

DAIRY FARM MANAGEMENT

BUSINESS SUMMARY NEW YORK STATE 2000



Wayne A. Knoblauch
Linda D. Putnam
Jason Karszes

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

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

This research was supported (entirely or in part) by the Cornell University Agricultural Experiment Station federal formula funds, Project No. NYC-121446 received from Cooperative State Research, Education, and Extension Service, U.S. Department of Agriculture. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture.

Publication Price Per Copy: \$12.00

For additional copies, contact:

Faye Butts
Dept. of Applied Economics and Management
Agricultural Finance and Management Group
358 Warren Hall
Cornell University
Ithaca, New York 14853-7801

E-mail: fsb1@cornell.edu
Fax: 607-255-1589
Phone: 607-254-7412

ABSTRACT

Business and financial records for 2000 from 294 New York dairy farm businesses are summarized and analyzed. This analysis demonstrates the use of cash accounting with accrual adjustments to measure farm profitability, cash flow, 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 246 cows per farm and 21,516 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 \$46,610 per farm. The rate of return including appreciation to all capital invested in the farm business averaged 4.8 percent.

Differences in profitability between farms continue to widen. The top 10 percent of farms average net farm income excluding appreciation was \$295,646, while the lowest 10 percent was a negative \$153,963. Rates of return on equity with appreciation ranged from 23 percent to negative 39 percent from the highest 10 percent to the lowest 10 percent of farms.

Farms adopting bovine somatotropin (bST) experienced greater increases in milk production, had larger herds and in the majority of recent years were more profitable than farms not adopting bST. Farms adopting rotational grazing generally produced less milk per cow than non-grazing farms but had somewhat lower costs of production and higher profitability. However, one should not conclude that adoption of these technologies alone were responsible for differences in performance.

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 were more profitable than herds milking two times per day (2X). Operating cost per cwt. of milk was \$0.69/cwt. higher for 3X than 2X milking herds, while output per cow was 4,067 pounds higher.

TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION	1
Farms Included	1
Features	1
Acknowledgments	1
2000 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	58
Comparison for Farms That Buy All Feed Versus Farms That Grow Forages	60
Comparisons by Type of Barn & Herd Size	62
Comparison of Farm Business Summary Data, 1991-2000	68
Comparison of Farms by bST Usage	70
Farm Receipts & Expenses Per Cow & Per Hundredweight for Two Levels of Milk Production & Two Herd Size Categories	71
Intensive Grazing Farms vs. Non-Grazing Farms	73
Comparison of Dairy Farm Business Data by Region	74
Milk Production & Average Cost of Producing Milk by Region	75
Comparison of Farms by Milking Frequency	76
Other Comparisons	77
APPENDIX: THE ECONOMIC ENVIRONMENT FACING NEW YORK DAIRY FARMERS	81
GLOSSARY & LOCATION OF COMMON TERMS	83

LIST OF TABLES

<u>Table No.</u>		<u>Page</u>
1	Comparison of Farm Business Summary Data, New York Dairy Farms, 1970-2000.....	4
2	Comparison of Farm Business Summary Data, Same 169 New York Dairy Farms, 1997-2000.....	5
3	Average Milk Income and Marketing Report, 74 New York Dairy Farms, 2000.....	8
4	Milk Price Information by Quintile, 74 New York Dairy Farms, 2000.....	9
5	Business Characteristics & Resources Used, 294 New York Dairy Farms, 2000.....	10
6	Cash & Accrual Farm Expenses, 294 New York Dairy Farms, 2000.....	12
7	Cash & Accrual Farm Receipts, 294 New York Dairy Farms, 2000.....	13
8	Net Farm Income, 294 New York Dairy Farms, 2000.....	14
9	Labor & Management Income, 294 New York Dairy Farms, 2000.....	15
10	Return to Capital, 294 New York Dairy Farms, 2000.....	16
11	Returns to All Labor & Management by Return to All Capital With Appreciation, 294 New York Dairy Farms, 2000.....	16
12	2000 Farm Business & Nonfarm Balance Sheet, 294 New York Dairy Farms, 2000.....	17
13	Farm Balance Sheet Analysis, 294 New York Dairy Farms, 2000.....	18
14	Farm Inventory Balance, 294 New York Dairy Farms, 2000.....	18
15	Statement of Owner Equity (Reconciliation), 294 New York Dairy Farms, 2000.....	19
16	Annual Cash Flow Statement, 294 New York Dairy Farms, 2000.....	20
17	Annual Cash Flow Budgeting Data, 294 New York Dairy Farms, 2000.....	21
18	Farm Debt Payments Planned, New York Dairy Farms, 2000.....	22
19	Cash Flow Coverage Ratio, New York Dairy Farms, 2000.....	22
20	Debt to Asset Ratio vs. Cash Flow Coverage, 247 New York Dairy Farms, 2000.....	22
21	Land Resources & Crop Production, 294 New York Dairy Farms, 2000.....	23
22	Crop Management Factors, 294 New York Dairy Farms, 2000.....	23
23	Crop Related Accrual Expenses, New York Dairy Farms, 2000.....	24
24	Accrual Machinery Expenses, 294 New York Dairy Farms, 2000.....	24
25	Crop Related Accrual Expenses by Hay Crop Production Per Acre, 38 New York Dairy Farms, 2000.....	25
26	Crop Related Accrual Expense by Corn Production Per Acre, 40 New York Dairy Farms, 2000.....	25
27	Dairy Herd Inventory, 294 New York Dairy Farms, 2000.....	26
28	Milk Production, 294 New York Dairy Farms, 2000.....	27
29	Milk Sold Per Cow & Farm Income Measures, 294 New York Dairy Farms, 2000.....	27
30	Culling Rate and Dairy Replacement Information, New York Dairy Farms, 2000.....	29
31	Cost of Producing Milk, Whole Farm Method, 294 New York Dairy Farms, 2000.....	30
32	Itemized Costs of Producing Milk Per Hundredweight Based on Whole Farm Data, 294 New York Dairy Farms, 2000.....	31
33	Itemized Costs of Producing Milk per Hundredweight Based on Whole Farm Data, Same 247 New York Dairy Farms, 1999-2000.....	32
34	Cost of Producing Milk, Accrual Receipts from Dairy, and Profitability, 294 New York Dairy Farms, 2000.....	33
35	Farm Cost of Producing Milk by Milk Sold Per Cow, 294 New York Dairy Farms, 2000.....	33
36	Farm Cost of Producing Milk by Herd Size, 294 New York Dairy Farms, 2000.....	35
37	Ten Year Comparison: Average Cost of Producing Milk Per Hundredweight, New York Dairy Farms, 1991 to 2000.....	38
38	Ten Year Comparison: Selected Business Factors, New York Dairy Farms, 1991 to 2000.....	39
39	Dairy Related Accrual Expenses, 294 New York Dairy Farms, 2000.....	40

<u>Table No.</u>	<u>Page</u>
40	Purchased Feed & Crop Expenses Per Hundredweight of Milk and Farm Income Measures, 294 New York Dairy Farms, 2000 41
41	Capital Efficiency, 294 New York Dairy Farms, 2000 42
42	Asset Turnover & Profitability, 294 New York Dairy Farms, 2000 42
43	Labor Efficiency, 294 New York Dairy Farms, 2000 42
44	Labor Force Inventory & Cost Analysis, 294 New York Dairy Farms, 2000..... 43
45	Milk Sold Per Worker & Net Farm Income, 294 New York Dairy Farms, 2000 43
46	Farm Business Chart for Farm Management Cooperators, 294 New York Dairy Farms, 2000..... 44
47	A Farm Finance Checklist, 294 New York Dairy Farms, 2000 46
48	Financial Analysis Chart, 294 New York Dairy Farms, 2000..... 47
49	Cows Per Farm and Farm Family Income Measures, 294 New York Dairy Farms, 2000 48
50	Cows Per Farm and Related Farm Factors, 294 New York Dairy Farms, 2000 49
51	Farm Business Summary by Herd Size, 294 New York Dairy Farms, 2000 50
52	Farm Family Financial Situation by Herd Size, 294 New York Dairy Farms, 2000..... 52
53	Selected Business Factors by Herd Size, 294 New York Dairy Farms, 2000 56
54	Income and Expense Comparison for Farms Buying Majority of Forages Versus Similar Size Farms Growing Forages, 2000 60
55	Selected Business Factors for Farms Buying Majority of Forages Versus Similar Size Farms Growing Forages, 2000..... 61
56	Selected Business Factors by Type of Barn & Herd Size, 271 New York Dairy Farms, 2000..... 62
57	Farm Business Chart for Small Conventional Stall Dairy Farms, 47 Conventional Stall Dairy Farms with 60 or Less Cows, New York, 2000 63
58	Farm Business Chart for Large Conventional Stall Dairy Farms, 49 Conventional Stall Dairy Farms with More Than 60 Cows, New York, 2000 64
59	Farm Business Chart for Small Freestall Dairy Farms, 52 Freestall Barn Dairy Farms with 150 or less Cows, New York, 2000 65
60	Farm Business Chart for Medium Freestall Dairy Farms, 50 Freestall Barn Dairy Farms with 151-300 Cows, New York, 2000..... 66
61	Farm Business Chart for Large Freestall Dairy Farms, 73 Freestall Barn Dairy Farms with 300 or More Cows, New York, 2000..... 67
62	Comparison of Farm Business Data, Same 69 New York Dairy Farms, 1991-2000 68
63	bST Non-users vs. Users, Same 93 Farms, 1996-2000 70
64	Farm Receipts & Expenses Per Cow & Per Hundredweight for Two Levels of Milk Production, 294 New York Dairy Farms, 2000..... 71
65	Farm Receipts & Expenses Per Cow & Per Hundredweight for Three Herd Size Categories, 294 New York Dairy Farms, 2000 72
66	Intensive Grazing Farms vs. Non-Grazing Farms, New York State Dairy Farms, 2000 73
67	Comparison of Dairy Farm Business Data by Region, 294 New York Dairy Farms, 2000 74
68	Milk Production & Average Cost of Producing Milk, Five Regions of New York, 2000 75
69	Selected Business Factors by Milking Frequency, New York Dairy Farms, 1999 & 2000..... 76
70	Farm Business Summary & Farm Family Financial Situation, 40 New York Dairy-Renter Farms, 2000 77
71	Farm Business Summary & Farm Family Financial Situation, Average of 29 Top 10 Percent Farms by Rate of Return on All Capital (without appreciation), 2000 78
72	Farm Business Summary & Farm Family Financial Situation, Average of 294 New York Dairy Farms, 2000 79
A1	Prices Paid by New York Farmers for Selected Items, 1990-2000 82
A2	Values of New York Dairy Farm Inventory Items, 1985-2000..... 82
A3	Milk Cow Operations and Milk Cow Inventory..... 83

LIST OF FIGURES & CHARTS

		<u>Page</u>
Figure 1.	Location of the 294 New York Dairy Farms in the 2000 Dairy Farm Business Summary.....	2
Figure 2.	Percent Increase in Milk Production, Five Regions in New York, 1990-2000	75
Chart 1.	Operating Cost of Producing Milk and Price Received for Milk	3
Chart 2.	Labor and Management Income Per Operator	7
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.	Pounds 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 A1.	Number of Operations with Milk Cows and Average Number of Milk Cows Per Operation	83

INTRODUCTION*

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 2000, nearly 400 dairy farms participated. Business records submitted by dairy farmers from 46 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. Each cooperator receives a detailed summary and analysis of his or her business. All educators are using a microcomputer in their offices or on the farm to process and return the individual farm business reports for immediate use. 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 and solve business and financial management problems.

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 294 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 or within a region. Participation was on a voluntary basis, therefore, not all areas or types of operations were proportionately represented (Figure 1, page 2). Participants represent nearly 4 percent of the milk cow operations in New York (see Appendix Table A3). The 294 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, and part-time dairy operators 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 profits; net farm income, labor and management income, return on equity and 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, including 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 70, 73 and 76.

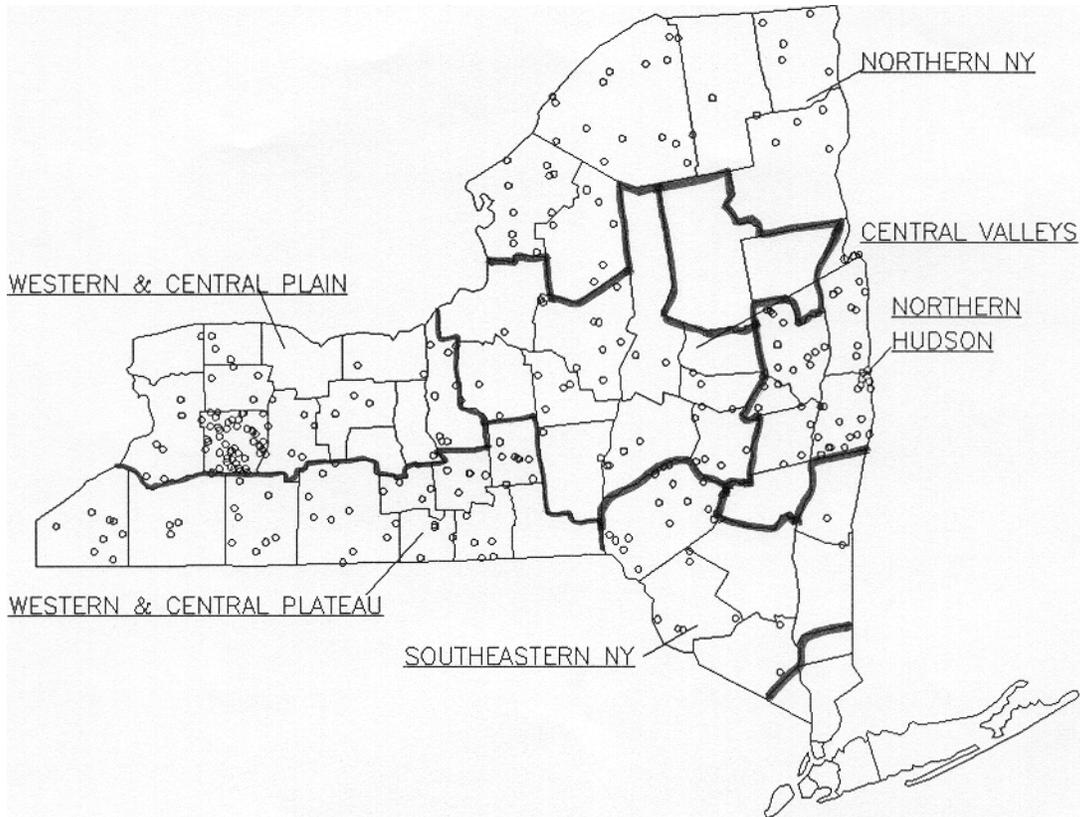
Acknowledgements

The authors appreciate the outstanding assistance provided by Faye Butts with wordprocessing, proofreading and distribution of the publication. The authors also 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 Eddy LaDue and Loren Tauer.

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

Figure 1.

**LOCATION OF THE 294 NEW YORK DAIRY FARMS
IN THE 2000 DAIRY FARM BUSINESS SUMMARY**



2000 Regional Summary Publications

<u>Region</u>	<u>Publications</u>	<u>Author(s)</u>
Western and Central Plain	E.B. 2001-05	Wayne A. Knoblauch, Linda D. Putnam, Jason Karszes, Steve Richards, John Hanchar, Carry Oostveen, Bruce Dehm, Kathy English, Stacia True, John Gremer, & George Allhusen
Western and Central Plateau	E.B. 2001-07	Wayne A. Knoblauch, Linda D. Putnam, Jason Karszes, James W. Grace, Joan S. Petzen, & Steven T. Richards
Northern New York	E.B. 2001-08	Wayne A. Knoblauch, Linda D. Putnam, William Van Loo, Peggy Murray, Anita Deming, Chris Nobles, Molly Ames, & Jason Karszes
Southeastern New York	E.B. 2001-09	Wayne A. Knoblauch, Linda D. Putnam, Stephen E. Hadcock, Larry R. Hulle, Mariane Kiraly, & Joseph J. Walsh
Northern Hudson	E.B. 2001-11	George J. Conneman, Linda D. Putnam, Cathy S. Wickswat, Sandra Buxton, Dayton Maxwell, & Jason Karszes
Central Valleys	E.B. 2001-12	Eddy L. LaDue, Zaid Kurdieh, Carry Oostveen, A. Edward Staehr, Charles Z. Radick, Jackie Hilts, Karen Baase, 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 increased 278 percent between 1970 and 2000 and nearly one-half of that increase occurred in the last 10 years. Milk output per cow increased more than 70 percent and the largest increase occurred between 1990 and 2000. The DFBS sample is not representative of all farms in New York State. The average herd in the state increased 230 percent over the 1970 to 2000 period. Labor efficiency is up 33 percent even though there was practically no change from 1970 to 1980. The operating cost of producing milk has increased more than 360 percent with the big jump occurring between 1970 and 1980.

There is a large increase in farm capital invested per farm, up 1,071 percent since 1970. Farm net worth excluding deferred taxes has increased 838 percent over the last 30 years. Net farm income per farm has increased 2 percent (adjusted for 2000 dollars) but return on capital has not improved since 1980. Labor and management income per operator is down 108 percent in the last 30 years (adjusted for 2000 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 presents average data from 169 farms that have been DFBS cooperators each year since 1997. 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 1998 and 1999 provided dairy farmers with excellent returns. This comes after 1997, a year when milk prices were soft and margins were less than half those in 1998. In 2000, the operating margin is 10 cents less than it was in 1997.

Net farm income without appreciation in 2000 was 12 percent below the 1997 average but over 70 percent below 1998 and 1999. Net worth increased rapidly in 1998 and 1999 and did show a small improvement in 2000.

The last 4 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.

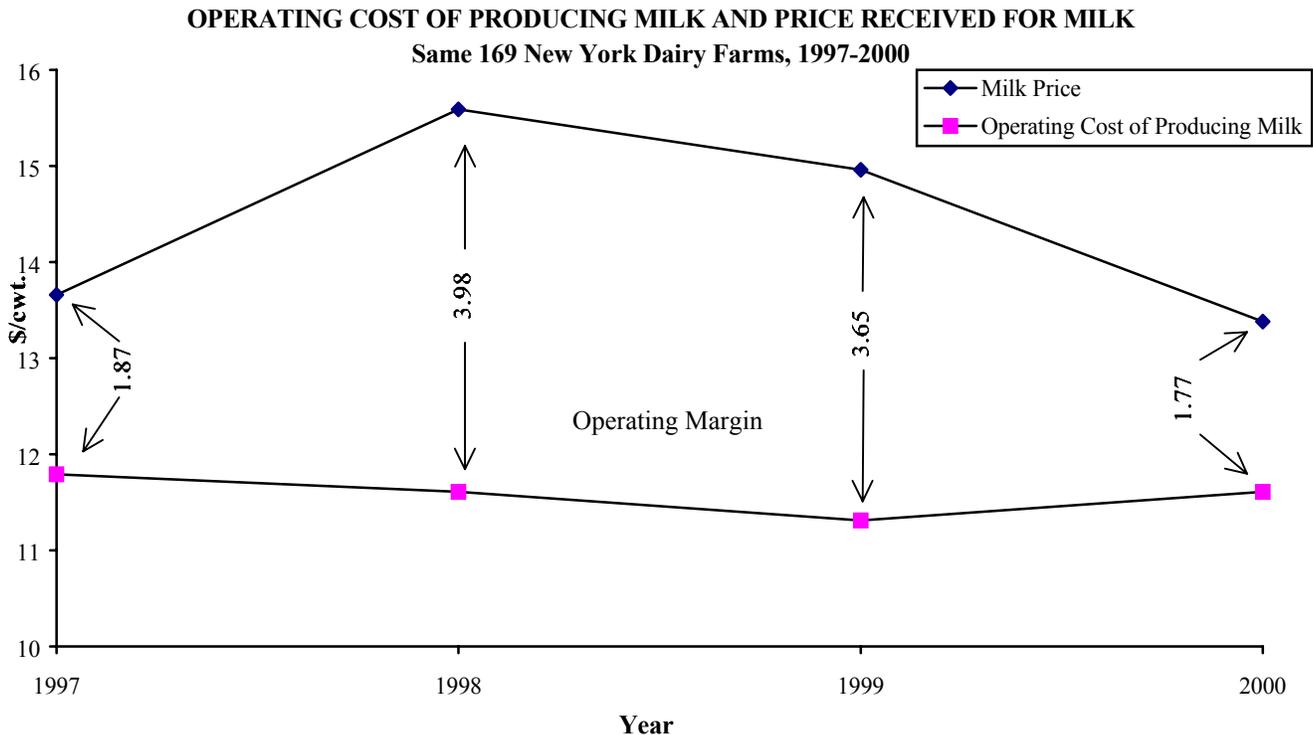


Table 1.

COMPARISON OF FARM BUSINESS SUMMARY DATA
New York Dairy Farms, 1970 - 2000

Selected Factors	1970	1980	1990	2000
Number of farms	509	600	395	294
<u>Size of Business</u>				
Average number of cows	65	75	107	246
Average number of heifers	43	56	87	186
Milk sold, cwt.	8,222	10,761	19,005	52,871
Worker equivalent	2.2	2.7	3.37	6.11***
Total tillable acres	168*	246*	325	566
<u>Rates of Production</u>				
Milk sold per cow, lbs.	12,600	14,300	17,720	21,516
Hay DM per acre, tons	2.7	2.5	2.7	3.3
Corn silage per acre, tons	15	15	14	15
<u>Labor Efficiency</u>				
Cows per worker	30	28	32	40***
Milk sold per worker, lbs.	373,700	403,000	563,349	865,325***
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	25%	27%	28%	27%
Dairy feed & crop expense per cwt. milk	\$1.91	\$4.49	\$5.21	\$4.61
Operating cost of producing cwt. milk	\$2.43	\$8.65	\$11.11	\$11.31
Total cost of producing cwt. milk	\$5.73	\$14.39	\$15.50	\$14.46
Milk receipts per cwt. milk	\$6.10	\$12.81	\$14.93	\$13.38
<u>Capital Efficiency</u>				
Total farm capital	\$137,280	\$445,712	\$701,492	\$1,607,712
Farm capital per cow	\$2,112	\$5,500	\$6,556	\$6,535
Machinery & equipment per cow	\$447	\$1,015	\$1,233	\$1,225
Real estate per cow	\$1,026	\$2,600	\$2,977	\$2,615
Livestock investment per cow	\$495	\$1,569	\$1,436	\$1,572
Asset turnover ratio	0.48	0.45	0.48	0.54
<u>Profitability (in 2000 dollars)****</u>				
Net farm income without appreciation	-----	\$76,884	\$61,949	\$46,610
Net farm income with appreciation	\$82,866	\$107,777	\$74,534	\$84,706
Labor & management income per operator/manager	\$35,429	\$3,271	\$18,877	\$-2,908
Rate of return on:				
Equity capital with appreciation	-----	11.4%	4.8%	3.0%
All capital with appreciation	-----	10.2%	6.0%	4.8%
All capital without appreciation	-----	6.9%	4.7%	2.5%
<u>Financial Summary, End Year</u>				
Farm net worth	\$100,541**	\$288,022	\$480,515	\$942,881
Change in net worth with appreciation	-----	-----	\$18,390	\$21,271
Debt to asset ratio	0.29**	0.36	0.34	0.43
Farm debt per cow	\$700**	\$2,048	\$2,220	\$2,762

*Acres of cropland harvested.

**Average of 159 dairy farm cooperators submitting financial information in 1970.

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

****Adjusted for inflation using Consumer Price Index – 2000 dollars.

Table 2.

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 169 New York Dairy Farms, 1997 - 2000

Selected Factors	1997	1998	1999	2000
Milk receipts per cwt. milk	\$ 13.66	\$ 15.59	\$ 14.96	\$ 13.38
<u>Size of Business</u>				
Average number of cows	229	243	254	267
Average number of heifers	168	181	191	203
Milk sold, cwt.	48,288	51,567	55,636	58,313
Worker equivalent*	5.78	6.03	6.30	6.56
Total tillable acres	518	544	565	583
<u>Rates of Production</u>				
Milk sold per cow, lbs.	21,098	21,194	21,876	21,877
Hay DM per acre, tons	2.6	3.2	3.1	3.5
Corn silage per acre, tons	16	19	17	15
<u>Labor Efficiency</u>				
Cows per worker*	40	40	40	41
Milk sold per worker, lbs.*	835,431	855,173	883,114	888,916
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	33%	25%	25%	27%
Dairy feed & crop expense per cwt. milk	\$ 5.35	\$ 4.98	\$ 4.72	\$ 4.59
Operating cost of producing cwt. milk	\$ 11.79	\$ 11.61	\$ 11.31	\$ 11.61
Total cost of producing cwt. milk	\$ 14.53	\$ 14.42	\$ 14.15	\$ 14.46
Hired labor cost per cwt.	\$ 2.08	\$ 2.21	\$ 2.31	\$ 2.39
Interest paid per cwt.	\$ 0.89	\$ 0.88	\$ 0.77	\$ 0.91
Labor & machinery costs per cow	\$ 1,020	\$ 1,075	\$ 1,171	\$ 1,192
<u>Capital Efficiency, Average for Year</u>				
Farm capital per cow	\$ 6,039	\$ 6,105	\$ 6,385	\$ 6,486
Machinery & equipment per cow	\$ 1,037	\$ 1,065	\$ 1,124	\$ 1,166
Real estate per cow	\$ 2,549	\$ 2,507	\$ 2,560	\$ 2,558
Livestock investment per cow	\$ 1,450	\$ 1,456	\$ 1,500	\$ 1,555
Asset turnover ratio	0.54	0.62	0.60	0.55
<u>Profitability</u>				
Net farm income without appreciation	\$ 45,908	\$ 152,199	\$ 143,540	\$ 40,582
Net farm income with appreciation	\$ 57,099	\$ 177,527	\$ 174,342	\$ 79,035
Labor & management income per operator/manager	\$ 844	\$ 63,346	\$ 51,744	\$ -8,815
Rate return on:				
Equity capital with appreciation	1.2%	15.0%	12.9%	2.6%
All capital with appreciation	3.8%	11.8%	10.3%	4.6%
All capital without appreciation	3.0%	10.0%	8.4%	2.3%
<u>Financial Summary, End Year</u>				
Farm net worth	\$ 800,083	\$ 915,850	\$1,015,538	\$1,023,594
Change in net worth with appreciation	\$ 371	\$ 116,331	\$ 97,897	\$ 10,405
Debt to asset ratio	0.43	0.41	0.40	0.42
Farm debt per cow	\$ 2,577	\$ 2,526	\$ 2,600	\$ 2,687
Debt coverage ratio	0.95	1.77	1.68	0.72

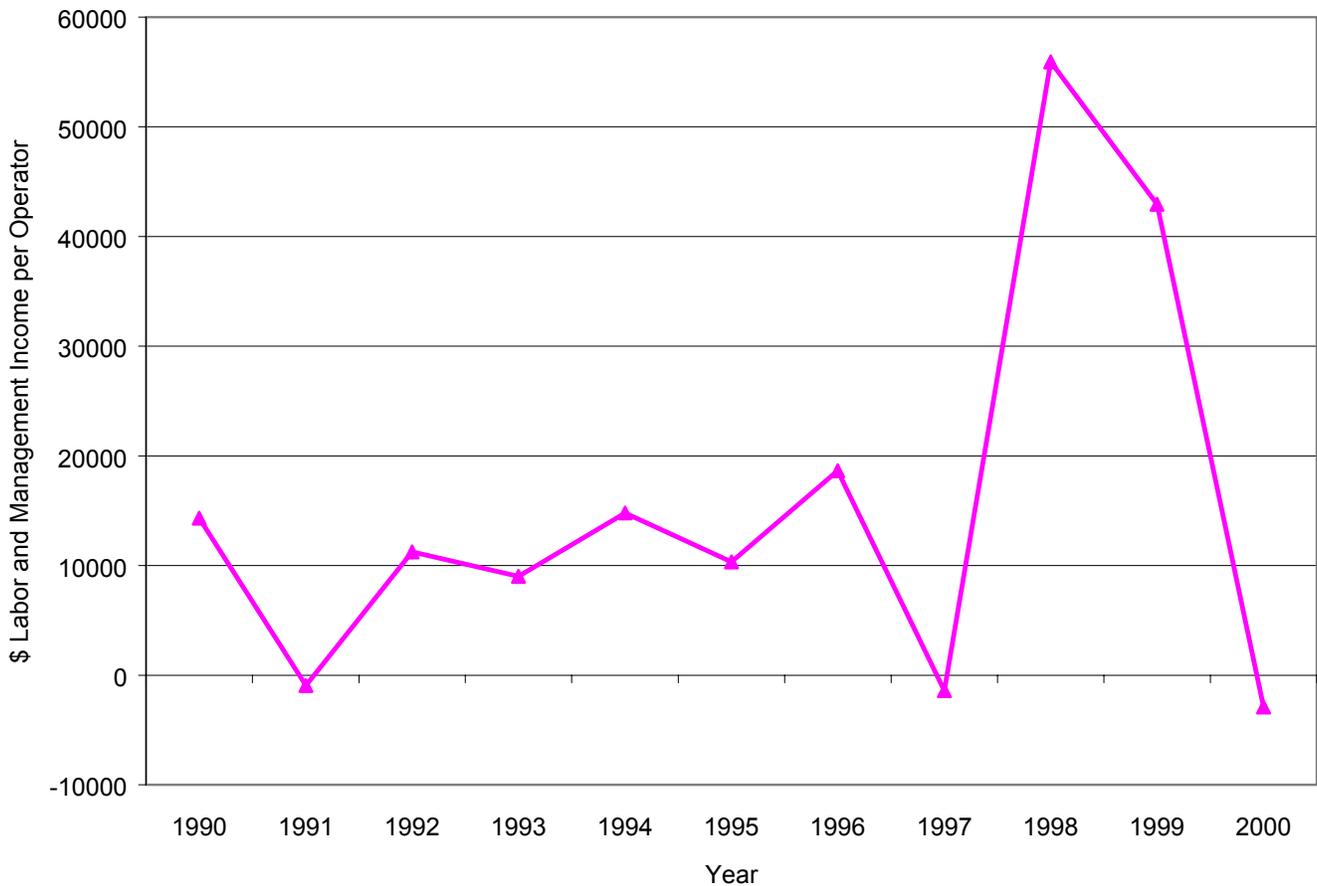
*Based on hours actually worked by owner/operator instead of standard 12 months per full-time owner/operator.

ADJUSTING PROFIT, PRICE AND COSTS FOR INFLATION

Labor and management income per operator in 1998 was at an all time high when measured in nominal (actual) value (Chart 2). Over the period 1990 to 2000, labor and management incomes per operator did not exceed \$25,000 except for \$55,000 in 1998 and nearly \$43,000 in 1999. The reader is reminded that the average herd size of DFBS participants steadily increased from 107 cows to 246 cows over this period.

Chart 2.

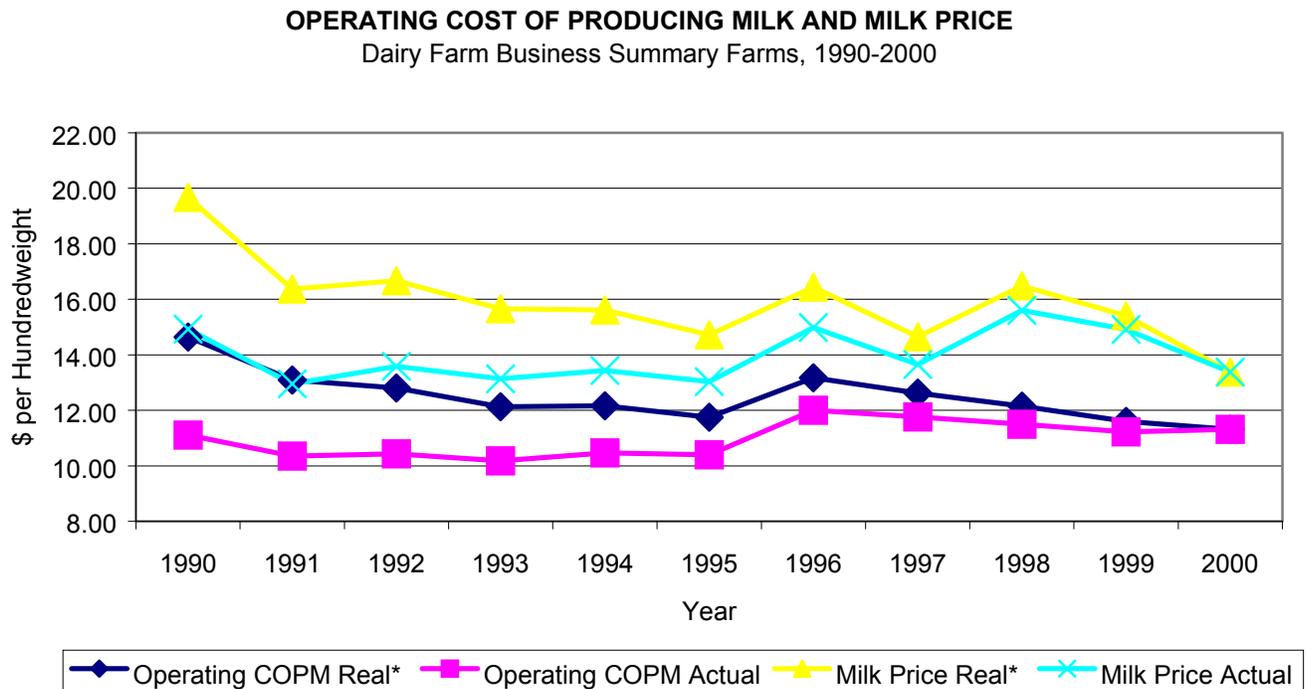
LABOR AND MANAGEMENT INCOME PER OPERATOR Dairy Farm Business Summary Farms, 1990-2000



Milk prices in 2000 averaged \$13.38/cwt in actual dollars (Chart 3, page 7). In 1990, milk prices adjusted for inflation, in 2000 dollars, would have been about \$14.64/cwt.

Operating cost of producing milk (actual) had been very constant from 1990 through 1995, feed costs were higher in 1996 and so were operating costs of producing milk. Operating costs have been trending down in 1996 through 2000, but remain higher than earlier years. Real costs of producing milk have been on a downward trend over this 11-year period.

Chart 3.



MILK INCOME AND MARKETING EXPENSE BREAKDOWN

Starting January 1st, 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, 74 farms filled out a detailed form for 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 expenses.

The first section looks at the value of the milk components on a per cwt. 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. A new line item in this section is the expenses associated with utilizing forward contracting or hedging programs to market milk, such as commission or broker fees. The fifth section is income from the compact program or 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.

Table 3 on page 8 reports the averages for these different sections. Table 4 on page 9 contains the range for each of the individual lines of the report. This table is in 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.

Table 3.

AVERAGE MILK INCOME AND MARKETING REPORT
74 New York Dairy Farms, 2000

	Pounds	Percent	Price/Pound	Total	\$/Cwt of Milk
BASE FARM PRICE					
Butterfat	317,577.00	3.71%	\$ 1.2634	\$ 398,523.66	\$ 4.68
Protein	261,077.90	3.03%	\$ 1.6813	\$ 433,854.43	\$ 5.06
Solids	489,113.09	5.63%	\$ 0.0525	\$ 25,680.42	\$ 0.30
Total Component Contribution					\$10.04
PPD	8,617,559.41		\$ 2.5458	\$ 213,842.50	\$ 2.55
Base Farm Price					\$ 12.59
Premiums					
Quality				\$ 12,344.17	\$ 0.13
Volume				\$ 21,946.03	\$ 0.16
Market Premiums				\$ 28,483.59	\$ 0.26
Total Premiums					\$ 0.55
BASE FARM PRICE + PREMIUM					\$ 13.13
<hr style="border-top: 1px dashed black;"/>					
Deductions					
Promo				\$ 13,049.68	\$ 0.15
Hauling + Stop Charges.				\$ 40,008.64	\$ 0.52
Market Fees & Coop Dues				\$ 5,638.69	\$ 0.07
Futures/Contract Fees				\$ 3.40	\$ 0.00
Total Deductions					\$ 0.74
BASE FARM PRICE + PREMIUMS – DEDUCTIONS					\$ 12.40
Marketing Programs					
Compact				\$ 8,158.92	\$ 0.14
Futures Contracts, Forward Contracting, Etc.				\$ 7,197.64	\$ 0.05
Total Marketing Income					\$ 0.20
Patronage Dividends				\$ 13,846.23	\$ 0.23
NET PRICE RECEIVED ON FARM, ALL SOURCES					\$ 12.82
PPD – Hauling, per cwt.					\$ 2.02
PPD – Hauling + Market Premiums, per cwt.					\$ 2.28

Table 4.

MILK PRICE INFORMATION BY QUINTILE
(Each Category Sorted Independently)
74 New York Dairy Farms, 2000

	Lowest Quintile	←—————→	Highest Quintile
Butterfat, %	3.49	3.63	4.00
Protein, %	2.84	2.93	3.41
Other Solids, %	5.18	5.63	5.90
Butterfat, \$ per Cwt.	4.37	4.52	5.22
Protein, \$ per Cwt.	4.76	4.93	5.50
Other solids, \$ per Cwt.	0.28	0.29	0.34
Total Component Value per Cwt.	\$ 9.50	\$ 9.77	\$ 10.98
PPD, \$ per Cwt.	2.24	2.31	3.12
Base Farm Price per Cwt.	\$ 11.87	\$ 12.16	\$ 13.90
Quality, \$ per Cwt.	.01	.08	.27
Volume, \$ per Cwt.	.00	.00	.50
Market premium, \$ per Cwt.	.00	.01	.84
Total Premium, \$ per Cwt.	.07	.35	1.19
Base Farm Price + Premiums per Cwt.	\$ 12.29	\$ 12.67	\$ 14.62
Promotion, \$ per Cwt.	.13	.15	.17
Hauling, \$ per Cwt.	.28	.40	.90
Market fees & coop dues per Cwt.	.00	.03	.17
Futures/contract fees, \$ per Cwt.	.00	.00	.00
Total Marketing Expenses per Cwt.	\$.47	\$.60	\$ 1.18
Base + Premiums – Deductions per Cwt.	\$ 11.59	\$ 11.98	\$ 13.80
Compact, \$ per Cwt.	.00	.00	.76
Futures contract, forward contracting, \$ per Cwt.	.00	.00	.28
Total Marketing Income, \$ per Cwt.	\$.00	\$.00	\$.87
Patronage Dividends, \$ per Cwt.	\$.00	\$.00	\$ 1.07
Net Price Received From All Sources, \$ per Cwt.	\$ 11.86	\$ 12.36	\$ 14.24
PPD - hauling, \$ per Cwt.	1.73	1.88	2.44
PPD - hauling + mkt premiums, \$ per Cwt.	1.85	2.01	3.07

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, the number of farms reporting these characteristics, and listing of the average labor, land, and dairy cattle resources used in 2000 are presented in the following table.

Table 5.

**BUSINESS CHARACTERISTICS AND RESOURCES USED
294 New York Dairy Farms, 2000**

<u>Dairy Livestock (number)</u>	<u>Cows</u>	<u>Heifers</u>	<u>Dairy Records</u>	<u>Number</u>	<u>Percent</u>
Beginning of Year	234	178	Testing Service	225	76
End of Year	254	188	On Farm System	20	7
Average for Year	246	186	Other	11	4
			None	38	13
<u>Type of Business</u>	<u>Number</u>	<u>Percent</u>	<u>bST Usage</u>	<u>Number</u>	<u>Percent</u>
Sole Proprietorship	153	52	Used on <25% of herd	25	9
Partnership	91	31	Used on 25-75% of herd	107	36
Limited Liability Corp	21	7	Used on >75% of herd	23	8
Subchapter S Corp.	21	7	Stopped using in 2000	10	1
Subchapter C Corp	8	3	Not used in 2000	129	44
<u>Barn Type</u>	<u>Number</u>	<u>Percent</u>	<u>Labor Force</u>	<u>Average</u>	<u>Percent</u>
Stanchion	96	33	Operators	21.9	29
Freestall	75	59	Family Paid	4.9	7
Combination	23	8	Family Unpaid	2.8	4
<u>Milking System</u>	<u>Number</u>	<u>Percent</u>	Hired	43.8	60
Bucket & Carry	1	<1	Total Months	73.4	100
Dumping Station	3	1			
Pipeline	108	37			
Herringbone Conventional	97	33	<u>Operators (total = 538)</u>	<u>Average</u>	1.83
Herringbone Rapid	20	7	Age		45
Parallel	46	16	Education		13 years
Parabone	3	1	Estimated Value of		
Rotary	1	<1	Labor & Management		\$51,600
Other	15	5			
<u>Milking Frequency</u>	<u>Number</u>	<u>Percent</u>	<u>Land Used</u>	<u>Number</u>	<u>Average</u>
2 times per day	199	68	Total acres:		
3 times per day	77	26	Owned	294	473
Other	18	6	Rented	271	304
			Tillable acres:		
<u>Business Records</u>	<u>Number</u>	<u>Percent</u>	Owned	294	305
Account Book	77	26	Rented	268	287
Accounting Service	45	15	Total	294	566
On-Farm Computer	161	55			
Other	11	4			

There were 538 full-time operator equivalents on the 294 dairy farms for an average of 1.83 operators per farm. The operators averaged 45 years of age and 13 years of formal education. Additional data on the labor force is in Table 44.

All 294 farm businesses included in this dairy summary own farm real estate. Dairy farm renters are summarized separately later in this publication. However, 268 of the dairy farm owners rented an average of 287 acres of tillable land in 2000. The 294 farms averaged 566 total tillable acres per farm of which 262 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 measure annual receipts, expenses, and farm profitability more accurately. These procedures express the true value and cost of production for the year, regardless of whether cash was received or expended. Cash expenses and cash receipts are used when evaluating the cash flow position of the business.

The accrual accounting procedures 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 are 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 page begins with an accounting of all farm business expenses. Farm business expenditures are grouped into the following nine major categories:

1. Hired labor includes gross wages plus the farm share of social security, workers' compensation insurance, employee health insurance and other employee benefits paid by the farm employer.
2. Feed expenses are divided into purchased dairy grain and concentrate, purchased dairy roughage and all feed purchased for nondairy livestock to allow more thorough analysis of dairy herd feeding costs. The costs of growing grain and roughage are not included in cash and accrual feed expenses.
3. Machinery costs represent all the operating costs of using machinery on the farm. Ownership costs are excluded here but are included in the analysis of machinery costs.
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.

Cash and accrual farm expenses are summarized below. Total operating accrual expenses for the 294 farms averaged \$1,928 per day and 90 percent of total farm accrual expenses.

Table 6.

CASH AND ACCRUAL FARM EXPENSES
294 New York Dairy Farms, 2000

Expense Item	Cash Paid	-	Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses	Percent
<u>Hired Labor</u>	\$ 118,809		\$-138 <<		\$ -2		\$ 118,945	17
<u>Feed</u>								
Dairy grain & concentrate	177,808		-12,801		3,395		194,003	28
Dairy roughage	12,606		163		353		12,796	2
Nondairy livestock	29		-1		0		29	<1
<u>Machinery</u>								
Machinery hire, rent & lease	18,644		-381 <<		678		19,704	3
Machinery repairs & farm vehicle exp.	36,312		194		312		36,431	5
Fuel, oil & grease	17,995		115		343		18,223	3
<u>Livestock</u>								
Replacement livestock	12,080		0 <<		220		12,299	2
Breeding	8,620		-272		188		9,080	1
Veterinary & medicine	25,997		-369		366		26,733	4
Milk marketing	36,311		2 <<		13		36,323	5
Bedding	10,511		80		127		10,558	1
Milking Supplies	17,189		-359		188		17,736	3
Cattle lease & rent	2,107		53 <<		0		2,054	<1
Custom boarding	10,213		-32 <<		189		10,434	1
BST expense	12,445		-356 <<		83		12,885	2
Other livestock expense	7,239		31		33		7,240	1
<u>Crops</u>								
Fertilizer & lime	13,520		-1,444		345		15,308	2
Seeds & plants	7,490		-2,535		275		10,300	1
Spray & other crop expense	10,920		-524		-6		11,438	2
<u>Real Estate</u>								
Land, building & fence repair	11,304		1		36		11,339	2
Taxes	10,549		8 <<		1		10,542	1
Rent & lease	14,651		238 <<		85		14,498	2
<u>Other</u>								
Insurance	8,295		-38 <<		-27		8,306	1
Utilities	17,004		1 <<		120		17,122	2
Interest paid	49,905		35 <<		117		49,988	7
Miscellaneous	9,346		-62		155		9,564	1
Total Operating	\$ 677,900		\$-18,390		\$ 7,590		\$ 703,880	100
Expansion livestock	\$ 19,325		\$ 0 <<		\$ 10		\$ 19,335	
Machinery depreciation							\$ 36,805	
Building depreciation							\$ 26,380	
TOTAL ACCRUAL EXPENSES							\$ 786,400	

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.

Change in inventory represents feeds and supplies purchased this year but not used (positive change), and inputs purchased in a prior year and used this year (negative change). For example, purchased dairy grain and concentrate inventory decreased \$12,801.

Prepaid expenses (noted by « in Table 6) are advance payments made for services and noninventory items. For example, advance payments for rent increased an average of \$238 per farm in 2000, and that increase is subtracted from cash rent to determine the correct 2000 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 \$-18,390, and total change in accounts payable equals \$7,590.

Income Statement - Receipts

Cash and accrual farm receipts are presented in the following table. Total cash receipts averaged \$798,410 per farm. Total accrual receipts averaged \$833,010 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 15 head per farm and the homegrown feed inventory per farm increased \$5,999. Homegrown feed inventory per cow increased \$5 from beginning to end of year.

Table 7.

CASH AND ACCRUAL FARM RECEIPTS 294 New York Dairy Farms, 2000

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts	Percent
Milk sales	\$ 702,486				\$ 5,174		\$ 707,661	85
Dairy cattle	32,685		\$ 22,502		-123		55,063	7
Dairy calves	9,626				-23		9,603	1
Other livestock	2,115		225		8		2,347	<1
Crops	4,180		5,999		-393		9,787	1
Government receipts	33,315		29*		1,222		34,566	4
Custom machine work	1,944				78		2,022	<1
Gas tax refund	254				-1		252	<1
Other	11,805				-61		11,743	1
- Nonfarm noncash capital**			(-) 34				(-) 34	
Total	\$ 798,410		\$ 28,721		\$ 5,880		\$ 833,010	100

*Change in advanced government receipts.

**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 1999 to 2000. 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 2000 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 \$38,096 per farm in 2000. On the average, farm real estate appreciated \$16,017 or less than 3 percent of beginning fair market value. Machinery appreciated 2.5 percent while dairy cattle prices appreciated 4.5 percent in 2000.

Average data from 29 farms with the highest rates of return to all capital (without appreciation) are compared with the 294 farm average in Table 8 and in many of the following tables. Net farm income with appreciation averaged \$259,690 per farm on the top 10 percent farms, 207 percent greater than the 294 farm average.

Table 8.

NET FARM INCOME 294 New York Dairy Farms, 2000

Item	Average 294 Farms		Average Top 10% Farms*	
	Per Farm	Per Cow	Per Farm	Per Cow
Total accrual receipts	\$ 833,010		\$ 1,235,078	
+ Appreciation: Livestock	16,390		24,413	
Machinery	7,057		8,552	
Real Estate	16,017		19,093	
Other Stock & Certificates	<u>-1,368</u>		<u>-404</u>	
= Total including appreciation	\$ 871,106		\$ 1,286,732	
- Total accrual expenses	<u>786,400</u>		<u>1,027,042</u>	
= Net Farm Income (with appreciation)	\$ 84,706	\$ 344	\$ 259,690	\$ 766
Net Farm Income (without appreciation)	\$ 46,610	\$ 189	\$ 208,036	\$ 614

*Average of 29 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
294 New York Dairy Farms, 2000

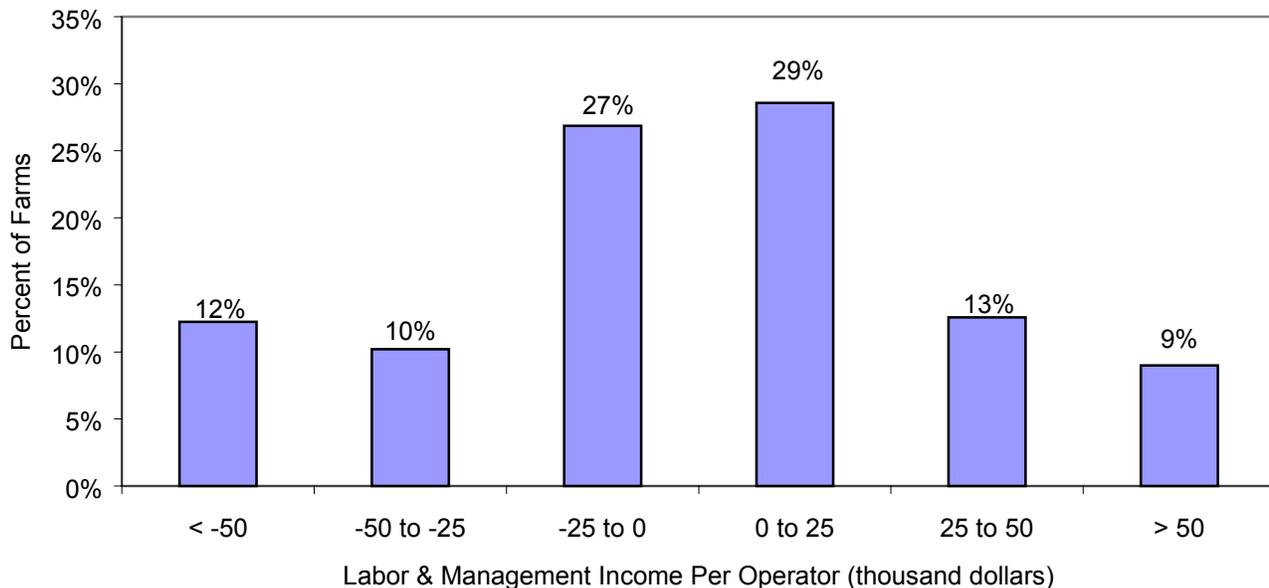
Item	Average 294 Farms	Average Top 10% Farms*
Net farm income without appreciation	\$ 46,610	\$ 208,036
- Family labor unpaid @ \$1,900 per month	\$ 5,320	\$ 3,800
- Real interest @ 5% on \$932,246 equity capital for average & \$1,295,740 for the top 10%	<u>46,612</u>	<u>64,787</u>
= Labor & Management Income (1.83 operators)	\$ -5,322	(1.64 operators) \$ 139,449
Labor & Management Income per Operator	\$ -2,908	\$ 85,030

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

Labor and management income per operator averaged \$-2,908 on these 294 dairy farms in 2000. The range in labor and management income per operator was from less than \$-1.2 million to more than \$370,000. Returns to labor and management were negative on 49 percent of the farms. Labor and management income per operator ranged from \$0 to \$25,000 on 29 percent of the farms while 22 percent showed labor and management incomes of \$25,000 or more per operator.

Chart 1.

DISTRIBUTION OF LABOR & MANAGEMENT INCOMES PER OPERATOR
294 New York Dairy Farms, 2000



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 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
294 New York Dairy Farms, 2000

Item	Average 294 Farms	Average Top 10% Farms*
Net farm income with appreciation	\$ 84,706	\$ 259,690
- Family labor unpaid at \$1,900 per month	5,320	3,800
- Value of operators' labor & management	<u>51,600</u>	<u>54,905</u>
= Return to equity capital with appreciation	\$ 27,786	\$ 200,985
+ Interest paid	<u>49,988</u>	<u>59,636</u>
= Return to all capital with appreciation	\$ 77,774	\$ 260,621
Return to equity capital without appreciation	\$ -10,310	\$ 149,331
Return to all capital without appreciation	\$ 39,678	\$ 208,967
Rate of return on average equity capital:		
with appreciation	3.0%	15.5%
without appreciation	-1.1%	11.5%
Rate of return on all capital:		
with appreciation	4.8%	12.7%
without appreciation	2.5%	10.2%
Net farm income from operations ratio	0.06	0.17

*Average of 29 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
294 New York Dairy Farms, 2000

Item	Quartile by Return to All Capital With Appreciation			
	Lowest 25%	3rd 25%	2nd 25%	Top 25%
Return to all capital with appreciation	\$ -41,128	\$ 19,752	\$ 64,343	\$ 271,082
Rate of return on all capital with appreciation	-4.1%	2.3%	4.7%	8.4%
Total returns to all labor & management	\$ 15,282	\$ 31,883	\$ 92,833	\$ 338,388
Worker equivalent	4.42	3.50	5.19	11.38
Return per worker equivalent	\$ 3,457	\$ 9,109	\$ 17,887	\$ 29,735
Returns/hour (2,760 hours/worker/year)	\$ 1.25	\$ 3.30	\$ 6.48	\$ 10.77

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.

2000 FARM BUSINESS AND NONFARM BALANCE SHEET 294 New York Dairy Farms, 2000

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$ 11,459	\$ 9,370	Accounts payable	\$ 13,186	\$ 20,786
Accounts receivable	48,893	54,772	Operating debt	55,492	55,418
Prepaid expenses	2,309	2,058	Short term	2,929	3,762
Feed & supplies	<u>179,714</u>	<u>167,574</u>	Advanced gov't. receipt	54	25
Total Current	\$ 242,375	\$ 233,774	Current portion:		
			Intermediate	44,679	50,717
			Long term	<u>20,029</u>	<u>19,090</u>
			Total Current	\$ 136,367	\$ 149,798
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy Cows:			Structured debt		
owned	\$ 249,469	\$ 274,592	1-10 years	\$ 234,322	\$ 261,515
leased	4,211	3,351	Financial lease		
Heifers	115,496	129,214	(cattle & machinery)	19,115	14,819
Bulls & other livestock	2,242	2,517	Farm Credit stock	<u>6,155</u>	<u>4,705</u>
Mach. & equip. owned	278,561	297,725	Total Intermediate	\$ 259,592	\$ 281,039
Mach. & equip. leased	14,904	11,468			
Farm Credit stock	6,155	4,705	<u>Long Term</u>		
Other stock & certificates	<u>28,261</u>	<u>29,703</u>	Structured debt		
Total Intermediate	\$ 699,299	\$ 753,275	≥ 10 years	\$ 252,544	\$ 269,889
			Financial lease		
<u>Long Term</u>			(structures)	<u>952</u>	<u>751</u>
Land & buildings:			Total Long Term	\$ 253,496	\$ 270,640
owned	\$ 628,439	\$ 656,558			
leased	<u>952</u>	<u>751</u>	Total Farm Liabilities	\$ 649,455	\$ 701,477
Total Long Term	\$ 629,391	\$ 657,309			
Total Farm Assets	\$ 1,571,065	\$ 1,644,358	FARM NET WORTH	\$ 921,610	\$ 942,881
Nonfarm Assets*	Jan.1	Dec. 31	Nonfarm Liabilities* & Net Worth	Jan. 1	Dec. 31
Personal cash, checking & savings	\$ 3,492	\$ 4,428	Nonfarm Liabilities	\$ 4,964	\$ 4,328
Cash value life insurance	14,800	18,801	NONFARM NET WORTH	\$ 74,353	\$ 88,627
Nonfarm real estate	21,897	27,163			
Auto (personal share)	4,702	6,436	FARM & NONFARM**	Jan. 1	Dec. 31
Stocks & bonds	20,411	20,992	Total Assets	\$ 1,650,382	\$ 1,737,313
Household furnishings	8,815	11,206	Total Liabilities	<u>654,419</u>	<u>705,805</u>
All other	<u>5,200</u>	<u>3,929</u>	TOTAL FARM & NON-		
Total Nonfarm	\$ 79,317	\$ 92,955	FARM NET WORTH	\$ 995,963	\$ 1,031,508

*Average of 151 farms completing the nonfarm balance sheet.

**Sum of average farm values for 294 farms and nonfarm values for 151 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 production include some old standards that are still useful if used with measures of cash flow and repayment ability.

Table 13.

FARM BALANCE SHEET ANALYSIS
294 New York Dairy Farms, 2000

Item	Average 294 Farms			Average Top 10% Farms*
<u>Farm Financial Ratios:</u>				
Percent equity	57%			64%
Debt/asset ratio: total	0.43			0.36
long term	0.41			0.38
intermediate & current	0.44			0.35
Leverage Ratio:	0.74			0.56
Current Ratio:	1.56			2.11
Working Capital: \$83,976 as % of Total Expenses	11%	\$176,732		17%
<u>Farm Debt Analysis:</u>				
Accounts payable as % of total debt	3%			1%
Long term liab. as % of total debt	39%			38%
Current & intermediate liabilities as % of total debt	61%			62%
Cost of term debt (weighted average)	7.7%			7.6%
<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	\$2,762	\$2,300	\$2,223	\$1,999
Long term debt	1,066	887	834	750
Intermediate & long term	2,172	1,809	1,764	1,586
Intermediate & current debt	1,696	1,413	1,389	1,249

*Average of 29 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
294 New York Dairy Farms, 2000

Item	Real Estate	Machinery & Equipment	Livestock
Value beginning of year	\$ 628,439	\$ 278,561	\$ 367,207
Purchases	\$ 55,547*	\$ 52,064	
+ nonfarm noncash transfer**	1,855	68	
- Lost capital	13,773		
- Net sales	5,146	3,220	
- Depreciation	<u>26,380</u>	<u>36,805</u>	
= Net Investment	12,102	12,107	22,727
+ Appreciation	<u>16,017</u>	<u>7,057</u>	<u>16,390</u>
Value end of year	\$ 656,558	\$ 297,725	\$ 406,324

*\$15,697 land and \$39,850 buildings and/or depreciable improvements.

**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 was caused by (1) earning from the business, and nonfarm income, in excess of withdrawals being retained in the business (called 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)
294 New York Dairy Farms, 2000**

Item	Average 294 Farms	Average Top 10% Farms**
Beginning of year farm net worth	\$ 921,610	\$ 1,219,863
Net farm income without appreciation	\$ 46,610	\$208,036
+ Nonfarm cash income	6,730	1,049
- Personal withdrawals & family expenditures and income taxes, excluding nonfarm borrowings	<u>63,808</u>	<u>85,133</u>
RETAINED EARNINGS	+ \$ -10,468	+ \$ 123,952
Nonfarm noncash transfers to farm	\$ 1,957	\$ 0
+ Cash used in business from nonfarm capital	6,507	4,884
- Note or mortgage from farm real estate sold (nonfarm)	<u>187</u>	<u>862</u>
CONTRIBUTED/WITHDRAWN CAPITAL	+ \$ 8,277	+ \$ 4,022
Appreciation	\$ 38,096	\$ 51,654
- Lost capital	<u>13,773</u>	<u>27,277</u>
CHANGE IN VALUATION EQUITY	+ \$ 24,323	+ \$ 24,377
IMBALANCE/ERROR	<u>- \$ 861</u>	<u>- \$ 597</u>
End of year farm net worth*	\$ 942,881	\$ 1,371,617
<u>Change in Net Worth</u>		
Without appreciation	\$-16,825	\$100,100
With appreciation	\$21,271	\$151,754

*May not add due to rounding.

**Average of 29 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. 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 including beginning and end balances 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 294 New York Dairy Farms, 2000

Item	Average 294 Farms	
<u>Cash Flow from Operating Activities</u>		
Cash farm receipts	\$ 798,410	
- Cash farm expenses	<u>677,900</u>	
= Net cash farm income		\$ 120,510
Personal withdrawals & family expenses including nonfarm debt payments	\$ 63,952	
- Nonfarm income	<u>6,730</u>	
- Net cash withdrawals from the farm		<u>\$ 57,222</u>
= Net Provided by Operating Activities		\$ 63,288
<u>Cash Flow From Investing Activities</u>		
Sale of assets: machinery	\$ 3,220	
+ real estate	4,959	
+ other stock & certificates	<u>1,883</u>	
= Total asset sales		\$ 10,062
Capital purchases: expansion livestock	\$ 19,325	
+ machinery	52,064	
+ real estate	55,547	
+ other stock & certificates	<u>4,693</u>	
- Total invested in farm assets		<u>\$ 131,629</u>
+ Net Provided by Investment Activities		\$-121,567
<u>Cash Flow From Financing Activities</u>		
Money borrowed (intermediate & long term)	\$ 124,121	
+ Money borrowed (short term)	3,421	
+ Increase in operating debt	0	
+ Cash from nonfarm capital used in business	6,507	
+ Money borrowed - nonfarm	<u>145</u>	
= Cash inflow from financing		\$ 134,194
Principal payments (intermediate & long term)	\$ 74,483	
+ Principal payments (short term)	2,587	
+ Decrease in operating debt	<u>74</u>	
- Cash outflow for financing		<u>\$ 77,144</u>
= Net Provided by Financing Activities		\$ 57,050
<u>Cash Flow From Reserves</u>		
Beginning farm cash, checking & savings		\$ 11,459
- Ending farm cash, checking & savings		<u>\$ 9,370</u>
= Net Provided from Reserves		\$ 2,089
<u>Imbalance (error)</u>		\$ 860

Table 17.

ANNUAL CASH FLOW BUDGETING DATA
294 New York Dairy Farms, 2000

Item	Average 294 Farms			Average Top 10% Farms**		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Average number of cows and cwt. milk		246	52,871		339	76,160
<u>Accrual Operating Receipts</u>						
Milk	\$ 707,661	\$2,877	\$ 13.38	\$ 1,022,957	\$ 3,018	\$ 13.43
Dairy cattle	55,063	224	1.04	97,888	289	1.29
Dairy calves	9,603	39	0.18	12,434	37	0.16
Other livestock	2,347	10	0.04	8,376	25	0.11
Crops	9,787	40	0.19	33,738	100	0.44
Miscellaneous receipts	48,549	197	0.92	59,684	176	0.78
Total	\$ 833,010	\$3,386	\$ 15.76	\$ 1,235,078	\$ 3,643	\$ 16.22
<u>Accrual Operating Expenses</u>						
Hired labor	\$ 118,945	\$484	\$ 2.25	\$ 170,070	\$ 502	\$ 2.23
Dairy grain & concentrate	194,003	789	3.67	276,113	814	3.63
Dairy roughage	12,796	52	0.24	16,039	47	0.21
Nondairy feed	29	0	0.00	0	0	0.00
Machinery hire, rent & lease	19,704	80	0.37	20,292	60	0.27
Machinery repairs & vehicle expense	36,431	148	0.69	43,661	129	0.57
Fuel, oil & grease	18,223	74	0.34	22,473	66	0.30
Replacement livestock	12,299	50	0.23	16,066	47	0.21
Breeding	9,080	37	0.17	13,002	38	0.17
Vet & medicine	26,733	109	0.51	34,119	101	0.45
Milk marketing	36,323	148	0.69	45,006	133	0.59
Bedding	10,558	43	0.20	11,586	34	0.15
Milking supplies	17,736	72	0.34	21,097	62	0.28
Cattle lease	2,054	8	0.04	627	2	0.01
Custom boarding	10,434	42	0.20	8,444	25	0.11
bST expense	12,885	52	0.24	20,499	60	0.27
Other livestock expense	7,240	29	0.14	12,545	37	0.16
Fertilizer & lime	15,308	62	0.29	20,444	60	0.27
Seeds & plants	10,300	42	0.19	12,781	38	0.17
Spray/other crop expense	11,438	46	0.22	12,357	36	0.16
Land, building & fence repair	11,339	46	0.21	15,516	46	0.20
Taxes	10,542	43	0.20	10,609	31	0.14
Real estate rent & lease	14,498	59	0.27	19,054	56	0.25
Insurance	8,306	34	0.16	9,356	28	0.12
Utilities	17,122	70	0.32	17,737	52	0.23
Miscellaneous	9,564	39	0.18	13,302	39	0.17
Total Less Interest Paid	\$ 653,892	\$2,658	\$ 12.37	\$ 862,795	\$ 2,545	\$ 11.33
<u>Net Accrual Operating Income</u>						
(without interest paid)	\$ 179,118	\$728	\$ 3.39	\$ 372,283	\$ 1,098	\$ 4.89
- Change in livestock & crop inventory	28,721	117	0.54	78,856	233	1.04
- Change in accounts receivable	5,880	24	0.11	19,842	59	0.26
- Change in feed & supply inventory	-18,390	-75	-0.35	-21,558	-64	-0.28
+ Change in accounts payable*	7,473	30	0.14	402	1	0.01
NET CASH FLOW	\$ 170,415	\$693	\$ 3.22	\$ 295,546	\$ 872	\$ 3.88
- Net personal withdrawals & family exp.	57,077	232	1.08	84,084	248	1.10
Available for Farm Debt Payments & Invest.	\$ 113,338	\$461	\$ 2.14	\$ 211,462	\$ 624	\$ 2.78
- Farm debt payments	124,920	508	2.36	177,175	523	2.33
Cash available for Farm Investments	\$ -11,582	\$-47	\$ -0.22	\$ 34,287	\$ 101	\$ 0.45

*Exclude change in interest account payable.

**Average of 29 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 1999 and 2000.

Table 18.

FARM DEBT PAYMENTS PLANNED New York Dairy Farms, 2000

Debt Payments	Same 247 Dairy Farms			Same 27 Top 10% Farms		
	2000 Payments		Planned	2000 Payments		Planned
	Planned	Made	2001	Planned	Made	2001
Long term	\$ 43,953	\$ 54,224	\$ 44,897	\$ 36,317	\$ 52,995	\$ 42,986
Intermediate term	74,110	74,539	79,992	107,770	115,754	111,342
Short term	2,444	2,805	3,000	2,356	1,917	8,914
Operating (net reduction)	8,059	0	3,886	12,832	18,430	4,174
Accts. payable (net reduction)	874	0	1,598	923	0	192
Total	\$129,440	\$131,568	\$ 133,373	\$ 160,198	\$ 189,096	\$ 167,608
Per cow	\$ 502	\$ 510		\$ 468	\$ 553	
Per cwt. 2000 milk	\$ 2.30	\$ 2.34		\$ 2.09	\$ 2.47	
% of 2000 milk receipts	17%	17%		16%	18%	

The cash flow coverage ratio and debt coverage ratio measure the ability of the farm business to meet its planned debt payments. The ratios show the number of times the amount available for debt service in 2000 covered debt payments planned for 2000 (as of December 31, 1999).

Table 19.

COVERAGE RATIOS Same 247 New York Dairy Farms, 1999 & 2000

Item	Average	Item	Average
<u>Cash Flow Coverage Ratio</u>		<u>Debt Coverage Ratio</u>	
Cash farm receipts	\$ 850,899	Net farm income (w/o apprec.)	\$ 51,466
- Cash farm expenses	720,369	+ Depreciation	65,309
+ Interest paid (cash)	52,795	+ Interest paid (accrual)	52,885
- Net personal withdrawals from farm*	61,536	- Net personal withdrawals from farm*	61,536
(A) = Amount Available for Debt Service	\$ 121,789	(A') = Repayment Capacity	\$ 108,124
(B) = Debt Payments Planned for 2000 (as of December 31, 1999)	\$ 129,440	(B) = Debt Payments Planned for 2000 (as of December 31, 1999)	\$ 129,440
(A/B) = Cash Flow Coverage Ratio for 2000	0.94	(A'/B) = Debt Coverage Ratio for 2000	0.84

Same 27 Top 10% Dairy Farms, 1999 & 2000			
(A) = Amount Available for Debt Service	\$ 213,789	(A') = Repayment Capacity	\$ 266,745
(B) = Debt Payments Planned for 2000	160,198	(B) = Debt Payments Planned for 2000	160,198
(A/B) = Cash Flow Coverage Ratio for 2000	1.33	(A'/B) = Debt Coverage Ratio for 2000	1.67

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

Table 20.

DEBT TO ASSET RATIO VS. CASH FLOW COVERAGE 247 New York Dairy Farms, 2000

Debt/Asset Ratio	Cash Flow Coverage Ratio (Farm & Nonfarm)			
	<.5	.5 to .99	1 to 1.49	≥1.5
	percent of farms			
<40%	4.4	16.1	17.3	13.7
40 to 70%	5.2	17.3	15.3	4.0
70% & over	1.6	2.4	1.6	0.8

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 294 New York Dairy Farms, 2000

Item	Average 294 Farms			Average Top 10% Farms*		
	Owned	Rented	Total	Owned	Rented	Total
<u>Land</u>						
Tillable	305	261	566	387	380	767
Nontillable	44	13	57	37	32	69
Other nontillable	<u>124</u>	<u>6</u>	<u>130</u>	<u>153</u>	<u>1</u>	<u>154</u>
Total	473	280	753	577	413	990
<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	283	285	3.3 tn DM	28	401	3.4 tn DM
Corn silage	259	218	15.1 tn 4.9 tn DM	28	289	15.7 tn 4.9 tn DM
Other forage	38	53	2.1 tn DM	5	32	1.7 tn DM
Total forage	283	491	3.9 tn DM	28	696	4.0 tn DM
Corn grain	66	110	101 bu	5	91	102 bu
Oats	18	36	51 bu	1	15	40 bu
Wheat	22	76	52 bu	4	83	38 bu
Other crops	54	80		11	56	
Tillable pasture	84	66		7	82	
Idle	108	75		14	56	

*Average of 29 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 11 of the 294 farms produced hay or hay crop silage in 2000. Eighty-eight percent produced corn silage, 22 percent grew and harvested corn grain, and 6 percent grew oats for grain. Although 84 farms used tillable pasture in 2000, only 57 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 efficiently the land resource is being used and how well total forage requirements are being met.

Table 22.

CROP MANAGEMENT FACTORS 294 New York Dairy Farms, 2000

Item	Average 294 Farms	Average Top 10% Farms*
Total tillable acres per cow	2.30	2.26
Total forage acres per cow	1.92	1.98
Harvested forage dry matter, tons per cow	7.56	7.95

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

In the eighth year of collecting information on pasture costs, 4 cooperators provided pasture-related expenses. Forty cooperators allocated direct crop related expenses to hay crop, corn and other crop production. The data in Table 23 have been compiled to show the average crop related production expenses per acre and per unit for these crops and for pasture. 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 all 294 farms, the expenses for hay are for 38 farms and corn crops are for 40 farms. The pasture costs are for the 4 farms which submitted data.

Table 23.

CROP RELATED ACCRUAL EXPENSES
New York Dairy Farms, 2000

Expenses	Average 294 Farms Total per Tillable Acre	Farms Reporting Crop Costs						
		Average 38 Farms Hay Crop		Average 40 Farms			Average 4 Farms Pasture	
		Per Acre	Per Ton DM	All Corn Per Acre	Corn Silage Per Ton DM	Corn Grain Per Dry Shell Bu.	Per Till. Acre	Per Total Acre
Fertilizer & lime	\$27.05	\$20.67	\$5.61	\$33.84	\$7.25	\$0.33	\$3.27	\$1.50
Seeds & plants	18.20	9.05	2.46	36.18	7.75	0.35	13.52	6.20
Spray & other crop exp.	<u>20.21</u>	<u>7.65</u>	<u>2.08</u>	<u>37.69</u>	<u>8.07</u>	<u>0.37</u>	<u>0.27</u>	<u>0.13</u>
Total	\$65.46	\$37.37	\$10.15	\$107.71	\$23.07	\$1.05	\$17.06	\$7.83
Ave. Top 10% Farms:*	<u>Average 29 Farms</u>	----- <u>NOT REPORTED</u> -----						
Fertilizer & lime	\$26.65							
Seeds & plants	16.66							
Spray & other crop exp.	<u>16.11</u>							
Total	\$59.42							

*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
294 New York Dairy Farms, 2000

Machinery Expense Item	Average 294 Farms		Average Top 10% Farms*	
	Total Expenses	Per Til. Acre	Total Expenses	Per Til. Acre
Fuel, oil & grease	\$18,223	\$32.20	\$22,473	\$29.30
Machinery repairs & vehicle expense	36,431	64.37	43,661	56.92
Machine hire, rent & lease	19,704	34.81	20,292	26.46
Interest (5%)	15,066	26.62	20,012	26.09
Depreciation	<u>36,805</u>	<u>65.03</u>	<u>51,252</u>	<u>66.82</u>
Total	\$126,229	\$223.02	\$157,690	\$205.59

*Average of 29 farms 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, 2000**

Item	Tons of Hay Crop Dry Matter Per Acre			
	<2.5	2.5-2.9	3.0-3.4	≥3.5
Hay crop, tons DM/acre	1.9	2.7	3.3	4.5
Farms reporting crop expense breakdowns	8	11	12	7
Average number hay crop acres for farms reporting	184	291	218	276
<u>Accrual Crop Expenses Per Acre of Hay Crop:</u>				
Fertilizer & lime	\$ 14.34	\$ 24.23	\$ 20.10	\$ 20.50
Seeds & plants	6.34	7.36	9.32	13.64
Spray & other crop expenses	<u>1.83</u>	<u>6.78</u>	<u>6.57</u>	<u>15.07</u>
Total	\$ 22.51	\$ 38.37	\$ 35.99	\$ 49.21
<u>Accrual Crop Expense Per Ton DM of Hay Crop:</u>				
Fertilizer & lime	\$ 6.31	\$ 10.10	\$ 4.41	\$ 3.39
Seeds & plants	2.79	3.07	2.05	2.26
Spray & other crop expenses	<u>0.81</u>	<u>2.83</u>	<u>1.44</u>	<u>2.49</u>
Total	\$ 9.91	\$ 16.00	\$ 7.90	\$ 8.14

Table 26.

**CROP RELATED ACCRUAL EXPENSES BY CORN PRODUCTION PER ACRE
40 New York Dairy Farms, 2000**

Item	Tons Corn Silage/Acre			Dry Shelled Bushels of Corn Grain Per Acre		
	<13	13-18	≥18	<100	100-120	≥120
Corn yield per acre	10.3	15.3	19.9	77	109	138
Farms reporting crop expense breakdowns	14	21	5	6	9	2
Average number corn acres for farms reporting	135	227	245	280	206	311
<u>Accrual Crop Expense/Acre of Corn</u>						
Fertilizer & lime	\$ 37.76	\$ 31.60	\$ 36.43	\$ 22.83	\$ 43.26	\$ 23.19
Seeds & plants	32.36	36.81	39.56	31.60	38.92	44.15
Spray & other crop expenses	<u>41.49</u>	<u>32.40</u>	<u>52.33</u>	<u>29.26</u>	<u>44.44</u>	<u>30.33</u>
Total	\$ 111.61	\$ 100.81	\$ 128.32	\$ 83.69	\$ 126.62	\$ 97.67
<u>Accrual Crop Expense Per:*</u>						
	Ton DM of Corn Silage			Dry Shell Bushel of Corn Grain		
Fertilizer & lime	\$ 12.78	\$ 6.49	\$ 5.81	\$ 0.25	\$ 0.42	\$ 0.18
Seeds & plants	10.95	7.56	6.31	0.35	0.37	0.33
Spray & other crop expense	<u>14.04</u>	<u>6.65</u>	<u>8.35</u>	<u>0.32</u>	<u>0.43</u>	<u>0.23</u>
Total	\$ 37.77	\$ 20.70	\$ 20.47	\$ 0.92	\$ 1.22	\$ 0.74

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

From the above two tables, it is important to observe that as forage yields per acre increase, crop related expenses per acre generally also increase. For corn silage, crop expense per ton of dry matter is highest at the low level of production. Corn grain shows the highest cost per acre for the mid-range of yield, but the high yield category remains the lowest cost per bushel. Hay crop expenses per ton of dry matter decrease substantially as yields exceed 3.0 tons per acre. The lower dry matter costs on the farms with greater than 3.0 tons per acre can be attributed to significantly higher yields with controlled expenses per acre.

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 increase in inventory is included as an accrual farm receipt when calculating profitability.

Table 27.

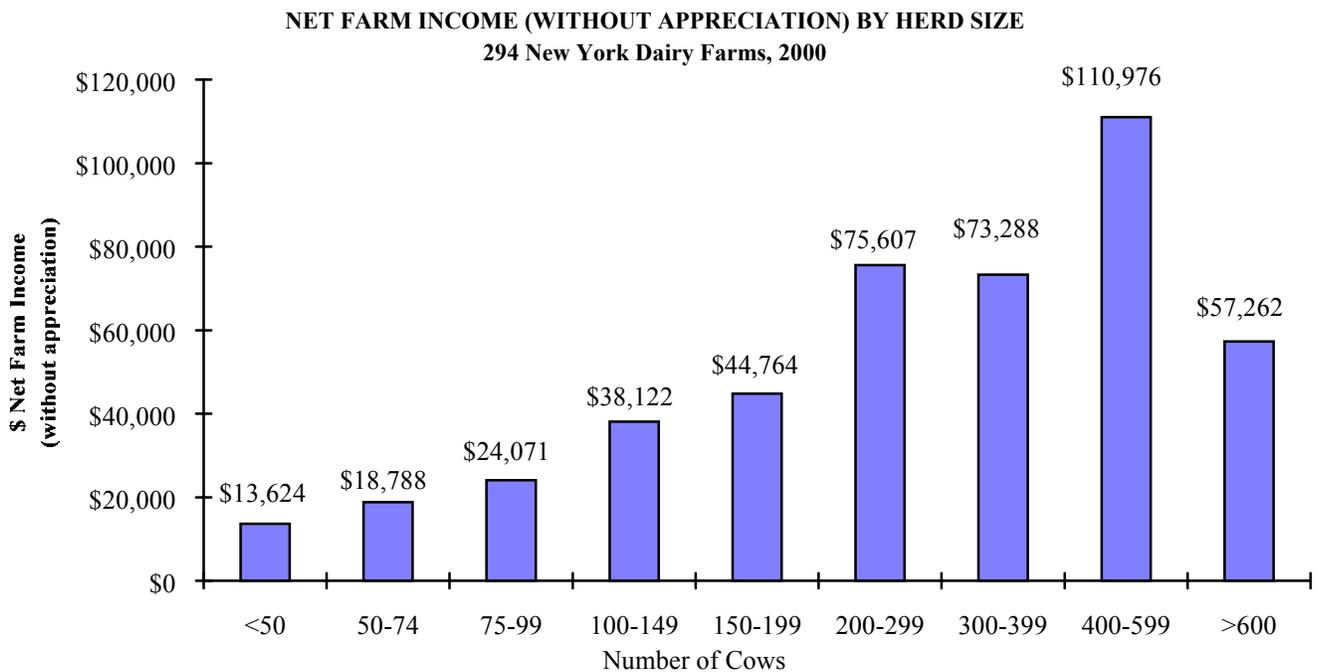
DAIRY HERD INVENTORY 294 New York Dairy Farms, 2000

Item	Dairy Cows		Heifers					
	No.	Value	Bred		Open		Calves	
			No.	Value	No.	Value	No.	Value
Beg. year (owned)	234	\$ 249,469	67	\$ 63,934	60	\$ 35,902	51	\$ 15,660
+ Change w/o apprec.		16,642		2,757		1,433		1,670
+ Appreciation		<u>8,481</u>		<u>3,575</u>		<u>2,552</u>		<u>1,731</u>
End year (owned)	249	\$ 274,592	70	\$ 70,266	63	\$ 39,887	55	\$ 19,061
End including leased	254							
Average number	246		186	(all age groups)				
<u>Average Top 10% Farms:*</u>								
Beg. year (owned)	323	\$ 348,841	89	\$ 90,110	73	\$ 44,573	73	\$ 22,677
+ Change w/o apprec.		29,533		10,606		8,937		2,475
+ Appreciation		<u>10,812</u>		<u>6,766</u>		<u>4,345</u>		<u>2,418</u>
End year (owned)	346	\$ 389,186	98	\$ 107,482	85	\$ 57,855	78	\$ 27,570
End including leased	348							
Average number	339		249	(all age groups)				

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

There is a strong relationship between farm size and net farm income on well managed dairy farms. When data are sorted by herd size categories this relationship becomes apparent as shown in Chart 5. However, the farms with more than 600 cows saw a reduction in net farm income in 2000. This same relationship holds across herd sizes for rate of return on assets. For more information on herd size comparisons, see pages 48-57.

Chart 5.



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
294 New York Dairy Farms, 2000

Item	Average 294 Farms	Average Top 10% Farms*
Total milk sold, lbs.	5,287,138	7,616,046
Milk sold per cow, lbs.	21,516	22,485
Average milk plant test, percent butterfat	3.71%	3.67%

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

Farms with higher rates of production tend to have higher profits. In 2000, most of the farms that sold more than 21,000 pounds of milk per cow had above average profit margins.

Table 29.

MILK SOLD PER COW AND FARM INCOME MEASURES
294 New York Dairy Farms, 2000

Pounds of Milk Sold Per Cow	Number of Farms	Average Number of Cows	Net Farm Income w/o Apprec.	Net Farm Income Per Cow	Labor & Management Income/Oper.
Under 16,000	63	92	\$12,266	\$133	\$-8,186
16,000 to 16,999	16	114	41,269	362	4,177
17,000 to 17,999	18	140	13,531	97	-11,631
18,000 to 18,999	24	129	38,751	300	-892
19,000 to 19,999	25	200	35,052	175	-2,915
20,000 to 20,999	19	280	22,987	82	-20,571
21,000 to 21,999	33	309	50,558	164	-3,900
22,000 to 22,999	30	421	107,082	254	10,506
23,000 & over	66	392	74,285	190	-1,319

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 294 farms.

Data in Chart 6 and Table 29 show that as milk sold per cow increased to 20,000 pounds, there was an increase in net farm income and the variation around the trend was relatively small at these production levels. As milk output exceeded 20,000 pounds per cow, average net farm income increased and the range in net farm income exceeded \$1,000,000 at higher levels of milk output.

The relationship between milk output per cow and net farm income per cow is presented in Chart 7 and Table 29. Profitability measured as net farm income per cow rather than per farm partially removes the influence of herd size and also shows a positive relationship with milk sold per cow. Many of the farms that achieved \$1,000 or more of net farm income per cow sold between 20,000 and 30,000 pounds of milk per cow; however, some farms also achieved high levels of profit with lower milk output per cow.

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.

Chart 6.

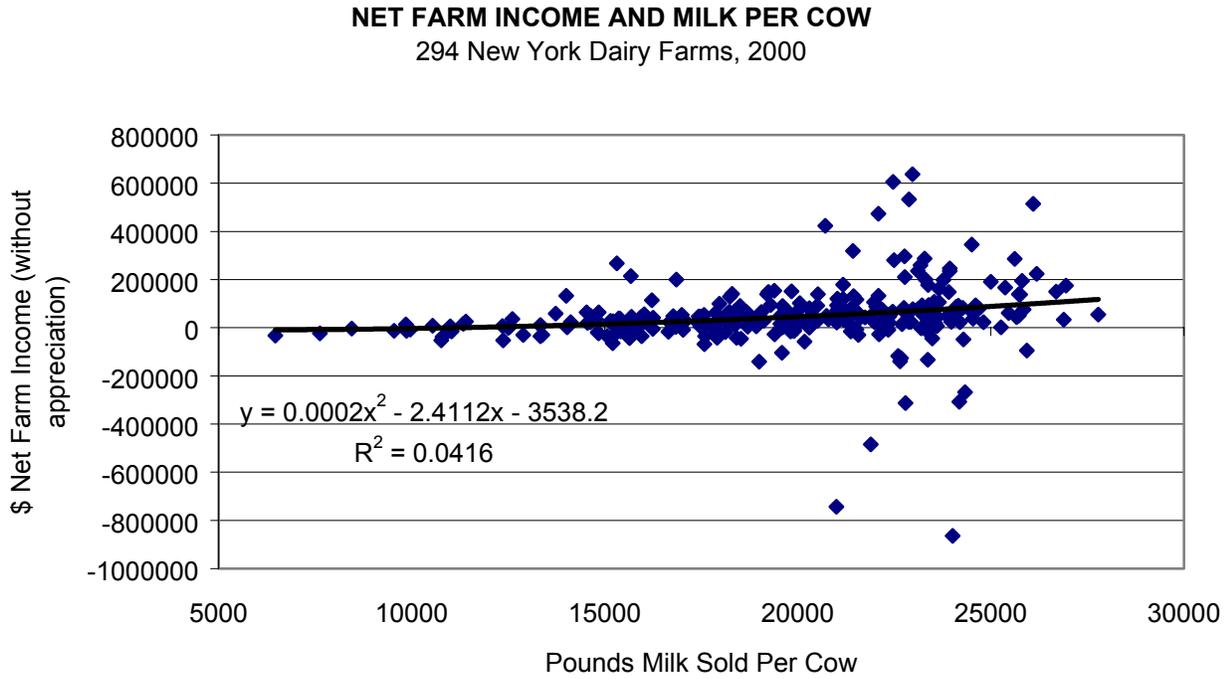
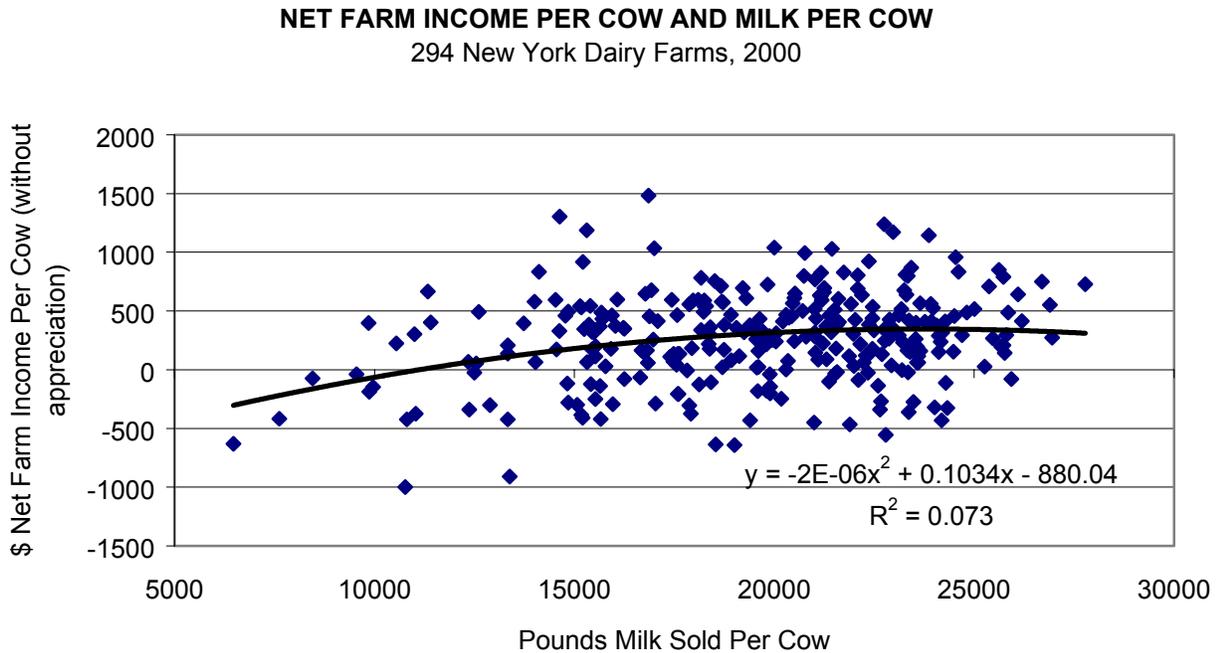


Chart 7.



Charts 8 and 9 look at relationships between cull rates and milk production and net farm income per cow. For the 2000 year, supplementary information concerning dairy replacements was collected from 99 participating farms. The business chart (Table 30.) reports the decile range of reported factors for the different information that was collected. Please refer to the glossary for definitions of the different terms and how the measures were calculated.

Chart 8.

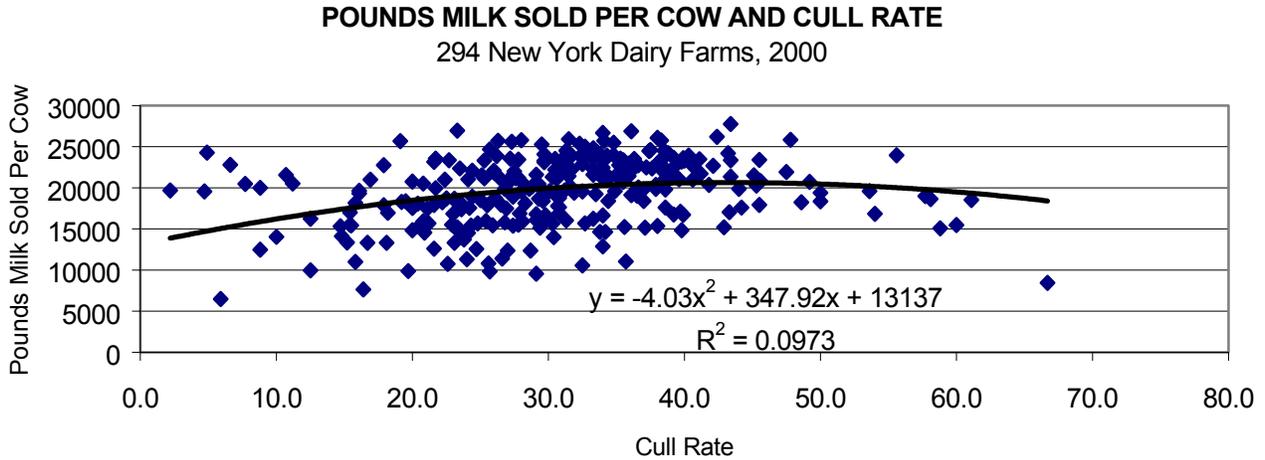


Chart 9.

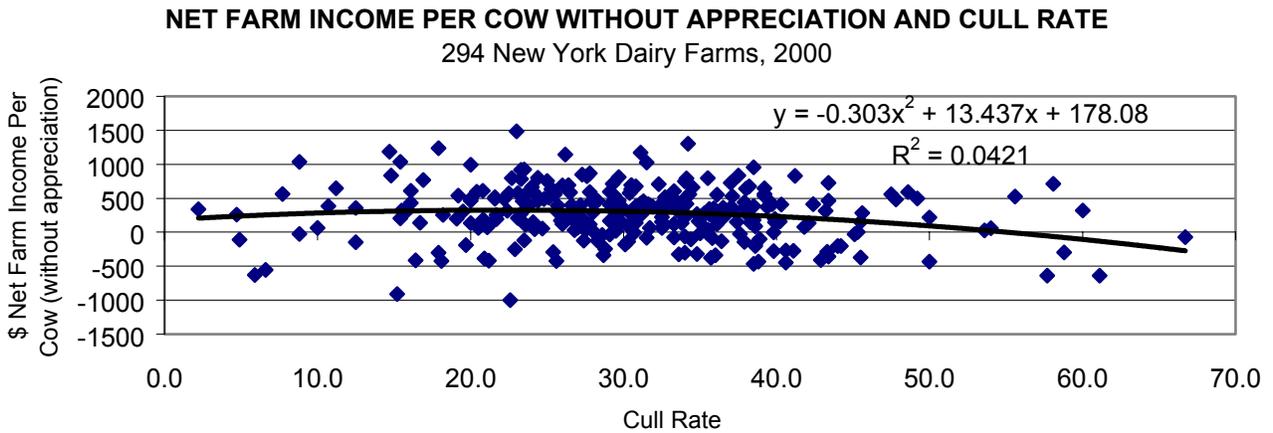


Table 30.

CULLING RATE AND DAIRY REPLACEMENT INFORMATION
New York Dairy Farms, 2000

Sell Rate	Death Rate	Cull Rate	Value of Cows Sold	Value of Animals Purchased	Percent of Replacements Purchased	Percent of Heifers Being Custom Raised
-----292 Farms*-----				(106 Farms)		----- 99 Farms -----
				\$/head		
9%	0%	13%	\$ 190	\$472	0%	0%
17	1	21	279	819	0	0
21	2	25	345	1,002	0	0
23	3	27	379	1,171	0	0
25	4	30	424	1,257	0	0
27	4	32	456	1,306	3	0
30	5	35	482	1,380	14	2
31	6	37	521	1,474	24	23
34	8	40	572	1,912	40	52
43	13	50	982	6,705	78	96

*Average culling rate = 32.5%, sell rate = 27.6%, and death rate = 4.9%. Average number of cows sold for beef = 68, cows sold for dairy = 3, and cows died = 12.

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.
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 cost of producing milk.

Table 31.

**COST OF PRODUCING MILK, WHOLE FARM METHOD
294 New York Dairy Farms, 2000**

Item	Average 294 Farms	Average Top 10% Farms*
Total Accrual Operating Expenses	\$ 703,880	\$ 922,431
Expansion Livestock, Accrual	+ 19,335	+ 23,191
1. Total Accrual Operating Expenses, Including Expansion Livestock	\$ 723,215	\$945,622
Total Accrual Receipts	\$ 833,010	\$ 1,235,078
Milk Sales, Accrual	- 707,661	- 1,022,957
2. Total Accrual Nonmilk Receipts	-\$ 125,349	-\$212,121
3. Operating Cost of Producing Milk	\$ 597,866	\$733,501
Machinery Depreciation	+\$ 36,805	+ 51,252
Building Depreciation	+ 26,380	+ 30,168
4. Purchased Inputs Cost of Producing Milk	\$ 661,051	\$814,921
Family Labor Unpaid (\$1,900/month)	+ 5,320	+ 3,800
Real Interest on Equity Capital	+ 46,612	+ 64,787
Value of Operator's Labor & Management	+ 51,600	+ 54,905
5. Total Costs of Producing Milk	\$ 764,583	\$938,413
6. Costs Per Cwt.:		
Cwt. Milk Sold	52,871	76,160
Operating Cost Per Cwt.	\$ 11.31	\$ 9.63
Purchased Inputs Cost Per Cwt.	\$ 12.50	\$ 10.70
Total Cost Per Cwt.	\$ 14.46	\$ 12.32

*Average of 29 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 \$5,999 average increase in crop inventories per farm, (\$.11 per cwt. of milk), is included in crop sales.

Table 32.

**ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT
BASED ON WHOLE FARM DATA
294 New York Dairy Farms, 2000**

Item	Average 294 Farms	Average Top 10% Farms**
Dairy grain and concentrate	\$3.67	\$3.63
Dairy roughage	0.24	0.21
Nondairy feed	<u>0.00</u>	<u>0.00</u>
Total feed expense	\$3.91	\$3.84
Crop expense	0.70	0.60
- Crop sales and government receipts*	<u>0.84</u>	<u>1.05</u>
Net Feed and Crop Expense	\$3.77	\$3.39
Hired labor	2.25	2.23
Operator's and family labor	<u>1.08</u>	<u>0.77</u>
Total Labor Expense	\$3.33	\$3.00
Machine repairs, fuel and hire	1.41	1.14
Machinery depreciation	0.70	0.67
- Gas tax refunds and custom work	<u>0.04</u>	<u>0.03</u>
Net Machinery Expense	\$2.06	\$1.78
Replacement and expansion cattle purchases	0.60	0.51
- Sales and inventory growth	<u>1.27</u>	<u>1.56</u>
Net Cattle Purchases	\$-0.67	\$-1.05
Milk marketing costs	0.69	0.59
All other livestock expense excluding purchases	<u>1.83</u>	<u>1.60</u>
Net Livestock Expense	\$2.52	\$2.19
Real estate repairs, rent and taxes	0.69	0.59
Building depreciation	<u>0.50</u>	<u>0.40</u>
Total Real Estate Expense	\$1.19	\$.99
Interest paid	0.94	0.78
Interest on equity	<u>0.88</u>	<u>0.85</u>
Total Interest Expense	\$1.82	\$1.63
Other operating and miscellaneous expenses	0.66	0.53
- Miscellaneous income	<u>0.22</u>	<u>0.15</u>
Net Miscellaneous Expenses	<u>\$ 0.44</u>	<u>\$0.38</u>
Total Cost of Producing Milk	\$14.46	\$12.32
Purchased Inputs Cost	\$12.50	\$10.70
Total Operating Cost	\$11.31	\$9.63

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

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

Costs of producing milk per hundredweight are presented in the table below for 247 farms that participated both in 1999 and 2000. Costs of production increased in all categories except feed and crop expenses and net cattle purchases when 2000 data are compared to 1999.

Table 33.

**ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT
BASED ON WHOLE FARM DATA
Same 247 New York Dairy Farms, 1999-2000**

Item	1999	2000	Percent Change
Dairy grain and concentrate	\$3.71	\$3.69	-0.5%
Dairy roughage	0.23	0.25	8.7
Nondairy feed	<u>0.00</u>	<u>0.00</u>	
Total feed expense	\$3.94	\$3.94	0.0
Crop expense	0.77	0.67	
- Crop sales and government receipts*	<u>0.71</u>	<u>0.82</u>	
Net Feed and Crop Expense	\$4.00	\$3.79	-5.3%
Hired labor	2.18	2.29	
Operator's and family labor	<u>1.01</u>	<u>1.00</u>	
Total Labor Expense	\$3.19	\$3.29	3.1%
Machine repairs, fuel and hire	1.40	1.42	
Machinery depreciation	0.66	0.67	
- Gas tax refunds and custom work	<u>0.04</u>	<u>0.04</u>	
Net Machinery Expense	\$2.02	\$2.05	1.5%
Replacement and expansion cattle purchases	0.49	0.55	
- Sales and inventory growth	<u>1.09</u>	<u>1.26</u>	
Net Cattle Purchases	\$-0.60	\$-0.71	-18.3%
Milk marketing costs	0.48	0.68	
All other livestock expense excluding purchases	<u>1.81</u>	<u>1.84</u>	
Net Livestock Expense	\$2.29	\$2.52	10.0%
Real estate repairs, rent and taxes	0.72	0.67	
Building depreciation	<u>0.48</u>	<u>0.49</u>	
Total Real Estate Expense	\$1.20	\$1.16	3.3%
Interest paid	0.80	0.94	
Interest on equity	<u>0.86</u>	<u>0.86</u>	
Total Interest Expense	\$1.66	\$1.80	8.4%
Other operating and miscellaneous expenses	0.63	0.64	
- Miscellaneous income	<u>0.22</u>	<u>0.22</u>	
Net Miscellaneous Expenses	\$ 0.41	\$0.42	2.4%
Total Cost of Producing Milk	\$14.17	\$14.32	1.1%
Purchased Inputs Cost	\$12.30	\$12.45	1.2%
Total Operating Cost	\$11.16	\$11.29	1.2%
Average Price Received for Milk	\$14.92	\$13.37	-10.4%

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

The three measures of the accrual cost of producing milk per cow and per hundredweight are compared with accrual receipts from milk sales in Table 34.

Table 34.

**COST OF PRODUCING MILK, ACCRUAL RECEIPTS FROM DAIRY, AND PROFITABILITY
294 New York Dairy Farms, 2000**

Item	Average 294 Farms			Average Top 10% Farms*		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
<u>Accrual Cost of Producing Milk</u>						
Operating Cost	\$597,866	\$2,430	\$11.31	\$733,501	\$2,164	\$9.63
Purchased Inputs Cost	661,051	2,687	12.50	814,921	2,404	10.70
Total Cost	764,583	3,108	14.46	938,413	2,768	12.32
<u>Accrual Receipts from Milk</u>						
Net Milk Receipts	\$707,661	\$2,877	\$13.38	\$1,022,957	\$3,018	\$13.43
	671,338	2,729	12.70	977,951	2,885	12.84
<u>Profitability</u>						
Net Farm Income without Appreciation	\$46,610	\$189	\$0.88	\$208,036	\$614	\$2.73
Net Farm Income with Appreciation	\$84,706	\$344	\$1.60	\$259,690	\$766	\$3.41

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

The operating cost of producing milk on all 294 dairy farms averaged \$11.31 per hundredweight, leaving \$2.07 to cover depreciation, unpaid labor and operator resources.

The total cost of producing milk on all 294 dairy farms averaged \$14.46 per hundredweight, \$1.08 more than the average price received for milk sold from these farms during 2000. The imputed costs or charge for the operator's labor, management and equity capital average \$1.86 per hundredweight in 2000. But the farmer received only \$0.78 per hundredweight for these inputs. The 29 most profitable farms held their operating costs to \$9.63 per hundredweight and their total cost of producing milk averaged \$12.32 per hundredweight. This left a profit of \$1.11 per hundredweight of milk sold.

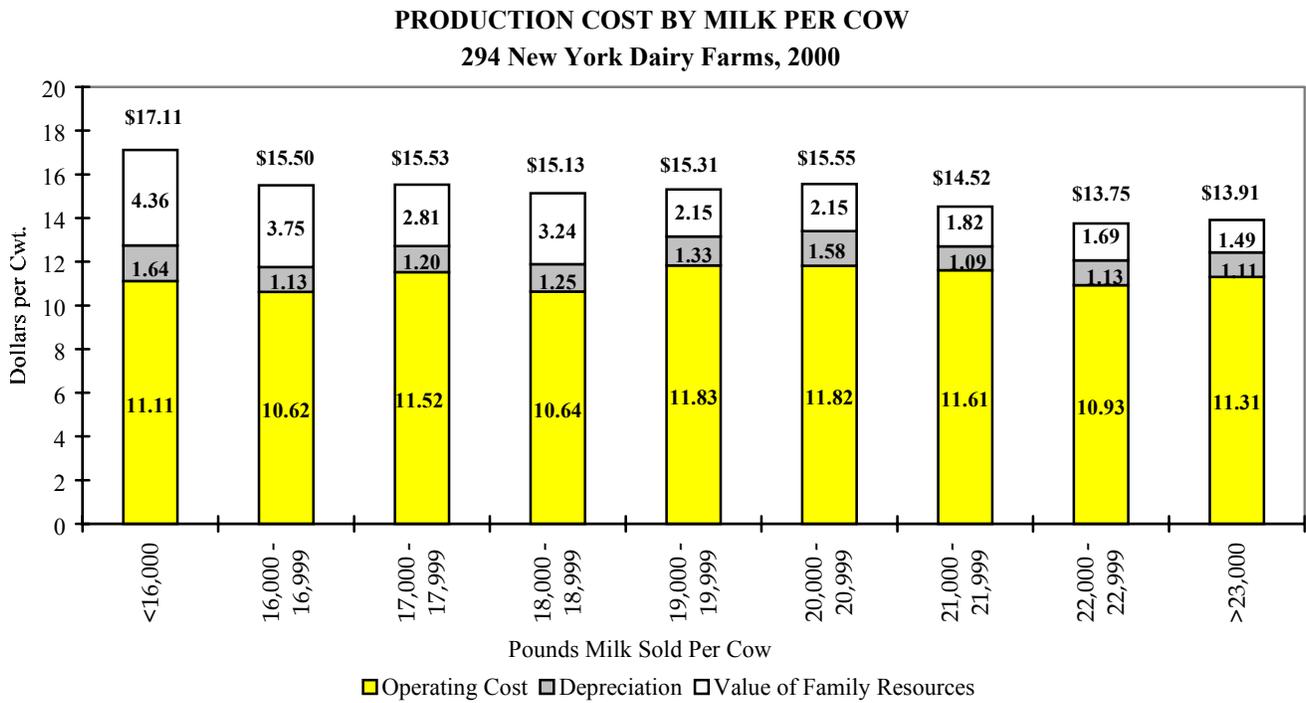
The strong relationship between milk output per cow and the cost of producing milk are shown in Table 35 and Chart 10 on page 34. Farms selling less than 18,000 pounds of milk per cow had average total costs of production of \$16.35 per hundredweight while those selling 18,000 pounds and over averaged \$14.25 for a difference of \$2.10 per hundredweight.

Table 35.

**FARM COST OF PRODUCING MILK BY MILK SOLD PER COW
294 New York Dairy Farms, 2000**

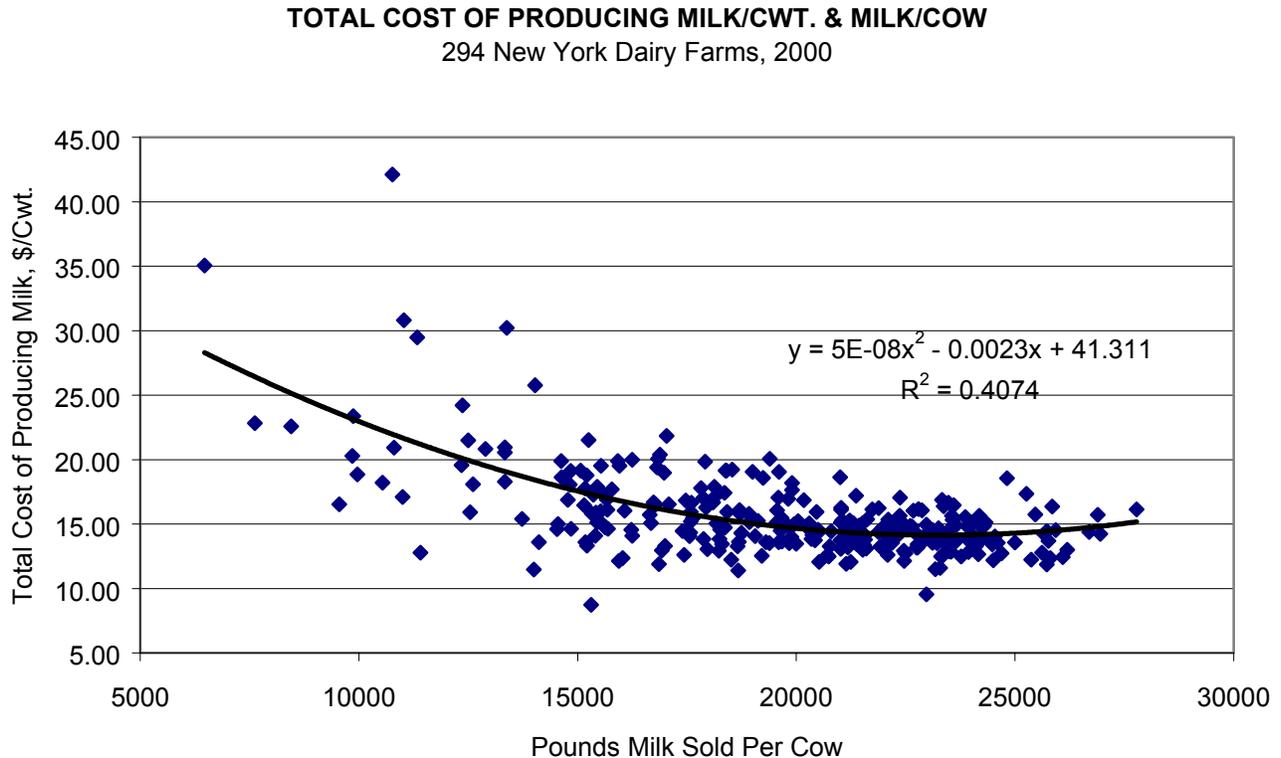
Pounds Milk Sold Per Cow	Cost per Hundredweight					Accrual Receipts From Milk Per Cwt.	Return Per Cwt. To Operator's Labor, Mgmt. & Capital
	Hired Labor	Dairy Grain & Conc.	Total Operating	Purchased Inputs	Total		
Under 16,000	\$1.35	\$ 3.75	\$ 11.11	\$ 12.75	\$ 17.11	\$13.71	\$ 0.51
16,000-16,999	1.32	3.85	10.62	11.75	15.50	13.93	1.82
17,000-17,999	1.76	3.90	11.52	12.72	15.53	13.27	0.42
18,000-18,999	1.60	3.72	10.64	11.89	15.13	13.51	1.20
19,000-19,999	1.96	3.98	11.83	13.16	15.31	14.06	0.83
20,000-20,999	2.12	3.35	11.82	13.40	15.55	13.80	0.30
21,000-21,999	2.18	3.74	11.61	12.70	14.52	13.47	0.66
22,000-22,999	2.50	3.61	10.93	12.06	13.75	13.19	1.09
23,000 & over	2.48	3.64	11.31	12.42	13.91	13.20	0.74

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 generally declines as herd size increases. This is especially true up to 400 cows, then the total cost of production increases, but only by a small amount.

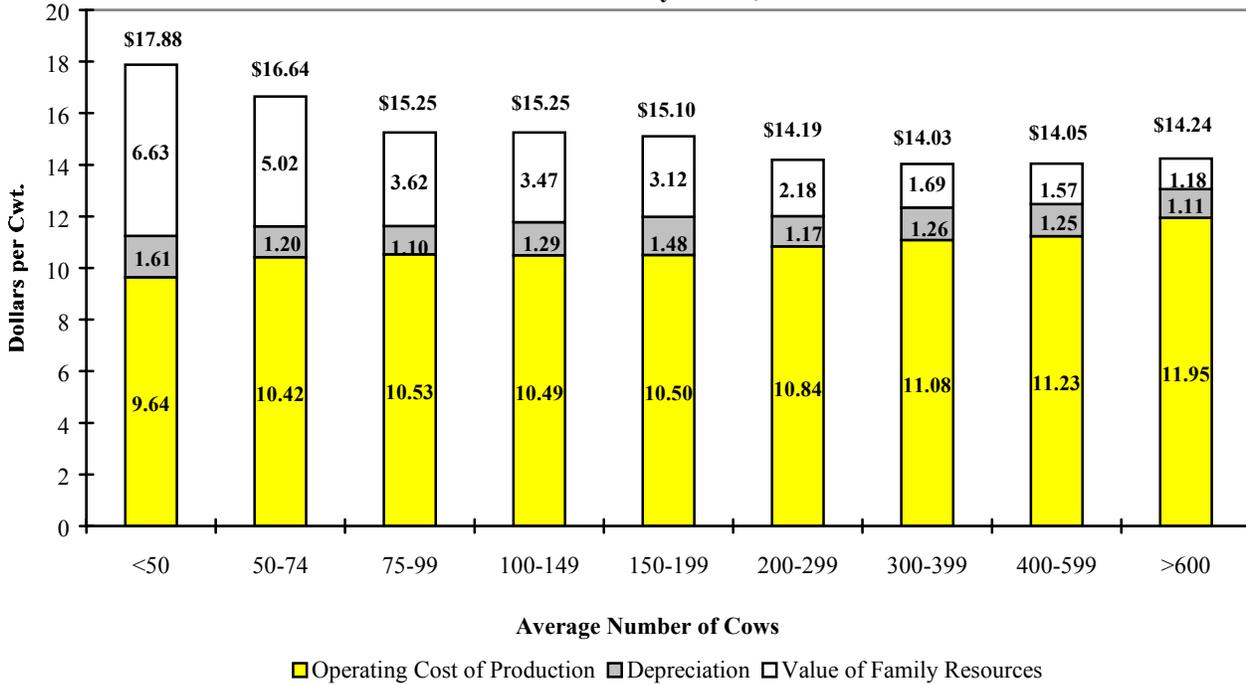
Table 36.

**FARM COST OF PRODUCING MILK BY HERD SIZE
294 New York Dairy Farms, 2000**

Number of Cows	Cost per Hundredweight					Accrual Receipts From Milk	Return Per Cwt. To Operator's Labor, Mgmt. & Capital
	Operating Costs			Purchased Inputs	Total		
	Hired Labor	Dairy Grain & Conc.	Total Operating				
Under 50	\$0.34	\$3.62	\$9.64	\$11.25	\$17.88	\$13.40	\$1.22
50 to 74	0.74	3.48	10.42	11.62	16.64	13.36	1.07
75 to 99	1.47	3.58	10.53	11.63	15.25	13.16	1.16
100 to 149	1.33	3.87	10.49	11.78	15.25	13.45	1.35
150 to 199	1.77	3.28	10.50	11.98	15.10	13.31	1.18
200 to 299	1.88	3.75	10.84	12.01	14.19	13.50	1.43
300 to 399	2.22	3.48	11.08	12.34	14.03	13.36	0.97
400 to 599	2.44	3.68	11.23	12.48	14.05	13.52	1.00
600 and over	2.74	3.72	11.95	13.06	14.24	13.31	0.25

Chart 12.

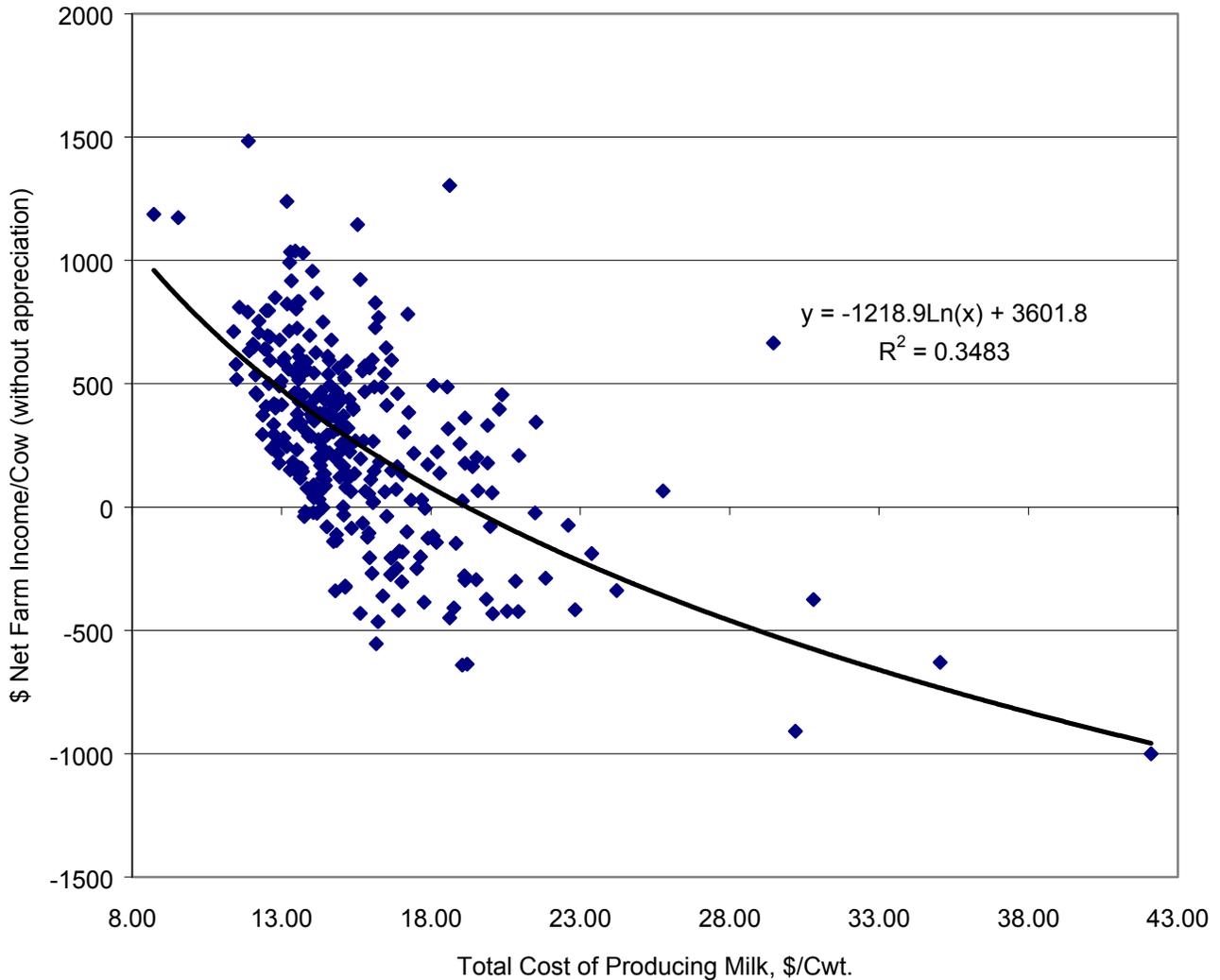
**PRODUCTION COST BY HERD SIZE
294 New York Dairy Farms, 2000**



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 \$13.75 per hundredweight. The majority of the farms with costs greater than \$21 per hundredweight experienced negative net farm incomes per cow.

Chart 13.

NET FARM INCOME/COW & TOTAL COST OF PRODUCING MILK/CWT.
294 New York Dairy Farms, 2000



Cost of Producing Milk (continued)

A 10-year comparison of the average costs and returns of producing milk per hundredweight are 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 1991 through 2000. In 2000 the average operating cost of producing milk increased 1 percent after decreasing 2 percent from 1998 to 1999. The average return per hundredweight to operator labor, management, and capital fell to \$0.77 in 2000, 68 percent below 1999.

Hired labor expense per hundredweight has increased consistently from 1991 to 2000. Hired labor expense was \$1.74 in 1991 and has risen to \$2.25 in 2000. Thus, even as pounds of milk sold per worker have increased from 593,297 in 1991 to 865,325 in 2000; 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. Purchased feed expense per hundredweight of milk has been remarkably stable. At \$3.88 in 1991, it decreased to a low of \$3.71 in 1995, before reaching its high a year later at \$4.73. In 2000, purchased feed expense was \$0.03 higher than in 1991.

Interest paid on debt per hundredweight of milk sold has decreased over this period. In 1991, interest expense was \$1.07 per cwt. While it reached a low of \$0.80 in 1993, interest expense was at \$0.95 in 2000. Property taxes per hundredweight of milk have decreased by over 40 percent during this ten-year period. Property taxes were \$0.38 per hundredweight in 1991, but were only \$0.20 in 2000. This is due to productivity increases and more of the land resources being rented, rather than owned.

A 10-year comparison of selected average business factors for all specialized DFBS farms is presented in Table 38 on page 39. Average cow numbers are up 122 percent, tillable acres have increased 72 percent, and milk sold per farm has jumped 164 percent since 1991. Capital investment per cow has decreased 2 percent, far less than inflation, over the last 10 years. Labor and management income per operator decreased 107 percent in 2000 compared to 1999, farm net worth continued to grow, and percent equity continued to decline.

After being stable for many years, crop yields increased over the past ten years. Hay crop yields, tons of dry matter per acre increased from 2.4 to 3.3 tons per acre. Corn silage yields, as fed, increased from 13.7 to 15.1 tons per acre. As yields increased, fertilizer and lime expense increased only \$2.00 per tillable acre, from \$25 to \$27 per acre. Pounds of milk sold per cow increased by 19 percent, from 18,027 pounds in 1991 to 21,516 pounds in 2000.

Average number of workers per farm increased by 2.73 and operators/managers per farm increased by less than 0.5. Cows per worker equivalent increased from 33 in 1991 to 40 in 2000, but labor cost per cow increased from \$538 to \$674 over the same time period.

The asset turnover ratio has improved in recent years. Total accrual receipts as a proportion of total farm assets (asset turnover ratio) has increased from 0.43 in 1991 to 0.54 in 2000. Percent equity has deteriorated. It was 64 percent in 1991, but was down to 57 percent in 2000 because there are more large (higher leveraged) farms in the sample.

Table 37.

TEN YEAR COMPARISON: AVERAGE COST OF PRODUCING MILK PER HUNDREDWEIGHT
New York Dairy Farms, 1991 to 2000

Item	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
<u>Operating Expenses</u>										
Hired labor	\$ 1.74	\$ 1.80	\$ 1.86	\$ 1.80	\$ 1.78	\$ 1.89	\$ 1.97	\$ 2.06	\$ 2.14	\$ 2.25
Purchased feed	3.88	3.92	3.85	3.89	3.71	4.73	4.63	4.18	3.96	3.91
Machinery repair, vehicle expense & rent	.93	.97	.93	.92	.85	1.02	.94	1.12	1.18	1.06
Fuel, oil & grease	.37	.35	.34	.31	.27	.31	.28	.25	.24	.34
Replacement livestock	.15	.21	.17	.21	.15	.19	.18	.24	.24	.23
Breeding fees	.18	.18	.19	.17	.15	.15	.15	.16	.17	.17
Veterinary & medicine	.33	.35	.37	.40	.39	.42	.41	.45	.47	.51
Milk marketing	.58	.63	.64	.67	.70	.59	.52	.53	.49	.69
Other dairy expenses	.65	.70	.72	.88	.92	.99	1.05	1.09	1.13	1.16
Lime & fertilizer	.40	.37	.36	.33	.31	.32	.33	.35	.35	.29
Seeds & plants	.20	.21	.20	.19	.19	.20	.21	.22	.20	.19
Spray & other crop expense	.20	.21	.20	.20	.20	.21	.23	.24	.24	.22
Land, building & fence repair	.19	.24	.21	.21	.16	.23	.19	.27	.27	.21
Taxes	.38	.35	.34	.29	.27	.26	.23	.21	.21	.20
Insurance	.23	.22	.20	.18	.17	.18	.16	.17	.16	.16
Utilities (farm share)	.39	.38	.39	.38	.38	.39	.35	.32	.31	.32
Interest paid	1.07	.88	.80	.81	.94	.91	.90	.89	.83	.95
Misc. (including rent)	.43	.44	.41	.40	.40	.41	.38	.41	.44	.45
Total Operating Expenses	\$12.30	\$12.41	\$12.18	\$12.24	\$11.94	\$13.40	\$13.12	\$13.15	\$13.02	\$13.31
Less: Nonmilk cash receipts	1.73	1.67	1.65	1.30	1.15	1.07	1.14	1.18	1.44	1.83
Increase in grown feed & supplies	.04	.23	.13	.25	.14	.15	.07	.25	.25	0.11
Increase in livestock	.18	.08	.22	.21	.25	.18	.15	.22	.11	0.06
OPERATING COST OF MILK PRODUCTION	\$10.35	\$10.43	\$10.18	\$10.47	\$10.40	\$12.00	\$11.76	\$11.50	\$11.22	\$11.31
<u>Overhead Expenses</u>										
Depreciation: machinery & buildings	\$ 1.28	\$ 1.19	\$ 1.17	\$ 1.13	\$ 1.07	\$ 1.04	\$ 0.95	\$ 1.08	\$ 1.14	\$ 1.20
Unpaid labor	.18	.16	.15	.12	.12	.13	.13	.11	.11	.10
Operator(s) labor *	1.06	.99	1.00	.86	.92	.88	.79	.74	.80	.79
Operator(s) management (5% of cash receipts)	.73	.76	.74	.73	.70	.80	.73	.82	.83	.76
Interest on farm equity capital (5%)	1.20	1.11	1.11	1.00	.94	.94	.87	.85	.86	.88
Total Overhead Expenses	\$ 4.45	\$ 4.21	\$ 4.17	\$ 3.84	\$ 3.75	\$ 3.79	\$ 3.47	\$ 3.60	3.74	3.73
TOTAL COST OF MILK PRODUCTION	\$14.80	\$14.64	\$14.35	\$14.31	\$14.15	\$15.79	\$15.23	\$15.10	14.96	15.04
AVERAGE FARM PRICE OF MILK	\$12.95	\$13.58	\$13.14	\$13.44	\$13.03	\$14.98	\$13.65	\$15.60	14.91	13.38
Return per cwt. to operator labor, capital & mgmt.	\$ 1.14	\$ 1.80	\$ 1.64	\$ 1.72	\$ 1.44	\$ 1.81	\$ 0.81	\$ 2.91	\$ 2.44	\$ 0.77
Rate of return on farm equity capital	-2.7%	0.2%	-0.4%	0.6%	-1.0%	0.7%	-4.1%	8.0%	4.7%	-4.4%

*1991 = \$1,300/month, 1992 = \$1,350/month, 1993 = \$1,400/month, 1994 and 1995 = \$1,450/month, 1996 = \$1,500/month, 1997 = \$1,550/month, 1998 = \$1,600/month, 1999 = \$1,800/month, and 2000 = \$1,900/month of operator labor.

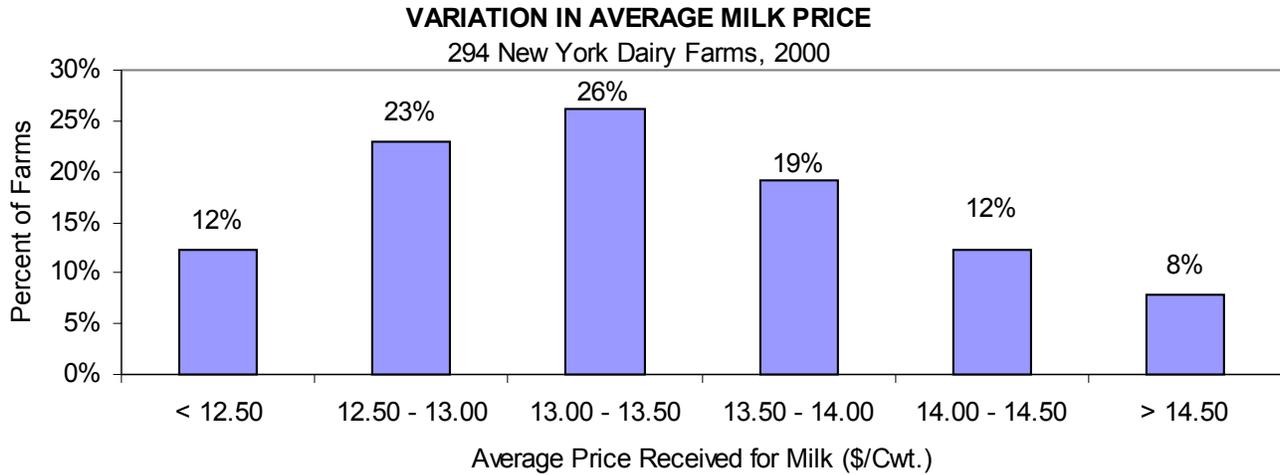
Table 38.

TEN YEAR COMPARISON: SELECTED BUSINESS FACTORS
New York Dairy Farms, 1991 to 2000

Item	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Number of farms	407	357	343	321	321	300	253	305	314	294
<u>Cropping Program</u>										
Total tillable acres	330	346	351	392	399	415	462	497	516	566
Tillable acres rented	124	135	135	159	166	183	207	232	234	262
Hay crop acres	169	171	182	195	197	198	219	239	248	274
Corn silage acres	88	98	96	110	117	120	156	175	186	192
Hay crop, tons DM/acre	2.4	2.8	2.7	3.0	2.8	2.8	2.5	3.1	2.9	3.3
Corn silage, tons/acre	13.7	14.5	14.9	16.4	15.6	15.9	16.1	18.0	16.3	15.1
Fert. & lime exp./tillable acre	\$25	\$25	\$25	\$25	\$25	\$26	\$28	\$31	\$32	\$27
Machinery cost/cow	\$438	\$444	\$430	\$438	\$402	\$450	\$429	\$471	\$502	\$513
<u>Dairy Analysis</u>										
Number of cows	111	123	130	151	160	167	190	210	224	246
Number of heifers	92	96	100	116	121	124	139	155	164	186
Milk sold, cwt.	20,060	23,130	24,448	30,335	32,362	33,504	39,309	43,954	47,932	52,871
Milk sold/cow, lbs.	18,027	18,789	18,858	20,091	20,269	20,113	20,651	20,900	21,439	21,516
Purchased dairy feed/cwt. milk	\$3.87	\$3.91	\$3.85	\$3.89	\$3.70	\$4.73	\$4.63	\$4.18	\$3.96	\$3.91
Purc. grain & conc. as % of milk receipts	29%	28%	29%	28%	27%	30%	33%	26%	25%	27%
Purc. feed & crop exp/cwt. milk	\$4.67	\$4.70	\$4.61	\$4.61	\$4.39	\$5.46	\$5.39	\$5.00	\$4.75	\$4.61
<u>Capital Efficiency</u>										
Farm capital/cow	\$6,688	\$6,587	\$6,462	\$6,398	\$6,264	\$6,218	\$6,196	\$6,161	\$6,368	\$6,535
Real estate/cow	\$3,063	\$3,015	\$2,932	\$2,859	\$2,763	\$2,701	\$2,650	2,537	2,562	2,615
Mach. invest./cow	\$1,267	\$1,203	\$1,165	\$1,150	\$1,098	\$1,107	\$1,108	1,118	1,163	1,225
Asset turnover ratio	.43	.47	.46	.50	.49	.55	.52	0.61	0.59	0.54
<u>Labor Efficiency</u>										
Worker equivalent	3.38	3.60	3.68	4.02	4.40	4.48	5.01	5.35	5.71	6.11
Operator/manager equivalent	1.37	1.41	1.45	1.49	1.56	1.56	1.60	1.62	1.76	1.83
Milk sold/worker, lbs.	593,297	641,893	664,868	755,178	736,269	747,861	784,604	821,565	839,432	865,325
Cows/worker	33	34	35	38	36	37	38	39	39	40
Labor cost/cow	\$538	\$552	\$568	\$558	\$570	\$582	\$598	\$609	\$653	\$674
<u>Profitability & Financial Analysis</u>										
Labor & mgmt. income/operator	\$-955	\$11,254	\$9,000	\$14,789	\$10,346	\$18,651	\$-1,424	\$55,917	\$42,942	\$-2,908
Farm net worth, end year	\$480,131	\$515,215	\$542,126	\$608,749	\$624,261	\$648,186	\$685,665	\$798,297	\$865,626	\$942,881
Percent equity	64%	64%	65%	63%	61%	61%	57%	59%	58%	57%

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 294 farms was \$13.38 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.



Forty-nine percent of the farms received from \$12.50 to \$13.50 per hundredweight of milk sold. Thirty-nine percent of the farms received \$13.50 or more and 12 percent received less than \$12.50 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 butterfat content are two variables that affect milk price. Butterfat content, which varied from an average 3.66 percent to 3.99 percent as the milk price increased from less than \$12.50 per cwt. to more than \$14.50, explains a small portion of the difference in milk price on these farms.

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
294 New York Dairy Farms, 2000

Item	Average 294 Farms		Average Top 10% Farms*	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	\$789	\$3.67	\$814	\$3.63
Purchased dairy roughage	<u>52</u>	<u>.24</u>	<u>47</u>	<u>.21</u>
Total Purchased Dairy Feed	\$841	\$3.91	\$861	\$3.84
Purchased grain & concentrate as % of milk receipts		27%		27%
Purchased feed & crop expense	\$991	\$4.61	\$996	\$4.43
Purchased feed & crop expense as % of milk receipts		34%		33%
Breeding	\$37	\$.17	\$38	\$.17
Veterinary & medicine	109	.51	101	.45
Milk marketing	148	.69	133	.59
Bedding	43	.20	34	.15
Milking Supplies	72	.34	62	.28
Cattle lease	8	.04	2	.01
Custom boarding	42	.20	25	.11
bST expense	52	.24	60	.27
Other livestock expense	29	.14	37	.16

*Average of 29 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 the feed cost for one cow and 0.73 replacement being raised.

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 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 in the following table.

Table 40.

**PURCHASED FEED AND CROP EXPENSE PER HUNDREDWEIGHT
OF MILK AND FARM INCOME MEASURES
294 New York Dairy Farms, 2000**

Feed & Crop Exp. Per Cwt. of Milk	Number of Farms	Number of Cows	Forage Dry Matter Harvested Per Cow	Pounds Milk Per Cow	Net Farm Income Without Apprec.	Labor & Management Income Per Operator	Labor & Management Per Operator Per Cow
\$6.00 or more	22	122	6.7	18,761	\$19,793	\$-9,535	\$-78
5.50 to 5.99	26	183	7.0	19,864	\$4,907	\$-24,632	-135
5.00 to 5.49	45	207	7.3	21,417	\$25,641	\$-10,686	-52
4.50 to 4.99	81	313	7.6	21,639	\$41,776	\$-9,319	-30
4.00 to 4.49	60	364	7.8	22,601	\$95,219	\$11,436	31
3.50 to 3.99	36	140	7.8	20,046	\$42,621	\$2,906	21
Less than 3.50	24	135	7.8	20,491	\$56,467	\$10,124	75

On average, farms with feed and crop expenses exceeding \$4.50 per hundredweight of milk reported well below average profits. This is especially striking when the profit measure of labor and management income per operator is presented on a per cow basis. Farms reporting purchased feed and crop expense less than \$3.50 per hundredweight of milk, reported the highest labor and management income per operator per cow.

Capital and Labor Efficiency Analysis

Capital efficiency factors measure how intensively capital is being used in the farm business. Measures of labor efficiency are key indicators of the work accomplished by each worker.

Table 41.

CAPITAL EFFICIENCY
294 New York Dairy Farms, 2000

Item (Average for Year)	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
Farm capital	\$263,128	\$6,535	\$2,840	\$5,271
Real estate		\$2,615		\$2,109
Machinery & equipment	\$49,317	\$1,225	\$532	
<u>Ratios</u>				
Asset turnover	Operating Expense	Interest Expense		Depreciation Expense
0.54	0.81	0.06		0.08
<u>Average Top 10% Farms:*</u>				
Farm capital	\$268,834	\$6,051	\$2,674	\$5,300
Real estate		\$2,143		\$1,877
Machinery & equipment	\$52,456	\$1,181	\$522	
<u>Ratios</u>				
Asset turnover ratio	Operating Expense	Interest Expense		Depreciation Expense
0.63	0.72	0.05		0.07

*Average of 29 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
294 New York Dairy Farms, 2000

Ratio	No. of Farms	No. of Cows	Farm Capital (average for year)		Labor & Mgt. Inc. Per Operator	Net Farm Income (w/o apprec.)
			Per Cow	Per Worker		
≥ .70	30	496	\$5,005	\$224,860	\$16,405	\$100,056
.60 to .69	39	398	5,767	236,622	-14,698	30,927
.50 to .59	58	327	6,582	287,761	-1,150	61,788
.40 to .49	84	186	7,470	283,566	2,204	55,042
.30 to .39	54	98	8,995	278,950	-6,258	25,555
Less than .30	29	66	10,199	274,758	-23,848	-3,166

The 29 farms with the highest rates of return on all capital (without appreciation) were above the average of all 294 farms in all measures of labor efficiency. The top 10 percent averaged 4 more cows per worker and sold 15 percent more milk per worker than the average of all farms.

Table 43.

LABOR EFFICIENCY
294 New York Dairy Farms, 2000

Labor Efficiency	Average		Farms		Average Top 10% Farms**	
	Total	Per Worker*	Total	Per Worker*	Total	Per Worker*
Cows, average number	246	40	339	44		
Milk sold, pounds	5,287,138	865,325	7,616,046	998,171		
Tillable acres	566	93	767	101		

*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.

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

The labor force averaged 6.11 full-time worker equivalents per farm (based on 230 hours per month). Thirty percent of the labor was supplied by the farm operator/managers. There were two operators on 140 farms, three on 47 farms, and 10 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 \$89 per cow and \$0.63 per cwt. less on the 29 farms in the top decile.

Table 44.

**LABOR FORCE INVENTORY AND COST ANALYSIS
294 New York Dairy Farms, 2000**

Labor Force	Months*	Age	Years of Education	Value of Labor & Management	
Operator number 1	13.6	48	13	\$31,547	
Operator number 2	6.0	43	13	13,923	
Operator number 3	1.9	39	13	4,858	
Operator number 4	0.4	35	14	<u>1,260</u>	
Family paid	4.9			Total \$51,588	
Family unpaid	2.8				
Hired	<u>43.8</u>				
Total	73.4	÷ 12 =	6.11 Worker Equivalent		
			1.83 Operator/Manager Equivalent		
<u>Average Top 10% Farms:**</u>					
Total	91.6	÷ 12 =	7.63 Worker Equivalent		
Operators'			1.64 Operator/Manager Equivalent		
	Average 294 Farms			Avg. Top 10% Farms**	
Labor Costs	Total	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Value operators' labor (\$1,900/mo.)	\$ 41,610	\$ 169	\$.79	\$ 120	\$.53
Family unpaid (\$1,900/mo.)	5,320	22	.10	11	.05
Hired	<u>118,945</u>	<u>484</u>	<u>2.25</u>	<u>502</u>	<u>2.23</u>
Total Labor	\$ 165,875	\$ 674	\$ 3.14	\$ 633	\$ 2.82
Machinery Cost	<u>126,229</u>	<u>513</u>	<u>2.39</u>	<u>465</u>	<u>2.07</u>
Total Labor & Machinery	\$ 292,104	\$ 1,187	\$ 5.52	\$1,098	\$ 4.89
Hired labor exp. per hired worker equiv.	29,309			29,968	
Hired labor exp. as % of milk sales	16.8%			16.6%	

*See footnote for Table 43.

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

The relationship of labor efficiency to net farm income is positive over most of the range in efficiency levels. The higher outputs of milk sold per worker are partially attributable to more and higher producing cows.

Table 45.

**MILK SOLD PER WORKER AND NET FARM INCOME
294 New York Dairy Farm, 2000**

Pounds of Milk Sold Per Worker	No. of Farms	No. of Cows	Pounds Milk Per Cow	Net Farm Income (w/o apprec.)	Labor & Mgmt. Income Per Operator
Under 400,000	42	59	15,437	\$17,939	\$-5,519
400,000 to 499,999	37	79	16,564	13,670	-9,549
500,000 to 599,999	29	100	17,799	23,076	-6,554
600,000 to 699,999	34	145	19,824	56,333	11,055
700,000 to 799,999	44	202	20,337	43,094	-1,137
800,000 to 899,999	34	278	22,110	60,035	1,045
900,000 to 999,999	23	426	22,470	113,629	16,295
1,000,000 & over	51	606	22,939	64,880	-17,260

Farm Business Charts

The Farm Business Chart is a tool which can be used in analyzing a business by drawing a line through the figure in each column which represents the current level of management performance. The figure at the top of each column is the average of the top 10 percent of the 294 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 294 New York Dairy Farms, 2000

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
20.6	957	22,198,446	25,404	5.5	22	59	1,256,953
11.1	471	10,590,578	23,680	4.2	18	49	1,032,913
7.3	307	6,481,814	22,820	3.6	17	44	907,871
5.5	215	4,364,487	21,770	3.3	16	40	815,510
4.4	155	3,100,320	20,774	3.1	15	37	747,605

3.6	119	2,222,882	19,591	2.8	14	34	673,029
3.1	91	1,682,014	18,314	2.5	13	31	584,433
2.6	71	1,270,526	16,853	2.2	11	28	489,958
2.1	56	999,849	15,288	1.9	10	24	407,682
1.4	39	534,983	11,742	1.3	6	18	284,367
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		
\$326	15%	\$263	\$792	\$503	\$3.24		
502	22	372	969	680	3.85		
588	24	420	1,057	765	4.17		
639	25	463	1,121	831	4.41		
705	27	502	1,186	895	4.57		

753	28	534	1,248	949	4.70		
797	29	575	1,321	1,013	4.91		
847	31	620	1,421	1,070	5.17		
913	33	688	1,540	1,140	5.56		
1,049	39	934	1,894	1,301	6.49		

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
294 New York Dairy Farms, 2000**

Milk Receipts Per Cow	Milk Receipts Per Cwt.	Oper. Cost Milk Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cow	Total Cost Production Per Cwt.
\$3,458	\$15.53	\$1,115	\$7.42	\$ 1,992	\$12.02
3,148	14.16	1,510	8.81	2,421	13.14
3,014	13.85	1,723	9.38	2,655	13.68
2,908	13.60	1,903	9.84	2,809	14.18
2,775	13.37	2,055	10.32	2,955	14.65

2,616	13.17	2,189	10.86	3,058	15.09
2,465	13.00	2,349	11.57	3,207	15.77
2,285	12.79	2,475	12.03	3,333	16.66
2,017	12.57	2,693	12.85	3,531	18.34
1,569	12.10	3,046	15.10	3,925	23.20

Profitability						
Net Farm Income Without Appreciation			Net Farm Income With Appreciation		Labor & Management Income	
Total	Per Cow	Operations Ratio	Total	Per Cow	Per Farm	Per Operator
\$295,646	\$939	0.28	\$394,582	\$1,204	\$182,415	\$101,405
123,950	643	0.21	177,673	835	61,791	36,385
77,197	523	0.17	114,922	707	30,556	21,128
55,750	424	0.13	85,577	602	19,433	12,413
43,028	343	0.11	65,516	508	8,094	5,760

29,681	254	0.08	51,646	431	-3,700	-2,958
18,501	161	0.05	39,963	332	-13,870	-10,917
5,293	56	0.02	22,976	211	-28,414	-21,054
-17,461	-125	-0.04	9,708	55	-54,924	-41,251
-153,963	-436	-0.20	-99,776	-278	-242,811	-171,152

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 63-67.

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 294 New York Dairy Farms, 2000

	Average 294 Farms		Average Top 10% Farms*	
<u>How farm assets are being used (average for the year):</u>				
Total assets (capital) per cow	\$6,535		\$6,051	
Farm assets in livestock	24%		27%	
Farm assets in farm real estate	40%		35%	
Farm assets in machinery	19%		20%	
<u>Measures of debt capacity & debt structure:</u>				
Equity in the business	57%		64%	
Farm debt per cow	\$2,762		\$2,223	
Long term debt/asset ratio**	0.41		0.38	
Intermediate & current term debt/asset ratio**	0.44		0.35	
Intermediate & current term debt as % of total	61%		62%	
<u>Debt repayment ability:***</u>				
Cash flow coverage ratio	0.94		1.33	
Debt coverage ratio	0.84		1.67	
Debt payments made per cow	\$510		\$553	
Debt payments made as % of milk receipts	17%		18%	
<u>Indicators of annual financial progress:</u>				
	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>
Annual change in farm assets	+\$73,293	+4.7%	+\$187,907	+9.6%
Annual change in farm debts	+\$52,022	+8.0%	+\$36,153	+4.9%
Annual change in farm net worth	+\$21,271	+2.3%	+\$151,754	+12.4%

*Twenty-nine farms with highest rates of return on all capital (without appreciation).

**Long or intermediate and current term debt divided by long or intermediate and current term assets.

***Average of 247 farms that participated in DFBS both in 1999 and 2000. Twenty-seven of the 29 top 10 percent farms participated both years.

The most profitable farms carried \$539 less debt per cow, the average equity in their businesses was 7 percent higher than that of the average of all 294 farms, and they had a greater ability to make 2000 debt payments.

Average farm debt grew 3.3 percentage points faster than assets during 2000 on the 294 dairy farms. Average farm net worth increased 2.3 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 14, 16, 18, 22, and 42 in this publication.

Table 48.**FINANCIAL ANALYSIS CHART****294 New York Dairy Farms, 2000**

Liquidity (repayment)

Planned Debt Payments Per Cow	Available for Debt Service Per Cow	Cash Flow Coverage Ratio	Debt Coverage Ratio	Debt		Working Capital as % of Total Expenses	Current Ratio
				Payments as Percent of Milk Sales	Debt Per Cow		
\$107	\$862	6.61	6.60	4%	\$373	47%	14.02
234	693	1.76	1.91	9	1,046	29	3.89
319	610	1.40	1.57	12	1,545	23	2.80
378	550	1.24	1.31	14	2,035	19	2.22
447	491	1.10	1.07	17	2,452	15	1.85
495	432	0.96	0.89	19	2,742	11	1.56
549	377	0.83	0.75	20	3,010	7	1.29
607	319	0.72	0.54	23	3,365	1	0.99
693	215	0.57	0.28	27	3,921	-5	0.78
935	-2	-0.72	-1.59	41	5,296	-23	0.38

Solvency

Profitability

Leverage Ratio*	Percent Equity	Debt/Asset Ratio		Percent Rate of Return with appreciation on:	
		Current & Intermediate	Long Term	Equity	Investment**
-0.13	96%	0.05	0.00	23%	15%
0.16	86	0.13	0.00	11	9
0.27	79	0.19	0.07	8	7
0.38	73	0.27	0.20	5	6
0.51	66	0.34	0.30	3	5
0.68	60	0.41	0.39	2	3
0.89	53	0.47	0.45	-1	2
1.15	47	0.53	0.55	-4	0
1.52	40	0.63	0.72	-10	-3
4.32	21	0.95	1.14	-39	-8

Efficiency (Capital)

Asset Turnover (ratio)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow	Change in Net Worth w/Appreciation	Farm Net Worth, End Year
.78	\$1,228	\$551	\$4,388	\$243,497	\$3,289,413
.65	1,828	837	5,275	109,676	1,630,823
.59	2,139	975	5,899	53,346	1,171,081
.54	2,385	1,114	6,250	37,622	909,405
.49	2,638	1,264	6,653	26,228	730,445
.46	2,921	1,416	7,062	14,324	616,811
.43	3,299	1,601	7,604	5,269	466,827
.38	3,861	1,810	8,370	-9,057	359,003
.32	4,621	2,210	9,416	-32,304	244,172
.24	6,800	3,108	11,955	-223,967	101,057

*Dollars of debt per dollar of equity, computed by dividing total liabilities by total equity.

**Return on all farm capital (no deduction for interest paid) divided by total farm assets.

Herd Size Comparisons

The 294 New York dairy farms have been sorted into nine 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 50 cows up to 200 cows, by 100 cows up to 400 cows, and by 200 cows up to 600 cows.

As herd size increases, the average profitability generally increases (Table 49). Net farm income without appreciation averaged \$13,624 per farm for the less than 50 cow farms and \$110,976 per farm for those with 400-599 cows. The farms with 600 and more cows, however, averaged \$57,262 net farm income. This relationship generally holds for all measures of profitability including rate of return on capital.

It is more than size of herd that determines profitability on dairy farms. Farms with 600 and more cows averaged \$60 net farm income per cow while the less than 50 cow dairy farms average \$359 net farm income per cow. The 100 to 149 herd size category had the second highest net farm income per cow at \$315. 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 294 New York Dairy Farms, 2000

Number of Cows	Number of Farms	Ave. No. of Cows	Net Farm Income Without Apprec.	Net Farm Income Per Cow	Labor & Management Inc./Oper.	Return to all Capital Without Apprec.
Under 50	28	38	\$13,624	\$359	\$-3,635	-3.1%
50 to 74	54	61	18,788	308	-4,522	-1.7%
75 to 99	29	84	24,071	287	-286	-0.1%
100 to 149	48	121	38,122	315	986	1.0%
150 to 199	25	167	44,764	268	-3,657	1.1%
200 to 299	36	241	75,607	314	11,943	3.9%
300 to 399	19	343	73,288	214	7,107	4.1%
400 to 599	26	481	110,976	231	11,193	4.2%
600 & over	29	957	57,262	60	-36,324	2.7%

This year, net farm income per cow did not exhibit the usual increase as herd size increased. The 600 cow and over herd size was the only category to show an increase in operating cost of producing milk. All other categories were the same as a year earlier or decreased. 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 600 and more cows averaged more milk sold per cow than any other size category (Table 50). With 23,158 pounds of milk sold per cow, farms in the largest herd size group averaged 19 percent more milk output per cow than the average of all herds in the summary with less than 600 cows.

The ability to reach high levels of milk output per cow with large herds is a major key to high profitability. Three times a day milking (3X) and supplementing with bST are herd management practices commonly used to increase milk output per cow in large herds. Many dairy farmers who have been willing and able to employ and manage the labor required to milk 3X have been successful. Only 5 percent of the 111 DFBS farms with less than 100 cows used a milking frequency greater than 2X. As herd size increased, the percent of herds using a higher milking frequency increased. Farms with 100 to 200 cows reported 15 percent of the herds milking more often than 2X, 200-299 cow herds reported 44 percent, 300-399 cow herds reported 68 percent, 400-599 cow herds reported 88 percent, and the 600 cow and larger herds reported 90 percent exceeding the 2X milking frequency.

Table 50.

**COWS PER FARM AND RELATED FARM FACTORS
294 New York Dairy Farms, 2000**

Number of Cows	Avg. No. of Cows	Milk Sold Per Cow (lbs.)	Milk Sold Per Worker (cwt.)	Till- able Acres Per Cow	Forage DM Per Cow (tons)	Farm Capital Per Cow	Cost of Producing Milk/Cwt.	
							Oper.	Total
Under 50	38	16,600	3,724	4.2	7.6	\$8,822	\$9.64	\$17.88
50 to 74	61	17,643	4,673	3.5	7.1	8,138	10.42	16.64
75 to 99	84	18,665	5,025	3.4	7.5	7,099	10.53	15.25
100 to 149	121	18,771	6,435	2.9	7.6	7,235	10.49	15.25
150 to 199	167	20,245	6,974	3.3	7.6	7,968	10.50	15.10
200 to 299	241	21,032	8,534	2.4	7.4	6,647	10.84	14.19
300 to 399	343	20,977	9,281	2.2	6.7	6,172	11.08	14.03
400 to 599	481	22,186	9,336	2.1	7.7	6,113	11.23	14.05
600 & over	957	23,158	10,993	1.8	7.8	6,109	11.95	14.24

Bovine somatotropin (bST), was used to a greater extent on the large herd farms. bST was used sometime during 2000 on 25 percent of the herds with less than 100 cows, 55 percent of the farms with 100 to 299 cows and on 91 percent of the farms with 300 cows and more.

Milk output per worker has always shown a strong correlation with farm profitability. The farms with 100 cows or more averaged over 859,000 pounds of milk sold per worker while the farms with less than 100 cows averaged less than 450,000 pounds per worker.

In addition to achieving the highest productivity per cow and per worker, the largest farms had the fewest crop acres per cow, but the highest forage dry matter harvested per cow. The largest farms had the most efficient use of farm capital with an average investment of \$6,109 per cow.

The last column in Table 50 may be the most important in explaining why profits were significantly higher on the 400 to 599 cow farms. The 26 farms with 400 to 599 cows held their average total costs of producing milk to \$14.05 per hundredweight, \$1.27 below the \$15.32 average for the remaining 268 dairy farms. The lower average costs of production plus a similar milk price gave the managers of the 400 to 599 farms profit margins (milk price less total cost of producing milk) that averaged \$1.44 per hundredweight above the average of the other 268 DFBS farms.

A detailed list of accrual expenses, receipts and a profitability analysis is presented in Table 51, on pages 50 and 51 for the nine herd size categories. Purchased feed is the largest expense on all farms, regardless of size. However, large farms find hired labor expense as the second largest expense category.

Assets, liabilities and financial measures are presented in Table 52 on pages 52-55. All herd size categories except the group with more than 600 cows saw an increase in net worth during 2000. The second largest herd size category experienced an increase in net worth of over \$78,000. However, percent equity went down as herd size increased. The largest herds had 49% equity; while the smaller herds averaged 73%.

Selected business factors by herd size group are presented in Table 53 on pages 56 and 57. 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 E.B. 2001-06, Dairy Farm Business Summary, New York Large Herd Farms, 300 Cows or Larger, 2000. For analysis of smaller herds, see E.B. 2001-10, Dairy Farm Business Summary, New York Small Herd Farms, 70 Cows or Fewer, 2000.

Table 51.

FARM BUSINESS SUMMARY BY HERD SIZE
294 New York Dairy Farms, 2000

Item	Farm Size:	Less than 50 Cows	50 to 74 Cows	75 to 99 Cows	100 to 149 Cows
Number of farms		28	54	29	48
<u>ACCRUAL EXPENSES</u>					
Hired labor		\$2,171	\$8,034	\$23,107	\$30,277
Dairy grain & concentrate		22,935	37,610	56,084	88,082
Dairy roughage		3,009	4,750	4,434	5,780
Nondairy feed		134	10	28	30
Machine hire, rent & lease		2,333	3,455	4,921	7,816
Machine repairs & farm vehicle expense		6,617	10,463	12,400	19,114
Fuel, oil & grease		2,874	4,484	6,996	9,256
Replacement livestock		1,207	3,437	1,737	6,659
Breeding		1,023	2,393	3,194	4,550
Veterinary & medicine		2,446	3,873	5,666	9,642
Milk marketing		5,121	10,039	12,413	17,392
Bedding		609	1,030	1,509	2,810
Milking supplies		2,679	5,147	5,473	8,604
Cattle lease & rent		0	76	47	23
Custom boarding		107	430	966	2,240
bST expense		389	588	1,420	3,257
Other livestock expense		1,649	3,209	3,244	5,324
Fertilizer & lime		1,882	3,989	6,397	8,098
Seeds & plants		856	2,225	3,289	4,643
Spray & other crop expense		1,053	1,609	3,323	4,676
Land, building & fence repair		1,569	2,241	4,870	4,579
Taxes & rent		4,446	7,487	8,957	12,300
Utilities		4,487	5,893	7,290	9,032
Interest paid		5,842	9,400	13,642	20,865
Misc. (including insurance)		4,282	5,500	8,096	9,372
Total Operating Expenses		\$79,721	\$137,370	\$199,503	\$294,421
Expansion livestock		0	0	134	6,887
Machinery depreciation		7,516	9,020	10,930	19,383
Building depreciation		2,643	3,939	6,263	10,011
Total Accrual Expenses		\$89,880	\$150,329	\$216,830	\$330,702
<u>ACCRUAL RECEIPTS</u>					
Milk sales		\$84,836	\$144,180	\$206,344	\$306,379
Dairy cattle		5,029	7,864	8,487	22,769
Dairy calves		1,691	2,295	2,818	4,939
Other livestock		610	200	519	1,044
Crops		881	1,357	983	1,501
Misc. receipts		10,457	13,221	21,748	32,192
Total Accrual Receipts		\$103,504	\$169,117	\$240,901	\$368,824
<u>PROFITABILITY ANALYSIS</u>					
Net farm income (without appreciation)		\$13,624	\$18,788	\$24,071	\$38,122
Net farm income (with appreciation)		\$21,620	\$31,028	\$40,338	\$57,458
Labor & management income		\$-4,435	\$-6,060	\$-403	\$1,558
Number of operators		1.22	1.34	1.41	1.58
Labor & management income/operator		\$-3,635	\$-4,522	\$-286	\$986
Rates of return on:					
Equity capital without appreciation		-6.7%	-5.1%	-3.8%	-2.0%
Equity capital with appreciation		-3.4%	-1.6%	0.6%	1.3%
All capital without appreciation		-3.1%	-1.7%	-0.1%	1.0%
All capital with appreciation		-0.7%	0.8%	2.6%	3.3%

Table 51. (continued)

FARM BUSINESS SUMMARY BY HERD SIZE
294 New York Dairy Farms, 2000

Item	Farm Size:	150 to 199 Cows	200 to 299 Cows	300 to 399 Cows	400 to 599 Cows	600 or More Cows
Number of farms		25	36	19	26	29
<u>ACCRUAL EXPENSES</u>						
Hired labor		\$59,775	\$95,104	\$159,524	\$260,413	\$608,001
Dairy grain & concentrate		110,838	189,823	250,435	392,824	825,281
Dairy roughage		4,539	8,984	21,085	39,826	39,389
Nondairy feed		0	56	0	0	0
Machine hire, rent & lease		12,281	13,556	30,893	35,233	93,967
Machine repairs & farm vehicle expense		32,707	35,882	48,308	70,814	131,545
Fuel, oil & grease		15,567	20,932	26,649	36,131	62,048
Replacement livestock		6,136	10,885	30,595	23,164	44,752
Breeding		5,634	8,908	11,732	18,066	36,082
Veterinary & medicine		13,439	24,209	37,790	56,523	122,748
Milk marketing		22,891	39,312	56,029	71,042	134,463
Bedding		3,990	9,326	10,943	23,261	55,332
Milking supplies		12,455	16,374	19,994	33,726	73,526
Cattle lease & rent		409	137	3,447	863	17,044
Custom boarding		4,288	10,182	22,337	12,506	58,029
bST expense		6,327	9,270	16,485	28,070	69,414
Other livestock expense		9,271	7,113	10,217	13,365	18,279
Fertilizer & lime		14,598	15,446	19,021	26,781	57,918
Seeds & plants		8,716	10,108	10,330	23,070	40,968
Spray & other crop expense		8,146	12,015	15,671	19,115	51,540
Land, building & fence repair		9,249	10,627	15,398	22,705	45,211
Taxes & rent		20,296	25,811	29,654	49,349	93,093
Utilities		12,802	16,419	26,365	30,711	59,814
Interest paid		27,753	47,620	76,107	98,656	214,097
Misc. (including insurance)		<u>14,650</u>	<u>16,650</u>	<u>20,511</u>	<u>31,414</u>	<u>68,280</u>
Total Operating Expenses		\$436,756	\$654,751	\$969,510	\$1,417,627	\$3,020,821
Expansion livestock		2,888	14,056	23,719	48,396	105,617
Machinery depreciation		32,227	33,838	59,457	77,876	127,498
Building depreciation		<u>17,639</u>	<u>25,325</u>	<u>31,023</u>	<u>55,776</u>	<u>117,745</u>
Total Accrual Expenses		\$489,510	\$727,970	\$1,083,709	\$1,599,675	\$3,371,681
<u>ACCRUAL RECEIPTS</u>						
Milk sales		\$449,146	\$683,316	\$960,862	\$1,443,991	\$2,950,785
Dairy cattle		23,799	50,702	85,000	113,375	251,760
Dairy calves		6,050	7,637	15,669	24,442	33,579
Other livestock		-355	1,641	15,631	5,910	3,320
Crops		6,146	2,659	8,021	37,561	44,841
Misc. receipts		<u>49,488</u>	<u>57,623</u>	<u>71,814</u>	<u>85,371</u>	<u>144,658</u>
Total Accrual Receipts		\$534,274	\$803,577	\$1,156,997	\$1,710,651	\$3,428,943
<u>PROFITABILITY ANALYSIS</u>						
Net farm income (without appreciation)		\$44,764	\$75,607	\$73,288	\$110,976	\$57,262
Net farm income (with appreciation)		\$82,473	\$118,246	\$123,288	\$186,711	\$178,638
Labor & management income		\$-7,607	\$22,931	\$11,940	\$23,953	\$-90,809
Number of operators		2.08	1.92	1.68	2.14	2.50
Labor & management income/operator		\$-3,657	\$11,943	\$7,107	\$11,193	\$-36,324
Rates of return on:						
Equity capital without appreciation		-1.4%	1.5%	0.8%	1.5%	-2.0%
Equity capital with appreciation		2.6%	5.8%	5.2%	6.1%	2.2%
All capital without appreciation		1.1%	3.9%	4.1%	4.2%	2.7%
All capital with appreciation		3.9%	6.6%	6.4%	6.8%	4.8%

Table 52.

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
294 New York Dairy Farms, 2000

Item	Farms with:		50 to 74 Cows	
	Less than 50 Cows	Dec. 31	Jan. 1	Dec. 31
ASSETS				
Farm cash, checking & savings	\$2,565	\$2,547	\$12,324	\$8,777
Accounts receivable	6,869	7,386	10,741	11,291
Prepaid expenses	121	114	99	65
Feed & supplies	18,769	17,819	33,366	34,169
Livestock*	64,672	64,932	94,563	101,307
Machinery & equipment*	69,809	71,627	100,268	107,615
Farm Credit stock	613	458	1,262	1,089
Other stock & certificates	453	468	2,751	2,953
Land & buildings*	<u>166,288</u>	<u>174,967</u>	<u>229,047</u>	<u>241,120</u>
Total Farm Assets	\$330,160	\$340,318	\$484,420	\$508,385
Personal cash, checking & savings	\$3,566	\$3,391	\$1,888	\$2,528
Cash value of life insurance	11,548	11,606	8,343	8,816
Nonfarm real estate	7,242	7,368	10,826	11,072
Auto (personal share)	5,014	5,219	4,105	4,282
Stocks & bonds	1,295	1,300	21,957	19,386
Household furnishings	11,463	11,468	9,561	10,032
All other	<u>1,053</u>	<u>1,053</u>	<u>2,168</u>	<u>1,952</u>
Nonfarm Assets**	\$41,181	\$41,405	\$58,848	\$58,068
Farm & Nonfarm Assets	\$371,341	\$381,723	\$543,268	\$566,453
LIABILITIES				
Accounts payable	\$2,602	\$3,579	\$5,600	\$8,034
Operating debt	2,743	2,529	5,208	5,719
Short term	46	127	565	1,946
Advanced government receipt	17	18	76	0
Current Portion:				
Intermediate	7,169	8,009	7,837	9,401
Long Term	2,197	2,065	3,572	4,287
Intermediate***	35,544	28,808	50,663	51,872
Long term*	<u>42,446</u>	<u>45,801</u>	<u>62,853</u>	<u>70,058</u>
Total Farm Liabilities	\$92,764	\$90,936	\$136,374	\$151,318
Nonfarm Liabilities**	<u>11,211</u>	<u>10,282</u>	<u>5,626</u>	<u>4,152</u>
Farm & Nonfarm Liabilities	\$103,975	\$101,218	\$142,000	\$155,470
Farm Net Worth (Equity Capital)	\$237,396	\$249,382	\$348,046	\$357,067
Farm & Nonfarm Net Worth	\$267,366	\$280,505	\$401,268	\$410,983
FINANCIAL MEASURES				
	<u>Less than 50 Cows</u>		<u>50 to 74 Cows</u>	
Percent Equity	73%		70%	
Debt/asset ratio-long term	0.26		0.29	
Debt/asset ratio-intermediate & current	0.27		0.30	
Change in net worth with appreciation	\$11,986		\$9,021	
Total farm debt per cow	\$2,332		\$2,481	
Debt payments made per cow	\$524		\$446	
Debt payments as % of milk sales	23%		18%	
Amount available for debt service	\$17,122		\$21,039	
Cash flow coverage ratio for 2000	1.05		0.94	
Debt coverage ratio for 2000	0.90		0.95	

*Includes discounted lease payments.

**Average of farms reporting nonfarm assets and liabilities for 2000.

***Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 52. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
294 New York Dairy Farms, 2000

Item	Farms with: 75 to 99 Cows		100 to 149 Cows	
	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS				
Farm cash, checking & savings	\$5,023	\$2,166	\$6,473	\$6,094
Accounts receivable	14,438	15,402	25,462	29,042
Prepaid expenses	631	961	105	132
Feed & supplies	44,575	43,633	80,185	73,910
Livestock*	133,420	139,575	183,878	199,660
Machinery & equipment*	125,801	126,969	185,101	194,672
Farm Credit stock	1,375	1,287	2,838	2,470
Other stock & certificates	6,331	7,077	12,308	14,341
Land & buildings*	<u>257,481</u>	<u>266,403</u>	<u>357,402</u>	<u>376,831</u>
Total Farm Assets	\$589,076	\$603,473	\$853,753	\$897,152
Personal cash, checking & savings	\$2,077	\$2,324	\$5,885	\$8,300
Cash value of life insurance	8,269	8,866	9,693	11,852
Nonfarm real estate	30,688	60,094	49,080	49,300
Auto (personal share)	4,284	6,497	4,683	4,380
Stocks & bonds	5,986	6,469	22,295	22,268
Household furnishings	9,094	8,813	6,308	7,300
All other	<u>5,787</u>	<u>6,834</u>	<u>3,714</u>	<u>2,960</u>
Nonfarm Assets**	\$66,185	\$99,897	\$101,658	\$106,360
Farm & Nonfarm Assets	\$655,261	\$703,370	\$955,411	\$1,003,512
LIABILITIES				
Accounts payable	\$11,512	\$15,932	\$7,172	\$8,470
Operating debt	7,907	6,010	15,589	20,818
Short term	892	2,608	740	1,426
Advanced government receipt	0	0	234	0
Current Portion:				
Intermediate	15,118	16,245	19,252	25,561
Long Term	3,282	4,148	8,342	11,397
Intermediate***	90,912	84,783	100,164	110,528
Long term*	<u>93,537</u>	<u>96,310</u>	<u>127,388</u>	<u>120,059</u>
Total Farm Liabilities	\$223,160	\$226,036	\$278,881	\$298,259
Nonfarm Liabilities**	<u>1,166</u>	<u>984</u>	<u>4,637</u>	<u>4,087</u>
Farm & Nonfarm Liabilities	\$224,326	\$227,020	\$283,518	\$302,346
Farm Net Worth (Equity Capital)	\$365,916	\$377,437	\$574,872	\$598,893
Farm & Nonfarm Net Worth	\$430,935	\$476,350	\$671,893	\$701,166
FINANCIAL MEASURES				
	75 to 99 Cows		100 to 149 Cows	
Percent equity	63%		67%	
Debt/asset ratio-long term	0.36		0.32	
Debt/asset ratio-intermediate & current	0.38		0.34	
Change in net worth with appreciation	\$11,521		\$24,021	
Total farm debt per cow	\$2,628		\$2,367	
Debt payments made per cow	\$402		\$471	
Debt payments as % of milk sales	16%		19%	
Amount available for debt service	\$30,349		\$58,040	
Cash flow coverage ratio for 2000	0.89		1.06	
Debt coverage ratio for 2000	0.72		1.06	

*Includes discounted lease payments.

**Average of farms reporting nonfarm assets and liabilities for 2000.

***Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 52. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
294 New York Dairy Farms, 2000

Item	Farms with: 150 to 199 Cows		200 to 299 Cows	
	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS				
Farm cash, checking & savings	\$9,190	\$5,350	\$8,937	\$10,613
Accounts receivable	41,354	41,094	54,812	61,490
Prepaid expenses	788	552	218	42
Feed & supplies	136,263	134,736	161,305	145,485
Livestock*	266,191	282,970	367,057	411,485
Machinery & equipment*	274,237	288,384	307,501	328,261
Farm Credit stock	3,828	3,339	5,580	4,852
Other stock & certificates	17,731	21,122	18,706	20,261
Land & buildings*	<u>557,363</u>	<u>576,973</u>	<u>631,763</u>	<u>665,549</u>
Total Farm Assets	\$1,306,945	\$1,354,520	\$1,555,880	\$1,648,038
Personal cash, checking & savings	\$3,438	\$4,397	\$7,418	\$7,165
Cash value of life insurance	11,400	21,375	40,955	42,542
Nonfarm real estate	13,750	44,750	26,885	26,654
Auto (personal share)	4,867	12,250	6,623	6,692
Stocks & bonds	7,875	40,838	56,226	48,613
Household furnishings	11,775	15,750	7,769	7,769
All other	<u>31,511</u>	<u>0</u>	<u>6,757</u>	<u>8,555</u>
Nonfarm Assets**	\$84,616	\$139,360	\$152,633	\$147,990
Farm & Nonfarm Assets	\$1,391,561	\$1,493,880	\$1,708,513	\$1,796,028
LIABILITIES				
Accounts payable	\$13,651	\$16,695	\$8,314	\$8,900
Operating debt	15,905	16,257	40,508	38,356
Short term	2851	4,652	5,087	8,005
Advanced government receipt	0	56	0	151
Current Portion:				
Intermediate	33,492	40,645	41,933	54,012
Long Term	9,097	10,063	15,841	15,932
Intermediate***	<u>155,956</u>	<u>159,069</u>	<u>248,771</u>	<u>262,532</u>
Long term*	<u>148,594</u>	<u>144,843</u>	<u>226,941</u>	<u>235,612</u>
Total Farm Liabilities	\$379,547	\$392,280	\$587,395	\$623,501
Nonfarm Liabilities**	<u>0</u>	<u>0</u>	<u>2,944</u>	<u>1,721</u>
Farm & Nonfarm Liabilities	\$379,547	\$392,280	\$590,339	\$625,222
Farm Net Worth (Equity Capital)	\$927,398	\$962,240	\$968,485	\$1,024,537
Farm & Nonfarm Net Worth	\$1,012,014	\$1,101,600	\$1,118,174	\$1,170,806
FINANCIAL MEASURES				
	150 to 199 Cows		200 to 299 Cows	
Percent equity	71%		62%	
Debt/asset ratio-long term	0.25		0.35	
Debt/asset ratio-intermediate & current	0.32		0.39	
Change in net worth with appreciation	\$34,842		\$56,052	
Total farm debt per cow	\$2,321		\$2,514	
Debt payments made per cow	\$488		\$528	
Debt payments as % of milk sales	18%		19%	
Amount available for debt service	\$82,297		\$132,427	
Cash flow coverage ratio for 2000	1.12		1.12	
Debt coverage ratio for 2000	1.01		1.09	

*Includes discounted lease payments.

**Average of farms reporting nonfarm assets and liabilities for 2000.

***Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 52. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
294 New York Dairy Farms, 2000

Item	300 to 399 Cows		400 to 599 Cows		More than 600 Cows	
	Jan. 1	Dec. 31	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS						
Farm cash, checking & savings	\$9,967	\$22,367	\$19,621	\$16,103	\$31,868	\$17,061
Accounts receivable	82,800	87,282	91,491	108,717	172,491	197,238
Prepaid expenses	1,703	1,624	2,521	1,543	17,977	16,476
Feed & supplies	227,832	207,792	329,691	331,607	801,814	721,858
Livestock*	508,918	564,747	724,494	807,678	1,421,007	1,582,991
Machinery & equipment*	417,494	437,968	505,918	550,002	943,595	979,691
Farm Credit stock	2,565	2,998	13,037	9,355	29,788	20,597
Other stock & certificates	29,143	37,437	58,984	62,267	143,768	140,650
Land & buildings*	<u>783,494</u>	<u>807,551</u>	<u>1,094,212</u>	<u>1,153,295</u>	<u>2,185,536</u>	<u>2,269,049</u>
Total Farm Assets	\$2,063,916	\$2,169,766	\$2,839,969	\$3,040,567	\$5,747,843	\$5,945,611
Personal cash, checking & savings	\$2,655	\$5,555	\$1,153	\$744	\$3,413	\$5,261
Cash value of life insurance	7,583	10,346	18,737	24,781	33,889	58,541
Nonfarm real estate	13,000	16,235	14,375	14,375	23,929	26,071
Auto (personal share)	8,150	10,580	2,688	10,313	3,214	8,800
Stocks & bonds	17,565	18,544	31,146	28,146	25,082	27,069
Household furnishings	8,350	7,250	7,000	7,000	8,000	29,571
All other	<u>12,654</u>	<u>15,052</u>	<u>0</u>	<u>2,250</u>	<u>2,214</u>	<u>2,571</u>
Nonfarm Assets**	\$69,957	\$83,562	\$75,099	\$87,609	\$99,741	\$157,884
Farm & Nonfarm Assets	\$2,133,873	\$2,253,328	\$2,915,068	\$3,128,176	\$5,847,584	\$6,103,495
LIABILITIES						
Accounts payable	\$28,344	\$30,855	\$19,148	\$43,227	\$39,535	\$77,952
Operating debt	46,886	59,116	93,635	99,955	337,849	318,287
Short term	9,120	4,366	6,092	2,476	6,269	10,397
Advanced government receipts	0	0	0	0	0	0
Current Portion:						
Intermediate	75,528	86,950	86,634	110,735	176,378	172,039
Long Term	14,403	15,407	31,500	35,045	112,001	90,579
Intermediate***	441,024	486,840	554,683	575,983	1,016,857	1,158,624
Long term*	<u>306,516</u>	<u>311,206</u>	<u>438,172</u>	<u>484,729</u>	<u>1,104,037</u>	<u>1,218,202</u>
Total Farm Liabilities	\$921,821	\$994,740	\$1,229,865	\$1,352,151	\$2,792,926	\$3,046,081
Nonfarm Liabilities**	<u>295</u>	<u>783</u>	<u>794</u>	<u>3,625</u>	<u>10,048</u>	<u>8,806</u>
Farm & Nonfarm Liabilities	\$922,116	\$995,523	\$1,230,659	\$1,355,776	\$2,802,974	\$3,054,887
Farm Net Worth (Equity Capital)	1,142,095	1,175,026	1,610,104	1,688,416	2,954,917	2,899,530
Farm & Nonfarm Net Worth	\$1,211,757	\$1,257,805	\$1,684,409	\$1,772,400	\$3,044,610	\$3,048,608
FINANCIAL MEASURES						
	<u>300 to 399 Cows</u>		<u>400 to 599 Cows</u>		<u>More than 600 Cows</u>	
Percent equity	54%		56%		49%	
Debt/asset ratio-long term	.39		.42		.54	
Debt/asset ratio-intermediate & current	.50		.46		.50	
Change in net worth with appreciation	\$32,931		\$78,312		\$-55,387	
Total farm debt per cow	\$2,771		\$2,683		\$3,071	
Debt payments made per cow	\$578		\$539		\$502	
Debt payments as % of milk sales	20%		18%		16%	
Amount available for debt service	\$175,510		\$252,958		\$405,767	
Cash flow coverage ratio for 2000	0.92		1.09		0.83	
Debt coverage ratio for 2000	0.86		1.15		0.60	

*Includes discounted lease payments.

**Average of farms reporting nonfarm assets and liabilities for 2000.

***Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 53.

SELECTED BUSINESS FACTORS BY HERD SIZE
294 New York Dairy Farms, 2000

Item	Farms with:	Less than 50 Cows	50 to 74 Cows	75 to 99 Cows	100 to 149 Cows
Number of farms		28	54	29	48
<u>Cropping Program Analysis</u>					
Total Tillable acres		158	211	283	347
Tillable acres rented*		64	92	132	157
Hay crop acres*		94	128	164	187
Corn silage acres*		20	37	62	82
Hay crop, tons DM/acre		2.3	2.3	2.3	2.9
Corn silage, tons/acre		10.9	11.9	11.8	13.3
Oats, bushels/acre		0	69	35	45
Forage DM per cow, tons		7.6	7.1	7.5	7.6
Tillable acres/cow		4.2	3.5	3.4	2.9
Fert. & lime expense/tillable acre		\$11.91	\$18.91	\$22.60	\$23.34
Total machinery costs		\$22,876	\$32,619	\$41,566	\$65,063
Machinery cost/tillable acre		\$145	\$155	\$147	\$188
<u>Dairy Analysis</u>					
Number of cows		38	61	84	121
Number of heifers		28	46	66	87
Milk sold, lbs.		633,157	1,079,513	1,567,897	2,277,951
Milk sold/cow, lbs.		16,600	17,643	18,665	18,771
Operating cost of prod. milk/cwt.		\$9.64	\$10.42	\$10.53	\$10.49
Total cost of prod. milk/cwt.		\$17.88	16.64	\$15.25	\$15.25
Price/cwt. milk sold		\$13.40	13.36	\$13.16	\$13.45
Purchased dairy feed/cow		\$683	\$694	\$720	\$776
Purchased dairy feed/cwt. milk		\$4.10	\$3.92	\$3.86	\$4.12
Purchased grain & concentrate as % of milk receipts		27%	26%	27%	29%
Purchased feed & crop expense/cwt. milk		\$4.70	\$4.65	\$4.69	\$4.88
Cull rate		26%	31%	27%	30%
<u>Capital Efficiency</u>					
Farm capital/worker		\$197,199	\$214,893	\$191,114	\$247,303
Farm capital/cow		8,822	8,138	7,099	7,235
Farm capital/tillable acre owned		3,529	4,171	3,949	4,536
Real estate/cow		4,490	3,854	3,118	3,034
Machinery investment/cow		1,861	1,704	1,505	1,569
Asset turnover ratio		0.33	0.37	0.43	0.44
<u>Labor Efficiency</u>					
Worker equivalent		1.70	2.31	3.12	3.54
Operator/manager equivalent		1.22	1.34	1.41	1.58
Milk sold/worker, lbs.		372,445	467,322	502,531	643,489
Cows/worker		22	26	27	34
Work units/worker		236	276	284	346
Labor cost/cow		\$977	\$789	\$791	\$635
Labor cost/tillable acre		\$235	\$228	\$235	\$221

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

Table 53. (cont'd)

SELECTED BUSINESS FACTORS BY HERD SIZE
294 New York Dairy Farms, 2000

Item	Farms with:	150 to 199 Cows	200 to 299 Cows	300 to 399 Cows	400 to 599 Cows	600 or More Cows
Number of farms		25	36	19	26	29
<u>Cropping Program Analysis</u>						
Total Tillable acres		550	589	737	999	1,753
Tillable acres rented*		224	288	350	482	819
Hay crop acres*		256	295	357	438	763
Corn silage acres*		118	191	242	390	813
Hay crop, tons DM/acre		2.9	3.0	3.2	3.8	4.1
Corn silage, tons/acre		13.5	14.7	15.9	16.3	15.8
Oats, bushels/acre		43	0	53	60	36
Forage DM per cow, tons		7.6	7.4	6.7	7.7	7.8
Tillable acres/cow		3.3	2.4	2.2	2.1	1.8
Fert. & lime expense/tillable acre		\$26.54	\$26.22	\$25.81	\$26.81	\$33.04
Total machinery costs		\$106,848	\$120,102	\$186,694	\$246,452	\$463,140
Machinery cost/tillable acre		\$194	\$204	\$253	\$247	\$264
<u>Dairy Analysis</u>						
Number of cows		167	241	343	481	957
Number of heifers		134	179	224	344	764
Milk sold, lbs.		3,375,226	5,060,618	7,192,819	10,679,888	22,161,456
Milk sold/cow, lbs.		20,245	21,032	20,977	22,186	23,158
Operating cost of prod. milk/cwt.		\$10.50	\$10.84	\$11.08	\$11.23	\$11.95
Total cost of prod. milk/cwt.		15.10	\$14.19	\$14.03	\$14.05	14.24
Price/cwt. milk sold		13.31	\$13.50	\$13.36	\$13.52	13.31
Purchased dairy feed/cow		\$691	\$825	\$792	\$899	904
Purchased dairy feed/cwt. milk		\$3.42	\$3.93	\$3.77	\$4.05	\$3.90
Purchased grain & concentrate as % of milk receipts		25%	28%	26%	27%	28%
Purchased feed & crop expense/cwt. milk		\$4.35	\$4.67	\$4.40	\$4.70	\$4.58
Cull Rate		34%	31%	29%	30%	37%
<u>Capital Efficiency</u>						
Farm capital/worker		\$274,945	\$270,145	\$273,141	\$257,016	\$290,016
Farm capital/cow		\$7,968	6,647	6,172	6,113	6,109
Farm capital/tillable acre owned		4,082	5,340	5,470	5,687	6,253
Real estate/cow		3,396	2,692	2,319	2,336	2,327
Machinery investment/cow		1,684	1,319	1,247	1,098	1,005
Asset turnover ratio		0.43	0.53	0.57	0.61	0.61
<u>Labor Efficiency</u>						
Worker equivalent		4.84	5.93	7.75	11.44	20.16
Operator/manager equivalent		2.08	1.92	1.68	2.14	2.50
Milk sold/worker, lbs.		697,361	853,393	928,106	933,557	1,099,279
Cows/worker		35	41	44	42	47
Work units/worker		366	406	426	412	467
Labor cost/cow		\$680	\$595	\$594	\$659	\$698
Labor cost/tillable acre		\$206	\$243	\$277	\$317	\$381

*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 2000, 22 farms purchased the majority of their feed, including all forages. Less than 10 acres of crops were harvested by the average farm. Table 54 highlights the income and expenses for these 22 farms compared to the income and expenses for 56 farms of similar size that grew their forages. Table 55 compares selected business factors for the two groups of farms. In 2000, the 22 farms buying forages averaged a higher rate of return on all capital by shipping more milk per cow with less capital investment and had an operating cost that was similar to the farms growing all forages.

Comparison by Type of Barn and Herd Size

When analyzing a dairy farm business by comparing it to a group of farms, it is important that the group of farms have as many of the same physical characteristics as possible as the farm being analyzed. To assist in this endeavor, dairy farms in the summary have been divided into those with freestall and those with conventional housing. Conventional housing includes stanchion and tiestall barns. Within each group, is a further classification by size of the dairy herd. Table 56 on page 62 includes the average values for the resulting five groups of dairy farms. The average size in the five groups ranges from 45 cows on the small conventional farms to 634 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. The small freestall farms showed average profits somewhat lower than the large conventional farm businesses.

Farm business charts have been computed for each of the five housing and herd size categories and are on pages 63-67. 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.

Comparison of Data, Same Farms, 1991 - 2000

Follow ten years of growth, change and progress made by 69 New York DFBS farms in Table 62, pages 68 and 69. Although milk receipts per cwt. increased four percent, net farm income without appreciation increased 6 percent from 1991 to 2000. 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.

Comparison of Farms by bST Usage

Farms adopting bovine somatotropin (bST) sold more milk per cow and had larger herds (Table 63). With the exception of 2000, farms using bST were also more profitable. However, they had higher operating costs of producing milk per hundredweight than farms not using bST.

Farms not using bST showed a 7.9 percent increase in pounds of milk sold per cow, from 17,409 pounds in 1996 to 18,776 pounds in 2000. Farms using bST increased milk sold per cow 5.6 percent, from 22,058 pounds per cow in 1996 to 23,284 pounds per cow in 2000. Farms that used bST in 1996 through 2000 were larger, and increased in size more rapidly than did farms not supplementing with bST. Farms not using bST increased by 11 cows, from an average of 100 cows in 1996 to 111 in 2000. Farms adopting bST increased by 98 cows, up to 475 cows in 2000. Both groups saw a decrease in net farm income in 2000. The group not using bST increased net worth, with the bST group decreasing net worth as a result of the drop in profit. 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 alone is a significant factor.

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 all 294 dairy farms, 146 dairy farms selling less than 20,000 pounds of milk per cow, and 148 dairy farms selling 20,000 pounds and more in Table 64 on page 71. Table 65 on page 72 provides the same list of average accrual receipts and expenses for 93 farms averaging less than 80 cows per farm, 87 farms with 80 to 180 cows and 114 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 2000, 65 of the 294 DFBS cooperators practiced intensive grazing. This 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 66. The control group is a selection of non-grazing dairy farms of similar size. In 2000 average net farm income was somewhat higher on intensive grazing farms. Operating cost of producing milk was 32 cents per cwt. lower while total costs were 5 cents per cwt. higher than the costs of production on the control farms. Table 66 also includes a comparison of 14 profitable grazing farms to 40 profitable non-grazing farms. E.B. 2001-13 contains detailed information on New York farms using intensive grazing.

Comparison of Dairy Farm Business Data by Region

Average farm business summary data from five regions of the State are compared in Tables 67 and 68. The largest average farm size, highest average rate of milk production, but the third highest average net farm income (without appreciation) came from the Western and Central Plain Region. Dairy farmers in this region have increased milk production 34.5 percent over the last 10 years and they produced milk for an average total cost of 14.20 per hundredweight in 2000. Total milk production has declined 8.7 percent over 10 years in the Central Valleys Region (Figure 2.). This is the region with the highest costs of producing milk and the second lowest returns to labor and management.

Comparison of Farms by Milking Frequency

Twenty-six percent of the 294 DFBS farms utilized three times per day (3X) milking in 2000. Most of the remaining farms milked twice per day (2X). Two years of selected average business and cost of milk production factors from the two milking frequency groups are compared in Table 69.

In 2000, the 3X farms averaged 42 more cows per farm, sold 1 percent less milk per cow, increased the total cost of producing milk by 2.7 percent, and showed an average 73 percent decrease in net farm income, compared to the 3X farm averages for 1999. The 2X farms decreased milk output per cow 0.5 percent, decreased total production costs \$0.33 per hundredweight but decreased average net farm income \$23,706 per farm in 2000 compared to 1999.

The 3X farms compared with the 2X farms averaged 21 percent more milk per cow and 52 percent additional milk per worker in 2000, very similar to the differences found in 1999. In 2000 the average total cost of producing milk was 6 percent lower on 3X farms than on 2X dairies, similar to 1999. 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 indicate there are other important management differences contributing to higher profits.

Other Comparisons

Forty dairy renter farms were smaller, on average, than the 294 owner-operated farms, but averaged higher labor and management income than the average for 294 owned dairy farms (Table 70). E.B. 2001-14 contains detailed information on Eastern New York dairy renters. Data for the top 10 percent of farms by rate of return on all capital without appreciation is presented in Table 71. 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 294 specialized dairy farms are presented in Table 72.

Table 54.

**INCOME & EXPENSE COMPARISON FOR
FARMS BUYING MAJORITY OF FORAGES VERSUS SIMILAR SIZE FARMS GROWING FORAGES, 2000**

Item	22 Farms Buying Majority of Forages		56 Similar Size Farms Growing Forages	
Number of cows	137		140	
Pounds of Milk Sold	2,900,071		2,757,924	
<u>Income</u>	<u>Per Cow</u>	<u>Per Cwt.</u>	<u>Per Cow</u>	<u>Per Cwt.</u>
Milk sold	\$2,774	\$13.11	\$2,644	\$13.42
Dairy cattle	248	1.17	163	0.83
Dairy calves	65	0.31	37	0.19
Other livestock	3	0.01	3	0.02
Crops	-6	-0.03	28	0.14
Miscellaneous	<u>136</u>	<u>0.64</u>	<u>283</u>	<u>1.44</u>
Total Accrual Receipts	\$3,220	\$15.21	\$3,159	\$16.04
<u>Expenses</u>				
Hired Labor	\$285	\$1.35	\$321	\$1.63
Dairy grain & concentrate	725	3.43	696	3.53
Dairy Roughage	435	2.06	29	0.15
Nondairy	1	0.00	0	0.00
Machinery Hire, rent/lease	62	0.29	69	0.35
Machinery repairs/vehicle expense.	92	0.44	173	0.88
Fuel, oil & grease	45	0.21	85	0.43
Replacement livestock	142	0.67	44	0.23
Breeding	32	0.15	37	0.19
Veterinary & medicine	100	0.47	85	0.43
Milk marketing	131	0.62	141	0.71
Bedding	42	0.20	28	0.14
Milking supplies	56	0.27	77	0.39
Cattle lease/rent	1	0.01	1	0.01
Custom boarding	46	0.22	24	0.12
BST expense	32	0.15	33	0.17
Other livestock expenses	39	0.18	53	0.27
Fertilizer & lime	4	0.02	83	0.42
Seeds & plants	2	0.01	49	0.25
Spray, other crop expenses	1	0.01	49	0.25
Land/bldg/fence repair	48	0.23	45	0.23
Taxes	20	0.09	65	0.33
Rent & lease	62	0.29	44	0.22
Insurance	24	0.11	44	0.22
Utilities	79	0.37	75	0.38
Interest paid	171	0.81	176	0.89
Miscellaneous	<u>27</u>	<u>0.13</u>	<u>33</u>	<u>0.17</u>
Total Operating Expenses	\$2,704	\$12.77	\$2,562	\$13.00
Expansion livestock	\$123	\$0.58	\$46	\$0.23
Machinery depreciation	84	0.40	166	0.84
Building depreciation	<u>68</u>	<u>0.32</u>	<u>89</u>	<u>0.45</u>
Total Accrual Expenses	\$2,979	\$14.07	\$2,862	\$14.53
Net Farm Income (without appreciation)	\$241	\$1.14	\$297	\$1.51

Table 55.

**SELECTED BUSINESS FACTORS FOR FARMS BUYING MAJORITY OF FORAGES
VERSUS SIMILAR SIZE FARMS GROWING FORAGES, 2000**

Selected Factors	22 Farms Buying Majority of Forages	56 Similar Size Farms Growing Forages
<u>Size of Business</u>		
Average number of cows	137	140
Average number of heifers	62	106
Milk sold, lbs.	2,900,071	2,757,924
Worker equivalent	3.29	4.14
Total tillable acres	66	438
Tillable acres harvested	45	414
<u>Rates of Production</u>		
Milk sold per cow, lbs.	21,161	19,717
Hay DM per acre, tons	1.0	2.86
Corn silage per acre, tons	0.0	13.15
<u>Labor Efficiency & Costs</u>		
Cows per worker	42	34
Milk sold/worker, lbs.	881,481	666,165
Hired labor cost/cwt.	\$1.35	\$1.63
Hired labor cost/worker	\$25,501	\$23,664
Hired labor cost as % of milk sales	10.3%	12.1%
<u>Cost Control</u>		
Grain & conc. purchased as % of milk sales	26%	26%
Grain & conc. per cwt. milk	\$3.43	\$3.53
Dairy feed & crop expense per cwt. milk	\$5.52	\$4.61
Labor & mach. costs/cow	\$889	\$1,259
Total farm operating costs per cwt. sold	\$12.77	\$13.00
Interest costs per cwt. milk	\$0.81	\$0.89
Milk marketing costs per cwt. milk sold	\$0.62	\$0.71
Operating cost of producing cwt. of milk	\$11.25	\$10.62
<u>Capital Efficiency(average for the year)</u>		
Farm capital per cow	\$4,150	\$7,704
Mach. & equip. per cow	\$565	\$1,620
Asset turnover ratio	0.82	0.43
<u>Income Generation</u>		
Gross milk sales per cow	\$2,774	\$2,644
Gross milk sales per cwt.	\$13.11	\$13.42
Net milk sales per cwt.	\$12.49	\$12.71
Dairy cattle sales per cow	\$248	\$163
Dairy calf sales per cow	\$65	\$37
<u>Profitability</u>		
Net farm income w/o apprec.	\$33,073	\$41,547
Net farm income w/apprec.	\$55,871	\$65,820
Labor & mgt. income per oper./manager	\$12,914	\$-1,199
Rate of return on equity capital w/o apprec.	-5.0%	-1.6%
Rate of return on all capital w/o apprec.	2.2%	1.2%
<u>Cash flow</u>		
Principal & int. payments per cow, 2000	\$485	\$479
Net cash flow	\$79,674	\$104,691
<u>Financial Summary</u>		
Farm net worth, end year	\$227,356	\$758,108
Farm net worth change from last year, %	12.1%	3.2%
Debt to asset ratio	0.62	0.31
Farm debt per cow	\$2,526	\$2,400

Table 56.

SELECTED BUSINESS FACTORS BY TYPE OF BARN AND HERD SIZE
271 New York Dairy Farms, 2000

Item	Farms with:	Conventional		Freestall		
		<= 60 Cows	>60 Cows	<=150 Cows	151-300 Cows	≥300 Cows
Number of farms		47	49	52	50	73
<u>Cropping Program Analysis</u>						
Total Tillable acres		153	301	312	566	1,231
Tillable acres rented*		63	144	136	258	585
Hay crop acres*		91	188	160	267	545
Corn silage acres*		22	55	77	162	521
Hay crop, tons DM/acre		2.4	2.4	2.7	2.9	3.9
Corn silage, tons/acre		10.7	12.1	13.4	14.2	15.9
Oats, bushels/acre		36	62	43	0	53
Forage DM per cow, tons		6.6	8.1	7.5	7.1	7.6
Tillable acres/cow		3.4	3.6	2.9	2.6	1.9
Fert. & lime exp./tillable acre		\$15.62	\$20.06	\$24.46	\$27.98	\$30.14
Total machinery costs		\$24,372	\$43,631	\$59,105	\$116,659	\$315,691
Machinery cost/tillable acre		\$159	\$145	\$189	\$206	\$256
<u>Dairy Analysis</u>						
Number of cows		45	84	106	215	634
Number of heifers		31	68	76	164	479
Milk sold, lbs.		757,129	1,516,293	2,031,299	4,512,934	14,336,614
Milk sold/cow, lbs.		16,754	18,153	19,090	21,012	22,611
Operating cost of prod. milk/cwt.		\$10.13	\$10.09	\$10.70	\$10.79	\$11.65
Total cost of prod. milk/cwt.		\$17.37	\$15.45	\$15.53	\$14.54	\$14.14
Price/cwt. milk sold		\$13.50	\$13.41	\$13.42	\$13.41	\$13.37
Purchased dairy feed/cow		\$706	\$663	\$793	\$793	\$887
Purchased dairy feed/cwt. milk		\$4.20	\$3.67	\$4.14	\$3.78	\$3.92
Purchased grain & conc. as % milk rec.		26%	26%	29%	27%	28%
Purchased feed & crop exp./cwt. milk		\$4.83	\$4.48	\$4.93	\$4.58	\$4.59
<u>Capital Efficiency</u>						
Farm capital/worker		\$192,833	\$210,236	\$250,597	\$277,139	\$278,490
Farm capital/cow		\$8,099	\$7,684	\$7,447	\$7,090	\$6,110
Farm capital/tillable acre owned		\$4,050	\$4,085	\$4,485	\$4,933	\$5,987
Real estate/cow		\$3,943	\$3,326	\$3,242	\$2,951	\$2,332
Machinery investment/cow		\$1,724	\$1,734	\$1,574	\$1,422	\$1,055
Asset turnover ratio		0.36	0.39	0.44	0.50	0.60
<u>Labor Efficiency</u>						
Worker equivalent		1.89	3.07	3.15	5.50	13.91
Operator/manager equivalent		1.27	1.60	1.51	1.90	2.20
Milk sold/worker, lbs.		400,597	493,907	644,857	820,533	1,030,670
Cows/worker		24	27	34	39	46
Labor cost/cow		\$877	\$768	\$658	\$625	\$672
Labor cost/tillable acre		\$258	\$214	\$223	\$237	\$346
<u>Profitability & Balance Sheet Analysis</u>						
Net farm income (without appreciation)		\$15,281	\$33,027	\$29,093	\$60,619	\$80,355
Labor & management income/operator		\$ -3,409	\$1,396	\$-2,074	\$3,914	\$-10,427
Rate return on all capital with appreciation		-0.2%	2.8%	2.6%	5.4%	5.6%
Farm debt/cow		\$2,131	\$2,220	\$2,494	\$2,490	\$2,936
Percent equity		74%	72%	66%	65%	51%

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

Table 57.

FARM BUSINESS CHART FOR SMALL CONVENTIONAL STALL DAIRY FARMS
47 Conventional Stall Dairy Farms with 60 or Less Cows, New York, 2000

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
2.85	59	1,184,090	24,298	4.4	19	41	737,749
2.58	56	1,129,999	22,172	3.4	16	36	638,835
2.44	54	1,013,578	20,570	3.1	14	32	540,866
2.19	52	947,897	19,045	2.9	14	28	463,474
2.02	50	862,961	16,800	2.6	12	25	426,694

1.85	47	738,483	15,587	2.3	12	23	392,797
1.56	44	630,214	15,220	2.2	10	22	351,696
1.45	39	507,907	13,898	2.0	8	20	325,782
1.28	33	439,973	11,838	1.7	6	18	253,783
1.11	26	327,449	9,330	1.3	4	14	176,722

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		
\$194	13%	\$187	\$940	\$363	\$3.13		
345	19	331	1,059	519	3.62		
446	22	404	1,112	601	3.93		
498	24	448	1,244	652	4.44		
569	25	500	1,380	732	4.63		

635	27	541	1,483	819	4.85		
707	28	588	1,628	936	5.14		
778	32	630	1,740	1,035	5.48		
863	37	808	1,971	1,129	6.26		
1,041	46	1,159	2,251	1,390	7.37		

Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec.		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.	
			Total	Per Cow			
\$3,312	\$6.11	\$13.29	\$49,608	\$1,119	\$26,607	\$70,500	
3,064	7.97	14.00	40,256	907	14,401	26,167	
2,768	8.59	15.03	31,138	717	9,832	19,588	
2,498	9.04	15.60	25,323	571	6,635	15,848	
2,360	9.28	16.27	20,095	464	463	12,055	

2,162	10.00	17.56	15,942	347	-3,894	6,954	
1,986	10.57	18.98	10,371	241	-7,861	2,656	
1,865	11.52	21.06	5,388	120	-11,933	-439	
1,596	12.98	23.26	-3,923	-86	-16,670	-8,611	
1,182	19.49	33.14	-26,348	-598	-52,874	-25,066	

Table 58.

FARM BUSINESS CHART FOR LARGE CONVENTIONAL STALL DAIRY FARMS
49 Conventional Stall Dairy Farms with More Than 60 Cows, New York, 2000

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
5.03	150	2,699,009	25,553	4.8	22	43	814,235
4.29	104	1,889,767	22,227	3.6	19	36	714,931
3.83	92	1,761,822	20,732	3.2	17	34	635,982
3.31	82	1,630,902	19,683	2.9	15	31	599,481
3.09	77	1,503,161	18,607	2.6	14	30	548,510

2.78	74	1,379,333	18,081	2.4	13	29	511,015
2.59	72	1,315,225	17,317	2.1	11	26	455,048
2.29	69	1,213,663	16,035	1.9	10	23	397,645
2.11	66	1,115,117	14,730	1.6	8	20	341,077
1.72	62	891,474	11,591	1.1	5	17	269,302

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		
\$324	13%	\$250	\$856	\$483	\$2.74		
449	20	349	1,026	583	3.56		
512	22	379	1,104	683	3.93		
566	24	434	1,157	741	4.17		
601	26	476	1,231	801	4.36		

671	28	510	1,297	841	4.49		
725	29	541	1,400	902	4.76		
766	32	606	1,482	982	5.42		
868	35	736	1,726	1,048	5.75		
990	43	1,057	1,970	1,155	6.54		

Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec.		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.	
			Total	Per Cow			
\$3,401	\$7.44	\$12.22	\$92,439	\$968	\$31,719	\$60,742	
2,954	8.45	13.16	60,120	743	25,789	45,881	
2,753	8.87	13.79	53,878	660	18,118	40,451	
2,611	9.52	14.48	47,879	573	11,781	34,324	
2,501	9.82	15.03	38,743	485	6,497	24,829	

2,417	10.12	15.68	30,916	391	354	15,733	
2,318	10.74	16.23	23,300	312	-3,288	9,618	
2,161	11.55	17.54	14,388	172	-10,586	4,258	
1,997	12.44	19.60	6,646	82	-23,099	-7,357	
1,523	14.22	21.31	-26,157	-343	-52,804	-35,406	

Table 59.

FARM BUSINESS CHART FOR SMALL FREESTALL DAIRY FARMS
52 Freestall Barn Dairy Farms with 150 or Less Cows, New York, 2000

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- Ament	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
4.87	148	3,199,560	24,120	4.8	23	56	1,048,182
4.09	139	2,860,086	22,597	4.1	19	45	924,780
3.57	130	2,581,768	21,365	3.5	17	41	803,527
3.41	121	2,380,865	20,613	3.2	16	38	727,653
3.25	115	2,201,860	19,844	2.8	15	36	695,165

3.10	108	1,994,872	18,738	2.6	14	33	642,385
2.92	101	1,736,932	17,864	2.5	13	31	548,991
2.74	88	1,558,048	16,574	2.1	12	29	500,428
2.26	77	1,223,280	15,549	1.9	10	26	451,212
1.71	53	952,982	13,671	1.5	7	22	370,448

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		
\$455	21%	\$302	\$832	\$628	\$3.74		
581	24	403	954	760	4.02		
612	25	451	1,043	802	4.46		
636	27	509	1,119	889	4.76		
705	28	539	1,224	909	5.04		

742	30	569	1,285	928	5.17		
790	31	616	1,328	981	5.26		
835	33	669	1,464	1,071	5.40		
962	35	712	1,533	1,186	5.77		
1,082	38	982	1,780	1,333	6.69		

Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec.		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.	
			Total	Per Cow			
\$3258	\$7.64	\$12.45	\$121,180	\$994	\$40,616	\$95,041	
3,995	8.72	14.01	70,925	562	20,630	54,117	
2,876	9.40	14.43	50,256	463	14,436	41,453	
2,783	10.03	14.79	41,929	404	8,550	32,570	
2,633	10.94	15.19	33,701	307	4,039	24,799	

2,513	11.41	15.80	23,141	222	-7,147	13,443	
2,390	11.74	17.04	12,930	121	-13,498	3,469	
2,246	12.22	17.86	3,838	48	-22,369	-10,682	
2,044	12.85	19.21	-10,805	-100	-31,458	-23,446	
1,831	13.64	20.06	-35,309	-363	-57,305	-55,607	

Table 60

FARM BUSINESS CHART FOR MEDIUM FREESTALL DAIRY FARMS
50 Freestall Barn Dairy Farms with 151-300 Cows, New York, 2000

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- Ament	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
8.30	288	6,434,236	25,883	5.4	22	59	1,215,382
6.79	269	5,908,975	24,463	4.2	18	52	1,019,102
6.22	245	5,454,487	23,468	3.6	17	45	915,984
5.90	230	4,956,696	22,455	3.2	16	41	879,804
5.60	223	4,613,474	21,319	2.9	15	40	832,647

5.33	211	4,248,120	20,389	2.8	14	39	806,335
4.96	193	3,923,770	19,524	2.6	12	36	768,070
4.48	173	3,653,608	18,926	2.5	12	33	717,699
4.06	160	3,281,138	17,872	2.2	10	32	654,454
3.39	154	2,654,833	15,256	1.9	8	28	552,702

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		
\$467	17%	\$339	\$733	\$687	\$3.27		
591	21	396	886	773	3.95		
626	24	431	971	820	4.36		
690	25	472	1,071	872	4.43		
732	26	514	1,134	916	4.54		

773	27	566	1,215	953	4.65		
805	29	598	1,322	1,008	4.79		
828	30	668	1,424	1,070	4.88		
897	32	722	1,505	1,135	5.03		
1,046	35	828	1,621	1,301	5.89		

Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec.		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.	
			Total	Per Cow			
\$3,557	\$8.28	\$11.49	\$184,598	\$826	\$81,249	\$197,613	
3,302	9.28	13.02	141,381	633	40,842	125,579	
3,081	9.47	13.73	107,117	534	25,853	89,833	
2,975	9.81	13.96	79,992	408	15,387	56,930	
2,851	10.39	14.15	68,720	335	6,705	39,479	

2,721	10.93	14.58	53,728	258	-2,193	28,073	
2,603	11.65	15.03	38,476	168	-9,002	12,598	
2,533	11.91	15.61	18,432	83	-18,474	-1,691	
2,420	12.60	16.64	-14,207	-69	-32,159	-30,565	
2,071	14.36	19.38	-72,061	-382	-93,564	-61,382	

Table 61.

FARM BUSINESS CHART FOR LARGE FREESTALL DAIRY FARMS
73 Freestall Barn Dairy Farms with 300 or More Cows, New York, 2000

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
30.94	1,544	35,553,590	26,050	6.7	21	64	1,415,863
20.87	954	22,116,437	24,421	5.1	19	55	1,266,772
16.62	738	17,499,215	23,932	4.4	18	52	1,183,234
14.94	643	14,775,220	23,419	3.9	17	49	1,093,607
13.12	581	13,251,145	23,127	3.7	17	47	1,038,650

11.76	503	11,314,507	22,733	3.5	16	45	991,470
10.84	431	9,740,391	22,313	3.4	15	43	939,611
8.95	395	8,834,767	21,672	3.2	14	41	872,484
7.71	353	7,544,666	20,198	2.9	14	38	800,252
6.10	318	5,722,977	16,228	1.8	12	32	697,692

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		
\$480	35%	\$299	\$825	\$666	\$3.54		
670	32	395	997	840	4.08		
755	30	439	1,065	932	4.23		
794	28	479	1,130	995	4.41		
818	28	501	1,160	1,041	4.54		

856	27	525	1,215	1,070	4.62		
884	26	557	1,244	1,093	4.69		
912	25	588	1,269	1,144	4.89		
965	24	634	1,349	1,188	5.27		
1,078	19	759	1,499	1,339	5.77		

Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec.		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.	
			Total	Per Cow			
\$3,599	\$8.93	\$11.78	\$504,555	\$779	\$175,082	\$376,879	
3,288	9.98	12.71	282,055	481	91,076	238,708	
3,173	10.28	13.21	216,765	398	62,942	177,214	
3,081	10.66	13.54	168,346	317	39,725	142,491	
3,030	11.10	13.76	107,365	260	22,753	89,279	

3,000	11.64	14.25	80,340	162	2,641	33,443	
2,945	12.04	14.60	45,580	100	-20,137	-18,618	
2,869	12.62	14.95	-9,145	-19	-58,155	-82,100	
2,729	13.26	15.73	-80,428	-154	-103,378	-156,148	
2,222	14.25	17.08	-406,566	-406	-393,270	-542,304	

Table 62.

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 69 New York Dairy Farms, 1991 - 2000

Selected Factors	1991	1992	1993	1994
Milk receipts per cwt. milk	\$13.02	\$13.61	\$13.26	\$13.55
<u>Size of Business</u>				
Average number of cows	168	190	208	225
Average number of heifers	146	147	161	175
Milk sold, cwt.	31,633	36,798	40,435	46,941
Worker equivalent	4.67	5.06	5.29	5.70
Total tillable acres	461	474	493	518
<u>Rates of Production</u>				
Milk sold per cow, lbs.	18,833	19,388	19,452	20,861
Hay DM per acre, tons	2.4	2.9	2.8	3.1
Corn silage per acre, tons	13	13	14	16
<u>Labor Efficiency</u>				
Cows per worker	36	38	39	39
Milk sold per worker, lbs.	677,330	727,562	764,715	823,188
<u>Cost Control</u>				
Grain & concn. purchased as % of milk sales	28%	28%	28%	27%
Dairy feed & crop expense per cwt. milk	\$4.75	\$4.96	\$4.72	\$4.64
Operating cost of producing cwt. milk	\$10.03	\$10.37	\$9.96	\$10.14
Total cost of producing cwt. milk	\$14.85	\$15.06	\$14.41	\$14.39
Hired labor cost per cwt.	\$1.48	\$1.51	\$1.52	\$1.51
Interest paid per cwt.	\$1.05	\$0.85	\$0.83	\$0.81
Labor & machinery costs per cow	\$1,007	\$1,031	\$1,028	\$1,044
Replacement livestock expense	\$3,120	\$5,000	\$6,328	\$7,125
Expansion livestock expense	\$16,652	\$21,099	\$15,618	\$15,203
<u>Capital Efficiency</u>				
Farm capital per cow	\$7,320	\$7,364	\$7,272	\$7,197
Machinery & equipment per cow	\$1,373	\$1,352	\$1,340	\$1,313
Real estate per cow	\$3,436	\$3,530	\$3,458	\$3,373
Livestock investment per cow	\$1,546	\$1,531	\$1,533	\$1,553
Asset turnover ratio	0.45	0.46	0.46	0.47
<u>Profitability</u>				
Net farm income without appreciation	\$45,865	\$78,778	\$77,352	\$98,057
Net farm income with appreciation	\$69,295	\$101,774	\$97,130	\$117,794
Labor & management income per operator/manager	\$2,336	\$30,328	\$24,192	\$34,946
Rate return on:				
Equity capital with appreciation	2.0%	3.7%	3.7%	4.9%
All capital with appreciation	4.2%	4.5%	4.6%	5.3%
All capital without appreciation	2.0%	2.5%	3.0%	4.0%
<u>Financial Summary, End Year</u>				
Farm net worth	\$697,183	\$793,953	\$824,030	\$885,851
Change in net worth with appreciation	\$14,064	\$54,375	\$39,162	\$60,302
Debt to asset ratio	0.35	0.33	0.35	0.35
Farm debt per cow	\$2,448	\$2,323	\$2,398	\$2,377

Table 62. (continued)

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 69 New York Dairy Farms, 1991 - 2000

1995	1996	1997	1998	1999	2000
\$13.10	\$15.07	\$13.81	\$15.77	\$15.12	\$13.55
244	261	275	287	298	314
189	199	213	231	240	251
51,298	55,172	59,781	62,096	66,880	70,246
6.17	6.34	6.73	6.97	7.25	7.56
545	578	600	620	651	677
21,026	21,170	21,771	21,630	22,431	22,383
2.8	2.7	2.4	3.0	2.8	3.0
14	14	14	16	14	13
40	41	41	41	41	41
831,024	869,666	887,759	890,445	922,462	928,588
27%	29%	31%	25%	24%	27%
\$4.43	\$5.36	\$5.36	\$5.04	\$4.67	\$4.59
\$10.42	\$11.64	\$11.66	\$11.11	\$10.72	\$10.58
\$14.45	\$15.76	\$15.72	\$15.22	\$14.98	\$14.96
\$1.51	\$1.57	\$1.55	\$1.57	\$1.63	\$1.75
\$0.92	\$0.91	\$0.93	\$0.91	\$0.79	\$0.87
\$1,026	\$1,088	\$1,066	\$1,115	\$1,234	\$1,268
\$4,440	\$5,709	\$6,170	\$11,775	\$12,599	\$12,209
\$11,848	\$13,127	\$13,535	\$9,849	\$15,661	\$29,523
\$7,063	\$7,040	\$7,122	\$7,108	\$7,301	\$7,527
\$1,296	\$1,305	\$1,333	\$1,341	\$1,407	\$1,494
\$3,289	\$3,246	\$3,275	\$3,215	\$3,178	\$3,224
\$1,526	\$1,502	\$1,510	\$1,517	\$1,563	\$1,631
0.45	0.51	0.46	0.54	0.53	0.49
\$90,319	\$121,877	\$66,009	\$196,705	\$189,288	\$48,781
\$100,899	\$135,600	\$74,363	\$226,621	\$217,256	\$89,506
\$28,466	\$50,513	\$2,287	\$82,139	\$83,260	\$-19,740
1.0%	5.1%	-2.1%	12.8%	9.9%	2.9%
3.5%	5.8%	1.9%	10.0%	8.4%	4.6%
3.2%	4.8%	1.4%	8.5%	6.8%	2.5%
\$926,087	\$1,004,120	\$996,412	\$1,148,417	\$1,257,364	\$1,241,342
\$43,556	\$77,978	\$-8,782	\$148,229	\$117,620	\$-14,410
0.36	0.35	0.38	0.34	0.33	0.34
\$2,377	\$2,380	\$2,511	\$2,321	\$2,323	\$2,331

Table 63.

bST NON-USERS VS. USERS										
Same 93 Farms, 1996 - 2000										
Selected Factors	39 Farms Not Using bST in 1996 - 2000					54 Farms Using bST in 1996 - 2000				
	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
Size of Business										
Average number of cows	100	103	106	108	111	377	404	426	449	475
Average number of heifers	77	80	79	81	83	280	305	339	346	373
Milk sold, cwt.	17,489	18,481	18,989	19,912	20,764	83,052	91,754	96,108	103,871	110,532
Worker equivalent	3.00	3.11	3.13	3.11	3.25	8.81	9.51	10.07	10.54	11.13
Total tillable acres	292	302	298	303	304	776	815	842	897	943
Rates of Production										
Milk sold per cow, lbs.	17,409	17,956	17,841	18,442	18,776	22,058	22,684	22,549	23,133	23,284
Hay DM per acre, tons	2.3	2.1	2.3	2.3	2.5	3.2	2.9	3.6	3.2	3.5
Corn silage per acre, tons	12	11	10	11	10	16	16	19	16	16
Labor Efficiency										
Cows per worker	33	33	34	35	34	43	43	42	43	43
Milk sold per worker, lbs.	582,767	593,566	606,643	640,530	638,047	942,320	965,005	954,614	985,368	993,284
Cost Control										
Grain & conc. purchased as percent of milk sales	31%	32%	26%	25%	28%	30%	32%	25%	25%	27%
Dairy feed and crop expense per cwt. milk	\$5.66	\$5.35	\$5.24	\$4.91	\$4.74	\$5.36	\$5.38	\$4.98	\$4.75	\$4.63
Labor and mach. costs per cow	\$1,035	\$1,052	\$1,110	\$1,240	\$1,295	\$1,076	\$1,049	\$1,112	\$1,192	\$1,232
Operating cost of producing milk per cwt.	\$11.20	\$11.09	\$11.17	\$10.52	\$9.91	\$11.91	\$11.76	\$11.40	\$11.52	\$11.54
Capital Efficiency (avg. for year)										
Farm capital per cow	\$6,870	\$6,994	\$7,018	\$7,553	\$7,785	\$6,292	\$6,357	\$6,449	\$6,630	\$6,772
Machinery and equip. per cow	\$1,409	\$1,444	\$1,467	\$1,683	\$1,828	\$1,099	\$1,130	\$1,152	\$1,202	\$1,277
Asset turnover ratio	0.46	0.42	0.48	0.46	0.43	0.63	0.57	0.66	0.63	0.58
Profitability										
Net farm income w/o apprec.	\$41,521	\$24,033	\$53,045	\$61,465	\$41,511	\$166,342	\$89,664	\$271,698	\$250,108	\$24,065
Net farm income with apprec.	\$48,270	\$30,203	\$67,133	\$77,803	\$55,939	\$185,664	\$106,078	\$320,814	\$305,810	\$91,719
Labor & management income per op/mgr.	\$9,519	\$-3,967	\$20,056	\$22,625	\$5,749	\$74,363	\$10,732	\$120,962	\$112,980	\$-56,612
Rate return on equity capital with appreciation	2.0%	-0.5%	6.1%	7.3%	3.3%	8.2%	0.6%	19.3%	12.7%	1.7%
Rate return on all capital with appreciation	3.5%	1.2%	5.9%	6.8%	4.2%	7.8%	4.0%	12.9%	9.8%	4.5%
Financial Summary (end of year)										
Farm net worth	\$475,927	\$484,981	\$515,027	\$564,134	\$586,697	\$1,287,717	\$1,277,659	\$1,503,311	\$1,659,469	\$1,618,124
Debt to asset ratio	0.27	0.27	0.25	0.24	0.22	0.42	0.45	0.41	0.41	0.43
Farm debt per cow	\$1,844	\$1,887	\$1,828	\$1,874	\$1,693	\$2,491	\$2,662	\$2,489	\$2,526	\$2,649

Table 64.

**FARM RECEIPTS AND EXPENSES PER COW AND PER
HUNDREDWEIGHT FOR TWO LEVELS OF MILK PRODUCTION
294 New York Dairy Farms, 2000**

Item	294 Dairy Farms		146 Dairy Farms Milk/Cow <20,000#		148 Dairy Farms Milk/Cow ≥20,000#	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<u>ACCRUAL RECEIPTS</u>						
Milk sales	\$2,877	\$13.38	\$2,334	\$13.74	\$3,063	\$13.30
Dairy cattle	224	1.04	190	1.12	236	1.02
Dairy calves	39	0.18	32	0.19	41	0.18
Other livestock	10	0.04	9	0.05	10	0.04
Crops	40	0.19	14	0.08	49	0.21
Government receipts	140	0.65	172	0.01	130	0.56
All other	<u>56</u>	<u>0.27</u>	<u>49</u>	<u>0.29</u>	<u>59</u>	<u>0.26</u>
TOTAL ACCRUAL RECEIPTS	\$3,386	\$15.75	\$2,800	\$16.48	\$3,588	\$15.57
<u>ACCRUAL EXPENSES</u>						
<u>Labor</u> : Hired	\$484	\$2.25	\$279	\$1.64	\$553	\$2.40
<u>Feed</u> : Dairy grain & concentrate	789	3.67	653	3.85	835	3.63
Dairy roughage	52	0.24	43	0.25	55	0.24
Nondairy	0	0.00	0	0.00	0	0.00
<u>Machinery</u> : Machine hire, rent & lease	80	0.37	56	0.33	88	0.38
Machinery repairs & vehicle expense	148	0.69	150	0.88	148	0.64
Fuel, oil & grease	74	0.34	77	0.45	73	0.32
<u>Livestock</u> : Replacement livestock	50	0.23	61	0.36	46	0.20
Breeding	37	0.17	29	0.17	40	0.17
Vet & medicine	109	0.51	76	0.45	120	0.52
Milk marketing	148	0.69	137	0.81	151	0.66
Bedding	43	0.20	23	0.14	50	0.22
Milking supplies	72	0.34	67	0.39	74	0.32
Cattle lease & rent	8	0.04	2	0.01	10	0.05
Custom boarding	42	0.20	12	0.07	53	0.23
bST expense	52	0.24	19	0.11	64	0.28
Other livestock expense	29	0.14	32	0.19	29	0.12
<u>Crops</u> : Fertilizer & lime	62	0.29	57	0.34	64	0.28
Seeds & plants	42	0.19	34	0.20	45	0.19
Spray & other crop expense	46	0.22	37	0.22	50	0.22
<u>Real Estate</u> : Land, building & fence repair	46	0.21	35	0.21	50	0.22
Taxes	43	0.20	60	0.35	37	0.16
Rent & lease	59	0.27	44	0.26	64	0.28
<u>Other</u> : Insurance	34	0.16	40	0.24	32	0.14
Utilities (farm share)	70	0.32	72	0.42	69	0.30
Interest paid	203	0.95	194	0.14	207	0.90
Miscellaneous	<u>39</u>	<u>0.18</u>	<u>30</u>	<u>0.17</u>	<u>42</u>	<u>0.18</u>
TOTAL OPERATING EXPENSES	\$2,861	\$13.31	\$2,319	\$13.65	\$3,047	\$13.23
Expansion livestock	79	0.36	60	0.35	85	0.37
Machinery depreciation	150	0.70	146	0.86	151	0.65
Building depreciation	<u>107</u>	<u>0.50</u>	<u>84</u>	<u>0.50</u>	<u>115</u>	<u>0.50</u>
TOTAL ACCRUAL EXPENSES	\$3,197	\$14.87	\$2,609	\$15.36	\$3,398	\$14.75

Table 65.

**FARM RECEIPTS AND EXPENSES PER COW AND PER
HUNDREDWEIGHT FOR THREE HERD SIZE CATEGORIES
294 New York Dairy Farms, 2000**

Item	93 Dairy Farms with <80 Cows		87 Dairy Farms with 80-180 Cows		114 Dairy Farms with ≥ 180 Cows	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<u>ACCRUAL RECEIPTS</u>						
Milk sales	\$2,391	\$13.42	\$2,555	\$13.34	\$2,990	\$13.39
Dairy cattle	134	0.75	157	0.82	245	1.10
Dairy calves	38	0.22	38	0.20	39	0.18
Other livestock	6	0.03	5	0.03	11	0.05
Crops	23	0.13	27	0.14	44	0.20
Government receipts	184	0.03	217	1.13	122	0.55
All other	<u>52</u>	<u>0.29</u>	<u>50</u>	<u>0.26</u>	<u>59</u>	<u>0.26</u>
TOTAL ACCRUAL RECEIPTS	\$2,828	\$15.87	\$3,049	\$15.92	\$3,510	\$15.72
<u>ACCRUAL EXPENSES</u>						
<u>Labor</u> : Hired	\$144	\$0.81	\$277	\$1.45	\$556	\$2.49
<u>Feed</u> : Dairy grain & concentrate	625	3.51	698	3.64	823	3.69
Dairy roughage	74	0.42	42	0.22	52	0.23
Nondairy	1	0.01	0	0.00	0	0.00
<u>Machinery</u> : Machine hire, rent & lease	59	0.33	64	0.33	85	0.38
Mach. repairs & vehicle expense	168	0.94	168	0.88	143	0.64
Fuel, oil & grease	75	0.42	82	0.43	73	0.33
<u>Livestock</u> : Replacement livestock	44	0.24	48	0.25	51	0.23
Breeding	39	0.22	36	0.19	37	0.17
Vet & medicine	68	0.38	78	0.41	119	0.53
Milk marketing	154	0.86	142	0.74	148	0.66
Bedding	17	0.09	23	0.12	49	0.22
Milking supplies	77	0.43	73	0.38	72	0.32
Cattle lease & rent	1	0.00	1	0.01	10	0.05
Custom boarding	10	0.05	20	0.11	50	0.22
bST expense	13	0.07	28	0.15	61	0.27
Other livestock expense	49	0.27	47	0.25	24	0.11
<u>Crops</u> : Fertilizer & lime	66	0.37	73	0.38	60	0.27
Seeds & plants	34	0.19	44	0.23	42	0.19
Spray & other crop expense	30	0.17	43	0.22	49	0.22
<u>Real Estate</u> : Land, building & fence repair	41	0.23	47	0.25	46	0.21
Taxes	83	0.47	64	0.33	35	0.16
Rent & lease	35	0.20	46	0.24	64	0.29
<u>Other</u> : Insurance	54	0.30	49	0.26	29	0.13
Utilities (farm share)	100	0.56	78	0.41	65	0.29
Interest paid	154	0.87	171	0.89	214	0.96
Miscellaneous	<u>42</u>	<u>0.23</u>	<u>37</u>	<u>0.20</u>	<u>39</u>	<u>0.17</u>
TOTAL OPERATING EXPENSES	\$2,257	\$12.67	\$2,480	\$12.94	\$2,997	\$13.42
Expansion livestock	1	0.01	36	0.19	94	0.42
Machinery depreciation	158	0.89	169	0.88	145	0.65
Building depreciation	<u>69</u>	<u>0.39</u>	<u>90</u>	<u>0.47</u>	<u>114</u>	<u>0.51</u>
TOTAL ACCRUAL EXPENSES	\$2,486	\$13.95	\$2,776	\$14.49	\$3,351	\$15.01

Table 66

INTENSIVE GRAZING FARMS VS. NON-GRAZING FARMS
New York State Dairy Farms, 2000

Item	All Intensive Grazing Farms*	Non-Grazing Farms**	Profitable Grazing Farms***	Profitable Non- Grazing Farms****
Number of farms	65	143	17	40
<u>Business Size & Production</u>				
Number of cows	93	90	72	72
Number of heifers	67	67	48	59
Milk sold, lbs.	1,585,980	1,710,187	1,368,938	1,459,937
Milk sold/cow, lbs.	17,107	19,001	19,075	20,277
Milk plant test, % butterfat	3.73%	3.73%	3.72%	3.70%
Tillable acres, total	271	282	190	214
Hay crop, tons DM/acre	2.7	2.6	2.8	2.7
Corn silage, tons/acre	12.1	12.8	15.1	14.9
Forage DM/cow, tons	6.1	7.4	4.9	7.9
<u>Labor & Capital Efficiency</u>				
Worker equivalent	2.76	2.93	2.40	2.50
Milk sold/worker, lbs.	574,630	583,682	570,391	583,975
Cows/worker	34	31	30	29
Farm capital/worker	\$217,163	\$228,866	\$163,696	\$232,042
Farm capital/cow	\$6,445	\$7,451	\$5,457	\$8,057
Farm capital/cwt. milk	\$38	\$39	\$29	\$40
<u>Milk Production Costs & Returns</u>				
Selected costs/cwt.:				
Hired labor	\$1.28	\$1.19	\$0.83	\$0.82
Grain & concentrate	\$3.54	\$3.65	\$3.26	\$3.40
Purchased roughage	\$0.34	\$0.34	\$0.47	\$0.30
Replacements purchased	\$0.25	\$0.25	\$0.40	\$0.10
Vet & medicine	\$0.39	\$0.41	\$0.29	\$0.35
Milk marketing	\$0.83	\$0.78	\$0.81	\$0.79
Other dairy expenses	\$1.05	\$1.20	\$0.98	\$1.09
Operating cost/cwt.	\$10.17	\$10.49	\$8.59	\$8.87
Total labor cost/cwt.	\$3.78	\$3.73	\$3.95	\$3.65
Operator resources/cwt.	\$3.32	\$3.45	\$3.47	\$4.24
Total cost/cwt.	\$15.28	\$15.57	\$13.71	\$14.33
Average farm price/cwt.	\$13.37	\$13.30	\$13.36	\$13.33
Return over total costs/cwt.	\$-1.91	\$-2.27	\$-0.35	\$-1.00
<u>Related Cost Factors</u>				
Hired labor/cow	\$219	\$226	\$157	\$165
Total labor/cow	\$644	\$709	\$751	\$741
Purchased dairy feed/cow	\$662	\$760	\$709	\$752
Purchased grain & concentrate as % of milk receipts	27%	27%	24%	26%
Vet & medicine/cow	\$66	\$78	\$56	\$71
Machinery costs/cow	\$501	\$552	\$472	\$498
Feed & crop exp./cwt.	\$4.56	\$4.80	\$4.34	\$4.30
<u>Profitability Analysis</u>				
Net farm income (without apprec.)	\$28,866	\$26,417	\$49,803	\$51,116
Net farm income per cow (w/o apprec.)	\$310	\$294	\$692	\$710
Labor & management income/operator	\$1,693	\$-1,822	\$20,813	\$15,594
Labor & mgmt. income/oper./cow	\$18	\$-20	\$289	\$217
Rates of return on:				
Equity capital with appreciation	1.1%	0.4%	6.1%	3.9%
All capital with appreciation	3.0%	2.4%	6.5%	4.6%

*Farms grazing at least 3 months of year, changing paddock at least every 3 days, and forage from pasture at least 30 percent.

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

***Farms with net farm income per cow greater than \$450, had been grazing at least two years, and forage from pasture at least 40 percent.

****Farms with similar herd size as the 17 profitable grazing farms and net farm income per cow greater than \$450.

Table 67.

COMPARISON OF DAIRY FARM BUSINESS DATA BY REGION
294 New York Dairy Farms, 2000

Item	West. & Cent. Plateau Region	West. & Cent. Plain Region	Northern New York	Central Valleys	No. Hudson & Southeastern NY
Number of farms	56	84	43	34	77
<u>ACCRUAL EXPENSES</u>					
Hired labor	\$59,645	\$259,661	\$82,220	\$55,414	\$57,126
Feed	126,789	396,485	169,111	123,958	115,794
Machinery	45,279	134,524	61,112	45,845	49,855
Livestock	78,617	284,556	94,659	107,302	87,101
Crops	23,471	64,785	32,228	26,646	23,943
Real estate	27,835	63,739	26,772	31,020	20,477
Other	<u>48,511</u>	<u>163,252</u>	<u>72,470</u>	<u>60,799</u>	<u>43,780</u>
Total Operating Expenses	\$410,147	\$1,367,002	\$538,572	\$450,982	\$398,082
Expansion livestock	9,941	41,394	10,235	24,967	4,698
Machinery depreciation	26,968	62,245	38,318	31,154	17,856
Building depreciation	<u>18,761</u>	<u>50,265</u>	<u>22,901</u>	<u>21,909</u>	<u>9,782</u>
Total Accrual Expenses	\$465,817	\$1,520,906	\$610,026	\$529,012	\$430,418
<u>ACCRUAL RECEIPTS</u>					
Milk sales	\$416,775	\$1,335,568	\$577,326	\$465,708	\$413,844
Livestock	38,022	129,332	48,889	46,803	39,160
Crops	10,799	18,917	7,788	6,201	1,789
All other	<u>35,426</u>	<u>79,896</u>	<u>43,079</u>	<u>29,196</u>	<u>35,499</u>
Total Accrual Receipts	\$501,022	\$1,563,713	\$677,082	\$547,907	\$490,292
<u>PROFITABILITY ANALYSIS</u>					
Net farm income (w/o appreciation)	\$35,205	\$42,807	\$67,056	\$18,895	\$59,874
Net farm income (w/ appreciation)	\$62,038	\$117,076	\$103,454	\$45,607	\$72,674
Labor & management income	\$-5,242	\$-35,209	\$25,069	\$-19,037	\$16,503
Number of operators	1.58	1.87	1.65	1.79	1.72
Labor & mgmt. income/operator	\$-3,318	\$-18,828	\$15,193	\$-10,635	\$9,595
<u>BUSINESS FACTORS</u>					
Worker equivalent	4.33	10.14	4.99	4.18	4.49
Number of cows	158	453	207	163	142
Number of heifers	124	341	157	120	106
Acres of hay crops*	233	364	304	210	217
Acres of corn silage*	119	342	174	128	119
Total tillable acres	433	867	566	412	404
Pounds of milk sold	3,155,556	10,125,811	4,432,081	3,218,570	2,949,719
Pounds of milk sold/cow	19,981	22,366	21,425	19,796	20,472
Tons hay crop dry matter/acre	3.1	4.0	2.8	3.2	2.5
Tons corn silage/acre	14.9	16.3	14.4	13.8	13.0
Cows/worker	36	45	41	39	32
Pounds of milk sold/worker	728,766	998,601	888,193	769,993	656,953
% grain & conc. of milk receipts	29%	27%	28%	25%	27%
Feed & crop expense/cwt. milk	\$4.76	\$4.56	\$4.54	\$4.68	\$4.74
Fertilizer & lime/crop acre	\$19.98	\$29.17	\$22.85	\$27.17	\$30.69
Machinery cost/tillable acre	\$190	\$255	\$202	\$214	\$194

*Average of all farms in the region, not only those producing the crop.

Figure 2.

**Percent Change in Milk Production, Five Regions in New York,
1990-2000**

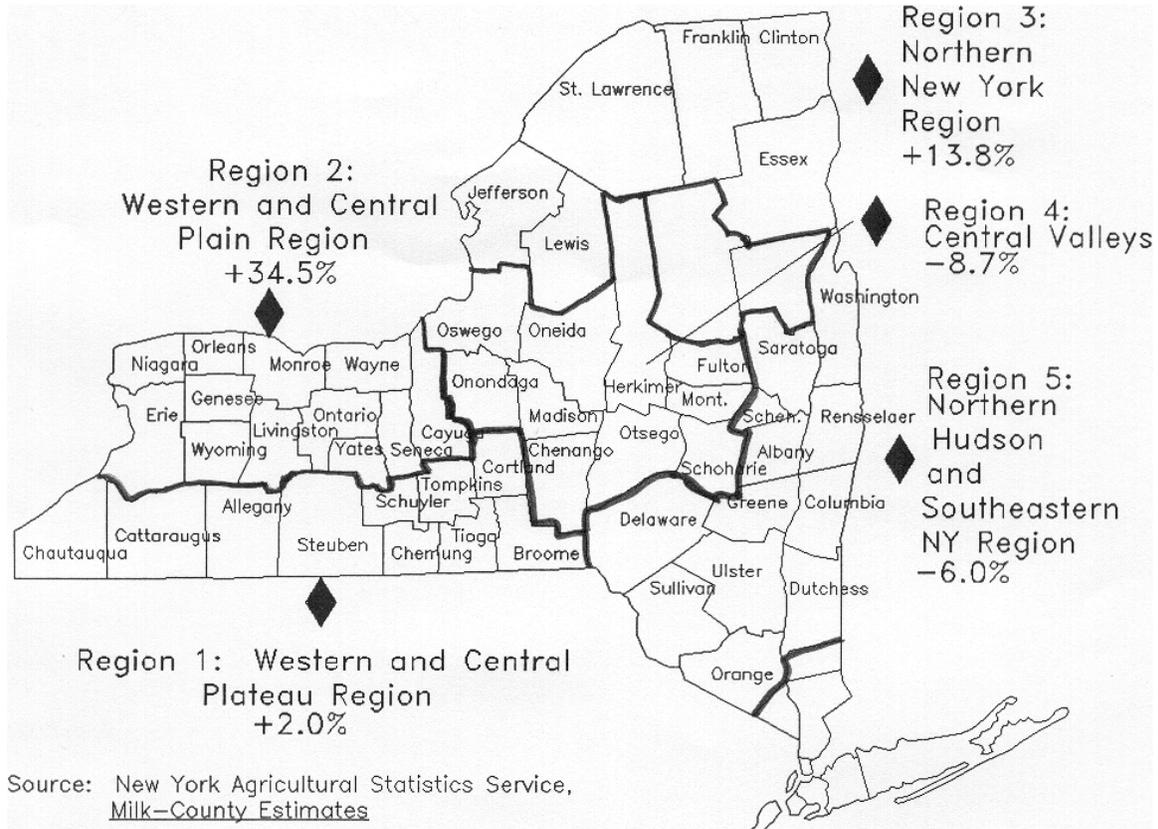


Table 68.

**MILK PRODUCTION & AVERAGE COST OF PRODUCING MILK
Five Regions of New York, 2000**

Item	Region*				
	1	2	3	4	5
<u>Milk Production**</u>	(million pounds)				
1990	2,062.0	2,539.0	2,085.2	2,823.0	1,545.4
2000	2,103.8	3,415.2	2,372.3	2,576.1	1,452.6
Percent change	+2.0%	+34.5%	+13.8%	-8.7%	-6.0%
<u>Cost of Producing Milk***</u>	(\$ per hundredweight milk)				
Operating cost	\$10.64	\$11.66	\$10.13	\$12.23	\$11.06
Total cost	14.76	14.20	13.60	16.57	14.91
Average price received	13.21	13.19	13.03	14.47	14.03
Return per cwt. to operator labor, management & capital	\$0.96	\$0.38	\$1.41	\$0.44	\$1.79

*See Figure 2 for region descriptions.

**Source: New York Agricultural Statistics Service, Milk-County Estimates.

***From Dairy Farm Business Summary data.

Table 69.

SELECTED BUSINESS FACTORS BY MILKING FREQUENCY
New York State Dairy Farms, 1999 & 2000

Item	2x/Day Milking		3x/Day Milking	
	1999	2000	1999	2000
Number of farms	219	199	74	77
<u>Business Size & Production</u>				
Number of cows	124	131	477	519
Number of heifers	92	99	360	397
Milk sold, lbs.	2,361,328	2,483,754	11,085,512	11,971,070
Milk sold/cow, lbs.	19,086	18,999	23,245	22,066
Milk plant test, % butterfat	3.70%	3.74%	3.63%	3.63%
Tillable acres, total	353	376	960	1,027
Hay crop, tons DM/acre	2.5	12.9	3.3	3.5
Corn silage, tons/acre	14.9	13.9	17.0	15.8
Forage DM/cow, tons	7.8	7.6	7.9	7.5
<u>Labor & Capital Efficiency</u>				
Worker equivalent	3.63	3.72	10.97	11.79
Milk sold/worker, lbs.	650,504	667,676	1,010,530	1,015,358
Cows/worker	34	35	43	44
Farm capital/worker	\$229,245	\$243,760	\$273,185	\$279,541
Farm capital/cow	\$6,711	\$6,922	\$6,283	\$6,350
Farm capital/cwt. milk	\$35.24	\$36.51	\$27.03	\$27.53
<u>Milk Production Costs & Returns</u>				
Selected costs/cwt.:				
Hired labor	\$1.60	\$1.84	\$2.45	\$2.46
Grain & concentrate	\$3.68	\$3.65	\$3.76	\$3.68
Purchased roughage	\$0.21	\$0.19	\$0.22	\$0.27
Replacements purchased	\$0.25	\$0.23	\$0.23	\$0.23
Vet & medicine	\$0.42	\$0.45	\$0.50	\$0.52
Milk marketing	\$0.59	\$0.77	\$0.43	\$0.64
Other dairy expenses	\$1.01	\$1.12	\$1.20	\$1.38
Operating costs/cwt.	\$11.19	\$10.78	\$11.22	\$11.47
Total labor costs/cwt.	\$3.40	\$3.61	\$2.88	\$2.92
Operator resources/cwt.	\$2.75	\$2.77	\$1.37	\$1.43
Total costs/cwt.	\$15.36	\$15.03	\$13.75	\$14.12
Average farm price/cwt.	\$14.98	\$13.55	\$14.85	\$13.30
Return over total costs/cwt.	\$-0.38	\$-1.48	\$1.10	\$-0.82
<u>Related Cost Factors</u>				
Hired labor/cow	\$305	\$350	\$568	\$568
Total labor/cow	\$647	\$685	\$670	\$673
Purchased dairy feed/cow	\$740	\$728	\$926	\$911
Purchased grain & concentrate as % of milk receipts	25%	27%	25%	28%
Vet & medicine/cow	80	\$86	\$116	\$120
Machinery costs/cow	519	\$527	\$497	\$500
<u>Profitability Analysis</u>				
Net farm income (without appreciation)	\$61,985	\$38,279	\$276,491	\$75,629
Labor & management income/operator	\$18,434	\$1,611	\$94,911	\$-7,237
Rates of return on:				
Equity capital with appreciation	6.5%	2.0%	16.5%	4.1%
All capital with appreciation	6.5%	3.7%	11.8%	5.7%

Table 70.

FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
40 New York Dairy-Renter Farms,* 2000

<u>ACCRUAL EXPENSES</u>			<u>ACCRUAL RECEIPTS</u>		
Labor: Hired		\$38,404	Milk sales		\$336,385
Feed: Dairy grain & concentrate		96,253	Dairy cattle		29,073
Dairy roughage		18,435	Dairy calves		6,189
Nondairy		63	Other livestock		905
Machinery: Mach. hire, rent & lease		12,020	Crops		3,767
Mach. repairs & farm vehicle expense		16,820	Government receipts		15,856
Fuel, oil, grease		7,929	Custom machine work		2,340
Livestock: Replacement livestock		10,431	Gas tax refund		177
Breeding		4,594	Other		<u>3,882</u>
Veterinary & medicine		10,821	TOTAL ACCRUAL RECEIPTS		\$398,574
Milk marketing		17,090			
Bedding		4,520	<u>PROFITABILITY ANALYSIS</u>		
Milking supplies		8,679	Net farm income (without appreciation)		\$30,920
Cattle lease & rent		136	Net farm income (with appreciation)		\$41,350
Custom boarding		6,949	Labor & management income/farm		\$13,377
bST expense		4,826	Number of operators		1.45
Other livestock expense		5,560	Labor & management income/operator		\$9,226
Crops: Fertilizer & lime		7,239	Rate of return on equity		
Seeds & plants		3,946	capital including appreciation		-1.5%
Spray & other crop expense		4,192			
Real estate: Land, building & fence repair		5,804	<u>BUSINESS FACTORS</u>		
Taxes		2,328	Number of cows		127
Rent & lease		20,771	Number of heifers		82
Other:			Worker equivalent		3.21
Insurance		4,432	Total tillable acres		226
Utilities (farm share)		9,658	Milk sold per cow, lbs.		20,351
Interest paid		14,091	Hay DM per acre, tons		2.8
Miscellaneous		<u>4,729</u>	Corn silage per acre, tons		13.1
TOTAL OPERATING EXPENSES		\$340,717	Milk sold per worker, lbs.		882,794
			Grain/conc. as % milk sales		29%
Expansion livestock		\$8,871	Feed & crop expense/cwt. milk		\$5.05
Machinery depreciation		14,715	Labor & machinery costs/cow		\$1,075
Building depreciation		<u>3,351</u>	Average price/cwt. milk		\$13.05
TOTAL ACCRUAL EXPENSES		\$367,654			
<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	\$13,366	\$13,837	Accounts payable	\$7,513	\$13,126
Accounts receivable	21,591	26,333	Operating debt	16,573	15,888
Prepaid expenses	483	90	Short-term	316	364
Feed & supplies	61,235	56,253	Advanced gov't receipts	0	0
Dairy cows**	131,097	141,384	Current Portion:		
Heifers	48,961	57,553	Intermediate	22,777	22,902
Bulls & other livestock	698	942	Long Term	688	2,454
Machinery & equipment**	114,709	123,352	Intermediate***	105,212	127,895
Farm Credit stock	3,773	3,046	Long term**	<u>39,860</u>	<u>39,601</u>
Other stock & certificates	10,672	11,226	Total Farm Liabilities	\$192,939	\$222,231
Land & buildings**	<u>41,636</u>	<u>44,633</u>	Nonfarm Liabilities****	<u>8,921</u>	<u>9,088</u>
Total Farm Assets	\$448,221	\$478,649	Farm & Nonfarm Liabilities	\$201,860	\$231,319
Nonfarm Assets****	<u>55,896</u>	<u>59,872</u>	Farm Net Worth	\$255,282	\$256,418
Farm & Nonfarm Assets	\$504,117	\$538,521	Farm & Nonfarm Net Worth	\$302,257	307,202

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

**Includes discounted lease payments.

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

****Average of 18 farms reporting.

Table 71.

FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
Average of 29 Top Ten Percent Farms by Rate of Return on All Capital
(without appreciation), 2000

<u>ACCRUAL EXPENSES</u>		<u>ACCRUAL RECEIPTS</u>			
Labor: Hired	\$170,070	Milk sales	\$1,022,957		
Feed: Dairy grain & concentrate	276,113	Dairy cattle	97,888		
Dairy roughage	16,039	Dairy calves	12,434		
Nondairy	0	Other livestock	8,376		
Machinery: Mach. hire, rent & lease	20,292	Crops	33,738		
Mach. repairs & farm vehicle expense	43,661	Government receipts	45,909		
Fuel, oil, grease	22,473	Custom machine work	2,201		
Livestock: Replacement livestock	16,066	Gas tax refund	164		
Breeding	13,002	Other	11,410		
Vet & medicine	34,119	TOTAL ACCRUAL RECEIPTS	\$1,235,078		
Milk marketing	45,006				
Bedding	11,586	<u>PROFITABILITY ANALYSIS</u>			
Milking supplies	21,097	Net farm income (without appreciation)	\$208,036		
Cattle lease & rent	627	Net farm income (with appreciation)	259,690		
Custom boarding	8,444	Labor & management income/operator	85,030		
bST expense	20,499	Rate of return on equity			
Other livestock expense	12,545	capital without appreciation	11.5%		
Crops: Fertilizer & lime	20,444	Rate of return on all			
Seeds & plants	12,781	capital without appreciation	10.2%		
Spray & other crop expense	12,357				
Real estate: Land, building & fence repair	15,516	<u>BUSINESS FACTORS</u>			
Taxes	10,609	Number of cows	339		
Rent & lease	19,054	Number of heifers	249		
Other:		Worker equivalent	7.63		
Insurance	9,356	Total tillable acres	767		
Utilities (farm share)	17,737	Milk sold per cow, lbs.	22,485		
Interest paid	59,636	Hay DM per acre, tons	3.4		
Miscellaneous	13,302	Corn silage per acre, tons	15.7		
TOTAL OPERATING EXPENSES	\$922,431	Milk sold per worker, lbs.	998,171		
		Grain/conc. as % milk sales	27%		
Expansion livestock	\$23,191	Feed & crop exp./cwt. milk	\$4.43		
Machinery depreciation	51,252	Labor & mach. costs/cow	\$1,098		
Building depreciation	30,168	Average price/cwt. milk	\$13.43		
TOTAL ACCRUAL EXPENSES	\$1,027,042				
<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	\$ 18,128	\$11,794	Accounts payable	\$6,597	\$6,946
Accounts receivable	66,919	86,761	Operating debt	69,465	53,625
Prepaid expenses	2,862	3,391	Short-term	2,122	7,944
Feed & supplies	229,859	234,578	Advanced gov't receipts	0	0
Dairy cows*	348,841	389,186	Current Portion:		
Heifers	157,360	192,907	Intermediate	59,013	75,404
Bulls & other livestock	5,221	5,792	Long Term	15,398	15,872
Machinery & equipment*	384,042	416,435	Intermediate**	334,430	23,618
Farm Credit stock	6,461	4,924	Long-term*	250,364	290,133
Other stock & certificates	40,651	43,604	Total Farm Liabilities	\$737,390	\$773,543
Land & buildings*	696,909	755,788	Nonfarm Liabilities***	0	129
Total Farm Assets	\$1,957,253	\$2,145,160	Farm & Nonfarm Liabilities	\$737,390	\$773,672
Nonfarm Assets***	117,496	130,813	Farm Net Worth	\$1,219,863	\$1,371,617
Farm & Nonfarm Assets	\$2,074,749	\$2,275,973	Farm & Nonfarm Net Worth	\$1,337,359	\$1,502,301

*Includes discounted lease payments.

**Includes Farm Credit Stock and discounted lease payments for cattle and machinery.

***Average of 14 farms reporting.

Table 72.

FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
Average of 294 New York Dairy Farms, 2000

<u>ACCRUAL EXPENSES</u>		<u>ACCRUAL RECEIPTS</u>			
Labor: Hired	\$118,945	Milk sales	\$707,661		
Feed: Dairy grain & concentrate	194,003	Dairy cattle	55,063		
Dairy roughage	12,796	Dairy calves	9,603		
Nondairy	29	Other livestock	2,347		
Machinery: Mach. hire, rent & lease	19,704	Crops	9,787		
Mach. repairs & farm vehicle expense	36,431	Government receipts	34,566		
Fuel, oil, grease	18,223	Custom machine work	2,022		
Livestock: Replacement livestock	12,299	Gas tax refund	252		
Breeding	9,080	Other	11,743		
Vet & medicine	26,733	- Non-cash capital transfer	34		
Milk marketing	36,323	TOTAL ACCRUAL RECEIPTS	\$833,010		
Bedding	10,558	<u>PROFITABILITY ANALYSIS</u>			
Milking supplies	17,736	Net farm income (without appreciation)	\$46,610		
Cattle lease & rent	2,054	Net farm income (with appreciation)	84,706		
Custom boarding	10,434	Labor & management income/farm	-5,322		
bST expense	12,885	Number of operators	1.83		
Other livestock expense	7,240	Labor & management income/operator	\$-2,908		
Crops: Fertilizer & lime	15,308	Rate of return on equity			
Seeds & plants	10,300	capital including appreciation	3.0%		
Spray & other crop expense	11,438	<u>BUSINESS FACTORS</u>			
Real estate: Land, building & fence repair	11,339	Number of cows	246		
Taxes	10,542	Number of heifers	186		
Rent & lease	14,498	Worker equivalent	6.11		
Other:		Total tillable acres	566		
Insurance	8,306	Milk sold per cow, lbs.	21,516		
Utilities (farm share)	17,122	Hay DM per acre, tons	3.3		
Interest paid	49,988	Corn silage per acre, tons	15.1		
Miscellaneous	9,564	Milk sold per worker, lbs.	865,325		
TOTAL OPERATING EXPENSES	\$703,880	Grain/conc. as % milk sales	27%		
Expansion livestock	\$19,335	Feed & crop exp./cwt. milk	\$4.61		
Machinery depreciation	36,805	Labor & mach. costs/cow	\$1,187		
Building depreciation	26,380	Average price/cwt. milk	\$13.38		
TOTAL ACCRUAL EXPENSES	\$786,400				
<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	\$11,459	\$9,370	Accounts payable	\$13,186	\$20,786
Accounts receivable	48,893	54,772	Operating debt	55,492	55,418
Prepaid expenses	2,309	2,058	Short-term	2,929	3,762
Feed & supplies	179,714	167,574	Advanced gov't rec.	54	25
Dairy cows*	253,680	277,943	Current Portion:		
Heifers	115,496	129,214	Intermediate	44,679	50,717
Bulls & other livestock	2,242	2,517	Long Term	20,029	19,090
Machinery & equipment*	293,465	309,193	Intermediate**	259,592	281,039
Farm Credit stock	6,155	4,705	Long-term*	253,496	270,640
Other stock & certificates	28,261	29,703	Total Farm Liabilities	\$649,455	\$701,477
Land & buildings*	629,391	657,309	Nonfarm Liabilities***	4,964	4,328
Total Farm Assets	\$1,571,065	\$1,644,358	Farm & Nonfarm Liabilities	\$654,419	\$705,805
Nonfarm Assets***	79,317	92,955	Farm Net Worth	\$921,610	\$942,881
Farm & Nonfarm Assets	\$1,650,382	\$1,737,313	Farm & Nonfarm Net Worth	\$995,963	\$1,031,508

*Includes discounted lease payments.

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

***Average of 151 farms reporting.

NOTES

APPENDIX

**THE ECONOMIC ENVIRONMENT FACING
NEW YORK DAIRY FARMERS**

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, 1990-2000**

Year	Mixed Dairy Feed 16% Protein* (\$/ton)	Fertilizer, Urea 45-46%N* (\$/ton)	Seed Corn, Hybrid** (\$/80,000 kernels)	Diesel Fuel* (\$/gal)	Tractor 50-59 PTO** (\$)	Wage Rate All Hired Farm Workers*** (\$/hr)
1990	177	215	69.90	1.080	17,950	5.51
1991	172	243	70.20	0.995	18,650	6.06
1992	174	221	71.80	0.910	18,850	6.42
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

SOURCE: NYASS, New York Agricultural Statistics. USDA, ASB, Agricultural Prices. *Northeast region average.

United States average. *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 (February for 1986-89 and April for 1985), and an index of the real estate prices.

Table A2.**VALUES OF NEW YORK DAIRY FARM INVENTORY ITEMS, 1985-2000**

Year	Dairy Cows		Machinery*	Farm Real Estate	
	Value/Head	1977=100	1977=100	Value/Acre	1977=100
1985	740	149	181	820	140
1986	770	156	178	843	144
1987	870	176	180	960	164
1988	900	182	189	993	169
1989	1,020	206	201	1,045	178
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	1,200	242	301	1,410	240

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

*United States average; 1995 - 2000 are estimated due to discontinuation of 1977=100 series.

As the number of milk cow operations decreases, the average number of milk cows per operation increases as shown by Chart A1. There were 5,600 less milk cow operations in 2000 than there were in 1989. The average number of milk cows per operation has increased by 29 cows, or 52 percent over the same period. On January 1, 2001, 29 percent of the total milk cows were in herds with 50-99 head, 60 percent were in herds with over 100 milk cows, and 11 percent were in herds with less than 50 head.

Chart A1.

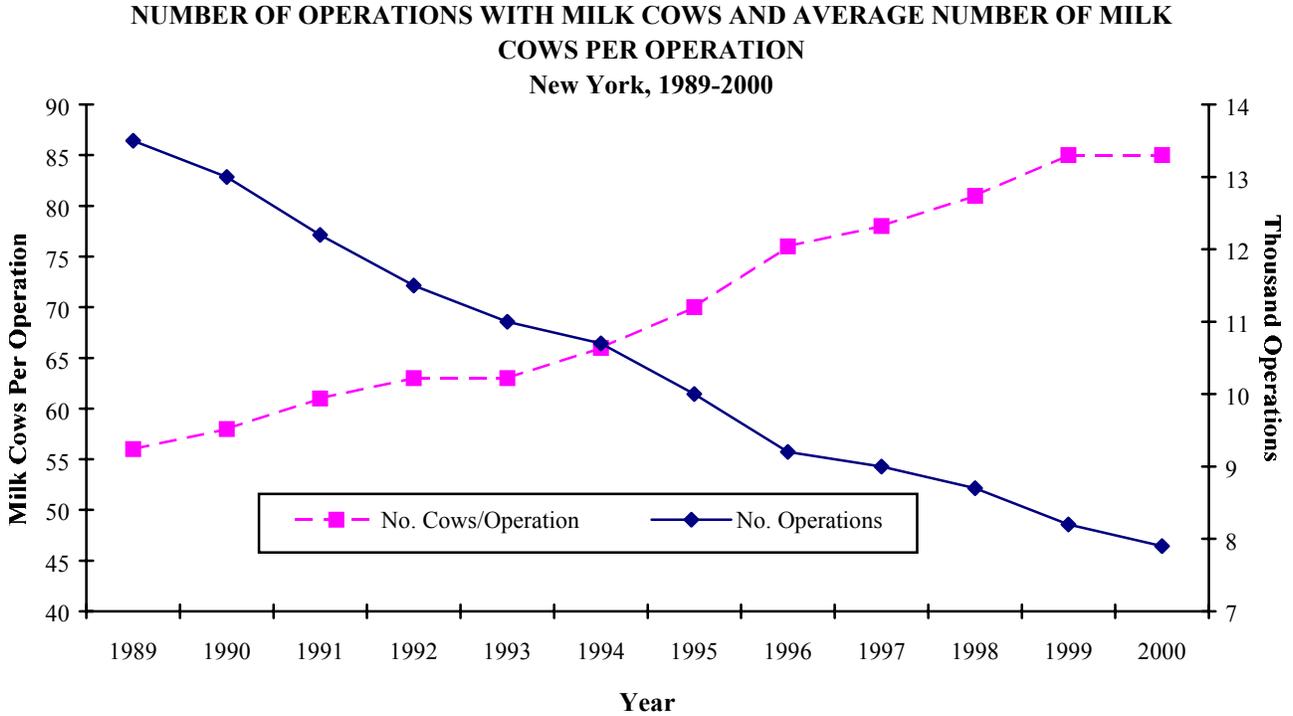


Table A3.

MILK COW OPERATIONS AND MILK COW INVENTORY
by Herd Size, 1989 to 2000

MILK COW OPERATIONS BY HERD SIZE & TOTAL, 1989-2000							MILK COWS ON FARMS, JAN. 1 BY HERD SIZE & TOTAL, 1990-2001						
Year	(Number of Milk Cows in Herd)					Total	Year	(Number of Milk Cows in Herd)					Total
	1-29	30-49	50-99	100-199 ^a	200 plus			1-29	30-49	50-99	100-199 ^a	200 plus	
	(Number of Operations)						(Thousand Head)						
1989	2,700	3,400	5,400	2,000		13,500	1990	29	121	321	289		760
1990	2,650	3,150	5,300	1,900		13,000	1991	27	116	319	288		750
1991	2,500	2,900	5,000	1,800		12,200	1992	24	111	314	291		740
1992	2,600	2,600	4,400	1,900		11,500	1993	22	102	285	190	131	730
1993	2,400	2,500	4,200	1,500	400	11,000	1994	22	87	297	189	130	725
1994	2,400	2,200	4,200	1,500	400	10,700	1995	21	92	277	178	142	710
1995	2,100	2,200	4,000	1,300	400	10,000	1996	19	79	259	189	154	700
1996	1,800	2,000	3,700	1,300	400	9,200	1997	18	73	245	189	175	700
1997	1,700	1,900	3,600	1,300	500	9,000	1998	18	73	238	182	189	700
1998	1,600	1,800	3,500	1,300	500	8,700	1999	14	70	218	189	211	702
1999	1,400	1,600	3,200	1,400	600	8,200	2000	14	70	217	189	210	700
2000	1,400	1,500	3,000	1,400	600	7,900	2001	13	60	194	188	215	670

^a100 plus category prior to 1993.

Source: NYASS, New York Agricultural Statistics, 2000-2001

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 29 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 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 capital to 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 associated with their growth and maintenance.

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.

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 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 hayland, 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, nonwage 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 farm business receipts and expenses used to measure profitability 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 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 Death Rate: The percentage of the average number of milking and dry cows that died during the year.

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.

Percent 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.

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.

Prepaid Expenses: (defined on page 13).

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).

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)
2001-05	Supply Chain Management in the Produce Industry		Perosio, D. J., E. W. McLaughlin, S. Cuellar and K. Park
2001-04	Promotion Checkoffs, Why So Controversial? The Evolution of Generic Advertising Battles		Crespi, J.
2001-03	Community Collaboration Among Small Business Support Organizations: Attributes of Effectiveness		Schlough, C. and D. Streeter
2001-02	Information Technology and Credit Scoring at Agricultural Banks in the Northeast and Eastern Corn Belt		LaDue, E.L., C. Cuykendall, and J. Stokes
2001-01	Identifying the Extensive and Intensive Effects of Generic Advertising on the Household Demand for Fluid Milk and Cheese		Schmit, T., C. Chung, D. Dong, H.M. Kaiser and B. Gould
2000-05	A Multimarketing Analysis of Cashew Production in Mozambique		Kyle, S. and O. Negiz
2000-04	The Decision to Enter Consumer Direct Initiatives by Supermarket Companies	(\$25 ea.)	Park, K. and J.L. Park
2000-03	Business Summary New York State 1999	(\$12 ea.)	Knoblauch, W.A., L.D. Putnam and J. Karszes
2000-02	Impact of Generic Fluid Milk and Cheese Advertising on Dairy Markets, 1984-99		Kaiser, H.
2000-01	Advanced Degrees Conferred at Cornell University During the Twentieth Century with Major Fields in Agricultural Economics		Stanton, B.F.
99-12	Impact of Generic Fluid Milk and Cheese Advertising on Dairy Markets, 1984-1998 (Revised)		Kaiser, H.M.
99-11	Dairy Farm Management, Business Summary, New York State, 1998	(\$12 ea.)	Knoblauch, W.A., L.D. Putnam and J. Karszes
99-10	The New Dynamics of Produce Buying and Selling	(\$25 ea.)	McLaughlin, E.W., K. Park, D.J. Perosio and G.M. Green

Paper copies are being replaced by electronic Portable Document Files (PDFs). To request PDFs of AEM publications, write to (be sure to include your e-mail address): Publications, Department of Applied Economics and Management, Warren Hall, Cornell University, Ithaca, NY 14853-7801. If a fee is indicated, please include a check or money order made payable to Cornell University for the amount of your purchase. Visit our Web site (<http://aem.cornell.edu/research/resbulletin3.html>) for a more complete list of recent bulletins.