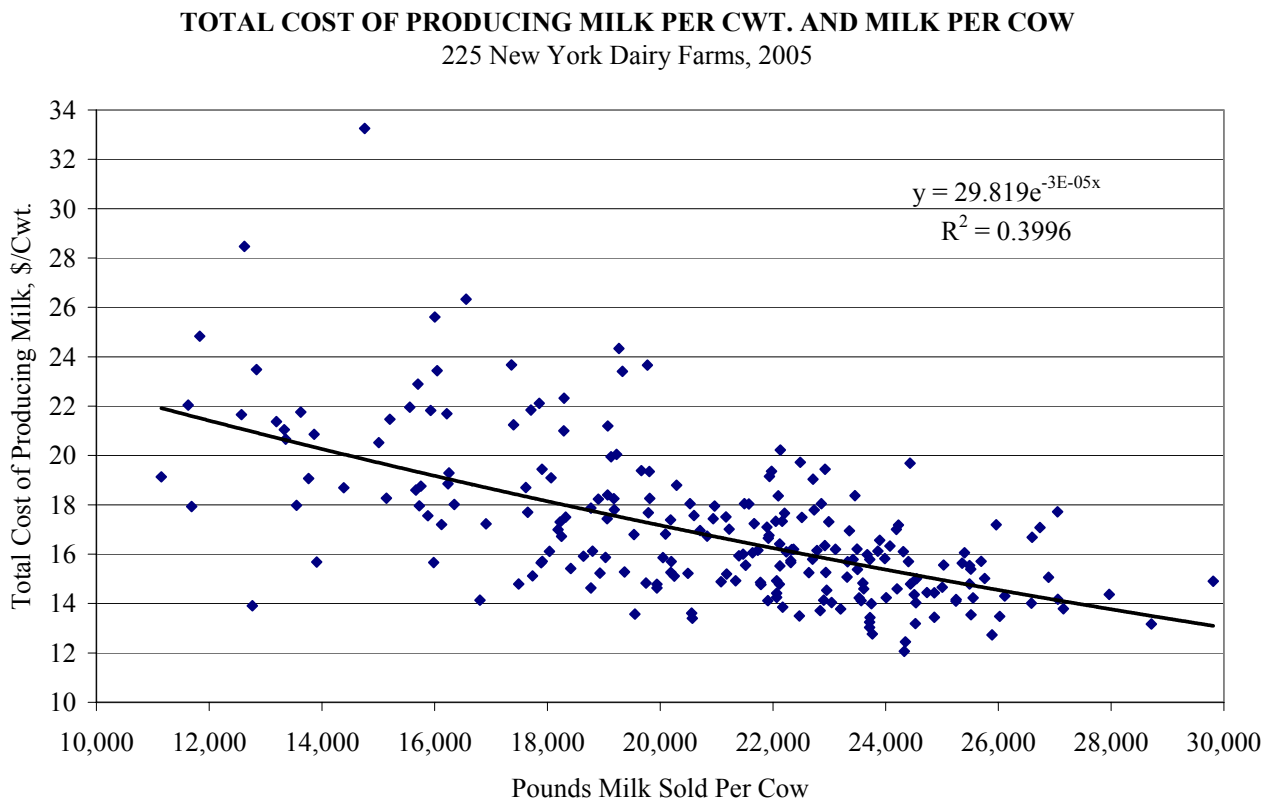
Pounds Milk Sold Per Cow	Costs per Hundredweight					Accrual Receipts From Milk Per Cwt.	Return Per Cwt. To Operator's Labor, Mgmt. & Capital
	Operating Costs		Costs of Producing Milk				
	Hired Labor	Dairy Grain & Concentrate	Total Operating	Purchased Inputs	Total		
Under 16,000	\$1.86	\$4.53	\$12.70	\$14.04	\$18.87	\$16.96	\$2.49
16,000-16,999	2.18	5.13	13.52	15.64	19.57	17.34	1.09
17,000-17,999	2.14	4.49	12.95	15.00	18.75	16.98	1.70
18,000-18,999	1.64	4.38	11.86	13.42	17.22	16.07	2.28
19,000-19,999	2.39	4.14	12.10	13.63	17.28	16.35	2.62
20,000-20,999	1.58	4.11	11.34	12.93	16.30	16.04	3.08
21,000-21,999	2.42	4.30	12.26	13.84	15.88	15.92	2.04
22,000-22,999	2.80	4.18	12.76	14.22	15.92	16.04	1.77
23,000-23,999	2.68	3.87	11.89	13.21	14.95	15.78	2.56
24,000 & over	2.83	4.01	12.14	13.31	14.67	15.87	2.54

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

Total operating costs are lowest at the smallest herd size and increase for each of the next two herd size categories. Beyond 100 cows, the operating costs increase except for the 400-599 herd size category. Hiring labor cost generally increases with herd size, while purchased dairy grain and concentrate are not related to herd size.

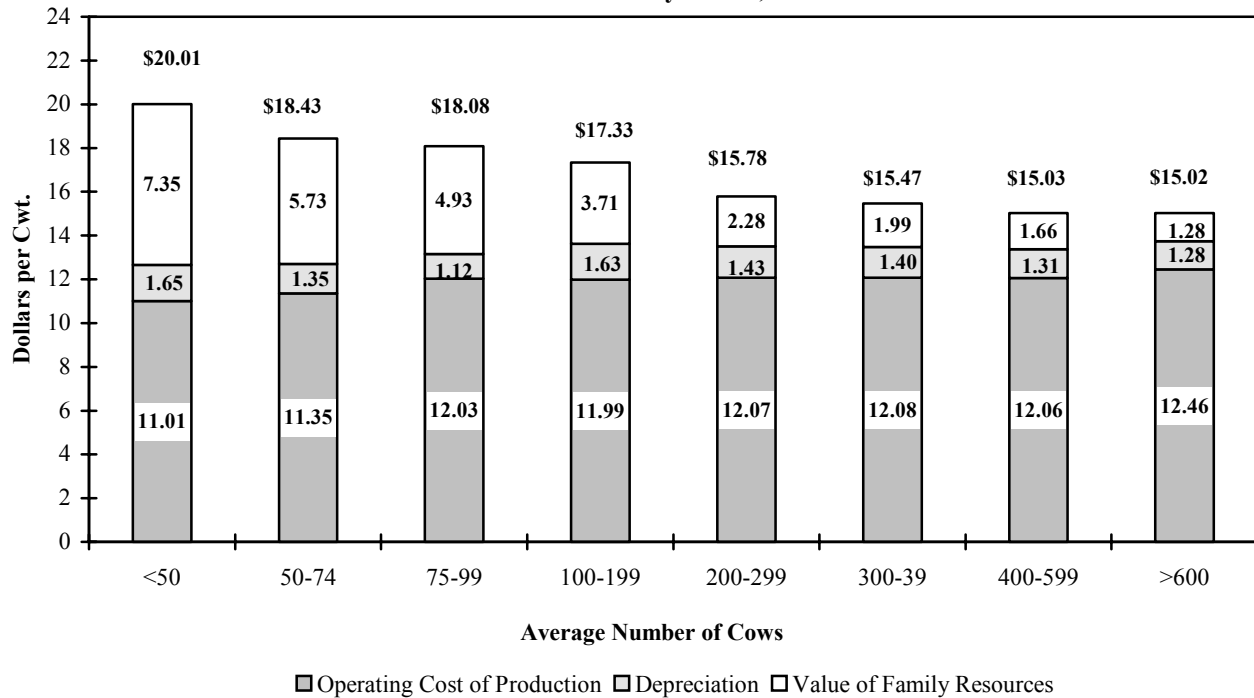
**Table 36.**

**FARM COST OF PRODUCING MILK BY HERD SIZE**  
**225 New York Dairy Farms, 2005**

Number of Cows	Costs per Hundredweight					Accrual Receipts From Milk	Return Per Cwt. To Operator's Labor, Mgmt. & Capital
	Operating Costs		Costs of Producing Milk				
	Hired Labor	Dairy Grain & Concentrate	Total Operating	Purchased Inputs	Total		
Under 50	\$0.46	\$4.41	\$11.01	\$12.66	\$20.01	\$15.98	\$2.35
50 to 74	0.91	4.17	11.35	12.70	18.43	15.78	2.47
75 to 99	1.48	4.31	12.03	13.15	18.08	15.89	2.09
100 to 199	2.07	4.22	11.99	13.62	17.33	16.19	2.42
200 to 299	2.18	4.16	12.07	13.50	15.78	16.10	2.56
300 to 399	2.70	4.08	12.08	13.48	15.47	16.12	2.63
400 to 599	2.59	3.98	12.06	13.37	15.03	16.06	2.66
600 and over	2.94	4.11	12.46	13.74	15.02	15.90	2.15

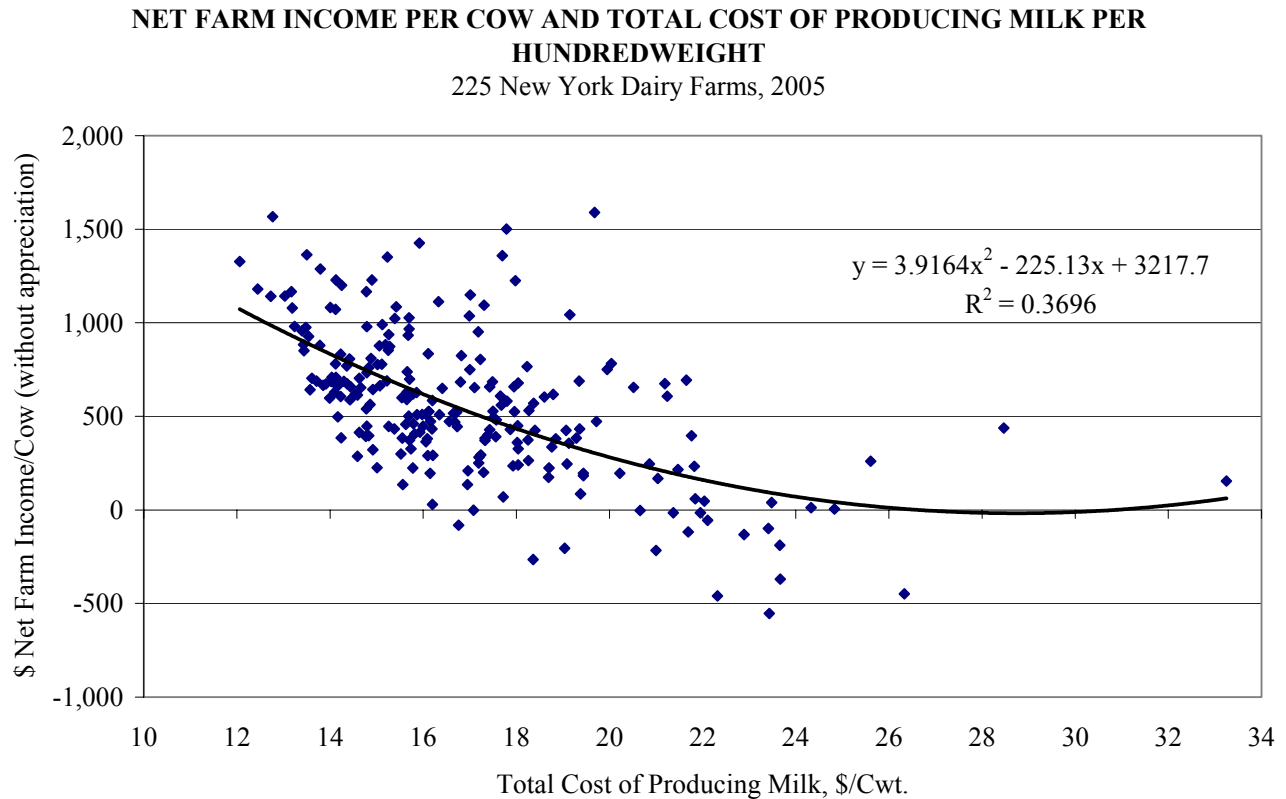
**Chart 12.**

**PRODUCTION COST BY HERD SIZE**  
**225 New York Dairy Farms, 2005**



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 \$16 per hundredweight. The majority of the farms with costs greater than \$22 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 37 on page 38. 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 1996 through 2005. In 2005 the average operating cost of producing milk decreased three percent after increasing 10 percent from 2003 to 2004. The average return per hundredweight to operator labor, management, and capital was \$0.32 lower in 2005, 12 percent below 2004. 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 1996 to 2004, but remained constant in 2005. Hired labor expense was \$1.89 in 1996 and has risen to \$2.66 in 2005. Thus, even as pounds of milk sold per worker have increased from 747,861 in 1996 to 956,698 in 2005, 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 37 percent increase in hired labor expense per hired worker equivalent from 1996 to 2005.

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 2005, purchased feed expense dropped to \$4.37 per hundredweight.

Interest paid on debt per hundredweight of milk sold has fluctuated over this period. In 1996, interest expense was \$0.91 per hundredweight. In 2003, interest expense was at a ten-year low of \$0.56 per hundredweight, increasing to \$0.65 in 2005. Property taxes per hundredweight of milk have decreased by 12 percent during this ten-year period. Property taxes were \$0.26 per hundredweight in 1996, but were only \$0.23 in 2005. 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 38 on page 39. The reader is reminded that the same farms are not in the survey each year. Average cow numbers are up 104 percent, tillable acres have increased 76 percent, and milk sold per farm has jumped 134 percent since 1996. Capital investment per cow has increased 21 percent over the last ten years. Labor and management income per operator decreased 17 percent in 2005 compared to 2004, farm net worth increased 15 percent, and percent equity increased slightly in 2005 compared to 2004.

Hay crop yields were 2.8 tons dry matter per acre in 1996 and 3.2 tons dry matter per acre in 2005. Corn silage yields, as fed, have varied more widely and were 18.8 tons per acre in 2005. As yields increased, fertilizer and lime expense increased \$7.00 per tillable acre, from \$26 to \$33 per acre. Pounds of milk sold per cow increased by 14 percent, from 20,113 pounds in 1996 to 22,998 pounds in 2005.

Average number of workers per farm increased by 3.70 and operators/managers per farm increased by 0.04. Cows per worker equivalent increased from 37 in 1996 to 42 in 2005, but labor cost per cow increased from \$582 to \$765 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 61 percent in 1996, but was down to 56 percent in 2003 partially due to more large (higher leveraged) farms in the sample. In 2005, the percent equity increased to 63 percent.

Table 37.

**TEN YEAR COMPARISON: AVERAGE COST OF PRODUCING MILK PER HUNDREDWEIGHT**  
**New York Dairy Farms, 1996 to 2005**

Item	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
<u>Operating Expenses</u>										
Hired labor	\$1.89	\$1.97	\$2.06	\$2.14	\$2.25	\$2.41	\$2.44	\$2.51	\$2.67	\$2.66
Purchased feed	4.73	4.63	4.18	3.96	3.91	4.25	4.10	4.29	4.88	4.37
Machinery repair, vehicle expense & rent	1.02	.94	1.12	1.18	1.06	1.21	1.01	.91	1.09	1.07
Fuel, oil & grease	.31	.28	.25	.24	.34	.32	.28	.33	.41	.53
Replacement livestock	.19	.18	.24	.24	.23	.20	.16	.15	.16	.11
Breeding fees	.15	.15	.16	.17	.17	.19	.21	.19	.21	.22
Veterinary & medicine	.42	.41	.45	.47	.51	.54	.56	.56	.59	.62
Milk marketing	.59	.52	.53	.49	.69	.63	.65	.69	.72	.76
Other dairy expenses	.99	1.05	1.09	1.13	1.16	1.26	1.25	1.30	1.27	1.32
Fertilizer & lime	.32	.33	.35	.35	.29	.33	.27	.26	.30	.34
Seeds & plants	.20	.21	.22	.20	.19	.20	.20	.20	.24	.22
Spray & other crop expense	.21	.23	.24	.24	.22	.25	.22	.19	.20	.19
Land, building & fence repair	.23	.19	.27	.27	.21	.26	.19	.14	.21	.25
Taxes	.26	.23	.21	.21	.20	.21	.20	.21	.22	.23
Insurance	.18	.16	.17	.16	.16	.14	.16	.15	.16	.16
Utilities (farm share)	.39	.35	.32	.31	.32	.33	.34	.34	.36	.39
Interest paid	.91	.90	.89	.83	.95	.82	.61	.56	.57	.65
Misc. (including rent)	.41	.38	.41	.44	.45	.42	.44	.40	.43	.37
Total Operating Expenses	\$13.40	\$13.12	\$13.15	\$13.02	\$13.31	\$13.98	\$13.27	\$13.39	\$14.67	\$14.54
<u>Less:</u> Nonmilk cash receipts	1.07	1.14	1.18	1.44	1.83	1.49	1.91	1.57	1.70	1.96
Increase in grown feed & supplies	.15	.07	.25	.25	0.11	0.10	0.12	0.27	0.17	0.12
Increase in livestock	.18	.15	.22	.11	0.06	0.52	0.23	0.09	0.22	0.21
OPERATING COST OF MILK PRODUCTION	\$12.00	\$11.76	\$11.50	\$11.22	\$11.31	\$11.87	\$11.01	\$11.46	\$12.58	\$12.25
<u>Overhead Expenses</u>										
Depreciation: machinery & buildings	\$1.04	\$0.95	\$1.08	\$1.14	\$1.20	\$1.30	\$1.39	\$1.23	\$1.32	\$1.32
Unpaid labor	.13	.13	.11	.11	.10	.10	.08	.10	.07	.06
Operator(s) labor <sup>38</sup>	.88	.79	.74	.80	.79	.74	.74	.70	.67	.61
Operator(s) management (5% of cash receipts)	.80	.73	.82	.83	.76	.87	.75	.73	.90	.90
Interest on farm equity capital (5%)	.94	.87	.85	.86	.88	.91	.89	.85	.92	1.02
Total Overhead Expenses	\$3.79	\$3.47	\$3.60	\$3.74	\$3.73	\$3.92	\$3.85	\$3.61	\$3.88	\$3.91
TOTAL COST OF MILK PRODUCTION	\$15.79	\$15.23	\$15.10	\$14.96	\$15.04	\$15.79	\$14.86	\$15.07	\$16.46	\$16.16
AVERAGE FARM PRICE OF MILK	\$14.98	\$13.65	\$15.60	\$14.91	\$13.38	\$15.98	\$12.98	\$13.24	\$16.64	\$15.98
Return per cwt. to operator labor, capital & mgmt.	\$1.81	\$0.81	\$2.91	\$2.44	\$0.77	\$2.71	\$0.50	\$0.45	\$2.67	\$2.35
Rate of return on farm equity capital	0.7%	-4.1%	8.0%	4.7%	-4.4%	6.0%	-5.6%	-5.7%	6.0%	4.1%

<sup>38</sup>1996 = \$1,500/month, 1997 = \$1,550/month, 1998 = \$1,600/month, 1999 = \$1,800/month, 2000 = \$1,900/month, 2001 = \$2,000/month, 2002 = \$2,100/month, and 2003 through 2005 = \$2,200/month of operator labor.

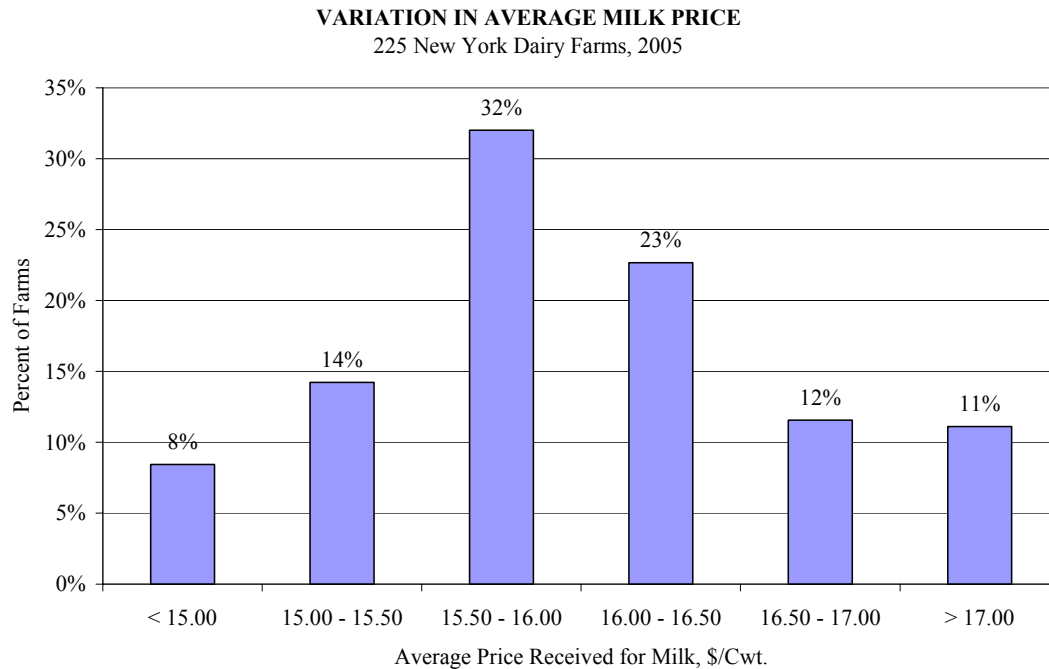
Table 38.

**TEN YEAR COMPARISON: SELECTED BUSINESS FACTORS**  
**New York Dairy Farms, 1996 to 2005**

Item	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Number of farms	300	253	305	314	294	228	219	201	200	225
<u>Cropping Program</u>										
Total tillable acres	415	462	497	516	566	618	660	659	701	729
Tillable acres rented	183	207	232	234	262	290	337	323	345	365
Hay crop acres	198	219	239	248	274	302	323	321	339	361
Corn silage acres	120	156	175	186	192	210	232	233	245	246
Hay crop, tons DM/acre	2.8	2.5	3.1	2.9	3.3	2.8	3.1	3.2	3.5	3.2
Corn silage, tons/acre	15.9	16.1	18.0	16.3	15.1	16.5	15.4	17.2	17.7	18.8
Fertilizer & lime exp./tillable acre	\$26	\$28	\$31	\$32	\$27	\$32	\$27	\$28	\$31	\$33
Machinery cost/cow	\$450	\$429	\$471	\$502	\$513	\$554	\$520	\$497	\$565	\$624
<u>Dairy Analysis</u>										
Number of cows	167	190	210	224	246	277	297	314	334	340
Number of heifers	124	139	155	164	186	207	226	240	260	270
Milk sold, cwt.	33,504	39,309	43,954	47,932	52,871	60,290	66,177	70,105	73,767	78,250
Milk sold/cow, lbs.	20,113	20,651	20,900	21,439	21,516	21,762	22,312	22,302	22,070	22,998
Purchased dairy feed/cwt. milk	\$4.73	\$4.63	\$4.18	\$3.96	\$3.91	\$4.25	\$4.10	\$4.27	\$4.86	\$4.37
Purchased grain & concentrate as % of milk receipts	30%	33%	26%	25%	27%	25%	30%	30%	27%	26%
Purchased feed & crop exp/cwt.milk	\$5.46	\$5.39	\$5.00	\$4.75	\$4.61	\$5.03	\$4.79	\$4.92	\$5.60	\$5.12
<u>Capital Efficiency</u>										
Farm capital/cow	\$6,218	\$6,196	\$6,161	\$6,368	\$6,535	\$6,755	\$6,794	\$6,748	\$7,010	\$7,508
Real estate/cow	\$2,701	\$2,650	\$2,537	\$2,562	\$2,615	\$2,713	\$2,612	\$2,722	\$2,809	\$2,950
Machinery investment/cow	\$1,107	\$1,108	\$1,118	\$1,163	\$1,225	\$1,222	\$1,261	\$1,208	\$1,226	\$1,314
Asset turnover ratio	0.55	0.52	0.61	0.59	0.54	0.63	0.53	0.54	0.64	0.60
<u>Labor Efficiency</u>										
Worker equivalent	4.48	5.01	5.35	5.71	6.11	6.72	7.21	7.50	7.97	8.18
Operator/manager equivalent	1.56	1.60	1.62	1.76	1.83	1.94	1.82	1.86	1.64	1.60
Milk sold/worker, lbs.	747,861	784,604	821,565	839,432	865,325	897,167	917,854	934,733	925,553	956,698
Cows/worker	37	38	39	39	40	41	41	42	42	42
Labor cost/cow	\$582	\$598	\$609	\$653	\$674	\$706	\$725	\$738	\$752	\$765
Hired labor exp./hired worker equiv.	\$24,395	\$25,241	\$31,092	\$27,910	\$29,309	\$31,448	\$31,755	\$32,659	\$33,311	\$33,539
<u>Profitability &amp; Financial Analysis</u>										
Labor & mgmt. income/operator	\$18,651	\$-1,424	\$55,917	\$42,942	\$-2,908	\$45,479	\$-14,243	\$-15,360	\$78,061	\$64,745
Farm net worth, end year	\$648,186	\$685,665	\$798,297	\$865,626	\$942,881	\$1,181,055	\$1,173,836	\$1,207,964	\$1,466,674	\$1,690,427
Percent equity	61%	57%	59%	58%	57%	60%	57%	56%	60%	63%

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 225 farms was \$15.98 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.**



Fifty-five percent of the farms received from \$15.50 to \$16.50 per hundredweight of milk sold. Twenty-three percent of the farms received \$16.50 or more and 22 percent received less than \$15.50 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 8 and 9.

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 39.**

**DAIRY RELATED ACCRUAL EXPENSES**  
225 New York Dairy Farms, 2005

Item	Average 225 Farms		Average Top 10% Farms <sup>39</sup>	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	\$942	\$4.10	\$958	\$3.88
Purchased dairy roughage	63	.27	90	.36
Total Purchased Dairy Feed	\$1,005	\$4.37	\$1,048	\$4.25
Purchased grain & concentrate as % of milk receipts		26%		24%
Purchased feed & crop expense	\$1,178	\$5.12	\$1,181	\$4.79
Purchased feed & crop expense as % of milk receipts		33%		30%
Breeding	\$51	\$.22	\$51	\$.21
Veterinary & medicine	142	.62	149	.60
Milk marketing	174	.76	163	.66
Bedding	67	.29	67	.27
Milking Supplies	79	.34	74	.30
Cattle lease	4	.02	9	.03
Custom boarding	69	.30	72	.29
bST expense	48	.21	56	.23
Other livestock expense	35	.16	25	.10

<sup>39</sup>Average of 23 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 affect 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).

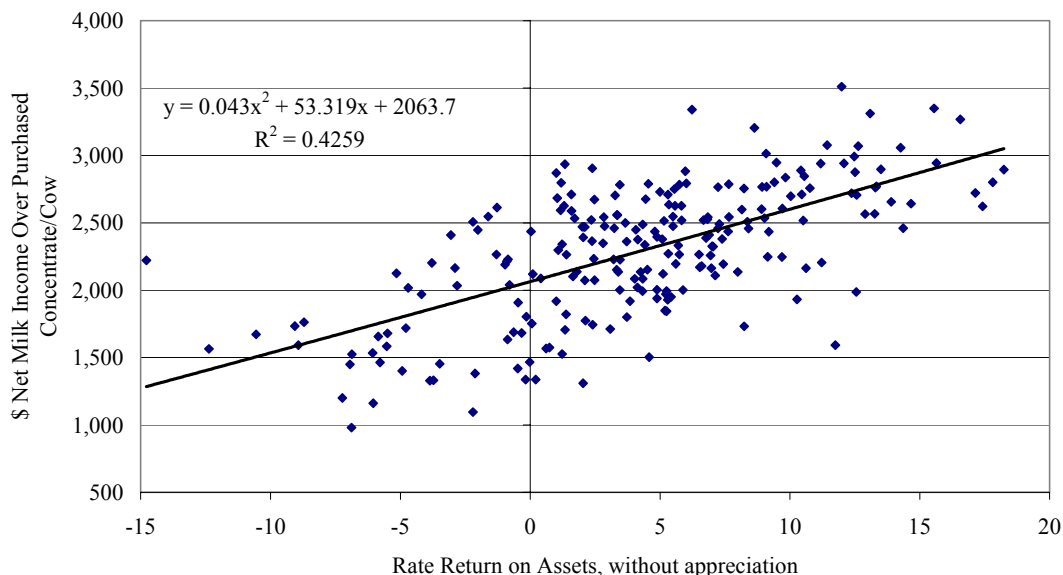
**Table 40.**

**PURCHASED FEED AND CROP EXPENSE PER HUNDREDWEIGHT  
OF MILK AND FARM INCOME MEASURES  
225 New York Dairy Farms, 2005**

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	143	7.8	18,216	\$22,599	\$-17,323	\$-121
6.00 to 6.49	22	226	7.1	21,279	79,326	16,880	75
5.50 to 5.99	34	480	7.8	22,844	213,057	64,162	134
5.00 to 5.49	42	309	8.8	23,755	182,854	57,180	185
4.50 to 4.99	47	523	8.5	24,018	312,320	121,188	232
4.00 to 4.49	27	371	8.1	23,181	274,097	111,583	301
Less than 4.00	23	149	8.4	21,475	119,413	45,007	302

**Chart 15.**

**NET MILK INCOME OVER PURCHASED CONCENTRATE PER COW VERSUS  
RETURN ON ASSETS  
225 New York Dairy Farms, 2005**



### 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 225 New York Dairy Farms, 2005				
Item (Average for Year)	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
Farm capital	\$312,285	\$7,508	\$3,504	\$7,010
Real estate		\$2,950		\$2,755
Machinery & equipment	\$54,644	\$1,314	\$613	
<u>Ratios</u>				
Asset turnover	Operating Expense	Interest Expense		Depreciation Expense
0.60	0.76	0.04		0.07
<u>Average Top 10% Farms:</u> <sup>40</sup>				
Farm capital	\$294,749	\$6,424	\$3,673	\$8,687
Real estate		\$2,114		\$2,859
Machinery & equipment	\$44,105	\$961	\$550	
<u>Ratios</u>				
Asset turnover ratio	Operating Expense	Interest Expense		Depreciation Expense
0.74	0.72	0.03		0.06

<sup>40</sup>Average of 23 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 225 New York Dairy Farms, 2005						
Ratio	Number of Farms	Number of Cows	Farm Capital (average for year)		Labor & Management Income Per Operator	Net Farm Income (without appreciation)
			Per Cow	Per Worker		
≥ .70	35	668	\$5,837	\$264,528	\$160,075	\$381,097
.60 to .69	42	525	7,146	299,607	106,953	303,740
.50 to .59	54	378	8,267	347,401	66,018	205,686
.40 to .49	41	149	9,061	346,888	9,978	69,297
.30 to .39	36	93	10,715	339,407	-132	44,068
Less than .30	17	75	16,471	433,572	-24,605	31,942

Measures of labor efficiency are key indicators of the work accomplished by an average worker. The 23 farms with the highest rates of return on all capital (without appreciation) were above the average of all 225 farms in all measures of labor efficiency. The top 10 percent averaged 4 more cows per worker and sold 18 percent more milk per worker than the average of all farms.

**Table 43.**

LABOR EFFICIENCY 225 New York Dairy Farms, 2005				
Labor Efficiency	Average	Farms	Average Top 10% Farms <sup>42</sup>	
	Total	Per Worker <sup>41</sup>	Total	Per Worker <sup>41</sup>
Cows, average number	340	42	730	46
Milk sold, pounds	7,824,996	956,698	18,033,689	1,132,532
Tillable acres	729	89	1,278	80

<sup>41</sup>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.

<sup>42</sup>Average of 23 farms with highest rates of return to all capital (without appreciation).

The labor force averaged 8.18 full-time worker equivalents per farm (based on 230 hours per month). Twenty-two percent of the labor was supplied by the farm operator/managers. There were two operators on 122 farms, three on 32 farms, and 12 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 \$1,302 per cow and \$5.27 per hundredweight on the 23 farms in the top decile.

**Table 44.**

**LABOR FORCE INVENTORY AND COST ANALYSIS**  
**225 New York Dairy Farms, 2005**

Labor Force	Months <sup>43</sup>	Age	Years of Education	Value of Labor & Management	
Operator number 1	13.3	49	13	\$37,895	
Operator number 2	6.2	45	13	17,916	
Operator number 3	1.7	41	13	4,524	
Operator number 4	0.6	47	15	<u>1,426</u>	
Family paid	5.2			Total \$61,761	
Family unpaid	2.0				
Hired	<u>69.1</u>				
Total	98.1	÷ 12 =	8.18 Worker Equivalent		
			1.60 Operator/Manager Equivalent		
<u>Average Top 10% Farms.</u> <sup>44</sup>					
Total	191.1	÷ 12 =	15.92 Worker Equivalent		
Operators'			1.91 Operator/Manager Equivalent		
<hr/>					
	Average 225 Farms			Avg. Top 10% Farms <sup>44</sup>	
Labor Costs	Total	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Value operators' labor (\$2,200/mo.)	\$47,982	\$141	\$.61	\$79	\$.32
Family unpaid (\$2,200/mo.)	4,400	13	.06	2	.01
Hired	<u>207,777</u>	<u>611</u>	<u>2.66</u>	<u>664</u>	<u>2.69</u>
Total Labor	\$260,159	\$765	\$3.33	\$745	\$3.02
Machinery Cost	<u>212,476</u>	<u>624</u>	<u>2.72</u>	<u>557</u>	<u>2.25</u>
Total Labor & Machinery	\$472,635	\$1,389	\$6.05	\$1,302	\$5.27
Hired labor exp. per hired worker equiv.	\$33,539			\$35,493	
Hired labor exp. as % of milk sales	16.6%			16.6%	

<sup>43</sup>See footnote number 41 in Table 43.

<sup>44</sup>Average of 23 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 2005, increased labor efficiency resulted in larger net farm incomes and labor and management incomes per operator.

**Table 45.**

**MILK SOLD PER WORKER AND NET FARM INCOME**  
**225 New York Dairy Farm, 2005**

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	17	51	15,692	\$16,408	\$-16,783
400,000 to 499,999	22	69	16,717	33,010	272
500,000 to 599,999	27	120	18,282	49,147	513
600,000 to 699,999	32	154	20,242	75,452	17,127
700,000 to 799,999	27	279	21,640	119,964	31,987
800,000 to 899,999	20	279	22,716	150,259	40,112
900,000 to 999,999	20	326	23,682	197,427	64,992
1,000,000 to 1,099,999	25	677	23,790	400,953	144,349
1,100,000 & over	35	841	24,311	491,713	186,014

### 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 225 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 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 225 New York Dairy Farms, 2005**

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
27.7	1,307	32,162,089	26,498	5.5	25	58	1,302,355
15.8	665	15,991,194	24,611	4.3	22	50	1,109,493
11.6	472	10,679,945	23,635	3.7	20	44	1,024,936
8.2	339	7,462,166	22,761	3.4	20	42	914,742
5.7	231	4,952,606	22,049	2.9	18	38	806,982
-----							
4.3	147	2,981,822	21,086	2.6	18	35	721,745
3.4	115	2,169,047	19,706	2.2	17	33	654,421
2.7	82	1,457,785	18,465	2.0	16	30	571,531
2.2	61	1,101,729	16,584	1.6	14	26	478,273
1.5	40	688,227	13,540	1.1	11	20	336,661
-----							
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		
\$470	16%	\$354	\$977	\$651	\$3.62		
650	21	467	1,183	841	4.26		
742	23	535	1,275	933	4.57		
821	25	582	1,355	1,017	4.86		
862	25	628	1,418	1,080	5.08		
-----							
908	27	667	1,480	1,153	5.32		
956	28	715	1,552	1,200	5.61		
1,013	29	769	1,677	1,262	5.95		
1,082	31	869	1,836	1,334	6.47		
1,207	37	1,135	2,186	1,495	7.51		

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.

**Table 46. (continued)**

**FARM BUSINESS CHART FOR  
FARM MANAGEMENT COOPERATORS  
225 New York Dairy Farms, 2005**

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.
\$4,288	\$17.86	\$1,434	\$8.05	\$2,566	\$13.38
3,888	16.86	1,894	10.02	2,929	14.29
3,745	16.45	2,104	10.97	3,111	14.91
3,614	16.20	2,291	11.39	3,277	15.53
3,502	16.01	2,440	11.77	3,457	16.02
3,358	15.87	2,603	12.14	3,561	16.85
3,194	15.73	2,738	12.65	3,689	17.57
2,969	15.56	2,916	13.19	3,816	18.40
2,679	15.31	3,043	13.90	3,986	20.05
2,210	14.80	3,430	15.78	4,438	23.73

Net Farm Income Without Appreciation			Profitability Net Farm Income With Appreciation		Labor & Management Income	
Total	Per Cow	Operations Ratio	Total	Per Cow	Per Farm	Per Operator
\$838,892	\$1,268	0.31	\$1,268,115	\$1,874	\$606,471	\$345,493
381,327	971	0.24	553,456	1,341	270,698	160,827
249,077	778	0.20	374,997	1,148	152,164	82,609
163,709	676	0.17	275,301	974	77,807	53,794
110,789	613	0.15	179,610	872	45,585	33,460
76,210	509	0.13	118,216	774	27,514	19,911
55,068	423	0.11	84,479	703	13,051	9,317
37,574	334	0.09	56,394	577	-2,015	-1,455
20,160	193	0.05	35,877	428	-23,513	-15,712
-23,283	-132	-0.04	3,630	96	-104,244	-82,838

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.

## **Financial Analysis and Management**

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

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

**Table 47.**

### **A FARM FINANCE CHECKLIST 225 New York Dairy Farms, 2005**

	Average 225 Farms		Average Top 10% Farms <sup>45</sup>	
<u>How farm assets are being used (average for the year):</u>				
Total assets (capital) per cow	\$7,508		\$6,424	
Farm assets in livestock	27%		30%	
Farm assets in farm real estate	39%		33%	
Farm assets in machinery	17%		15%	
<u>Measures of debt capacity &amp; debt structure:</u>				
Equity in the business	63%		62%	
Farm debt per cow	\$2,818		\$2,568	
Long term debt/asset ratio <sup>46</sup>	0.36		0.34	
Intermediate & current term debt/asset ratio <sup>46</sup>	0.37		0.41	
Intermediate & current term debt as % of total	61%		72%	
<u>Debt repayment ability:</u> <sup>47</sup>				
Cash flow coverage ratio	1.37		1.48	
Debt coverage ratio	1.72		2.41	
Debt payments made per cow	\$581		\$661	
Debt payments made as % of milk receipts	16%		17%	
<u>Indicators of annual financial progress:</u>				
	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>
Annual change in farm assets	+\$222,845	+9.1%	+\$553,277	+12.5%
Annual change in farm debt	+\$18,768	+2.0%	-\$50,486	-2.2%
Annual change in farm net worth	+\$204,076	+13.7%	+\$596,687	+24.2%

<sup>45</sup>Twenty-three farms with highest rates of return on all capital (without appreciation).

<sup>46</sup>Long or intermediate and current term debt divided by long or intermediate and current term assets.

<sup>47</sup>Average of 184 farms that participated in DFBS both in 2004 and 2005. Twenty-one of the 23 top 10 percent farms that participated both years.

The most profitable farms carried \$250 less debt per cow, the average equity in their businesses was one percent lower than that of the average of all 225 farms, and they had a greater ability to make 2005 debt payments. Because, with higher income they were able to pay down debt, it does not mean that lower debt farms are more profitable.

Average farm assets grew 7.1 percentage points faster than debt during 2005 on the 225 dairy farms. Average farm net worth increased 13.7 percent.

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

**Table 48.**

**FINANCIAL ANALYSIS CHART**  
**225 New York Dairy Farms, 2005**

Liquidity/Repayment							
Planned Debt Payments Per Cow	Available for Debt Service Per Cow	Cash Flow Coverage Ratio	Debt Coverage Ratio	Debt	Debt Per Cow	Working Capital as % of Total Expenses	Current Ratio
				Payments as Percent of Milk Sales			
\$122	\$1,083	5.55	6.67	3%	\$257	48%	39.30
233	888	2.54	3.09	7	1,048	32	5.67
303	775	2.01	2.51	10	1,677	25	3.64
360	697	1.66	2.14	12	2,241	21	2.97
410	619	1.38	1.73	14	2,521	17	2.36
-----							
459	558	1.23	1.44	17	2,864	13	1.81
518	500	1.06	1.20	19	3,189	9	1.49
571	408	0.91	0.92	21	3,444	4	1.18
678	294	0.67	0.58	25	3,932	-1	0.92
833	-236	-0.79	-0.84	38	5,052	-15	0.45
-----							
Solvency				Operational Ratios			
Leverage Ratio <sup>48</sup>	Percent Equity	Debt/Asset Ratio		Operating Expense Ratio	Interest Expense Ratio	Depreciation Expense Ratio	
		Current & Intermediate	Long Term			Expense Ratio	Expense Ratio
0.03	98%	0.02	0.00	0.58	0.00	0.02	0.02
0.13	90	0.09	0.00	0.66	0.01	0.04	0.04
0.22	83	0.15	0.01	0.70	0.02	0.05	0.05
0.34	76	0.24	0.11	0.72	0.03	0.06	0.06
0.44	71	0.29	0.22	0.74	0.03	0.06	0.06
-----							
0.56	65	0.34	0.31	0.76	0.04	0.07	0.07
0.69	60	0.39	0.40	0.78	0.04	0.08	0.08
0.85	55	0.47	0.51	0.80	0.05	0.09	0.09
1.06	49	0.57	0.67	0.84	0.06	0.11	0.11
2.14	35	0.76	0.94	0.92	0.08	0.17	0.17
-----							
Efficiency (Capital)				Profitability			
Asset Turnover (ratio)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow	Change in Net Worth With Appreciation	Percent Rate of Return with Appreciation on:		
					Equity	Investment <sup>49</sup>	
.85	\$1,399	\$598	\$5,171	\$1,005,552	35%	19%	
.71	2,081	878	6,188	429,195	22	15	
.64	2,402	1,076	6,785	269,436	18	13	
.60	2,700	1,278	7,210	173,811	14	11	
.55	3,009	1,438	7,749	107,874	11	9	
-----							
.52	3,452	1,619	8,318	63,949	8	7	
.47	3,940	1,798	9,171	40,317	6	6	
.41	4,536	2,039	10,012	23,884	2	3	
.35	5,506	2,432	11,077	9,786	-1	1	
.25	9,560	3,667	15,969	-54,455	-10	-4	

<sup>48</sup>Dollars of debt per dollar of equity, computed by dividing total liabilities by total equity.

<sup>49</sup>Return on all farm capital (no deduction for interest paid) divided by total farm assets.

### Herd Size Comparisons

The 225 New York dairy farms have been sorted into eight herd size categories and averages for the farms in each category are presented in Tables 49 through 53. Note that after the less than 50 cow category, the herd size categories increase by 25 cows up to 100 cows, by 100 cows up to 400 cows, and by 200 cows up to 600 cows.

As herd size increases, the net farm income increases (Table 49). Net farm income without appreciation averaged \$23,042 per farm for the less than 50 cow farms and \$566,457 per farm for those with more than 600 cows. Return to all capital without appreciation and labor and management income per operator generally increased as herd size increased.

It is more than size of herd that determines profitability on dairy farms. Farms with 600 and more cows averaged \$526 net farm income per cow while the less than 50 cow dairy farms averaged \$598 net farm income per cow. The 400 to 599 herd size category had the highest net farm income per cow at \$612, while the 300 to 399 herd size category had the second highest net farm income per cow at \$600. Other factors that affect profitability and their relationship to the size classifications are shown in Table 50.

**Table 49.**

#### **COWS PER FARM AND FARM FAMILY INCOME MEASURES 225 New York Dairy Farms, 2005**

Number of Cows	Number of Farms	Average Number of Cows	Net Farm Income Without Appreciation	Net Farm Income Per Cow	Labor & Management Income Per Operator	Return to All Capital Without Appreciation
Under 50	20	39	\$23,042	\$598	\$-261	-1.5%
50 to 74	29	61	35,091	576	3,679	0.0%
75 to 99	23	85	41,799	493	1,631	1.0%
100 to 199	49	140	72,104	514	10,640	2.7%
200 to 299	19	254	141,458	557	48,882	6.1%
300 to 399	19	346	207,955	600	65,950	7.2%
400 to 599	30	500	305,701	612	107,108	8.6%
600 & over	36	1,078	566,457	526	176,987	8.1%

This year, net farm income per cow did not exhibit the usual increase as herd size increased. All herd size categories saw a decrease in operating cost of producing milk from a year earlier (Table 30). Net farm income per cow will increase as farms become larger if the costs of increased purchased inputs are offset by greater and more efficient output.

The farms with more than 600 cows averaged more milk sold per cow than any other size category (Table 50). With 24,402 pounds of milk sold per cow, farms in the largest herd size group averaged 21 percent more milk output per cow than the average of all herds in the summary with less than 600 cows.

Many dairy farmers who have been willing and able to employ and manage the labor required to milk 3 times per day have been successful. Only three percent of the 72 DFBS farms with less than 100 cows used a milking frequency greater than 2 times per day. As herd size increased, the percent of herds using a higher milking frequency increased. Farms with 100 to 200 cows reported 10 percent of the herds milking more often than 2 times per day, the 200-299 cow herds reported 26 percent, 300-399 cow herds reported 68 percent, 400-599 cow herds reported 70 percent, and the 600 cow and larger herds reported 86 percent exceeding the 2 times per day milking frequency.



**Table 50.**

**COWS PER FARM AND RELATED FARM FACTORS**  
**225 New York Dairy Farms, 2005**

Number of Cows	Average Number of Cows	Milk Sold Per Cow (lbs.)	Milk Sold Per Worker (cwt.)	Tillable Acres Per Cow	Forage DM Per Cow (tons)	Farm Capital Per Cow	Cost of Producing Milk Per Cwt.	
							Operating	Total
Under 50	39	18,028	3,840	4.2	6.5	\$11,172	\$11.01	\$20.01
50 to 74	61	18,700	5,086	3.6	8.1	9,698	11.35	18.43
75 to 99	85	17,949	5,687	3.3	8.6	9,604	12.03	18.08
100 to 199	140	19,974	7,032	2.9	8.8	9,578	11.99	17.33
200 to 299	254	21,447	9,238	2.6	8.3	7,487	12.07	15.78
300 to 399	346	22,741	8,384	2.2	8.7	7,534	12.08	15.47
400 to 599	500	22,782	9,524	2.4	8.7	7,007	12.06	15.03
600 & over	1,078	24,402	11,360	1.8	7.9	7,055	12.46	15.02

Bovine somatotropin (bST), was used to a greater extent on the large herd farms. bST was used consistently during 2005 on 15 percent of the herds with less than 100 cows, 34 percent of the farms with 100 to 299 cows and on 69 percent of the farms with 300 cows and more.

Milk output per worker has always shown a strong correlation with net farm income. In 2005, this relationship also held when labor and management income was the profit measure compared. The farms with 100 cows or more averaged over 910,700 pounds of milk sold per worker while the farms with less than 100 cows averaged less than 487,100 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 farms with 400 to 599 cows had the most efficient use of farm capital with an average investment of \$7,007 per cow.

The 36 farms with more than 600 cows held their average total costs of producing milk to \$15.02 per hundredweight, \$2.14 below the \$17.16 average for the remaining 189 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 \$2.02 per hundredweight above the average of the other 189 DFBS farms.

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, 2005. For analysis of smaller herds, see Dairy Farm Business Summary, New York Small Herd Farms, 80 Cows or Fewer, 2005. 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](mailto: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 36 New York Dairy Farms, 2001 - 2005

Selected Factors	2001	2002	2003	2004	2005
Milk receipts per cwt. milk	\$16.14	\$12.86	\$13.19	\$16.91	\$15.84
<u>Size of Business</u>					
Average number of cows	64	66	66	64	65
Average number of heifers	49	49	51	51	53
Milk sold, cwt.	11,573	12,100	11,951	11,607	12,047
Worker equivalent	2.54	2.51	2.37	2.31	2.43
Total tillable acres	204	209	209	214	209
<u>Rates of Production</u>					
Milk sold per cow, lbs.	18,074	18,450	18,207	18,087	18,542
Hay DM per acre, tons	2.0	3.7	2.1	2.3	2.3
Corn silage per acre, tons	15	13	15	16	16
<u>Labor Efficiency</u>					
Cows per worker	25	26	28	28	27
Milk sold per worker, lbs.	456,072	482,857	504,256	501,731	495,243
<u>Cost Control</u>					
Grain & concn. purchased as % of milk sales	25%	30%	34%	28%	28%
Dairy feed & crop expense per cwt. milk	\$5.39	\$5.07	\$5.60	\$5.94	\$5.69
Operating cost of producing cwt. milk	\$11.33	\$9.76	\$10.42	\$12.36	\$11.65
Total cost of producing cwt. milk	\$17.77	\$16.04	\$16.61	\$19.21	\$18.18
Hired labor cost per cwt.	\$0.96	\$0.87	\$0.81	\$0.84	\$1.02
Interest paid per cwt.	\$0.66	\$0.54	\$0.48	\$0.56	\$0.65
Labor & machinery costs per cow	\$1,481	\$1,445	\$1,468	\$1,596	\$1,591
Replacement livestock expense	\$2,219	\$1,553	\$1,470	\$2,868	\$2,002
Expansion livestock expense	\$381	\$429	\$174	\$799	\$1,374
<u>Capital Efficiency</u>					
Farm capital per cow	\$8,225	\$8,272	\$8,485	\$9,229	\$9,570
Machinery & equipment per cow	\$1,774	\$1,784	\$1,799	\$1,878	\$1,938
Real estate per cow	\$3,662	\$3,663	\$3,854	\$4,341	\$4,449
Livestock investment per cow	\$1,807	\$1,818	\$1,792	\$1,882	\$2,005
Asset turnover ratio	0.44	0.36	0.37	0.41	0.40
<u>Profitability</u>					
Net farm income without appreciation	\$38,972	\$22,080	\$21,027	\$37,390	\$36,607
Net farm income with appreciation	\$56,233	\$25,833	\$32,440	\$55,837	\$55,102
Labor & management income per operator/manager	\$8,646	\$-6,248	\$-8,384	\$3,876	\$1,934
Rate return on:					
Equity capital with appreciation	4.6%	-3.5%	-2.2%	3.2%	3.0%
All capital with appreciation	4.9%	-1.4%	-0.6%	3.5%	3.6%
All capital without appreciation	1.6%	-2.1%	-2.6%	0.4%	0.6%
<u>Financial Summary, End Year</u>					
Farm net worth	\$411,704	\$410,305	\$417,540	\$466,191	\$492,898
Change in net worth with appreciation	\$34,435	\$2,402	\$11,055	\$36,032	\$29,516
Debt to asset ratio	0.24	0.25	0.26	0.23	0.22
Farm debt per cow	\$1,961	\$2,026	\$2,292	\$2,167	\$2,161

**Table 52.**

**PROGRESS OF FARM BUSINESSES WITH 100-499 COWS**  
Same 53 New York Dairy Farms, 2001 - 2005

Selected Factors	2001	2002	2003	2004	2005
Milk receipts per cwt. milk	\$15.84	\$12.83	\$13.23	\$16.82	\$16.03
<u>Size of Business</u>					
Average number of cows	239	253	256	260	268
Average number of heifers	175	192	199	202	216
Milk sold, cwt.	52,331	56,644	55,594	55,999	59,222
Worker equivalent	6.22	6.56	6.81	6.98	7.03
Total tillable acres	580	598	609	633	661
<u>Rates of Production</u>					
Milk sold per cow, lbs.	21,921	22,370	21,745	21,549	22,080
Hay DM per acre, tons	3.0	3.1	3.3	3.4	3.1
Corn silage per acre, tons	17	15	17	18	19
<u>Labor Efficiency</u>					
Cows per worker	38	39	38	37	38
Milk sold per worker, lbs.	841,902	862,921	816,163	802,187	842,816
<u>Cost Control</u>					
Grain & concn. purchased as % of milk sales	24%	30%	31%	27%	25%
Dairy feed & crop expense per cwt. milk	\$4.93	\$4.75	\$5.03	\$5.65	\$5.07
Operating cost of producing cwt. milk	\$12.04	\$10.85	\$11.29	\$12.65	\$12.09
Total cost of producing cwt. milk	\$15.67	\$14.37	\$14.83	\$16.36	\$15.90
Hired labor cost per cwt.	\$2.16	\$2.27	\$2.33	\$2.50	\$2.45
Interest paid per cwt.	\$0.73	\$0.53	\$0.52	\$0.56	\$0.66
Labor & machinery costs per cow	\$1,311	\$1,294	\$1,300	\$1,403	\$1,431
Replacement livestock expense	\$14,699	\$9,617	\$6,871	\$7,349	\$9,687
Expansion livestock expense	\$19,974	\$9,761	\$1,482	\$7,775	\$12,645
<u>Capital Efficiency</u>					
Farm capital per cow	\$6,827	\$6,851	\$7,060	\$7,494	\$7,987
Machinery & equipment per cow	\$1,410	\$1,419	\$1,454	\$1,522	\$1,603
Real estate per cow	\$2,567	\$2,566	\$2,701	\$2,940	\$3,182
Livestock investment per cow	\$1,719	\$1,787	\$1,822	\$1,869	\$1,979
Asset turnover ratio	0.63	0.53	0.50	0.59	0.56
<u>Profitability</u>					
Net farm income without appreciation	\$128,897	\$34,202	\$34,164	\$153,133	\$145,329
Net farm income with appreciation	\$203,364	\$77,342	\$83,458	\$220,162	\$228,100
Labor & management income per operator/manager	\$39,661	\$-13,121	\$-14,367	\$50,210	\$41,793
Rate return on:					
Equity capital with appreciation	12.9%	1.0%	1.5%	12.4%	11.4%
All capital with appreciation	10.7%	2.4%	2.6%	9.6%	9.4%
All capital without appreciation	6.1%	-0.1%	-0.2%	6.1%	5.5%
<u>Financial Summary, End Year</u>					
Farm net worth	\$1,113,235	\$1,128,418	\$1,165,820	\$1,328,022	\$1,499,320
Change in net worth with appreciation	\$122,797	\$13,770	\$34,522	\$163,080	\$145,227
Debt to asset ratio	0.35	0.36	0.37	0.35	0.33
Farm debt per cow	\$2,393	\$2,405	\$2,687	\$2,642	\$2,657

**Table 53.**

**PROGRESS OF FARM BUSINESSES WITH MORE THAN 500 COWS**  
Same 38 New York Dairy Farms, 2001 - 2005

Selected Factors	2001	2002	2003	2004	2005
Milk receipts per cwt. milk	\$16.02	\$13.06	\$13.30	\$16.63	\$16.05
<u>Size of Business</u>					
Average number of cows	693	744	813	877	918
Average number of heifers	530	579	619	664	716
Milk sold, cwt.	160,279	175,933	191,581	203,418	220,715
Worker equivalent	15.28	16.20	17.67	19.02	19.80
Total tillable acres	1,328	1,417	1,509	1,612	1,657
<u>Rates of Production</u>					
Milk sold per cow, lbs.	23,131	23,638	23,554	23,207	24,051
Hay DM per acre, tons	3.3	3.6	3.5	3.6	3.7
Corn silage per acre, tons	17	15	18	18	19
<u>Labor Efficiency</u>					
Cows per worker	45	46	46	46	46
Milk sold per worker, lbs.	1,046,229	1,086,063	1,084,014	1,069,540	1,114,489
<u>Cost Control</u>					
Grain & concn. purchased as % of milk sales	24%	29%	29%	27%	26%
Dairy feed & crop expense per cwt. milk	\$4.94	\$4.73	\$5.00	\$5.57	\$5.14
Operating cost of producing cwt. milk	\$12.09	\$11.10	\$11.50	\$12.32	\$12.23
Total cost of producing cwt. milk	\$14.77	\$13.86	\$14.06	\$14.97	\$15.01
Hired labor cost per cwt.	\$2.77	\$2.74	\$2.77	\$2.90	\$2.80
Interest paid per cwt.	\$0.81	\$0.60	\$0.55	\$0.55	\$0.62
Labor & machinery costs per cow	\$1,256	\$1,231	\$1,213	\$1,272	\$1,322
Replacement livestock expense	\$15,323	\$17,783	\$28,856	\$35,641	\$31,429
Expansion livestock expense	\$57,231	\$53,835	\$84,487	\$79,154	\$32,100
<u>Capital Efficiency</u>					
Farm capital per cow	\$6,460	\$6,622	\$6,464	\$6,615	\$7,077
Machinery & equipment per cow	\$1,133	\$1,158	\$1,091	\$1,096	\$1,184
Real estate per cow	\$2,436	\$2,486	\$2,490	\$2,481	\$2,554
Livestock investment per cow	\$1,701	\$1,814	\$1,796	\$1,863	\$2,018
Asset turnover ratio	0.70	0.58	0.60	0.71	0.67
<u>Profitability</u>					
Net farm income without appreciation	\$422,207	\$92,138	\$100,138	\$600,274	\$532,438
Net farm income with appreciation	\$675,316	\$215,450	\$245,004	\$852,711	\$850,704
Labor & management income per operator/manager	\$148,763	\$-21,334	\$-21,164	\$220,576	\$176,356
Rate return on:					
Equity capital with appreciation	23.3%	4.2%	5.1%	23.8%	19.5%
All capital with appreciation	15.8%	4.5%	4.7%	14.8%	13.5%
All capital without appreciation	10.1%	2.0%	2.0%	10.4%	8.6%
<u>Financial Summary, End Year</u>					
Farm net worth	\$2,715,255	\$2,696,650	\$2,812,123	\$3,462,312	\$4,111,913
Change in net worth with appreciation	\$479,486	\$-21,637	\$107,566	\$701,212	\$639,137
Debt to asset ratio	0.43	0.47	0.49	0.44	0.40
Farm debt per cow	\$2,899	\$3,054	\$3,207	\$2,967	\$2,916

Table 54.

**FARM BUSINESS SUMMARY BY HERD SIZE**  
**225 New York Dairy Farms, 2005**

Item	Farm Size:	Less than 50 Cows	50 to 74 Cows	75 to 99 Cows	100 to 199 Cows
Number of farms		20	29	23	49
<b><u>ACCRUAL EXPENSES</u></b>					
Hired labor		\$3,223	\$10,348	\$22,573	\$57,995
Dairy grain & concentrate		30,581	47,557	65,667	118,207
Dairy roughage		3,781	4,391	3,288	3,227
Nondairy feed		83	22	0	0
Professional nutritional services		0	91	156	56
Machine hire, rent & lease		1,398	3,788	2,943	9,028
Machine repairs & farm vehicle expense		7,884	11,802	18,346	32,267
Fuel, oil & grease		4,735	7,658	9,316	19,955
Replacement livestock		775	3,672	1,071	2,013
Breeding		2,092	3,099	3,723	6,764
Veterinary & medicine		3,454	5,339	7,560	16,032
Milk marketing		7,551	10,190	13,524	26,129
Bedding		1,019	1,638	2,261	5,336
Milking supplies		3,018	4,897	7,421	10,764
Cattle lease & rent		0	0	16	70
Custom boarding		65	1,336	2,839	4,226
bST expense		423	997	986	3,800
Livestock professional fees		778	910	1,320	1,750
Other livestock expense		1,879	3,344	2,735	4,763
Fertilizer & lime		2,713	4,597	6,420	13,316
Seeds & plants		909	2,834	3,803	6,822
Spray & other crop expense		1,028	1,681	2,992	7,047
Crop professional fees		16	15	138	337
Land, building & fence repair		2,122	2,941	4,887	6,080
Taxes & rent		4,501	8,173	9,794	18,894
Utilities		4,854	7,231	9,297	13,981
Interest paid		4,801	7,130	11,945	16,795
Other professional fees		464	555	1,485	1,596
Misc. (including insurance)		3,303	5,725	6,817	9,940
Total Operating Expenses		\$97,451	\$161,960	\$223,324	\$417,190
Expansion livestock		572	2,752	1,297	1,644
Extraordinary expense		0	524	0	1,419
Machinery depreciation		8,905	10,739	13,524	30,683
Building depreciation		2,540	4,077	3,418	13,646
Total Accrual Expenses		\$109,467	\$180,051	\$241,563	\$464,582
<b><u>ACCRUAL RECEIPTS</u></b>					
Milk sales		\$110,881	\$179,794	\$241,984	\$454,076
Dairy cattle		8,678	15,547	18,149	31,361
Dairy calves		3,627	3,481	4,742	8,426
Other livestock		850	1,976	-72	712
Crops		188	4,799	5,051	11,413
Miscellaneous receipts		8,285	9,544	13,507	30,698
Total Accrual Receipts		\$132,509	\$215,142	\$283,361	\$536,686
<b><u>PROFITABILITY ANALYSIS</u></b>					
Net farm income (without appreciation)		\$23,042	\$35,091	\$41,799	\$72,104
Net farm income (with appreciation)		\$36,579	\$54,167	\$58,924	\$125,749
Labor & management income		-\$308	\$4,931	\$2,154	\$16,280
Number of operators		1.18	1.34	1.32	1.53
Labor & management income/operator		-\$261	\$3,679	\$1,631	\$10,640
Rates of return on: Equity capital w/o apprec.		-3.4%	-1.5%	-0.6%	1.9%
Equity capital with appreciation		0.6%	2.6%	2.3%	7.1%
All capital without appreciation		-1.5%	0.0%	1.0%	2.7%
All capital with appreciation		1.6%	3.3%	3.1%	6.7%

Table 54. (continued)

**FARM BUSINESS SUMMARY BY HERD SIZE**  
**225 New York Dairy Farms, 2005**

Item	Farm Size:	200 to 299 Cows	300 to 399 Cows	400 to 599 Cows	600 or More Cows
Number of farms		19	19	30	36
<u>ACCRUAL EXPENSES</u>					
Hired labor		\$118,620	\$212,633	\$295,336	\$774,177
Dairy grain & concentrate		226,220	321,190	452,632	1,079,673
Dairy roughage		16,219	16,547	29,709	79,257
Nondairy feed		0	0	176	6
Professional nutritional services		12	568	342	1,213
Machine hire, rent & lease		28,501	25,431	41,512	52,648
Machine repairs & farm vehicle expense		46,570	69,018	93,025	182,527
Fuel, oil & grease		32,873	49,132	59,436	126,670
Replacement livestock		9,898	14,401	1,635	32,670
Breeding		10,687	17,655	24,083	57,200
Veterinary & medicine		27,167	47,874	72,865	169,480
Milk marketing		45,916	61,120	82,798	188,180
Bedding		12,324	22,754	32,041	87,701
Milking supplies		23,217	27,699	33,526	88,867
Cattle lease & rent		474	713	1,599	6,185
Custom boarding		21,431	13,184	39,757	86,591
bST expense		7,986	14,953	18,537	67,190
Livestock professional services		4,296	3,056	5,236	10,868
Other livestock expense		5,799	6,986	10,981	23,526
Fertilizer & lime		17,638	29,529	41,680	77,828
Seeds & plants		14,158	17,231	28,321	53,404
Spray & other crop expense		6,550	18,018	21,192	39,731
Crop professional fees		1,690	1,118	2,504	6,591
Land, building & fence repair		13,537	16,319	34,817	63,979
Taxes & rent		32,632	36,348	52,086	122,180
Utilities		21,909	32,726	44,371	92,458
Interest paid		39,549	52,828	78,498	164,162
Other professional fees		4,301	5,231	12,132	21,357
Misc. (including insurance)		13,446	19,641	28,194	61,676
Total Operating Expenses		\$803,618	\$1,153,903	\$1,639,022	\$3,817,995
Expansion livestock		6,823	4,223	29,716	35,961
Extraordinary expense		2,137	1,145	700	1,184
Machinery depreciation		45,574	64,621	93,559	202,493
Building depreciation		30,483	45,132	55,680	133,394
Total Accrual Expenses		\$888,635	\$1,269,024	\$1,818,677	\$4,191,026
<u>ACCRUAL RECEIPTS</u>					
Milk sales		\$876,294	\$1,270,439	\$1,828,112	\$4,180,473
Dairy cattle		57,931	91,334	132,852	271,236
Dairy calves		12,495	23,313	27,885	78,891
Other livestock		1,488	4,788	10,461	778
Crops		26,452	23,154	33,846	60,285
Misc. receipts		55,434	63,951	91,222	165,820
Total Accrual Receipts		\$1,030,093	\$1,476,978	\$2,124,378	\$4,757,483
<u>PROFITABILITY ANALYSIS</u>					
Net farm income (without appreciation)		\$141,458	\$207,955	\$305,701	\$566,457
Net farm income (with appreciation)		\$232,550	\$289,821	\$394,567	\$933,855
Labor & management income		\$80,166	\$124,645	\$198,150	\$346,895
Number of operators		1.64	1.89	1.85	1.96
Labor & management income/operator		\$48,882	\$65,950	\$107,108	\$176,987
Rates of return on: Equity capital w/o apprec.		6.5%	8.1%	10.6%	10.3%
Equity capital with appreciation		14.2%	13.1%	14.9%	18.8%
All capital without appreciation		6.1%	7.2%	8.6%	8.1%
All capital with appreciation		10.9%	10.3%	11.1%	12.9%

Table 55.

**FARM FAMILY FINANCIAL SITUATION BY HERD SIZE**  
**225 New York Dairy Farms, 2005**

Item	Farms with:		50 to 74 Cows	
	Less than 50 Cows		Jan. 1	Dec. 31
	Jan. 1	Dec. 31		
<b>ASSETS</b>				
Farm cash, checking & savings	\$2,688	\$4,050	\$3,884	\$4,172
Accounts receivable	6,387	6,655	14,224	14,368
Prepaid expenses	209	160	177	161
Feed & supplies	25,762	24,566	36,566	39,148
Livestock <sup>50</sup>	84,715	91,808	125,753	137,266
Machinery & equipment <sup>50</sup>	80,655	87,289	117,371	126,860
Farm Credit stock	593	481	911	660
Other stock & certificates	1,559	1,018	5,155	5,382
Land & buildings <sup>50</sup>	215,850	225,796	267,954	281,823
Total Farm Assets	\$418,419	\$441,823	\$571,994	\$609,839
Personal cash, checking & savings	\$9,176	\$10,263	\$4,451	\$8,129
Cash value of life insurance	5,158	8,402	9,858	10,551
Nonfarm real estate	28,571	33,571	6,667	12,667
Auto (personal share)	6,107	6,286	6,917	8,467
Stocks & bonds	4,656	19,998	17,720	22,847
Household furnishings	11,071	11,071	13,800	13,987
All other	11,031	11,028	1,333	1,333
Nonfarm Assets <sup>51</sup>	\$75,771	\$100,619	\$60,746	\$77,981
Farm & Nonfarm Assets	\$494,190	\$542,442	\$632,740	\$687,820
<b>LIABILITIES</b>				
Accounts payable	\$3,025	\$2,109	\$6,244	\$6,093
Operating debt	2,804	2,485	7,048	5,901
Short term	360	80	1,372	1,465
Advanced government receipt	0	0	0	0
Current Portion:				
Intermediate	6,206	8,406	11,547	14,650
Long Term	3,219	3,836	3,254	3,888
Intermediate <sup>52</sup>	41,231	37,729	51,382	48,311
Long term <sup>50</sup>	40,446	43,588	41,027	52,292
Total Farm Liabilities	\$97,291	\$98,233	\$121,873	\$132,600
Nonfarm Liabilities <sup>51</sup>	1,188	4,684	445	1,489
Farm & Nonfarm Liabilities	\$98,479	\$102,917	\$122,318	\$134,089
Farm Net Worth (Equity Capital)	\$321,128	\$343,590	\$450,121	\$477,239
Farm & Nonfarm Net Worth	\$395,711	\$439,525	\$510,422	\$553,731
<b>FINANCIAL MEASURES</b>				
	Less than 50 Cows		50 to 74 Cows	
Percent Equity	78%		78%	
Debt/asset ratio-long term	0.19		0.19	
Debt/asset ratio-intermediate & current	0.25		0.24	
Change in net worth with appreciation	\$22,462		\$27,118	
Total farm debt per cow	\$2,561		\$2,140	
Debt payments made per cow	\$586		\$500	
Debt payments as % of milk sales	19%		17%	
Amount available for debt service	\$8,852		\$29,458	
Cash flow coverage ratio for 2005	0.49		1.25	
Debt coverage ratio for 2005	0.55		1.32	

<sup>50</sup>Includes discounted lease payments.<sup>51</sup>Average of farms reporting nonfarm assets and liabilities for 2005.<sup>52</sup>Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 55. (cont'd)

**FARM FAMILY FINANCIAL SITUATION BY HERD SIZE**  
**225 New York Dairy Farms, 2005**

Item	Farms with:		100 to 199 Cows	
	75 to 99 Cows		Jan. 1	Dec. 31
	Jan. 1	Dec. 31		
<b>ASSETS</b>				
Farm cash, checking & savings	\$4,895	\$4,316	\$11,363	\$12,255
Accounts receivable	19,469	17,637	40,575	39,187
Prepaid expenses	320	65	405	346
Feed & supplies	44,974	47,096	95,466	103,314
Livestock <sup>53</sup>	165,913	177,998	284,492	309,790
Machinery & equipment <sup>53</sup>	137,396	150,849	270,418	295,251
Farm Credit stock	994	220	3,104	2,409
Other stock & certificates	13,542	14,859	19,752	20,941
Land & buildings <sup>53</sup>	<u>408,442</u>	<u>420,465</u>	<u>575,899</u>	<u>604,245</u>
Total Farm Assets	\$795,946	\$833,507	\$1,301,474	\$1,387,738
Personal cash, checking & savings	\$1,455	\$2,286	\$20,270	\$21,852
Cash value of life insurance	19,590	20,698	11,976	11,983
Nonfarm real estate	26,125	26,142	82,143	84,500
Auto (personal share)	3,600	3,333	7,452	7,083
Stocks & bonds	10,027	13,002	44,196	55,146
Household furnishings	11,083	11,083	8,095	9,143
All other	<u>10,341</u>	<u>10,420</u>	<u>14,223</u>	<u>15,759</u>
Nonfarm Assets <sup>54</sup>	\$82,220	\$86,964	\$188,355	\$205,466
Farm & Nonfarm Assets	\$878,166	\$920,471	\$1,489,829	\$1,593,204
<b>LIABILITIES</b>				
Accounts payable	\$10,425	\$9,371	\$10,911	\$10,115
Operating debt	12,965	11,975	19,364	17,104
Short term	739	739	1,149	717
Advanced government receipt	0	0	0	0
Current Portion:				
Intermediate	14,823	19,243	23,472	26,394
Long Term	5,432	5,893	7,491	8,593
Intermediate <sup>55</sup>	88,516	90,356	127,220	132,743
Long term <sup>53</sup>	<u>88,161</u>	<u>84,074</u>	<u>117,664</u>	<u>119,746</u>
Total Farm Liabilities	\$221,060	\$221,651	\$307,271	\$315,412
Nonfarm Liabilities <sup>54</sup>	<u>0</u>	<u>0</u>	<u>5,697</u>	<u>3,290</u>
Farm & Nonfarm Liabilities	\$221,060	\$221,651	\$312,968	\$318,702
Farm Net Worth (Equity Capital)	\$574,885	\$611,856	\$994,203	\$1,072,326
Farm & Nonfarm Net Worth	\$657,106	\$698,820	\$1,176,861	\$1,274,502
<b>FINANCIAL MEASURES</b>				
	75 to 99 Cows		100 to 149 Cows	
Percent equity	73%		77%	
Debt/asset ratio-long term	0.20		0.20	
Debt/asset ratio-intermediate & current	0.33		0.25	
Change in net worth with appreciation	\$36,971		\$78,123	
Total farm debt per cow	\$2,592		\$2,199	
Debt payments made per cow	\$473		\$453	
Debt payments as % of milk sales	16%		14%	
Amount available for debt service	\$42,576		\$81,530	
Cash flow coverage ratio for 2005	1.27		1.59	
Debt coverage ratio for 2005	1.42		1.70	

<sup>53</sup>Includes discounted lease payments.<sup>54</sup>Average of farms reporting nonfarm assets and liabilities for 2005.<sup>55</sup>Includes Farm Credit stock & discounted lease payments for cattle & machinery.



Table 55. (cont'd)

**FARM FAMILY FINANCIAL SITUATION BY HERD SIZE**  
**225 New York Dairy Farms, 2005**

Item	Farms with:		300 to 399 Cows	
	200 to 299 Cows		Jan. 1	Dec. 31
	Jan. 1	Dec. 31		
<b>ASSETS</b>				
Farm cash, checking & savings	\$9,103	\$6,585	\$17,403	\$13,826
Accounts receivable	72,916	76,656	107,629	104,435
Prepaid expenses	500	767	2,318	4,266
Feed & supplies	154,603	176,217	237,554	263,633
Livestock <sup>56</sup>	473,490	516,345	628,144	699,399
Machinery & equipment <sup>56</sup>	315,512	339,528	480,926	521,943
Farm Credit stock	4,009	4,112	4,955	3,533
Other stock & certificates	42,561	45,367	38,255	40,924
Land & buildings <sup>56</sup>	746,980	814,091	987,116	1,064,072
Total Farm Assets	\$1,819,672	\$1,979,669	\$2,504,299	\$2,716,031
Personal cash, checking & savings	\$2,000	\$6,088	\$1,964	\$2,915
Cash value of life insurance	11,563	11,813	31,044	35,475
Nonfarm real estate	29,000	34,375	26,875	30,000
Auto (personal share)	10,375	10,125	10,000	7,500
Stocks & bonds	14,261	11,558	60,772	60,779
Household furnishings	3,750	4,375	6,813	6,813
All other	405,261	407,395	35,622	41,917
Nonfarm Assets <sup>57</sup>	\$476,210	\$485,728	\$173,090	\$185,398
Farm & Nonfarm Assets	\$2,295,882	\$2,465,397	\$2,677,389	\$2,901,429
<b>LIABILITIES</b>				
Accounts payable	\$45,399	\$42,017	\$22,403	\$21,259
Operating debt	30,282	22,186	75,338	86,054
Short term	3,050	4,422	5,755	4,759
Advanced government receipt	0	0	0	0
Current Portion:				
Intermediate	45,574	50,536	72,019	83,972
Long Term	12,089	16,126	24,979	27,238
Intermediate <sup>58</sup>	255,853	256,008	385,477	428,472
Long term <sup>56</sup>	322,643	717,550	352,076	326,308
Total Farm Liabilities	\$714,890	\$717,550	\$938,046	\$978,061
Nonfarm Liabilities <sup>57</sup>	1,997	815	7,367	7,157
Farm & Nonfarm Liabilities	\$716,887	\$718,365	\$945,413	\$985,218
Farm Net Worth (Equity Capital)	\$1,104,783	\$1,262,119	\$1,566,253	\$1,737,969
Farm & Nonfarm Net Worth	\$1,578,995	\$1,747,032	\$1,731,976	\$1,916,211
<b>FINANCIAL MEASURES</b>				
	200 to 299 Cows		300 to 399 Cows	
Percent equity	64%		64%	
Debt/asset ratio-long term	0.40		0.31	
Debt/asset ratio-intermediate & current	0.34		0.39	
Change in net worth with appreciation	\$157,336		\$171,716	
Total farm debt per cow	\$2,897		\$2,784	
Debt payments made per cow	\$507		\$526	
Debt payments as % of milk sales	15%		14%	
Amount available for debt service	\$154,264		\$240,886	
Cash flow coverage ratio for 2005	1.40		1.53	
Debt coverage ratio for 2005	1.67		1.89	

<sup>56</sup>Includes discounted lease payments.<sup>57</sup>Average of farms reporting nonfarm assets and liabilities for 2005.<sup>58</sup>Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 55. (cont'd)

**FARM FAMILY FINANCIAL SITUATION BY HERD SIZE**  
**225 New York Dairy Farms, 2005**

Item	Farms with:		More than 600 Cows	
	400 to 599 Cows		Jan. 1	Dec. 31
	Jan. 1	Dec. 31	Jan. 1	Dec. 31
<b>ASSETS</b>				
Farm cash, checking & savings	\$12,823	\$12,309	\$41,666	\$58,612
Accounts receivable	135,985	140,529	259,456	269,885
Prepaid expenses	2,140	4,278	10,083	12,331
Feed & supplies	338,084	389,436	730,135	861,923
Livestock <sup>59</sup>	934,334	1,028,466	2,060,460	2,318,817
Machinery & equipment <sup>59</sup>	617,573	677,082	1,133,769	1,255,559
Farm Credit stock	7,272	5,408	22,250	29,055
Other stock & certificates	68,370	76,193	216,705	231,960
Land & buildings <sup>59</sup>	<u>1,232,629</u>	<u>1,320,016</u>	<u>2,748,360</u>	<u>2,942,674</u>
Total Farm Assets	\$3,349,210	\$3,653,716	\$7,222,884	\$7,980,816
Personal cash, checking & savings	\$15,593	\$19,188	\$3,093	\$4,752
Cash value of life insurance	14,609	17,813	52,304	61,660
Nonfarm real estate	114,444	125,556	405,478	424,914
Auto (personal share)	15,889	25,444	12,367	11,167
Stocks & bonds	59,200	69,481	58,314	67,534
Household furnishings	3,444	5,111	7,467	6,800
All other	<u>14,072</u>	<u>16,608</u>	<u>12,840</u>	<u>14,571</u>
Nonfarm Assets <sup>60</sup>	\$237,253	\$279,202	\$551,862	\$591,399
Farm & Nonfarm Assets	\$3,586,463	\$3,932,918	\$7,774,746	\$8,572,215
<b>LIABILITIES</b>				
Accounts payable	\$42,001	\$26,207	\$159,348	\$147,800
Operating debt	70,617	91,574	242,347	170,060
Short term	11,009	8,012	12,610	3,786
Advanced government receipts	0	0	0	0
Current Portion:				
Intermediate	99,118	120,698	249,219	266,817
Long Term	28,134	36,632	70,732	86,979
Intermediate <sup>61</sup>	588,924	529,226	1,344,254	1,388,293
Long term <sup>59</sup>	<u>556,237</u>	<u>627,110</u>	<u>1,149,195</u>	<u>1,206,295</u>
Total Farm Liabilities	\$1,396,040	\$1,439,458	\$3,227,705	\$3,270,029
Nonfarm Liabilities <sup>60</sup>	<u>0</u>	<u>4,498</u>	<u>420</u>	<u>400</u>
Farm & Nonfarm Liabilities	\$1,396,040	\$1,443,956	\$3,228,125	\$3,270,429
Farm Net Worth (Equity Capital)	1,953,170	2,214,258	3,995,178	4,710,787
Farm & Nonfarm Net Worth	\$2,190,423	\$2,488,962	\$4,546,621	\$5,301,786
<b>FINANCIAL MEASURES</b>				
	400 to 599 Cows		More than 600 Cows	
Percent equity	61%		59%	
Debt/asset ratio-long term	.48		.41	
Debt/asset ratio-intermediate & current	.35		.41	
Change in net worth with appreciation	\$261,088		\$715,609	
Total farm debt per cow	\$2,780		\$2,987	
Debt payments made per cow	\$546		\$637	
Debt payments as % of milk sales	15%		16%	
Amount available for debt service	\$345,291		\$667,368	
Cash flow coverage ratio for 2005	1.43		1.32	
Debt coverage ratio for 2005	1.79		1.72	

<sup>59</sup>Includes discounted lease payments.<sup>60</sup>Average of farms reporting nonfarm assets and liabilities for 2005.<sup>61</sup>Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 56.

**SELECTED BUSINESS FACTORS BY HERD SIZE**  
**225 New York Dairy Farms, 2005**

Item	Farms with:	Less than 50 Cows	50 to 74 Cows	75 to 99 Cows	100 to 199 Cows
Number of farms		20	29	23	49
<u>Cropping Program Analysis</u>					
Total Tillable acres		159	203	265	407
Tillable acres rented <sup>62</sup>		55	80	102	188
Hay crop acres <sup>62</sup>		109	131	179	235
Corn silage acres <sup>62</sup>		12	29	50	109
Hay crop, tons DM/acre		1.6	2.2	2.2	2.5
Corn silage, tons/acre		14.1	15.9	17.2	17.7
Oats, bushels/acre		0	43	60	59
Forage DM per cow, tons		6.5	8.1	8.6	8.8
Tillable acres/cow		4.2	3.6	3.3	2.9
Fertilizer & lime expense/tillable acre		\$21.29	\$24.11	\$28.42	\$33.41
Total machinery costs		\$27,873	\$42,646	\$52,697	\$106,074
Machinery cost/tillable acre		\$172	\$191	\$190	\$260
<u>Dairy Analysis</u>					
Number of cows		39	61	85	140
Number of heifers		32	47	67	114
Milk sold, lbs.		694,083	1,139,368	1,522,629	2,804,186
Milk sold/cow, lbs.		18,028	18,700	17,949	19,974
Operating cost of producing milk/cwt.		\$11.01	\$11.35	\$12.03	\$11.99
Total cost of producing milk/cwt.		\$20.01	\$18.43	\$18.08	\$17.33
Price/cwt. milk sold		\$15.98	\$15.78	\$15.89	\$16.19
Purchased dairy feed/cow		\$893	\$853	\$813	\$865
Purchased dairy feed/cwt. milk		\$4.95	\$4.56	\$4.53	\$4.33
Purchased grain & concentrate as % of milk receipts		28%	27%	27%	26%
Purchased feed & crop expense/cwt. milk		\$5.62	\$5.36	\$5.41	\$5.31
Cull rate		24.7%	29.2%	28.5%	29.0%
<u>Capital Efficiency</u>					
Farm capital/worker		\$237,636	\$263,802	\$304,002	\$336,994
Farm capital/cow		\$11,172	\$9,698	\$9,604	\$9,578
Farm capital/tillable acre owned		\$4,170	\$4,808	\$5,001	\$6,129
Real estate/cow		\$5,736	\$4,512	\$4,886	\$4,203
Machinery investment/cow		\$2,181	\$2,004	\$1,699	\$2,015
Asset turnover ratio		0.34	0.40	0.37	0.44
<u>Labor Efficiency</u>					
Worker equivalent		1.81	2.24	2.68	3.99
Operator/manager equivalent		1.18	1.34	1.32	1.53
Milk sold/worker, lbs.		384,002	508,646	568,676	703,244
Cows/worker		21	27	32	35
Labor cost/cow		\$1,150	\$928	\$848	\$765
Labor cost/tillable acre		\$278	\$279	\$272	\$264

<sup>62</sup> Average of all farms, not only those reporting data.

Table 56. (cont'd)

**SELECTED BUSINESS FACTORS BY HERD SIZE**  
**225 New York Dairy Farms, 2005**

Item	Farms with:	200 to 299 Cows	300 to 399 Cows	400 to 599 Cows	600 or More Cows
Number of farms		19	19	30	36
<u>Cropping Program Analysis</u>					
Total Tillable acres		631	761	1,137	1,900
Tillable acres rented <sup>63</sup>		346	388	650	934
Hay crop acres <sup>63</sup>		312	391	504	865
Corn silage acres <sup>63</sup>		163	245	401	776
Hay crop, tons DM/acre		3.1	3.5	3.4	3.8
Corn silage, tons/acre		18.8	20.1	18.1	19.2
Oats, bushels/acre		42	60	65	49
Forage DM per cow, tons		8.3	8.7	8.7	7.9
Tillable acres/cow		2.6	2.2	2.4	1.8
Fertilizer & lime exp./tillable acre		\$27.98	\$41.78	\$36.71	\$41.15
Total machinery costs		\$169,172	\$233,273	\$321,729	\$633,473
Machinery cost/tillable acre		\$260	\$306	\$274	\$325
<u>Dairy Analysis</u>					
Number of cows		254	346	500	1,078
Number of heifers		190	280	395	858
Milk sold, lbs.		5,442,073	7,879,152	11,384,632	26,295,358
Milk sold/cow, lbs.		21,447	22,741	22,782	24,402
Operating cost of producing milk/cwt.		\$12.07	\$12.08	\$12.06	\$12.46
Total cost of producing milk/cwt.		\$15.78	\$15.47	\$15.03	\$15.02
Price/cwt. milk sold		\$16.10	\$16.12	\$16.06	\$15.90
Purchased dairy feed/cow		\$955	\$975	\$965	\$1,075
Purchased dairy feed/cwt. milk		\$4.45	\$4.29	\$4.24	\$4.41
Purchased grain & concentrate as % of milk receipts		26%	25%	25%	26%
Purchased feed & crop expense/cwt. milk		\$5.19	\$5.12	\$5.06	\$5.08
Cull rate		30.8%	31.7%	28.5%	34.0%
<u>Capital Efficiency</u>					
Farm capital/worker		\$322,525	\$277,677	\$293,009	\$328,374
Farm capital/cow		\$7,487	\$7,534	\$7,007	\$7,055
Farm capital/tillable acre owned		\$6,673	\$6,991	\$7,187	\$7,876
Real estate/cow		\$3,076	\$2,960	\$2,554	\$2,641
Machinery investment/cow		\$1,291	\$1,447	\$1,295	\$1,109
Asset turnover ratio		0.59	0.60	0.63	0.67
<u>Labor Efficiency</u>					
Worker equivalent		5.89	9.40	11.95	23.15
Operator/manager equivalent		1.64	1.89	1.85	1.96
Milk sold/worker, lbs.		923,821	838,356	952,423	1,135,991
Cows/worker		43	37	42	47
Labor cost/cow		\$670	\$784	\$710	\$775
Labor cost/tillable acre		\$269	\$357	\$312	\$440

<sup>63</sup> Average of all farms, not only those reporting data.

## **SUPPLEMENTAL INFORMATION**

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

A word of caution to the reader on the interpretation of these data: It is the combination of resources and practices, and implementation of business management strategies by farmers that determine business performance. Examining one factor, while not holding all others constant, can lead to erroneous conclusions of cause and effect relationships. As an example, farms using bST have higher pounds of milk sold per cow. Is it exclusively bST or is it that farms using bST would have higher milk production per cow without bST? Keep this distinction in mind when reviewing the following data.

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

Farms specializing in only milk production are a growing trend in New York. In 2005, 15 participating farms, including owners and renters, purchased the majority of their feed, including all forages. Less than 10 acres of crops were harvested by the average farm. Table 57 highlights the income and expenses for these 15 farms compared to the income and expenses for 165 farms of similar size that grew their forages. Table 58 compares selected business factors for the two groups of farms. In 2005, the 15 farms buying forages were, on average, higher for most measures of profitability than the similar size farms growing forages. While milk receipts per cow were higher, operating costs of producing milk were also \$0.53 per hundredweight higher. However, net farm incomes per cow were identical.

### **Comparison by Type of Barn and Herd Size**

When analyzing a dairy farm business by comparing it to a group of farms, it is important that the group of farms have as many of the same physical characteristics as possible as the farm being analyzed. To assist in this endeavor, dairy farms in the summary have been divided into those with freestall and those with conventional housing. Conventional housing includes stanchion and tiestall barns. Within each group, is a further classification by size of the dairy herd. Table 59 on page 65 includes the average values for the resulting five groups of dairy farms. The average size in the five groups ranges from 44 cows on the small conventional farms to 712 cows on the largest freestall farms. The largest freestall farms averaged the highest milk output per cow and per worker, the lowest total cost of production and investment per cow, and the greatest returns to labor, management and capital.

Farm business charts have been computed for each of the five housing and herd size categories and are on pages 66-70. By comparing the farm's performance on the most appropriate business chart, a farm manager will be better able to evaluate his or her business performance. Each column of the farm business chart is independent of the others.

### **Comparison of Farms by bST Usage**

Farms adopting bovine somatotropin (bST) sold more milk per cow and had larger herds (Table 65). Farms using bST were also more profitable by all measures in 2005. However, their operating costs of producing milk per hundredweight were \$0.57 lower than farms not using bST.

Farms not using bST showed a 5.3 percent increase in pounds of milk sold per cow, from 18,647 pounds in 2001 to 19,630 pounds in 2005. Farms using bST increased milk sold per cow 3.1 percent, from 23,316 pounds per cow in 2001 to 24,049 pounds per cow in 2005. Farms that used bST in 2001 through 2005 were larger, and increased in size more rapidly than did farms not supplementing with bST. Farms not using bST increased by 14 cows, from an average of 136 cows in 2001 to 150 in 2005. Farms adopting bST increased by 70 cows, up to 443 cows in 2005. Farms using bST saw an increase in net farm income in 2005 as well as an increase in net worth. Debt to asset ratio and debt per cow changed very little over the study period. The reader is again reminded that bST is not solely responsible for the total changes, size and other factors are also significant.

### **Comparison of Data, Same Farms, 1996 - 2005**

Follow ten years of growth, change and progress made by 61 New York DFBS farms in Table 66, pages 72 and 73. Milk receipts per hundredweight are higher by \$0.99 and profitability is significantly higher in 2005 when compared to 1996. Care should be exercised in using these data to indicate change in the dairy industry since the composition of the sample of farms is different from the state as a whole, and there is considerable year-to-year variability in milk prices.

### **Receipts and Expenses per Hundredweight of Milk and Per Cow**

Average accrual receipts and expenses per cow and per hundredweight of milk sold are listed for 51 dairy farms selling less than 18,000 pounds of milk per cow, 73 farms with 18,000 to 22,000 pounds milk sold per cow, and 101 dairy farms selling 22,000 pounds and more in Table 67 on page 74. Table 68 on page 75 provides the same list of average accrual receipts and expenses for 56 farms averaging less than 80 cows per farm, 60 farms with 80 to 180 cows and 109 farms with 180 cows or more.

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

### **Intensive Grazing Farms vs. Non-Grazing Farms**

In 2005, 42 of the DFBS cooperators practiced intensive grazing. Intensive grazing means the dairy herd was on pasture for three months or more and was moved to a new paddock every third day or less and at least 30 percent of the forage was from pasture. The farms using intensive grazing are compared with a control group of non-grazing farms in Table 69. The control group is a selection of non-grazing dairy farms of similar size. In 2005, average profitability was higher on intensive grazing farms. Operating costs of producing milk were \$0.64 per hundredweight lower while total costs were 22 cents per hundredweight lower than the costs of production on the control farms. Table 69 also includes a comparison of 13 profitable grazing farms to 25 profitable non-grazing farms. A publication containing detailed information on New York farms using intensive grazing is available from the Department of Applied Economics and Management. An order form is included in the department website: <http://aem.cornell.edu/order/index.htm> or contact Linda Putnam (e-mail: [ldp2@cornell.edu](mailto:ldp2@cornell.edu), phone: 607-255-8429).

### **Comparison of Farms by Milking Frequency**

Thirty-two percent of the 225 DFBS farms utilized three times per day (3X) milking in 2005. Most of the remaining farms milked twice per day (2X). Two years of selected average business and cost of milk production factors from the two milking frequency groups are compared in Table 70.

In 2005, the 3X farms averaged 2 more cows per farm, sold 4.0 percent more milk per cow, decreased the total cost of producing milk by 1.1 percent, but showed an average \$27,891 decrease in net farm income, compared to the 3X farm averages for 2004. The 2X farms increased milk output per cow 5.7 percent, decreased total production costs \$0.63 per hundredweight but decreased average net farm income \$9,406 per farm in 2005 compared to 2004.

The 3X farms averaged 18.5 percent more milk per cow and 36 percent additional milk per worker in 2005 compared with the 2X farms. Similar differences were found in 2004. In 2005, the average total cost of producing milk was 8 percent lower on 3X farms than on 2X dairies. On the average, farmers milking 3X sold more milk per cow and per worker, produced milk at lower costs per hundredweight and received higher returns for their labor, management and capital than the average dairy farmer milking 2X. However, milking frequency was not the only, and probably not the most important, factor that contributed to financial success on these dairy farms. Comparison of herd size, crop yields, labor and capital efficiency indicates there are other important management differences contributing to higher profits.

### **Comparison of Dairy Farm Business Data by Region**

Average farm business summary data from five regions of the State are compared in Tables 71 and 72. The Western and Central Plain Region averaged the highest profitability, the largest average farm size and highest average rate of milk production. Dairy farmers in this region have increased milk production 21.7 percent from 1995-2005 and they produced milk for an average total cost of \$14.91 per hundredweight in 2005. Total milk production has declined 6.6 percent from 1995-2005 in the Central Valleys Region (Figure 2). However, this is the region with the second highest return per hundredweight to labor, management and capital. Northern New York Region had the highest return per hundredweight to labor, management and capital with \$2.98.

### **Other Comparisons**

Twenty dairy renter farms were smaller, on average, and averaged lower labor and management incomes than the average for 225 owned dairy farms (Table 73). A forthcoming publication contains detailed information on New York dairy renters (see <http://aem.cornell.edu/order/index.htm>). Data for the top 10 percent of farms by rate of return on all capital without appreciation is presented in Table 74. Additional data for the top 10 percent of farms is presented in many of the first 46 tables of this publication. Summary data for the 225 specialized dairy farms are presented in Table 75.

Table 57.

INCOME & EXPENSE COMPARISON FOR				
FARMS BUYING MAJORITY OF FORAGES VERSUS SIMILAR SIZE FARMS GROWING FORAGES, 2005				
Item	15 Farms Buying Majority of Forages		165 Similar Size Farms Growing Forages	
Number of cows per farm	202		214	
Pounds of milk sold	4,620,155		4,646,825	
<u>Income</u>	<u>Per Cow</u>	<u>Per Cwt.</u>	<u>Per Cow</u>	<u>Per Cwt.</u>
Milk sold	\$3,704	\$16.17	\$3,483	\$16.04
Dairy cattle	311	1.36	241	1.11
Dairy calves	126	0.55	54	0.25
Other livestock	2	0.01	14	0.06
Crops	5	0.02	78	0.36
Miscellaneous	<u>52</u>	<u>0.22</u>	<u>204</u>	<u>0.94</u>
Total Accrual Receipts	\$4,200	\$18.33	\$4,074	\$18.77
<u>Expenses</u>				
Hired labor	\$431	\$1.88	\$509	\$2.34
Dairy grain & concentrate	908	3.96	894	4.12
Dairy roughage	522	2.28	28	0.13
Nondairy	0	0.00	0	0.00
Professional nutritional services	3	0.01	1	0.00
Machinery hire, rent/lease	60	0.26	79	0.36
Machinery repairs/vehicle expense.	111	0.48	205	0.95
Fuel, oil & grease	70	0.30	132	0.61
Replacement livestock	92	0.40	14	0.06
Breeding	35	0.15	50	0.23
Veterinary & medicine	123	0.54	129	0.60
Milk marketing	161	0.70	176	0.81
Bedding	47	0.20	54	0.25
Milking supplies	92	0.40	77	0.35
Cattle lease/rent	0	0.00	2	0.01
Custom boarding	119	0.52	52	0.24
bST expense	19	0.08	35	0.16
Livestock professional fees	19	0.08	12	0.05
Other livestock expenses	20	0.09	28	0.13
Fertilizer & lime	7	0.03	87	0.40
Seeds & plants	14	0.06	56	0.26
Spray, other crop expenses	0	0.00	46	0.21
Crop professional fees	1	0.00	4	0.02
Land/bldg/fence repair	24	0.11	58	0.27
Taxes	24	0.11	57	0.26
Rent & lease	23	0.10	67	0.31
Insurance	28	0.12	42	0.19
Utilities	81	0.35	97	0.45
Interest paid	191	0.83	139	0.64
Other professional fees	16	0.07	18	0.08
Miscellaneous	<u>11</u>	<u>0.05</u>	<u>22</u>	<u>0.10</u>
Total Operating Expenses	\$3,246	\$14.19	\$3,167	\$14.59
Expansion livestock	\$116	\$0.51	\$30	\$0.14
Extraordinary expense	2	0.01	5	0.02
Machinery depreciation	132	0.58	195	0.90
Building depreciation	<u>130</u>	<u>0.57</u>	<u>103</u>	<u>0.48</u>
Total Accrual Expenses	\$3,626	\$15.86	\$3,500	\$16.12
Net Farm Income (without appreciation)	\$574	\$2.47	\$574	\$2.65

Table 58.

**SELECTED BUSINESS FACTORS FOR FARMS BUYING MAJORITY OF FORAGES  
VERSUS SIMILAR SIZE FARMS GROWING FORAGES, 2005**

Selected Factors	15 Farms Buying Majority of Forages	165 Similar Size Farms Growing Forages
<u>Size of Business</u>		
Average number of cows	202	214
Average number of heifers	122	172
Milk sold, lbs.	4,620,155	4,646,825
Worker equivalent	4.45	5.73
Total tillable acres	72	561
Tillable acres harvested	53	541
<u>Rates of Production</u>		
Milk sold per cow, lbs.	22,909	21,710
Hay DM per acre, tons	0.0	2.9
Corn silage per acre, tons	0.0	18.2
<u>Labor Efficiency &amp; Costs</u>		
Cows per worker	45	37
Milk sold/worker, lbs.	1,038,626	810,964
Hired labor cost/cwt.	\$1.88	\$2.34
Hired labor cost/worker	\$37,119	\$29,061
Hired labor cost as % of milk sales	11.6%	14.6%
<u>Cost Control</u>		
Grain & concentrate purchased as % of milk sales	25%	26%
Grain & concentrate per cwt. milk	\$3.96	\$4.12
Dairy feed & crop expense per cwt. milk	\$6.34	\$5.13
Labor & machinery costs/cow	\$1,118	\$1,443
Total farm operating costs per cwt. sold	\$14.19	\$14.59
Interest costs per cwt. milk	\$0.83	\$0.64
Milk marketing costs per cwt. milk sold	\$0.70	\$0.81
Operating cost of producing cwt. of milk	\$12.53	\$12.00
<u>Capital Efficiency(average for the year)</u>		
Farm capital per cow	\$5,857	\$7,924
Machinery & equipment per cow	\$775	\$1,559
Asset turnover ratio	0.77	0.55
<u>Income Generation</u>		
Gross milk sales per cow	\$3,704	\$3,483
Gross milk sales per cwt.	\$16.17	\$16.04
Net milk sales per cwt.	\$15.47	\$15.23
Dairy cattle sales per cow	\$311	\$241
Dairy calf sales per cow	\$126	\$54
<u>Profitability</u>		
Net farm income without appreciation	\$114,463	\$123,018
Net farm income with appreciation	\$177,399	\$176,193
Labor & management income per operator/manager	\$56,918	\$38,001
Rate of return on equity capital without appreciation	10.7%	5.5%
Rate of return on all capital without appreciation	7.7%	5.5%
<u>Cash flow</u>		
Principal & interest payments per cow, 2005	\$608	\$534
Net cash flow	\$158,152	\$187,064
<u>Financial Summary</u>		
Farm net worth, end year	\$549,323	\$1,206,689
Farm net worth change from last year, %	29.8%	9.8%
Debt to asset ratio	0.57	0.31
Farm debt per cow	\$3,451	\$2,535



Table 59.

**SELECTED BUSINESS FACTORS BY TYPE OF BARN AND HERD SIZE**  
**212 New York Dairy Farms, 2005**

Item	Farms with:	Conventional		Freestall		
		<= 60 Cows	>60 Cows	<=150 Cows	151-300 Cows	≥300 Cows
Number of farms		31	31	38	28	84
<u>Cropping Program Analysis</u>						
Total Tillable acres		154	318	299	570	1,373
Tillable acres rented <sup>64</sup>		57	133	123	290	713
Hay crop acres <sup>64</sup>		102	217	181	289	631
Corn silage acres <sup>64</sup>		15	49	75	172	527
Hay crop, tons DM/acre		1.9	2.2	2.3	2.9	3.6
Corn silage, tons/acre		15.8	16.8	17.3	18.5	19.0
Oats, bushels/acre		40	44	65	54	60
Forage DM per cow, tons		7.1	8.7	8.2	8.9	8.2
Tillable acres/cow		3.8	3.7	2.8	2.6	2.0
Fertilizer & lime expense/tillable acre		\$22.09	\$25.63	\$34.03	\$32.66	\$40.00
Total machinery costs		\$30,193	\$64,228	\$73,459	\$162,980	\$432,988
Machinery cost/tillable acre		\$184	\$202	\$233	\$280	\$308
<u>Dairy Analysis</u>						
Number of cows		44	87	110	225	712
Number of heifers		33	71	89	170	566
Milk sold, lbs.		809,313	1,578,164	2,093,965	4,946,138	16,964,544
Milk sold/cow, lbs.		18,448	18,119	19,078	21,979	23,840
Operating cost of producing milk/cwt.		\$10.62	\$11.41	\$12.37	\$12.05	\$12.33
Total cost of producing milk/cwt.		\$18.51	\$18.09	\$18.24	\$15.93	\$15.06
Price/cwt. milk sold		\$15.77	\$15.93	\$16.25	\$15.99	\$15.96
Purchased dairy feed/cow		\$896	\$744	\$912	\$970	\$1,038
Purchased dairy feed/cwt. milk		\$4.86	\$4.10	\$4.78	\$4.41	\$4.35
Purchased grain & concentrate as % of milk receipts		28%	26%	28%	26%	26%
Purchased feed & crop expense/cwt milk		\$5.49	\$5.08	\$5.78	\$5.22	\$5.08
<u>Capital Efficiency</u>						
Farm capital/worker		\$232,663	\$314,528	\$328,364	\$328,280	\$313,237
Farm capital/cow		\$9,705	\$10,219	\$10,052	\$7,965	\$7,096
Farm capital/tillable acre owned		\$4,398	\$4,816	\$6,264	\$6,415	\$7,643
Real estate/cow		\$4,773	\$4,721	\$4,818	\$3,316	\$2,663
Machinery investment/cow		\$1,931	\$2,243	\$1,980	\$1,414	\$1,184
Asset turnover ratio		0.39	0.37	0.39	0.56	0.66
<u>Labor Efficiency</u>						
Worker equivalent		1.83	2.83	3.36	5.46	16.12
Operator/manager equivalent		1.22	1.37	1.35	1.68	1.91
Milk sold/worker, lbs.		442,852	557,820	623,668	906,024	1,052,609
Cows/worker		24	31	33	41	44
Labor cost/cow		\$1,031	\$804	\$830	\$703	\$759
Labor cost/tillable acre		\$294	\$220	\$305	\$277	\$394
<u>Profitability &amp; Balance Sheet Analysis</u>						
Net farm income (without appreciation)		\$30,415	\$44,400	\$50,620	\$125,390	\$395,349
Labor & management income/operator		\$6,747	\$1,248	\$-587	\$37,627	\$128,918
Rate return on all capital with appreciation		2.8%	5.0%	4.8%	9.6%	12.2%
Farm debt/cow		\$2,483	\$1,948	\$2,112	\$2,691	\$2,935
Percent equity		75%	81%	79%	67%	60%

<sup>64</sup>Average of all farms, not only those reporting data.

Table 60.

**FARM BUSINESS CHART FOR SMALL CONVENTIONAL STALL DAIRY FARMS**  
**31 Conventional Stall Dairy Farms with 60 or Less Cows, New York, 2005**

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
2.86	57	1,189,123	23,541	5.0	30	41	825,592
2.32	53	1,047,638	22,342	3.1	22	35	649,589
2.13	52	973,127	21,443	2.8	20	32	575,736
2.00	50	953,644	20,147	2.5	20	27	519,129
1.95	47	904,447	19,124	2.2	19	25	481,939
-----							
1.69	44	816,332	18,076	2.0	18	24	452,263
1.55	42	742,056	16,569	1.8	16	22	385,997
1.51	38	657,436	15,809	1.5	14	19	314,544
1.40	33	529,320	14,672	1.4	12	19	289,541
1.11	28	412,331	13,233	0.8	8	16	253,934
-----							
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		
\$408	15%	\$274	\$1,132	\$601	\$3.55		
617	22	402	1,337	770	4.16		
670	24	482	1,442	854	4.62		
722	25	584	1,562	885	4.91		
803	26	638	1,674	981	5.10		
-----							
850	28	688	1,757	1,028	5.49		
879	29	753	1,832	1,067	5.96		
916	30	838	1,966	1,176	6.54		
949	37	949	2,156	1,299	7.39		
1,145	45	1,049	2,580	1,499	8.52		
-----							
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Operating Cost Producing Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Income Per Operator	Change in Net Worth w/Appreciation	
			Total	Per Cow			
\$3,825	\$7.42	\$14.10	\$70,780	\$1,506	\$47,558	\$78,381	
3,526	8.23	15.63	58,315	1,313	26,450	54,391	
3,323	8.68	17.08	50,743	1,131	21,256	38,532	
3,152	9.49	17.76	43,324	987	14,808	30,394	
2,983	10.68	18.50	33,447	790	9,422	23,040	
-----							
2,853	11.09	19.40	28,470	646	5,535	18,524	
2,705	11.57	20.30	21,432	531	605	15,749	
2,439	12.06	21.10	15,970	371	-5,416	14,107	
2,326	13.62	21.60	6,936	182	-10,121	7,061	
1,969	15.42	25.63	-10,045	-240	-26,286	-6,421	

Table 61.

**FARM BUSINESS CHART FOR LARGE CONVENTIONAL STALL DAIRY FARMS**  
**31 Conventional Stall Dairy Farms with More Than 60 Cows, New York, 2005**

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
4.41	136	2,390,973	24,287	4.6	22	49	866,514
2.62	116	2,123,063	22,502	3.6	20	40	760,803
3.20	100	1,928,511	20,509	3.2	20	36	709,057
3.07	90	1,687,204	19,980	2.6	19	35	632,081
2.82	82	1,572,642	18,616	2.1	18	33	608,502
2.65	78	1,421,559	17,917	2.1	17	30	589,163
2.50	74	1,353,972	17,261	1.9	16	29	527,105
2.33	71	1,242,032	16,133	1.5	15	27	461,767
2.24	67	1,171,181	14,654	1.4	14	24	408,359
1.79	64	1,062,421	13,193	1.0	11	21	331,299
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		
\$378	13%	\$422	\$1,043	\$554	\$3.42		
572	19	519	1,205	743	3.96		
637	21	550	1,329	809	4.23		
682	24	583	1,441	890	4.44		
721	25	622	1,489	943	4.73		
785	27	663	1,505	967	5.21		
829	28	718	1,661	1,001	5.59		
885	30	777	1,776	1,091	6.42		
926	34	966	1,948	1,157	7.03		
1,090	39	1,480	2,229	1,317	7.48		
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Operating Cost Producing Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Income Per Operator	Change in Net Worth w/Appreciation	
			Total	Per Cow			
\$3,634	\$7.01	\$14.46	\$114,410	\$1,251	\$44,313	\$225,399	
3,453	9.61	15.68	84,829	987	30,595	85,675	
3,280	10.27	16.41	70,801	839	26,317	66,579	
3,218	10.89	17.13	55,882	700	12,374	56,433	
2,998	11.50	17.67	48,356	582	4,634	47,074	
2,905	12.23	18.44	37,967	435	-2,666	31,419	
2,763	12.90	18.86	25,112	295	-7,127	24,657	
2,597	13.38	20.46	22,232	222	-14,810	13,014	
2,357	14.07	21.65	15,161	181	-23,356	-1,256	
2,187	16.16	25.18	-11,962	-175	-57,765	-26,428	

Table 62.

**FARM BUSINESS CHART FOR SMALL FREESTALL DAIRY FARMS**  
**38 Freestall Barn Dairy Farms with 150 or Less Cows, New York, 2005**

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
4.99	148	3,218,784	23,231	4.8	25	55	915,575
4.61	143	2,912,681	22,322	3.8	22	43	844,734
4.25	137	2,744,959	21,874	3.5	21	39	750,618
4.02	131	2,487,384	20,421	3.1	20	35	701,876
3.69	121	2,274,861	19,645	2.7	20	34	670,136
-----							
3.16	111	2,169,733	19,059	2.3	18	32	603,698
2.87	101	1,889,125	18,321	2.0	17	31	555,069
2.59	86	1,515,347	17,755	1.7	15	30	526,547
2.26	80	1,286,965	15,437	1.5	13	28	484,138
1.85	58	925,696	12,531	1.1	11	21	370,640
-----							
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		
\$459	17%	\$341	\$881	\$622	\$3.66		
644	22	428	1,241	845	4.60		
735	25	495	1,281	913	4.99		
800	26	541	1,337	999	5.41		
822	27	592	1,408	1,109	5.80		
-----							
867	29	658	1,477	1,189	6.15		
969	31	738	1,627	1,228	6.47		
1,049	33	817	1,808	1,295	6.82		
1,110	36	953	1,980	1,327	7.22		
1,201	38	1,120	2,299	1,498	7.63		
-----							
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Operating Cost Producing Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Income Per Operator	Change in Net Worth w/Appreciation	
			Total	Per Cow			
\$3,716	\$7.99	\$14.38	\$162,851	\$1,249	\$50,475	\$271,925	
3,573	10.01	15.50	89,832	931	33,588	117,660	
3,495	11.36	16.84	76,800	721	22,607	83,820	
3,350	11.75	17.38	66,156	609	14,453	61,204	
3,225	12.26	17.64	58,368	507	9,314	49,843	
-----							
3,094	12.77	18.04	44,409	438	3,942	39,642	
2,936	13.49	19.03	38,622	403	-4,105	35,853	
2,780	14.12	21.13	28,392	223	-13,484	25,027	
2,473	14.95	23.34	2,690	53	-39,197	17,207	
2,162	17.08	27.47	-24,063	-199	-106,723	-6,368	

Table 63.

**FARM BUSINESS CHART FOR MEDIUM FREESTALL DAIRY FARMS**  
**28 Freestall Barn Dairy Farms with 151-300 Cows, New York, 2005**

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
7.04	296	6,813,634	25,180	6.4	28	57	1,296,070
6.95	292	6,568,786	24,341	4.4	25	52	1,136,361
6.66	280	6,188,089	23,836	3.9	23	50	1,087,434
6.30	259	5,659,883	23,354	3.7	23	47	1,013,032
6.03	234	5,327,820	22,744	3.5	20	42	994,149
5.74	214	4,882,803	22,204	3.0	18	42	941,052
4.83	199	4,484,966	21,761	2.5	17	41	877,311
4.52	189	3,890,557	20,569	2.0	16	37	778,070
3.95	175	3,673,181	19,341	1.8	14	34	703,457
3.59	158	3,135,039	17,574	1.4	10	28	594,609
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		
\$599	18%	\$491	\$1,127	\$809	\$3.93		
710	21	574	1,212	882	4.18		
842	23	647	1,275	990	4.55		
860	26	672	1,341	1,069	5.03		
946	27	708	1,370	1,151	5.24		
1,008	28	772	1,413	1,196	5.40		
1,014	29	818	1,559	1,263	5.58		
1,052	30	884	1,684	1,326	5.94		
1,119	31	993	1,875	1,360	6.10		
1,204	34	1,051	2,003	1,545	7.04		
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Operating Cost Producing Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Income Per Operator	Change in Net Worth w/Appreciation	
			Total	Per Cow			
\$3,933	\$9.54	\$12.58	\$274,958	\$1,254	\$221,039	\$305,412	
3,857	10.47	14.09	232,699	1,047	186,550	235,896	
3,783	11.27	15.04	189,270	726	72,887	220,859	
3,716	11.64	15.78	154,484	654	56,724	179,970	
3,620	11.91	16.16	123,053	618	38,662	148,534	
3,607	12.32	16.56	110,625	492	29,235	125,600	
3,503	12.80	17.32	103,461	413	22,830	96,896	
3,334	13.49	17.88	89,762	383	14,243	67,367	
3,179	14.15	18.14	67,569	331	2,708	31,944	
2,770	16.44	20.92	-6,360	-59	-76,410	-55,414	

Table 64.

**FARM BUSINESS CHART FOR LARGE FREESTALL DAIRY FARMS**  
**84 Freestall Barn Dairy Farms with 300 or More Cows, New York, 2005**

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
36.36	1,804	44,487,471	27,672	6.2	26	63	1,427,011
24.34	1,103	27,109,378	26,077	4.9	23	53	1,237,728
20.35	901	21,889,641	25,371	4.4	21	51	1,165,112
17.07	727	17,415,908	24,623	3.9	20	47	1,106,904
14.44	604	14,927,028	23,948	3.6	19	45	1,080,233
13.48	548	12,737,762	23,516	3.4	18	43	1,037,931
11.63	477	11,045,969	22,928	2.9	18	41	977,179
10.40	421	9,129,451	22,218	2.7	17	37	870,012
9.30	366	8,102,366	21,579	2.5	16	34	775,500
7.06	322	6,887,120	17,809	2.0	14	30	659,263
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		
\$675	20%	\$401	\$993	\$900	\$4.09		
819	22	495	1,152	1,031	4.49		
864	23	551	1,247	1,078	4.70		
904	24	589	1,330	1,138	4.84		
945	25	620	1,398	1,182	4.98		
972	26	649	1,435	1,224	5.14		
1,017	28	676	1,479	1,259	5.44		
1,074	28	714	1,540	1,318	5.63		
1,120	29	772	1,615	1,408	5.81		
1,241	31	933	1,786	1,534	6.57		
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Operating Cost Producing Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Income Per Operator	Change in Net Worth w/Appreciation	
			Total	Per Cow			
\$4,553	\$10.23	\$13.29	\$1,232,916	\$1,144	\$478,623	\$1,453,451	
4,216	11.01	13.91	655,212	885	303,565	861,305	
4,016	11.32	14.24	544,342	771	213,810	584,421	
3,906	11.70	14.58	409,888	679	165,416	482,612	
3,801	12.04	14.91	352,173	634	128,894	382,219	
3,737	12.28	15.31	304,993	555	93,745	307,674	
3,635	12.76	15.70	240,293	479	78,121	241,438	
3,520	13.19	15.99	191,083	388	53,187	174,808	
3,387	13.64	16.45	145,440	265	16,143	110,578	
2,997	14.98	18.75	2,422	-8	-94,333	-93,007	

Table 65.

**bST NON-USERS VS. USERS**  
**Same 60 Farms, 2001 - 2005**

Selected Factors	30 Farms Not Using bST in 2001 - 2005					30 Farms Using bST in 2001 - 2005				
	2001	2002	2003	2004	2005	2001	2002	2003	2004	2005
<b>Size of Business</b>										
Average number of cows	136	141	142	143	150	373	404	419	430	443
Average number of heifers	97	99	102	102	105	288	319	332	342	362
Milk sold, cwt.	25,329	27,403	26,731	27,880	29,425	86,952	95,807	99,091	99,382	106,600
Worker equivalent	3.71	3.86	3.82	3.90	3.91	9.20	9.62	10.09	10.35	10.61
Total tillable acres	325	333	333	339	346	811	863	899	968	984
<b>Rates of Production</b>										
Milk sold per cow, lbs.	18,647	19,431	18,798	19,438	19,630	23,316	23,715	23,625	23,128	24,049
Hay DM per acre, tons	2.6	2.5	2.6	2.8	2.1	3.1	3.4	3.3	3.5	3.8
Corn silage per acre, tons	16	13	17	17	17	17	16	18	19	20
<b>Labor Efficiency</b>										
Cows per worker	37	37	37	37	39	41	42	42	42	42
Milk sold per worker, lbs.	681,953	710,541	699,452	714,721	752,083	944,879	995,917	982,393	959,903	1,004,558
<b>Cost Control</b>										
Grain & concentrate purchased as percent of milk sales	24%	31%	34%	29%	28%	24%	28%	29%	26%	25%
Dairy feed and crop expense per cwt. milk	\$5.13	\$4.96	\$5.24	\$5.86	\$5.68	\$4.71	\$4.57	\$4.69	\$5.35	\$4.91
Labor and mach. costs per cow	\$1,233	\$1,248	\$1,256	\$1,331	\$1,340	\$1,292	\$1,259	\$1,247	\$1,357	\$1,416
Operating cost of producing milk per cwt.	\$11.63	\$10.30	\$11.01	\$12.58	\$12.43	\$11.77	\$10.86	\$11.34	\$12.50	\$11.86
<b>Capital Efficiency (avg. for year)</b>										
Farm capital per cow	\$7,002	\$7,123	\$7,218	\$7,559	\$7,925	\$6,771	\$6,723	\$6,758	\$7,087	\$7,592
Machinery and equip. per cow	\$1,385	\$1,420	\$1,434	\$1,497	\$1,579	\$1,203	\$1,215	\$1,227	\$1,274	\$1,369
Asset turnover ratio	0.53	0.44	0.44	0.53	0.53	0.67	0.55	0.56	0.65	0.63
<b>Profitability</b>										
Net farm income without apprec	\$85,178	\$38,011	\$32,529	\$94,117	\$69,532	\$243,373	\$80,825	\$72,379	\$293,492	\$305,131
Net farm income with apprec.	\$121,089	\$49,724	\$55,045	\$126,327	\$140,632	\$356,853	\$109,847	\$151,274	\$402,063	\$430,345
Labor & management income per operator/manager	\$29,443	\$-2,447	\$-8,283	\$36,757	\$14,616	\$94,757	\$-1,314	\$-7,618	\$128,449	\$124,615
Rate return on equity capital with appreciation	11.8%	0.2%	0.8%	10.3%	10.8%	18.9%	2.2%	4.8%	18.5%	17.3%
Rate return on all capital with appreciation	10.1%	1.9%	2.1%	8.6%	9.2%	13.7%	3.2%	4.5%	12.5%	12.5%
<b>Financial Summary (end of year)</b>										
Farm net worth	\$672,051	\$679,825	\$706,522	\$798,619	\$892,451	\$1,614,996	\$1,565,759	\$1,623,541	\$1,906,381	\$2,183,662
Debt to asset ratio	0.33	0.33	0.32	0.29	0.29	0.40	0.43	0.44	0.40	0.38
Farm debt per cow	\$2,369	\$2,295	\$2,324	\$2,283	\$2,361	\$2,732	\$2,853	\$3,038	\$2,915	\$2,945

Table 66.

**COMPARISON OF FARM BUSINESS SUMMARY DATA**  
**Same 61 New York Dairy Farms, 1996 - 2005**

Selected Factors	1996	1997	1998	1999
Milk receipts per cwt. milk	\$15.05	\$13.75	\$15.71	\$15.22
<u>Size of Business</u>				
Average number of cows	255	271	290	307
Average number of heifers	184	201	223	229
Milk sold, cwt.	54,398	59,423	63,265	69,290
Worker equivalent	6.45	6.83	7.18	7.51
Total tillable acres	578	608	636	666
<u>Rates of Production</u>				
Milk sold per cow, lbs.	21,364	21,923	21,822	22,568
Hay DM per acre, tons	3.0	2.7	3.4	3.2
Corn silage per acre, tons	16	16	21	17
<u>Labor Efficiency</u>				
Cows per worker	39	40	40	41
Milk sold per worker, lbs.	843,165	870,133	881,639	922,427
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	30%	31%	25%	24%
Dairy feed & crop expense per cwt. milk	\$5.33	\$5.31	\$5.00	\$4.69
Operating cost of producing cwt. milk	\$11.94	\$11.65	\$11.49	\$11.17
Total cost of producing cwt. milk	\$14.69	\$14.25	\$14.35	\$14.08
Hired labor cost per cwt.	\$2.21	\$2.14	\$2.27	\$2.37
Interest paid per cwt.	\$0.81	\$0.85	\$0.84	\$0.73
Labor & machinery costs per cow	\$1,073	\$1,038	\$1,122	\$1,204
Replacement livestock expense	\$10,970	\$12,675	\$15,027	\$15,420
Expansion livestock expense	\$15,944	\$16,259	\$18,994	\$16,639
<u>Capital Efficiency</u>				
Farm capital per cow	\$5,636	\$6,139	\$6,269	\$6,492
Machinery & equipment per cow	\$1,075	\$1,122	\$1,190	\$1,248
Real estate per cow	\$2,358	\$2,479	\$2,426	\$2,452
Livestock investment per cow	\$1,490	\$1,505	\$1,517	\$1,548
Asset turnover ratio	0.64	0.55	0.64	0.62
<u>Profitability</u>				
Net farm income without appreciation	\$113,109	\$69,634	\$195,679	\$198,574
Net farm income with appreciation	\$126,843	\$76,980	\$239,548	\$242,759
Labor & management income per operator/manager	\$43,922	\$11,887	\$88,496	\$83,018
Rate return on:				
Equity capital with appreciation	8.8%	2.7%	17.2%	15.2%
All capital with appreciation	8.0%	4.6%	13.0%	11.7%
All capital without appreciation	7.1%	4.2%	10.6%	9.5%
<u>Financial Summary, End Year</u>				
Farm net worth	\$971,252	\$982,136	\$1,150,057	\$1,260,017
Change in net worth with appreciation	\$79,776	\$16,493	\$166,960	\$122,041
Debt to asset ratio	0.40	0.42	0.40	0.39
Farm debt per cow	\$2,119	\$2,591	\$2,560	\$2,612



Table 66. (continued)

**COMPARISON OF FARM BUSINESS SUMMARY DATA**  
**Same 61 New York Dairy Farms, 1996 - 2005**

2000	2001	2002	2003	2004	2005
\$13.39	\$15.92	\$12.95	\$13.34	\$16.59	\$16.04
326	345	358	395	403	417
242	257	275	303	311	331
73,725	77,473	82,668	91,129	92,147	98,592
7.78	8.09	8.35	9.33	9.58	9.73
685	702	724	787	830	857
22,618	22,460	23,110	23,063	22,842	23,658
3.7	3.1	3.4	3.3	3.5	3.5
15	17	15	18	18	19
42	43	43	42	42	43
947,110	958,127	989,546	976,736	962,368	1,013,187
27%	25%	30%	31%	27%	27%
\$4.55	\$4.90	\$4.78	\$5.01	\$5.58	\$5.22
\$11.33	\$12.32	\$11.14	\$11.65	\$12.56	\$12.33
\$14.23	\$15.35	\$14.11	\$14.39	\$15.40	\$15.30
\$2.43	\$2.59	\$2.65	\$2.72	\$2.80	\$2.71
\$0.88	\$0.78	\$0.58	\$0.53	\$0.55	\$0.61
\$1,225	\$1,291	\$1,295	\$1,278	\$1,342	\$1,397
\$19,072	\$15,946	\$13,302	\$17,912	\$16,670	\$16,600
\$35,386	\$33,472	\$13,711	\$14,823	\$18,137	\$15,648
\$6,580	\$6,654	\$6,780	\$6,592	\$6,888	\$7,303
\$1,282	\$1,274	\$1,294	\$1,226	\$1,259	\$1,336
\$2,430	\$2,492	\$2,529	\$2,449	\$2,549	\$2,634
\$1,607	\$1,688	\$1,781	\$1,794	\$1,865	\$1,985
0.57	0.65	0.54	0.56	0.67	0.64
\$64,276	\$177,050	\$36,421	\$48,523	\$257,469	\$237,663
\$110,602	\$277,216	\$86,125	\$110,834	\$376,776	\$357,302
\$-1,770	\$61,798	\$-21,508	\$-19,397	\$110,154	\$87,433
3.8%	15.5%	1.6%	3.0%	19.0%	15.2%
5.3%	11.9%	2.9%	3.6%	13.0%	11.4%
3.1%	7.5%	0.9%	1.2%	8.7%	7.5%
\$1,280,394	\$1,462,029	\$1,431,011	\$1,508,973	\$1,778,728	\$2,022,213
\$10,158	\$179,055	\$-19,692	\$39,503	\$300,090	\$250,367
0.42	0.40	0.41	0.44	0.39	0.36
\$2,659	\$2,694	\$2,795	\$2,941	\$2,765	\$2,732

Table 67.

**FARM RECEIPTS AND EXPENSES PER COW AND PER  
HUNDREDWEIGHT FOR THREE LEVELS OF MILK PRODUCTION  
225 New York Dairy Farms, 2005**

Item	51 Dairy Farms Milk/Cow <18,000#		73 Dairy Farms Milk/Cow 18,000-21,999#		101 Dairy Farms Milk/Cow ≥22,000#	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<u>ACCRUAL RECEIPTS</u>						
Milk sales	\$2,611	\$17.02	\$3,296	\$16.05	\$3,880	\$15.90
Dairy cattle	207	1.35	232	1.13	260	1.07
Dairy calves	50	0.32	58	0.28	70	0.29
Other livestock	4	0.02	15	0.07	6	0.02
Crops	55	0.36	71	0.35	65	0.27
Government receipts	91	0.59	115	0.56	108	0.44
All other	<u>118</u>	<u>0.78</u>	<u>58</u>	<u>0.28</u>	<u>61</u>	<u>0.25</u>
TOTAL ACCRUAL RECEIPTS	\$3,136	\$20.44	\$3,845	\$18.72	\$4,450	\$18.24
<u>ACCRUAL EXPENSES</u>						
<u>Labor</u> : Hired	\$ 309	\$ 2.01	\$ 447	\$ 2.18	\$ 683	\$ 2.80
<u>Feed</u> : Dairy grain & concentrate	715	4.66	871	4.24	984	4.03
Dairy roughage	48	0.31	43	0.21	69	0.28
Nondairy	1	0.00	0	0.00	0	0.00
Professional nutritional services	1	0.01	2	0.01	1	0.00
<u>Machinery</u> : Mach. hire, rent & lease	66	0.43	66	0.32	62	0.25
Machinery repairs & vehicle expense	193	1.26	190	0.92	181	0.74
Fuel, oil & grease	108	0.70	126	0.62	124	0.51
<u>Livestock</u> : Replacement livestock	20	0.13	23	0.11	26	0.11
Breeding	28	0.18	51	0.25	53	0.22
Vet & medicine	76	0.49	127	0.62	153	0.63
Milk marketing	144	0.94	169	0.82	178	0.73
Bedding	33	0.21	44	0.21	77	0.32
Milking supplies	69	0.45	76	0.37	81	0.33
Cattle lease & rent	0	0.00	3	0.01	5	0.02
Custom boarding	16	0.10	54	0.26	78	0.32
bST expense	13	0.08	13	0.06	60	0.25
Livestock professional fees	9	0.06	13	0.06	11	0.04
Other livestock expense	32	0.21	26	0.13	23	0.09
<u>Crops</u> : Fertilizer & lime	92	0.60	76	0.37	76	0.31
Seeds & plants	36	0.24	50	0.24	52	0.22
Spray & other crop expense	30	0.20	48	0.24	38	0.16
Crop professional fees	3	0.02	4	0.02	6	0.02
<u>Real Estate</u> : Land, building & fence repair	45	0.30	43	0.21	63	0.26
Taxes	68	0.44	62	0.30	48	0.20
Rent & lease	56	0.36	61	0.30	63	0.26
<u>Other</u> : Insurance	43	0.28	43	0.21	35	0.14
Utilities (farm share)	86	0.56	87	0.43	91	0.37
Interest paid	121	0.79	147	0.72	153	0.63
Other professional fees	10	0.07	17	0.08	20	0.08
Miscellaneous	<u>18</u>	<u>0.11</u>	<u>18</u>	<u>0.09</u>	<u>24</u>	<u>0.10</u>
TOTAL OPERATING EXPENSES	\$2,487	\$16.22	\$3,003	\$14.62	\$3,520	\$14.42
Expansion livestock	24	0.15	18	0.09	40	0.16
Extraordinary expense	8	0.05	5	0.02	2	0.01
Machinery depreciation	188	1.23	211	1.03	184	0.75
Building depreciation	<u>65</u>	<u>0.42</u>	<u>105</u>	<u>0.51</u>	<u>123</u>	<u>0.50</u>
TOTAL ACCRUAL EXPENSES	\$2,772	\$18.07	\$3,342	\$16.27	\$3,869	\$15.84

Table 68.

**FARM RECEIPTS AND EXPENSES PER COW AND PER  
HUNDREDWEIGHT FOR THREE HERD SIZE CATEGORIES  
225 New York Dairy Farms, 2005**

Item	56 Dairy Farms with <80 Cows		60 Dairy Farms with 80-180 Cows		109 Dairy Farms with ≥ 180 Cows	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<u>ACCRUAL RECEIPTS</u>						
Milk sales	\$2,897	\$15.77	\$3,114	\$16.21	\$3,771	\$15.97
Dairy cattle	249	1.36	211	1.10	255	1.08
Dairy calves	64	0.35	58	0.30	67	0.28
Other livestock	24	0.13	5	0.03	7	0.03
Crops	73	0.40	74	0.39	64	0.27
Government receipts	89	0.48	127	0.66	107	0.45
All other	<u>85</u>	<u>0.47</u>	<u>86</u>	<u>0.44</u>	<u>61</u>	<u>0.26</u>
TOTAL ACCRUAL RECEIPTS	\$3,481	\$18.96	\$3,675	\$19.13	\$4,332	\$18.34
<u>ACCRUAL EXPENSES</u>						
<u>Labor</u> : Hired	\$ 158	\$ 0.86	\$ 375	\$ 1.95	\$ 657	\$ 2.78
<u>Feed</u> : Dairy grain & concentrate	778	4.23	814	4.24	964	4.08
Dairy roughage	69	0.37	30	0.16	66	0.28
Nondairy	1	0.00	0	0.00	0	0.00
Professional nutritional services	1	0.00	1	0.00	1	0.00
<u>Machinery</u> : Mach. hire, rent & lease	57	0.31	47	0.25	65	0.28
Mach. repairs & vehicle expense	199	1.08	225	1.17	179	0.76
Fuel, oil & grease	125	0.68	138	0.72	121	0.51
<u>Livestock</u> : Replacement livestock	47	0.26	5	0.03	26	0.11
Breeding	48	0.26	46	0.24	51	0.22
Vet & medicine	85	0.46	110	0.57	148	0.63
Milk marketing	170	0.92	185	0.96	173	0.73
Bedding	25	0.14	38	0.20	73	0.31
Milking supplies	80	0.44	83	0.43	79	0.33
Cattle lease & rent	0	0.00	1	0.00	4	0.02
Custom boarding	14	0.07	36	0.19	75	0.32
bST expense	12	0.07	25	0.13	52	0.22
Livestock professional fees	17	0.09	13	0.07	11	0.04
Other livestock expense	49	0.27	37	0.19	22	0.09
<u>Crops</u> : Fertilizer & lime	77	0.42	88	0.46	76	0.32
Seeds & plants	41	0.22	46	0.24	52	0.22
Spray & other crop expense	29	0.16	49	0.26	39	0.16
Crop professional fees	0	0.00	2	0.01	6	0.02
<u>Real Estate</u> : Land, building & fence repair	52	0.29	48	0.25	60	0.25
Taxes	98	0.53	73	0.38	48	0.20
Rent & lease	35	0.19	58	0.30	64	0.27
<u>Other</u> : Insurance	65	0.35	51	0.26	35	0.15
Utilities (farm share)	114	0.62	105	0.55	87	0.37
Interest paid	133	0.72	123	0.64	153	0.65
Other professional fees	10	0.05	12	0.06	20	0.09
Miscellaneous	<u>25</u>	<u>0.13</u>	<u>21</u>	<u>0.11</u>	<u>23</u>	<u>0.10</u>
TOTAL OPERATING EXPENSES	\$2,624	\$14.22	\$2,894	\$15.02	\$3,428	\$14.51
Expansion livestock	42	0.23	12	0.06	37	0.15
Extraordinary expense	5	0.03	10	0.05	2	0.01
Machinery depreciation	198	1.07	205	1.06	187	0.79
Building depreciation	<u>65</u>	<u>0.35</u>	<u>83</u>	<u>0.43</u>	<u>121</u>	<u>0.51</u>
TOTAL ACCRUAL EXPENSES	\$2,934	\$15.90	\$3,204	\$16.62	\$3,775	\$15.97

Table 69.

**INTENSIVE GRAZING FARMS VS. NON-GRAZING FARMS**  
**New York State Dairy Farms, 2005**

Item	All Intensive Grazing Farms <sup>65</sup>	Non-Grazing Farms <sup>66</sup>	Profitable Grazing Farms <sup>67</sup>	Profitable Non- Grazing Farms <sup>68</sup>
Number of farms	42	69	13	25
<b><u>Business Size &amp; Production</u></b>				
Number of cows	95	94	115	113
Number of heifers	76	78	94	97
Milk sold, lbs.	1,586,813	1,863,199	1,852,540	2,410,000
Milk sold/cow, lbs.	16,783	19,769	16,174	21,418
Milk plant test, % butterfat	3.81%	3.66%	3.84%	3.56%
Cull rate	25.3%	29.0%	22.8%	31.3%
Tillable acres, total	264	280	297	348
Hay crop, tons DM/acre	1.9	2.5	2.0	2.6
Corn silage, tons/acre	14.9	17.4	16.6	20.8
Forage DM/cow, tons	5.0	8.9	4.0	9.3
<b><u>Labor &amp; Capital Efficiency</u></b>				
Worker equivalent	2.70	3.03	2.61	3.33
Milk sold/worker, lbs.	587,165	615,086	709,106	724,449
Cows/worker	35	31	44	34
Farm capital/worker	\$263,554	\$304,930	\$296,577	\$290,491
Farm capital/cow	\$7,526	\$9,803	\$6,758	\$8,597
Farm capital/cwt. milk	\$45	\$49	\$42	\$40
Machinery & equipment per cow	\$1,337	\$1,819	\$1,113	\$2,062
<b><u>Milk Production Costs &amp; Returns</u></b>				
Selected costs/cwt.:				
Hired labor	\$1.82	\$1.60	\$1.60	\$1.57
Grain & concentrate	\$3.99	\$4.31	\$3.87	\$3.82
Purchased roughage	\$0.49	\$0.27	\$0.55	\$0.20
Replacements purchased	\$0.15	\$0.09	\$0.01	\$0.04
Vet & medicine	\$0.40	\$0.57	\$0.37	\$0.56
Milk marketing	\$0.94	\$0.96	\$0.81	\$0.74
Other dairy expenses	\$1.13	\$1.37	\$0.86	\$1.17
Operating cost of producing milk/cwt.	\$11.35	\$11.99	\$10.24	\$10.06
Total labor cost/cwt.	\$4.44	\$4.32	\$3.72	\$3.65
Operator resources/cwt.	\$4.13	\$3.92	\$3.27	\$3.40
Total cost of producing milk/cwt.	\$17.45	\$17.67	\$15.27	\$15.04
Average farm price/cwt.	\$16.41	\$16.08	\$16.23	\$15.76
<b><u>Related Cost Factors</u></b>				
Hired labor/cow	\$306	\$317	\$259	\$337
Total labor/cow	\$746	\$854	\$601	\$782
Purchased dairy feed/cow	\$752	\$905	\$715	\$861
Purchased grain & concentrate as % of milk receipts	26%	27%	25%	24%
Vet & medicine/cow	\$67	\$113	\$61	\$121
Machinery costs/cow	\$586	\$671	\$438	\$736
Feed & crop exp./cwt.	\$5.34	\$5.51	\$5.53	\$4.92
<b><u>Profitability Analysis</u></b>				
Net farm income (with appreciation)	\$80,766	\$79,634	\$119,660	\$147,430
Net farm income (without apprec.)	\$54,103	\$51,209	\$83,594	\$105,188
Net farm income per cow (w/o apprec.)	\$572	\$543	\$730	\$935
Net farm income per cwt. (w/o apprec.)	\$3.41	\$2.75	\$4.51	\$4.36
Labor & management income/operator	\$17,801	\$5,967	\$46,429	\$43,197
Labor & mgmt. income/operator/cow	\$187	\$63	\$404	\$384
Rates of return on:				
Equity capital with appreciation	7.0%	4.8%	15.8%	13.2%
All capital with appreciation	6.6%	5.0%	12.1%	11.4%

<sup>65</sup>Farms grazing at least three months of year, changing paddock at least every three days, forage from pasture at least 30 percent, and no organic farms.

<sup>66</sup>Farms with similar herd size as the 42 rotational grazing farms.

<sup>67</sup>Top 30 percent of grazing farms by labor and management income per operator per cow.

<sup>68</sup>Farms with similar herd size as the "Top 30%" grazing farms and labor and management incomes per operator greater than \$23,000.

**Table 70.**

**SELECTED BUSINESS FACTORS BY MILKING FREQUENCY**  
**New York State Dairy Farms, 2004 & 2005**

Item	2x/Day Milking		3x/Day Milking	
	2004	2005	2004	2005
Number of farms	128	149	63	73
<u>Business Size &amp; Production</u>				
Number of cows	158	168	684	686
Number of heifers	123	136	533	539
Milk sold, lbs.	3,057,261	3,449,861	15,956,812	16,653,501
Milk sold/cow, lbs.	19,380	20,476	23,330	24,263
Milk plant test, % butterfat	3.69%	3.70%	3.53%	3.61%
Tillable acres, total	412	438	1,270	1,306
Hay crop, tons DM/acre	3.0	2.7	3.9	3.7
Corn silage, tons/acre	16.9	18.2	18.0	19.0
Forage DM/cow, tons	7.9	7.9	8.2	8.4
<u>Labor &amp; Capital Efficiency</u>				
Worker equivalent	4.18	4.42	15.36	15.71
Milk sold/worker, lbs.	731,256	781,248	1,038,742	1,060,395
Cows/worker	38	38	45	44
Farm capital/worker	\$290,105	\$316,580	\$297,491	\$311,238
Farm capital/cow	\$7,687	\$8,305	\$6,681	\$7,119
Farm capital/cwt. milk	\$39.66	\$40.44	\$28.64	\$29.32
<u>Milk Production Costs &amp; Returns</u>				
Selected costs/cwt.:				
Hired labor	\$2.18	\$2.27	\$2.84	\$2.82
Grain & concentrate	\$4.66	\$4.17	\$4.52	\$4.08
Purchased roughage	\$0.24	\$0.16	\$0.33	\$0.33
Replacements purchased	\$0.19	\$0.10	\$0.13	\$0.12
Veterinary & medicine	\$0.55	\$0.60	\$0.61	\$0.63
Milk marketing	\$0.78	\$0.82	\$0.69	\$0.73
Other dairy expenses	\$1.36	\$1.45	\$1.50	\$1.55
Operating costs/cwt.	\$12.48	\$12.06	\$12.56	\$12.34
Total labor costs/cwt.	\$3.88	\$3.69	\$3.21	\$3.17
Operator resources/cwt.	\$3.12	\$2.77	\$1.34	\$1.40
Total costs/cwt.	\$17.06	\$16.43	\$15.22	\$15.06
Average farm price/cwt.	\$17.11	\$16.04	\$16.48	\$15.97
Return over total costs/cwt.	\$0.05	\$-0.39	\$1.26	\$0.91
<u>Related Cost Factors</u>				
Hired labor/cow	\$422	\$465	\$663	\$683
Total labor/cow	\$752	\$755	\$750	\$768
Purchased dairy feed/cow	\$951	\$885	\$1,132	\$1,070
Purchased grain & concentrate as % of milk receipts	27%	27%	27%	26%
Veterinary & medicine/cow	\$106	\$123	\$142	\$154
Machinery costs/cow	\$612	\$642	\$546	\$616
<u>Profitability Analysis</u>				
Net farm income (without appreciation)	\$96,916	\$87,510	\$415,318	\$387,427
Labor & management income/operator	\$32,811	\$23,921	\$150,871	\$127,519
Rates of return on:				
Equity capital with appreciation	10.7%	9.8%	20.4%	16.9%
All capital with appreciation	9.0%	8.4%	13.6%	12.1%

Table 71.

**COMPARISON OF DAIRY FARM BUSINESS DATA BY REGION**  
**226 New York Dairy Farms, 2005**

Item	West. & Cent. Plateau Region	Western & Central Plain Region	Northern New York	Central Valleys	North. Hudson & Southeastern NY
Number of farms	38	66	33	24	65
<b><u>ACCRUAL EXPENSES</u></b>					
Hired labor	\$79,437	\$411,193	\$181,887	\$113,158	\$121,373
Feed	158,121	623,536	328,274	192,571	222,149
Machinery	67,063	206,897	123,437	96,896	87,933
Livestock	91,692	427,970	242,424	141,503	155,109
Crops	29,165	102,435	47,507	41,667	42,996
Real estate	29,304	105,278	51,254	47,427	35,749
Other	50,308	203,672	99,700	67,811	62,950
Total Operating Expenses	\$505,090	\$2,080,981	\$1,074,483	\$701,033	\$728,259
Expansion livestock	4,017	17,304	15,286	6,636	10,370
Extraordinary expense	1,088	426	2,591	0	858
Machinery depreciation	37,608	112,948	72,421	41,897	34,101
Building depreciation	19,458	70,354	44,043	38,948	16,231
Total Accrual Expenses	\$567,261	\$2,282,013	\$1,208,824	\$788,513	\$789,819
<b><u>ACCRUAL RECEIPTS</u></b>					
Milk sales	\$570,237	\$2,277,293	\$1,246,375	\$782,422	\$762,352
Livestock	49,162	200,679	110,406	62,263	70,338
Crops	1,433	43,363	33,995	27,109	4,584
Government Receipts	15,650	64,179	32,336	23,865	27,457
All other	13,842	32,523	23,381	22,790	15,216
Total Accrual Receipts	\$650,325	\$2,618,037	\$1,446,493	\$918,450	\$879,947
<b><u>PROFITABILITY ANALYSIS</u></b>					
Net farm income(w/o appreciation)	\$83,064	\$336,024	\$237,669	\$129,937	\$90,128
Net farm income (w/ appreciation)	\$127,391	\$506,132	\$361,378	\$233,313	\$144,771
Labor & management income	\$33,500	\$209,706	\$157,281	\$65,221	\$21,666
Number of operators	1.48	1.67	1.60	1.61	1.60
Labor & mgmt. income/operator	\$22,635	\$125,572	\$98,301	\$40,510	\$13,542
<b><u>BUSINESS FACTORS</u></b>					
Worker equivalent	4.37	13.28	7.86	5.72	6.20
Number of cows	163	611	339	222	209
Number of heifers	125	486	269	173	168
Acres of hay crops <sup>69</sup>	243	541	451	295	287
Acres of corn silage <sup>69</sup>	158	492	277	195	190
Total tillable acres	391	1,143	784	600	517
Pounds of milk sold	3,556,561	14,425,102	7,899,932	4,707,995	4,618,658
Pounds of milk sold/cow	21,774	23,625	23,297	21,207	22,125
Tons hay crop dry matter/acre	2.4	3.9	3.2	2.7	2.6
Tons corn silage/acre	15.4	19.2	20.7	17.3	18.3
Cows/worker	37	46	43	39	34
Pounds of milk sold/worker	814,014	1,086,364	1,005,187	822,477	744,945
% grain & conc. of milk receipts	27%	25%	25%	24%	29%
Feed & crop expense/cwt. milk	\$5.26	\$5.03	\$4.75	\$4.97	\$5.74
Fertilizer & lime/crop acre <sup>69</sup>	\$31.43	\$38.65	\$22.29	\$26.98	\$35.00
Machinery cost/tillable acre <sup>69</sup>	\$299	\$303	\$278	\$260	\$268

<sup>69</sup>Excludes farms that do not harvest forages.

Figure 2.

**Percent Change in Milk Production, Five Regions in New York,  
1995-2005**

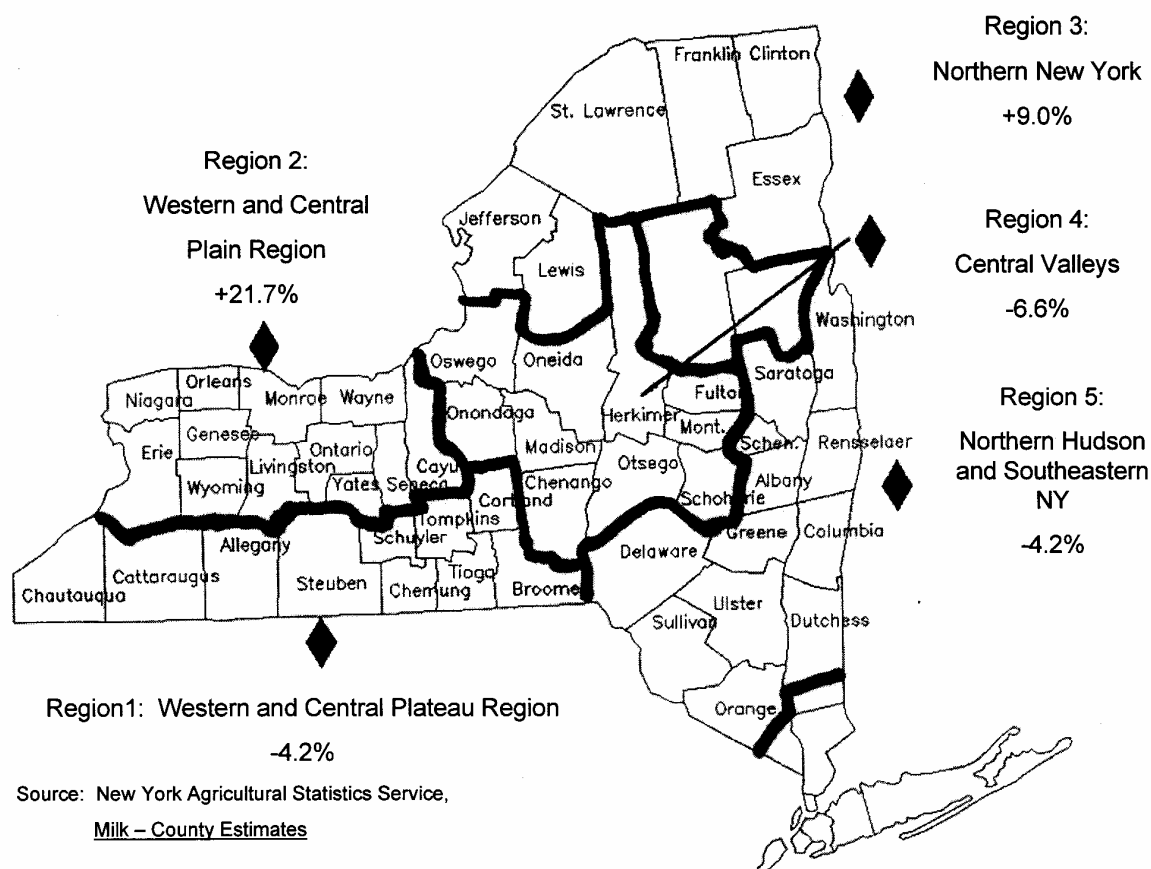


Table 72.

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

Item	Region <sup>70</sup>				
	1	2	3	4	5
<u>Milk Production</u> <sup>71</sup>	(million pounds)				
1995	2,104.2	3,133.1	2,179.7	2,691.0	1,416.5
2005	2,016.0	3,814.5	2,376.5	2,513.5	1,357.5
Percent change	-4.2%	+21.7%	+9.0%	-6.6%	-4.2%
<u>2005 Cost of Producing Milk</u> <sup>72</sup>	(\$ per hundredweight milk)				
Operating cost	\$12.06	\$12.18	\$11.26	\$12.14	\$13.45
Total cost	16.54	14.91	14.53	16.43	17.11
Average price received	16.03	15.79	15.78	16.62	16.51
Return per cwt. to operator labor, management & capital	\$2.22	\$2.30	\$2.98	\$2.69	\$1.84

<sup>70</sup>See Figure 2 for region descriptions.

<sup>71</sup>Source: New York Agricultural Statistics Service, Milk-County Estimates.

<sup>72</sup>From Dairy Farm Business Summary data.

Table 73.

**FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION**  
**20 New York Dairy-Renter Farms,<sup>73</sup> 2005**

<u>ACCRUAL EXPENSES</u>			<u>ACCRUAL RECEIPTS</u>		
Labor: Hired		\$15,518	Milk sales		\$289,575
Feed: Dairy grain & concentrate		82,872	Dairy cattle		21,168
Dairy roughage		12,947	Dairy calves		6,311
Nondairy		0	Other livestock		55
Professional nutritional services		230	Crops		-2,814
Machinery: Machinery hire, rent & lease		6,085	Government receipts		10,317
Machinery repairs & farm vehicle expense		15,565	Custom machine work		2,426
Fuel, oil, grease		10,023	Gas tax refund		256
Livestock: Replacement livestock		4,053	Other		3,155
Breeding		5,120	TOTAL ACCRUAL RECEIPTS		\$330,450
Veterinary & medicine		8,665			
Milk marketing		16,938			
Bedding		2,394			
Milking supplies		6,611	<u>PROFITABILITY ANALYSIS</u>		
Cattle lease & rent		0	Net farm income (without appreciation)		\$51,893
Custom boarding		2,807	Net farm income (with appreciation)		\$61,775
bST expense		2,338	Labor & management income/farm		\$24,182
Livestock professional fees		1,383	Number of operators		1.42
Other livestock expense		4,410	Labor & management income/operator		\$17,029
Crops: Fertilizer & lime		9,077	Rate of return on equity		
Seeds & plants		2,999	capital including appreciation		2.4%
Spray & other crop expense		3,517			
Crop professional fees		12			
Real estate: Land, building & fence repair		2,904	<u>BUSINESS FACTORS</u>		
Taxes		2,920	Number of cows		93
Rent & lease		13,048	Number of heifers		74
Other:			Worker equivalent		2.72
Insurance		3,862	Total tillable acres		232
Utilities (farm share)		10,334	Milk sold per cow, lbs.		19,918
Interest paid		5,993	Hay DM per acre, tons		1.8
Miscellaneous		2,111	Corn silage per acre, tons		15.4
TOTAL OPERATING EXPENSES		\$254,736	Milk sold per worker, lbs.		681,857
			Grain & concentrate as % milk sales		27%
Expansion livestock		\$6,204	Feed & crop expense/cwt. milk		\$6.00
Extraordinary expense		0	Labor & machinery costs/cow		\$1,307
Machinery depreciation		16,604	Average price/cwt. milk		\$15.60
Building depreciation		1,013			
TOTAL ACCRUAL EXPENSES		\$278,557			
<hr/>			<hr/>		
<u>ASSETS</u>	<u>Jan. 1</u>	<u>Dec. 31</u>	<u>LIABILITIES</u>	<u>Jan. 1</u>	<u>Dec. 31</u>
Farm cash, checking & savings	\$4,509	\$3,479	Current	\$31,257	\$34,014
Accounts receivable	20,258	21,315	Intermediate <sup>75</sup>	56,875	49,517
Prepaid expenses	130	0	Long term <sup>74</sup>	33,168	28,040
Feed & supplies	53,174	50,916	Total Farm Liabilities	\$121,300	\$111,571
Livestock <sup>74</sup>	188,363	195,475			
Machinery & equipment <sup>74</sup>	124,198	134,086	Nonfarm Liabilities <sup>76</sup>	0	0
Farm Credit stock	291	142			
Other stock & certificates	26,969	27,762	Farm & Nonfarm Liabilities	\$121,300	\$111,571
Land & buildings <sup>74</sup>	45,746	49,209			
Total Farm Assets	\$463,637	\$482,384	Farm Net Worth	\$342,337	\$370,813
Nonfarm Assets <sup>76</sup>	45,369	49,685	Farm & Nonfarm Net Worth	\$387,706	\$420,498
Farm & Nonfarm Assets	\$509,006	\$532,069			

<sup>73</sup>A renter owns no farm real estate or tillable land at the end of year.<sup>74</sup>Includes discounted lease payments.<sup>75</sup>Includes Farm Credit stock and discounted lease payments for cattle and machinery.<sup>76</sup>Average of 5 farms reporting.



Table 74.

**FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION**  
**Average of 23 Top Ten Percent Farms by Rate of Return on All Capital**  
**(without appreciation), 2005**

<u>ACCRUAL EXPENSES</u>			<u>ACCRUAL RECEIPTS</u>		
Labor: Hired		\$485,153	Milk sales		\$2,918,631
Feed: Dairy grain & concentrate		699,867	Dairy cattle		202,254
Dairy roughage		65,709	Dairy calves		43,325
Nondairy		200	Other livestock		1,629
Professional nutritional services		177	Crops		53,893
Machinery: Machinery hire, rent & lease		55,136	Government receipts		65,608
Machinery repairs & farm vehicle expense		119,571	Custom machine work		4,086
Fuel, oil, grease		85,492	Gas tax refund		114
Livestock: Replacement livestock		28,025	Other		32,493
Breeding		37,065	TOTAL ACCRUAL RECEIPTS		\$3,322,033
Veterinary & medicine		108,588			
Milk marketing		119,422			
Bedding		48,791			
Milking supplies		54,369			
Cattle lease & rent		6,240			
Custom boarding		52,498			
bST expense		40,658			
Livestock professional fees		5,943			
Other livestock expense		12,424			
Crops: Fertilizer & lime		41,205			
Seeds & plants		32,312			
Spray & other crop expense		19,294			
Crop professional fees		4,556			
Real estate: Land, building & fence repair		51,891			
Taxes		27,676			
Rent & lease		44,123			
Other:					
Insurance		22,668			
Utilities (farm share)		60,287			
Interest paid		104,136			
Miscellaneous		26,215			
TOTAL OPERATING EXPENSES		\$2,459,691			
Expansion livestock		\$21,070			
Extraordinary expense		1,706			
Machinery depreciation		111,314			
Building depreciation		79,437			
TOTAL ACCRUAL EXPENSES		\$2,673,219			
			<u>PROFITABILITY ANALYSIS</u>		
			Net farm income (without appreciation)		\$648,814
			Net farm income (with appreciation)		795,231
			Labor & management income/operator		266,693
			Rate of return on equity		
			capital without appreciation		20.0%
			Rate of return on all		
			capital without appreciation		14.0%
			<u>BUSINESS FACTORS</u>		
			Number of cows		730
			Number of heifers		534
			Worker equivalent		15.92
			Total tillable acres		1,278
			Milk sold per cow, lbs.		24,687
			Hay DM per acre, tons		3.9
			Corn silage per acre, tons		19.5
			Milk sold per worker, lbs.		1,132,532
			Grain & concentrate as % milk sales		24%
			Feed & crop expense/cwt. milk		\$4.79
			Labor & machinery costs/cow		\$1,302
			Average price/cwt. milk		\$16.18
<u>ASSETS</u>	<u>Jan. 1</u>	<u>Dec. 31</u>	<u>LIABILITIES</u>	<u>Jan. 1</u>	<u>Dec. 31</u>
Farm cash, checking & savings	\$ 21,571	\$38,722	Current	\$453,787	\$398,515
Accounts receivable	195,513	217,976	Intermediate <sup>78</sup>	1,048,360	974,416
Prepaid expenses	464	6,069	Long-term <sup>77</sup>	451,479	537,285
Feed & supplies	505,778	692,242	Total Farm Liabilities	\$1,953,626	\$1,910,216
Livestock <sup>77</sup>	1,335,502	1,480,801			
Machinery & equipment <sup>77</sup>	674,423	729,868	Nonfarm Liabilities <sup>79</sup>	0	0
Farm Credit stock	13,617	15,643			
Other stock & certificates	180,777	187,232	Farm & Nonfarm Liabilities	\$1,953,626	\$1,910,216
Land & buildings <sup>77</sup>	1,488,122	1,600,490			
Total Farm Assets	\$4,415,768	\$4,969,045	Farm Net Worth	\$2,462,142	\$3,058,828
Nonfarm Assets <sup>79</sup>	54,033	59,058	Farm & Nonfarm Net Worth	\$2,516,175	\$3,117,887
Farm & Nonfarm Assets	\$4,469,801	\$5,028,103			

<sup>77</sup>Includes discounted lease payments.<sup>78</sup>Includes Farm Credit Stock and discounted lease payments for cattle and machinery.<sup>79</sup>Average of 6 farms reporting.

<u>ACCRUAL EXPENSES</u>			<u>ACCRUAL RECEIPTS</u>		
Labor: Hired	\$207,777		Milk sales		\$1,250,557
Feed: Dairy grain & concentrate	320,628		Dairy cattle		85,176
Dairy roughage	21,350		Dairy calves		22,455
Nondairy	35		Other livestock		2,527
Professional nutritional services	329		Crops		21,984
<u>Machinery:</u> Machinery hire, rent & lease	21,392		Government receipts		36,688
Machinery repairs & farm vehicle expense	62,493		Custom machine work		3,649
Fuel, oil, grease	41,823		Gas tax refund		200
<u>Livestock:</u> Replacement livestock	8,587		Other		18,271
Breeding	17,195		TOTAL ACCRUAL RECEIPTS		\$1,441,508
Veterinary & medicine	48,428				
Milk marketing	59,245				
Bedding	22,961				
Milking supplies	26,990		<u>PROFITABILITY ANALYSIS</u>		
Cattle lease & rent	1,320		Net farm income (without appreciation)		\$187,446
Custom boarding	23,467		Net farm income (with appreciation)		289,779
bST expense	16,254		Labor & management income/operator		64,745
Livestock professional fees	3,760		Rate of return on equity		
Other livestock expense	8,223		capital without appreciation		7.6%
<u>Crops:</u> Fertilizer & lime	26,383		Rate of return on all		
Seeds & plants	17,292		capital without appreciation		6.7%
Spray & other crop expense	13,406				
Crop professional fees	1,716				
<u>Real estate:</u> Land, building & fence repair	19,791		<u>BUSINESS FACTORS</u>		
Taxes	17,660		Number of cows		340
Rent & lease	21,228		Number of heifers		270
<u>Other:</u>			Worker equivalent		8.18
Insurance	12,689		Total tillable acres		729
Utilities (farm share)	30,682		Milk sold per cow, lbs.		22,998
Interest paid	50,758		Hay DM per acre, tons		3.2
Miscellaneous	14,077		Corn silage per acre, tons		18.8
TOTAL OPERATING EXPENSES	\$1,137,938		Milk sold per worker, lbs.		956,698
Expansion livestock	\$11,545		Grain & concentrate as % milk sales		26%
Extraordinary expense	936		Feed & crop expense/cwt. milk		\$5.12
Machinery depreciation	64,419		Labor & machinery costs/cow		\$1,389
Building depreciation	39,225		Average price/cwt. milk		\$15.98
TOTAL ACCRUAL EXPENSES	\$1,254,062				
<u>ASSETS</u>	<u>Jan. 1</u>	<u>Dec. 31</u>	<u>LIABILITIES</u>	<u>Jan. 1</u>	<u>Dec. 31</u>
Farm cash, checking & savings	\$14,329	\$16,751	Accounts payable	\$41,337	\$36,619
Accounts receivable	88,118	89,991	Operating debt	63,810	54,490
Prepaid expenses	2,299	3,085	Short-term	4,763	2,877
Feed & supplies	227,406	261,518	Advanced gov't receipts	0	0
Dairy cows <sup>80</sup>	421,616	454,206	Current Portion:		
Heifers	225,236	265,291	Intermediate	71,688	80,493
Bulls & other livestock	3,081	2,818	Long Term	21,091	25,779
Machinery & equipment <sup>80</sup>	426,234	467,743	Intermediate <sup>81</sup>	395,498	398,216
Farm Credit stock	6,234	6,690	Long-term <sup>80</sup>	358,532	377,014
Other stock & certificates	57,102	61,423	Total Farm Liabilities	\$956,719	\$975,487
Land & buildings <sup>80</sup>	971,416	1,036,397	Nonfarm Liabilities <sup>82</sup>	2,198	2,620
Total Farm Assets	\$2,443,070	\$2,665,914	Farm & Nonfarm Liabilities	\$958,917	\$978,107
Nonfarm Assets <sup>82</sup>	220,801	242,054	Farm Net Worth	\$1,486,351	\$1,690,427
Farm & Nonfarm Assets	\$2,663,871	\$2,907,968	Farm & Nonfarm Net Worth	\$1,704,954	\$1,929,861

<sup>82</sup>Average of 102 farms reporting.

**APPENDIX**

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

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

**Table A1.****PRICES PAID BY NEW YORK FARMERS FOR SELECTED ITEMS, 1993-2005**

Year	Mixed Dairy Feed 16% Protein <sup>83</sup> (\$/ton)	Fertilizer, Urea 45-46%N <sup>83</sup> (\$/ton)	Seed Corn, Hybrid <sup>84</sup> (\$/80,000 kernels)	Diesel Fuel <sup>83</sup> (\$/gal)	Tractor 50-59 PTO <sup>84</sup> (\$)	Wage Rate All Hired Farm Workers <sup>85</sup> (\$/hr)
1993	171	226	72.70	0.900	19,200	6.76
1994	181	233	73.40	0.853	19,800	6.96
1995	175	316	77.10	0.850	20,100	6.92
1996	226	328	77.70	1.020	20,600	7.19
1997	216	287	83.50	0.960	21,200	7.63
1998	199	221	86.90	0.810	21,800	7.63
1999	175	180	88.10	0.750	21,900	8.12
2000	174	201	87.50	1.270	21,800	8.74
2001	176	270	92.20	1.260	22,000	8.72
2002	178	232	92.00	1.028	21,900	9.26
2003	194	283	102.00	1.516	21,300	9.93
2004	207	299	105.00	1.400	21,500	9.96
2005	190	365	111.00	2.020	23,400	9.88

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

<sup>83</sup>Northeast region average. <sup>84</sup>United States average. <sup>85</sup>New York and New England combined.

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

**Table A2.****VALUES AND INDICES OF NEW YORK DAIRY FARM INVENTORY ITEMS, 1990-2005**

Year	Dairy Cows		Machinery <sup>86</sup>	Farm Real Estate <sup>87</sup>	
	Value/Head	1977=100	1977=100	Value/Acre	1977=100
1990	1,060	214	209	1,014	173
1991	1,040	210	219	1,095	187
1992	1,090	220	226	1,139	194
1993	1,100	222	235	1,237	211
1994	1,100	222	249	1,260	215
1995	1,010	204	258	1,280	218
1996	1,030	208	268	1,260	215
1997	980	198	276	1,250	213
1998	1,050	212	286	1,280	218
1999	1,250	253	294	1,340	228
2000	1,250	253	301	1,430	244
2001	1,600	323	312	1,520	259
2002	1,400	283	320	1,610	274
2003	1,300	263	325	1,700	290
2004	1,580	319	351	1,780	303
2005	1,690	341	373	1,880	320

SOURCE: NYASS, New York Agricultural Statistics and New York Crop and Livestock Report. USDA, ASB, Agricultural Prices.

<sup>86</sup>United States average; 1995 - 2005 are estimated due to discontinuation of 1977=100 series.

<sup>87</sup>New York average for 2000-2005 excludes Native American Reservation land.

**Table A3.**

**NUMBER OF DAIRY FARMS AND MILK COWS BY SIZE OF HERD**  
**New York State, 2004**<sup>88,89</sup>

Size of Herd (Number of Cows)	Farms		Milk Cows	
	(Number)	(Percent of Total)	(Number)	(Percent of Total)
1 - 29	1,400	20.3%	13,000	2.0%
30-49	1,300	18.8%	49,000	7.5%
50-99	2,600	37.7%	176,000	26.9%
100-199	1,000	14.5%	134,000	20.4%
200-399	350	5.1%	86,000	13.1%
400-699	145	2.1%	75,000	11.5%
700-999	55	0.8%	47,000	7.2%
1000-1499	35	0.5%	42,000	6.4%
1500 or more	15	0.2%	33,000	5.0%
Total	6,900	100.0%	655,000	100.0%

<sup>88</sup>This information on number of farms and number of cows by size of herd is derived from several sources:

- Dairy Statistics as published by the New York Agricultural Statistics Services for 2004.
- CAFO (Concentrated Animal Feeding Operations) permit data as of July 1, 2005. About 70 small CAFO farms (farms with 200 to 700 milk cows) have not applied for or updated the permit. Estimates for these farms were made so as to reflect the total number of dairy farms in New York State.

<sup>89</sup>The author of this page wishes to thank everyone who provided some data as well as providing valuable advice and perspectives: Lee Telega, Peter Wright, Wayne Knoblauch and Jason Karszes. However, any errors, omissions or misstatements are solely the responsibility of the author, Professor George Conneman, e-mail [gjc4@cornell.edu](mailto:gjc4@cornell.edu).

In 2004, there were 6,900 dairy farms in New York State, and 655,000 milk cows as reported by the NYASS. The table above was prepared based on the NYASS data plus the CAFO permit filing for additional herd size categories.

Ninety-one percent of the farms (less than 200 cows per farm) had 57 percent of the milk cows. The remaining nine percent of the farms had 43 percent of the cows. About 1.5 percent of the farms (those with 700 or more cows) had 19 percent of the cows. Farms with over 200 cows represented nearly 9 percent of total herds and had 43 percent of the total cows.

Farms with less than 50 cows represent 39 percent of all farms.

## GLOSSARY AND LOCATION OF COMMON TERMS

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

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

**Accrual Accounting:** (defined on page 11).

**Accrual Expenses:** (defined on page 13).

**Accrual Receipts:** (defined on page 13).

**Annual Cash Flow Statement:** (defined on page 20).

**Appreciation:** (defined on page 14).

**Asset Turnover Ratio:** (defined on page 42).

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

**Average Top 10% Farms:** Average of 23 farms with highest rate of return on all capital (without appreciation).

**Balance Sheet:** A "snapshot" of the business financial position at a given point in time, usually December 31. The balance sheet equates the value of assets to liabilities plus net worth.

**Barn Types:** Stanchion: cows are confined in a stall by a stanchion or neck chain. Freestall: cows move at will between open stalls and feeding areas. Combination: both stanchion and freestall barns used.

**bST Usage:** An estimate of percentage of herd that was injected with bovine somatotropin during the year.

**Business Records:** Account Book: any organized farm record book or ledger. Agrifax (mail-in): Farm Credit's recordkeeping service. On-Farm Computer: computerized business and financial records entered and kept on the farm. Other: accountant, recordkeeping association or no organized recordkeeping system.

**Capital Efficiency:** The amount of capital invested per production unit. Relatively high investments per worker with low to moderate investments per cow imply efficient use of capital. (See analysis, page 42).

**Capital Investment:** Commonly used as substitute term for farm capital or total farm assets.

**Cash Flow:** The movement of money in and out of the business over a given period of time, e.g. one year. (See Annual Cash Flow Statement, page 20).

**Cash Flow Coverage Ratio:** (defined on page 22).

**Cash From Nonfarm Capital Used in the Business:** Transfers of money from nonfarm savings or investments to the farm business where it is used to pay operating expenses, make debt payments and/or capital purchases.

**Cash Paid:** (defined on page 12).

**Cash Receipts:** (defined on page 13).

**Change in Accounts Payable:** (defined on page 13).

**Change in Accounts Receivable:** (defined under Accrual Receipts on page 13).

**Change in Advanced Government Receipts:** (defined under Accrual Receipts page 13).

**Change in Inventory:** (defined on page 12).

**Corporation:** Business is organized under state corporation law. Corporation is owned, operated, and managed by members of one or more farm families and owner/operators are corporate employees. Corporate accounts are modified to exclude operator wages' and other compensation from operating expenses for DFBS use.

**Cost of Producing Milk, Whole Farm Method:** A procedure used to calculate costs of producing milk on dairy farms without using enterprise cost accounts. All non-milk receipts are assigned a cost equal to their sale value and deducted from total farm expenses to determine the costs of producing milk. (see page 30).

**Cost of Term Debt:** A weighted average of the cost of borrowed intermediate and long term capital used on the farm. Calculate by multiplying end of year principal of each loan that is borrowed by the interest rate for each loan at that time. Add up each amount that is calculated for each loan and then divide by total amount of borrowed funds. Do not include accounts payable, operating debt or advanced government receipts. This information is found on pages 8 & 9 of the data entry form.

**Culling Rate:** Culling rate is calculated by dividing the number of animals that left the herd for culling purposes and that died, by the average number of milking and dry cows for the year

**Current** (assets and liabilities): Farm inventories and operating capital that usually turnover annually, and the debt expected to be repaid within 12 months.

**Current Portion:** Principal due in the next year for intermediate and long term debt.

**Current Ratio:** Measures the extent to which current farm assets, if liquidated, would cover current farm liabilities. Calculated as current farm assets at end year divided by current farm liabilities at end year.

**Dairy Cash-Crop (farm):** Operating and managing this farm is the full-time occupation of one or more people, cropland is owned but crop sales exceed ten percent of accrual milk receipts.

**Dairy Farm Renter:** (dairy-renter) - Farm business owner/operator owns no tillable land and commonly rents all other farm real estate.

**Dairy Grain and Concentrate:** All grains, protein supplements, milk substitutes, minerals and vitamins purchased and fed to the dairy herd.

**Dairy Records:** DHIC: Dairy Herd Improvement Cooperative official milk production records. Owner Sampler: weights and samples are taken by farmer but tested by DHIC. Other: all other methods used to obtain periodic production data on individual cows. None: no milk production records on individual cows.

**Dairy Roughage:** All hay, silage or other fodder purchased and fed to the dairy herd.

**Death Rate:** The percentage of the average number of milking and dry cows that died during the year.

**Debt Coverage Ratio:** (defined on page 22)

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

**Debt to Asset Ratios:** (defined on page 18).

**Depreciation Expense Ratio:** The percentage of total accrual receipts that is charged to depreciation expense (machinery and building).

**Dry Matter:** The amount or proportion of dry material that remains after all water is removed. Commonly used to measure dry matter percent and tons of dry matter in feed.

**Equity Capital:** The farm operator/manager's owned capital or farm net worth.

**Expansion Livestock:** (defined on page 11).

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

**Farm Capital:** Average total farm assets.

**Farm Debt Payments as Percent of Milk Sales:** Amount of milk income committed to debt repayment, calculated by dividing planned debt payments by total milk receipts. A reliable measure of repayment ability, see pages 22 and 47.

**Farm Debt Payments Per Cow:** Planned or scheduled debt payments per cow represent the repayment plan scheduled at the beginning of the year divided by the average number of cows for the year. This measure of repayment ability is used in the Financial Analysis Chart on page 47.

**Financial Lease:** A long-term non-cancelable contract giving the lessee use of an asset in exchange for a series of lease payments. The term of a financial lease usually covers a major portion of the economic life of the asset. The lease is a substitute for purchase. The lessor retains ownership of the asset.

**Hay Crop:** All hay land, including new seedings, harvested once or more as hay or hay crop silage.

**Hay Dry Matter:** see Dry Matter.

**Heifers:** Female dairy replacements of all ages.

**Hired Labor** (expenses): All wages, non-wage compensation, payroll taxes, benefits, and perquisites paid employees.

**Hired Labor Expense as % of Milk Sales:** The percentage of the gross milk receipts that is used for labor expense. Divide accrual hired labor expense by accrual milk sales.

**Hired Labor Expense per Hired Worker Equivalent:** The total cost to the farm per hired worker equivalent. Divide accrual hired labor expense by number of hired plus family paid worker equivalents.

**Income Statement:** A complete and accurate account of accrual adjusted farm business receipts and expenses used to measure net income over a period of time such as one year or one month.

**Intensive Grazing:** The dairy herd is on pasture at least three months of the year, changing paddock at least every three days and percent of forage from pasture is at least 30 percent.

**Interest Expense Ratio:** The percentage of total accrual receipts that is used for interest expense

**Intermediate** (assets and liabilities): Farm business property and associated debt that is turned over from one to ten years.

**Labor and Management Income:** (defined on page 15).

**Labor and Management Income Per Operator:** (defined on page 15).

**Labor Efficiency:** Production capacity and output per worker. (See analysis on pages 42 and 43).

**Labor Force:** Operator(s): Person or persons that run the farm and make the management decisions. An operator does not have to be a farm owner. Family Paid: all family members, excluding operators, that are paid for working on the farm. Family Unpaid: all family members, excluding the operators, that are not paid for farm work performed.

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

**Long-Term** (assets and liabilities): Farm real estate and associated debt with typical life of ten or more years.

**Milk Marketing** (expenses): Milk hauling fees and charges, co-op dues, milk advertising and promotion expenses.

**Milking Frequency:** 2X/day: all cows were milked two times per day for the entire year. 3X/day: all cows were milked three times per day for the entire year. Other: any combination of 2X, 3X, and more frequent milking.



**Milking Systems:** Bucket and Carry: milk is transferred manually from milking unit to pail to tank. Dumping Station: milk is dumped from milking unit into transfer station and then pumped to tank. Pipeline: milking units are connected directly to milk transfer lines. Herringbone: milking parlor designed to move and milk cows in groups. Other Parlor: parlors in which cows move and are milked individually.

**Net Farm Income:** (defined on page 14).

**Net Farm Income from Operations Ratio:** (defined on page 16)

**Net Milk Income over Purchased Concentrate Per Cow:** Milk receipts less milk marketing expense less purchased grain and concentrate expense, all divided by average number of cows.

**Net Milk Receipts:** The mail box price received by farmers before any farmer authorized assignment or deductions.

**Net Worth:** The value of assets less liabilities equal net worth. It is the equity the owner has in owned assets.

**Nondairy Feed:** All grain, concentrates, and roughage purchased and fed to nondairy livestock.

**Nonfarm Noncash Capital:** (defined on page 13).

**Nontillable Pasture:** Permanent or semi-permanent pasture land that could not be included in a regular cropping sequence or rotation.

**Operating Costs of Producing Milk:** (defined on page 33).

**Operating Expense Ratio:** The percentage of total accrual receipts that is used for operating expenses, excluding interest and depreciation.

**Opportunity Cost:** The cost or charge made for using a resource based on its value in its most likely alternative use. The opportunity cost of a farmer's labor and management is the value he/she would receive if employed in his/her most qualified alternative position.

**Other Forage:** All forage crops harvested but not included as hay crops or corn silage, e.g. oats, barley, and sudan grass harvested as roughage.

**Other Livestock Expenses:** All other dairy herd and livestock expenses not included in more specific categories. Other livestock expenses include; bedding, DHIC, milk house and parlor supplies, livestock board, registration fees and transfers.

**Part-Time Dairy (farm):** Dairy farming is the primary enterprise, cropland is owned but operating and managing this farm is not a full-time occupation for one or more people.

**Partnership:** Business is owned by two or more individuals who share profits according to their contribution of labor, management, and capital.

**Percent of Heifer Inventory Custom Inventory:** The percent of current heifer inventory owned by the farm that is being custom raised off the farm.

**Percent of Replacements Purchased:** The percent of replacements that calved in the herd for replacement purposes (not expansion cattle) that were different genetic background than your herd and were purchased.

**Personal Withdrawals and Family Expenditures Including Nonfarm Debt Payments:** All the money removed from the farm business for personal or nonfarm use including family living expenses, health and life insurance, income taxes, nonfarm debt payments, and investments.

**Premium:** In milk marketing this typically refers to the amount paid for milk in addition to the minimum regulated price. Premiums may be paid to the producer or cooperative supplier of milk by a buyer depending on a variety of criteria such as milk quality, composition, quantity supplied, or services provided. They may also represent market supply/demand conditions not adequately accounted for in the regulated price.

**Prepaid Expenses:** (defined on page 13).

**Producer Price Differential:** Under Federal Order markets with multiple component pricing, it is the residual value (per hundredweight) of the pool after deducting component payments (protein, butterfat, and other solids) to producers. This residual value will vary between market orders and from month-to-month based on the utilization of the various classes and class price. It is possible that the PPD can even be negative at times if, for example, the class III price exceeds the class I price.

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

**Purchased Inputs Costs of Producing Milk:** (defined on page 33).

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

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

**Return on Equity Capital:** (defined on page 16).

**Return to all Capital:** (defined on page 16).

**Sell Rate:** The percentage of the average number of milking and dry cows that were sold for culling reasons. Animals that were sold as replacement stock to other dairy farms is not included in this number.

**Sole Proprietorship:** Business is owned by one individual but there may be more than one operator.

**Solvency:** The extent or ability of assets to cover or pay liabilities. Debt/asset and leverage ratios are common measures of solvency.

**Specialized Dairy Farm:** A farm business where dairy farming is the primary enterprise, operating and managing this farm is a full-time occupation for one or more people and cropland is owned.

**Statement of Owner Equity (reconciliation):** (defined on page 19).

**Taxes** (expenses): Real estate taxes (school, town, and county). Payroll taxes are included as a hired labor expense. Income and self-employment taxes are a personal expense for all noncorporate taxpayers.

**Tillable Acres:** All acres that are normally cropped including hayland that is pastured. Acres that are doubled cropped are counted once.

**Tillable Pasture:** Hay crop acreage currently used for grazing that could be tilled in a regular cropping sequence.

**Total Costs of Producing Milk:** (defined on page 33).

**Value of Calf Sold:** The average value received for bull and heifer calves sold as calves during the year.

**Value of Cow Sold:** The average value received for animals that were sold for culling reasons.

**Whole Farm Method:** A procedure used to calculate costs of producing milk on dairy farms without using enterprise cost accounts. All non-milk receipts are assigned a cost equal to their sale value and deducted from total farm expenses to determine the costs of producing milk.

**Worker Equivalent:** The number of full-time workers equivalent to all the full and part-time people working throughout the year. Operator and family labor is included. Worker equivalents are determined by converting all work to full-time months (based on a 230 hours per month) and dividing by 12.

**Working Capital:** A theoretical measure of the amount of funds available to purchase inputs and inventory items after the sale of current farm assets and payment of all current farm liabilities. Calculated as current farm assets at end year less current farm liabilities at end year.

# OTHER A.E.M. RESEARCH BULLETINS

RB No	Title	Fee (if applicable)	Author(s)
2006-05	Measuring the impacts of generic fluid milk in dairy marketing		Kaiser, H. and D. Dong
2006-04	2007 Farm Bill: Policy Options and Consequences for Northeast Specialty Crops Industries, Small Farms, and Sustainability Programs		Bills, N., Gloy, B., Uva, W., White, G. and M. Cheng
2006-03	Farm Savings Accounts for Specialty Crop Growers		Cheng, M. and B. Gloy
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2006-01	An Economic Analysis of Generic Fluid Milk Advertising in Ontario, Quebec, and the Maritime Provinces		Kaiser, H., Cranfield, J. and M. Doyon
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2005-02	Survey of Hispanic Workers in New York State	(\$12.00)	Maloney, T. and D. Grusenmeyer
2005-01	The Profitability of Agricultural Lending Relationships		LaDue, E., Gloy, B. and C. Cuykendall
2004-13	Dairy Farm Management Business Summary, New York State, 2003	(\$20.00)	Knoblauch, W., Putnam, L. and J. Karszes
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