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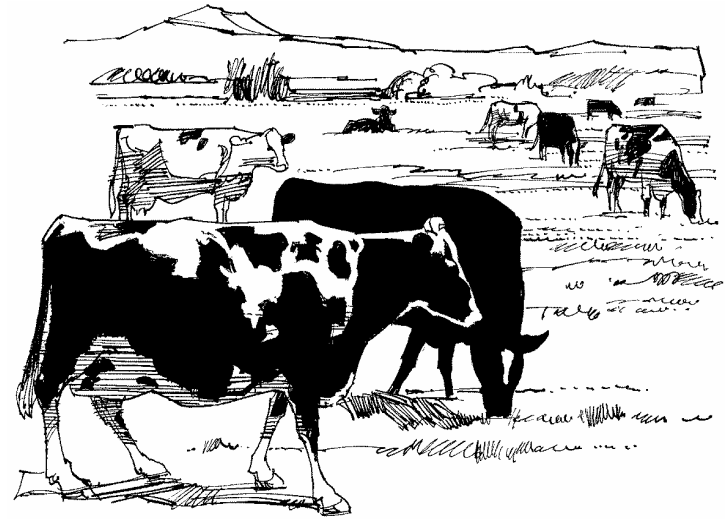
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**DAIRY FARM  
MANAGEMENT**

***BUSINESS SUMMARY  
NEW YORK STATE  
2004***



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**Dairy Farm Management  
Business Summary New York State 2004**

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## ABSTRACT

Business and financial records for 2004 from 200 New York dairy farm businesses are summarized and analyzed. This analysis demonstrates the use of cash accounting with accrual adjustments to measure farm profitability, financial performance, and costs of producing milk. Traditional methods of analyzing dairy farm businesses are combined with evaluation techniques that show the relationship between good management performance and financial success.

The farms in the project averaged 334 cows per farm and 22,070 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 \$200,863 per farm. The rate of return to all capital invested in the farm business including appreciation averaged 11.3 percent.

Differences in profitability between farms continue to widen. Average net farm income excluding appreciation of the top 10 percent of farms was \$838,746, while the lowest 10 percent was a negative \$11,854. Rates of return on equity with appreciation ranged from 46 percent to negative 11 percent for the highest 10 percent and the lowest 10 percent of farms, respectively.

Large freestall farms averaged the highest milk output per cow and per worker, the lowest total cost of production and investment per cow, and the greatest returns to labor, management and capital. Farms milking three times a day (3X) were larger, produced more milk per cow and had higher net incomes than herds milking two times per day (2X). Operating costs per hundredweight of milk were \$0.08 per hundredweight higher for 3X than 2X milking herds, while output per cow was 3,950 pounds higher. In 2004, farms supplementing the herd with bovine somatotropin (bST) attained higher rates of milk production per cow, had larger herds and were more profitable than farms not supplementing with bST for all measures of profitability. Farms adopting rotational grazing generally produced less milk per cow than non-grazing farms but had lower costs of production and higher profitability. One should not conclude that adoption of these technologies alone were responsible for differences in performance.

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## INTRODUCTION<sup>1</sup>

Dairy farm business summary (DFBS) projects are an integral part of Cornell Cooperative Extension's agricultural educational program in New York State. The Department of Applied Economics and Management of the College of Agriculture and Life Sciences at Cornell University, and County Extension staff, cooperate in sponsoring DFBS projects. In 2004, nearly 300 dairy farms participated, including dairy owners, renters, full-time, part-time, and out-of-state farms. Business records submitted by dairy farmers from 43 New York counties provide the basis for continuing Extension programs, data for applied studies, and for use in the classroom. Regardless of the use of the data, confidentiality of individual farm data is maintained.

Cornell Cooperative Extension educators enroll the cooperators and collect the records. In addition, assistance is provided by individual consultants Bruce Dehm and Charles Radick, and by consultants from Farm Credit of Western New York and First Pioneer Farm Credit. Each cooperator receives a detailed summary and analysis of his or her business. All educators are using a computer in their offices or on the farm to process and return the individual farm business reports for immediate use. The program used to generate the farm business reports can be found at the website <http://dfbs.cornell.edu>. Regional reports are prepared by Cornell faculty and used by DFBS cooperators and other farmers to compare their farm performance with regional averages. The DFBS program helps farmers improve accounting and financial analysis techniques, develop managerial skills, solve business and financial management problems and plan the future of their business.

Individual farm records from the 6 regions and 43 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 200 specialized dairy farms are included in the main body of this report. These farms do NOT represent the "average" for all dairy farms in the State. Participation was on a voluntary basis, therefore, not all areas or types of operations were proportionately represented (Figure 1, page 2). Participants represent more than 3 percent of the milk cow operations in New York (see Appendix Table A3). The 200 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 profitability; net farm income, labor and management income, return on equity, return on all capital, and return to all labor and management are calculated on pages 13 through 16. The balance sheet is presented with the current portion of intermediate and long-term debt identified as a current liability, on pages 16 and 17. The statement of owner equity, which shows the interrelationship between farm profitability, non-farm cash flows and net worth is presented on page 19. A detailed cash flow statement, as well as budgeting data and debt repayment analysis is presented on pages 20 through 22.

The whole farm method of calculating the cost of producing milk is detailed on pages 30 through 35. The operating cost, purchased inputs cost and total cost of producing 100 pounds of milk are developed and analyzed. Farm business charts for farms with conventional and freestall housing are presented on pages 63 through 67. Specific studies of the performance of dairy farms using bST, rotational grazing and three times (3X) a day milking are presented on pages 71, 76 and 77.

### **Acknowledgements**

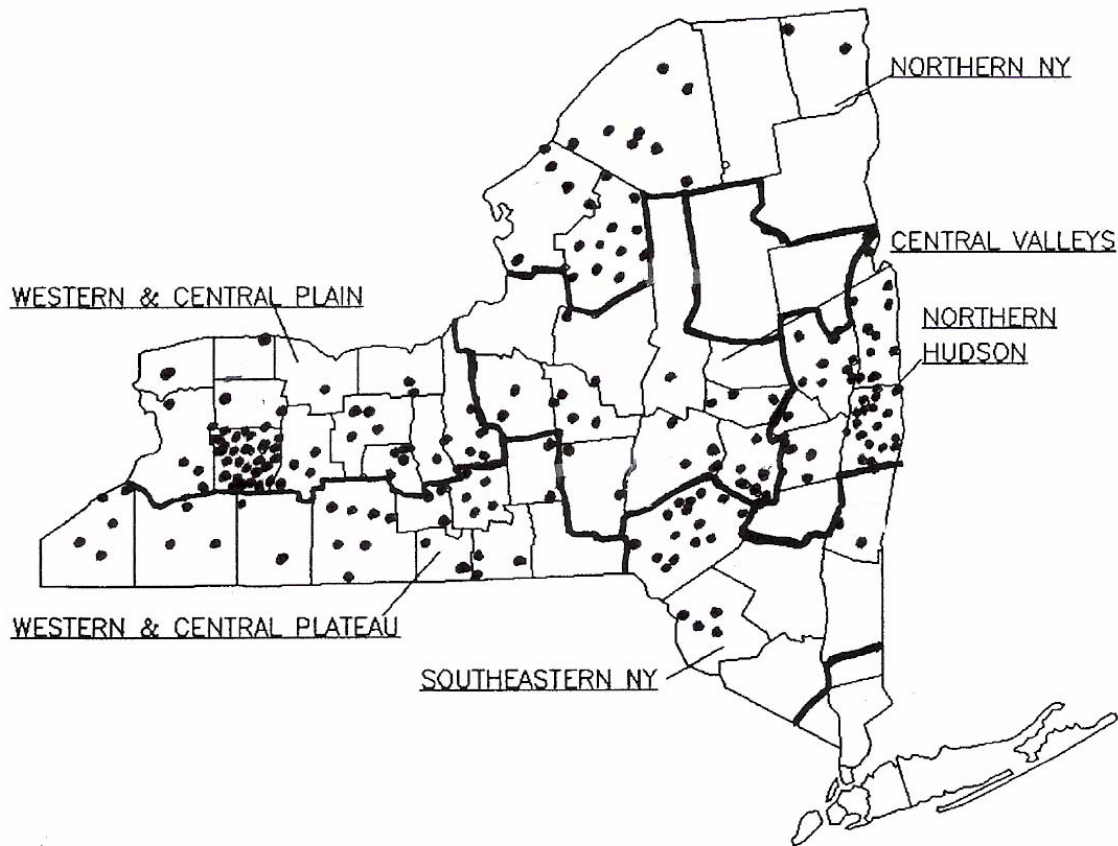
The authors wish to acknowledge extension field staff and cooperating farmers for their invaluable cooperation on this project. In addition, the authors appreciate the comments provided by Loren Tauer and Brent Gloy.

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

Figure 1.

**LOCATION OF THE 200 NEW YORK DAIRY FARMS  
IN THE 2004 DAIRY FARM BUSINESS SUMMARY**



**2004 Regional Summary Publications**

<u>Region</u>	<u>Publications</u>	<u>Author(s)</u>
Northern Hudson	E.B. 2005-02	George J. Conneman, Linda D. Putnam, Cathy S. Wickswat, Sandra Buxton, Richard C. Smith & Jason Karszes
Western and Central Plain	E.B. 2005-03	Wayne A. Knoblauch, Linda D. Putnam, Jason Karszes, John Hanchar & Jason Murphy
Northern New York	E.B. 2005-07	Wayne A. Knoblauch, Linda D. Putnam, Jason Karszes, Peggy Murray, Frans Vokey, Molly Ames, & William Van Loo
Western and Central Plateau	E.B. 2005-09	Wayne A. Knoblauch, Linda D. Putnam, Jason Karszes, George Allhusen, James W. Grace, David L. Munsee, Jacob Schuelke & Joan S. Petzen
Southeastern New York	E.B. 2005-10	Wayne A. Knoblauch, Linda D. Putnam, Mariane Kiraly, Joseph J. Walsh, Stephen E. Hadcock & Larry R. Hulle
Central Valleys	E.B. 2005-13	Wayne A. Knoblauch, Jason Karszes, Charles Z. Radick, Dan Welch & Linda D. Putnam

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

New York dairy farming has changed dramatically over the past 30 years (Table 1, page 4). Dairy cows per farm on cooperating farms increased 364 percent between 1974 and 2004 and more than one-half of that increase occurred in the last 10 years. Milk output per cow increased more than 75 percent and the largest increase occurred between 1984 and 1994. The DFBS sample is not representative of all farms in New York State. State census data indicate the average herd in the state increased in size 112 percent over the 30-year period. Labor efficiency, measured by pounds milk sold per worker, was up 147 percent on DFBS farms, and the operating cost of producing milk increased more than 128 percent with the big jump occurring between 1974 and 1984.

There is a large increase in farm capital invested per farm, up 912 percent since 1974. Farm net worth excluding deferred taxes has increased 836 percent over the last 30 years. Net farm income per farm increased 325 percent (adjusted for 2004 dollars) and return on equity capital increased 165 percent since 1974. Labor and management income per operator is up 318 percent from 30 years ago (adjusted for 2004 dollars).

### FOUR YEARS OF VARIABILITY

Recognition and evaluation of the progress that has occurred on farms can best be achieved by studying the same farms over a period of time. Table 2, page 5, presents average data from 126 farms that have been DFBS cooperators each year since 2001. 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 2001 provided dairy farmers with excellent returns, yet 2004 saw the highest operating margin per hundredweight at \$4.26.

Average net farm income without appreciation in 2004 was 30 percent below the 2001 average, and 468 percent above the 2002 average. Net worth increased rapidly in 2001, decreased 10 percent in 2002, increased 13 percent in 2003, and increased 19 percent in 2004.

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

**Chart 1.**

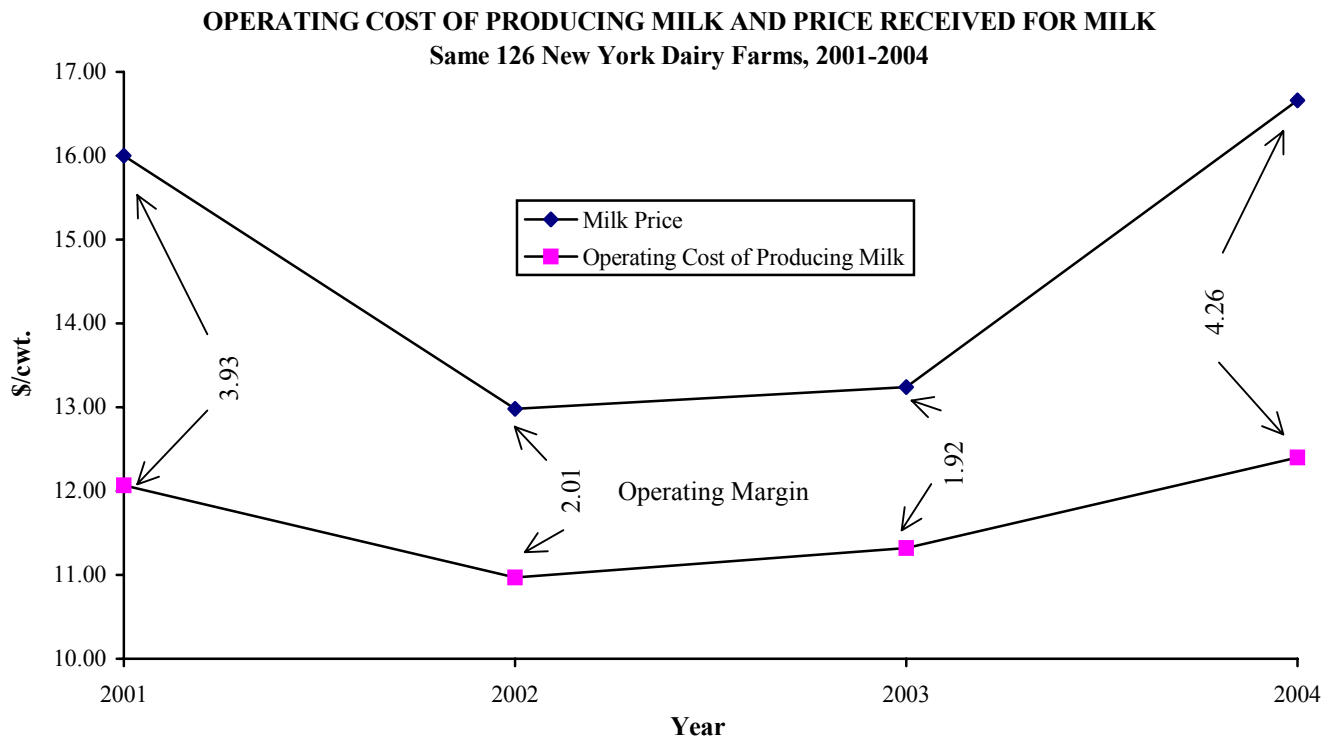


Table 1.

**COMPARISON OF FARM BUSINESS SUMMARY DATA**  
**New York Dairy Farms, 1974 - 2004**

Selected Factors	1974	1984	1994	2004
Number of farms	628	458	321	200
<u>Size of Business</u>				
Average number of cows	72	89	151	334
Average number of heifers	50	76	116	260
Milk sold, cwt.	9,058	13,735	30,335	73,767
Worker equivalent	2.40	3.08	4.02	7.97 <sup>4</sup>
Total tillable acres	213	280	392	701
<u>Rates of Production</u>				
Milk sold per cow, lbs.	12,580	15,433	20,091	22,070
Hay DM per acre, tons	2.6	2.7	3.0	3.5
Corn silage per acre, tons	14	14	16	18
<u>Labor Efficiency</u>				
Cows per worker	30	29	38	42 <sup>4</sup>
Milk sold per worker, lbs.	374,300	445,942	755,178	925,553 <sup>4</sup>
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	30%	24%	28%	27%
Dairy feed & crop expense per cwt. milk	\$3.26	\$4.53	\$4.61	\$5.60
Operating cost of producing cwt. milk	\$5.51	\$10.28	\$10.47	\$12.58
Total cost of producing cwt. milk	\$8.70	\$14.86	\$13.90	\$15.74
Milk receipts per cwt. milk	\$8.57	\$13.49	\$13.44	\$16.64
<u>Capital Efficiency</u>				
Total farm capital	\$231,550	\$539,431	\$966,047	\$2,343,166
Farm capital per cow	\$3,216	\$6,061	\$6,398	\$7,010
Machinery & equipment per cow	\$572	\$1,105	\$1,150	\$1,226
Real estate per cow	\$1,695	\$2,842	\$2,859	\$2,809
Livestock investment per cow	\$684	\$1,329	\$1,499	\$2,811
Asset turnover ratio	0.40	0.43	0.50	0.64
<u>Profitability</u>				
Net farm income without appreciation <sup>5</sup>	-----	\$38,922	\$71,507	\$200,863
Net farm income with appreciation <sup>5</sup>	\$68,049	\$50,520	\$87,146	\$289,471
Labor & management income per operator/manager <sup>5</sup>	\$18,654	\$4,112	\$18,856	\$78,061
Rate of return on:				
Equity capital with appreciation	6.2%	1.3%	4.7%	16.4%
All capital with appreciation	6.5%	4.4%	5.5%	11.3%
All capital without appreciation	-----	3.2%	4.2%	7.5%
<u>Financial Summary, End Year</u>				
Farm net worth	\$156,775	\$336,210	\$624,580	\$1,466,674
Change in net worth with appreciation	-----	-----	\$31,663	\$218,436
Debt to asset ratio	0.36	0.38	0.37	0.40
Farm debt per cow	\$1,210	\$2,283	\$2,324	\$2,879

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

<sup>3</sup>Average of 591 dairy farm cooperators submitting financial information in 1974.

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

<sup>5</sup>Adjusted for inflation using Consumer Price Index – 2004 dollars.

**Table 2.**

**COMPARISON OF FARM BUSINESS SUMMARY DATA**  
**Same 126 New York Dairy Farms, 2001 - 2004**

Selected Factors	2001	2002	2003	2004
Milk receipts per cwt. milk	\$16.00	\$12.98	\$13.24	\$16.66
<u>Size of Business</u>				
Average number of cows	321	342	363	378
Average number of heifers	240	264	278	294
Milk sold, cwt.	71,504	78,018	82,013	84,360
Worker equivalent <sup>6</sup>	7.71	8.09	8.47	8.92
Total tillable acres	687	725	750	792
<u>Rates of Production</u>				
Milk sold per cow, lbs.	22,299	22,810	22,622	22,293
Hay DM per acre, tons	2.9	2.3	3.3	3.4
Corn silage per acre, tons	17	15	18	18
<u>Labor Efficiency</u>				
Cows per worker <sup>6</sup>	42	42	43	42
Milk sold per worker, lbs. <sup>6</sup>	927,025	964,769	967,892	945,735
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	26%	29%	31%	27%
Dairy feed & crop expense per cwt. milk	\$4.99	\$4.78	\$4.96	\$5.58
Operating cost of producing cwt. milk	\$12.07	\$10.97	\$11.32	\$12.40
Total cost of producing cwt. milk	\$15.24	\$13.70	\$14.32	\$15.55
Hired labor cost per cwt.	\$2.43	\$2.46	\$2.51	\$2.66
Interest paid per cwt.	\$0.83	\$0.61	\$0.56	\$0.57
Labor & machinery costs per cow	\$1,241	\$1,246	\$1,231	\$1,306
<u>Capital Efficiency, Average for Year</u>				
Farm capital per cow	\$6,600	\$6,397	\$6,764	\$7,021
Machinery & equipment per cow	\$1,242	\$1,240	\$1,212	\$1,238
Real estate per cow	\$2,559	\$2,643	\$2,652	\$2,713
Livestock investment per cow	\$1,743	\$1,831	\$1,820	\$1,894
Asset turnover ratio	0.65	0.54	0.54	0.65
<u>Profitability</u>				
Net farm income without appreciation	\$184,694	\$42,410	\$52,107	\$240,898
Net farm income with appreciation	\$292,799	\$98,928	\$116,511	\$349,186
Labor & management income per operator/manager	\$76,614	\$-18,806	\$-14,626	\$102,550
Rate return on:				
Equity capital with appreciation	18.2%	3.7%	3.3%	18.1%
All capital with appreciation	14.2%	4.3%	3.8%	12.9%
All capital without appreciation	8.7%	1.7%	1.7%	8.7%
<u>Financial Summary, End Year</u>				
Farm net worth	\$1,368,327	\$1,237,257	\$1,399,984	\$1,668,910
Change in net worth with appreciation	\$193,108	\$41,146	\$48,595	\$265,022
Debt to asset ratio	0.41	0.40	0.44	0.40
Farm debt per cow	\$2,751	\$2,823	\$3,042	\$2,891

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

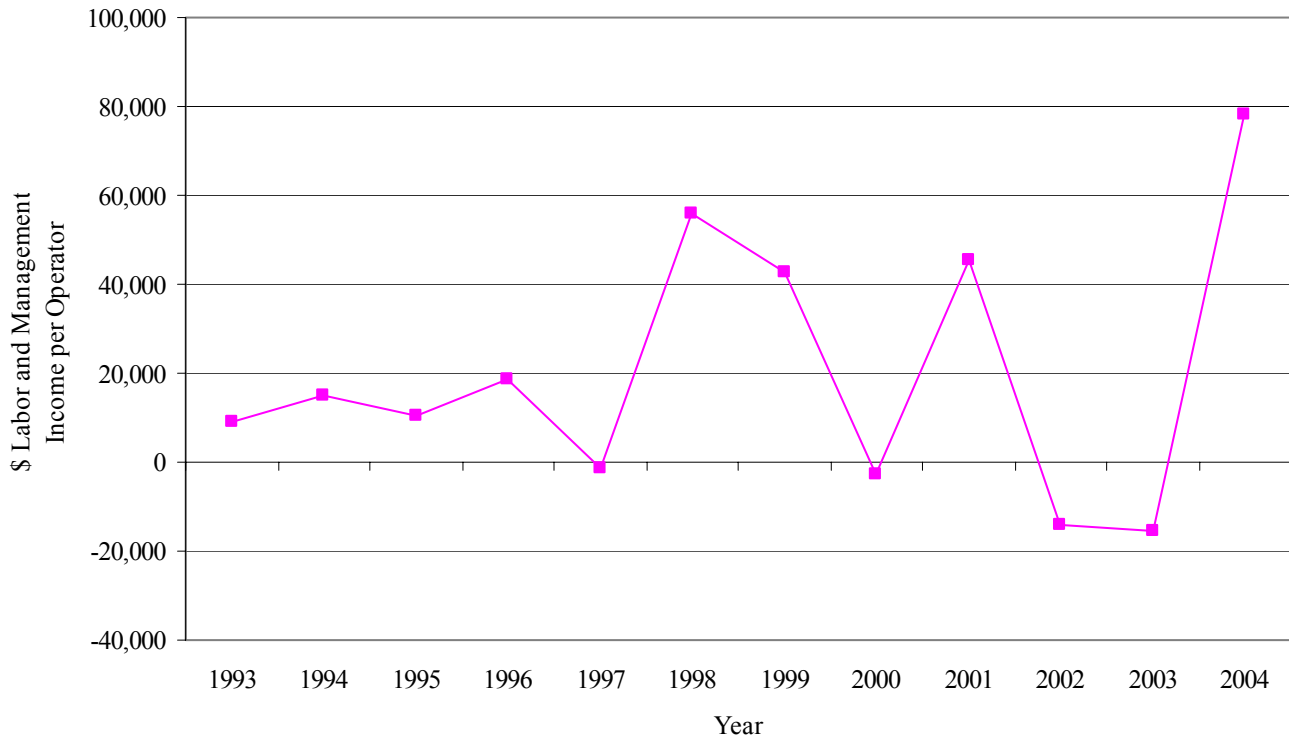
## ADJUSTING PROFIT, PRICE AND COSTS FOR INFLATION

Labor and management income per operator in 2004 was at an all time high when measured in nominal (actual) value (Chart 2). Over the period 1993 to 2004, labor and management incomes per operator did not exceed \$25,000 except for \$55,000 in 1998, nearly \$43,000 in 1999, over \$45,000 in 2001, and over \$78,000 in 2004. The reader is reminded that the average herd size of DFBS participating farms steadily increased from 130 cows to 334 cows over this period.

**Chart 2.**

### LABOR AND MANAGEMENT INCOME PER OPERATOR

Dairy Farm Business Summary Farms, 1993-2004

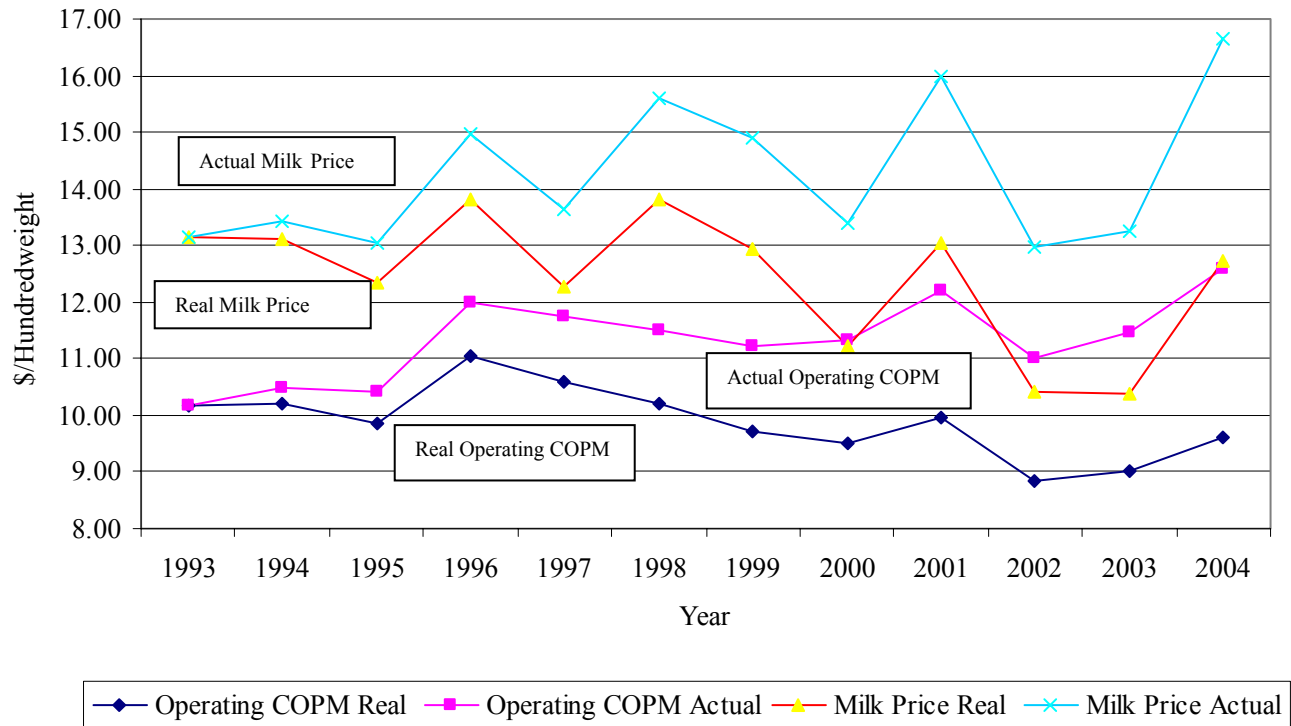


Milk prices in 2004 averaged \$16.64 per hundredweight in actual dollars (Chart 3, page 7). However, the 2004 milk price, adjusted for inflation, in 1993 dollars, would have been about \$12.73 per hundredweight.

Operating cost of producing milk (actual) had been very constant from 1993 through 1995 (Chart 3, page 7). Feed costs were higher in 1996 and so were operating costs of producing milk. Operating costs were on a downward trend from 1996 through 2000. Operating costs then increased in 2001, fell in 2002, and increased in 2003 and 2004, but remained higher than the early nineties. Real costs of producing milk per hundredweight have been on a downward trend over this 12-year period.

Chart 3.

**OPERATING COST OF PRODUCING MILK AND MILK PRICE<sup>7</sup>**  
Dairy Farm Business Summary Farms, 1994-2004



<sup>7</sup> Actual operating cost of producing milk and milk price are adjusted for inflation, to obtain real values, using the Consumer Price Index–1993 dollars.

### MILK INCOME AND MARKETING EXPENSE BREAKDOWN

Starting January 1<sup>st</sup>, 2000, the Northeast switched to multiple components pricing, which changed the format of the milk check and how farmers received payment for their milk. To examine the breakdown of the gross milk income and the marketing expenses, 124 farms filled out a detailed form including all the different sources of income for milk sales and the milk marketing expenses on an accrual basis. This information is reported in the following two tables. The tables are divided into six different sections, each representing a different area of income or expenses.

The first section looks at the value of the milk components on a per hundredweight basis. The second section looks at the Producer Price Differential. The third section looks at the premiums a farm receives. Any premiums not specifically noted as quality or volume related are included in market premiums. The fourth section looks at the expenses associated with marketing milk. Expenses associated with utilizing forward contracting or hedging programs to market milk, such as commission or broker fees are included in market fees and cooperative dues. The fifth section is income from forward contracting or hedging programs. The sixth section is the patronage dividends or refunds from the milk cooperatives. Equity purchased in the milk cooperative utilizing a monthly deduction from the milk check or a percent of the patronage dividend is treated as a capital purchase and is not a milk marketing expense. The cumulative total for these six sections is the net price received on farms. MILC payments are not included as a milk receipt, but as a government payment.

Table 3 on page 8 reports the averages for these different sections. Table 4 on page 9 contains the quintile averages for each of the individual lines of the report. This table is in a farm business chart format with each item sorted independently and ranked by fifths. Numbers for the different sections will not add to the totals for that quintile or to the net price received because each item is sorted independently. This table shows the range of income and expenses received by farms for all the different sections. More milk price information is presented on page 40.

Table 3.

**AVERAGE<sup>8</sup> MILK INCOME AND MARKETING REPORT**  
**124 New York Dairy Farms, 2004**

	Pounds	Percent	Price/Pound	Total	\$/Cwt of Milk
<b>BASE FARM PRICE</b>					
Butterfat	336,866.400	3.56%	\$2.050	\$690,519.00	\$7.30
Protein	281,957.20	2.98%	\$2.584	\$728,698.00	\$7.70
Solids	534,430.20	5.65%	\$0.076	\$40,865.50	<u>\$0.43</u>
Total Component Contribution					<u>\$15.43</u>
<b>PPD</b>	9,461,076.00			\$31,364.66	<u>\$0.33</u>
<b>Base Farm Price</b>					<u>\$15.76</u>
Premiums					
Quality				\$18,958.60	\$0.20
Volume				\$24,021.13	\$0.25
Market Premiums				\$47,541.73	<u>\$0.50</u>
<b>Total Premiums</b>					<u>\$0.95</u>
<b>BASE FARM PRICE + PREMIUM</b>					<u>\$16.71</u>
<hr style="border-top: 1px dashed black;"/>					
Deductions					
Promo				\$15,101.69	\$0.16
Hauling + Stop Charges.				\$43,646.73	\$0.46
Market Fees & Coop Dues				\$7,581.24	\$0.08
<b>Total Deductions</b>					<u>\$0.70</u>
<b>BASE FARM PRICE + PREMIUMS – DEDUCTIONS</b>					<u>\$16.01</u>
Marketing Programs					
Futures Contracts, Forward Contracting, Etc.				\$-20,158.00	<u>\$-0.21</u>
<b>Total Marketing Income</b>					<u>\$-0.21</u>
<b>Patronage Dividends</b>				\$7,529.13	<u>\$0.08</u>
<b>NET PRICE RECEIVED ON FARM, ALL SOURCES</b>					<u>\$15.88</u>
<b>PPD – Hauling, per cwt.</b>					\$-0.13
<b>PPD – Hauling + Market Premiums, per cwt.</b>					\$0.37
<b>Net Marketing Value, per cwt. (PPD + Total Premiums - Total Deductions)</b>					\$0.58

<sup>8</sup>Each calculation of an average is independent of all others. Therefore, math operations on the detail will not result in the totals. However, detail in the “\$/Cwt of Milk” column will result in the totals. Average herd size for these 124 farms is 418 cows.



## SUMMARY AND ANALYSIS OF THE FARM BUSINESS

**Business Characteristics and Resources Used**

Recognition of important business characteristics and identification of the farm resources used is necessary for evaluating management performance. The combination of resources used and management practices employed is known as farm organization. Important farm business characteristics and the number of farms reporting these characteristics for 2004 are presented in the following table.

**Table 5.**

**BUSINESS CHARACTERISTICS AND RESOURCES USED  
200 New York Dairy Farms, 2004**

<u>Dairy Livestock (number)</u>	<u>Cows</u>	<u>Heifers</u>	<u>Dairy Records</u>	<u>Number</u>	<u>Percent</u>
Beginning of Year	319	252	Testing Service	150	75
End of Year	342	264	On Farm System	21	11
Average for Year	334	260	Other	4	2
			None	25	12
<u>Type of Business</u>	<u>Number</u>	<u>Percent</u>	<u>bST Usage</u>	<u>Number</u>	<u>Percent</u>
Sole Proprietorship	99	50	Used consistently	70	35
Partnership	56	28	Used inconsistently	29	15
Limited Liability Corp	29	14	Started using in 2004	1	<1
Subchapter S Corp.	16	8	Stopped using in 2004	3	2
Subchapter C Corp	0	0	Not used in 2004	97	48
<u>Barn Type</u>	<u>Number</u>	<u>Percent</u>	Average % usage, if used	43%	
Stanchion	57	29	<u>Labor Force</u>	<u>Average</u>	<u>Percent</u>
Freestall	134	67	Operators	22.5	24
Combination	9	4	Family Paid	5.7	6
<u>Milking System</u>	<u>Number</u>	<u>Percent</u>	Family Unpaid	2.3	2
Bucket & Carry	1	<1	Hired	65.2	68
Dumping Station	1	<1	Total Months	95.7	100
Pipeline	57	28			
Herringbone Conventional	61	31			<u>Average</u>
Herringbone Rapid	15	8	<u>Operators (total = 328)</u>		1.64
Parallel	45	23	Age		47
Parabone	6	3	Education		13 years
Rotary	2	1	Estimated value of labor & management/farm		\$61,647
Other	12	6			
<u>Milking Frequency</u>	<u>Number</u>	<u>Percent</u>	<u>Land Used</u>	<u>Number</u>	<u>Average</u>
2 times per day	128	64	Total acres:		
3 times per day	63	32	Owned	200	545
Other	9	4	Rented	184	397
<u>Business Records</u>	<u>Number</u>	<u>Percent</u>	Tillable acres:		
Account Book	30	15	Owned	200	356
Accounting Service	29	15	Rented	181	382
On-Farm Computer	136	68	Total	200	701
Other	5	2	<u>Breed of Herd</u>		
			Holstein	92%	
			Jersey	4%	
			Other	4%	

There were 328 full-time operator equivalents on the 200 dairy farms for an average of 1.64 operators per farm. The operators averaged 47 years of age and 13 years of formal education. Additional data on the labor force is in Table 44.

All 200 farm businesses included in this dairy summary own farm real estate. Dairy farm renters are summarized separately later in this publication. However, 181 of the dairy farm owners rented an average of 382 acres of tillable land in 2004. The 200 farms averaged 701 total tillable acres per farm of which 345 acres were rented. Tables 21 and 27 contain additional information on land use and the dairy herd.

## **Accounting Procedures**

Accrual accounting adjustments are made to cash receipts and expenses to accurately measure annual receipts, expenses, and farm profitability. These procedures express the true value and cost of production for the year, regardless of whether cash was received or expended in this year. Cash expenses and cash receipts are used when evaluating the cash flow position of the business.

The accrual accounting adjustments consider changes in accounts payable and receivable, prepaid expenses, and changes in inventory of not only such items as crops and livestock, but also the inventory of production items such as fertilizer, seed and fuel. In this manner, the total cost of production and the total value of production are obtained to provide an accurate representation of profitability in that year.

Accrual adjustments are complemented by accounting procedures used to separate changes in inventory of capital assets into changes caused by price and those caused by quality or quantity changes. Separating price changes (appreciation) from physical changes in the farm inventory are important in determining farm profitability. Appreciation of farm assets is included in the return to farm capital, but excluded from the return to labor and management.

## **Income Statement - Expenses**

The accrual income statement on the following pages begin with an accounting of all farm business expenses. Farm business expenditures are grouped into the following nine major categories:

1. Hired labor includes gross wages plus the farm share of social security, workers' compensation insurance, employee health insurance and other employee benefits paid by the farm employer.
2. Feed expenses are divided into purchased dairy grain and concentrate, purchased dairy roughage and all feed purchased for nondairy livestock to allow more thorough analysis of dairy herd feeding costs. The costs of growing grain and roughage are not included in cash and accrual feed expenses.
3. Machinery costs represent all the operating costs of using machinery on the farm. Ownership costs are excluded here but are included in the analysis of machinery costs presented on page 24.
4. Livestock expenses include the cost of supplies and services directly associated with the care and maintenance of the dairy herd, such as breeding, veterinary, bedding, milking supplies and custom boarding expenses plus milk marketing costs. The purchase of replacement cattle is considered a herd maintenance expense while expansion livestock is not.
5. Crop expenses include the costs of fertilizer, lime, seeds, spray and other crop supplies.
6. Real estate expenses are the direct costs associated with owning and maintaining farmland and buildings.
7. Other includes insurance, the farm share of utilities, interest paid on all farm indebtedness and miscellaneous costs.
8. Expansion livestock is purchased dairy cattle and other livestock that cause an increase in herd size from the beginning to the end of the year. It is a nonoperating cost included in total expenses.
9. Depreciation of machinery and buildings are nonoperating costs included in total expenses. Depreciation charges are based on those reported for income tax purposes.

Cash and accrual farm expenses are summarized below. Total operating accrual expenses for the 200 farms averaged \$2,965 per day and 90 percent of total farm accrual expenses. Cash paid is the actual amount of money paid out during the year and does not necessarily represent the cost of goods and services actually used.

Table 6.

**CASH AND ACCRUAL FARM EXPENSES**  
**200 New York Dairy Farms, 2004**

Expense Item	Cash Paid	-	Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses	Per- cent
<u>Hired Labor</u>	\$197,755		\$95 <<		\$-735		\$196,925	18
<u>Feed</u>								
Dairy grain & concentrate	355,554		13,451		-6,068		336,036	31
Dairy roughage	23,848		1,060		-288		22,500	2
Nondairy livestock	222		-2		0		224	<1
Professional nutritional services	533		0 <<		-1		532	<1
<u>Machinery</u>								
Machinery hire, rent & lease	20,580		1 <<		266		20,845	2
Machinery repairs & farm vehicle expense	60,209		473		-259		59,477	5
Fuel, oil & grease	30,832		660		-40		30,132	3
<u>Livestock</u>								
Replacement livestock	11,635		0 <<		-54		11,581	1
Breeding	15,456		386		73		15,142	1
Veterinary & medicine	44,656		581		-694		43,381	4
Milk marketing	52,816		0 <<		207		53,023	5
Bedding	19,814		86		-144		19,584	2
Milking Supplies	24,605		-55		-267		24,393	2
Cattle lease & rent	984		0 <<		-38		946	<1
Custom boarding	26,444		76 <<		-377		25,991	2
bST expense	12,611		-241 <<		-484		12,368	1
Livestock professional fees	3,375		-35 <<		-10		3,400	<1
Other livestock expense	7,379		144		-294		6,941	1
<u>Crops</u>								
Fertilizer & lime	23,378		1,280		-242		21,857	2
Seeds & plants	21,239		2,888		-408		17,943	2
Spray & other crop expense	13,022		344		-128		12,550	1
Crop professional fees	2,191		56 <<		-48		2,087	<1
<u>Real Estate</u>								
Land, building & fence repair	15,801		7		-183		15,611	1
Taxes	16,493		39 <<		-85		16,369	2
Rent & lease	18,017		17 <<		-141		17,858	2
<u>Other</u>								
Insurance	11,935		260 <<		2		11,677	1
Utilities	26,697		24 <<		97		26,770	2
Interest paid	42,377		0 <<		-89		42,288	4
Other professional fees	6,684		30 <<		-24		6,631	<1
Miscellaneous	6,660		32		475		7,103	<1
Total Operating	\$1,113,802		\$21,657		\$-9,981		\$1,082,164	100
Expansion livestock	\$18,428		\$0 <<		10		\$18,438	
Extraordinary expense	1,042				102		\$1,144	
Machinery depreciation							\$57,894	
Building depreciation							\$39,712	
<b>TOTAL ACCRUAL EXPENSES</b>							<b>\$1,199,351</b>	

Change in inventory represents feeds and supplies purchased this year but not used (positive change), and similar items purchased in a prior year and used this year (negative change). For example, purchased dairy grain and concentrate inventory increased \$13,451.

Prepaid expenses (noted by « in Table 6) are advance payments made for services and noninventory items to be used in future years. For example, advance payments for rent increased an average of \$17 per farm in 2004, and that increase is subtracted from cash rent to determine the correct 2004 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 \$21,657 and total change in accounts payable equals \$-9,981.

### **Income Statement - Receipts**

Cash and accrual farm receipts are presented in the following table. Total cash receipts averaged \$1,334,260 per farm. Total accrual receipts averaged \$1,400,215 per farm. Accrual receipts were greater than cash receipts due primarily to dairy herd growth and increases in crop inventory. Cow numbers increased an average of 20 head per farm and the homegrown feed inventory per farm increased \$12,327. Homegrown feed inventory per cow increased \$6 from beginning to end of year.

**Table 7.**

#### **CASH AND ACCRUAL FARM RECEIPTS 200 New York Dairy Farms, 2004**

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts	Percent
Milk sales	\$1,209,454				\$18,299		\$1,227,754	88
Dairy cattle	55,379		\$32,568		98		88,045	6
Dairy calves	13,520		2,128		-9		15,639	1
Other livestock	2,266		-153		20		2,133	<1
Crops	8,153		12,327		598		21,078	2
Government receipts	25,586		0 <sup>10</sup>		-77		25,509	2
Custom machine work	4,149				-16		4,133	<1
Gas tax refund	302				0		302	<1
Other	15,449				274		15,722	1
- Nonfarm noncash Capital <sup>11</sup>			(-) 100				(-) 100	
<b>Total</b>	<b>\$1,334,260</b>		<b>\$46,769</b>		<b>\$19,186</b>		<b>\$1,400,215</b>	<b>100</b>

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

<sup>11</sup>Gifts or inheritances of cattle or crops included in inventory.

Cash receipts include the gross value of milk checks received during the year plus all other payments received for the sale of farm products, services and government programs.

Accrual receipts represent the value of all farm commodities produced and services actually provided by the farmer during the year. Increases in livestock inventory caused by herd growth and/or quality, are included. Decreases in inventory caused by herd reduction are deducted. Changes in inventories of crops grown are included. Changes in advanced government receipts are the amount by which government payments received for participating in a future year's program have changed from 2003 to 2004. 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 2004 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 \$88,608 per farm in 2004. On the average, farm real estate appreciated \$42,668 or 4 percent of beginning fair market value. Machinery appreciated 5.4 percent while dairy cattle prices appreciated 4 percent in 2004.

Average data from 20 farms with the highest rates of return to all capital (without appreciation) are compared with the 200 farm average in Table 8 and in many of the following tables. Net farm income without appreciation averaged \$621,762 per farm on the top 10 percent farms, 210 percent greater than the 200 farm average.

**Table 8.**

### NET FARM INCOME 200 New York Dairy Farms, 2004

Item	Average 200 Farms		Average Top 10% Farms <sup>12</sup>	
	Per Farm	Per Cow	Per Farm	Per Cow
Total accrual receipts	\$1,400,215		\$2,933,069	
+ Appreciation: Livestock	24,170		43,867	
Machinery	20,931		66,702	
Real Estate	42,668		62,192	
Other Stock & Certificates	<u>839</u>		<u>4,303</u>	
= Total including appreciation	\$1,488,823		\$ 3,110,135	
- Total accrual expenses	<u>1,199,351</u>		<u>2,311,308</u>	
= Net Farm Income (with appreciation)	\$289,471	\$866	\$798,827	\$1,213
Net Farm Income (without appreciation)	\$200,863	\$601	\$621,762	\$944

<sup>12</sup>Average of 20 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  
200 New York Dairy Farms, 2004**

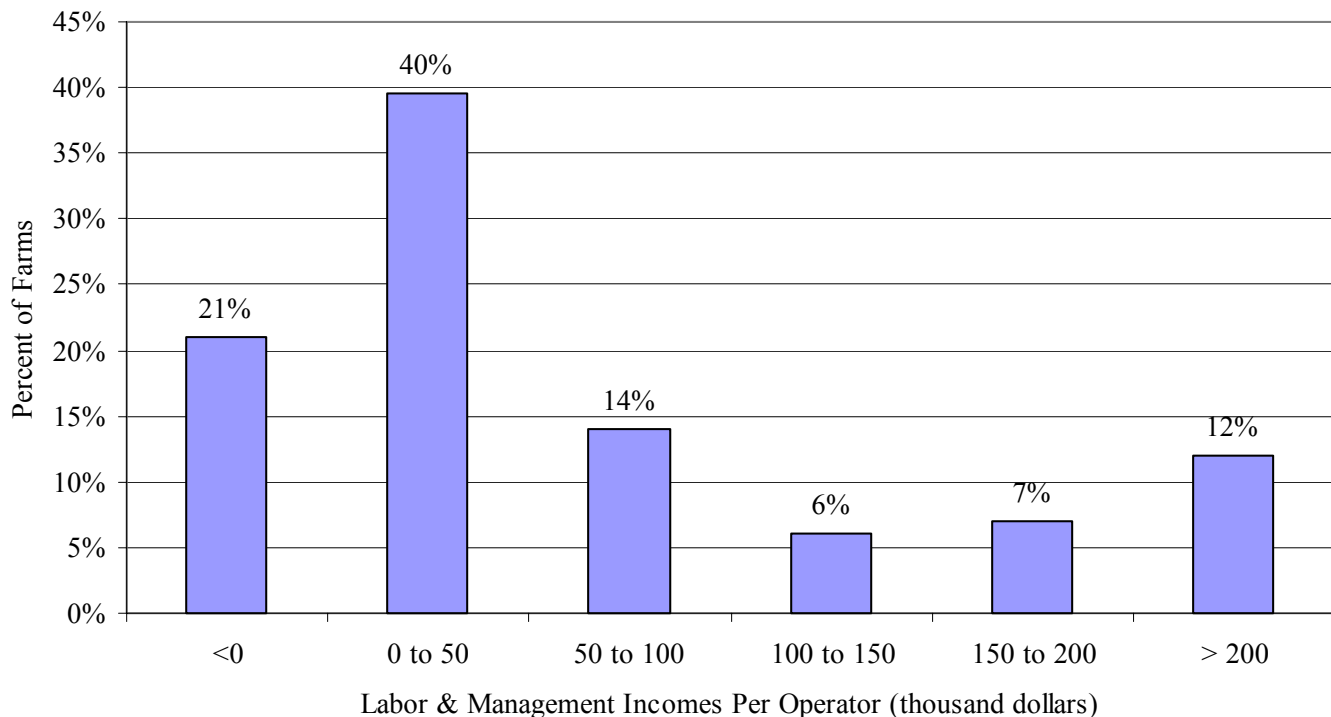
Item	Average 200 Farms	Average Top 10% Farms <sup>13</sup>
Net farm income without appreciation	\$200,863	\$621,762
- Family labor unpaid @ \$2,200 per month	4,971	2,596
- Real interest @ 5% on \$1,357,456 equity capital for average & \$1,986,158 for the top 10% farms	<u>67,873</u>	<u>99,308</u>
= Labor & Management Income (1.64 operators)	\$128,020	(1.97 operators) \$519,858
Labor & Management Income per Operator	\$78,061	\$263,887

<sup>13</sup>Average of 20 farms with highest rates of return to all capital (without appreciation).

Labor and management income per operator averaged \$78,061 on these 200 dairy farms in 2004. The range in labor and management income per operator was from less than \$-140,000 to more than \$807,000. Returns to labor and management were negative on 21 percent of the farms. Labor and management income per operator was between \$0 and \$100,000 on 54 percent of the farms while 25 percent showed labor and management incomes of \$100,000 or more per operator.

**Chart 4.**

**DISTRIBUTION OF LABOR & MANAGEMENT INCOMES PER OPERATOR  
200 New York Dairy Farms, 2004**



Return to equity capital measures the net return remaining for the farmer's equity or owned capital after a charge has been made for the owner/operator's labor and management and unpaid family labor. The earnings or amount of net farm income allocated to labor and management is the opportunity cost or value of operator(s) labor and management estimated by the cooperators. Return on equity capital is calculated with and without appreciation. The rate of return on equity capital is determined by dividing the amount returned by the year's average farm net worth or equity capital. Return to all capital is calculated by adding interest paid to the return on equity capital and then dividing by average farm assets to calculate the rate of return on average total capital. Net farm income from operations ratio is net farm income (without appreciation) divided by total accrual receipts.

**Table 10.**

**RETURN TO CAPITAL  
200 New York Dairy Farms, 2004**

Item	Average 200 Farms	Average Top 10% Farms <sup>14</sup>
Net farm income with appreciation	\$289,471	\$798,827
- Family labor unpaid at \$2,200 per month	4,971	2,596
- Value of operators' labor & management	<u>61,647</u>	<u>85,150</u>
= Return to equity capital with appreciation	\$222,853	\$711,081
+ Interest paid	<u>42,288</u>	<u>73,607</u>
= Return to all capital with appreciation	\$265,141	\$784,688
Return to equity capital without appreciation	\$134,246	\$534,016
Return to all capital without appreciation	\$176,534	\$607,623
Rate of return on average equity capital:		
with appreciation	16.4%	35.8%
without appreciation	9.9%	26.9%
Rate of return on all capital:		
with appreciation	11.3%	21.2%
without appreciation	7.5%	16.4%
Net farm income from operations ratio	0.14	0.21

<sup>14</sup>Average of 20 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  
200 New York Dairy Farms, 2004**

Item	Quartile by Return to All Capital With Appreciation			
	Lowest 25%	3rd 25%	2nd 25%	Top 25%
Return to all capital with appreciation	\$-5,499	\$58,395	\$216,681	\$787,989
Rate of return on all capital with appreciation	-0.7%	6.6%	11.9%	16.0%
Total returns to all labor & management	\$17,887	\$83,359	\$263,021	\$955,396
Worker equivalent	2.81	3.98	7.24	17.85
Return per worker equivalent	\$6,365	\$20,944	\$36,329	\$53,524
Returns/hour (2,760 hours/worker/year)	\$2.31	\$7.59	\$13.16	\$19.39

**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.**

**2004 FARM BUSINESS AND NONFARM BALANCE SHEET**  
**200 New York Dairy Farms, 2004**

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$14,099	\$15,278	Accounts payable	\$48,869	\$39,000
Accounts receivable	68,555	87,741	Operating debt	66,467	63,235
Prepaid expenses	1,625	2,189	Short term	5,309	4,573
Feed & supplies	<u>198,163</u>	<u>231,583</u>	Advanced gov't. receipt	0	
Total Current	\$282,442	\$336,791	Current portion:		
			Intermediate	74,000	81,851
			Long term	<u>25,218</u>	<u>28,811</u>
			Total Current	\$219,863	\$217,470
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy Cows:			Structured debt		
owned	\$389,721	\$428,871	1-10 years	\$385,583	\$371,952
leased	713	503	Financial lease		
Heifers	205,403	224,858	(cattle & machinery)	4,064	3,130
Bulls & other livestock	2,940	3,047	Farm Credit stock	<u>5,055</u>	<u>5,028</u>
Mach. & equip. owned	386,056	427,761	Total Intermediate	\$394,702	\$380,110
Mach. & equip. leased	3,351	2,627			
Farm Credit stock	5,055	5,028	<u>Long Term</u>		
Other stock & certificates	<u>49,347</u>	<u>53,821</u>	Structured debt		
Total Intermediate	\$1,042,586	\$1,146,516	≥ 10 years	\$373,004	\$381,235
<u>Long Term</u>			Financial lease		
Land & buildings:			(structures)	<u>0</u>	<u>5,039</u>
owned	\$910,777	\$962,182	Total Long Term	\$373,004	\$386,274
leased	<u>0</u>	<u>5,039</u>			
Total Long Term	\$910,777	\$967,221	Total Farm Liabilities	\$987,569	\$983,854
Total Farm Assets	\$2,235,804	\$2,450,528	FARM NET WORTH	\$1,248,235	\$1,466,674
Nonfarm Assets <sup>15</sup>	Jan.1	Dec. 31	Nonfarm Liabilities <sup>15</sup> & Net Worth	Jan. 1	Dec. 31
Personal cash, checking & savings	\$7,584	\$8,066	Nonfarm Liabilities	\$4,034	\$3,888
Cash value life insurance	20,589	22,470	NONFARM NET WORTH	\$152,729	\$176,942
Nonfarm real estate	70,005	79,524			
Auto (personal share)	5,858	7,575	FARM & NONFARM <sup>16</sup>	Jan. 1	Dec. 31
Stocks & bonds	31,832	40,467	Total Assets	\$2,392,567	\$2,631,358
Household furnishings	9,803	9,283	Total Liabilities	<u>991,603</u>	<u>987,742</u>
All other	<u>11,092</u>	<u>13,444</u>	TOTAL FARM & NON-		
Total Nonfarm	\$156,763	\$180,830	FARM NET WORTH	\$1,400,964	\$1,643,616

<sup>15</sup>Average of 98 farms completing the nonfarm balance sheet.

<sup>16</sup>Sum of average farm values for 200 farms and nonfarm values for 98 farms.

Financial lease obligations are included in the balance sheet. The present values of all future payments are listed as liabilities since the farmer (lessee) is committed to make the payments. The present values are also listed as assets, representing the future value the item has to the business.

The farm balance sheet analysis includes financial and debt ratios and factors measuring levels of debt. Percent equity is calculated by dividing farm net worth by farm assets. Equity increases as the value of assets increase more than liabilities. The debt to asset ratios reflect strength in solvency and the potential capacity to borrow. The debt analysis ratios show how well the debt is structured and managed. Debt levels per unit of productive capacity include some old standards that are still useful if used with measures of cash flow and repayment ability.

**Table 13.**

**FARM BALANCE SHEET ANALYSIS**  
**200 New York Dairy Farms, 2004**

Item	Average 200 Farms	Average Top 10% Farms <sup>17</sup>		
<u>Farm Financial Ratios:</u>				
Percent equity	60%	58%		
Debt/asset ratio: total	0.40	0.42		
long term	0.40	0.38		
intermediate & current	0.40	0.45		
Leverage Ratio:	0.67	0.73		
Current Ratio:	1.55	1.46		
Working Capital: \$119,321    Dollars as % of Total Expenses:	10%	\$207,576    9%		
<u>Farm Debt Analysis:</u>				
Accounts payable as % of total debt	4%	4%		
Long term liabilities as % of total debt	39%	30%		
Current & intermediate liabilities as % of total debt	61%	72%		
Cost of term debt (weighted average)	4.9%	4.3%		
<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	\$2,877	\$2,764	\$2,495	\$3,417
Long term debt	1,129	1,085	694	950
Intermediate & long term	2,241	2,153	1,826	2,501
Intermediate & current debt	1,747	1,679	1,801	2,467

<sup>17</sup>Average of 20 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**  
**200 New York Dairy Farms, 2004**

Item	Real Estate	Machinery & Equipment	Livestock
Value beginning of year	\$910,777	\$386,056	\$598,064
Purchases	\$74,254	\$81,972	
+ nonfarm noncash transfer <sup>19</sup>	254	879	
- Lost capital	19,204		
- Net sales	6,854	4,183	
- Depreciation	<u>39,712</u>	<u>57,894</u>	
= Net Investment	8,738	20,774	34,542
+ Appreciation	<u>42,668</u>	<u>20,931</u>	<u>24,170</u>
Value end of year	\$962,182	\$427,761	\$656,776

<sup>18</sup>\$18,088 land and \$56,166 buildings and/or depreciable improvements.

<sup>19</sup>Gifts and inheritances of property transferred into the farm business from outside.

The Statement of Owner Equity has two purposes. It allows (1) verification that the accrual income statement and market value balance sheet are consistent (in accountants' terms they reconcile) and (2) identification of the causes of change in equity that occurred on the farm during the year. The Statement of Owner Equity allows the farmer to determine to what degree the changes in equity were caused by (1) earning from the business, and nonfarm income, (in excess of withdrawals) being retained in the business (retained earnings), (2) outside capital being invested in the business or farm capital being removed from the business (called contributed/withdrawn capital) and (3) increases or decreases in the value (price) of assets owned by the business (called change in valuation equity).

Retained earnings are an excellent indicator of farm generated financial progress.

**Table 15.**

**STATEMENT OF OWNER EQUITY (RECONCILIATION)  
200 New York Dairy Farms, 2004**

Item	Average 200 Farms	Average Top 10% Farms <sup>21</sup>
Beginning of year farm net worth	\$1,248,235	\$1,668,185
Net farm income without appreciation	\$200,863	\$621,762
+ Nonfarm cash income	5,950	45
- Personal withdrawals & family expenditures and income taxes, excluding nonfarm borrowings	<u>71,375</u>	<u>124,698</u>
RETAINED EARNINGS	+ \$135,438	+ \$497,109
Nonfarm noncash transfers to farm	\$1,233	\$0
+ Cash used in business from nonfarm capital	13,271	21,818
- Note or mortgage from farm real estate sold (nonfarm)	<u>415</u>	<u>0</u>
CONTRIBUTED/WITHDRAWN CAPITAL	+ \$14,089	+ \$21,818
Appreciation	\$88,608	\$ 177,065
- Lost capital	<u>19,204</u>	<u>56,033</u>
CHANGE IN VALUATION EQUITY	+ \$69,404	+ \$121,033
IMBALANCE/ERROR	<u>- \$495</u>	<u>- \$ 4,014</u>
End of year farm net worth <sup>20</sup>	\$1,466,674	\$2,304,131
<u>Change in Net Worth</u>		
Without appreciation	\$129,828	\$458,881
With appreciation	\$218,436	\$635,946

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

<sup>21</sup>Average of 20 farms with highest rates of return to all capital (without appreciation).

### Cash Flow Summary and Analysis

Completing an annual cash flow statement is an important step in understanding and organizing the sources and uses of funds for the business. It is also a means useful in determining accuracy and completeness of the data. Understanding last year's cash flow is the first step toward planning and managing cash flow for the current and future years.

The annual cash flow statement is structured to show net cash provided by operating activities, investing activities, financing activities and from reserves. All cash inflows and outflows are included. Therefore the sum of net cash provided from all four activities should be zero. Any imbalance is the error from incorrect accounting of cash inflows/outflows.

**Table 16.**

#### ANNUAL CASH FLOW STATEMENT 200 New York Dairy Farms, 2004

Item	Average 200 Farms	
<u>Cash Flow from Operating Activities</u>		
Cash farm receipts	\$1,334,260	
- Cash farm expenses	1,113,802	
- Extraordinary expense	1,042	
= Net cash farm income		\$219,416
Personal withdrawals & family expenses including nonfarm debt payments	\$72,345	
- Nonfarm income	<u>5,950</u>	
- Net cash withdrawals from the farm		<u>\$66,395</u>
= Net Provided by Operating Activities		\$153,021
<u>Cash Flow From Investing Activities</u>		
Sale of assets: machinery	\$4,183	
+ real estate	6,439	
+ other stock & certificates	<u>2,854</u>	
= Total asset sales		\$13,476
Capital purchases: expansion livestock	\$18,428	
+ machinery	81,972	
+ real estate	74,254	
+ other stock & certificates	<u>6,489</u>	
- Total invested in farm assets		<u>\$181,142</u>
+ Net Provided by Investment Activities		\$-167,666
<u>Cash Flow From Financing Activities</u>		
Money borrowed (intermediate & long term)	\$122,169	
+ Money borrowed (short term)	2,130	
+ Increase in operating debt	0	
+ Cash from nonfarm capital used in business	13,271	
+ Money borrowed - nonfarm	<u>970</u>	
= Cash inflow from financing		\$138,540
Principal payments (intermediate & long term)	\$116,123	
+ Principal payments (short term)	2,867	
+ Decrease in operating debt	<u>3,232</u>	
- Cash outflow for financing		<u>\$122,221</u>
= Net Provided by Financing Activities		\$16,319
<u>Cash Flow From Reserves</u>		
Beginning farm cash, checking & savings		\$14,099
- Ending farm cash, checking & savings		<u>\$15,278</u>
= Net Provided from Reserves		\$-1,179
<u>Imbalance (error)</u>		\$495

Table 17.

**ANNUAL CASH FLOW DATA  
200 New York Dairy Farms, 2004**

Item	Average 200 Farms			Average Top 10% Farms <sup>23</sup>		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Average number of cows and cwt. milk		334	73,767		659	149,987
<u>Accrual Operating Receipts</u>						
Milk	\$1,227,754	\$3,673	\$16.64	\$2,507,015	\$3,807	\$16.71
Dairy cattle	88,045	263	1.19	235,889	358	1.57
Dairy calves	15,639	47	0.21	44,092	67	0.29
Other livestock	2,133	6	0.03	623	1	0.00
Crops	21,078	63	0.29	68,607	104	0.46
Miscellaneous receipts	45,566	136	0.62	76,844	117	0.51
Total	\$1,400,215	\$4,189	\$18.98	\$2,933,069	\$4,454	\$19.56
<u>Accrual Operating Expenses</u>						
Hired labor	\$196,925	\$589	\$2.67	\$371,123	\$564	\$2.47
Dairy grain & concentrate	336,036	1,005	4.56	648,535	985	4.32
Dairy roughage	22,500	67	0.31	61,755	94	0.41
Nondairy feed	224	1	0.00	61	0	0.00
Professional nutritional services	533	2	0.01	494	1	0.00
Machinery hire, rent & lease	20,845	62	0.28	46,878	71	0.31
Machinery repairs & vehicle expense	59,477	178	0.81	99,065	150	0.66
Fuel, oil & grease	30,132	90	0.41	47,952	73	0.32
Replacement livestock	11,581	35	0.16	39,263	60	0.26
Breeding	15,142	45	0.21	26,152	40	0.17
Vet & medicine	43,381	130	0.59	88,452	134	0.59
Milk marketing	53,023	159	0.72	97,570	148	0.65
Bedding	19,584	59	0.27	35,769	54	0.24
Milking supplies	24,393	73	0.33	49,121	75	0.33
Cattle lease	946	3	0.01	3,088	5	0.02
Custom boarding	25,991	78	0.35	46,816	71	0.31
bST expense	12,368	37	0.17	25,890	39	0.17
Livestock professional fees	3,400	10	0.05	6,368	10	0.04
Other livestock expense	6,941	21	0.09	7,159	11	0.05
Fertilizer & lime	21,857	65	0.30	40,766	62	0.27
Seeds & plants	17,943	54	0.24	27,898	42	0.19
Spray/other crop expense	12,550	38	0.17	24,074	37	0.16
Crop professional fees	2,087	6	0.03	3,939	6	0.03
Land, building & fence repair	15,611	47	0.21	25,319	38	0.17
Taxes	16,369	49	0.22	24,352	37	0.16
Real estate rent & lease	17,858	53	0.24	48,979	74	0.33
Insurance	11,677	35	0.16	25,287	38	0.17
Utilities	26,770	80	0.36	41,219	63	0.27
Miscellaneous	13,733	41	0.19	26,908	41	0.18
Total Less Interest Paid	\$1,039,876	\$3,111	\$14.10	\$1,990,253	\$3,022	\$13.27
<u>Net Accrual Operating Income</u>						
(without interest paid)	\$360,339	\$1,078	\$4.88	\$942,817	\$1,432	\$6.29
- Change in livestock & crop inventory	46,769	140	0.63	189,015	287	1.26
- Change in accounts receivable	19,187	57	0.26	71,323	108	0.48
- Change in feed & supply inventory	21,657	65	0.29	65,805	100	0.44
+ Change in accounts payable <sup>22</sup>	-9,892	-30	-0.13	-52,045	-79	-0.35
NET CASH FLOW	\$262,835	\$786	\$3.56	\$564,629	\$857	\$3.76
- Net personal withdrawals & family exp.	65,425	196	0.89	124,653	189	0.83
Available for Farm Debt Payments & Invest.	\$197,410	\$590	\$2.68	\$439,975	\$668	\$2.93
- Farm debt payments	187,969	562	2.55	385,902	586	2.57
Cash available for Farm Investments	\$9,441	\$28	\$0.13	\$54,075	\$82	\$0.36

<sup>22</sup>Exclude change in interest account payable.<sup>23</sup>Average of 20 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 2003 and 2004.

**Table 18.**

#### FARM DEBT PAYMENTS PLANNED Same 174 New York Dairy Farms, 2003 & 2004

Debt Payments	Same 174 Dairy Farms			Same 18 Top 10% Farms		
	2004 Payments		Planned	2004 Payments		Planned
	Planned	Made	2005	Planned	Made	2005
Long term	\$49,013	\$56,262	\$52,607	\$63,135	\$81,325	\$57,997
Intermediate term	100,102	109,381	108,622	217,588	231,365	224,929
Short term	3,455	2,952	2,040	10,212	10,365	3,833
Operating (net reduction)	4,902	14,232	5,119	6,184	30,319	6,667
Accts. payable (net reduction)	<u>1,472</u>	<u>14,275</u>	<u>1,802</u>	<u>3,000</u>	<u>51,594</u>	<u>2,222</u>
Total	\$158,943	\$197,102	\$170,189	\$300,119	\$404,968	\$295,648
Per cow	\$453	\$561		\$426	\$574	
Per cwt. 2004 milk	\$2.04	\$2.53		\$1.86	\$2.51	
% of 2004 milk receipts	12%	15%		11%	15%	

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

**Table 19.**

#### COVERAGE RATIOS Same 174 New York Dairy Farms, 2003 & 2004

Item	Average	Item	Average
<u>Cash Flow Coverage Ratio</u>		<u>Debt Coverage Ratio</u>	
Cash farm receipts	\$1,408,934	Net farm income (without apprec.)	\$213,728
- Cash farm expenses	1,176,476	+ Depreciation	102,050
+ Interest paid (cash)	43,964	+ Interest paid (accrual)	43,861
- Net personal withdrawals from farm <sup>24</sup>	<u>68,892</u>	- Net personal withdrawals from farm <sup>24</sup>	<u>68,891</u>
(A) = Amount Available for Debt Service	\$207,530	(A') = Repayment Capacity	\$290,747
(B) = Debt Payments Planned for 2004 (as of December 31, 2003)	\$158,943	(B) = Debt Payments Planned for 2004 (as of December 31, 2003)	\$158,943
(A/B) = Cash Flow Coverage Ratio for 2004	1.31	(A'/B) = Debt Coverage Ratio for 2004	1.83
-----			
Same 18 Top 10% Dairy Farms, 2003 & 2004			
(A) = Amount Available for Debt Service	\$476,383	(A') = Repayment Capacity	\$786,103
(B) = Debt Payments Planned for 2004	300,119	(B) = Debt Payments Planned for 2004	300,119
(A/B) = Cash Flow Coverage Ratio for 2004	1.59	(A'/B) = Debt Coverage Ratio for 2004	2.62

<sup>24</sup>Personal withdrawals and family expenditures less nonfarm income and nonfarm money borrowed. If excluded, the coverage ratios will represent repayment ability of the farm only.

The debt to asset ratio is a good measure of the current relationship between assets and liabilities, but not the business' ability to meet cash flow obligations. Even with a debt to asset ratio of less than 40 percent, 28 percent of the farms had a cash flow coverage ratio less than 1.0.

**Table 20.**

#### DEBT TO ASSET RATIO VS. CASH FLOW COVERAGE 174 New York Dairy Farms, 2004

Debt/Asset Ratio	Cash Flow Coverage Ratio (Farm & Nonfarm)			
	<.5	.5 to .99	1 to 1.49	>=1.5
	percent of farms			
<40%	6.9	10.3	13.8	30.5
40 to 70%	5.2	9.8	14.4	6.3
70% & over	0.0	0.6	1.7	0.6

### 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 200 New York Dairy Farms, 2004**

Item	Average 200 Farms			Average Top 10% Farms <sup>25</sup>		
	<u>Owned</u>	<u>Rented</u>	<u>Total</u>	<u>Owned</u>	<u>Rented</u>	<u>Total</u>
<u>Land</u>						
Tillable	356	345	701	495	661	1,156
Nontillable pasture	47	14	61	46	6	52
Other nontillable	<u>142</u>	<u>6</u>	<u>148</u>	<u>155</u>	<u>20</u>	<u>175</u>
Total	545	365	910	696	687	1,383
<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	192	353	3.5 tn DM	18	625	3.5 tn DM
Corn silage	171	286	17.7 tn 5.8 tn DM	17	501	18.7 tn 6.2 tn DM
Other forage	9	36	1.3 tn DM	2	30	2.0 tn DM
Total forage	192	609	4.5 tn DM	18	1,101	4.7 tn DM
Corn grain	70	155	130 bu	7	260	144 bu
Oats	16	36	52 bu	0	0	0 bu
Wheat	20	69	56 bu	2	93	59 bu
Other crops	35	97		4	96	
Tillable pasture	54	66		3	205	
Idle	77	47		6	50	

<sup>25</sup>Average of 20 farms with highest rates of return to all capital (without appreciation).

Crop acres and yields are the average for the farms reporting each crop. All but 8 of the 200 farms produced hay or hay crop silage in 2004. Eighty-nine percent produced corn silage, 35 percent grew and harvested corn grain, and 8 percent grew oats for grain. Although 54 farms used tillable pasture in 2004, only 28 farms reported using rotational grazing.

Yields of forage crops have been converted to tons of dry matter using dry matter coefficients reported by the farmers. Grain production has been converted to bushels of dry grain equivalent.

Crop acres represent planted acres, therefore, any unharvested acres are reflected in lower yields per acre.

The following measures of crop management indicate how effectively the land resource is being used and how well total forage requirements are being met. These measures are the averages of farms that grow forages.

**Table 22.**

#### **CROP MANAGEMENT FACTORS 200 New York Dairy Farms, 2004**

Item	Average 200 Farms	Average Top 10% Farms <sup>26</sup>
Total tillable acres per cow	2.15	1.90
Total forage acres per cow	1.80	1.65
Harvested forage dry matter, tons per cow	8.05	7.69

<sup>26</sup>Average of 20 farms with highest rates of return to all capital (without appreciation).

Thirty-nine cooperators allocated direct crop related expenses to hay crop and corn. The data in Table 23 have been compiled to show the average crop related production expenses per acre and per unit for these crops. Note that labor and machinery costs have not been included. Total corn expenses are allocated to corn silage and corn grain based on the proportion of acres in each crop. In Table 23, the total per tillable acre represents all 200 farms, the expenses for hay are for 38 farms and corn crops are for 39 farms.

**Table 23.**

**CROP RELATED ACCRUAL EXPENSES**  
**New York Dairy Farms, 2004**

Expenses	Average 200 Farms	Average 38 Farms		Average 39 Farms		
	Total per Tillable Acre	Hay Crop		All Corn Per Acre	Corn Silage Per Ton DM	Corn Grain Per Dry Shell Bu.
		Per Acre	Per Ton DM			
Fertilizer & lime	\$31.18	\$25.52	\$8.21	\$49.07	\$9.85	\$0.18
Seeds & plants	25.60	11.41	3.62	36.03	6.46	0.11
Spray & other crop exp.	<u>17.90</u>	<u>10.41</u>	<u>3.42</u>	<u>39.28</u>	<u>7.41</u>	<u>0.13</u>
Total	\$74.68	\$47.34	\$15.25	\$124.38	\$23.72	\$0.42
Ave. Top 10% Farms: <sup>27</sup>	Average 20 Farms	-----None Reported-----				
Fertilizer & lime	\$35.27	-----None Reported-----				
Seeds & plants	24.14	-----None Reported-----				
Spray & other crop exp.	<u>20.83</u>	-----None Reported-----				
Total	\$80.24	-----None Reported-----				

<sup>27</sup>Average of farms with highest rates of return to all capital (without appreciation).

Most machinery costs are associated with crop production and should be analyzed with the crop enterprise. Total machinery expenses include the major fixed costs (interest and depreciation), as well as the accrual operating costs. Machinery costs have not been allocated to individual crops, but they are calculated per total tillable acre.

**Table 24.**

**ACCRUAL MACHINERY EXPENSES**  
**192 New York Dairy Farms That Grow Forages, 2004**

Machinery Expense Item	Average 192 Farms		Average Top 10% Farms <sup>28</sup>	
	Total Expenses	Per Tillable Acre	Total Expenses	Per Tillable Acre
Fuel, oil & grease	\$30,865	\$42.45	\$50,607	\$39.85
Machinery repairs & vehicle expense	60,783	83.60	102,160	80.44
Machine hire, rent & lease	20,688	28.45	42,552	33.51
Interest (5%)	20,938	28.80	33,548	26.42
Depreciation	<u>59,172</u>	<u>81.38</u>	<u>96,338</u>	<u>75.86</u>
Total	\$192,446	\$264.68	\$325,205	\$256.08

<sup>28</sup>Average of 20 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, 2004**

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	2.0	2.8	3.2	4.3
Farms reporting crop expense breakdowns	12	4	11	11
Average number hay crop acres for farms reporting	288	377	451	372
<u>Accrual Crop Expenses Per Acre of Hay Crop:</u>				
Fertilizer & lime	\$17.13	\$23.94	\$30.77	\$30.74
Seeds & plants	6.67	9.50	12.64	15.18
Spray & other crop expenses	<u>6.43</u>	<u>4.55</u>	<u>18.56</u>	<u>7.77</u>
Total	\$30.23	\$37.99	\$61.97	\$53.69
<u>Accrual Crop Expense Per Ton DM of Hay Crop:</u>				
Fertilizer & lime	\$8.11	\$8.61	\$9.51	\$7.54
Seeds & plants	3.23	3.49	3.85	3.64
Spray & other crop expenses	<u>3.02</u>	<u>1.71</u>	<u>5.72</u>	<u>1.87</u>
Total	\$14.36	\$13.81	\$19.08	\$13.05

**Table 26.**

**CROP RELATED ACCRUAL EXPENSES BY CORN PRODUCTION PER ACRE  
39 New York Dairy Farms, 2004**

Item	Tons Corn Silage/Acre			Dry Shelled Bushels of Corn Grain Per Acre		
	<14	14-19	≥19	<100	100-140	≥140
Corn yield per acre	10.3	17.1	21.7	75	120	153
Farms reporting crop expense breakdowns	9	19	11	4	4	8
Average number corn acres for farms reporting	111	269	272	177	124	143
<u>Accrual Crop Expense/Acre of Corn</u>						
Fertilizer & lime	\$69.43	\$39.26	\$51.68	\$41.67	\$70.74	\$50.16
Seeds & plants	19.72	40.42	44.12	22.78	33.14	40.78
Spray & other crop expenses	<u>32.20</u>	<u>41.50</u>	<u>40.29</u>	<u>38.62</u>	<u>27.58</u>	<u>40.80</u>
Total	\$121.35	\$121.18	\$136.09	\$103.07	\$131.44	\$131.74
<u>Accrual Crop Expense Per:<sup>29</sup></u>						
	Ton DM of Corn Silage			Dry Shell Bushel of Corn Grain		
Fertilizer & lime	\$20.32	\$6.96	\$7.16	\$0.56	\$0.63	\$0.32
Seeds & plants	5.97	7.16	6.23	0.30	0.28	0.26
Spray & other crop expense	<u>10.42</u>	<u>7.32</u>	<u>5.79</u>	<u>0.55</u>	<u>0.22</u>	<u>0.26</u>
Total	\$36.71	\$21.44	\$19.18	\$1.41	\$1.13	\$0.84

<sup>29</sup>Total corn expenses are allocated to corn silage and corn grain based on the proportion of acres in each crop.

It is important to observe that as hay crop yields per acre increase, crop related expenses per acre generally increased. Hay crop expenses per ton of dry matter varied as yields increased. However, the highest cost per ton of dry matter is reported for the 3.0 to 3.4 tons per dry matter yield. For corn silage, crop expense per ton of dry matter is lowest at the high level of production. Corn grain shows the highest cost per acre for the high yield, with the high yield category producing the lowest cost per bushel. A limited number of cooperators providing data by crop limits the strengths of these conclusions.

### Dairy Program Analysis

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

**Table 27.**

#### DAIRY HERD INVENTORY 200 New York Dairy Farms, 2004

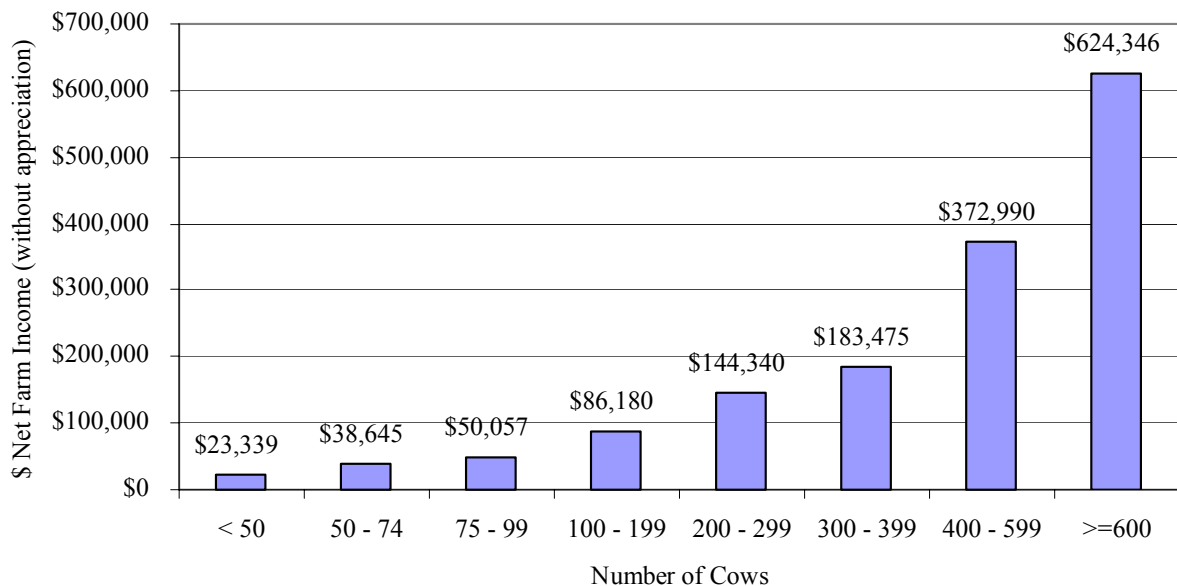
Item	Dairy Cows		Heifers					
	No.	Value	Bred		Open		Calves	
			No.	Value	No.	Value	No.	Value
Beg. year (owned)	319	\$389,721	93	\$107,738	89	\$67,022	70	\$30,643
+ Change w/o apprec.		23,946		6,134		2,487		2,128
+ Appreciation		<u>15,204</u>		<u>4,429</u>		<u>2,735</u>		<u>1,544</u>
End year (owned)	339	\$428,871	98	\$118,301	91	\$72,243	75	\$34,314
End including leased	342							
Average number	334		260	(all age groups)				
<u>Average Top 10% Farms:<sup>30</sup></u>								
Beg. year (owned)	596	\$719,854	161	\$190,309	123	\$95,662	144	\$63,896
+ Change w/o apprec.		90,845		20,173		14,136		9,664
+ Appreciation		<u>37,116</u>		<u>2,586</u>		<u>1,269</u>		<u>2,876</u>
End year (owned)	671	\$847,815	179	\$213,068	142	\$111,066	162	\$76,436
End including leased	678							
Average number	659		454	(all age groups)				

<sup>30</sup>Average of 20 farms with highest rates of return to all capital (without appreciation).

Historically, there has been a strong relationship between farm size and net farm income on well-managed dairy farms. In 2004, there was a consistent increase in net farm incomes as herd size increased (Chart 5). Herds less than 200 cows had net farm incomes less than 100 thousand dollars. Larger farms had considerably larger incomes. For more information on herd size comparisons, see pages 48-57.

**Chart 5.**

#### NET FARM INCOME (WITHOUT APPRECIATION) BY HERD SIZE 200 New York Dairy Farms, 2004



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  
200 New York Dairy Farms, 2004**

Item	Average 200 Farms	Average Top 10% Farms <sup>31</sup>
Total milk sold, lbs.	7,376,658	14,998,681
Milk sold per cow, lbs.	22,070	22,775

<sup>31</sup>Average of 20 farms with highest rates of return to all capital (without appreciation).

Farms with higher rates of production tend to have higher net farm income. This is due to more cows per farm, not necessarily higher net farm income per cow. In 2004, farms with higher milk production per cow and more cows had higher labor and management incomes per operator.

**Table 29.**

**MILK SOLD PER COW AND FARM INCOME MEASURES  
200 New York Dairy Farms, 2004**

Pounds of Milk Sold Per Cow	Number of Farms	Average Number of Cows	Net Farm Income without Appreciation	Net Farm Income Per Cow	Labor & Management Income/Operator
Under 16,000	30	135	\$50,619	\$376	\$5,871
16,000 to 16,999	13	118	57,657	490	14,164
17,000 to 17,999	10	113	66,042	587	20,914
18,000 to 18,999	13	94	65,243	692	20,171
19,000 to 19,999	12	164	76,835	469	20,203
20,000 to 20,999	22	369	168,546	457	56,540
21,000 to 21,999	32	295	184,404	625	75,056
22,000 to 22,999	26	386	233,625	606	73,583
23,000 to 23,999	17	794	338,990	427	124,095
24,000 & over	25	636	561,116	883	226,751

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 200 farms.

Historically, net farm income per cow has increased as pounds of milk sold per cow increased. This relationship did not hold in 2004 (see Table 29 and Charts 6 and 7). As pounds of milk sold per cow increases, net farm income without appreciation and labor and management income per operator increases. Net farm income per cow does trend higher as milk sold per cow increases, but the relationship with milk production is not as strong.

The trend lines on charts on the following pages were completed using regression techniques. The predictive formulas and  $R^2$  are presented for each relationship. An  $R^2$  of 1.00 indicates a perfect relationship between the data and the trend line. An  $R^2$  of .30 for example, is interpreted as the trend line explaining 30% of the variability in the relationship. The higher the  $R^2$ , the better the trend line fits the data. With a low  $R^2$ , other factors, not measured, are important in explaining the relationship. The very low  $R^2$  value for Chart 7 indicates that there is little statistical relationship in the 2004 data.

Chart 6.

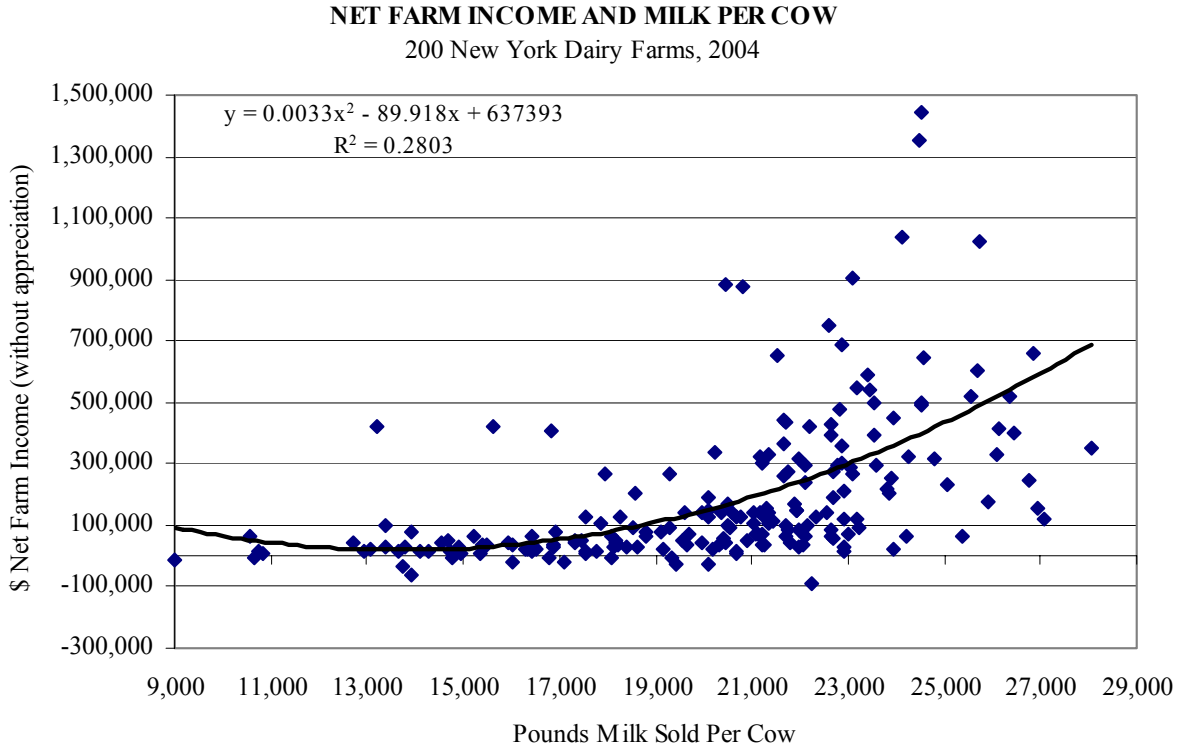
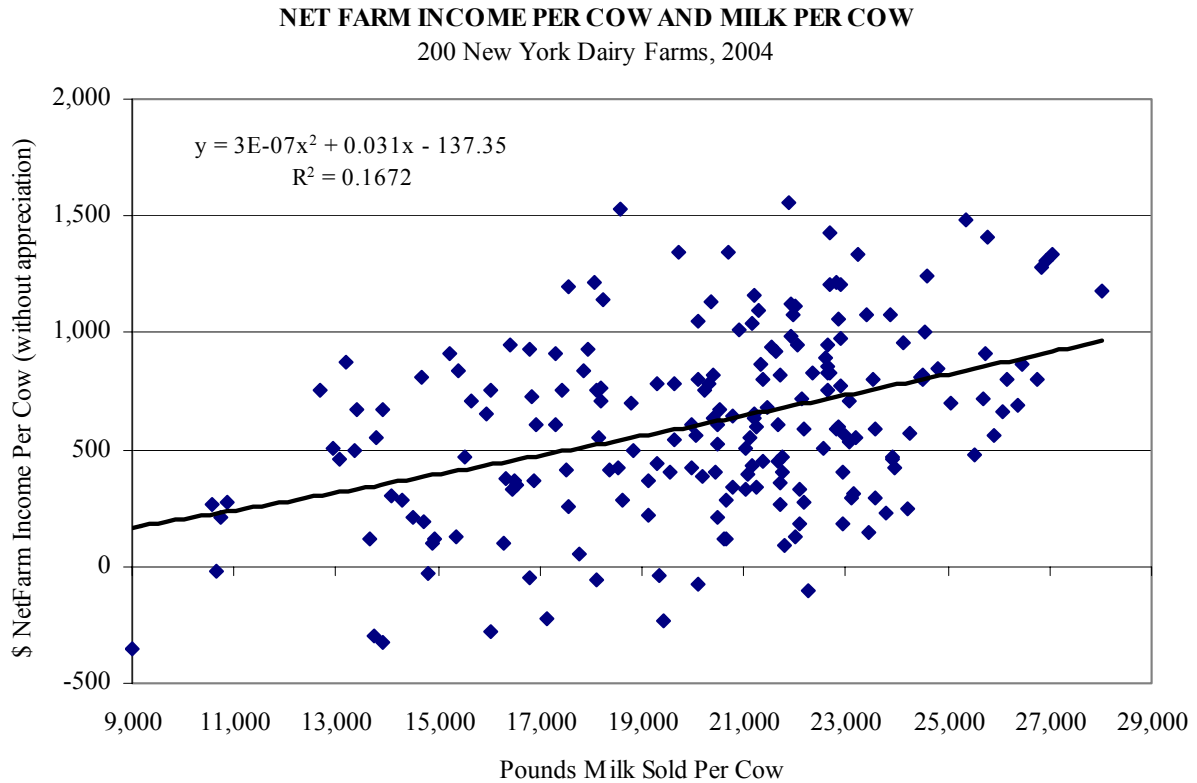


Chart 7.



Charts 8 and 9 look at relationships between cull rates and milk production and net farm income per cow. For the 2004 year, supplementary information concerning dairy replacements was collected from 51 participating farms. The culling chart (Table 30) reports the decile range of reported factors for the different information that was collected. The average culling rate was 31.6 percent, sell rate was 25.9 percent, and death rate was 5.7 percent. The average number of cows sold for beef equaled 87, three cows were sold for dairy, and 19 cows died. Please refer to the glossary for definitions of the different terms and how the measures were calculated.

Chart 8.

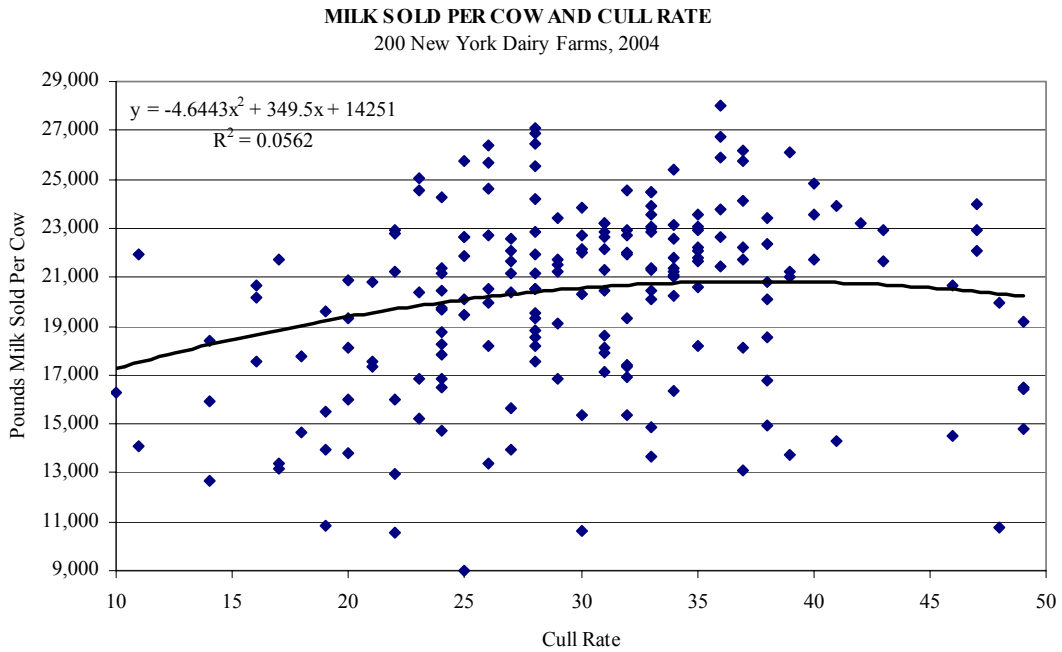


Chart 9.

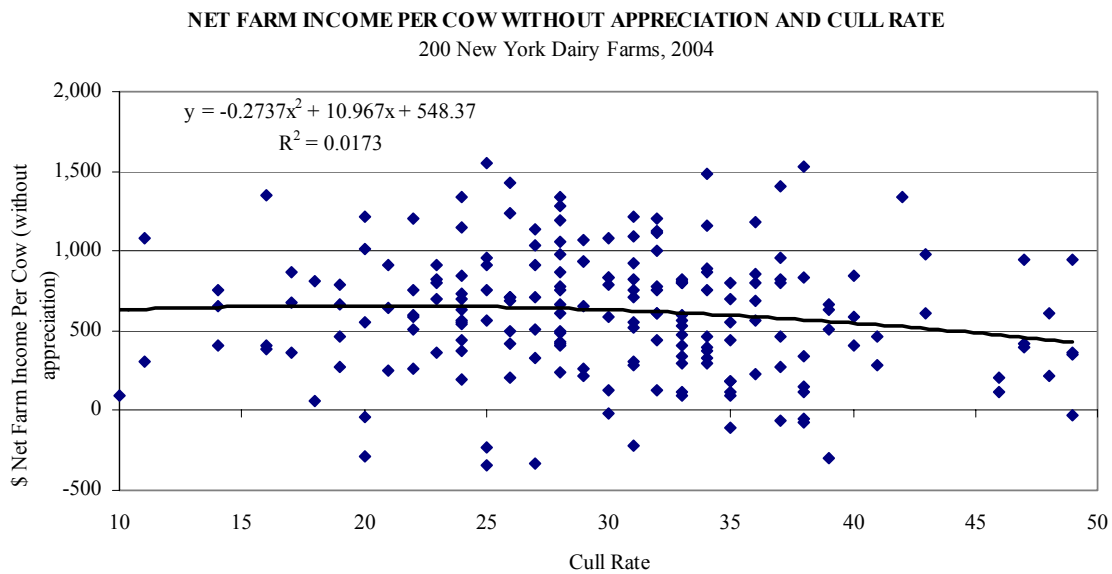


Table 30.

**CULLING RATE AND DAIRY REPLACEMENT INFORMATION**  
**New York Dairy Farms, 2004**

Decile	Sell Rate	Death Rate	Cull Rate	Value of		Percent of Replacements		Percent of Heifers	
				Value of Cows Sold	Value of Animals Purchased	Purchased	Being Custom Raised		
-----200 Farms <sup>32</sup> -----				\$/head (61 Farms)		----- 51 Farms <sup>32</sup> -----			
1	8%	1%	14%	\$293	\$590	0%		0%	
2	16	2	21	423	1,188	0		0	
3	19	3	24	494	1,324	0		0	
4	22	4	27	539	1,461	0		0	
5	24	5	29	583	1,545	0		0	
6	25	5	31	611	1,626	0		12	
7	27	6	33	638	1,772	1		27	
8	29	7	35	695	1,916	6		48	
9	32	9	38	838	2,110	28		77	
10	39	14	45	1,457	3,200	84		98	

<sup>32</sup>All 200 participating farms provided culling information. Fifty-one farms provided supplemental information on heifer acquisitions.

**Cost of Producing Milk**

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

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

**Table 31.**

**COST OF PRODUCING MILK, WHOLE FARM METHOD  
200 New York Dairy Farms, 2004**

Item	Average 200 Farms	Average Top 10% Farms <sup>33</sup>
Total Accrual Operating Expenses	\$1,082,164	\$2,063,860
Expansion Livestock, Accrual	+ 18,438	+ 84,850
1. Total Accrual Operating Expenses, Including Expansion Livestock	\$1,100,602	\$2,148,710
Total Accrual Receipts	\$1,400,215	\$2,933,069
Milk Sales, Accrual	<u>-1,227,754</u>	<u>-2,507,015</u>
2. Total Accrual Nonmilk Receipts	<u>- \$172,461</u>	<u>-\$426,054</u>
3. Operating Cost of Producing Milk	\$928,141	\$1,722,656
Machinery Depreciation	+ 57,894	+ 92,255
Building Depreciation	+ 39,712	+ 70,343
Extraordinary Expense	<u>+ 1,143</u>	<u>+ 0</u>
4. Purchased Inputs Cost of Producing Milk	\$1,026,890	\$1,885,254
Family Labor Unpaid (\$2,200/month)	+ 4,971	+ 2,596
Real Interest on Equity Capital	+ 67,873	+ 99,308
Value of Operator's Labor & Management	<u>+ 61,647</u>	<u>+ 85,150</u>
5. Total Costs of Producing Milk	\$1,161,381	\$2,072,308
6. Costs Per Cwt.:		
Cwt. Milk Sold	73,767	149,987
Operating Cost Per Cwt.	\$12.58	\$11.49
Purchased Inputs Cost Per Cwt.	\$13.92	\$12.57
Total Cost Per Cwt.	\$15.74	\$13.82

<sup>33</sup>Average of 20 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 \$12,327 average increase in crop inventories per farm, (\$0.17 per hundredweight of milk), is included in crop sales on the 200 farms. The top 10 percent farms had a \$54,114 average increase in crop inventories per farm (\$0.36 per hundredweight of milk).

**Table 32.**

**ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT  
BASED ON WHOLE FARM DATA  
200 New York Dairy Farms, 2004**

Item	Average 200 Farms	Average Top 10% Farms <sup>35</sup>
Dairy grain and concentrate	\$4.56	\$4.32
Dairy roughage	0.31	0.41
Nondairy feed	0.00	0.00
Professional nutritional services	<u>0.01</u>	<u>0.00</u>
Total feed expense	\$4.88	\$4.73
Crop expense	0.74	0.65
- Crop sales and government receipts <sup>34</sup>	<u>0.64</u>	<u>0.76</u>
Net Feed and Crop Expense	\$4.98	\$4.62
Hired labor	2.67	2.47
Operator's and family labor	<u>0.90</u>	<u>0.59</u>
Total Labor Expense	\$3.57	\$3.06
Machine repairs, fuel and hire	1.50	1.29
Machinery depreciation	0.78	0.62
- Gas tax refunds and custom work	<u>0.06</u>	<u>0.05</u>
Net Machinery Expense	\$2.22	\$1.86
Replacement and expansion cattle purchases	0.41	0.83
- Sales and inventory growth	<u>1.43</u>	<u>1.87</u>
Net Cattle Purchases	\$-1.02	\$-1.04
Milk marketing costs	0.72	0.65
All other livestock expense excluding purchases	<u>2.07</u>	<u>1.92</u>
Net Livestock Expense	\$2.79	\$2.57
Real estate repairs, rent and taxes	0.67	0.66
Building depreciation	<u>0.54</u>	<u>0.47</u>
Total Real Estate Expense	\$1.21	\$1.13
Interest paid	0.57	0.49
Interest on equity	<u>0.92</u>	<u>0.66</u>
Total Interest Expense	\$1.49	\$1.15
Other operating and miscellaneous expenses	0.71	0.62
- Miscellaneous income	<u>0.21</u>	<u>0.16</u>
Net Miscellaneous Expenses	<u>\$ 0.50</u>	<u>\$0.46</u>
Total Cost of Producing Milk	\$15.74	\$13.82
Purchased Inputs Cost	\$13.92	\$12.57
Total Operating Cost	\$12.58	\$11.49

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

<sup>35</sup>Average of 20 farms with highest rates of return to all capital (without appreciation).

Costs of producing milk per hundredweight are presented in the table below for 174 farms that participated both in 2003 and 2004. Costs of production increased in all categories except net cattle purchases when 2004 data are compared to 2003.

**Table 33.**

**ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT  
BASED ON WHOLE FARM DATA  
Same 174 New York Dairy Farms, 2003 & 2004**

Item	2003	2004	Percent Change
Dairy grain and concentrate	\$4.00	\$4.55	13.8%
Dairy roughage	0.29	0.30	3.5
Nondairy feed	0.00	0.02	
Professional nutritional services	<u>0.02</u>	<u>0.01</u>	
Total feed expense	\$4.31	\$4.88	13.2
Crop expense	0.67	0.73	
- Crop sales and government receipts <sup>36</sup>	<u>0.81</u>	<u>0.62</u>	
Net Feed and Crop Expense	\$4.17	\$4.99	19.7%
Hired labor	2.54	2.68	
Operator's and family labor	<u>0.89</u>	<u>0.87</u>	
Total Labor Expense	\$3.43	\$3.55	3.5%
Machine repairs, fuel and hire	1.25	1.47	
Machinery depreciation	0.70	0.77	
- Gas tax refunds and custom work	<u>0.06</u>	<u>0.06</u>	
Net Machinery Expense	\$1.89	\$2.18	15.3%
Replacement and expansion cattle purchases	0.44	0.42	
- Sales and inventory growth	<u>1.22</u>	<u>1.44</u>	
Net Cattle Purchases	\$-0.78	\$-1.02	-30.8%
Milk marketing costs	0.69	0.73	
All other livestock expense excluding purchases	<u>2.05</u>	<u>2.10</u>	
Net Livestock Expense	\$2.74	\$2.83	3.3%
Real estate repairs, rent and taxes	0.60	0.67	
Building depreciation	<u>0.53</u>	<u>0.54</u>	
Total Real Estate Expense	\$1.13	\$1.21	7.1%
Interest paid	0.55	0.56	
Interest on equity	<u>0.84</u>	<u>0.91</u>	
Total Interest Expense	\$1.39	\$1.47	5.8%
Other operating and miscellaneous expenses	0.65	0.71	
- Miscellaneous income	<u>0.18</u>	<u>0.21</u>	
Net Miscellaneous Expenses	<u>\$0.47</u>	<u>\$0.50</u>	6.4%
Total Cost of Producing Milk	\$14.47	\$15.67	8.3%
Purchased Inputs Cost	\$12.74	\$13.90	9.1%
Total Operating Cost	\$11.49	\$12.57	9.4%
Average Price Received for Milk	\$13.31	\$16.64	25.0%

<sup>36</sup>Non-crop related government payments may bias the results.

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

**Table 34.**

**COST OF PRODUCING MILK, ACCRUAL RECEIPTS FROM DAIRY, AND PROFITABILITY  
200 New York Dairy Farms, 2004**

Item	Average 200 Farms			Average Top 10% Farms <sup>37</sup>		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
<u>Accrual Cost of Producing Milk</u>						
Operating Cost	\$928,141	\$2,777	\$12.58	\$1,722,655	\$2616	\$11.49
Purchased Inputs Cost	1,026,890	3,072	13.92	1,885,253	2,863	12.57
Total Cost	1,161,381	3,475	15.74	2,072,307	3,147	13.82
<u>Accrual Receipts from Milk</u>						
Net Milk Receipts	\$1,227,754	\$3,673	\$16.64	\$2,507,015	\$3,807	\$16.71
	1,174,731	3,239	15.92	2,409,445	3,558	16.06
<u>Profitability</u>						
Net Farm Income without Appreciation	\$200,863	\$601	\$2.72	\$621,762	\$944	\$4.15
Net Farm Income with Appreciation	\$289,471	\$866	\$3.92	\$798,827	\$1,213	\$5.33

<sup>37</sup>Average of 20 farms with highest rates of return to all capital (without appreciation).

The operating cost of producing milk on all 200 dairy farms averaged \$12.58 per hundredweight, leaving \$3.34 to cover depreciation, unpaid labor and operator resources.

The total cost of producing milk on all 200 dairy farms averaged \$15.74 per hundredweight, \$0.90 less than the average price received for milk sold from these farms during 2004. The imputed costs or charge for the operator's labor, management and equity capital averaged \$1.76 per hundredweight in 2004. But the farmer received \$2.65 per hundredweight for these inputs. The 20 most profitable farms held their operating costs to \$11.49 per hundredweight and their total cost of producing milk averaged \$13.82 per hundredweight. This left a profit of \$2.89 per hundredweight of milk sold.

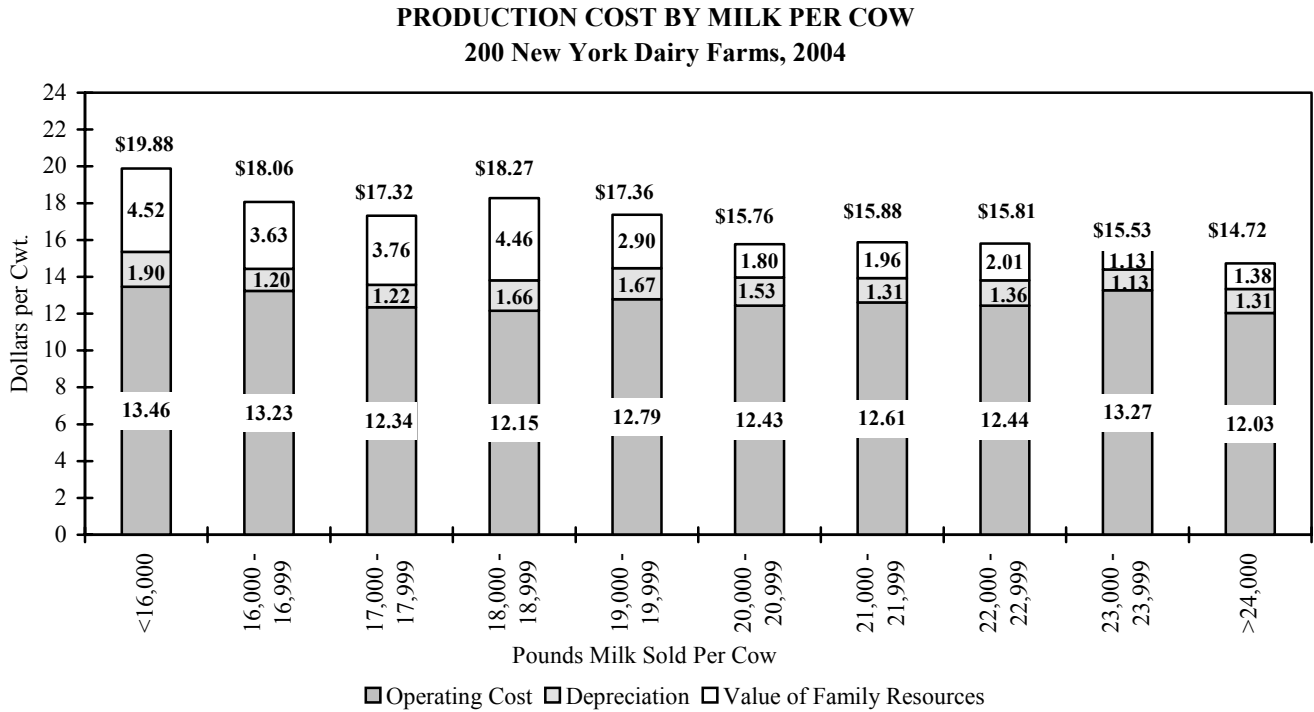
The strong relationship between milk output per cow and the total cost of producing milk is shown in Table 35 and Chart 10 on page 34. Farms selling less than 19,000 pounds of milk per cow had average total costs of production of \$18.38 per hundredweight while those selling 19,000 pounds and over averaged \$15.84 for a difference of \$2.54 per hundredweight.

**Table 35.**

**FARM COST OF PRODUCING MILK BY MILK SOLD PER COW  
200 New York Dairy Farms, 2004**

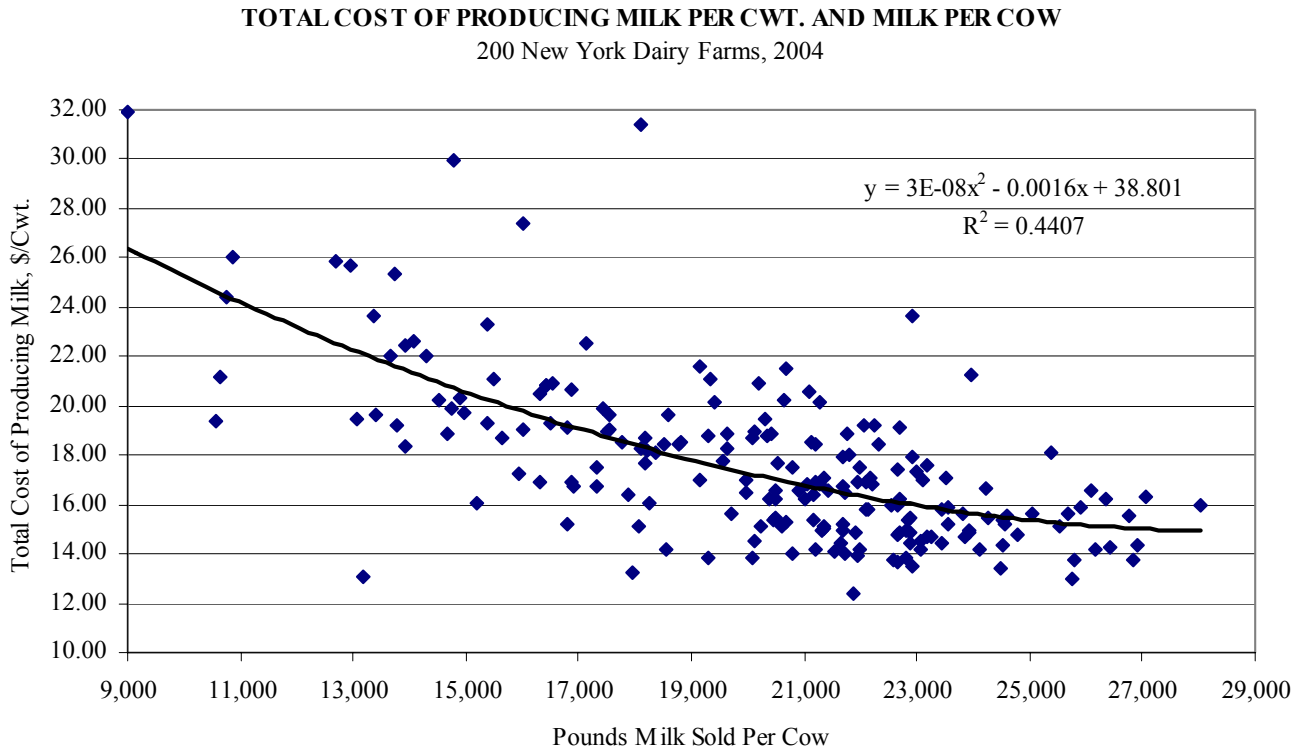
Pounds Milk Sold Per Cow	Costs per Hundredweight					Accrual Receipts From Milk Per Cwt.	Return Per Cwt. To Operator's Labor, Mgmt. & Capital
	Operating Costs		Costs of Producing Milk				
	Hired Labor	Dairy Grain & Concentrate	Total Operating	Purchased Inputs	Total		
Under 16,000	\$1.91	\$5.26	\$13.46	\$15.36	\$19.88	\$18.11	\$2.26
16,000-16,999	2.01	4.37	13.23	14.43	18.06	17.38	2.56
17,000-17,999	1.72	4.18	12.34	13.56	17.32	16.89	3.08
18,000-18,999	1.59	4.16	12.15	13.81	18.27	17.56	3.32
19,000-19,999	1.91	4.60	12.79	14.46	17.36	16.87	2.32
20,000-20,999	2.56	4.34	12.43	13.96	15.76	16.19	2.19
21,000-21,999	2.39	4.56	12.61	13.92	15.88	16.82	2.83
22,000-22,999	2.77	4.71	12.44	13.80	15.81	16.49	2.66
23,000-23,999	3.20	4.56	13.27	14.40	15.53	16.22	1.79
24,000 & over	2.71	4.50	12.03	13.34	14.72	16.83	3.47

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 attributable to spreading fixed costs over more units of output.

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

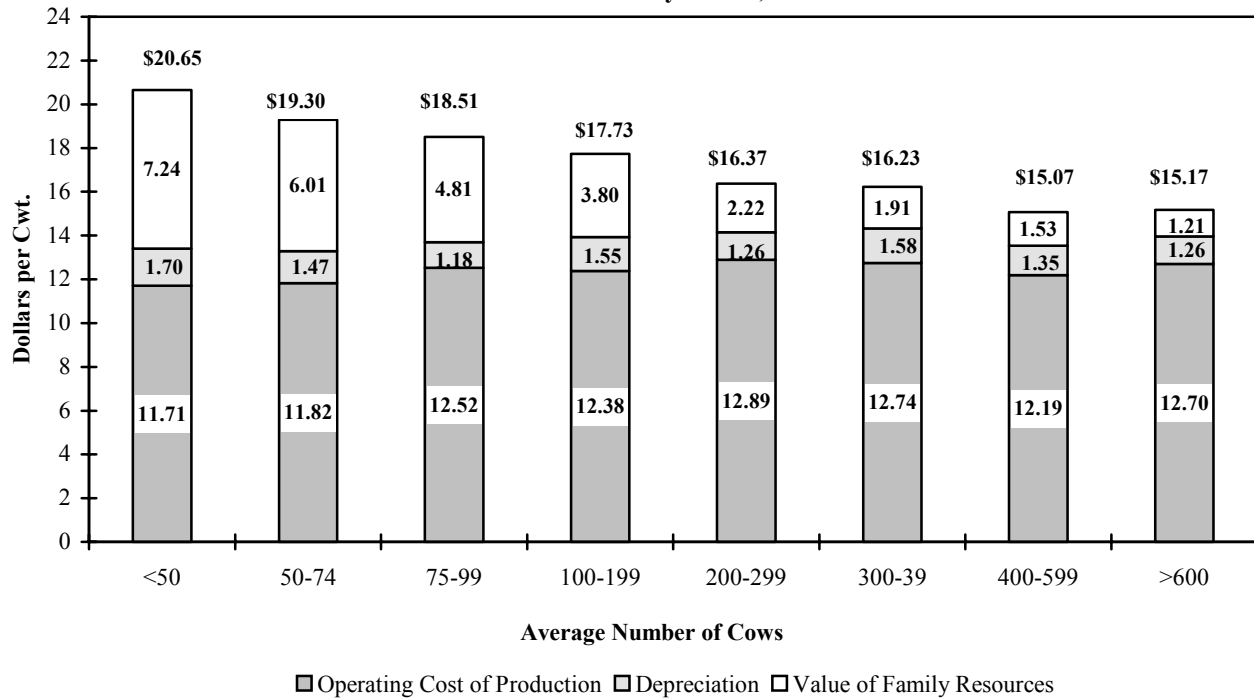
**Table 36.**

**FARM COST OF PRODUCING MILK BY HERD SIZE  
200 New York Dairy Farms, 2004**

Number of Cows	Costs per Hundredweight					Accrual Receipts From Milk	Return Per Cwt. To Operator's Labor, Mgmt. & Capital
	Operating Costs		Costs of Producing Milk				
	Hired Labor	Dairy Grain & Concentrate	Total Operating	Purchased Inputs	Total		
Under 50	\$0.61	\$4.77	\$11.71	\$13.41	\$20.65	\$16.73	\$2.38
50 to 74	0.64	4.49	11.82	13.29	19.30	16.89	2.73
75 to 99	1.38	4.91	12.52	13.70	18.51	16.90	2.41
100 to 199	2.09	4.53	12.38	13.93	17.73	17.14	3.10
200 to 299	2.18	4.60	12.89	14.15	16.37	16.92	2.68
300 to 399	2.64	4.74	12.74	14.32	16.23	16.81	2.46
400 to 599	2.69	4.19	12.19	13.54	15.07	16.90	3.35
600 and over	2.98	4.61	12.70	13.96	15.17	16.41	2.44

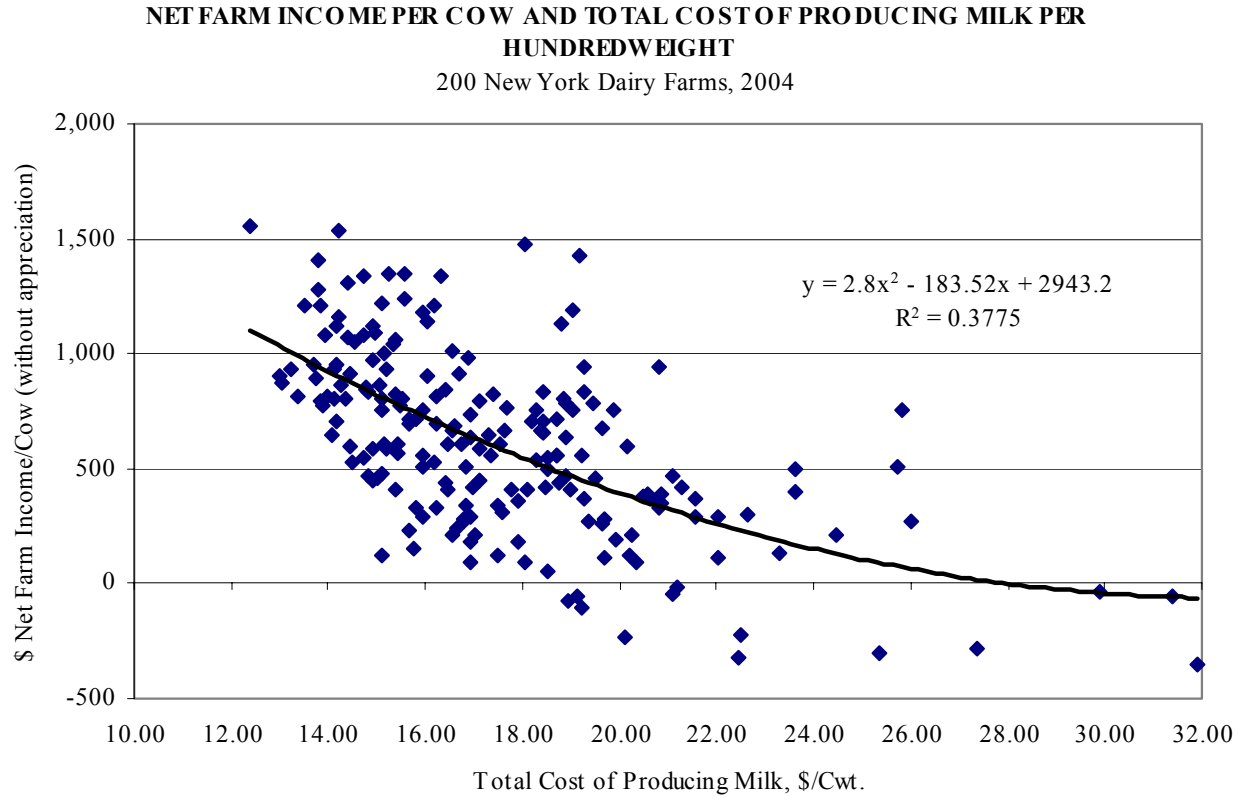
**Chart 12.**

**PRODUCTION COST BY HERD SIZE  
200 New York Dairy Farms, 2004**



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 \$18 per hundredweight. The majority of the farms with costs greater than \$22 per hundredweight experienced negative net farm incomes per cow.

**Chart 13.**



### **Cost of Producing Milk (continued)**

A ten-year comparison of the average costs and returns of producing milk per hundredweight 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 1995 through 2004. In 2004 the average operating cost of producing milk increased 10 percent after increasing 4 percent from 2002 to 2003. The average return per hundredweight to operator labor, management, and capital was \$2.22 higher in 2004, 493 percent above 2003. In only three years during the last ten years has milk price exceeded the total cost of producing milk. The years were 1998, 2001, and 2004.

Hired labor expense per hundredweight has increased consistently from 1995 to 2004. Hired labor expense was \$1.78 in 1995 and has risen to \$2.67 in 2004. Thus, even as pounds of milk sold per worker have increased from 736,269 in 1995 to 925,553 in 2004; labor expense per worker has increased even more rapidly. Some of this effect is due to increasing farm size where a larger portion of the labor force is comprised of hired workers. Another effect is an increase in hired labor cost per worker as shown by a 43 percent increase in hired labor expense per hired worker equivalent from 1995 to 2004.

Purchased feed expense per hundredweight of milk can fluctuate greatly, as much as \$1.00 per hundredweight. At \$3.71 in 1995, it was at its lowest in the past ten years before reaching its second highest a year later at \$4.73. In 2004, purchased feed expense was even higher at \$4.88.

Interest paid on debt per hundredweight of milk sold has fluctuated over this period. In 1995, interest expense was \$0.94 per hundredweight. In 2003, interest expense was at a ten-year low of \$0.56 per hundredweight, increasing to only \$0.57 in 2004. Property taxes per hundredweight of milk have decreased by 2 percent during this ten-year period. Property taxes were \$0.27 per hundredweight in 1995, but were only \$0.22 in 2004. This is due to productivity increases and more of the land resources being rented, rather than owned, and fewer acres per cow.

A ten-year comparison of selected average business factors for all specialized DFBS farms is presented in Table 38 on page 39. The reader is reminded that the same farms are not in the survey each year. Average cow numbers are up 109 percent, tillable acres have increased 76 percent, and milk sold per farm has jumped 128 percent since 1995. Capital investment per cow has increased 12 percent, far less than inflation, over the last ten years. Labor and management income per operator increased 608 percent in 2004 compared to 2003, farm net worth increased 21 percent, and percent equity increased slightly in 2004 compared to 2003.

Hay crop yields were 2.8 tons dry matter per acre in 1995 and 3.5 tons dry matter per acre in 2004. Corn silage yields, as fed, have varied more widely and were 17.7 tons per acre in 2004. As yields increased, fertilizer and lime expense increased \$6.00 per tillable acre, from \$25 to \$31 per acre. Pounds of milk sold per cow increased by 9 percent, from 20,269 pounds in 1995 to 22,070 pounds in 2004.

Average number of workers per farm increased by 3.57 and operators/managers per farm increased by 0.08. Cows per worker equivalent increased from 36 in 1995 to 42 in 2004, but labor cost per cow increased from \$570 to \$752 over the same time period.

The asset turnover ratio ranged from 0.49 to 0.64. Total accrual receipts as a proportion of total farm assets equals asset turnover ratio. Percent equity has deteriorated. It was 61 percent in 1995, but was down to 56 percent in 2003 partially due to more large (higher leveraged) farms in the sample. In 2004, the percent equity increased to 60 percent.

Table 37.

**TEN YEAR COMPARISON: AVERAGE COST OF PRODUCING MILK PER HUNDREDWEIGHT  
New York Dairy Farms, 1995 to 2004**

Item	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
<u>Operating Expenses</u>										
Hired labor	\$1.78	\$1.89	\$1.97	\$2.06	\$2.14	\$2.25	\$2.41	\$2.44	\$2.51	\$2.67
Purchased feed	3.71	4.73	4.63	4.18	3.96	3.91	4.25	4.10	4.29	4.88
Machinery repair, vehicle expense & rent	.85	1.02	.94	1.12	1.18	1.06	1.21	1.01	.91	1.09
Fuel, oil & grease	.27	.31	.28	.25	.24	.34	.32	.28	.33	.41
Replacement livestock	.15	.19	.18	.24	.24	.23	.20	.16	.15	.16
Breeding fees	.15	.15	.15	.16	.17	.17	.19	.21	.19	.21
Veterinary & medicine	.39	.42	.41	.45	.47	.51	.54	.56	.56	.59
Milk marketing	.70	.59	.52	.53	.49	.69	.63	.65	.69	.72
Other dairy expenses	.92	.99	1.05	1.09	1.13	1.16	1.26	1.25	1.30	1.27
Fertilizer & lime	.31	.32	.33	.35	.35	.29	.33	.27	.26	.30
Seeds & plants	.19	.20	.21	.22	.20	.19	.20	.20	.20	.24
Spray & other crop expense	.20	.21	.23	.24	.24	.22	.25	.22	.19	.20
Land, building & fence repair	.16	.23	.19	.27	.27	.21	.26	.19	.14	.21
Taxes	.27	.26	.23	.21	.21	.20	.21	.20	.21	.22
Insurance	.17	.18	.16	.17	.16	.16	.14	.16	.15	.16
Utilities (farm share)	.38	.39	.35	.32	.31	.32	.33	.34	.34	.36
Interest paid	.94	.91	.90	.89	.83	.95	.82	.61	.56	.57
Misc. (including rent)	.40	.41	.38	.41	.44	.45	.42	.44	.40	.43
Total Operating Expenses	\$11.94	\$13.40	\$13.12	\$13.15	\$13.02	\$13.31	\$13.98	\$13.27	\$13.39	\$14.67
<u>Less:</u> Nonmilk cash receipts	1.15	1.07	1.14	1.18	1.44	1.83	1.49	1.91	1.57	1.70
Increase in grown feed & supplies	.14	.15	.07	.25	.25	0.11	0.10	0.12	0.27	0.17
Increase in livestock	.25	.18	.15	.22	.11	0.06	0.52	0.23	0.09	0.22
<b>OPERATING COST OF MILK PRODUCTION</b>	<b>\$10.40</b>	<b>\$12.00</b>	<b>\$11.76</b>	<b>\$11.50</b>	<b>\$11.22</b>	<b>\$11.31</b>	<b>\$11.87</b>	<b>\$11.01</b>	<b>\$11.46</b>	<b>\$12.58</b>
<u>Overhead Expenses</u>										
Depreciation: machinery & buildings	\$1.07	\$1.04	\$0.95	\$1.08	\$1.14	\$1.20	\$1.30	\$1.39	\$1.23	\$1.32
Unpaid labor	.12	.13	.13	.11	.11	.10	.10	.08	.10	.07
Operator(s) labor <sup>38</sup>	.92	.88	.79	.74	.80	.79	.74	.74	.70	.67
Operator(s) management (5% of cash receipts)	.70	.80	.73	.82	.83	.76	.87	.75	.73	.90
Interest on farm equity capital (5%)	.94	.94	.87	.85	.86	.88	.91	.89	.85	.92
Total Overhead Expenses	\$3.75	\$3.79	\$3.47	\$3.60	\$3.74	\$3.73	\$3.92	\$3.85	\$3.61	\$3.88
<b>TOTAL COST OF MILK PRODUCTION</b>	<b>\$14.15</b>	<b>\$15.79</b>	<b>\$15.23</b>	<b>\$15.10</b>	<b>\$14.96</b>	<b>\$15.04</b>	<b>\$15.79</b>	<b>\$14.86</b>	<b>\$15.07</b>	<b>\$16.46</b>
<b>AVERAGE FARM PRICE OF MILK</b>	<b>\$13.03</b>	<b>\$14.98</b>	<b>\$13.65</b>	<b>\$15.60</b>	<b>\$14.91</b>	<b>\$13.38</b>	<b>\$15.98</b>	<b>\$12.98</b>	<b>\$13.24</b>	<b>\$16.64</b>
Return per cwt. to operator labor, capital & mgmt.	\$1.44	\$1.81	\$0.81	\$2.91	\$2.44	\$0.77	\$2.71	\$0.50	\$0.45	\$2.67
Rate of return on farm equity capital	-1.0%	0.7%	-4.1%	8.0%	4.7%	-4.4%	6.0%	-5.6%	-5.7%	6.0%

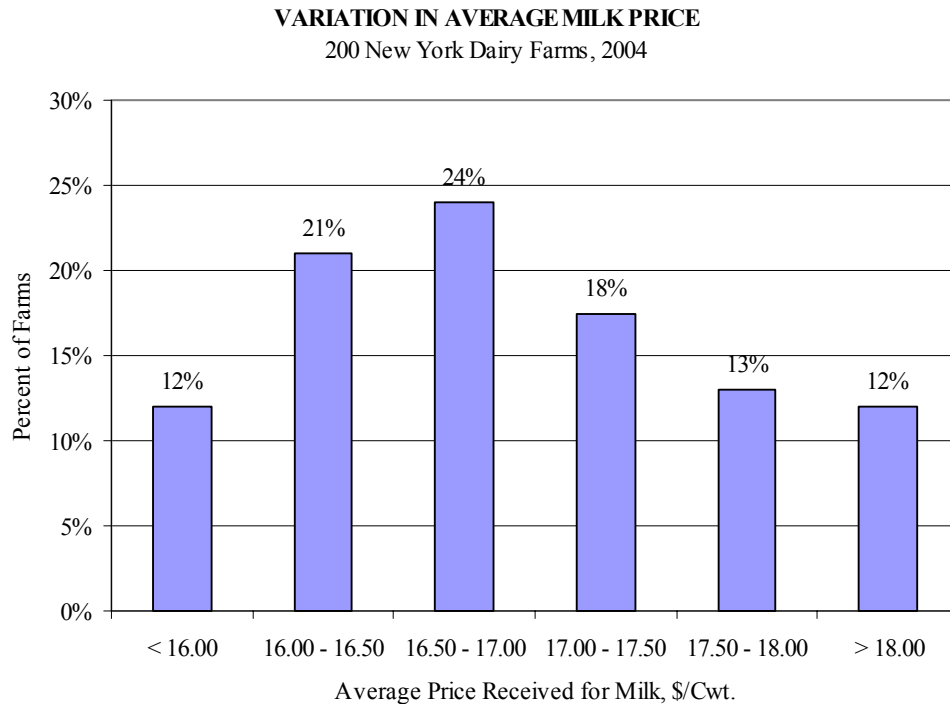
<sup>38</sup>1994 and 1995 = \$1,450/month, 1996 = \$1,500/month, 1997 = \$1,550/month, 1998 = \$1,600/month, 1999 = \$1,800/month, 2000 = \$1,900/month, 2001 = \$2,000/month, 2002 = \$2,100/month, and 2003 and 2004 = \$2,200/month of operator labor.

Table 38.

**TEN YEAR COMPARISON: SELECTED BUSINESS FACTORS**  
**New York Dairy Farms, 1995 to 2004**

Item	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Number of farms	321	300	253	305	314	294	228	219	201	200
<u>Cropping Program</u>										
Total tillable acres	399	415	462	497	516	566	618	660	659	701
Tillable acres rented	166	183	207	232	234	262	290	337	323	345
Hay crop acres	197	198	219	239	248	274	302	323	321	339
Corn silage acres	117	120	156	175	186	192	210	232	233	245
Hay crop, tons DM/acre	2.8	2.8	2.5	3.1	2.9	3.3	2.8	3.1	3.2	3.5
Corn silage, tons/acre	15.6	15.9	16.1	18.0	16.3	15.1	16.5	15.4	17.2	17.7
Fert. & lime exp./tillable acre	\$25	\$26	\$28	\$31	\$32	\$27	\$32	\$27	\$28	\$31
Machinery cost/cow	\$402	\$450	\$429	\$471	\$502	\$513	\$554	\$520	\$497	\$565
<u>Dairy Analysis</u>										
Number of cows	160	167	190	210	224	246	277	297	314	334
Number of heifers	121	124	139	155	164	186	207	226	240	260
Milk sold, cwt.	32,362	33,504	39,309	43,954	47,932	52,871	60,290	66,177	70,105	73,767
Milk sold/cow, lbs.	20,269	20,113	20,651	20,900	21,439	21,516	21,762	22,312	22,302	22,070
Purchased dairy feed/cwt. milk	\$3.70	\$4.73	\$4.63	\$4.18	\$3.96	\$3.91	\$4.25	\$4.10	\$4.27	\$4.86
Purchased grain & concentrate as % of milk receipts	27%	30%	33%	26%	25%	27%	25%	30%	30%	27%
Purchased feed & crop exp/cwt.milk	\$4.39	\$5.46	\$5.39	\$5.00	\$4.75	\$4.61	\$5.03	\$4.79	\$4.92	\$5.60
<u>Capital Efficiency</u>										
Farm capital/cow	\$6,264	\$6,218	\$6,196	\$6,161	\$6,368	\$6,535	\$6,755	\$6,794	\$6,748	\$7,010
Real estate/cow	\$2,763	\$2,701	\$2,650	\$2,537	\$2,562	\$2,615	\$2,713	\$2,612	\$2,722	\$2,809
Mach. invest./cow	\$1,098	\$1,107	\$1,108	\$1,118	\$1,163	\$1,225	\$1,222	\$1,261	\$1,208	\$1,226
Asset turnover ratio	0.49	0.55	0.52	0.61	0.59	0.54	0.63	0.53	0.54	0.64
<u>Labor Efficiency</u>										
Worker equivalent	4.40	4.48	5.01	5.35	5.71	6.11	6.72	7.21	7.50	7.97
Operator/manager equivalent	1.56	1.56	1.60	1.62	1.76	1.83	1.94	1.82	1.86	1.64
Milk sold/worker, lbs.	736,269	747,861	784,604	821,565	839,432	865,325	897,167	917,854	934,733	925,553
Cows/worker	36	37	38	39	39	40	41	41	42	42
Labor cost/cow	\$570	\$582	\$598	\$609	\$653	\$674	\$706	\$725	\$738	\$752
Hired labor exp./hired worker equiv.	\$23,320	\$24,395	\$25,241	\$31,092	\$27,910	\$29,309	\$31,448	\$31,755	\$32,659	\$33,311
<u>Profitability &amp; Financial Analysis</u>										
Labor & mgmt. income/operator	\$10,346	\$18,651	\$-1,424	\$55,917	\$42,942	\$-2,908	\$45,479	\$-14,243	\$-15,360	\$78,061
Farm net worth, end year	\$624,261	\$648,186	\$685,665	\$798,297	\$865,626	\$942,881	\$1,181,055	\$1,173,836	\$1,207,964	\$1,466,674
Percent equity	61%	61%	57%	59%	58%	57%	60%	57%	56%	60%

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 200 farms was \$16.64 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-two percent of the farms received from \$16.50 to \$17.50 per hundredweight of milk sold. Twenty-five percent of the farms received \$17.50 or more and 33 percent received less than \$16.50 per hundredweight. Location and organization of markets are factors contributing to the difference in average milk prices on these dairy farms. Management practices on farms as well as in milk companies also affect farm milk prices. Seasonality of production and milk components are two variables that affect milk price. More milk price analysis by component can be found on pages 8 and 9.

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

**Table 39.**

**DAIRY RELATED ACCRUAL EXPENSES**  
200 New York Dairy Farms, 2004

Item	Average 200 Farms		Average Top 10% Farms <sup>39</sup>	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	\$1,005	\$4.56	\$985	\$4.32
Purchased dairy roughage	67	.31	94	.41
Total Purchased Dairy Feed	\$1,072	\$4.86	\$1,079	\$4.74
Purchased grain & concentrate as % of milk receipts		27%		26%
Purchased feed & crop expense	\$1,236	\$5.60	\$1,225	\$5.38
Purchased feed & crop expense as % of milk receipts		34%		32%
Breeding	\$45	\$.21	\$40	\$.17
Veterinary & medicine	130	.59	134	.59
Milk marketing	159	.72	148	.65
Bedding	59	.27	54	.24
Milking Supplies	73	.33	75	.33
Cattle lease	3	.01	5	.02
Custom boarding	78	.35	71	.31
bST expense	37	.17	39	.17
Other livestock expense	31	.14	20	.09

<sup>39</sup>Average of 20 farms with highest rates of return to all capital (without appreciation).

Feed costs per cow and per hundredweight of milk sold are influenced by a number of factors. These cost measures are affected by the amount of homegrown grains fed, quality and quantity of the roughage harvested, and the number of youngstock. Feed costs are also influenced by the farmer's ability to purchase grains and concentrates at reasonable prices and to balance nutrients fed with energy and protein requirements.

Purchased dairy grain and concentrates per cow is calculated by dividing the total accrual expenses for dairy grains and concentrates purchased by the average number of cows. Because this also included the amount spent for calf and heifer feed, it actually represents feed cost for one cow and associated replacements being raised (averaged 0.78 animals in 2004).

Purchased feed and crop expense per hundredweight of milk is one of the most useful feed cost measures because it accounts for some of the variations in feeding and cropping programs, and milk production between herds. It includes all purchased feeds used on the farm, and it includes crop expenses that are associated with feed production. It does not represent total feed costs because machinery, labor and other costs of producing feed crops are excluded.

Purchased grain and concentrates as percent of milk sales is calculated by dividing feed purchased by milk receipts. This is another useful measure of feed efficiency although variations in homegrown grains fed, heifers fed, and milk prices can have an impact. Purchased feed and crop expense as percent of milk sales removes much of the variation caused by the feeding of home grown grains.

Cost control has an important affect on farm profitability. The relationship between purchased feed and crop expense per hundredweight of milk and farm profitability is shown below. On average, farms with feed and crop expenses exceeding \$6.50 or less than \$4.50 per hundredweight of milk, reported well below average profits. Net milk income over purchased concentrate per cow shows a similar relationship when compared to rate of return on assets without appreciation (Chart 15).

**Table 40.**

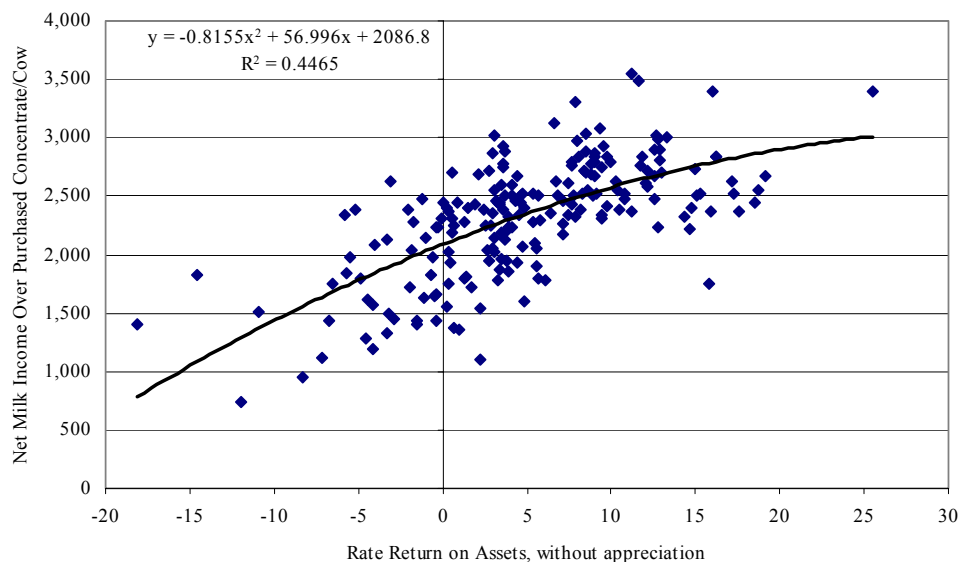
**PURCHASED FEED AND CROP EXPENSE PER HUNDREDWEIGHT  
OF MILK AND FARM INCOME MEASURES  
200 New York Dairy Farms, 2004**

Feed & Crop Expense Per Cwt. of Milk	Number of Farms	Number of Cows	Forage Dry Matter Harvested Per Cow	Pounds Milk Per Cow	Net Farm Income Without Appreciation	Labor & Management Income Per Operator	Labor & Management Per Operator Per Cow
\$6.50 or more	41	198	7.0	19,062	\$57,064	\$5,903	\$30
6.00 to 6.49	33	368	8.1	22,490	217,695	82,298	224
5.50 to 5.99	42	384	8.4	22,633	198,504	62,610	163
5.00 to 5.49	40	414	8.1	22,554	282,682	125,919	304
4.50 to 4.99	23	460	7.9	22,468	353,592	144,285	314
4.00 to 4.49	10	178	9.1	21,614	134,714	57,869	325
Less than 4.00	11	139	7.9	21,341	138,627	54,592	393

**Chart 15.**

**NET MILK INCOME OVER PURCHASED CONCENTRATE PER COW VERSUS RETURN  
ON ASSETS**

200 New York Dairy Farms, 2004



### Capital and Labor Efficiency Analysis

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

**Table 41.**

<b>CAPITAL EFFICIENCY</b>				
<b>200 New York Dairy Farms, 2004</b>				
Item (Average for Year)	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
Farm capital	\$293,875	\$7,010	\$3,342	\$6,586
Real estate		\$2,809		\$2,639
Machinery & equipment	\$51,409	\$1,226	\$585	
<u>Ratios</u>				
Asset turnover	Operating Expense	Interest Expense		Depreciation Expense
0.64	0.76	0.03		0.07
<u>Average Top 10% Farms:<sup>40</sup></u>				
Farm capital	\$276,328	\$5,623	\$3,204	\$7,482
Real estate		\$1,837		\$2,444
Machinery & equipment	\$48,637	\$1,132	\$564	
<u>Ratios</u>				
Asset turnover ratio	Operating Expense	Interest Expense		Depreciation Expense
0.84	0.71	0.03		0.06

<sup>40</sup>Average of 20 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.**

<b>ASSET TURNOVER AND PROFITABILITY</b>						
<b>200 New York Dairy Farms, 2004</b>						
Ratio	Number of Farms	Number of Cows	Farm Capital (average for year)		Labor & Management Income Per Operator	Net Farm Income (without appreciation)
			Per Cow	Per Worker		
≥ .70	37	740	\$5,734	\$266,036	\$216,716	\$489,884
.60 to .69	43	419	7,063	293,526	94,043	261,035
.50 to .59	45	262	7,535	317,026	50,036	142,756
.40 to .49	33	185	9,198	325,308	16,167	91,362
.30 to .39	29	89	9,534	304,859	-2,283	35,241
Less than .30	13	76	15,086	398,277	-27,540	27,804

Measures of labor efficiency are key indicators of the work accomplished by an average worker. The 20 farms with the highest rates of return on all capital (without appreciation) were above the average of all 200 farms in all measures of labor efficiency. The top 10 percent averaged 7 more cows per worker and sold 21 percent more milk per worker than the average of all farms.

**Table 43.**

<b>LABOR EFFICIENCY</b>				
<b>200 New York Dairy Farms, 2004</b>				
Labor Efficiency	Average Farms		Average Top 10% Farms <sup>42</sup>	
	Total	Per Worker <sup>41</sup>	Total	Per Worker <sup>41</sup>
Cows, average number	334	42	659	49
Milk sold, pounds	7,376,658	925,553	14,998,681	1,119,235
Tillable acres	701	88	1,156	86

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

<sup>42</sup>Average of 20 farms with highest rates of return to all capital (without appreciation).

The labor force averaged 7.97 full-time worker equivalents per farm (based on 230 hours per month). Twenty-two percent of the labor was supplied by the farm operator/managers. There were two operators on 111 farms, three on 31 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 \$1,144 per cow and \$5.03 per hundredweight on the 20 farms in the top decile.

**Table 44.**

**LABOR FORCE INVENTORY AND COST ANALYSIS  
200 New York Dairy Farms, 2004**

Labor Force	Months <sup>43</sup>	Age	Years of Education	Value of Labor & Management	
Operator number 1	13.7	48	13	\$37,617	
Operator number 2	6.6	45	13	18,034	
Operator number 3	1.7	43	13	4,712	
Operator number 4	0.5	48	13	<u>1,284</u>	
Family paid	5.7			Total \$61,647	
Family unpaid	2.3				
Hired	<u>65.2</u>				
Total	95.7	÷ 12 =	7.97 Worker Equivalent		
			1.64 Operator/Manager Equivalent		
<u>Average Top 10% Farms:</u> <sup>44</sup>					
Total	160.8	÷ 12 =	13.40 Worker Equivalent		
Operators'			1.97 Operator/Manager Equivalent		
	Average 200 Farms			Avg. Top 10% Farms <sup>44</sup>	
Labor Costs	Total	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Value operators' labor (\$2,200/mo.)	\$49,454	\$148	\$.67	\$93	\$.41
Family unpaid (\$2,200/mo.)	4,971	15	.07	4	.02
Hired	<u>196,925</u>	<u>589</u>	<u>2.67</u>	<u>563</u>	<u>2.47</u>
Total Labor	\$251,350	\$752	\$3.41	\$660	\$2.90
Machinery Cost	<u>188,843</u>	<u>565</u>	<u>2.56</u>	<u>484</u>	<u>2.13</u>
Total Labor & Machinery	\$440,193	\$1,317	\$5.97	\$1,144	\$5.03
Hired labor exp. per hired worker equiv.	\$33,311			\$33,774	
Hired labor exp. as % of milk sales	16.0%			14.8%	

<sup>43</sup>See footnote for Table 43.

<sup>44</sup>Average of 20 farms with highest rates of return to all capital (without appreciation).

The relationship of labor efficiency to net farm income is positive over the range in efficiency levels. The higher outputs of milk sold per worker are partially attributable to higher producing cows. In 2004, increased labor efficiency resulted in larger labor and management incomes per operator.

**Table 45.**

**MILK SOLD PER WORKER AND NET FARM INCOME  
200 New York Dairy Farm, 2004**

Pounds of Milk Sold Per Worker	No. of Farms	No. of Cows	Pounds of Milk Per Cow	Net Farm Income (without apprec.)	Labor & Mgmt. Income Per Operator
Under 400,000	19	58	16,870	\$22,544	\$-18,761
400,000 to 499,999	23	79	16,671	33,628	69
500,000 to 599,999	19	135	19,642	78,149	24,739
600,000 to 699,999	30	175	20,245	75,661	18,601
700,000 to 799,999	22	253	21,049	190,772	76,274
800,000 to 899,999	23	258	22,416	186,797	85,061
900,000 to 999,999	15	456	21,281	237,664	94,244
1,000,000 to 1,099,999	19	534	23,243	360,042	159,925
1,100,000 & over	30	920	23,106	543,904	234,619

### 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 200 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 200 New York Dairy Farms, 2004**

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds of Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
27.4	1,320	30,813,655	25,912	5.6	24	61	1,276,169
15.2	627	14,673,004	23,717	4.3	21	51	1,100,689
10.7	430	9,341,701	22,791	3.9	20	46	981,861
7.2	309	6,569,316	21,971	3.5	19	42	868,108
5.4	225	4,326,245	21,304	3.3	18	38	787,445
-----							
4.2	144	2,848,633	20,482	3.0	17	35	700,990
3.4	110	2,072,815	19,295	2.8	16	32	631,342
2.7	78	1,398,571	17,658	2.3	15	29	547,027
2.0	59	1,035,229	15,829	2.0	13	26	445,686
1.5	42	687,413	12,854	1.4	9	19	321,988
-----							
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		
\$507	17%	\$323	\$903	\$660	\$3.87		
669	22	444	1,124	863	4.71		
780	24	499	1,221	994	5.10		
839	26	552	1,293	1,082	5.34		
900	27	592	1,370	1,133	5.54		
-----							
979	28	637	1,463	1,183	5.75		
1,031	29	683	1,541	1,242	6.05		
1,094	31	750	1,664	1,308	6.36		
1,166	33	835	1,796	1,394	6.82		
1,295	39	1,044	2,173	1,591	7.69		

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  
200 New York Dairy Farms, 2004**

Milk Receipts Per Cow	Milk Receipts Per Cwt.	Operating Cost Milk Production Per Cow	Operating Cost Milk Production Per Cwt.	Total Cost Milk Production Per Cow	Total Cost Milk Production Per Cwt.	
\$4,409	\$18.64	\$1,505	\$9.19	\$2,552	\$13.68	
3,964	17.86	1,892	10.50	2,955	14.56	
3,777	17.47	2,164	11.20	3,132	15.16	
3,662	17.13	2,319	11.80	3,275	15.81	
3,573	16.92	2,449	12.19	3,381	16.56	
-----						
3,421	16.71	2,587	12.60	3,490	17.26	
3,279	16.55	2,733	13.13	3,621	18.37	
3,027	16.28	2,884	13.71	3,774	19.14	
2,662	16.06	3,090	14.37	3,992	20.42	
2,246	15.46	3,400	15.99	4,485	24.72	
-----						
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
\$838,746	\$1,306	0.30	\$1,189,067	\$1,919	\$657,429	\$357,551
413,151	1,025	0.25	570,269	1,344	293,399	181,620
286,223	860	0.22	384,433	1,155	200,179	107,460
171,989	773	0.20	263,743	1,033	105,888	66,066
120,112	667	0.17	187,418	908	57,054	35,606
-----						
78,969	561	0.14	116,687	805	31,211	21,959
53,830	449	0.12	79,113	688	17,970	12,836
36,206	347	0.09	57,505	579	5,373	4,198
21,262	216	0.06	35,671	419	-12,627	-9,507
-11,854	-70	-0.03	10,807	103	-75,681	-63,025

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

## Financial Analysis and Management

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

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

**Table 47.**

### **A FARM FINANCE CHECKLIST 200 New York Dairy Farms, 2004**

	Average 200 Farms		Average Top 10% Farms <sup>45</sup>	
<u>How farm assets are being used (average for the year):</u>				
Total assets (capital) per cow	\$7,010		\$5,623	
Farm assets in livestock	27%		31%	
Farm assets in farm real estate	40%		33%	
Farm assets in machinery	17%		18%	
<u>Measures of debt capacity &amp; debt structure:</u>				
Equity in the business	60%		58%	
Farm debt per cow	\$2,877		\$2,495	
Long term debt/asset ratio <sup>46</sup>	0.40		0.38	
Intermediate & current term debt/asset ratio <sup>46</sup>	0.40		0.45	
Intermediate & current term debt as % of total	61%		72%	
<u>Debt repayment ability:<sup>47</sup></u>				
Cash flow coverage ratio	1.31		1.59	
Debt coverage ratio	1.83		2.62	
Debt payments made per cow	\$561		\$574	
Debt payments made as % of milk receipts	15%		15%	
<u>Indicators of annual financial progress:</u>				
	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>
Annual change in farm assets	+\$214,724	+9.6%	+\$585,460	+17.2%
Annual change in farm debt	-\$3,715	-0.4%	-\$50,486	-2.9%
Annual change in farm net worth	+\$218,444	+17.5%	+\$635,946	+38.1%

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

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

<sup>47</sup>Average of 174 farms that participated in DFBS both in 2003 and 2004. Eighteen of the 20 top 10 percent farms participated both years.

The most profitable farms carried \$382 less debt per cow, the average equity in their businesses was two percent lower than that of the average of all 200 farms, and they had a greater ability to make 2004 debt payments. Because, with higher income they were able to pay down debt, it does not mean that lower debt farms are more profitable.

Average farm assets grew 10 percentage points faster than debt during 2004 on the 200 dairy farms. Average farm net worth increased 17.5 percent.

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

**Table 48.**

**FINANCIAL ANALYSIS CHART**  
**200 New York Dairy Farms, 2004**

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		
\$52	\$1,138	5.77	7.80	2%	\$231	42%	22.29
199	844	2.42	3.24	6	1,035	29	4.31
294	748	1.82	2.53	9	1,683	24	3.02
353	671	1.49	2.06	11	2,125	18	2.43
421	596	1.32	1.71	12	2,464	15	2.01
-----							
470	513	1.17	1.44	14	2,758	11	1.67
518	449	1.01	1.22	15	3,021	8	1.39
562	357	0.83	0.95	17	3,360	4	1.16
658	244	0.61	0.62	20	3,931	-2	0.89
815	-373	-1.30	-1.52	28	5,108	-17	0.52
-----							
Solvency				Operational Ratios			
Leverage Ratio <sup>48</sup>	Percent Equity	Debt/Asset Ratio			Operating Expense Ratio	Interest Expense Ratio	Depreciation Expense Ratio
		Current & Intermediate	Long Term				
0.02	98%	0.03	0.00	0.58	0.00	0.02	
0.14	88	0.11	0.00	0.64	0.01	0.04	
0.23	81	0.20	0.02	0.68	0.02	0.05	
0.35	74	0.25	0.14	0.71	0.02	0.06	
0.45	69	0.31	0.24	0.74	0.03	0.06	
-----							
0.56	64	0.37	0.34	0.76	0.03	0.07	
0.75	57	0.44	0.43	0.78	0.04	0.08	
0.95	51	0.50	0.56	0.80	0.04	0.09	
1.22	45	0.58	0.68	0.83	0.05	0.11	
2.76	30	0.79	0.89	0.91	0.08	0.15	
-----							
Efficiency (Capital)				Profitability			
Asset Turnover (ratio)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow	Change in Net Worth With Appreciation	Percent Rate of Return with Appreciation on:		
					Equity	Investment <sup>49</sup>	
.93	\$1,360	\$533	\$4,895	\$965,036	46%	23%	
.72	2,072	885	5,982	456,002	26	16	
.66	2,333	1,089	6,498	311,468	20	13	
.61	2,631	1,221	6,895	196,995	16	11	
.57	2,932	1,356	7,355	140,216	12	9	
-----							
.53	3,306	1,558	8,008	82,241	9	7	
.48	3,807	1,796	8,583	45,148	6	5	
.42	4,253	1,982	9,301	30,133	3	3	
.36	4,981	2,320	10,637	14,529	-1	1	
.27	7,946	3,464	13,990	-57,407	-11	-5	

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

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

### Herd Size Comparisons

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

As herd size increases, the net farm income increases (Table 49). Net farm income without appreciation averaged \$23,339 per farm for the less than 50 cow farms and \$624,346 per farm for those with more than 600 cows. Return to all capital without appreciation and labor and management income per operator generally increased as herd size increased.

It is more than size of herd that determines profitability on dairy farms. Farms with 600 and more cows averaged \$568 net farm income per cow while the less than 50 cow dairy farms averaged \$598 net farm income per cow. The 400 to 599 herd size category had the highest net farm income per cow at \$748, while the 50 to 74 herd size category had the second highest net farm income per cow at \$640. 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  
200 New York Dairy Farms, 2004**

Number of Cows	Number of Farms	Average Number of Cows	Net Farm Income Without Appreciation	Net Farm Income Per Cow	Labor & Management Income Per Operator	Return to All Capital Without Appreciation
Under 50	15	39	\$23,339	\$598	\$335	-1.6%
50 to 74	33	60	38,645	640	6,858	0.3%
75 to 99	15	85	50,057	587	6,854	1.6%
100 to 199	42	136	86,180	636	21,224	3.7%
200 to 299	23	255	144,340	566	51,364	6.5%
300 to 399	20	345	183,475	532	70,484	6.6%
400 to 599	21	499	372,990	748	141,522	11.1%
600 & over	31	1,099	624,346	568	205,875	9.0%

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

The farms with more than 600 cows averaged more milk sold per cow than any other size category (Table 50). With 23,262 pounds of milk sold per cow, farms in the largest herd size group averaged 18 percent more milk output per cow than the average of all herds in the summary with less than 600 cows.

Many dairy farmers who have been willing and able to employ and manage the labor required to milk 3 times per day have been successful. Only three percent of the 63 DFBS farms with less than 100 cows used a milking frequency greater than 2 times per day. As herd size increased, the percent of herds using a higher milking frequency increased. Farms with 100 to 200 cows reported 12 percent of the herds milking more often than 2 times per day, the 200-299 cow herds reported 35 percent, 300-399 cow herds reported 65 percent, 400-599 cow herds reported 76 percent, and the 600 cow and larger herds reported 90 percent exceeding the 2 times per day milking frequency.

**Table 50.**

**COWS PER FARM AND RELATED FARM FACTORS**  
**200 New York Dairy Farms, 2004**

Number of Cows	Average Number of Cows	Milk Sold Per Cow (lbs.)	Milk Sold Per Worker (cwt.)	Tillable Acres Per Cow	Forage DM Per Cow (tons)	Farm Capital Per Cow	Cost of Producing Milk/Cwt.	
							Operating	Total
Under 50	39	18,017	3,660	3.8	7.8	\$10,752	\$11.71	\$20.65
50 to 74	60	17,755	4,958	3.6	7.9	9,116	11.82	19.30
75 to 99	85	18,330	5,373	3.2	9.4	9,247	12.52	18.51
100 to 199	136	19,828	6,604	3.1	9.1	9,374	12.38	17.73
200 to 299	255	20,453	8,898	2.4	8.0	6,796	12.89	16.37
300 to 399	345	21,385	8,289	2.2	8.5	7,245	12.74	16.23
400 to 599	499	22,275	9,156	2.3	8.4	6,439	12.19	15.07
600 & over	1,099	23,262	11,125	1.8	7.7	6,509	12.70	15.17

Bovine somatotropin (bST), was used to a greater extent on the large herd farms. bST was used consistently during 2004 on 13 percent of the herds with less than 100 cows, 40 percent of the farms with 100 to 299 cows and on 50 percent of the farms with 300 cows and more.

Milk output per worker has always shown a strong correlation with net farm income. In 2004, this relationship also held when labor and management income was the profit measure compared. The farms with 100 cows or more averaged over 881,400 pounds of milk sold per worker while the farms with less than 100 cows averaged less than 466,400 pounds per worker.

In achieving the highest productivity per cow and per worker, the largest farms had the fewest crop acres per cow and below average forage dry matter harvested per cow. However, the larger farms generally purchased more roughage per cow. The farms with 400 to 599 cows had the most efficient use of farm capital with an average investment of \$6,439 per cow.

The 21 farms with 400 to 599 cows held their average total costs of producing milk to \$15.07 per hundredweight, \$2.64 below the \$17.71 average for the remaining 176 dairy farms. The lower average costs of production plus a similar milk price gave the managers of the 400 to 599 cow dairy farms profit margins (milk price less total cost of producing milk) that averaged \$2.71 per hundredweight above the average of the other 176 DFBS farms.

Tables 51 through 53 show progress of the farm businesses that have participated in DFBS in each of the last five years for three herd size groups.

A detailed list of accrual expenses, receipts and a profitability analysis is presented in Table 54, on pages 53 and 54 for the eight herd size categories. Purchased feed is the largest expense on all farms, regardless of size. However, larger farms find hired labor expense as the second largest expense category.

Assets, liabilities and financial measures are presented in Table 55 on pages 55-58. All herd size categories saw an increase in net worth during 2004. The largest herd size category experienced an increase in net worth of nearly \$709,000. However, percent equity went down as assets increased. The largest herds had the lowest percent equity; while the smaller herds averaged 78 percent.

Selected business factors by herd size group are presented in Table 56 on pages 59 and 60. George Warren, father of farm business management at Cornell, said in his 1918 farm management text that larger farms are, on average, more profitable; but no farm is large enough to guarantee a profit. For a more detailed analysis of large herd farms, see Dairy Farm Business Summary, New York Large Herd Farms, 300 Cows or Larger, 2004. For analysis of smaller herds, see Dairy Farm Business Summary, New York Small Herd Farms, 80 Cows or Fewer, 2004. Both publications are available from the Cornell Cooperative Extension Resource Center, P. O. Box 3884, Ithaca, NY 14852-3884 or order copies via e-mail ([resctr@cornell.edu](mailto:resctr@cornell.edu)) or the website: <http://www.cce.cornell.edu/store>

**Table 51.**

**PROGRESS OF FARM BUSINESSES WITH LESS THAN 100 COWS**  
Same 33 New York Dairy Farms, 2000 - 2004

Selected Factors	2000	2001	2002	2003	2004
Milk receipts per cwt. milk	\$13.28	\$15.97	\$12.76	\$12.95	\$16.70
<u>Size of Business</u>					
Average number of cows	61	60	60	61	59
Average number of heifers	45	45	44	44	45
Milk sold, cwt.	11,342	11,052	11,220	11,032	10,736
Worker equivalent	2.35	2.33	2.38	2.33	2.28
Total tillable acres	188	190	195	195	198
<u>Rates of Production</u>					
Milk sold per cow, lbs.	18,503	18,402	18,607	18,050	18,068
Hay DM per acre, tons	2.3	1.8	1.9	2.0	2.2
Corn silage per acre, tons	13	15	13	14	16
<u>Labor Efficiency</u>					
Cows per worker	26	26	25	26	26
Milk sold per worker, lbs.	483,163	474,849	471,261	473,645	471,387
<u>Cost Control</u>					
Grain & concn. purchased as % of milk sales	27%	25%	31%	34%	29%
Dairy feed & crop expense per cwt. milk	\$4.71	\$5.22	\$4.95	\$5.41	\$5.95
Operating cost of producing cwt. milk	\$9.62	\$11.28	\$9.77	\$10.20	\$12.22
Total cost of producing cwt. milk	\$15.21	\$17.69	\$16.01	\$16.66	\$19.06
Hired labor cost per cwt.	\$0.82	\$0.83	\$0.86	\$0.88	\$0.91
Interest paid per cwt.	\$0.84	\$0.72	\$0.65	\$0.58	\$0.59
Labor & machinery costs per cow	\$1,312	\$1,495	\$1,505	\$1,521	\$1,622
Replacement livestock expense	\$3,215	\$2,356	\$2,433	\$2,826	\$3,987
Expansion livestock expense	\$0	\$0	\$51	\$0	\$409
<u>Capital Efficiency</u>					
Farm capital per cow	\$7,405	\$7,957	\$8,151	\$8,246	\$8,895
Machinery & equipment per cow	\$1,579	\$1,748	\$1,778	\$1,730	\$1,828
Real estate per cow	\$3,361	\$3,546	\$3,632	\$3,803	\$4,179
Livestock investment per cow	\$1,627	\$1,770	\$1,839	\$1,816	\$1,922
Asset turnover ratio	0.42	0.45	0.36	0.37	0.41
<u>Profitability</u>					
Net farm income without appreciation	\$30,475	\$36,055	\$18,507	\$17,775	\$34,649
Net farm income with appreciation	\$39,229	\$53,040	\$20,433	\$26,807	\$45,445
Labor & management income per operator/manager	\$5,085	\$7,578	-\$7,657	-\$9,836	\$5,121
Rate return on:					
Equity capital with appreciation	0.9%	4.4%	-5.0%	-4.1%	1.2%
All capital with appreciation	2.8%	5.0%	-2.3%	-1.6%	2.1%
All capital without appreciation	0.8%	1.3%	-2.4%	-3.4%	0.1%
<u>Financial Summary, End Year</u>					
Farm net worth	\$326,651	\$350,958	\$340,881	\$353,611	\$399,598
Change in net worth with appreciation	\$16,701	\$31,776	-\$12,611	\$6,892	\$29,902
Debt to asset ratio	0.29	0.27	0.31	0.30	0.26
Farm debt per cow	\$2,199	\$2,212	\$2,476	\$2,528	\$2,301

Table 52.

**PROGRESS OF FARM BUSINESSES WITH 100-499 COWS**  
Same 51 New York Dairy Farms, 2000 - 2004

Selected Factors	2000	2001	2002	2003	2004
Milk receipts per cwt. milk	\$13.45	\$15.86	\$12.79	\$13.20	\$16.81
<u>Size of Business</u>					
Average number of cows	219	234	249	251	254
Average number of heifers	162	174	186	193	202
Milk sold, cwt.	47,152	50,783	55,064	53,657	54,303
Worker equivalent	5.62	6.15	6.45	6.62	6.77
Total tillable acres	554	577	596	602	617
<u>Rates of Production</u>					
Milk sold per cow, lbs.	21,533	21,704	22,142	21,414	21,384
Hay DM per acre, tons	3.1	2.9	2.4	3.2	3.3
Corn silage per acre, tons	15	16	14	17	17
<u>Labor Efficiency</u>					
Cows per worker	39	38	39	38	38
Milk sold per worker, lbs.	839,630	825,509	853,152	810,834	802,604
<u>Cost Control</u>					
Grain & concn. purchased as % of milk sales	27%	25%	31%	32%	28%
Dairy feed & crop expense per cwt. milk	\$4.59	\$5.04	\$4.86	\$5.07	\$5.71
Operating cost of producing cwt. milk	\$10.85	\$12.02	\$10.84	\$11.19	\$12.68
Total cost of producing cwt. milk	\$14.48	\$15.73	\$14.03	\$14.81	\$16.41
Hired labor cost per cwt.	\$1.96	\$2.15	\$2.26	\$2.32	\$2.48
Interest paid per cwt.	\$0.89	\$0.74	\$0.55	\$0.53	\$0.58
Labor & machinery costs per cow	\$1,218	\$1,310	\$1,133	\$1,291	\$1,412
Replacement livestock expense	\$15,719	\$14,987	\$9,210	\$8,319	\$7,637
Expansion livestock expense	\$11,194	\$21,677	\$7,440	\$645	\$7,788
<u>Capital Efficiency</u>					
Farm capital per cow	\$6,921	\$6,976	\$6,711	\$7,172	\$7,615
Machinery & equipment per cow	\$1,466	\$1,472	\$1,452	\$1,506	\$1,567
Real estate per cow	\$2,687	\$2,653	\$2,033	\$2,746	\$2,969
Livestock investment per cow	\$1,598	\$1,718	\$1,772	\$1,811	\$1,895
Asset turnover ratio	0.52	0.61	0.50	0.49	0.58
<u>Profitability</u>					
Net farm income without appreciation	\$62,832	\$126,323	\$30,948	\$35,637	\$146,217
Net farm income with appreciation	\$99,811	\$201,965	\$69,464	\$83,445	\$214,970
Labor & management income per operator/manager	\$5,513	\$37,347	\$-9,261	\$-13,723	\$46,005
Rate return on:					
Equity capital with appreciation	3.8%	12.8%	1.7%	1.6%	12.3%
All capital with appreciation	5.4%	11.2%	2.2%	2.7%	9.9%
All capital without appreciation	2.9%	6.3%	0.1%	-0.1%	6.2%
<u>Financial Summary, End Year</u>					
Farm net worth	\$998,647	\$1,123,402	\$1,095,041	\$1,162,992	\$1,317,894
Change in net worth with appreciation	\$26,285	\$122,358	\$10,546	\$28,632	\$150,168
Debt to asset ratio	0.35	0.34	0.29	0.37	0.35
Farm debt per cow	\$2,403	\$2,422	\$1,559	\$2,734	\$2,688

**Table 53.**

**PROGRESS OF FARM BUSINESSES WITH MORE THAN 500 COWS**  
Same 35 New York Dairy Farms, 2000 - 2004

Selected Factors	2000	2001	2002	2003	2004
Milk receipts per cwt. milk	\$13.48	\$15.95	\$13.07	\$13.25	\$16.42
<u>Size of Business</u>					
Average number of cows	748	822	886	960	1,016
Average number of heifers	578	622	697	741	791
Milk sold, cwt.	172,825	190,317	210,700	228,773	235,525
Worker equivalent	16.16	17.27	18.34	19.62	21.01
Total tillable acres	1,411	1,497	1,595	1,667	1,786
<u>Rates of Production</u>					
Milk sold per cow, lbs.	23,114	23,143	23,770	23,821	23,185
Hay DM per acre, tons	4.2	3.1	2.6	3.6	4.0
Corn silage per acre, tons	16	17	16	18	18
<u>Labor Efficiency</u>					
Cows per worker	46	48	48	49	48
Milk sold per worker, lbs.	1,069,570	1,102,224	1,148,700	1,165,971	1,120,926
<u>Cost Control</u>					
Grain & concn. purchased as % of milk sales	27%	24%	29%	29%	27%
Dairy feed & crop expense per cwt. milk	\$4.57	\$4.87	\$4.68	\$4.86	\$5.56
Operating cost of producing cwt. milk	\$11.91	\$12.12	\$11.30	\$11.65	\$12.54
Total cost of producing cwt. milk	\$14.37	\$14.61	\$13.48	\$13.98	\$15.01
Hired labor cost per cwt.	\$2.70	\$2.81	\$2.76	\$2.76	\$2.89
Interest paid per cwt.	\$0.99	\$0.86	\$0.61	\$0.55	\$0.55
Labor & machinery costs per cow	\$1,197	\$1,216	\$1,061	\$1,178	\$1,232
Replacement livestock expense	\$34,383	\$28,438	\$32,942	\$30,322	\$36,978
Expansion livestock expense	\$107,604	\$82,370	\$65,796	\$84,033	\$68,108
<u>Capital Efficiency</u>					
Farm capital per cow	\$6,134	\$6,115	\$6,130	\$6,198	\$6,353
Machinery & equipment per cow	\$1,048	\$1,030	\$1,021	\$973	\$982
Real estate per cow	\$2,382	\$2,366	\$2,443	\$2,411	\$2,408
Livestock investment per cow	\$1,589	\$1,712	\$1,820	\$1,802	\$1,857
Asset turnover ratio	0.61	0.73	0.63	0.61	0.72
<u>Profitability</u>					
Net farm income without appreciation	\$64,360	\$453,246	\$75,835	\$97,076	\$611,465
Net farm income with appreciation	\$142,591	\$752,924	\$218,850	\$257,593	\$875,491
Labor & management income per operator/manager	\$25,175	\$161,636	\$-8,517	\$-27,855	\$224,840
Rate return on:					
Equity capital with appreciation	1.6%	25.4%	7.7%	5.0%	22.9%
All capital with appreciation	4.6%	17.3%	5.1%	4.6%	14.6%
All capital without appreciation	2.9%	10.8%	2.4%	1.8%	10.2%
<u>Financial Summary, End Year</u>					
Farm net worth	\$2,243,427	\$2,935,715	\$2,781,680	\$2,998,037	\$3,674,563
Change in net worth with appreciation	\$-31,333	\$535,357	\$28,071	\$123,176	\$694,965
Debt to asset ratio	0.52	0.48	0.48	0.51	0.46
Farm debt per cow	\$3,128	\$3,014	\$3,049	\$3,200	\$3,014

Table 54.

**FARM BUSINESS SUMMARY BY HERD SIZE**  
**200 New York Dairy Farms, 2004**

Item	Farm Size:	Less than 50 Cows	50 to 74 Cows	75 to 99 Cows	100 to 199 Cows
Number of farms		15	33	15	42
<u>ACCRUAL EXPENSES</u>					
Hired labor		\$4,303	\$6,858	\$21,571	\$56,275
Dairy grain & concentrate		33,534	48,130	76,749	121,870
Dairy roughage		897	5,137	4,450	3,056
Nondairy feed		0	22	0	636
Professional nutritional services		62	43	92	55
Machine hire, rent & lease		2,157	3,576	4,098	8,068
Machine repairs & farm vehicle expense		7,264	13,176	21,468	35,323
Fuel, oil & grease		3,932	5,766	7,085	15,802
Replacement livestock		327	4,401	1,567	2,205
Breeding		3,745	3,034	3,367	6,962
Veterinary & medicine		3,065	5,198	7,849	14,735
Milk marketing		7,003	9,240	12,293	23,280
Bedding		1,351	1,988	2,541	4,927
Milking supplies		3,542	4,346	6,292	9,629
Cattle lease & rent		42	0	4	76
Custom boarding		0	1,231	3,376	3,519
bST expense		579	458	1,453	3,689
Livestock professional fees		752	958	1,130	1,887
Other livestock expense		1,397	2,999	4,053	4,708
Fertilizer & lime		3,030	3,759	6,204	12,678
Seeds & plants		1,219	2,068	3,056	6,843
Spray & other crop expense		1,093	1,633	3,244	6,938
Crop professional fees		871	32	145	371
Land, building & fence repair		1,584	4,168	5,060	7,745
Taxes & rent		4,859	7,419	9,125	17,273
Utilities		4,033	6,788	8,230	13,552
Interest paid		4,697	6,928	8,803	13,205
Other professional fees		498	591	1,251	2,158
Misc. (including insurance)		2,966	5,561	6,420	9,071
Total Operating Expenses		\$98,801	\$155,509	\$230,978	\$406,534
Expansion livestock		532	182	1,517	1,548
Extraordinary expense		0	206	185	1,095
Machinery depreciation		8,994	11,324	13,486	27,754
Building depreciation		2,914	4,201	4,767	12,913
Total Accrual Expenses		\$111,242	\$171,422	\$250,932	\$449,844
<u>ACCRUAL RECEIPTS</u>					
Milk sales		\$117,530	\$181,145	\$264,388	\$460,564
Dairy cattle		7,548	10,263	13,436	30,047
Dairy calves		1,272	2,831	3,897	5,542
Other livestock		965	1,200	-617	573
Crops		1,256	5,851	7,211	12,695
Misc. receipts		6,010	8,778	12,675	26,604
Total Accrual Receipts		\$134,581	\$210,067	\$300,990	\$536,024
<u>PROFITABILITY ANALYSIS</u>					
Net farm income (without appreciation)		\$23,339	\$38,645	\$50,057	\$86,180
Net farm income (with appreciation)		\$34,289	\$61,487	\$65,015	\$129,602
Labor & management income		\$396	\$9,052	\$8,978	\$33,747
Number of operators		1.18	1.32	1.31	1.59
Labor & management income/operator		\$335	\$6,858	\$6,854	\$21,224
Rates of return on: Equity capital w/o apprec.		-3.4	-1.4%	0.6%	3.4%
Equity capital with appreciation		-0.1%	4.3%	3.2%	7.8%
All capital without appreciation		-1.6%	0.3%	1.6%	3.7%
All capital with appreciation		1.1%	4.4%	3.5%	7.1%

Table 54. (continued)

**FARM BUSINESS SUMMARY BY HERD SIZE**  
**200 New York Dairy Farms, 2004**

Item	Farm Size:	200 to 299 Cows	300 to 399 Cows	400 to 599 Cows	600 or More Cows
Number of farms		23	20	21	31
<b><u>ACCRUAL EXPENSES</u></b>					
Hired labor		\$113,876	\$194,323	\$299,400	\$761,744
Dairy grain & concentrate		239,785	349,771	465,969	1,179,042
Dairy roughage		22,128	25,825	22,639	84,547
Nondairy feed		0	20	776	20
Professional nutritional services		56	576	725	2,336
Machine hire, rent & lease		27,130	27,881	40,377	51,249
Machine repairs & farm vehicle expense		45,277	63,147	93,959	169,955
Fuel, oil & grease		24,105	33,005	46,989	90,515
Replacement livestock		12,114	14,739	8,124	42,129
Breeding		10,632	15,748	19,896	50,062
Veterinary & medicine		27,053	43,035	63,041	158,560
Milk marketing		42,566	53,874	81,917	169,539
Bedding		12,541	19,644	21,930	78,838
Milking supplies		21,276	25,055	35,847	78,708
Cattle lease & rent		513	2,024	2,777	2,413
Custom boarding		17,546	14,575	37,149	112,383
bST expense		6,645	11,653	15,720	50,231
Livestock professional services		2,756	4,337	2,830	10,687
Other livestock expense		3,268	6,795	12,325	17,416
Fertilizer & lime		17,950	21,127	38,928	62,046
Seeds & plants		11,377	15,986	27,006	65,169
Spray & other crop expense		8,466	15,169	20,419	37,830
Crop professional fees		1,429	1,400	2,886	8,515
Land, building & fence repair		10,877	14,108	23,082	49,765
Taxes & rent		26,292	32,366	48,282	109,659
Utilities		21,209	32,467	37,457	79,132
Interest paid		34,833	47,521	69,082	137,728
Other professional fees		3,600	7,205	8,559	25,263
Misc. (including insurance)		15,848	17,874	22,142	60,119
Total Operating Expenses		\$781,148	\$1,111,251	\$1,570,233	\$3,745,599
Expansion livestock		10,702	18,778	8,990	89,528
Extraordinary expense		185	7,029	0	916
Machinery depreciation		40,816	67,488	87,362	179,971
Building depreciation		24,717	41,974	62,045	143,072
Total Accrual Expenses		\$857,567	\$1,246,519	\$1,728,630	\$4,159,086
<b><u>ACCRUAL RECEIPTS</u></b>					
Milk sales		\$882,600	\$1,239,495	\$1,877,364	\$4,193,101
Dairy cattle		62,717	75,466	102,549	341,555
Dairy calves		9,896	19,630	22,155	52,859
Other livestock		409	4,739	5,002	4,790
Crops		9,051	36,479	26,145	60,504
Misc. receipts		37,232	54,186	68,406	130,622
Total Accrual Receipts		\$1,001,907	\$1,429,994	\$2,101,620	\$4,783,432
<b><u>PROFITABILITY ANALYSIS</u></b>					
Net farm income (without appreciation)		\$144,340	\$183,475	\$372,990	\$624,346
Net farm income (with appreciation)		\$220,078	\$258,569	\$514,316	\$899,953
Labor & management income		\$90,914	\$107,841	\$287,289	\$434,397
Number of operators		1.77	1.53	2.03	2.11
Labor & management income/operator		\$51,364	\$70,484	\$141,522	\$205,875
Rates of return on: Equity capital w/o apprec.		7.9%	7.9%	17.1%	13.5%
Equity capital with appreciation		15.7%	13.0%	25.5%	20.8%
All capital without appreciation		6.5%	6.6%	11.1%	9.0%
All capital with appreciation		10.8%	9.6%	15.5%	12.8%

Table 55.

**FARM FAMILY FINANCIAL SITUATION BY HERD SIZE**  
**200 New York Dairy Farms, 2004**

Item	Farms with:		50 to 74 Cows	
	Less than 50 Cows		Jan. 1	Dec. 31
	Jan. 1	Dec. 31	Jan. 1	Dec. 31
<b>ASSETS</b>				
Farm cash, checking & savings	\$3,054	\$3,667	\$4,007	\$4,262
Accounts receivable	6,820	6,653	13,004	14,437
Prepaid expenses	77	124	38	58
Feed & supplies	21,362	22,876	34,194	37,931
Livestock <sup>50</sup>	83,164	86,344	116,471	126,338
Machinery & equipment <sup>50</sup>	84,358	88,996	106,944	117,474
Farm Credit stock	654	673	1,198	1,309
Other stock & certificates	1,702	2,079	4,729	4,865
Land & buildings <sup>50</sup>	210,767	215,300	250,141	263,666
Total Farm Assets	\$411,959	\$426,712	\$530,727	\$570,341
Personal cash, checking & savings	\$9,999	\$11,349	\$4,041	\$5,689
Cash value of life insurance	4,286	6,371	8,472	8,409
Nonfarm real estate	18,500	19,000	15,123	13,500
Auto (personal share)	6,700	7,300	6,200	6,218
Stocks & bonds	13,050	15,219	16,136	19,124
Household furnishings	12,220	11,420	11,700	11,800
All other	786	1,151	1,175	1,150
Nonfarm Assets <sup>51</sup>	\$65,540	\$71,810	\$62,846	\$65,889
Farm & Nonfarm Assets	\$477,499	\$498,522	\$593,573	\$636,230
<b>LIABILITIES</b>				
Accounts payable	\$2,715	\$2,014	\$8,731	\$6,596
Operating debt	7,909	6,912	6,990	6,467
Short term	0	0	1,254	1,072
Advanced government receipt	0	0	0	0
Current Portion:				
Intermediate	8,030	10,148	10,317	13,182
Long Term	2,407	2,553	3,491	4,077
Intermediate <sup>52</sup>	40,776	40,045	50,555	45,332
Long term <sup>50</sup>	32,404	30,192	65,704	67,984
Total Farm Liabilities	\$94,241	\$91,864	\$147,042	\$144,710
Nonfarm Liabilities <sup>51</sup>	901	901	786	355
Farm & Nonfarm Liabilities	\$95,142	\$92,765	\$147,828	\$145,065
Farm Net Worth (Equity Capital)	\$317,718	\$334,846	\$383,686	\$425,630
Farm & Nonfarm Net Worth	\$382,357	\$405,757	\$445,745	\$491,165
<b>FINANCIAL MEASURES</b>				
	Less than 50 Cows		50 to 74 Cows	
Percent Equity	78%		75%	
Debt/asset ratio-long term	0.22		0.26	
Debt/asset ratio-intermediate & current	0.29		0.25	
Change in net worth with appreciation	\$17,128		\$41,945	
Total farm debt per cow	\$2,170		\$2,343	
Debt payments made per cow	\$368		\$531	
Debt payments as % of milk sales	12%		18%	
Amount available for debt service	\$19,656		\$22,621	
Cash flow coverage ratio for 2004	1.38		0.97	
Debt coverage ratio for 2004	1.29		1.30	

<sup>50</sup>Includes discounted lease payments.<sup>51</sup>Average of farms reporting nonfarm assets and liabilities for 2004.<sup>52</sup>Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 55. (cont'd)

**FARM FAMILY FINANCIAL SITUATION BY HERD SIZE**  
**200 New York Dairy Farms, 2004**

Item	Farms with: 75 to 99 Cows		100 to 199 Cows	
	Jan. 1	Dec. 31	Jan. 1	Dec. 31
<b>ASSETS</b>				
Farm cash, checking & savings	\$4,609	\$5,305	\$9,402	\$12,266
Accounts receivable	17,469	20,293	37,494	42,719
Prepaid expenses	391	609	260	532
Feed & supplies	51,358	58,532	92,228	102,267
Livestock <sup>53</sup>	162,360	168,186	267,526	284,969
Machinery & equipment <sup>53</sup>	156,599	160,099	264,132	290,352
Farm Credit stock	1,865	1,748	2,313	2,290
Other stock & certificates	17,273	17,945	20,767	21,314
Land & buildings <sup>53</sup>	<u>363,306</u>	<u>370,111</u>	<u>538,177</u>	<u>552,319</u>
Total Farm Assets	\$775,231	\$802,829	\$1,232,299	\$1,309,028
Personal cash, checking & savings	\$1,619	\$295	\$22,589	\$23,034
Cash value of life insurance	24,529	26,119	16,466	18,206
Nonfarm real estate	60,389	60,389	102,063	103,526
Auto (personal share)	3,733	3,444	7,625	11,034
Stocks & bonds	6,181	10,702	42,346	48,290
Household furnishings	9,111	9,222	10,500	7,125
All other	<u>28,334</u>	<u>29,010</u>	<u>15,111</u>	<u>22,195</u>
Nonfarm Assets <sup>54</sup>	\$133,897	\$139,183	\$216,699	\$233,410
Farm & Nonfarm Assets	\$909,128	\$942,012	\$1,448,998	\$1,542,438
<b>LIABILITIES</b>				
Accounts payable	\$14,609	\$9,536	\$7,350	\$7,153
Operating debt	12,148	12,757	24,351	23,645
Short term	2,754	532	2,088	1,312
Advanced government receipt	0	0	0	0
Current Portion:				
Intermediate	16,090	21,295	21,495	26,349
Long Term	4,632	4,891	8,117	8,331
Intermediate <sup>55</sup>	108,999	97,008	123,097	115,551
Long term <sup>53</sup>	<u>57,707</u>	<u>65,323</u>	<u>96,266</u>	<u>94,466</u>
Total Farm Liabilities	\$216,939	\$211,342	\$282,765	\$276,808
Nonfarm Liabilities <sup>54</sup>	<u>6,073</u>	<u>0</u>	<u>4,198</u>	<u>3,300</u>
Farm & Nonfarm Liabilities	\$223,012	\$211,342	\$286,963	\$280,108
Farm Net Worth (Equity Capital)	\$558,292	\$591,487	\$949,534	\$1,032,220
Farm & Nonfarm Net Worth	\$686,116	\$730,670	\$1,162,035	\$1,262,330
<b>FINANCIAL MEASURES</b>				
Percent equity	74%		79%	
Debt/asset ratio-long term	0.18		0.17	
Debt/asset ratio-intermediate & current	0.34		0.24	
Change in net worth with appreciation	\$33,195		\$81,283	
Total farm debt per cow	\$2,461		\$2,008	
Debt payments made per cow	\$586		\$499	
Debt payments as % of milk sales	19%		15%	
Amount available for debt service	\$30,539		\$51,470	
Cash flow coverage ratio for 2004	0.89		1.05	
Debt coverage ratio for 2004	1.24		1.48	

<sup>53</sup>Includes discounted lease payments.<sup>54</sup>Average of farms reporting nonfarm assets and liabilities for 2004.<sup>55</sup>Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 55. (cont'd)

**FARM FAMILY FINANCIAL SITUATION BY HERD SIZE**  
**200 New York Dairy Farms, 2004**

Item	Farms with: 200 to 299 Cows		300 to 399 Cows	
	Jan. 1	Dec. 31	Jan. 1	Dec. 31
<b>ASSETS</b>				
Farm cash, checking & savings	\$5,860	\$9,985	\$21,095	\$15,470
Accounts receivable	63,588	74,852	85,299	105,209
Prepaid expenses	1,243	1,496	116	1,127
Feed & supplies	142,107	141,905	198,604	243,260
Livestock <sup>56</sup>	437,422	492,959	592,782	637,333
Machinery & equipment <sup>56</sup>	321,982	342,238	461,488	478,146
Farm Credit stock	3,095	3,405	4,132	4,037
Other stock & certificates	32,418	33,058	39,001	44,663
Land & buildings <sup>56</sup>	643,288	708,991	990,392	1,074,247
Total Farm Assets	\$1,653,216	\$1,813,100	\$2,392,911	\$2,603,492
Personal cash, checking & savings	\$4,253	\$5,271	\$6,867	\$3,420
Cash value of life insurance	27,926	29,585	13,659	15,145
Nonfarm real estate	41,700	44,200	16,667	42,917
Auto (personal share)	6,700	11,050	7,292	8,167
Stocks & bonds	43,970	45,657	38,883	67,090
Household furnishings	7,200	7,200	8,625	8,625
All other	4,915	4,964	19,381	23,118
Nonfarm Assets <sup>57</sup>	\$136,663	\$147,928	\$111,374	\$168,482
Farm & Nonfarm Assets	\$1,789,879	\$1,961,028	\$2,504,285	\$2,771,974
<b>LIABILITIES</b>				
Accounts payable	\$50,087	\$40,008	\$41,231	\$24,165
Operating debt	47,142	35,097	78,840	67,353
Short term	964	1,917	390	2,963
Advanced government receipt	0	0	0	0
Current Portion:				
Intermediate	50,382	54,130	63,248	80,139
Long Term	14,887	18,950	25,151	32,172
Intermediate <sup>58</sup>	299,474	301,209	492,310	405,009
Long term <sup>56</sup>	287,254	312,577	332,786	418,581
Total Farm Liabilities	\$750,190	\$763,888	\$1,033,956	\$1,030,381
Nonfarm Liabilities <sup>57</sup>	2,199	1,598	12,726	12,660
Farm & Nonfarm Liabilities	\$752,389	\$765,486	\$1,046,682	\$1,043,041
Farm Net Worth (Equity Capital)	\$903,026	\$1,195,542	\$1,358,955	\$1,573,111
Farm & Nonfarm Net Worth	\$1,037,490	\$1,049,212	\$1,457,603	\$1,728,933
<b>FINANCIAL MEASURES</b>				
Percent equity	200 to 299 Cows		300 to 399 Cows	
	58%		60%	
Debt/asset ratio-long term	0.44		0.39	
Debt/asset ratio-intermediate & current	0.41		0.40	
Change in net worth with appreciation	\$146,187		\$214,156	
Total farm debt per cow	\$2,934		\$2,879	
Debt payments made per cow	\$693		\$619	
Debt payments as % of milk sales	20%		17%	
Amount available for debt service	\$159,576		\$212,236	
Cash flow coverage ratio for 2004	1.42		1.13	
Debt coverage ratio for 2004	1.66		1.62	

<sup>56</sup>Includes discounted lease payments.<sup>57</sup>Average of farms reporting nonfarm assets and liabilities for 2004.<sup>58</sup>Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 55. (cont'd)

**FARM FAMILY FINANCIAL SITUATION BY HERD SIZE**  
**200 New York Dairy Farms, 2004**

Item	Farms with:		More than 600 Cows	
	400 to 599 Cows		Jan. 1	Dec. 31
	Jan. 1	Dec. 31	Jan. 1	Dec. 31
<b>ASSETS</b>				
Farm cash, checking & savings	\$23,973	\$13,511	\$36,051	\$46,530
Accounts receivable	95,408	121,899	199,052	273,799
Prepaid expenses	436	2,252	8,575	9,620
Feed & supplies	306,191	373,446	640,941	760,557
Livestock <sup>59</sup>	882,308	957,873	1,953,164	2,170,964
Machinery & equipment <sup>59</sup>	500,435	613,796	1,046,736	1,156,412
Farm Credit stock	8,260	7,646	16,428	16,463
Other stock & certificates	42,231	50,300	198,194	216,069
Land & buildings <sup>59</sup>	<u>1,179,315</u>	<u>1,244,278</u>	<u>2,687,651</u>	<u>2,865,908</u>
Total Farm Assets	\$3,038,557	\$3,385,003	\$6,786,793	\$7,516,320
Personal cash, checking & savings	\$2,487	\$7,211	\$3,151	\$3,416
Cash value of life insurance	12,756	11,152	56,338	63,439
Nonfarm real estate	17,750	38,052	246,808	279,290
Auto (personal share)	5,714	12,429	2,357	3,000
Stocks & bonds	60,886	67,337	42,906	59,226
Household furnishings	5,857	7,000	9,857	9,857
All other	<u>13,154</u>	<u>18,950</u>	<u>13,219</u>	<u>14,793</u>
Nonfarm Assets <sup>60</sup>	\$118,603	\$162,131	\$374,636	\$433,021
Farm & Nonfarm Assets	\$3,157,160	\$3,547,134	\$7,161,429	\$7,949,341
<b>LIABILITIES</b>				
Accounts payable	\$54,745	\$37,285	\$186,801	\$158,783
Operating debt	102,498	108,287	223,405	216,684
Short term	12,967	14,388	19,004	13,243
Advanced government receipts	0	0	0	0
Current Portion:				
Intermediate	123,803	135,746	263,593	279,305
Long Term	32,617	34,980	95,210	108,135
Intermediate <sup>61</sup>	670,732	630,961	1,282,179	1,269,003
Long term <sup>59</sup>	<u>561,165</u>	<u>536,957</u>	<u>1,354,537</u>	<u>1,379,805</u>
Total Farm Liabilities	\$1,558,526	\$1,498,605	\$3,424,728	\$3,424,958
Nonfarm Liabilities <sup>60</sup>	<u>7,785</u>	<u>19,698</u>	<u>1,398</u>	<u>450</u>
Farm & Nonfarm Liabilities	\$1,566,311	\$1,518,303	\$3,426,126	\$3,425,408
Farm Net Worth (Equity Capital)	1,480,031	1,886,398	3,362,065	4,091,362
Farm & Nonfarm Net Worth	\$1,590,849	\$2,028,831	\$3,735,303	\$4,523,933
<b>FINANCIAL MEASURES</b>				
	<u>400 to 599 Cows</u>		<u>More than 600 Cows</u>	
Percent equity	56%		54%	
Debt/asset ratio-long term	.43		.48	
Debt/asset ratio-intermediate & current	.45		.44	
Change in net worth with appreciation	\$406,367		\$708,231	
Total farm debt per cow	\$2,965		\$3,047	
Debt payments made per cow	\$591		\$536	
Debt payments as % of milk sales	16%		14%	
Amount available for debt service	\$355,828		\$668,809	
Cash flow coverage ratio for 2004	1.37		1.37	
Debt coverage ratio for 2004	1.92		1.97	

<sup>59</sup>Includes discounted lease payments.<sup>60</sup>Average of farms reporting nonfarm assets and liabilities for 2004.<sup>61</sup>Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 56.

**SELECTED BUSINESS FACTORS BY HERD SIZE**  
**200 New York Dairy Farms, 2004**

Item	Farms with:	Less than 50 Cows	50 to 74 Cows	75 to 99 Cows	100 to 199 Cows
Number of farms		15	33	15	42
<u>Cropping Program Analysis</u>					
Total Tillable acres		148	202	252	417
Tillable acres rented <sup>62</sup>		68	81	89	186
Hay crop acres <sup>62</sup>		107	127	153	221
Corn silage acres <sup>62</sup>		13	30	61	107
Hay crop, tons DM/acre		2.4	2.2	2.7	2.9
Corn silage, tons/acre		11.6	16.0	16.7	15.9
Oats, bushels/acre		0	46	62	50
Forage DM per cow, tons		7.8	7.9	9.4	9.1
Tillable acres/cow		3.8	3.6	3.2	3.1
Fertilizer & lime expense/tillable acre		\$20.42	\$19.20	\$27.21	\$30.82
Total machinery costs		\$26,681	\$40,924	\$56,935	\$100,808
Machinery cost/tillable acre		\$180	\$187	\$211	\$242
<u>Dairy Analysis</u>					
Number of cows		39	60	85	136
Number of heifers		30	46	71	114
Milk sold, lbs.		702,652	1,072,197	1,564,128	2,687,709
Milk sold/cow, lbs.		18,017	17,755	18,330	19,828
Operating cost of producing milk/cwt.		\$11.71	\$11.82	\$12.52	\$12.38
Total cost of producing milk/cwt.		\$20.65	\$19.30	\$18.51	\$17.73
Price/cwt. milk sold		\$16.73	\$16.89	\$16.90	\$17.14
Purchased dairy feed/cow		\$883	\$882	\$952	\$922
Purchased dairy feed/cwt. milk		\$4.90	\$4.97	\$5.19	\$4.65
Purchased grain & concentrate as % of milk receipts		30%	27%	30%	27%
Purchased feed & crop expense/cwt. milk		\$5.78	\$5.67	\$6.00	\$5.65
Cull rate		26.7%	27.9%	29.3%	28.9%
<u>Capital Efficiency</u>					
Farm capital/worker		\$218,404	\$254,582	\$271,144	\$312,202
Farm capital/cow		\$10,752	\$9,116	\$9,247	\$9,374
Farm capital/tillable acre owned		\$5,216	\$4,566	\$4,831	\$5,513
Real estate/cow		\$5,462	\$4,254	\$4,298	\$4,022
Machinery investment/cow		\$2,222	\$1,858	\$1,856	\$2,045
Asset turnover ratio		0.35	0.42	0.40	0.46
<u>Labor Efficiency</u>					
Worker equivalent		1.92	2.16	2.91	4.07
Operator/manager equivalent		1.18	1.32	1.31	1.59
Milk sold/worker, lbs.		365,964	495,814	537,347	660,371
Cows/worker		20	28	29	33
Labor cost/cow		\$1,259	\$918	\$851	\$791
Labor cost/tillable acre		\$332	\$274	\$288	\$257

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

Table 56. (cont'd)

**SELECTED BUSINESS FACTORS BY HERD SIZE**  
**200 New York Dairy Farms, 2004**

Item	Farms with:	200 to 299 Cows	300 to 399 Cows	400 to 599 Cows	600 or More Cows
Number of farms		23	20	21	31
<u>Cropping Program Analysis</u>					
Total Tillable acres		585	732	1,091	1,905
Tillable acres rented <sup>63</sup>		325	304	619	957
Hay crop acres <sup>63</sup>		295	340	474	864
Corn silage acres <sup>63</sup>		172	252	371	825
Hay crop, tons DM/acre		3.2	3.7	3.6	4.0
Corn silage, tons/acre		17.2	18.4	18.8	17.7
Oats, bushels/acre		55	50	60	0
Forage DM per cow, tons		8.0	8.5	8.4	7.7
Tillable acres/cow		2.4	2.2	2.3	1.8
Fertilizer & lime exp./tillable acre		\$30.39	\$28.52	\$36.64	\$33.83
Total machinery costs		\$153,921	\$223,594	\$296,183	\$557,751
Machinery cost/tillable acre		\$257	\$290	\$259	\$284
<u>Dairy Analysis</u>					
Number of cows		255	345	499	1,099
Number of heifers		186	263	395	850
Milk sold, lbs.		5,216,266	7,373,379	11,111,133	25,557,683
Milk sold/cow, lbs.		20,453	21,385	22,275	23,262
Operating cost of producing milk/cwt.		\$12.89	\$12.74	\$12.19	\$12.70
Total cost of producing milk/cwt.		\$16.37	\$16.23	\$15.07	\$15.17
Price/cwt. milk sold		\$16.92	\$16.81	\$16.90	\$16.41
Purchased dairy feed/cow		\$1,027	\$1,089	\$980	\$1,150
Purchased dairy feed/cwt. milk		\$5.02	\$5.09	\$4.40	\$4.94
Purchased grain & concentrate as % of milk receipts		28%	28%	25%	28%
Purchased feed & crop expense/cwt. milk		\$5.77	\$5.82	\$5.20	\$5.62
Cull rate		28.3%	32.7%	30.1%	33.3%
<u>Capital Efficiency</u>					
Farm capital/worker		\$295,635	\$280,828	\$264,671	\$311,343
Farm capital/cow		\$6,796	\$7,245	\$6,439	\$6,509
Farm capital/tillable acre owned		\$6,664	\$5,841	\$6,808	\$7,541
Real estate/cow		\$2,651	\$2,994	\$2,429	\$2,527
Machinery investment/cow		\$1,315	\$1,363	\$1,117	\$1,003
Asset turnover ratio		0.62	0.60	0.70	0.71
<u>Labor Efficiency</u>					
Worker equivalent		5.86	8.90	12.14	22.97
Operator/manager equivalent		1.77	1.53	2.03	2.11
Milk sold/worker, lbs.		889,768	828,858	915,627	1,112,493
Cows/worker		44	39	41	48
Labor cost/cow		\$674	\$704	\$728	\$754
Labor cost/tillable acre		\$294	\$332	\$333	\$435

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

## SUPPLEMENTAL INFORMATION

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

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

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

Farms specializing in only milk production are a growing trend in New York. In 2004, 13 participating farms, including owners and renters, purchased the majority of their feed, including all forages. Less than 10 acres of crops were harvested by the average farm. Table 57 highlights the income and expenses for these 13 farms compared to the income and expenses for 134 farms of similar size that grew their forages. Table 58 compares selected business factors for the two groups of farms. In 2004, the 13 farms buying forages were, on average, higher for most measures of profitability than the similar size farms growing forages. While receipts per cow were similar, operating costs were \$0.67 per hundredweight higher.

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

When analyzing a dairy farm business by comparing it to a group of farms, it is important that the group of farms have as many of the same physical characteristics as possible as the farm being analyzed. To assist in this endeavor, dairy farms in the summary have been divided into those with freestall and those with conventional housing. Conventional housing includes stanchion and tiestall barns. Within each group, is a further classification by size of the dairy herd. Table 59 on page 65 includes the average values for the resulting five groups of dairy farms. The average size in the five groups ranges from 46 cows on the small conventional farms to 721 cows on the largest freestall farms. The largest freestall farms averaged the highest milk output per cow and per worker, the lowest total cost of production and investment per cow, and the greatest returns to labor, management and capital.

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

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

Farms adopting bovine somatotropin (bST) sold more milk per cow and had larger herds (Table 65). Farms using bST were also more profitable by all measures in 2004. However, their operating costs of producing milk per hundredweight were only \$0.11 lower than farms not using bST.

Farms not using bST showed a 6.4 percent increase in pounds of milk sold per cow, from 18,272 pounds in 2000 to 19,438 pounds in 2004. Farms using bST increased milk sold per cow 0.4 percent, from 22,972 pounds per cow in 2000 to 23,057 pounds per cow in 2004. Farms that used bST in 2000 through 2004 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 127 cows in 2000 to 138 in 2004. Farms adopting bST increased by 77 cows, up to 436 cows in 2004. Both farms using bST and those not using bST saw an increase in net farm income in 2004 as well as an increase in net worth. Debt to asset ratio and debt per cow changed very little over the study period. The reader is again reminded that bST is not solely responsible for the total changes, size and other factors are also significant.

### **Comparison of Data, Same Farms, 1995 - 2004**

Follow ten years of growth, change and progress made by 63 New York DFBS farms in Table 66, pages 72 and 73. Milk receipts per hundredweight are higher by \$3.48 and profitability is significantly higher in 2004 when compared to 1995. Care should be exercised in using these data to indicate change in the dairy industry since the composition of the sample of farms is different from the state as a whole, and there is considerable year-to-year variability in milk prices.

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

Average accrual receipts and expenses per cow and per hundredweight of milk sold are listed for 53 dairy farms selling less than 18,000 pounds of milk per cow, 79 farms with 18,000 to 22,000 pounds milk sold per cow, and 68 dairy farms selling 22,000 pounds and more in Table 67 on page 74. Table 68 on page 75 provides the same list of average accrual receipts and expenses for 53 farms averaging less than 80 cows per farm, 48 farms with 80 to 180 cows and 99 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 2004, 30 of the DFBS cooperators practiced intensive grazing. Intensive grazing means the dairy herd was on pasture for three months or more and was moved to a new paddock every third day or less and at least 30 percent of the forage was from pasture. The farms using intensive grazing are compared with a control group of non-grazing farms in Table 69. The control group is a selection of non-grazing dairy farms of similar size. In 2004, average profitability was higher on intensive grazing farms. Operating cost of producing milk was \$0.80 per hundredweight lower while total costs were 64 cents per hundredweight lower than the costs of production on the control farms. Table 69 also includes a comparison of 10 profitable grazing farms to 11 profitable non-grazing farms. A publication containing detailed information on New York farms using intensive grazing is available from the Cornell Cooperative Extension Resource Center, P. O. Box 3884, Ithaca, NY 14852-2884 or order copies via the website <http://www.cce.cornell.edu/store>

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

Thirty-two percent of the 200 DFBS farms utilized three times per day (3X) milking in 2004. Most of the remaining farms milked twice per day (2X). Two years of selected average business and cost of milk production factors from the two milking frequency groups are compared in Table 70.

In 2004, the 3X farms averaged 68 more cows per farm, sold 1.6 percent less milk per cow, increased the total cost of producing milk by 7.3 percent, but showed an average \$370,658 increase in net farm income, compared to the 3X farm averages for 2003. The 2X farms increased milk output per cow 0.8 percent, increased total production costs \$1.75 per hundredweight but increased average net farm income \$61,947 per farm in 2004 compared to 2003.

The 3X farms averaged 20 percent more milk per cow and 42 percent additional milk per worker in 2004 compared with the 2X farms. Similar differences were found in 2003. In 2004, the average total cost of producing milk was 11 percent lower on 3X farms than on 2X dairies. On the average, farmers milking 3X sold more milk per cow and per worker, produced milk at lower costs per hundredweight and received higher returns for their labor, management and capital than the average dairy farmer milking 2X. However, milking frequency was not the only, and probably not the most important, factor that contributed to financial success on these dairy farms. Comparison of herd size, crop yields, labor and capital efficiency indicates there are other important management differences contributing to higher profits.

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

Average farm business summary data from five regions of the State are compared in Tables 71 and 72. The Northern New York Region averaged the highest profitability. The largest average farm size and highest average rate of milk production came from the Western and Central Plain Region. Dairy farmers in this region have increased milk production 28.1 percent from 1994-2004, and they produced milk for an average total cost of \$15.40 per hundredweight in 2004. Total milk production has declined 11.8 percent from 1994-2004 in the Central Valleys Region (Figure 2). However, this is the region with the second highest return per hundredweight to labor, management and capital.

### **Other Comparisons**

Twenty-three dairy renter farms were smaller, on average, and averaged lower labor and management incomes than the average for 200 owned dairy farms (Table 73). A forthcoming publication contains detailed information on New York dairy renters (see <http://www.cce.cornell.edu/store>). Data for the top 10 percent of farms by rate of return on all capital without appreciation is presented in Table 74. Additional data for the top 10 percent of farms is presented in many of the first 46 tables of this publication. Summary data for the 200 specialized dairy farms are presented in Table 75.

Table 57.

## INCOME &amp; EXPENSE COMPARISON FOR

## FARMS BUYING MAJORITY OF FORAGES VERSUS SIMILAR SIZE FARMS GROWING FORAGES, 2004

Item	13 Farms Buying Majority of Forages		134 Similar Size Farms Growing Forages	
Number of cows per farm	229		215	
Pounds of Milk Sold	5,138,512		4,597,702	
<u>Income</u>	<u>Per Cow</u>	<u>Per Cwt.</u>	<u>Per Cow</u>	<u>Per Cwt.</u>
Milk sold	\$3,815	\$17.00	\$3,629	\$16.97
Dairy cattle	308	1.37	223	1.04
Dairy calves	59	0.26	48	0.22
Other livestock	5	0.02	9	0.04
Crops	-4	-0.02	81	0.38
Miscellaneous	80	0.35	168	0.80
Total Accrual Receipts	\$4,264	\$19.00	\$4,157	\$19.44
<u>Expenses</u>				
Hired labor	\$418	\$1.86	\$519	\$2.43
Dairy grain & concentrate	1,021	4.55	962	4.50
Dairy roughage	491	2.19	28	0.13
Nondairy	0	0.00	1	0.00
Professional nutritional services	2	0.01	2	0.01
Machinery hire, rent/lease	68	0.30	71	0.33
Machinery repairs/vehicle expense.	106	0.47	215	1.01
Fuel, oil & grease	54	0.24	105	0.49
Replacement livestock	171	0.76	25	0.12
Breeding	26	0.12	49	0.23
Veterinary & medicine	113	0.50	122	0.57
Milk marketing	164	0.73	175	0.82
Bedding	44	0.19	48	0.23
Milking supplies	77	0.34	77	0.36
Cattle lease/rent	0	0.00	3	0.02
Custom boarding	92	0.41	57	0.27
bST expense	15	0.07	31	0.14
Livestock professional fees	8	0.04	10	0.05
Other livestock expenses	14	0.06	29	0.13
Fertilizer & lime	3	0.01	81	0.38
Seeds & plants	13	0.06	51	0.24
Spray, other crop expenses	1	0.00	47	0.22
Crop professional fees	0	0.00	5	0.02
Land/bldg/fence repair	19	0.09	49	0.23
Taxes	21	0.09	57	0.27
Rent & lease	29	0.13	59	0.28
Insurance	31	0.14	40	0.18
Utilities	79	0.35	91	0.43
Interest paid	169	0.75	119	0.56
Other professional fees	12	0.05	16	0.07
Miscellaneous	17	0.07	22	0.10
Total Operating Expenses	\$3,275	\$14.60	\$3,166	\$14.81
Expansion livestock	\$118	\$0.53	\$24	\$0.11
Extraordinary expense	0	0.00	4	0.02
Machinery depreciation	105	0.47	185	0.87
Building depreciation	147	0.66	106	0.49
Total Accrual Expenses	\$3,646	\$16.25	\$3,486	\$16.30
Net Farm Income (without appreciation)	\$618	\$2.75	\$671	\$3.14

Table 58.

**SELECTED BUSINESS FACTORS FOR FARMS BUYING MAJORITY OF FORAGES  
VERSUS SIMILAR SIZE FARMS GROWING FORAGES, 2004**

Selected Factors	13 Farms Buying Majority of Forages	134 Similar Size Farms Growing Forages
<u>Size of Business</u>		
Average number of cows	229	215
Average number of heifers	136	172
Milk sold, lbs.	5,138,512	4,597,702
Worker equivalent	4.60	6.02
Total tillable acres	71	553
Tillable acres harvested	60	524
<u>Rates of Production</u>		
Milk sold per cow, lbs.	22,484	21,356
Hay DM per acre, tons	0.3	3.2
Corn silage per acre, tons	0.0	17.8
<u>Labor Efficiency &amp; Costs</u>		
Cows per worker	50	36
Milk sold/worker, lbs.	1,117,068	763,738
Hired labor cost/cwt.	\$1.86	\$2.43
Hired labor cost/worker	\$20,792	\$28,476
Hired labor cost as % of milk sales	10.9%	14.3%
<u>Cost Control</u>		
Grain & concentrate purchased as % of milk sales	27%	27%
Grain & concentrate per cwt. milk	\$4.55	\$4.50
Dairy feed & crop expense per cwt. milk	\$6.81	\$5.49
Labor & machinery costs/cow	\$987	\$1,431
Total farm operating costs per cwt. sold	\$14.60	\$14.81
Interest costs per cwt. milk	\$0.75	\$0.56
Milk marketing costs per cwt. milk sold	\$0.73	\$0.82
Operating cost of producing cwt. of milk	\$13.12	\$12.45
<u>Capital Efficiency(average for the year)</u>		
Farm capital per cow	\$5,477	\$7,721
Machinery & equipment per cow	\$712	\$1,553
Asset turnover ratio	0.83	0.57
<u>Income Generation</u>		
Gross milk sales per cow	\$3,815	\$3,629
Gross milk sales per cwt.	\$17.00	\$16.97
Net milk sales per cwt.	\$16.27	\$16.15
Dairy cattle sales per cow	\$308	\$223
Dairy calf sales per cow	\$59	\$48
<u>Profitability</u>		
Net farm income without appreciation	\$141,510	\$144,278
Net farm income with appreciation	\$204,156	\$202,758
Labor & management income per operator/manager	\$74,952	\$44,453
Rate of return on equity capital without appreciation	18.5%	7.8%
Rate of return on all capital without appreciation	9.7%	13.8%
<u>Cash flow</u>		
Principal & interest payments per cow, 2004	\$468	\$514
Net cash flow	\$155,650	\$185,125
<u>Financial Summary</u>		
Farm net worth, end year	\$514,585	\$585,993
Farm net worth change from last year, %	36.8%	29.3%
Debt to asset ratio	0.62	0.33
Farm debt per cow	\$3,528	\$2,632

Table 59.

**SELECTED BUSINESS FACTORS BY TYPE OF BARN AND HERD SIZE**  
**191 New York Dairy Farms, 2004**

Item	Farms with:	Conventional		Freestall		
		<= 60 Cows	>60 Cows	<=150 Cows	151-300 Cows	≥300 Cows
Number of farms		30	27	32	32	70
<u>Cropping Program Analysis</u>						
Total Tillable acres		156	315	283	568	1,349
Tillable acres rented <sup>64</sup>		68	115	126	288	684
Hay crop acres <sup>64</sup>		109	179	166	284	605
Corn silage acres <sup>64</sup>		18	57	73	167	540
Hay crop, tons DM/acre		2.4	2.5	2.9	2.9	3.9
Corn silage, tons/acre		14.7	17.4	16.0	16.4	18.0
Oats, bushels/acre		0	50	60	53	55
Forage DM per cow, tons		8.0	8.8	9.0	8.0	7.9
Tillable acres/cow		3.5	3.5	2.9	2.6	1.9
Fertilizer & lime expense/tillable acre		\$18.02	\$25.60	\$28.81	\$31.75	\$33.72
Total machinery costs		\$29,905	\$70,440	\$68,491	\$146,434	\$392,561
Machinery cost/tillable acre		\$187	\$223	\$221	\$253	\$279
<u>Dairy Analysis</u>						
Number of cows		46	89	103	227	721
Number of heifers		34	74	85	172	561
Milk sold, lbs.		811,167	1,666,824	1,901,213	4,775,050	16,492,528
Milk sold/cow, lbs.		17,634	18,688	18,437	21,038	22,887
Operating cost of producing milk/cwt.		\$11.70	\$12.25	\$12.77	\$12.76	\$12.58
Total cost of producing milk/cwt.		\$19.90	\$19.12	\$18.32	\$16.53	\$15.24
Price/cwt. milk sold		\$16.75	\$17.07	\$17.08	\$16.92	\$16.52
Purchased dairy feed/cow		\$879	\$904	\$953	\$1,031	\$1,110
Purchased dairy feed/cwt. milk		\$4.99	\$4.84	\$5.17	\$4.90	\$4.85
Purchased grain & concentrate as % of milk receipts		29%	28%	28%	27%	27%
Purchased feed & crop expense/cwt milk		\$5.67	\$5.76	\$6.04	\$5.72	\$5.56
<u>Capital Efficiency</u>						
Farm capital/worker		\$226,694	\$278,771	\$300,917	\$307,527	\$294,409
Farm capital/cow		\$9,659	\$10,221	\$8,696	\$7,547	\$6,586
Farm capital/tillable acre owned		\$5,026	\$4,563	\$5,724	\$6,121	\$7,138
Real estate/cow		\$4,797	\$4,523	\$3,768	\$3,095	\$2,551
Machinery investment/cow		\$1,949	\$2,341	\$1,855	\$1,444	\$1,073
Asset turnover ratio		0.38	0.40	0.43	0.59	0.69
<u>Labor Efficiency</u>						
Worker equivalent		1.95	3.27	2.98	5.57	16.12
Operator/manager equivalent		1.21	1.45	1.40	1.73	1.94
Milk sold/worker, lbs.		415,273	509,862	637,991	856,767	1,023,057
Cows/worker		24	27	35	41	45
Labor cost/cow		\$1,067	\$884	\$785	\$708	\$746
Labor cost/tillable acre		\$314	\$250	\$286	\$283	\$399
<u>Profitability &amp; Balance Sheet Analysis</u>						
Net farm income (without appreciation)		\$29,499	\$52,175	\$55,987	\$137,058	\$433,769
Labor & management income/operator		\$4,396	\$3,034	\$12,637	\$46,154	\$157,455
Rate return on all capital with appreciation		2.1%	4.4%	4.7%	11.3%	13.6%
Farm debt/cow		\$2,366	\$1,548	\$2,279	\$2,764	\$3,011
Percent equity		75%	85%	74%	64%	55%

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

Table 60.

**FARM BUSINESS CHART FOR SMALL CONVENTIONAL STALL DAIRY FARMS**  
**30 Conventional Stall Dairy Farms with 60 or Less Cows, New York, 2004**

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds of Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
3.22	57	1,133,707	24,089	4.2	23	42	703,501
2.67	54	1,045,992	21,880	3.3	19	35	597,059
2.20	53	955,714	20,457	2.9	18	30	539,444
1.99	51	898,535	18,678	2.7	16	28	463,053
1.95	50	831,754	17,910	2.4	15	25	438,231
-----							
1.83	45	794,187	17,233	2.3	13	23	407,325
1.63	43	757,164	15,949	2.1	11	20	375,185
1.54	41	717,533	14,769	1.8	11	19	327,774
1.36	37	651,795	13,648	1.7	10	17	268,092
1.17	30	325,286	10,933	1.3	9	15	240,908
-----							
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		
\$439	16%	\$249	\$1,045	\$586	\$3.64		
552	22	401	1,248	681	4.44		
660	25	489	1,405	729	5.01		
743	27	543	1,482	803	5.16		
799	27	617	1,672	928	5.39		
-----							
857	28	650	1,765	1,092	5.75		
959	30	700	1,908	1,167	6.36		
1,027	33	805	2,056	1,217	6.50		
1,073	37	858	2,224	1,281	7.17		
1,241	45	1,070	2,508	1,534	7.96		
-----							
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Operating Cost Producing Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Income Per Operator	Change in Net Worth w/Appreciation	
			Total	Per Cow			
\$4,139	\$8.95	\$15.64	\$65,615	\$1,417	\$34,907	\$56,545	
3,609	9.96	16.73	53,094	1,057	25,157	39,942	
3,371	10.34	18.19	43,380	855	15,921	32,522	
3,152	10.74	18.95	37,978	782	13,101	25,724	
2,994	11.28	19.21	33,091	730	9,366	21,782	
-----							
2,798	11.64	19.42	24,986	508	2,667	19,045	
2,648	12.28	20.57	15,518	412	-772	13,697	
2,562	13.40	22.06	13,372	306	-6,272	10,020	
2,311	14.27	24.21	10,509	272	-11,253	5,776	
1,802	15.81	29.77	-2,547	-92	-32,189	-17,925	

Table 61.

**FARM BUSINESS CHART FOR LARGE CONVENTIONAL STALL DAIRY FARMS**  
**27 Conventional Stall Dairy Farms with More Than 60 Cows, New York, 2004**

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds of Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
7.23	163	3,202,431	25,150	4.7	25	42	814,565
4.44	122	2,352,081	22,786	4.0	24	36	764,671
4.13	112	2,129,506	21,627	3.7	22	36	705,555
3.69	97	1,903,718	20,728	3.2	19	34	672,474
3.18	91	1,684,049	20,172	3.1	17	32	579,958
-----							
2.84	83	1,488,916	19,014	2.5	17	30	512,690
2.67	72	1,369,555	17,369	2.2	16	27	479,264
2.50	70	1,256,258	16,255	2.0	14	23	422,381
2.18	65	1,184,462	14,824	1.6	12	21	375,024
1.83	62	991,768	13,589	1.2	7	19	315,051
-----							
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		
\$437	14%	\$463	\$1,205	\$676	\$3.69		
690	21	547	1,331	896	4.80		
732	24	602	1,419	959	5.19		
814	25	653	1,512	1,057	5.43		
869	26	705	1,593	1,098	5.60		
-----							
915	29	785	1,710	1,125	6.00		
986	32	812	1,839	1,142	6.57		
1,085	37	874	1,950	1,186	7.11		
1,188	40	1,001	2,166	1,331	7.59		
1,332	44	1,710	2,544	1,544	8.26		
-----							
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Operating Cost Producing Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Income Per Operator	Change in Net Worth w/Appreciation	
			Total	Per Cow			
\$4,223	\$8.82	\$14.13	\$134,367	\$1,343	\$70,126	\$172,691	
3,733	10.13	15.75	124,089	1,272	50,269	111,611	
3,624	10.76	16.97	106,546	1,139	32,318	78,720	
3,561	11.80	18.66	73,883	941	24,579	63,284	
3,406	12.34	19.62	56,295	714	14,088	49,668	
-----							
3,202	13.25	20.19	44,700	545	5,513	41,071	
3,095	13.69	20.77	32,908	401	-2,950	23,803	
2,685	14.07	21.79	23,788	372	-13,888	5,082	
2,571	15.16	24.47	14,470	141	-28,902	-10,405	
2,359	16.68	28.65	-19,802	-204	-115,200	-272,653	

Table 62.

**FARM BUSINESS CHART FOR SMALL FREESTALL DAIRY FARMS**  
**32 Freestall Barn Dairy Farms with 150 or Less Cows, New York, 2004**

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
4.83	141	2,841,997	22,522	5.5	22	60	1,050,540
4.11	130	2,613,323	21,432	4.6	20	48	858,837
3.68	125	2,359,415	20,771	4.2	19	42	754,070
3.39	121	2,244,505	19,815	3.6	18	39	678,744
3.25	111	2,101,750	18,982	2.9	17	35	651,909
-----							
3.03	108	2,030,754	18,383	2.5	15	33	635,943
2.68	103	1,770,415	17,577	2.1	14	32	614,418
2.22	80	1,446,587	16,945	1.9	13	30	559,852
1.90	74	1,231,628	15,798	1.6	11	28	510,864
1.56	62	921,519	12,691	1.1	7	26	415,621
-----							
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		
\$523	19%	\$338	\$944	\$650	\$4.18		
645	23	454	1,126	889	5.02		
756	26	500	1,226	977	5.65		
828	27	533	1,303	1,040	5.85		
863	28	594	1,366	1,103	6.06		
-----							
915	29	678	1,441	1,171	6.36		
997	30	714	1,541	1,235	6.80		
1,088	33	742	1,659	1,327	7.02		
1,136	33	844	1,785	1,384	7.26		
1,249	37	962	1,976	1,509	7.44		
-----							
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Operating Cost Producing Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Income Per Operator	Change in Net Worth w/Appreciation	
			Total	Per Cow			
\$3,782	\$8.83	\$14.88	\$147,360	\$1,290	\$82,291	\$277,345	
3,661	10.67	16.84	99,576	858	30,316	132,961	
3,512	11.97	17.42	80,680	710	24,754	99,601	
3,383	12.26	17.82	72,142	664	20,332	71,653	
3,278	12.62	18.40	64,239	632	17,565	49,907	
-----							
3,175	13.05	18.58	46,650	574	13,351	43,007	
2,974	13.67	19.26	41,725	524	7,985	36,388	
2,819	14.03	20.00	35,016	428	2,028	28,159	
2,611	15.28	21.03	22,125	241	-13,716	20,684	
2,342	16.51	24.26	-14,771	-136	-54,626	-1,213	

Table 63.

**FARM BUSINESS CHART FOR MEDIUM FREESTALL DAIRY FARMS**  
**32 Freestall Barn Dairy Farms with 151-300 Cows, New York, 2004**

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
8.68	293	7,147,274	25,374	5.0	24	57	1,174,860
6.53	282	6,262,072	22,839	3.9	21	53	1,039,002
6.18	274	5,824,237	22,349	3.7	19	49	979,973
6.00	265	5,399,379	21,960	3.5	18	43	917,607
5.65	243	5,032,567	21,723	3.2	18	42	868,644
-----							
5.47	234	4,603,802	21,480	3.0	17	41	838,897
5.19	213	4,105,275	21,200	2.7	15	38	819,778
4.74	184	3,802,061	20,215	2.4	13	36	793,825
4.34	169	3,500,387	19,205	2.0	11	34	755,846
3.92	156	3,067,513	15,633	1.5	9	30	582,545
-----							
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		
\$603	17%	\$426	\$1,023	\$869	\$4.18		
775	24	539	1,126	1,033	5.12		
851	25	576	1,209	1,112	5.38		
900	26	596	1,283	1,130	5.55		
965	26	625	1,328	1,162	5.63		
-----							
1,001	28	659	1,434	1,197	5.79		
1,018	28	689	1,504	1,252	6.05		
1,067	30	817	1,605	1,312	6.23		
1,169	33	877	1,700	1,366	6.45		
1,281	36	958	1,760	1,669	7.61		
-----							
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Operating Cost Producing Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Income Per Operator	Change in Net Worth w/Appreciation	
			Total	Per Cow			
\$4,359	\$10.58	\$13.81	\$324,384	\$1,184	\$158,209	\$384,827	
3,901	11.23	14.92	244,650	1,046	105,475	272,525	
3,812	11.66	15.79	195,548	904	84,728	224,633	
3,700	12.09	16.42	154,177	805	66,855	160,063	
3,638	12.60	16.76	140,894	689	46,755	152,308	
-----							
3,606	12.97	16.97	132,538	583	36,333	143,827	
3,542	13.54	17.50	106,024	492	26,726	126,677	
3,458	14.05	18.29	92,124	417	16,453	89,041	
3,260	14.44	18.78	51,266	226	3,267	55,236	
2,648	16.68	20.53	2,445	-12	-46,021	-33,893	

Table 64.

**FARM BUSINESS CHART FOR LARGE FREESTALL DAIRY FARMS**  
**70 Freestall Barn Dairy Farms with 300 or More Cows, New York, 2004**

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- Alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
36.83	1,884	43,636,486	26,368	6.3	23	65	1,412,402
23.81	1,111	26,056,052	25,314	4.6	21	53	1,201,551
20.22	894	21,070,884	24,334	4.2	20	51	1,155,441
16.81	712	16,132,617	23,557	3.9	19	50	1,112,192
14.50	572	13,747,324	23,004	3.5	18	46	1,059,322
-----							
12.88	515	12,177,341	22,639	3.4	18	43	998,166
11.46	463	9,681,631	21,969	3.3	17	41	910,099
9.74	393	8,542,048	21,405	3.1	17	36	816,758
8.36	347	7,553,662	20,624	2.9	16	32	714,290
6.60	316	6,327,232	17,011	2.5	12	28	611,921
-----							
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		
\$677	20%	\$310	\$827	\$897	\$4.36		
817	23	417	1,089	1,050	4.79		
866	24	464	1,160	1,115	5.07		
971	26	507	1,231	1,189	5.27		
1,026	27	560	1,278	1,237	5.40		
-----							
1,056	28	590	1,338	1,270	5.57		
1,117	29	618	1,422	1,319	5.78		
1,154	30	670	1,502	1,395	6.10		
1,206	31	720	1,571	1,514	6.35		
1,330	34	847	1,733	1,598	7.12		
-----							
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Operating Cost Producing Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Income Per Operator	Change in Net Worth w/Appreciation	
			Total	Per Cow			
\$4,557	\$10.04	\$13.48	\$1,240,002	\$1,189	\$508,847	\$1,512,947	
4,239	11.08	14.03	696,919	952	311,387	735,240	
4,028	11.71	14.42	529,859	854	233,557	563,802	
3,895	12.01	14.85	440,284	803	204,122	479,557	
3,794	12.26	15.11	400,814	712	166,981	428,181	
-----							
3,707	12.54	15.33	330,951	608	135,493	354,786	
3,645	12.94	15.66	289,642	500	92,550	314,047	
3,531	13.44	16.14	245,892	370	69,981	245,606	
3,339	14.03	16.81	134,416	261	28,119	185,396	
2,977	15.30	18.62	28,907	65	-39,314	53,781	

Table 65.

**bST NON-USERS VS. USERS**  
**Same 71 Farms, 2000 - 2004**

Selected Factors	32 Farms Not Using bST in 2000 - 2004					39 Farms Using bST in 2000 - 2004				
	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004
<b>Size of Business</b>										
Average number of cows	127	131	136	137	138	359	387	413	426	436
Average number of heifers	92	96	96	98	98	277	301	330	343	350
Milk sold, cwt.	23,228	24,525	26,442	25,776	26,878	82,375	89,508	98,066	100,597	100,591
Worker equivalent	3.56	3.62	3.78	3.75	3.80	8.67	9.45	9.83	10.23	10.48
Total tillable acres	304	313	322	321	328	770	818	867	897	955
<b>Rates of Production</b>										
Milk sold per cow, lbs.	18,272	18,704	19,425	18,802	19,438	22,972	23,127	23,730	23,626	23,057
Hay DM per acre, tons	2.7	2.4	2.5	2.6	2.8	3.5	3.0	3.3	3.3	3.6
Corn silage per acre, tons	10	12	9	17	18	16	17	15	18	19
<b>Labor Efficiency</b>										
Cows per worker	36	36	36	37	36	41	41	42	42	42
Milk sold per worker, lbs.	652,753	677,904	699,872	687,806	707,637	950,313	947,223	997,564	983,357	959,910
<b>Cost Control</b>										
Grain & concentrate purchased as percent of milk sales	27%	24%	31%	34%	29%	26%	24%	29%	29%	26%
Dairy feed and crop expense per cwt. milk	\$4.78	\$5.13	\$5.01	\$5.22	\$5.88	\$4.47	\$4.78	\$4.60	\$4.67	\$5.37
Labor and mach. costs per cow	\$1,305	\$1,435	\$1,493	\$1,268	\$1,338	\$1,271	\$1,354	\$1,328	\$1,272	\$1,364
Operating cost of producing milk per cwt.	\$9.55	\$11.12	\$9.72	\$10.99	\$12.57	\$10.94	\$11.84	\$10.61	\$11.27	\$12.46
<b>Capital Efficiency (avg. for year)</b>										
Farm capital per cow	\$7,172	\$7,503	\$7,838	\$7,254	\$7,589	\$7,127	\$7,160	\$7,163	\$6,712	\$7,050
Machinery and equip. per cow	\$1,586	\$1,670	\$1,767	\$1,443	\$1,502	\$1,354	\$1,364	\$1,389	\$1,215	\$1,258
Asset turnover ratio	0.46	0.50	0.41	0.44	0.53	0.57	0.67	0.55	0.56	0.65
<b>Profitability</b>										
Net farm income without apprec.	\$48,357	\$82,925	\$36,866	\$31,735	\$90,335	\$109,820	\$239,438	\$72,810	\$73,167	\$300,163
Net farm income with apprec.	\$62,473	\$116,958	\$48,395	\$54,502	\$121,692	\$162,034	\$347,189	\$115,070	\$152,370	\$399,590
Labor & management income per operator/manager	\$5,773	\$27,281	\$-2,228	\$-8,040	\$31,447	\$14,334	\$89,763	\$-14,753	\$-10,526	\$127,795
Rate return on equity capital with appreciation	1.7%	8.3%	-3.6%	0.6%	10.0%	5.5%	16.4%	1.8%	4.5%	17.3%
Rate return on all capital with appreciation	4.1%	7.2%	-0.2%	2.0%	8.7%	6.1%	12.3%	3.0%	4.5%	12.8%
<b>Financial Summary (end of year)</b>										
Farm net worth	\$566,262	\$645,609	\$651,808	\$680,751	\$767,858	\$1,482,847	\$1,706,253	\$1,686,336	\$1,731,265	\$2,010,425
Debt to asset ratio	0.28	0.27	0.28	0.32	0.30	0.38	0.36	0.37	0.41	0.38
Farm debt per cow	\$1,872	\$1,897	\$2,031	\$2,365	\$2,317	\$2,526	\$2,423	\$2,444	\$2,809	\$2,725

Table 66.

**COMPARISON OF FARM BUSINESS SUMMARY DATA**  
**Same 63 New York Dairy Farms, 1995 - 2004**

Selected Factors	1995	1996	1997	1998
Milk receipts per cwt. milk	\$13.12	\$15.05	\$13.75	\$15.71
<u>Size of Business</u>				
Average number of cows	228	245	261	279
Average number of heifers	170	178	193	214
Milk sold, cwt.	48,319	51,931	56,786	60,289
Worker equivalent	6.04	6.27	6.64	6.95
Total tillable acres	540	571	603	629
<u>Rates of Production</u>				
Milk sold per cow, lbs.	21,225	21,187	21,770	21,639
Hay DM per acre, tons	3.1	3.0	2.7	3.3
Corn silage per acre, tons	16	16	16	21
<u>Labor Efficiency</u>				
Cows per worker	38	39	39	40
Milk sold per worker, lbs.	799,984	828,245	855,211	867,468
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	26%	30%	32%	25%
Dairy feed & crop expense per cwt. milk	\$4.23	\$5.33	\$5.31	\$4.98
Operating cost of producing cwt. milk	\$10.29	\$11.96	\$11.59	\$11.45
Total cost of producing cwt. milk	\$13.18	\$14.85	\$14.26	\$14.38
Hired labor cost per cwt.	\$2.06	\$2.21	\$2.14	\$2.26
Interest paid per cwt.	\$0.86	\$0.83	\$0.87	\$0.85
Labor & machinery costs per cow	\$994	\$1,081	\$1,047	\$1,126
Replacement livestock expense	\$7,127	\$9,909	\$10,947	\$12,921
Expansion livestock expense	\$14,023	\$15,065	\$15,467	\$17,423
<u>Capital Efficiency</u>				
Farm capital per cow	\$6,120	\$6,174	\$6,239	\$6,345
Machinery & equipment per cow	\$1,088	\$1,102	\$1,134	\$1,194
Real estate per cow	\$2,584	\$2,591	\$2,558	\$2,499
Livestock investment per cow	\$1,507	\$1,498	\$1,508	\$1,518
Asset turnover ratio	0.53	0.58	0.54	0.63
<u>Profitability</u>				
Net farm income without appreciation	\$89,092	\$106,098	\$69,159	\$187,568
Net farm income with appreciation	\$103,148	\$119,334	\$75,814	\$229,209
Labor & management income per operator/manager	\$23,671	\$31,435	\$10,220	\$69,729
Rate return on:				
Equity capital with appreciation	6.3%	7.6%	2.7%	16.7%
All capital with appreciation	6.8%	7.5%	4.6%	12.7%
All capital without appreciation	5.8%	6.6%	4.2%	10.4%
<u>Financial Summary, End Year</u>				
Farm net worth	\$874,663	\$948,901	\$964,989	\$1,121,493
Change in net worth with appreciation	\$50,205	\$67,186	\$13,473	\$159,004
Debt to asset ratio	0.39	0.40	0.42	0.40
Farm debt per cow	\$2,357	\$2,438	\$2,611	\$2,569

Table 66. (continued)

**COMPARISON OF FARM BUSINESS SUMMARY DATA**  
**Same 63 New York Dairy Farms, 1995 - 2004**

1999	2000	2001	2002	2003	2004
\$15.11	\$13.42	\$15.92	\$12.91	\$13.26	\$16.60
294	311	335	352	385	396
221	234	252	272	295	306
65,824	69,917	75,020	81,196	88,456	90,133
7.31	7.47	8.02	8.35	9.11	9.41
656	673	704	732	772	813
22,363	22,477	22,367	23,046	22,999	22,773
3.2	3.5	3.0	3.4	3.3	3.5
16	15	17	15	18	18
40	42	42	42	42	42
900,464	935,977	935,407	972,411	971,153	958,267
24%	26%	25%	29%	31%	27%
\$4.70	\$4.54	\$4.92	\$4.77	\$5.01	\$5.56
\$11.11	\$11.21	\$12.32	\$11.10	\$11.61	\$12.56
\$14.09	\$14.19	\$15.40	\$14.13	\$14.35	\$15.42
\$2.35	\$2.39	\$2.59	\$2.65	\$2.70	\$2.80
\$0.75	\$0.89	\$0.78	\$0.59	\$0.53	\$0.55
\$1,213	\$1,221	\$1,302	\$1,309	\$1,272	\$1,347
\$14,931	\$18,092	\$15,186	\$12,932	\$16,963	\$16,141
\$16,110	\$28,404	\$31,879	\$13,743	\$14,353	\$17,561
\$6,587	\$6,690	\$6,724	\$6,830	\$6,605	\$6,891
\$1,259	\$1,301	\$1,288	\$1,307	\$1,231	\$1,260
\$2,523	\$2,503	\$2,526	\$2,552	\$2,459	\$2,550
\$1,550	\$1,606	\$1,694	\$1,785	\$1,786	\$1,863
0.61	0.56	0.64	0.54	0.49	0.59
\$184,675	\$69,640	\$171,076	\$36,561	\$44,220	\$251,980
\$223,946	\$117,858	\$268,538	\$83,087	\$104,864	\$368,829
\$62,761	\$1,758	\$52,272	\$-20,730	\$-21,113	\$108,307
14.1%	4.6%	15.1%	1.4%	2.8%	18.9%
11.6%	5.7%	11.7%	2.8%	3.5%	13.0%
9.0%	3.4%	7.3%	0.9%	1.1%	8.7%
\$1,233,288	\$1,252,834	\$1,435,696	\$1,421,263	\$1,476,236	\$1,747,373
\$122,619	\$20,900	\$172,097	\$-19,211	\$34,826	\$278,512
0.39	0.41	0.39	0.41	0.43	0.39
\$2,629	\$2,666	\$2,691	\$2,803	\$2,919	\$2,758

Table 67.

**FARM RECEIPTS AND EXPENSES PER COW AND PER  
HUNDREDWEIGHT FOR THREE LEVELS OF MILK PRODUCTION  
200 New York Dairy Farms, 2004**

Item	53 Dairy Farms Milk/Cow <18,000#		79 Dairy Farms Milk/Cow 18,000-21,999#		68 Dairy Farms Milk/Cow ≥22,000#	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<u>ACCRUAL RECEIPTS</u>						
Milk sales	\$2,656	\$17.68	\$3,449	\$16.62	\$3,964	\$16.54
Dairy cattle	170	1.13	275	1.33	273	1.14
Dairy calves	37	0.25	49	0.24	47	0.20
Other livestock	4	0.03	8	0.04	6	0.02
Crops	62	0.41	55	0.26	68	0.28
Government receipts	74	0.49	80	0.39	75	0.31
All other	<u>73</u>	<u>0.49</u>	<u>54</u>	<u>0.26</u>	<u>61</u>	<u>0.26</u>
TOTAL ACCRUAL RECEIPTS	\$3,076	\$20.48	\$3,971	\$19.13	\$4,493	\$18.75
<u>ACCRUAL EXPENSES</u>						
<u>Labor</u> : Hired	\$285	\$1.90	\$492	\$2.37	\$692	\$2.89
<u>Feed</u> : Dairy grain & concentrate	724	4.82	925	4.46	1,095	4.57
Dairy roughage	70	0.47	72	0.35	64	0.27
Nondairy	1	0.01	0	0.00	1	0.00
Professional nutritional services	1	0.01	3	0.02	1	0.00
<u>Machinery</u> : Mach. hire, rent & lease	81	0.54	56	0.27	62	0.26
Machinery repairs & vehicle expense	196	1.30	163	0.78	183	0.76
Fuel, oil & grease	84	0.56	84	0.40	95	0.39
<u>Livestock</u> : Replacement livestock	32	0.22	52	0.25	26	0.11
Breeding	33	0.22	42	0.20	49	0.20
Vet & medicine	73	0.49	122	0.59	143	0.60
Milk marketing	134	0.89	145	0.70	170	0.71
Bedding	26	0.17	44	0.21	72	0.30
Milking supplies	64	0.43	67	0.32	77	0.32
Cattle lease & rent	3	0.02	3	0.01	3	0.01
Custom boarding	14	0.09	98	0.47	78	0.33
bST expense	8	0.05	24	0.11	49	0.20
Livestock professional fees	9	0.06	8	0.04	11	0.05
Other livestock expense	24	0.16	23	0.11	19	0.08
<u>Crops</u> : Fertilizer & lime	63	0.42	64	0.31	67	0.28
Seeds & plants	31	0.21	59	0.29	55	0.23
Spray & other crop expense	30	0.20	32	0.15	42	0.17
Crop professional fees	2	0.01	6	0.03	7	0.03
<u>Real Estate</u> : Land, building & fence repair	28	0.19	48	0.23	49	0.21
Taxes	64	0.43	48	0.23	47	0.20
Rent & lease	41	0.27	55	0.27	55	0.23
<u>Other</u> : Insurance	41	0.27	35	0.17	34	0.14
Utilities (farm share)	74	0.49	80	0.39	81	0.34
Interest paid	119	0.79	134	0.65	124	0.52
Other professional fees	15	0.10	14	0.07	24	0.10
Miscellaneous	<u>27</u>	<u>0.18</u>	<u>14</u>	<u>0.07</u>	<u>24</u>	<u>0.10</u>
TOTAL OPERATING EXPENSES	\$2,400	\$15.94	\$3,011	\$14.53	\$3,495	\$14.60
Expansion livestock	4	0.03	106	0.51	37	0.16
Extraordinary expense	14	0.10	2	0.01	2	0.01
Machinery depreciation	159	1.05	179	0.86	173	0.72
Building depreciation	<u>67</u>	<u>0.44</u>	<u>119</u>	<u>0.57</u>	<u>128</u>	<u>0.53</u>
TOTAL ACCRUAL EXPENSES	\$2,644	\$17.56	\$3,416	\$16.49	\$3,835	\$16.01

Table 68.

**FARM RECEIPTS AND EXPENSES PER COW AND PER  
HUNDREDWEIGHT FOR THREE HERD SIZE CATEGORIES  
200 New York Dairy Farms, 2004**

Item	53 Dairy Farms with <80 Cows		48 Dairy Farms with 80-180 Cows		99 Dairy Farms with ≥ 180 Cows	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<u>ACCRUAL RECEIPTS</u>						
Milk sales	\$3,007	\$16.90	\$3,348	\$17.03	\$3,740	\$16.60
Dairy cattle	184	1.04	203	1.03	274	1.21
Dairy calves	45	0.25	40	0.21	48	0.21
Other livestock	18	0.10	2	0.01	6	0.03
Crops	79	0.44	95	0.48	59	0.26
Government receipts	81	0.45	106	0.54	73	0.32
All other	<u>60</u>	<u>0.34</u>	<u>89</u>	<u>0.45</u>	<u>57</u>	<u>0.26</u>
TOTAL ACCRUAL RECEIPTS	\$3,474	\$19.52	\$3,884	\$19.75	\$4,257	\$18.89
<u>ACCRUAL EXPENSES</u>						
<u>Labor</u> : Hired	\$111	\$0.62	\$374	\$1.90	\$635	\$2.82
<u>Feed</u> : Dairy grain & concentrate	819	4.60	909	4.62	1,025	4.55
Dairy roughage	78	0.44	18	0.09	72	0.32
Nondairy	0	0.00	5	0.02	0	0.00
Professional nutritional services	1	0.01	0	0.00	2	0.01
<u>Machinery</u> : Mach. hire, rent & lease	57	0.32	58	0.30	63	0.28
Mach. repairs & vehicle expense	211	1.18	268	1.36	167	0.74
Fuel, oil & grease	95	0.53	110	0.56	88	0.39
<u>Livestock</u> : Replacement livestock	55	0.31	14	0.07	36	0.16
Breeding	57	0.32	49	0.25	44	0.20
Vet & medicine	85	0.48	105	0.54	135	0.60
Milk marketing	160	0.90	166	0.85	158	0.70
Bedding	33	0.19	37	0.19	62	0.28
Milking supplies	77	0.43	75	0.38	73	0.32
Cattle lease & rent	0	0.00	1	0.00	3	0.01
Custom boarding	26	0.15	26	0.13	86	0.38
bST expense	10	0.06	25	0.13	40	0.18
Livestock professional fees	16	0.09	13	0.07	10	0.04
Other livestock expense	48	0.27	39	0.20	18	0.08
<u>Crops</u> : Fertilizer & lime	71	0.40	92	0.47	62	0.28
Seeds & plants	34	0.19	48	0.24	55	0.25
Spray & other crop expense	28	0.16	49	0.25	37	0.16
Crop professional fees	5	0.03	2	0.01	7	0.03
<u>Real Estate</u> : Land, building & fence repair	61	0.34	59	0.30	45	0.20
Taxes	85	0.48	73	0.37	45	0.20
Rent & lease	38	0.21	52	0.27	54	0.24
<u>Other</u> : Insurance	62	0.35	52	0.26	32	0.14
Utilities (farm share)	109	0.61	96	0.49	77	0.34
Interest paid	121	0.68	93	0.47	130	0.58
Other professional fees	11	0.06	13	0.07	21	0.09
Miscellaneous	<u>25</u>	<u>0.14</u>	<u>17</u>	<u>0.09</u>	<u>21</u>	<u>0.10</u>
TOTAL OPERATING EXPENSES	\$2,589	\$14.56	\$2,935	\$14.95	\$3,302	\$14.65
Expansion livestock	12	0.07	11	0.06	62	0.27
Extraordinary expense	2	0.01	8	0.04	3	0.01
Machinery depreciation	184	1.04	194	0.99	171	0.76
Building depreciation	<u>70</u>	<u>0.39</u>	<u>78</u>	<u>0.40</u>	<u>125</u>	<u>0.56</u>
TOTAL ACCRUAL EXPENSES	\$2,857	\$16.07	\$3,227	\$16.44	\$3,663	\$16.25

Table 69.

**INTENSIVE GRAZING FARMS VS. NON-GRAZING FARMS**  
**New York State Dairy Farms, 2004**

Item	All Intensive Grazing Farms <sup>65</sup>	Non-Grazing Farms <sup>66</sup>	Profitable Grazing Farms <sup>67</sup>	Profitable Non- Grazing Farms <sup>68</sup>
Number of farms	30	84	10	11
<b><u>Business Size &amp; Production</u></b>				
Number of cows	104	103	110	114
Number of heifers	74	84	96	102
Milk sold, lbs.	1,774,400	1,982,870	1,885,320	2,453,174
Milk sold/cow, lbs.	17,144	19,202	17,186	21,434
Milk plant test, % butterfat	3.50%	3.34%	3.66%	3.76%
Cull rate	22.1%	29.6%	20.0%	25.9%
Tillable acres, total	267	321	265	370
Hay crop, tons DM/acre	2.9	2.9	3.2	3.7
Corn silage, tons/acre	15.3	16.5	18.0	19.4
Forage DM/cow, tons	5.8	9.3	5.9	10.9
<b><u>Labor &amp; Capital Efficiency</u></b>				
Worker equivalent	2.90	3.30	2.63	3.35
Milk sold/worker, lbs.	611,862	600,870	716,852	732,291
Cows/worker	36	31	42	34
Farm capital/worker	\$261,810	\$291,433	\$271,470	\$275,594
Farm capital/cow	\$7,300	\$9,337	\$6,491	\$8,099
Farm capital/cwt. milk	\$43	\$49	\$38	\$38
Machinery & equipment per cow	\$1,287	\$1,998	\$1,306	\$1,917
<b><u>Milk Production Costs &amp; Returns</u></b>				
Selected costs/cwt.:				
Hired labor	\$1.71	\$1.71	\$1.39	\$1.78
Grain & concentrate	\$4.24	\$4.67	\$3.96	\$3.69
Purchased roughage	\$0.52	\$0.17	\$0.25	\$0.06
Replacements purchased	\$0.06	\$0.26	\$0.05	\$0.01
Vet & medicine	\$0.43	\$0.54	\$0.41	\$0.53
Milk marketing	\$0.85	\$0.88	\$0.83	\$0.57
Other dairy expenses	\$1.12	\$1.34	\$1.04	\$1.36
Operating cost of producing milk/cwt.	\$11.83	\$12.63	\$10.50	\$10.22
Total labor cost/cwt.	\$4.29	\$4.32	\$3.45	\$3.80
Operator resources/cwt.	\$3.82	\$3.90	\$3.18	\$3.16
Total cost of producing milk/cwt.	\$17.66	\$18.30	\$14.89	\$14.80
Average farm price/cwt.	\$17.27	\$17.02	\$17.12	\$16.83
<b><u>Related Cost Factors</u></b>				
Hired labor/cow	\$291	\$329	\$239	\$384
Total labor/cow	\$732	\$831	\$592	\$817
Purchased dairy feed/cow	\$812	\$931	\$721	\$807
Purchased grain & concentrate as % of milk receipts	25%	27%	23%	22%
Vet & medicine/cow	\$74	\$103	\$71	\$115
Machinery costs/cow	\$598	\$714	\$499	\$728
Feed & crop exp./cwt.	\$5.55	\$5.79	\$5.30	\$4.89
<b><u>Profitability Analysis</u></b>				
Net farm income (with appreciation)	\$98,089	\$91,775	\$121,675	\$158,621
Net farm income (without apprec.)	\$67,810	\$58,833	\$105,259	\$131,318
Net farm income per cow (w/o apprec.)	\$652	\$571	\$957	\$1,152
Net farm income per cwt. (w/o apprec.)	\$3.82	\$2.97	\$5.58	\$5.35
Labor & management income/operator	\$22,397	\$9,555	\$57,202	\$57,373
Labor & mgmt. income/oper./cow	\$215	\$103	\$520	\$503
Rates of return on:	9.3%	6.1%	17.0%	18.5%
Equity capital with appreciation	8.1%	5.7%	13.2%	13.4%
All capital with appreciation	4.7%	0.2%	5.3%	2.3%

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

<sup>66</sup>Farms with similar herd size as the 30 rotational grazing farms.

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

<sup>68</sup>Farms with similar herd size as the "Top 30%" grazing farms and labor and management incomes per operator per cow greater than \$460.

**Table 70.**

**SELECTED BUSINESS FACTORS BY MILKING FREQUENCY**  
**New York State Dairy Farms, 2003 & 2004**

Item	2x/Day Milking		3x/Day Milking	
	2003	2004	2003	2004
Number of farms	129	128	65	63
<u>Business Size &amp; Production</u>				
Number of cows	147	158	616	684
Number of heifers	113	123	476	533
Milk sold, lbs.	2,823,215	3,057,261	14,598,610	15,956,812
Milk sold/cow, lbs.	19,220	19,380	23,704	23,330
Milk plant test, % butterfat	3.72%	3.69%	3.56%	3.53%
Tillable acres, total	403	412	1,106	1,270
Hay crop, tons DM/acre	2.6	3.0	3.2	3.9
Corn silage, tons/acre	13.8	16.9	15.8	18.0
Forage DM/cow, tons	8.0	7.9	7.4	8.2
<u>Labor &amp; Capital Efficiency</u>				
Worker equivalent	4.10	4.18	13.51	15.36
Milk sold/worker, lbs.	688,589	731,256	1,080,578	1,038,742
Cows/worker	36	38	46	45
Farm capital/worker	\$265,431	\$290,105	\$290,971	\$297,491
Farm capital/cow	\$7,403	\$7,687	\$6,382	\$6,681
Farm capital/cwt. milk	\$38.55	\$39.66	\$26.93	\$28.64
<u>Milk Production Costs &amp; Returns</u>				
Selected costs/cwt.:				
Hired labor	\$2.07	\$2.18	\$2.64	\$2.84
Grain & concentrate	\$4.14	\$4.66	\$3.92	\$4.52
Purchased roughage	\$0.18	\$0.24	\$0.34	\$0.33
Replacements purchased	\$0.16	\$0.19	\$0.13	\$0.13
Veterinary & medicine	\$0.49	\$0.55	\$0.58	\$0.61
Milk marketing	\$0.79	\$0.78	\$0.66	\$0.69
Other dairy expenses	\$1.29	\$1.36	\$1.57	\$1.50
Operating costs/cwt.	\$10.85	\$12.48	\$11.67	\$12.56
Total labor costs/cwt.	\$3.98	\$3.88	\$3.06	\$3.21
Operator resources/cwt.	\$2.82	\$3.12	\$1.28	\$1.34
Total costs/cwt.	\$15.31	\$17.06	\$14.19	\$15.22
Average farm price/cwt.	\$13.40	\$17.11	\$13.19	\$16.48
Return over total costs/cwt.	\$-1.91	\$0.05	\$-1.00	\$1.26
<u>Related Cost Factors</u>				
Hired labor/cow	\$397	\$422	\$626	\$663
Total labor/cow	\$764	\$752	\$724	\$750
Purchased dairy feed/cow	\$830	\$951	\$1,011	\$1,132
Purchased grain & concentrate as % of milk receipts	31%	27%	30%	27%
Veterinary & medicine/cow	\$95	\$106	\$137	\$142
Machinery costs/cow	\$526	\$612	\$484	\$546
<u>Profitability Analysis</u>				
Net farm income (without appreciation)	\$34,969	\$96,916	\$44,660	\$415,318
Labor & management income/operator	\$-5,821	\$32,811	\$-28,439	\$150,871
Rates of return on:				
Equity capital with appreciation	1.0%	10.7%	3.5%	20.4%
All capital with appreciation	2.2%	9.0%	3.8%	13.6%

Table 71.

**COMPARISON OF DAIRY FARM BUSINESS DATA BY REGION**  
**214 New York Dairy Farms, 2004**

Item	West. & Cent. Plateau Region	West. & Cent. Plain Region	Northern New York	Central Valleys	No. Hudson & Southeastern NY
Number of farms	33	51	29	27	74
<b><u>ACCRUAL EXPENSES</u></b>					
Hired labor	\$82,049	\$307,804	\$189,986	\$142,967	\$95,061
Feed	178,084	522,680	383,135	253,354	180,741
Machinery	71,877	147,237	119,135	97,935	65,445
Livestock	98,894	340,201	225,241	174,833	110,130
Crops	26,458	82,523	66,508	51,808	31,397
Real estate	29,274	69,302	51,694	47,108	29,512
Other	52,739	145,553	99,200	74,252	46,043
Total Operating Expenses	\$539,375	\$1,615,300	\$1,134,901	\$842,258	\$558,330
Expansion livestock	14,209	19,182	43,831	2,727	8,746
Extraordinary expense	1,438	539	865	3,390	412
Machinery depreciation	34,539	81,884	73,761	56,209	26,543
Building depreciation	20,115	55,732	51,638	45,190	11,227
Total Accrual Expenses	\$609,676	\$1,772,637	\$1,304,996	\$949,774	\$605,258
<b><u>ACCRUAL RECEIPTS</u></b>					
Milk sales	\$622,841	\$1,797,673	\$1,382,382	\$986,905	\$615,849
Livestock	53,928	166,698	140,884	52,888	51,648
Crops	12,018	26,652	46,116	22,818	9,325
Government Receipts	15,376	33,243	29,306	23,211	19,358
All other	9,271	22,762	18,238	23,434	10,799
Total Accrual Receipts	\$713,435	\$2,047,030	\$1,616,925	\$1,109,255	\$706,980
<b><u>PROFITABILITY ANALYSIS</u></b>					
Net farm income(w/o appreciation)	\$103,759	\$274,393	\$314,929	\$159,481	\$101,722
Net farm income (w/ appreciation)	\$159,689	\$383,956	\$422,563	\$260,029	\$130,913
Labor & management income	\$55,839	\$185,351	\$231,832	\$93,418	\$47,526
Number of operators	1.68	2.01	1.93	1.75	1.55
Labor & mgmt. income/operator	\$33,238	\$92,214	\$120,120	\$53,382	\$30,662
<b><u>BUSINESS FACTORS</u></b>					
Worker equivalent	4.45	10.91	8.36	6.54	5.26
Number of cows	176	487	373	283	169
Number of heifers	130	379	299	218	137
Acres of hay crops <sup>69</sup>	223	449	471	320	246
Acres of corn silage <sup>69</sup>	192	411	279	230	157
Total tillable acres	425	962	856	681	427
Pounds of milk sold	3,702,919	10,972,610	8,289,506	5,830,935	3,587,841
Pounds of milk sold/cow	20,985	22,533	22,230	20,620	21,279
Tons hay crop dry matter/acre	2.9	4.2	3.2	3.2	2.9
Tons corn silage/acre	17.0	17.0	19.8	17.7	17.2
Cows/worker	40	45	45	43	32
Pounds of milk sold/worker	832,117	1,005,739	991,568	892,149	682,099
% grain & conc. of milk receipts	28%	27%	26%	25%	28%
Feed & crop expense/cwt. milk	\$5.52	\$5.50	\$5.42	\$5.22	\$5.90
Fertilizer & lime/crop acre	\$27.82	\$31.66	\$40.27	\$22.82	\$36.32
Machinery cost/tillable acre	\$279	\$256	\$251	\$253	\$245

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

Figure 2.

**Percent Change in Milk Production, Five Regions in New York,  
1994-2004**

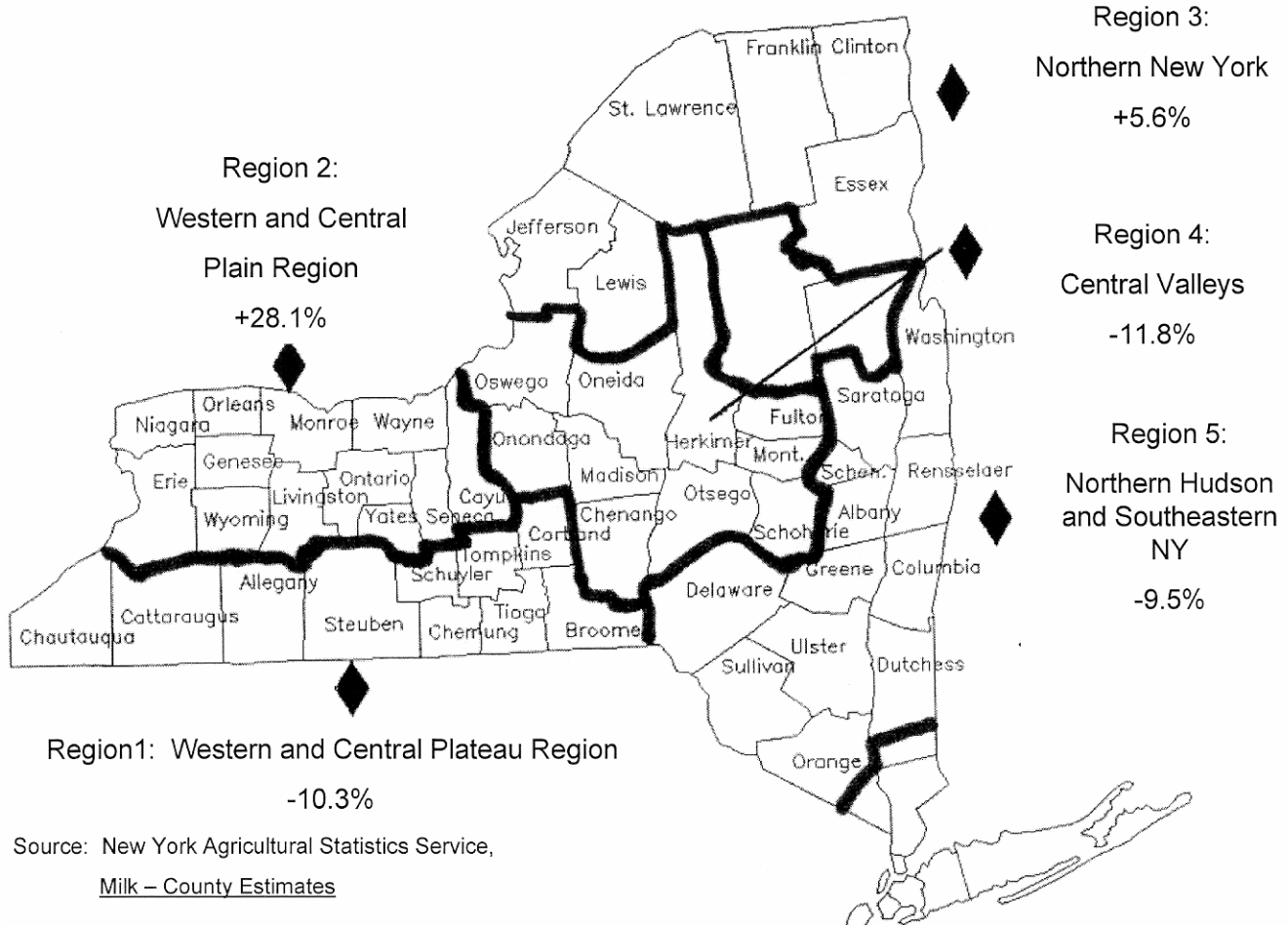


Table 72.

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

Item	Region <sup>70</sup>				
	1	2	3	4	5
<u>Milk Production</u> <sup>71</sup>	(million pounds)				
1994	2,145.9	2,872.3	2,124.0	2,813.3	1,458.6
2004	1,924.0	3,679.0	2,242.5	2,481.0	1,320.5
Percent change	-10.3%	+28.1%	+5.6%	-11.8%	-9.5%
<u>2004 Cost of Producing Milk</u> <sup>72</sup>	(\$ per hundredweight milk)				
Operating cost	\$12.50	\$12.62	\$11.39	\$12.39	\$13.27
Total cost	16.68	15.40	14.68	16.44	17.13
Average price received	16.82	16.38	16.68	16.93	17.16
Return per cwt. to operator labor, management & capital	\$2.66	\$2.44	\$3.73	\$2.68	\$2.65

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

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

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

Table 73.

**FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION**  
**23 New York Dairy-Renter Farms,<sup>73</sup> 2004**

<u>ACCRUAL EXPENSES</u>		<u>ACCRUAL RECEIPTS</u>			
Labor: Hired	\$21,068	Milk sales	\$280,269		
Feed: Dairy grain & concentrate	83,540	Dairy cattle	26,742		
Dairy roughage	8,427	Dairy calves	4,412		
Nondairy	0	Other livestock	596		
Professional nutritional services	394	Crops	9,343		
Machinery: Machinery hire, rent & lease	6,044	Government receipts	9,085		
Machinery repairs & farm vehicle expense	13,857	Custom machine work	850		
Fuel, oil, grease	8,004	Gas tax refund	51		
Livestock: Replacement livestock	8,247	Other	1,997		
Breeding	4,784	<b>TOTAL ACCRUAL RECEIPTS</b>	<b>\$333,346</b>		
Veterinary & medicine	8,314				
Milk marketing	14,611				
Bedding	2,915	<u>PROFITABILITY ANALYSIS</u>			
Milking supplies	6,033	Net farm income (without appreciation)	\$65,744		
Cattle lease & rent	1,565	Net farm income (with appreciation)	\$75,358		
Custom boarding	1,980	Labor & management income/farm	\$46,892		
bST expense	2,378	Number of operators	1.39		
Livestock professional fees	962	Labor & management income/operator	\$33,735		
Other livestock expense	5,621	Rate of return on equity			
Crops: Fertilizer & lime	6,281	capital including appreciation	10.9%		
Seeds & plants	3,590				
Spray & other crop expense	4,415				
Crop professional fees	54				
Real estate: Land, building & fence repair	3,692	<u>BUSINESS FACTORS</u>			
Taxes	2,120	Number of cows	88		
Rent & lease	14,317	Number of heifers	62		
Other:		Worker equivalent	2.65		
Insurance	4,448	Total tillable acres	204		
Utilities (farm share)	9,369	Milk sold per cow, lbs.	18,923		
Interest paid	5,223	Hay DM per acre, tons	2.5		
Miscellaneous	3,920	Corn silage per acre, tons	18.2		
<b>TOTAL OPERATING EXPENSES</b>	<b>\$256,170</b>	Milk sold per worker, lbs.	630,323		
		Grain & concentrate as % milk sales	29%		
Expansion livestock	\$971	Feed & crop expense/cwt. milk	\$6.36		
Extraordinary expense	70	Labor & machinery costs/cow	\$1,272		
Machinery depreciation	9,874	Average price/cwt. milk	\$16.77		
Building depreciation	517				
<b>TOTAL ACCRUAL EXPENSES</b>	<b>\$267,602</b>				
<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	\$5,946	\$4,714	Current	\$36,053	\$38,975
Accounts receivable	17,795	19,526	Intermediate <sup>75</sup>	73,007	74,854
Prepaid expenses	0	113	Long term <sup>74</sup>	46,833	40,202
Feed & supplies	46,956	59,017	<b>Total Farm Liabilities</b>	<b>\$155,893</b>	<b>\$154,031</b>
Livestock <sup>74</sup>	159,130	177,136	Nonfarm Liabilities <sup>76</sup>	0	3,813
Machinery & equipment <sup>74</sup>	99,924	110,088	Farm & Nonfarm Liabilities	\$155,893	\$157,844
Farm Credit stock	298	265	Farm Net Worth	\$209,547	\$255,392
Other stock & certificates	6,851	8,518	Farm & Nonfarm Net Worth	\$235,295	\$282,046
Land & buildings <sup>74</sup>	28,541	30,047			
<b>Total Farm Assets</b>	<b>\$365,440</b>	<b>\$409,423</b>			
Nonfarm Assets <sup>76</sup>	25,748	30,467			
<b>Farm &amp; Nonfarm Assets</b>	<b>\$391,188</b>	<b>\$439,890</b>			

<sup>73</sup>A renter owns no farm real estate or tillable land at the end of year.

<sup>74</sup>Includes discounted lease payments.

<sup>75</sup>Includes Farm Credit stock and discounted lease payments for cattle and machinery.

<sup>76</sup>Average of 6 farms reporting.





**APPENDIX**

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

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

**Table A1.****PRICES PAID BY NEW YORK FARMERS FOR SELECTED ITEMS, 1993-2004**

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

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

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

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

**Table A2.****VALUES AND INDICES OF NEW YORK DAIRY FARM INVENTORY ITEMS, 1990-2004**

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

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

<sup>86</sup>United States average; 1995 - 2004 are estimated due to discontinuation of 1977=100 series.

<sup>87</sup>New York average for 2000-2004 excludes Native American Reservation land.

**Table A3.**

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

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

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

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

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

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

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

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

## GLOSSARY AND LOCATION OF COMMON TERMS

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

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

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

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

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

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

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

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

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

**Average Top 10% Farms:** Average of 20 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 intermediate and long term capital used on the farm. Calculate by multiplying end of year principal of each loan that is borrowed by the interest rate for each loan at that time. Add up each amount that is calculated for each loan and then divide by total amount of borrowed funds. Do not include accounts payable, operating debt or advanced government receipts. This information is found on pages 8 & 9 of the data entry form.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**OTHER A.E.M. RESEARCH BULLETINS**

<b>RB No</b>	<b>Title</b>	<b>Fee (if applicable)</b>	<b>Author(s)</b>
2005-02	Survey of Hispanic Workers in New York State	(\$12.00)	Maloney, T. and D. Grusenmeyer
2005-01	The Profitability of Agricultural Lending Relationships		LaDue, E., Gloy, B. and C. Cuykendall
2004-13	Dairy Farm Management Business Summary, New York State, 2003	(\$20.00)	Knoblauch, W., Putnam, L. and J. Karszes
2004-12	Optimal Institutional Mechanisms for Funding Generic Advertising: An Experimental Analysis		Messer, K., Schmit, T. and H. Kaiser
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2004-10	Consumer Preferences and Marketing Opportunities for Premium "Tree-Ripened Peaches" in New York State		Uva, W., Cuellar, S., and M. Cheng
2004-09	Agricultural Finance Markets in Transition; Proceedings of The Annual Meeting of NCT-194	(\$12.00)	Gloy, B., Editor
2004-08	Dairy Market Impacts of Milk Protein Imports and Trade Policy Alternatives		Bishop, P. and C. Nicholson
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