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DAIRY FARM MANAGEMENT

BUSINESS SUMMARY NEW YORK STATE 2001



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This material is based upon work supported by Smith Lever funds from the Cooperative State Research, Education, and Extension Service, U.S. Department of Agriculture. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture.

Publication Price Per Copy: \$15.00

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ABSTRACT

Business and financial records for 2001 from 228 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 277 cows per farm and 21,762 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 \$149,044 per farm. The rate of return including appreciation to all capital invested in the farm business averaged 12.2 percent.

Differences in profitability between farms continue to widen. The top 10 percent of farms average net farm income excluding appreciation was \$693,355, while the lowest 10 percent was a negative \$16,775. Rates of return on equity with appreciation ranged from 43 percent to negative 14 percent for the highest 10 percent to the lowest 10 percent of farms, respectively.

Farms adopting bovine somatotropin (bST) attained higher rates of milk production per cow, had larger herds and in all but one year were more profitable than farms not adopting bST. Farms adopting rotational grazing generally produced less milk per cow than non-grazing farms but had somewhat lower costs of production and higher profitability. 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 cost per cwt. of milk was \$0.08/cwt. higher for 3X than 2X milking herds, while output per cow was 4,342 pounds higher. One should not conclude that adoption of these technologies alone were responsible for differences in performance.

**Dairy Farm Management
Business Summary New York State 2001**

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Keywords: BUSINESS ANALYSIS, DAIRY MANAGEMENT, FARM BUSINESS SUMMARY,
NEW YORK FARMS

JEL codes: Q12, Q14

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INTRODUCTION¹

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 2001, more than 300 dairy farms participated. Business records submitted by dairy farmers from 42 counties provide the basis for continuing Extension programs, data for applied studies, and for use in the classroom. Regardless of the use of the data, confidentiality of individual farm data is maintained.

Cornell Cooperative Extension educators enroll the cooperators and collect the records. Each cooperator receives a detailed summary and analysis of his or her business. All educators are using a microcomputer in their offices or on the farm to process and return the individual farm business reports for immediate use. Regional reports are prepared by Cornell faculty and used by DFBS cooperators and other farmers to compare their farm performance with regional averages. The DFBS program helps farmers improve accounting and financial analysis techniques, develop managerial skills and solve business and financial management problems.

Individual farm records from the 6 regions and 42 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 228 specialized dairy farms are included in the main body of this report. These farms do NOT represent the "average" for all dairy farms in the State or within a region. Participation was on a voluntary basis, therefore, not all areas or types of operations were proportionately represented (Figure 1, page 2). Participants represent more than 3 percent of the milk cow operations in New York (see Appendix Table A3). The 228 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, including budgeting data and debt repayment analysis is presented on pages 20 through 22.

The whole farm method of calculating the cost of producing milk is detailed on pages 30 through 35. The operating cost, purchased inputs cost and total cost of producing 100 pounds of milk are developed and analyzed. Farm business charts for farms with conventional and freestall housing are presented on pages 63 through 67. Specific studies of the performance of dairy farms using bST, rotational grazing and three times (3X) a day milking are presented on pages 70, 73 and 76.

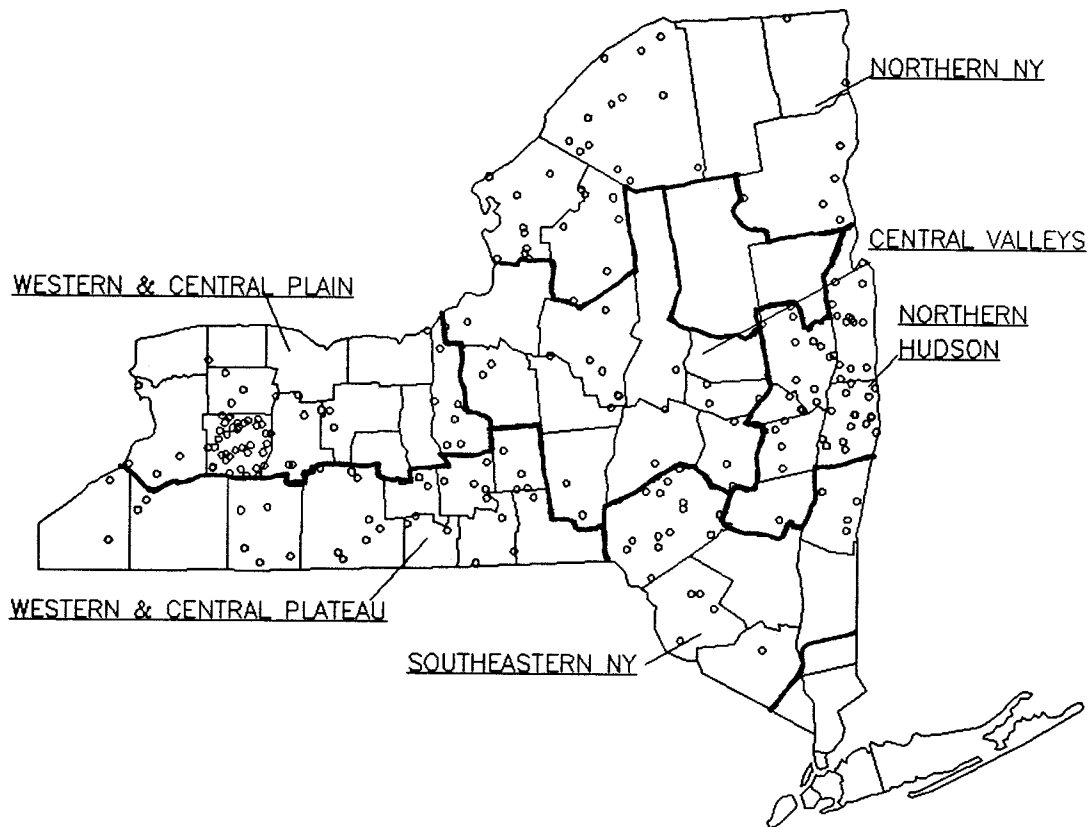
Acknowledgements

The authors appreciate the outstanding assistance provided by Faye Butts with wordprocessing, proofreading and distribution of the publication. The authors also wish to acknowledge extension field staff and cooperating farmers for their invaluable cooperation on this project. In addition, the authors appreciate the comments provided by Eddy LaDue and Loren Tauer.

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

Figure 1.

**LOCATION OF THE 228 NEW YORK DAIRY FARMS
IN THE 2001 DAIRY FARM BUSINESS SUMMARY**



2001 Regional Summary Publications

<u>Region</u>	<u>Publications</u>	<u>Author(s)</u>
Western and Central Plain	E.B. 2002-09	Wayne A. Knoblauch, Linda D. Putnam, Jason Karszes, Steve Richards, John Hanchar, Judith Barry, Kathleen English, Tim Terry, & George Allhusen
Northern Hudson	E.B. 2002-11	George J. Conneman, Linda D. Putnam, Cathy S. Wickswat, Sandra Buxton, & Jason Karszes
Northern New York	E.B. 2002-13	Wayne A. Knoblauch, Linda D. Putnam, William Van Loo, Peggy Murray, Frans Vokey, Anita Deming, Chris Nobles, Molly Ames, & Jason Karszes
Western and Central Plateau	E.B. 2002-14	Wayne A. Knoblauch, Linda D. Putnam, Jason Karszes, George Allhusen, James W. Grace, Joan S. Petzen, Andrew N. Dufresne, & Janet M. Allard
Southeastern New York	E.B. 2002-15	Wayne A. Knoblauch, Linda D. Putnam, Stephen E. Hadcock, Larry R. Hulle, Mariane Kiraly, & Joseph J. Walsh
Central Valleys	E.B. 2002-16	Eddy L. LaDue, Jodi Hilts, Judith Barry, A. Edward Staehr, Zaid Kurdieh, Charles Z. Radick, Jason Karszes & Linda D. Putnam

THIRTY YEARS OF NEW YORK STATE DAIRY FARM BUSINESS DATA

New York dairy farming has changed dramatically over the past 30 years (Table 1, page 4). Dairy cows per farm increased 313 percent between 1971 and 2001 and nearly one-half of that increase occurred in the last 10 years. Milk output per cow increased more than 68 percent and the largest increase occurred between 1991 and 2001. 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 161 percent over the 1971 to 2001 period. Labor efficiency was up 129 percent on DFBS farms, and the operating cost of producing milk increased more than 270 percent with the big jump occurring between 1971 and 1981.

There is a large increase in farm capital invested per farm, up 1,121 percent since 1971. Farm net worth excluding deferred taxes has increased 1,068 percent over the last 30 years. Net farm income per farm has increased 235 percent (adjusted for 2001 dollars) and return on equity capital has increased 353 percent since 1981. Labor and management income per operator is up 28 percent from 30 years ago (adjusted for 2001 dollars).

FOUR YEARS OF VARIABILITY

Recognition and evaluation of the progress that has occurred on farms can best be achieved by studying the same farms over a period of time. Table 2 presents average data from 158 farms that have been DFBS cooperators each year since 1998. Chart 1 shows the price received for milk in comparison to the operating cost of producing a hundredweight of milk for these farms. The high milk price and lower costs in 1998, 1999, and 2001 provided dairy farmers with excellent returns. The year 2000 saw the lowest operating margin per hundredweight at \$1.99.

Net farm income without appreciation in 2001 was 6 percent below the 1998 average, but over 196 percent above the 2000 average. Net worth increased rapidly in 1999, showed a small improvement in 2000, and increased 16 percent in 2001.

The last 4 years have been a period requiring critical decision making and improved management skills on New York dairy farms. Risk management skills, including output price management, are becoming more important to farm business success.

Chart 1.

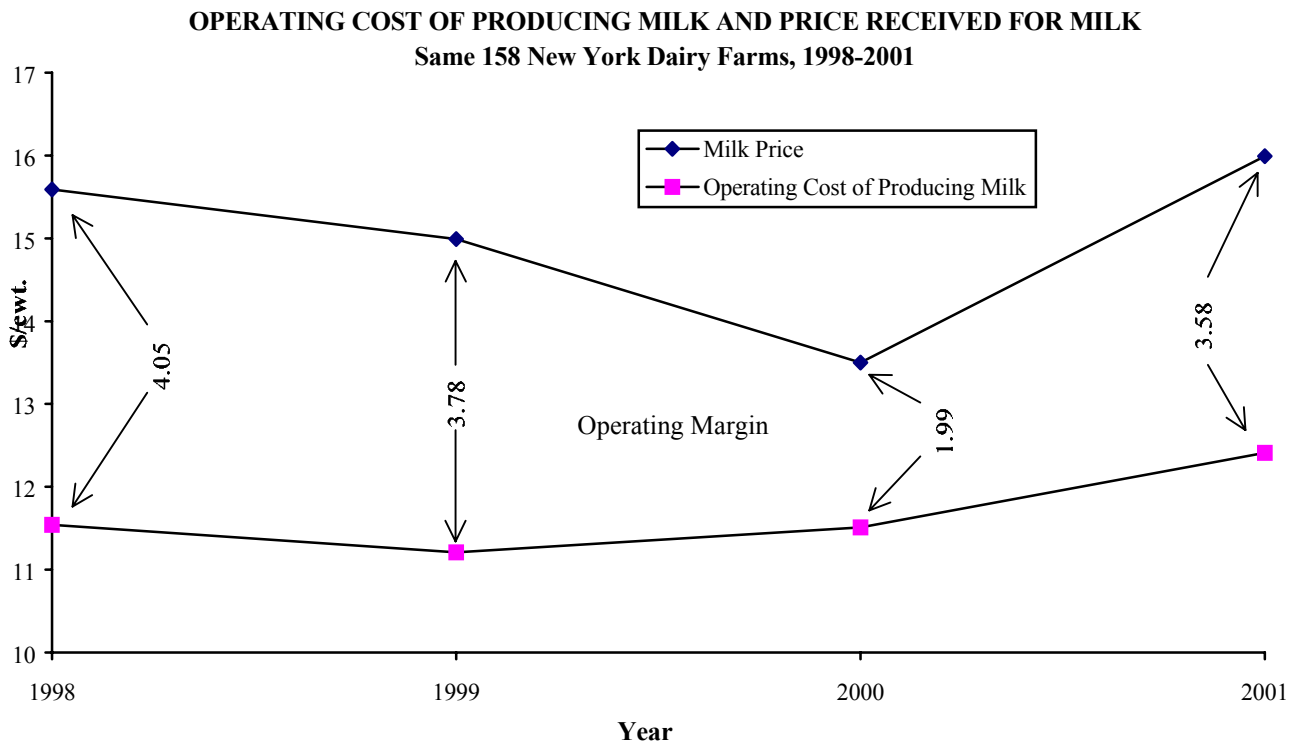


Table 1.

COMPARISON OF FARM BUSINESS SUMMARY DATA
New York Dairy Farms, 1971 - 2001

Selected Factors	1971	1981	1991	2001
Number of farms	569	553	407	228
<u>Size of Business</u>				
Average number of cows	67	79	111	277
Average number of heifers	44	59	92	207
Milk sold, cwt.	8,617	11,420	20,060	60,290
Worker equivalent	2.2	2.8	3.38	6.72 ⁴
Total tillable acres	185 ²	257	330	618
<u>Rates of Production</u>				
Milk sold per cow, lbs.	12,900	14,456	18,027	21,762
Hay DM per acre, tons	2.7	2.5	2.4	2.8
Corn silage per acre, tons	16	15	14	16
<u>Labor Efficiency</u>				
Cows per worker	30	29	33	41 ⁴
Milk sold per worker, lbs.	391,700	415,273	593,297	897,167 ⁴
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	24%	26%	29%	25%
Dairy feed & crop expense per cwt. milk	\$1.95	\$4.67	\$4.67	\$5.03
Operating cost of producing cwt. milk	\$3.27	\$10.05	\$10.35	\$12.21
Total cost of producing cwt. milk	\$5.84	\$15.88	\$14.55	\$15.45
Milk receipts per cwt. milk	\$6.21	\$13.66	\$12.95	\$15.98
<u>Capital Efficiency</u>				
Total farm capital	\$153,305	\$448,404	\$742,368	\$1,871,135
Farm capital per cow	\$2,288	\$5,676	\$6,688	\$6,755
Machinery & equipment per cow	\$480	\$1,078	\$1,267	\$1,222
Real estate per cow	\$1,125	\$2,693	\$3,063	\$2,713
Livestock investment per cow	\$527	\$1,538	\$1,478	\$1,720
Asset turnover ratio	0.42	0.42	0.43	0.63
<u>Profitability</u>				
Net farm income without appreciation ⁵	-----	\$44,431	\$34,316	\$149,044
Net farm income with appreciation ⁵	\$90,102	\$62,189	\$53,408	\$241,188
Labor & management income per operator/manager ⁵	\$35,538	\$5,670	\$287	\$45,479
Rate of return on:				
Equity capital with appreciation	-----	3.6%	1.4%	16.3%
All capital with appreciation	-----	5.6%	3.8%	12.2%
All capital without appreciation	-----	3.8%	1.8%	7.3%
<u>Financial Summary, End Year</u>				
Farm net worth	\$101,146 ³	\$301,975	\$486,215	\$1,181,055
Change in net worth with appreciation	-----	-----	\$12,169	\$161,553
Debt to asset ratio	0.37 ³	0.37	0.36	0.40
Farm debt per cow	\$890 ³	\$2,212	\$2,327	\$2,759

²Acres of cropland harvested.

³Average of 319 dairy farm cooperators submitting financial information in 1971.

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

⁵Adjusted for inflation using Consumer Price Index – 2001 dollars.

Table 2.

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 158 New York Dairy Farms, 1998 - 2001

Selected Factors	1998	1999	2000	2001
Milk receipts per cwt. milk	\$15.59	\$14.99	\$13.50	\$15.99
<u>Size of Business</u>				
Average number of cows	259	270	283	302
Average number of heifers	191	202	214	228
Milk sold, cwt.	55,327	59,760	62,497	66,769
Worker equivalent ⁶	6.36	6.65	6.88	7.31
Total tillable acres	576	601	619	649
<u>Rates of Production</u>				
Milk sold per cow, lbs.	21,370	22,101	22,047	22,094
Hay DM per acre, tons	3.2	3.1	3.5	2.9
Corn silage per acre, tons	19	17	16	17
<u>Labor Efficiency</u>				
Cows per worker ⁶	41	41	41	41
Milk sold per worker, lbs. ⁶	869,917	898,649	908,391	913,396
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	26%	25%	27%	25%
Dairy feed & crop expense per cwt. milk	\$4.99	\$4.70	\$4.63	\$5.02
Operating cost of producing cwt. milk	\$11.54	\$11.21	\$11.51	\$12.41
Total cost of producing cwt. milk	\$14.35	\$14.10	\$14.42	\$15.43
Hired labor cost per cwt.	\$2.16	\$2.25	\$2.36	\$2.52
Interest paid per cwt.	\$0.89	\$0.77	\$0.93	\$0.82
Labor & machinery costs per cow	\$1,077	\$1,177	\$1,205	\$1,278
<u>Capital Efficiency, Average for Year</u>				
Farm capital per cow	\$6,047	\$6,361	\$6,498	\$6,572
Machinery & equipment per cow	\$1,072	\$1,135	\$1,177	\$1,174
Real estate per cow	\$2,456	\$2,526	\$2,562	\$2,576
Livestock investment per cow	\$1,477	\$1,522	\$1,579	\$1,683
Asset turnover ratio	\$0.63	0.61	0.56	0.65
<u>Profitability</u>				
Net farm income without appreciation	\$165,004	\$158,513	\$52,430	\$155,492
Net farm income with appreciation	\$193,283	\$187,553	\$94,282	\$246,106
Labor & management income per operator/manager	\$68,596	\$56,763	\$-3,448	\$52,284
Rate return on:				
Equity capital with appreciation	16.0%	13.2%	3.5%	16.2%
All capital with appreciation	12.1%	10.4%	5.2%	12.1%
All capital without appreciation	10.3%	8.7%	2.9%	7.5%
<u>Financial Summary, End Year</u>				
Farm net worth	\$947,971	\$1,044,473	\$1,054,911	\$1,221,610
Change in net worth with appreciation	\$131,258	\$96,769	\$17,232	\$160,286
Debt to asset ratio	0.42	0.42	0.44	0.41
Farm debt per cow	\$2,591	\$2,712	\$2,796	\$2,781
Debt coverage ratio	1.88	1.76	0.77	1.59

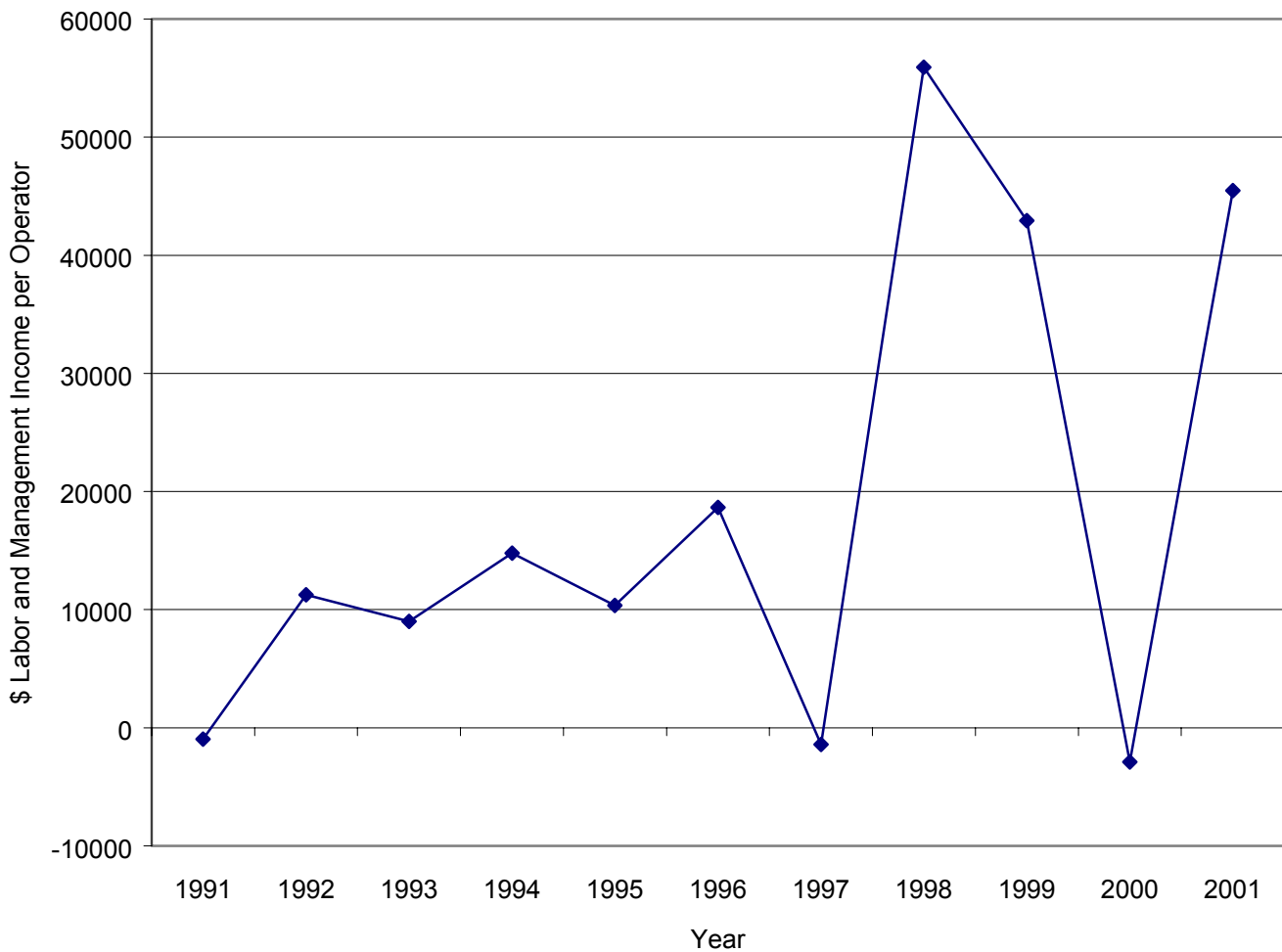
⁶Based on hours actually worked by owner/operator instead of standard 12 months per full-time owner/operator.

ADJUSTING PROFIT, PRICE AND COSTS FOR INFLATION

Labor and management income per operator in 1998 was at an all time high when measured in nominal (actual) value (Chart 2). Over the period 1991 to 2001, labor and management incomes per operator did not exceed \$25,000 except for \$55,000 in 1998, nearly \$43,000 in 1999, and over \$45,000 in 2001. The reader is reminded that the average herd size of DFBS participants steadily increased from 111 cows to 277 cows over this period.

Chart 2.

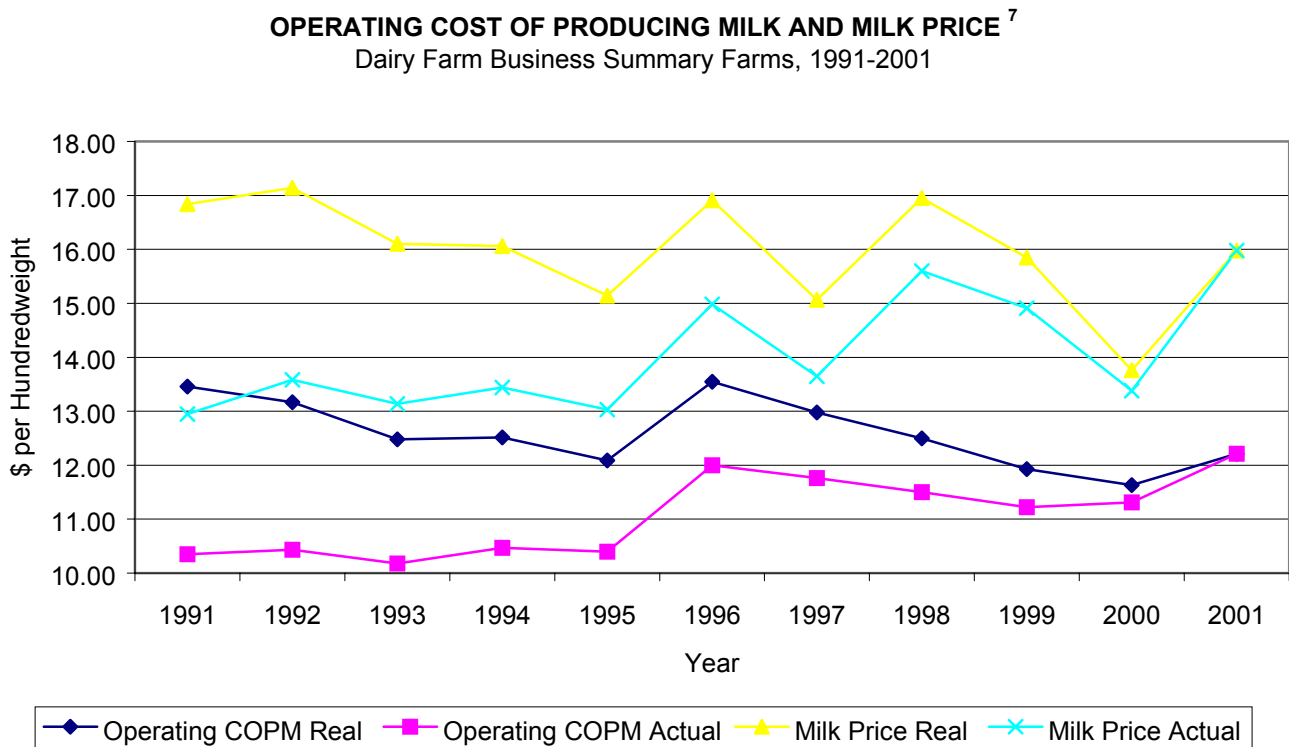
LABOR AND MANAGEMENT INCOME PER OPERATOR Dairy Farm Business Summary Farms, 1991-2001



Milk prices in 2001 averaged \$15.98/cwt in actual dollars (Chart 3, page 7). In 1991, milk prices adjusted for inflation, in 2001 dollars, would have been about \$16.84/cwt.

Operating cost of producing milk (actual) had been very constant from 1991 through 1995. Feed costs were higher in 1996 and so were operating costs of producing milk. Operating costs have been trending down in 1996 through 2000, but remain higher than earlier years. Real costs of producing milk per hundredweight have been on a downward trend over this 11-year period.

Chart 3.



⁷Operating COPM Real and Milk Price Real are adjusted for inflation using the Consumer Price Index–2001 dollars.

MILK INCOME AND MARKETING EXPENSE BREAKDOWN

Starting January 1st, 2000, the northeast switched to multiple components pricing, which changed the format of the milk check and how farmers received payment for their milk. To examine the breakdown of the gross milk income and the marketing expenses, 157 farms filled out a detailed form for all the different sources of income for milk sales and the milk marketing expenses on an accrual basis. This information is reported in the following two tables. The tables are divided into six different sections, each representing a different area of income or expenses.

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

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

Table 3.

AVERAGE⁸ MILK INCOME AND MARKETING REPORT
157 New York Dairy Farms, 2001

	Pounds	Percent	Price/Pound	Total	\$/Cwt of Milk
BASE FARM PRICE					
Butterfat	269,477.00	3.71%	\$1.8385	\$494,106.69	\$6.80
Protein	219,122.58	3.01%	\$1.9515	\$424,317.46	\$5.85
Solids	421,163.57	5.64%	\$0.1354	\$56,701.65	<u>\$0.76</u>
Total Component Contribution					<u>\$13.41</u>
PPD	7,445,058.63		\$1.8123	\$129,723.96	<u>\$1.81</u>
Base Farm Price					<u>\$15.22</u>
Premiums					
Quality				\$14,156.24	\$0.17
Volume				\$25,099.32	\$0.22
Market Premiums				\$27,731.68	<u>\$0.27</u>
Total Premiums					<u>\$0.66</u>
BASE FARM PRICE + PREMIUM					<u>\$15.88</u>
<hr style="border-top: 1px dashed black;"/>					
Deductions					
Promo				\$10,968.66	\$0.14
Hauling + Stop Charges.				\$32,779.68	\$0.53
Market Fees & Coop Dues				\$3,296.18	\$0.05
Futures/Contract Fees				\$0.00	<u>\$0.00</u>
Total Deductions					<u>\$0.72</u>
BASE FARM PRICE + PREMIUMS – DEDUCTIONS					<u>\$15.16</u>
Marketing Programs					
Compact				\$1,650.56	\$0.03
Futures Contracts, Forward Contracting, Etc.				(\$4,016.21)	<u>(\$0.04)</u>
Total Marketing Income					<u>(\$0.01)</u>
Patronage Dividends				\$6,202.87	<u>\$0.11</u>
NET PRICE RECEIVED ON FARM, ALL SOURCES					<u>\$15.26</u>
PPD – Hauling, per cwt.					\$1.28
PPD – Hauling + Market Premiums, per cwt.					\$1.55

⁸Each 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.

Table 4.

MILK PRICE INFORMATION BY QUINTILE⁹
(Each Category Sorted Independently)
157 New York Dairy Farms, 2001

	Lowest Quintile	←—————→	Highest Quintile
Butterfat, %	3.39	3.59	4.15
Protein, %	2.80	2.93	3.30
Other Solids, %	5.23	5.65	5.90
Butterfat, \$ per Cwt.	6.23	6.61	7.52
Protein, \$ per Cwt.	5.38	5.70	6.37
Other solids, \$ per Cwt.	0.69	0.75	0.83
Total Component Value per Cwt.	\$12.46	\$13.13	\$14.57
Producer Price Differential (PPD), \$ per Cwt.	1.42	1.59	2.38
Base Farm Price per Cwt.	\$14.20	\$14.86	\$16.53
Quality, \$ per Cwt.	.02	.10	.31
Volume, \$ per Cwt.	.00	.03	.65
Market premium, \$ per Cwt.	-.01	.05	.76
Total Premium, \$ per Cwt.	.19	.41	1.25
Base Farm Price + Premiums per Cwt.	\$14.77	\$15.53	\$17.08
Promotion, \$ per Cwt.	.09	.15	.18
Hauling, \$ per Cwt.	.25	.39	.95
Market fees & coop dues per Cwt.	.00	.01	.12
Futures/contract fees, \$ per Cwt.	.00	.00	.00
Total Marketing Expenses per Cwt.	\$.42	\$.59	\$1.15
Base + Premiums – Deductions per Cwt.	\$14.08	\$14.84	\$16.30
Compact, \$ per Cwt.	.00	.00	.15
Futures contract, forward contracting, \$ per Cwt.	-.26	.00	.08
Total Marketing Income, \$ per Cwt.	\$-.25	\$0.00	\$0.22
Patronage Dividends, \$ per Cwt.	\$0.00	\$0.00	\$0.53
Net Price Received From All Sources, \$ per Cwt.	\$14.21	\$14.99	\$16.35
PPD - hauling, \$ per Cwt.	.89	1.14	1.70
PPD - hauling + mkt premiums, \$ per Cwt.	1.03	1.30	2.19

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

SUMMARY AND ANALYSIS OF THE FARM BUSINESS

Business Characteristics and Resources Used

Recognition of important business characteristics and identification of the farm resources used is necessary for evaluating management performance. The combination of resources used and management practices employed is known as farm organization. Important farm business characteristics, the number of farms reporting these characteristics, and listing of the average labor, land, and dairy cattle resources used in 2001 are presented in the following table.

Table 5.

**BUSINESS CHARACTERISTICS AND RESOURCES USED
228 New York Dairy Farms, 2001**

<u>Dairy Livestock (number)</u>	<u>Cows</u>	<u>Heifers</u>	<u>Dairy Records</u>	<u>Number</u>	<u>Percent</u>
Beginning of Year	263	197	Testing Service	173	76
End of Year	286	213	On Farm System	17	8
Average for Year	277	207	Other	5	2
			None	33	14
<u>Type of Business</u>	<u>Number</u>	<u>Percent</u>	<u>bST Usage</u>	<u>Number</u>	<u>Percent</u>
Sole Proprietorship	116	51	Used on <25% of herd	18	8
Partnership	65	28	Used on 25-75% of herd	64	28
Limited Liability Corp	23	10	Used on >75% of herd	35	15
Subchapter S Corp.	22	10	Stopped using in 2000	4	2
Subchapter C Corp	2	1	Not used in 2000	107	47
<u>Barn Type</u>	<u>Number</u>	<u>Percent</u>	<u>Labor Force</u>	<u>Average</u>	<u>Percent</u>
Stanchion	76	33	Operators	22.3	28
Freestall	136	60	Family Paid	4.8	6
Combination	16	7	Family Unpaid	2.9	3
<u>Milking System</u>	<u>Number</u>	<u>Percent</u>	Hired	50.6	63
Bucket & Carry	0	0	Total Months	80.6	100
Dumping Station	2	1			
Pipeline	82	36			
Herringbone Conventional	70	31	<u>Operators (total = 442)</u>	<u>Average</u>	1.94
Herringbone Rapid	16	7	Age	46	
Parallel	41	18	Education	14 years	
Parabone	5	2	Estimated Value of		
Rotary	1	<1	Labor & Management	\$55,863	
Other	11	5			
<u>Milking Frequency</u>	<u>Number</u>	<u>Percent</u>	<u>Land Used</u>	<u>Number</u>	<u>Average</u>
2 times per day	151	66	Total acres:		
3 times per day	65	29	Owned	228	502
Other	12	5	Rented	216	326
			Tillable acres:		
<u>Business Records</u>	<u>Number</u>	<u>Percent</u>	Owned	228	329
Account Book	58	25	Rented	213	310
Accounting Service	36	16	Total	228	618
On-Farm Computer	127	56			
Other	7	3			

There were 442 full-time operator equivalents on the 228 dairy farms for an average of 1.94 operators per farm. The operators averaged 46 years of age and 14 years of formal education. Additional data on the labor force is in Table 44.

All 228 farm businesses included in this dairy summary own farm real estate. Dairy farm renters are summarized separately later in this publication. However, 213 of the dairy farm owners rented an average of 310 acres of tillable land in 2001. The 228 farms averaged 618 total tillable acres per farm of which 290 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. Cash expenses and cash receipts are used when evaluating the cash flow position of the business.

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

Accrual adjustments are complemented by accounting procedures used to separate changes in inventory of capital assets into changes caused by price and those caused by quality or quantity changes. Separating price changes (appreciation) from physical changes in the farm inventory are important in determining farm profitability. Appreciation of farm assets 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 page begins with an accounting of all farm business expenses. Farm business expenditures are grouped into the following nine major categories:

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

Cash and accrual farm expenses are summarized below. Total operating accrual expenses for the 228 farms averaged \$2,309 per day and 90 percent of total farm accrual expenses.

Table 6.

CASH AND ACCRUAL FARM EXPENSES
228 New York Dairy Farms, 2001

Expense Item	Cash Paid	-	Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses	Percent
<u>Hired Labor</u>	\$145,383		\$500 <<		\$302		\$145,185	17
<u>Feed</u>								
Dairy grain & concentrate	252,039		8,201		-2,916		240,921	29
Dairy roughage	16,979		1,499		-374		15,106	2
Nondairy livestock	183		0		0		183	<1
<u>Machinery</u>								
Machinery hire, rent & lease	27,196		-222 <<		-665		26,752	3
Machinery repairs & farm vehicle exp.	47,297		583		-381		46,333	6
Fuel, oil & grease	19,714		219		-329		19,166	2
<u>Livestock</u>								
Replacement livestock	12,002		0 <<		-58		11,944	1
Breeding	12,202		395		-144		11,662	1
Veterinary & medicine	33,509		545		-369		32,595	4
Milk marketing	37,834		-2 <<		191		38,027	5
Bedding	13,661		184		-103		13,374	2
Milking Supplies	19,600		674		-260		18,666	2
Cattle lease & rent	1,926		-23 <<		164		2,113	<1
Custom boarding	17,491		-83 <<		-48		17,526	2
BST expense	16,209		167 <<		-153		15,889	2
Other livestock expense	8,649		74		70		8,645	1
<u>Crops</u>								
Fertilizer & lime	21,121		657		-496		19,967	2
Seeds & plants	13,805		1,646		-164		11,995	1
Spray & other crop expense	15,383		151		-141		15,091	2
<u>Real Estate</u>								
Land, building & fence repair	15,619		127		18		15,510	2
Taxes	12,843		30 <<		-93		12,720	2
Rent & lease	15,295		367 <<		-63		14,864	2
<u>Other</u>								
Insurance	8,839		256 <<		18		8,600	1
Utilities	20,044		-3 <<		-20		20,028	2
Interest paid	49,741		-77 <<		-268		49,550	6
Miscellaneous	10,597		-26		-86		10,537	1
Total Operating	\$865,160		\$15,841		\$-6,371		\$842,949	100
Expansion livestock	\$19,999		\$0 <<		\$-15		\$19,984	
Machinery depreciation							\$44,168	
Building depreciation							\$34,173	
TOTAL ACCRUAL EXPENSES							\$941,274	

Cash paid is the actual amount of money paid out during the year and does not necessarily represent the cost of goods and services actually used.

Change in inventory represents feeds and supplies purchased this year but not used (positive change), and similar items purchased in a prior year and used this year (negative change). For example, purchased dairy grain and concentrate inventory increased \$8,201.

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 \$367 per farm in 2001, and that increase is subtracted from cash rent to determine the correct 2001 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 \$15,841, and total change in accounts payable equals \$-6,371.

Income Statement - Receipts

Cash and accrual farm receipts are presented in the following table. Total cash receipts averaged \$1,044,797 per farm. Total accrual receipts averaged \$1,090,318 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 17 head per farm and the homegrown feed inventory per farm increased \$6,088. Homegrown feed inventory per cow decreased \$6 from beginning to end of year.

Table 7.

CASH AND ACCRUAL FARM RECEIPTS 228 New York Dairy Farms, 2001

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts	Percent
Milk sales	\$955,191				\$8,477		\$963,667	88
Dairy cattle	36,036		\$31,379		-19		67,395	6
Dairy calves	11,856				23		11,878	1
Other livestock	2,177		120		-11		2,287	<1
Crops	5,696		6,088		687		12,471	1
Government receipts	16,984		-23 ¹⁰		-1,196		15,766	1
Custom machine work	3,544				-105		3,439	<1
Gas tax refund	261				0		261	<1
Other	13,053				165		13,218	1
- Nonfarm noncash Capital ¹¹			(-) 64				(-) 64	
Total	\$1,044,797		\$37,500		\$8,021		\$1,090,318	100

¹⁰Change in advanced government receipts.

¹¹Gifts 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 2000 to 2001. 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 2001 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 \$92,144 per farm in 2001. On the average, farm real estate appreciated \$30,399 or 4 percent of beginning fair market value. Machinery appreciated 1.8 percent while dairy cattle prices appreciated 12.9 percent in 2001.

Average data from 22 farms with the highest rates of return to all capital (without appreciation) are compared with the 228 farm average in Table 8 and in many of the following tables. Net farm income with appreciation averaged \$596,904 per farm on the top 10 percent farms, 147 percent greater than the 228 farm average.

Table 8.

NET FARM INCOME 228 New York Dairy Farms, 2001

Item	Average 228 Farms		Average Top 10% Farms ¹²	
	Per Farm	Per Cow	Per Farm	Per Cow
Total accrual receipts	\$1,090,318		\$2,203,101	
+ Appreciation: Livestock	55,467		89,558	
Machinery	5,531		6,068	
Real Estate	30,399		45,842	
Other Stock & Certificates	<u>747</u>		<u>-2,738</u>	
= Total including appreciation	\$1,182,462		\$ 2,341,831	
- Total accrual expenses	<u>941,274</u>		<u>1,744,927</u>	
= Net Farm Income (with appreciation)	\$241,188	\$871	\$596,904	\$1,152
Net Farm Income (without appreciation)	\$149,044	\$538	\$458,174	\$885

¹²Average of 22 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
228 New York Dairy Farms, 2001**

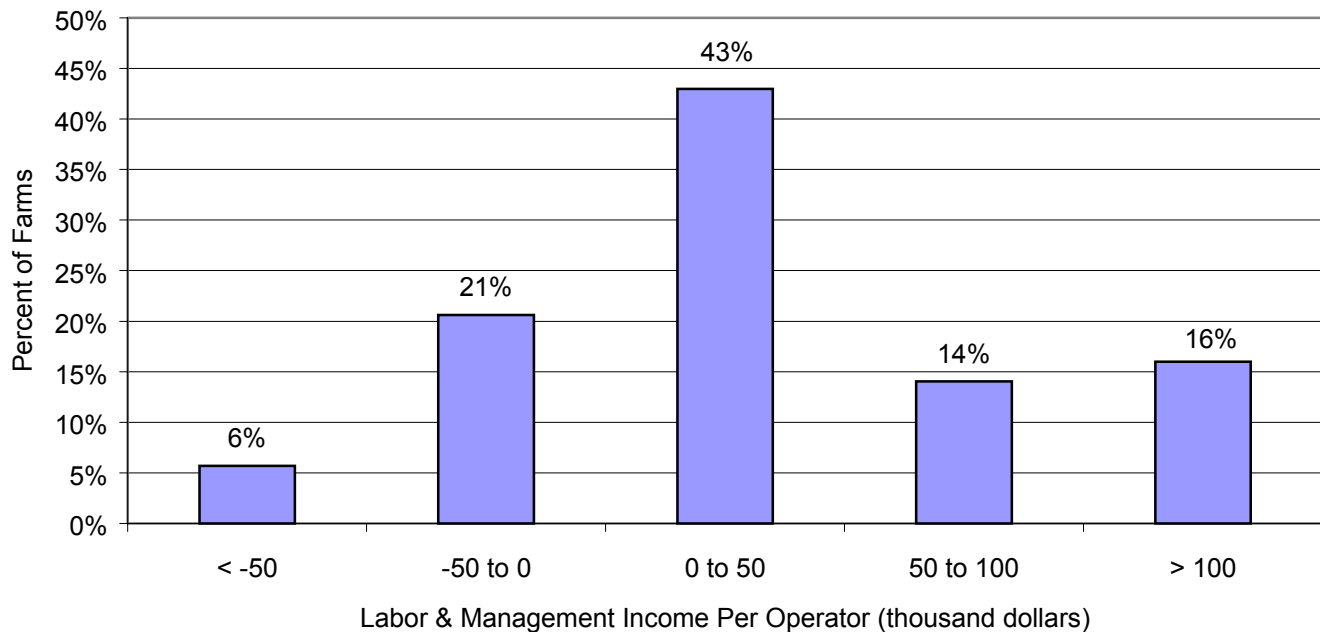
Item	Average 228 Farms	Average Top 10% Farms ¹³
Net farm income without appreciation	\$149,044	\$458,174
- Family labor unpaid @ \$2,000 per month	5,800	4,000
- Real interest @ 5% on \$1,100,279 equity capital for average & \$1,556,506 for the top 10% farms	<u>55,014</u>	<u>77,825</u>
= Labor & Management Income (1.94 operators)	\$88,230	(2.03 operators) \$376,349
Labor & Management Income per Operator	\$45,479	\$185,394

¹³Average of 22 farms with highest rates of return to all capital (without appreciation).

Labor and management income per operator averaged \$45,479 on these 228 dairy farms in 2001. The range in labor and management income per operator was from less than \$-146,000 to more than \$1.06 million. Returns to labor and management were negative on 27 percent of the farms. Labor and management income per operator ranged from \$0 to \$50,000 on 43 percent of the farms while 30 percent showed labor and management incomes of \$50,000 or more per operator.

Chart 4.

**DISTRIBUTION OF LABOR & MANAGEMENT INCOMES PER OPERATOR
228 New York Dairy Farms, 2001**



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

Table 10.

**RETURN TO CAPITAL
228 New York Dairy Farms, 2001**

Item	Average 228 Farms	Average Top 10% Farms ¹⁴
Net farm income with appreciation	\$241,188	\$596,904
- Family labor unpaid at \$2,000 per month	5,800	4,000
- Value of operators' labor & management	<u>55,863</u>	<u>80,683</u>
= Return to equity capital with appreciation	\$179,525	\$512,221
+ Interest paid	<u>49,550</u>	<u>90,402</u>
= Return to all capital with appreciation	\$229,075	\$602,623
Return to equity capital without appreciation	\$87,381	\$373,491
Return to all capital without appreciation	\$136,931	\$463,893
Rate of return on average equity capital:		
with appreciation	16.3%	32.9%
without appreciation	7.9%	24.0%
Rate of return on all capital:		
with appreciation	12.2%	20.4%
without appreciation	7.3%	15.7%
Net farm income from operations ratio	0.14	0.21

¹⁴Average of 22 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
228 New York Dairy Farms, 2001**

Item	Quartile by Return to All Capital With Appreciation			
	Lowest 25%	3rd 25%	2nd 25%	Top 25%
Return to all capital with appreciation	\$-1,771	\$50,640	\$170,232	\$697,400
Rate of return on all capital with appreciation	-0.3%	6.6%	10.4%	15.9%
Total returns to all labor & management	\$18,716	\$53,009	\$189,279	\$695,852
Worker equivalent	2.95	3.38	6.10	14.43
Return per worker equivalent	\$6,344	\$15,683	\$31,029	\$48,223
Returns/hour (2,760 hours/worker/year)	\$2.30	\$5.68	\$11.24	\$17.47

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.

2001 FARM BUSINESS AND NONFARM BALANCE SHEET
228 New York Dairy Farms, 2001

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$10,481	\$10,425	Accounts payable	\$23,260	\$16,874
Accounts receivable	59,249	67,270	Operating debt	62,834	69,102
Prepaid expenses	2,357	3,100	Short term	3,877	6,773
Feed & supplies	<u>180,660</u>	<u>201,846</u>	Advanced gov't. receipt	32	55
Total Current	\$252,747	\$282,641	Current portion:		
			Intermediate	49,892	72,882
			Long term	<u>20,301</u>	<u>27,323</u>
			Total Current	\$160,197	\$193,008
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy Cows:			Structured debt		
owned	\$290,068	\$340,636	1-10 years	\$264,663	\$271,647
leased	3,948	2,968	Financial lease		
Heifers	136,280	172,615	(cattle & machinery)	20,218	15,280
Bulls & other livestock	3,113	3,175	Farm Credit stock	<u>4,661</u>	<u>4,735</u>
Mach. & equip. owned	308,450	340,030	Total Intermediate	\$289,542	\$291,662
Mach. & equip. leased	16,270	12,312			
Farm Credit stock	4,661	4,735	<u>Long Term</u>		
Other stock & certificates	<u>30,091</u>	<u>34,476</u>	Structured debt		
Total Intermediate	\$792,881	\$910,947	≥ 10 years	\$302,585	\$304,189
<u>Long Term</u>			Financial lease		
Land & buildings:			(structures)	<u>451</u>	<u>270</u>
owned	\$726,198	\$776,326	Total Long Term	\$303,036	\$304,459
leased	<u>451</u>	<u>270</u>			
Total Long Term	\$726,649	\$776,596	Total Farm Liabilities	\$752,775	\$789,129
Total Farm Assets	\$1,772,277	\$1,970,184	FARM NET WORTH	\$1,019,502	\$1,181,055
Nonfarm Assets ¹⁵	Jan.1	Dec. 31	Nonfarm Liabilities ¹⁵	Jan. 1	Dec. 31
Personal cash, checking & savings	\$4,338	\$6,384	Nonfarm Liabilities	\$4,297	\$4,003
Cash value life insurance	19,353	21,298	NONFARM NET WORTH	\$94,527	\$102,815
Nonfarm real estate	29,101	28,888			
Auto (personal share)	5,903	6,672	FARM & NONFARM ¹⁶	Jan. 1	Dec. 31
Stocks & bonds	19,798	21,577	Total Assets	\$1,871,101	\$2,077,002
Household furnishings	11,494	12,379	Total Liabilities	<u>757,072</u>	<u>793,132</u>
All other	<u>8,837</u>	<u>9,620</u>	TOTAL FARM & NON-		
Total Nonfarm	\$98,824	\$106,818	FARM NET WORTH	\$1,114,029	\$1,283,870

¹⁵Average of 126 farms completing the nonfarm balance sheet.

¹⁶Sum of average farm values for 228 farms and nonfarm values for 126 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
228 New York Dairy Farms, 2001

Item	Average 228 Farms	Average Top 10% Farms ¹⁷		
<u>Farm Financial Ratios:</u>				
Percent equity	60%	55%		
Debt/asset ratio: total	0.40	0.45		
long term	0.39	0.37		
intermediate & current	0.41	0.50		
Leverage Ratio:	0.67	0.82		
Current Ratio:	1.46	1.45		
Working Capital: \$89,633 as % of Total Expenses	10%	\$168,521 10%		
<u>Farm Debt Analysis:</u>				
Accounts payable as % of total debt	2%	2%		
Long term liab. as % of total debt	39%	29%		
Current & intermediate liabilities as % of total debt	61%	71%		
Cost of term debt (weighted average)	5.5%	5.4%		
<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	\$2,759	\$2,399	\$2,688	\$3,403
Long term debt	1,065	925	783	991
Intermediate & long term	2,084	1,812	1,988	2,517
Intermediate & current debt	1,695	1,473	1,905	2,412

¹⁷Average of 22 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
228 New York Dairy Farms, 2001

Item	Real Estate	Machinery & Equipment	Livestock
Value beginning of year	\$726,198	\$308,450	\$429,460
Purchases	\$84,017 ¹⁸	\$73,345	
+ nonfarm noncash transfer ¹⁹	2,292	49	
- Lost capital	26,652		
- Net sales	5,755	3,177	
- Depreciation	<u>34,173</u>	<u>44,168</u>	
= Net Investment	19,729	26,049	31,499
+ Appreciation	<u>30,399</u>	<u>5,531</u>	<u>55,467</u>
Value end of year	\$776,326	\$340,030	\$516,426

¹⁸\$15,092 land and \$68,925 buildings and/or depreciable improvements.

¹⁹Gifts 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 (called retained earnings), (2) outside capital being invested in the business or farm capital being removed from the business (called contributed/withdrawn capital) and (3) increases or decreases in the value (price) of assets owned by the business (called change in valuation equity).

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

Table 15.

**STATEMENT OF OWNER EQUITY (RECONCILIATION)
228 New York Dairy Farms, 2001**

Item	Average 228 Farms	Average Top 10% Farms ²¹
Beginning of year farm net worth	\$1,019,502	\$1,355,182
Net farm income without appreciation	\$149,044	\$458,174
+ Nonfarm cash income	6,494	2,751
- Personal withdrawals & family expenditures and income taxes, excluding nonfarm borrowings	<u>64,456</u>	<u>117,938</u>
RETAINED EARNINGS	+ \$91,082	+ \$342,987
Nonfarm noncash transfers to farm	\$2,405	\$0
+ Cash used in business from nonfarm capital	3,257	308
- Note or mortgage from farm real estate sold (nonfarm)	<u>1,316</u>	<u>0</u>
CONTRIBUTED/WITHDRAWN CAPITAL	+ \$4,346	+ \$308
Appreciation	\$92,144	\$138,730
- Lost capital	<u>26,652</u>	<u>82,088</u>
CHANGE IN VALUATION EQUITY	+ \$65,492	+ \$56,642
IMBALANCE/ERROR	<u>- \$-633</u>	<u>- \$-2,710</u>
End of year farm net worth ²⁰	\$1,181,055	\$1,757,829
<u>Change in Net Worth</u>		
Without appreciation	\$69,409	\$263,917
With appreciation	\$161,553	\$402,647

²⁰May not add due to rounding.

²¹Average of 22 farms with highest rates of return to all capital (without appreciation).

Cash Flow Summary and Analysis

Completing an annual cash flow statement is an important step in understanding and organizing the sources and uses of funds for the business. Understanding last year's cash flow is the first step toward planning and managing cash flow for the current and future years.

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

Table 16.

ANNUAL CASH FLOW STATEMENT 228 New York Dairy Farms, 2001

Item	Average 228 Farms	
<u>Cash Flow from Operating Activities</u>		
Cash farm receipts	\$1,044,797	
- Cash farm expenses	<u>865,160</u>	
= Net cash farm income		\$179,637
Personal withdrawals & family expenses including nonfarm debt payments	\$64,735	
- Nonfarm income	<u>6,494</u>	
- Net cash withdrawals from the farm		<u>\$58,241</u>
= Net Provided by Operating Activities		\$121,396
<u>Cash Flow From Investing Activities</u>		
Sale of assets: machinery	\$3,177	
+ real estate	4,439	
+ other stock & certificates	<u>1,640</u>	
= Total asset sales		\$9,256
Capital purchases: expansion livestock	\$19,999	
+ machinery	73,345	
+ real estate	84,017	
+ other stock & certificates	<u>5,278</u>	
- Total invested in farm assets		<u>\$182,639</u>
+ Net Provided by Investment Activities		\$-173,383
<u>Cash Flow From Financing Activities</u>		
Money borrowed (intermediate & long term)	\$140,023	
+ Money borrowed (short term)	5,852	
+ Increase in operating debt	6,267	
+ Cash from nonfarm capital used in business	3,257	
+ Money borrowed - nonfarm	<u>279</u>	
= Cash inflow from financing		\$155,678
Principal payments (intermediate & long term)	\$101,422	
+ Principal payments (short term)	2,956	
+ Decrease in operating debt	<u>0</u>	
- Cash outflow for financing		<u>\$104,378</u>
= Net Provided by Financing Activities		\$51,300
<u>Cash Flow From Reserves</u>		
Beginning farm cash, checking & savings		\$10,481
- Ending farm cash, checking & savings		<u>\$10,425</u>
= Net Provided from Reserves		\$56
<u>Imbalance (error)</u>		\$-631

Table 17.

ANNUAL CASH FLOW BUDGETING DATA
228 New York Dairy Farms, 2001

Item	Average 228 Farms			Average Top 10% Farms ²³		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Average number of cows and cwt. milk		277	60,290		518	119,810
<u>Accrual Operating Receipts</u>						
Milk	\$963,667	\$3,479	\$15.98	\$1,909,368	\$3,686	\$15.94
Dairy cattle	67,395	243	1.12	142,225	275	1.19
Dairy calves	11,878	43	0.20	20,428	39	0.17
Other livestock	2,287	8	0.04	5,042	10	0.04
Crops	12,471	45	0.21	63,737	123	0.53
Miscellaneous receipts	<u>32,620</u>	<u>118</u>	<u>0.54</u>	<u>62,301</u>	<u>120</u>	<u>0.52</u>
Total	\$1,090,318	\$3,936	\$18.08	\$2,203,101	\$4,253	\$18.39
<u>Accrual Operating Expenses</u>						
Hired labor	\$145,185	\$524	\$2.41	\$268,986	\$519	\$2.25
Dairy grain & concentrate	240,921	870	4.00	457,876	884	3.82
Dairy roughage	15,106	55	0.25	43,590	84	0.36
Nondairy feed	183	1	0.00	176	0	0.00
Machinery hire, rent & lease	26,752	97	0.44	60,191	116	0.50
Machinery repairs & vehicle expense	46,333	167	0.77	69,454	134	0.58
Fuel, oil & grease	19,166	69	0.32	31,076	60	0.26
Replacement livestock	11,944	43	0.20	23,285	45	0.19
Breeding	11,662	42	0.19	21,240	41	0.18
Vet & medicine	32,595	118	0.54	60,565	117	0.51
Milk marketing	38,027	137	0.63	66,914	129	0.56
Bedding	13,374	48	0.22	23,301	45	0.19
Milking supplies	18,666	67	0.31	35,497	69	0.30
Cattle lease	2,113	8	0.04	9,156	18	0.08
Custom boarding	17,526	63	0.29	53,939	104	0.45
bST expense	15,889	57	0.26	31,447	61	0.26
Other livestock expense	8,645	31	0.14	12,620	24	0.11
Fertilizer & lime	19,967	72	0.33	41,429	80	0.35
Seeds & plants	11,995	43	0.20	21,631	42	0.18
Spray/other crop expense	15,091	54	0.25	26,776	52	0.22
Land, building & fence repair	15,510	56	0.26	27,200	53	0.23
Taxes	12,720	46	0.21	15,789	30	0.13
Real estate rent & lease	14,864	54	0.25	26,811	52	0.22
Insurance	8,600	31	0.14	12,690	24	0.11
Utilities	20,028	72	0.33	30,001	58	0.25
Miscellaneous	<u>10,537</u>	<u>38</u>	<u>0.17</u>	<u>18,335</u>	<u>35</u>	<u>0.15</u>
Total Less Interest Paid	\$793,399	\$2,864	\$13.16	\$1,489,975	\$2,876	\$12.44
<u>Net Accrual Operating Income</u>						
(without interest paid)	\$296,919	\$1,072	\$4.92	\$713,126	\$1,377	\$5.95
- Change in livestock & crop inventory	37,500	135	0.62	128,745	249	1.07
- Change in accounts receivable	8,021	29	0.13	27,687	53	0.23
- Change in feed & supply inventory	15,841	57	0.26	74,800	144	0.62
+ Change in accounts payable ²²	<u>-6,103</u>	<u>-22</u>	<u>-0.10</u>	<u>-4,968</u>	<u>-10</u>	<u>-0.04</u>
NET CASH FLOW	\$229,378	\$828	\$3.80	\$477,095	\$921	\$3.98
- Net personal withdrawals & family exp.	<u>57,962</u>	<u>209</u>	<u>0.96</u>	<u>115,187</u>	<u>222</u>	<u>0.96</u>
Available for Farm Debt Payments & Invest.	\$171,416	\$619	\$2.84	\$361,908	\$699	\$3.02
- Farm debt payments	<u>158,046</u>	<u>571</u>	<u>2.62</u>	<u>299,088</u>	<u>577</u>	<u>2.50</u>
Cash available for Farm Investments	\$13,370	\$48	\$0.22	\$62,820	\$121	\$0.52

²²Exclude change in interest account payable.²³Average of 22 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 2000 and 2001.

Table 18.

FARM DEBT PAYMENTS PLANNED New York Dairy Farms, 2001

	Same 201 Dairy Farms			Same 18 Top 10% Farms		
	2001 Payments		Planned	2001 Payments		Planned
Debt Payments	Planned	Made	2002	Planned	Made	2002
Long term	\$51,915	\$65,560	\$50,952	\$94,745	\$141,823	\$84,176
Intermediate term	85,104	96,770	98,825	169,896	195,369	226,191
Short term	3,275	3,319	4,676	1,553	1,572	4,245
Operating (net reduction)	3,668	0	5,499	10,633	0	11,460
Accts. payable (net reduction)	2,317	7,223	215	2,738	6,022	278
Total	\$146,279	\$172,872	\$160,167	\$279,565	\$344,786	\$326,350
Per cow	\$498	\$588		\$475	\$585	
Per cwt. 2001 milk	\$2.27	\$2.69		\$2.05	\$2.53	
% of 2001 milk receipts	14%	17%		13%	16%	

The cash flow coverage ratio and debt coverage ratio measure the ability of the farm business to meet its planned debt payments. The ratios show the number of times the amount available for debt service in 2001 covered debt payments planned for 2001 (as of December 31, 2000).

Table 19.

COVERAGE RATIOS Same 201 New York Dairy Farms, 2000 & 2001

Item	Average	Item	Average
<u>Cash Flow Coverage Ratio</u>		<u>Debt Coverage Ratio</u>	
Cash farm receipts	\$1,114,425	Net farm income (w/o apprec.)	\$155,585
- Cash farm expenses	925,602	+ Depreciation	83,907
+ Interest paid (cash)	53,442	+ Interest paid (accrual)	53,242
- Net personal withdrawals from farm ²⁴	60,205	- Net personal withdrawals from farm ²⁴	60,205
(A) = Amount Available for Debt Service	\$182,060	(A') = Repayment Capacity	\$232,529
(B) = Debt Payments Planned for 2001 (as of December 31, 2000)	\$146,279	(B) = Debt Payments Planned for 2001 (as of December 31, 2000)	\$146,279
(A/B) = Cash Flow Coverage Ratio for 2001	1.24	(A'/B) = Debt Coverage Ratio for 2001	1.59

Same 18 Top 10% Dairy Farms, 2000 & 2001			
(A) = Amount Available for Debt Service	\$396,889	(A') = Repayment Capacity	\$626,384
(B) = Debt Payments Planned for 2001	279,565	(B) = Debt Payments Planned for 2001	279,565
(A/B) = Cash Flow Coverage Ratio for 2001	1.42	(A'/B) = Debt Coverage Ratio for 2001	2.24

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

The debt to asset ratio is a good measure of the current relationship between assets and liabilities, but not the business' ability to meet cash flow obligations. Even with a debt to asset ratio of less than 40 percent, 20.8 percent of the farms had a cash flow coverage ratio less than 1.0.

Table 20.

DEBT TO ASSET RATIO VS. CASH FLOW COVERAGE 201 New York Dairy Farms, 2001

Debt/Asset Ratio	Cash Flow Coverage Ratio (Farm & Nonfarm)			
	<.5	.5 to .99	1 to 1.49	≥1.5
	percent of farms			
<40%	11.6	9.2	13.1	24.3
40 to 70%	4.9	11.6	14.6	6.8
70% & over	0.0	1.9	1.5	0.5

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 228 New York Dairy Farms, 2001

Item	Average 228 Farms			Average Top 10% Farms ²⁵		
	Owned	Rented	Total	Owned	Rented	Total
<u>Land</u>						
Tillable	329	290	619	425	534	959
Nontillable pasture	50	13	63	30	3	33
Other nontillable	<u>122</u>	<u>7</u>	<u>129</u>	<u>101</u>	<u>18</u>	<u>119</u>
Total	501	310	811	556	555	1,111
<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	219	314	2.8 tn DM	19	512	3.0 tn DM
Corn silage	195	245	16.5 tn 5.4 tn DM	18	457	16.6 tn 5.4 tn DM
Other forage	17	33	2.0 tn DM	0	0	0.0 tn DM
Total forage	219	535	3.9 tn DM	19	945	4.1 tn DM
Corn grain	76	118	108 bu	9	188	116 bu
Oats	17	35	70 bu	1	70	90 bu
Wheat	20	76	53 bu	3	49	59 bu
Other crops	47	95		2	143	
Tillable pasture	70	76		9	78	
Idle	45	58		6	53	

²⁵Average of 22 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 9 of the 228 farms produced hay or hay crop silage in 2001. Eighty-six percent produced corn silage, 33 percent grew and harvested corn grain, and 7 percent grew oats for grain. Although 70 farms used tillable pasture in 2001, only 47 farms reported using rotational grazing.

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

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

The following measures of crop management indicate how efficiently the land resource is being used and how well total forage requirements are being met.

Table 22.

CROP MANAGEMENT FACTORS 228 New York Dairy Farms, 2001

Item	Average 294 Farms	Average Top 10% Farms ²⁶
Total tillable acres per cow	2.23	1.85
Total forage acres per cow	1.86	1.58
Harvested forage dry matter, tons per cow	7.14	6.50

²⁶Average of 22 farms with highest rates of return to all capital (without appreciation).

Thirty-four cooperators allocated direct crop related expenses to hay crop, corn and other crop production, and 12 provided data on pasture costs. The data in Table 23 have been compiled to show the average crop related production expenses per acre and per unit for these crops and for pasture. Note that labor and machinery costs have not been included. Total corn expenses are allocated to corn silage and corn grain based on the proportion of acres in each crop. In Table 23, the total per tillable acre represents all 228 farms, the expenses for hay are for 34 farms and corn crops are for 33 farms.

Table 23.

**CROP RELATED ACCRUAL EXPENSES
New York Dairy Farms, 2001**

Expenses	Average 228 Farms Total per Tillable Acre	Farms Reporting Crop Costs						
		Average 34 Farms Hay Crop		Average 33 Farms			Average 12 Farms Pasture	
		Per Acre	Per Ton DM	All Corn Per Acre	Corn Silage Per Ton DM	Corn Grain Per Dry Shell Bu.	Per Till. Acre	Per Total Acre
Fertilizer & lime	\$32.31	\$27.71	\$8.93	\$33.62	\$6.20	\$0.32	\$19.97	\$8.36
Seeds & plants	19.41	10.70	3.45	32.58	6.01	0.31	4.39	1.84
Spray & other crop exp.	<u>24.42</u>	<u>7.16</u>	<u>2.31</u>	<u>45.12</u>	<u>8.32</u>	<u>0.42</u>	<u>2.00</u>	<u>0.84</u>
Total	\$76.14	\$45.57	\$14.69	\$111.32	\$20.53	\$1.05	\$26.36	\$11.04
Ave. Top 10% Farms: ²⁷	<u>Average 22 Farms</u>	----- <u>NOT REPORTED</u> -----						
Fertilizer & lime	\$43.20							
Seeds & plants	22.56							
Spray & other crop exp.	<u>27.92</u>							
Total	\$93.68							

²⁷Average 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
228 New York Dairy Farms, 2001**

Machinery Expense Item	Average 228 Farms		Average Top 10% Farms ²⁸	
	Total Expenses	Per Tillable Acre	Total Expenses	Per Tillable Acre
Fuel, oil & grease	\$19,166	\$31.01	\$31,076	\$32.40
Machinery repairs & vehicle expense	46,333	74.97	69,454	72.42
Machine hire, rent & lease	26,752	43.29	60,191	62.76
Interest (5%)	16,927	27.39	23,600	24.61
Depreciation	<u>44,168</u>	<u>71.47</u>	<u>66,506</u>	<u>69.35</u>
Total	\$153,346	\$248.13	\$250,827	\$261.55

²⁸Average of 22 farms with highest rates of return to all capital (without appreciation).

Table 25.

**CROP RELATED ACCRUAL EXPENSES BY HAY CROP PRODUCTION PER ACRE
34 New York Dairy Farms, 2001**

Item	Tons of Hay Crop Dry Matter Per Acre			
	<2.5	2.5-2.9	3.0-3.4	≥3.5
Hay crop, tons DM/acre	1.7	2.7	3.2	4.4
Farms reporting crop expense breakdowns	15	3	8	8
Average number hay crop acres for farms reporting	247	195	233	381
<u>Accrual Crop Expenses Per Acre of Hay Crop:</u>				
Fertilizer & lime	\$15.23	\$36.01	\$23.30	\$44.11
Seeds & plants	7.29	7.56	14.23	13.34
Spray & other crop expenses	4.48	2.53	8.44	10.56
Total	\$27.00	\$46.10	\$45.97	\$68.01
<u>Accrual Crop Expense Per Ton DM of Hay Crop:</u>				
Fertilizer & lime	\$7.93	\$8.30	\$4.33	\$10.76
Seeds & plants	3.80	1.74	2.64	3.25
Spray & other crop expenses	2.33	0.58	1.57	2.57
Total	\$14.06	\$10.62	\$8.54	\$16.58

Table 26.

**CROP RELATED ACCRUAL EXPENSES BY CORN PRODUCTION PER ACRE
33 New York Dairy Farms, 2001**

Item	Tons Corn Silage/Acre			Dry Shelled Bushels of Corn Grain Per Acre		
	<13	13-18	≥18	<100	100-120	≥120
Corn yield per acre	11.3	15.8	19.7	75	108	140
Farms reporting crop expense breakdowns	6	18	9	5	8	5
Average number corn acres for farms reporting	99	232	279	200	261	330
<u>Accrual Crop Expense/Acre of Corn</u>						
Fertilizer & lime	\$43.33	\$39.81	\$20.67	\$51.60	\$35.24	\$27.35
Seeds & plants	23.61	33.09	33.45	33.26	33.31	33.28
Spray & other crop expenses	25.15	44.16	50.89	28.47	43.50	46.71
Total	\$92.09	\$117.06	\$105.01	\$113.33	\$112.05	\$107.34
<u>Accrual Crop Expense Per:²⁹</u>						
	Ton DM of Corn Silage			Dry Shell Bushel of Corn Grain		
Fertilizer & lime	\$10.92	\$8.09	\$3.14	\$0.82	\$0.33	\$0.19
Seeds & plants	5.95	6.73	5.08	0.53	0.31	0.23
Spray & other crop expense	6.34	8.97	7.73	0.45	0.41	0.33
Total	\$23.21	\$23.79	\$15.95	\$1.80	\$1.05	\$0.75

²⁹Total 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 also increase. Hay crop expenses per ton of dry matter decrease substantially as yields increase to 3.0-3.4 tons per acre. However, the highest cost per ton of dry matter is reported for the highest 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 low 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 228 New York Dairy Farms, 2001

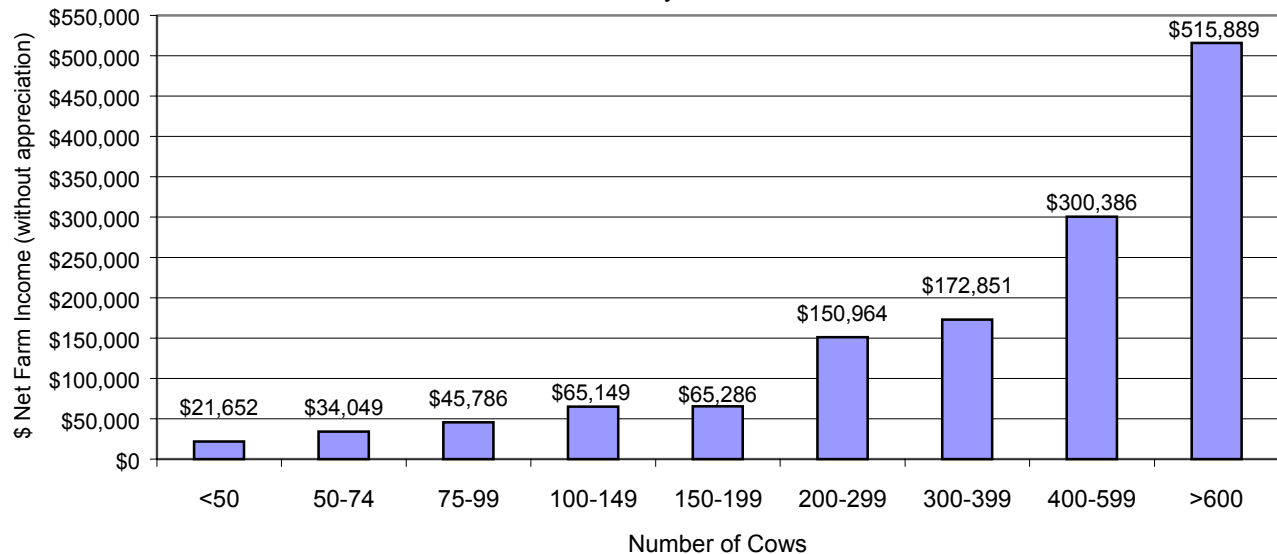
Item	Dairy Cows		Heifers					
	No.	Value	Bred		Open		Calves	
			No.	Value	No.	Value	No.	Value
Beg. year (owned)	263	\$290,068	74	\$75,093	66	\$41,694	57	\$19,492
+ Change w/o apprec.		19,626		4,105		5,565		2,084
+ Appreciation		<u>30,942</u>		<u>11,824</u>		<u>7,412</u>		<u>5,346</u>
End year (owned)	280	\$340,636	77	\$91,022	74	\$54,671	62	\$26,922
End including leased	286							
Average number	277		207	(all age groups)				
<u>Average Top 10% Farms:³⁰</u>								
Beg. year (owned)	474	\$521,108	118	\$125,445	120	\$78,860	88	\$31,822
+ Change w/o apprec.		43,345		25,451		10,759		4,514
+ Appreciation		<u>47,483</u>		<u>19,049</u>		<u>16,487</u>		<u>6,539</u>
End year (owned)	514	\$611,936	143	\$169,945	135	\$106,106	102	\$42,875
End including leased	538							
Average number	518		368	(all age groups)				

³⁰Average of 22 farms with highest rates of return to all capital (without appreciation).

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

Chart 5.

NET FARM INCOME (WITHOUT APPRECIATION) BY HERD SIZE 228 New York Dairy Farms, 2001



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
228 New York Dairy Farms, 2001**

Item	Average 228 Farms	Average Top 10% Farms ³¹
Total milk sold, lbs.	6,028,963	11,981,049
Milk sold per cow, lbs.	21,762	23,146
Average milk plant test, percent butterfat	3.68%	3.66%

³¹Average of 22 farms with highest rates of return to all capital (without appreciation).

Farms with higher rates of production tend to have higher profits. In 2001, most of the farms that sold more than 20,000 pounds of milk per cow had above average profit margins.

Table 29.

**MILK SOLD PER COW AND FARM INCOME MEASURES
228 New York Dairy Farms, 2001**

Pounds of Milk Sold Per Cow	Number of Farms	Average Number of Cows	Net Farm Income w/o Apprec.	Net Farm Income Per Cow	Labor & Management Income/Oper.
Under 16,000	47	106	\$38,820	\$366	\$5,031
16,000 to 16,999	14	118	45,799	388	3,645
17,000 to 17,999	15	113	50,968	451	11,442
18,000 to 18,999	11	107	77,471	724	26,416
19,000 to 19,999	12	207	99,086	479	22,696
20,000 to 20,999	22	336	155,916	464	54,577
21,000 to 21,999	28	289	165,379	572	57,945
22,000 to 22,999	23	434	191,020	440	50,104
23,000 & over	56	458	290,293	634	93,273

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 228 farms.

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

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

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

Chart 6.

NET FARM INCOME AND MILK PER COW
228 New York Dairy Farms, 2001

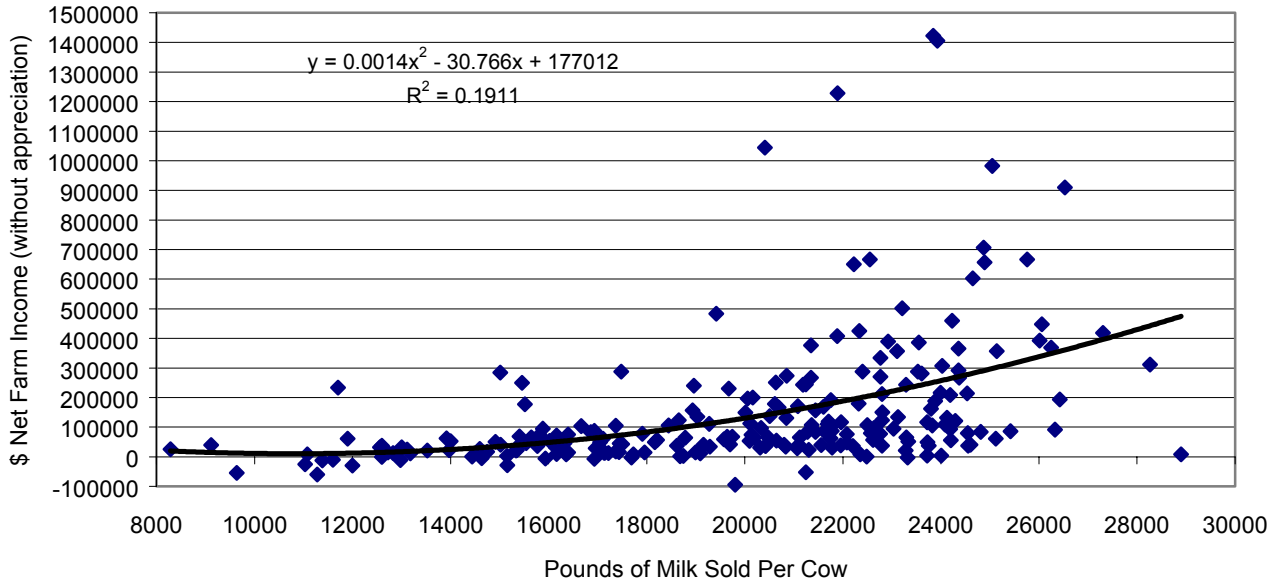
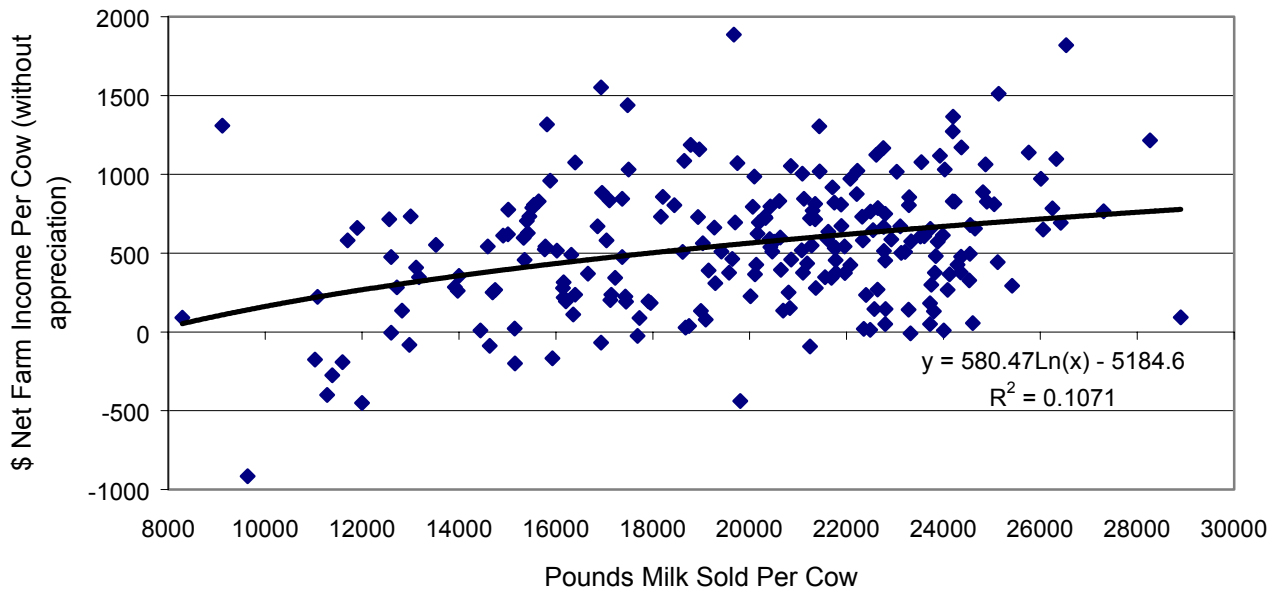


Chart 7.

NET FARM INCOME PER COW AND MILK PER COW
228 New York Dairy Farms, 2001



Charts 8 and 9 look at relationships between cull rates and milk production and net farm income per cow. For the 2001 year, supplementary information concerning dairy replacements was collected from 81 participating farms. The culling chart (Table 30) reports the decile range of reported factors for the different information that was collected. Please refer to the glossary for definitions of the different terms and how the measures were calculated.

Chart 8.

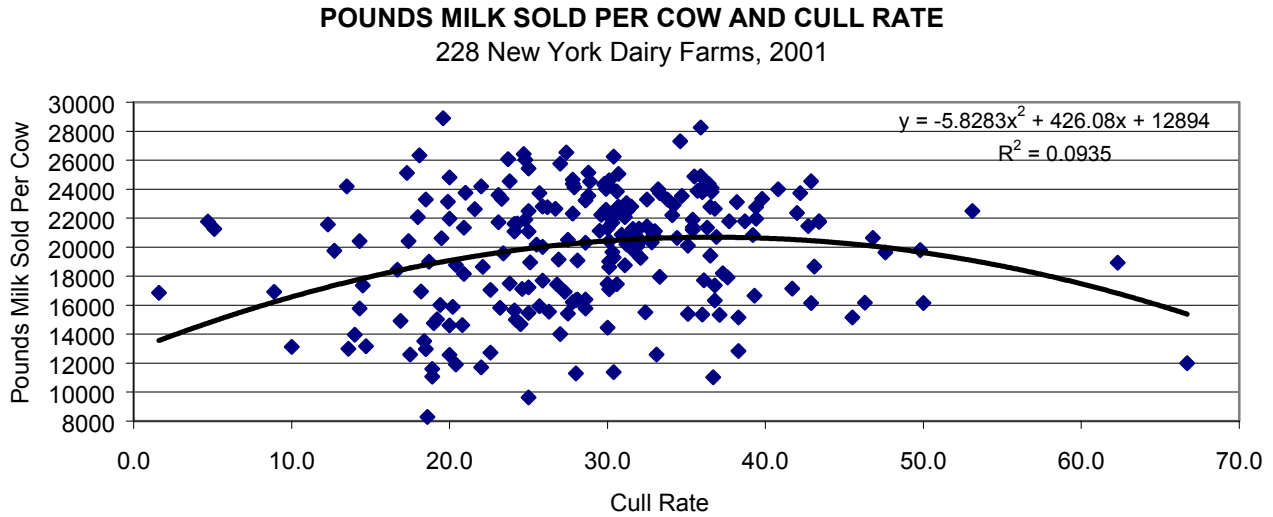


Chart 9.

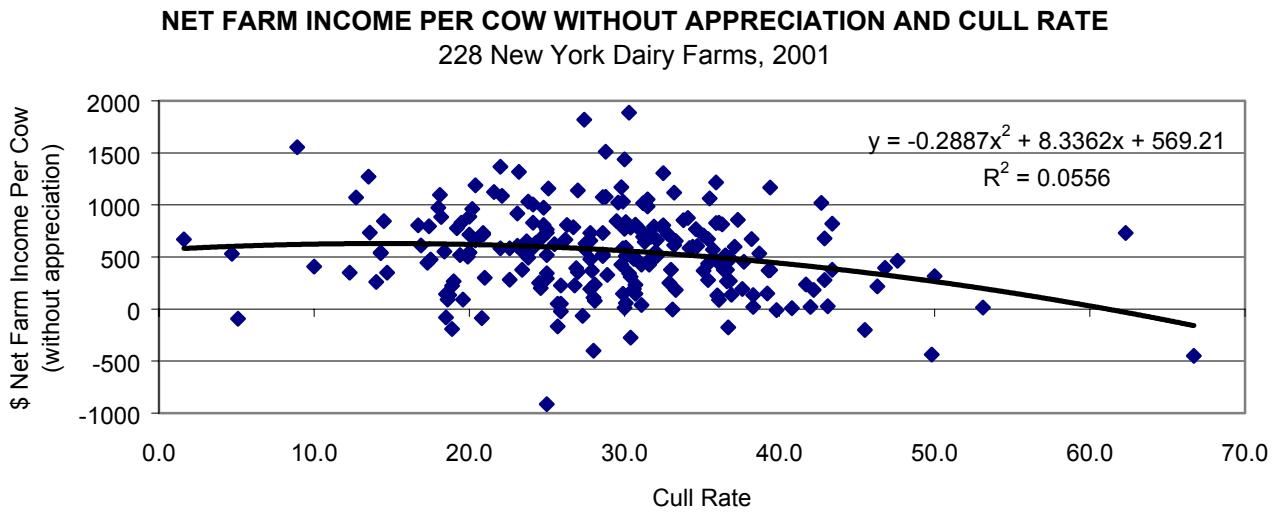


Table 30.

CULLING RATE AND DAIRY REPLACEMENT INFORMATION
New York Dairy Farms, 2001

Decile	Sell Rate	Death Rate	Cull Rate	Value of Cows Sold	Value of Animals Purchased	Percent of Replacements Purchased	Percent of Heifers Being Custom Raised
-----226 Farms ³² -----				(83 Farms)		----- 81 Farms -----	
					\$/head		
1	9%	0%	13%	\$225	\$716	0%	0%
2	16	1	19	326	1,020	0	0
3	19	2	23	378	1,210	0	0
4	22	3	26	420	1,363	0	0
5	24	4	28	448	1,488	4	0
6	25	4	30	470	1,544	10	0
7	27	5	32	513	1,631	13	2
8	30	6	35	559	1,798	21	16
9	33	8	37	630	2,156	41	58
10	40	12	46	1,163	5,425	80	99

³²Average culling rate = 30.6%, sell rate = 26.7%, and death rate = 4.7%. Average number of cows sold for beef = 71, cows sold for dairy = 3, and cows died = 13.

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
228 New York Dairy Farms, 2001**

Item	Average 228 Farms	Average Top 10% Farms ³³
Total Accrual Operating Expenses	\$842,949	\$1,580,377
Expansion Livestock, Accrual	+ 19,984	+ 31,105
1. Total Accrual Operating Expenses, Including Expansion Livestock	\$862,933	\$1,611,482
Total Accrual Receipts	\$1,090,318	\$2,203,101
Milk Sales, Accrual	- 963,667	- 1,909,368
2. Total Accrual Nonmilk Receipts	- \$126,651	-\$293,733
3. Operating Cost of Producing Milk	\$736,282	\$1,317,749
Machinery Depreciation	+ 44,168	+ 66,506
Building Depreciation	+ 34,173	+ 66,939
4. Purchased Inputs Cost of Producing Milk	\$814,623	\$1,451,194
Family Labor Unpaid (\$2,000/month)	+ 5,800	+ 4,000
Real Interest on Equity Capital	+ 55,014	+ 77,825
Value of Operator's Labor & Management	+ 55,863	+ 80,683
5. Total Costs of Producing Milk	\$931,300	\$1,613,702
6. Costs Per Cwt.:		
Cwt. Milk Sold	60,290	119,810
Operating Cost Per Cwt.	\$12.21	\$11.00
Purchased Inputs Cost Per Cwt.	\$13.51	\$12.11
Total Cost Per Cwt.	\$15.45	\$13.47

³³Average of 22 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 \$6,088 average increase in crop inventories per farm, (\$.10 per hundredweight of milk), is included in crop sales on the 228 farms. The top 10 percent farms had a \$42,924 average increase in crop inventories per farm (\$.36 per hundredweight of milk).

Table 32.

**ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT
BASED ON WHOLE FARM DATA
228 New York Dairy Farms, 2001**

Item	Average 228 Farms	Average Top 10% Farms ³⁵
Dairy grain and concentrate	\$4.00	\$3.82
Dairy roughage	0.25	0.36
Nondairy feed	<u>0.00</u>	<u>0.00</u>
Total feed expense	\$4.25	\$4.18
Crop expense	0.78	0.75
- Crop sales and government receipts ³⁴	<u>0.47</u>	<u>0.70</u>
Net Feed and Crop Expense	\$4.56	\$4.23
Hired labor	2.41	2.25
Operator's and family labor	<u>1.02</u>	<u>0.71</u>
Total Labor Expense	\$3.43	\$2.96
Machine repairs, fuel and hire	1.53	1.34
Machinery depreciation	0.73	0.56
- Gas tax refunds and custom work	<u>0.06</u>	<u>0.05</u>
Net Machinery Expense	\$2.20	\$1.85
Replacement and expansion cattle purchases	0.53	0.45
- Sales and inventory growth	<u>1.35</u>	<u>1.40</u>
Net Cattle Purchases	\$-0.82	\$-0.95
Milk marketing costs	0.63	0.56
All other livestock expense excluding purchases	<u>1.99</u>	<u>2.08</u>
Net Livestock Expense	\$2.62	\$2.64
Real estate repairs, rent and taxes	0.72	0.58
Building depreciation	<u>0.57</u>	<u>0.56</u>
Total Real Estate Expense	\$1.29	\$1.14
Interest paid	0.82	0.75
Interest on equity	<u>0.91</u>	<u>0.65</u>
Total Interest Expense	\$1.73	\$1.40
Other operating and miscellaneous expenses	0.65	0.51
- Miscellaneous income	<u>0.22</u>	<u>0.31</u>
Net Miscellaneous Expenses	<u>\$ 0.43</u>	<u>\$0.20</u>
Total Cost of Producing Milk	\$15.45	\$13.47
Purchased Inputs Cost	\$13.51	\$12.11
Total Operating Cost	\$12.21	\$11.00

³⁴Non-crop related government payments may bias the results.

³⁵Average of 22 farms with highest rates of return to all capital (without appreciation).

Costs of producing milk per hundredweight are presented in the table below for 201 farms that participated both in 2000 and 2001. Costs of production increased in all categories except interest and net cattle purchases when 2001 data are compared to 2000.

Table 33.

**ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT
BASED ON WHOLE FARM DATA
Same 201 New York Dairy Farms, 2000-2001**

Item	2000	2001	Percent Change
Dairy grain and concentrate	\$3.67	\$4.02	9.5%
Dairy roughage	0.24	0.25	4.2
Nondairy feed	<u>0.00</u>	<u>0.00</u>	
Total feed expense	\$3.91	\$4.27	9.2
Crop expense	0.71	0.78	
- Crop sales and government receipts ³⁶	<u>0.85</u>	<u>0.46</u>	
Net Feed and Crop Expense	\$3.77	\$4.59	21.8%
Hired labor	2.28	2.42	
Operator's and family labor	<u>1.01</u>	<u>0.99</u>	
Total Labor Expense	\$3.29	\$3.41	3.6%
Machine repairs, fuel and hire	1.42	1.53	
Machinery depreciation	0.68	0.73	
- Gas tax refunds and custom work	<u>0.04</u>	<u>0.06</u>	
Net Machinery Expense	\$2.06	\$2.20	6.8%
Replacement and expansion cattle purchases	0.62	0.54	
- Sales and inventory growth	<u>1.30</u>	<u>1.36</u>	
Net Cattle Purchases	\$-0.68	\$-0.82	-20.6%
Milk marketing costs	0.70	0.63	
All other livestock expense excluding purchases	<u>1.88</u>	<u>2.02</u>	
Net Livestock Expense	\$2.58	\$2.65	2.7%
Real estate repairs, rent and taxes	0.68	0.71	
Building depreciation	<u>0.53</u>	<u>0.57</u>	
Total Real Estate Expense	\$1.21	\$1.28	5.8%
Interest paid	0.95	0.83	
Interest on equity	<u>0.85</u>	<u>0.88</u>	
Total Interest Expense	\$1.80	\$1.71	-5.0%
Other operating and miscellaneous expenses	0.64	0.64	
- Miscellaneous income	<u>0.23</u>	<u>0.22</u>	
Net Miscellaneous Expenses	<u>\$0.41</u>	<u>\$0.42</u>	2.4%
Total Cost of Producing Milk	\$14.44	\$15.43	6.9%
Purchased Inputs Cost	\$12.58	\$13.56	7.8%
Total Operating Cost	\$11.38	\$12.25	7.6%
Average Price Received for Milk	\$13.45	\$15.97	18.7%

³⁶Non-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
228 New York Dairy Farms, 2001**

Item	Average 228 Farms			Average Top 10% Farms ³⁷		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
<u>Accrual Cost of Producing Milk</u>						
Operating Cost	\$736,282	\$2,658	\$12.21	\$1,317,749	\$2,544	\$11.00
Purchased Inputs Cost	814,623	2,941	13.51	1,451,194	2,802	12.11
Total Cost	931,300	3,362	15.45	1,613,702	3,115	13.47
<u>Accrual Receipts from Milk</u>						
Net Milk Receipts	\$963,667	\$3,479	\$15.98	\$1,909,368	\$3,686	\$15.94
	925,640	3,342	15.35	1,842,454	3,557	15.38
<u>Profitability</u>						
Net Farm Income without Appreciation	\$149,044	\$538	\$2.47	\$458,174	\$885	\$3.82
Net Farm Income with Appreciation	\$241,188	\$871	\$4.00	\$596,904	\$1,152	\$4.98

³⁷Average of 22 farms with highest rates of return to all capital (without appreciation).

The operating cost of producing milk on all 228 dairy farms averaged \$12.21 per hundredweight, leaving \$3.77 to cover depreciation, unpaid labor and operator resources.

The total cost of producing milk on all 228 dairy farms averaged \$15.45 per hundredweight, \$0.53 less than the average price received for milk sold from these farms during 2001. The imputed costs or charge for the operator's labor, management and equity capital average \$1.84 per hundredweight in 2001. But the farmer received \$2.37 per hundredweight for these inputs. The 22 most profitable farms held their operating costs to \$11.00 per hundredweight and their total cost of producing milk averaged \$13.47 per hundredweight. This left a profit of \$2.47 per hundredweight of milk sold.

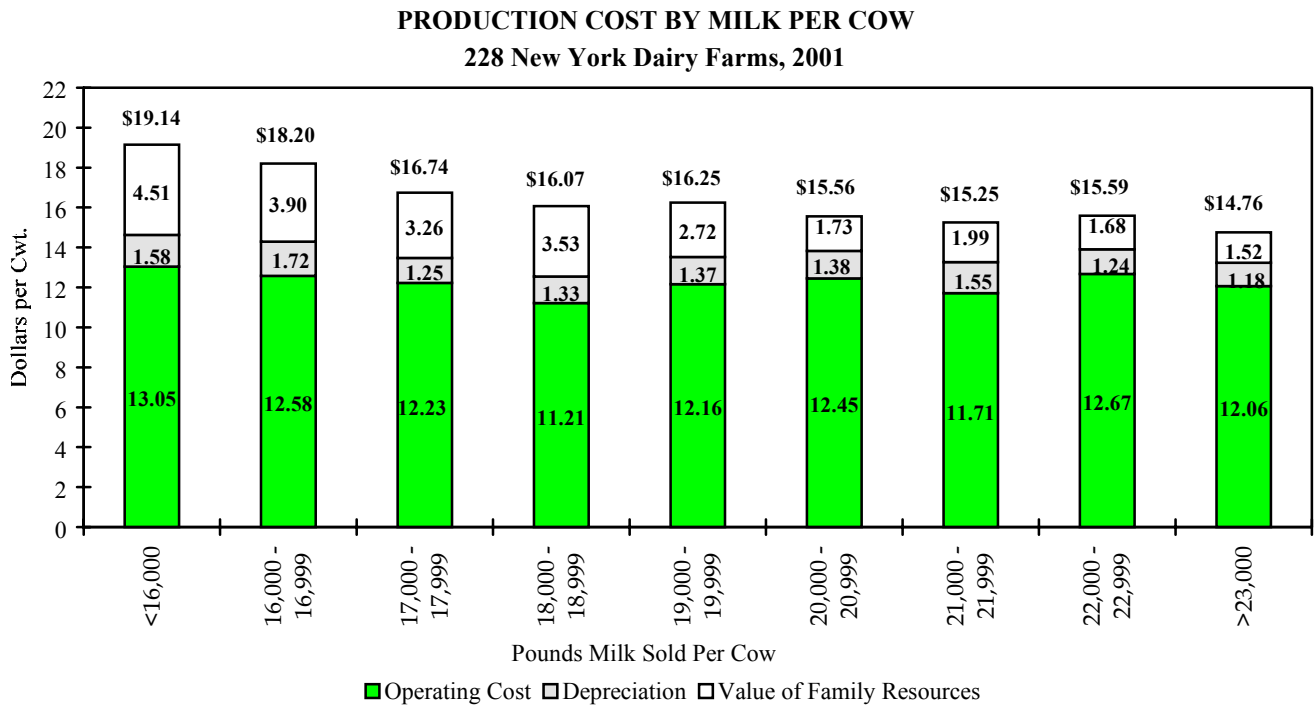
The strong relationship between milk output per cow and the cost of producing milk are shown in Table 35 and Chart 10 on page 34. Farms selling less than 18,000 pounds of milk per cow had average total costs of production of \$18.03 per hundredweight while those selling 18,000 pounds and over averaged \$15.58 for a difference of \$2.45 per hundredweight.

Table 35.

**FARM COST OF PRODUCING MILK BY MILK SOLD PER COW
228 New York Dairy Farms, 2001**

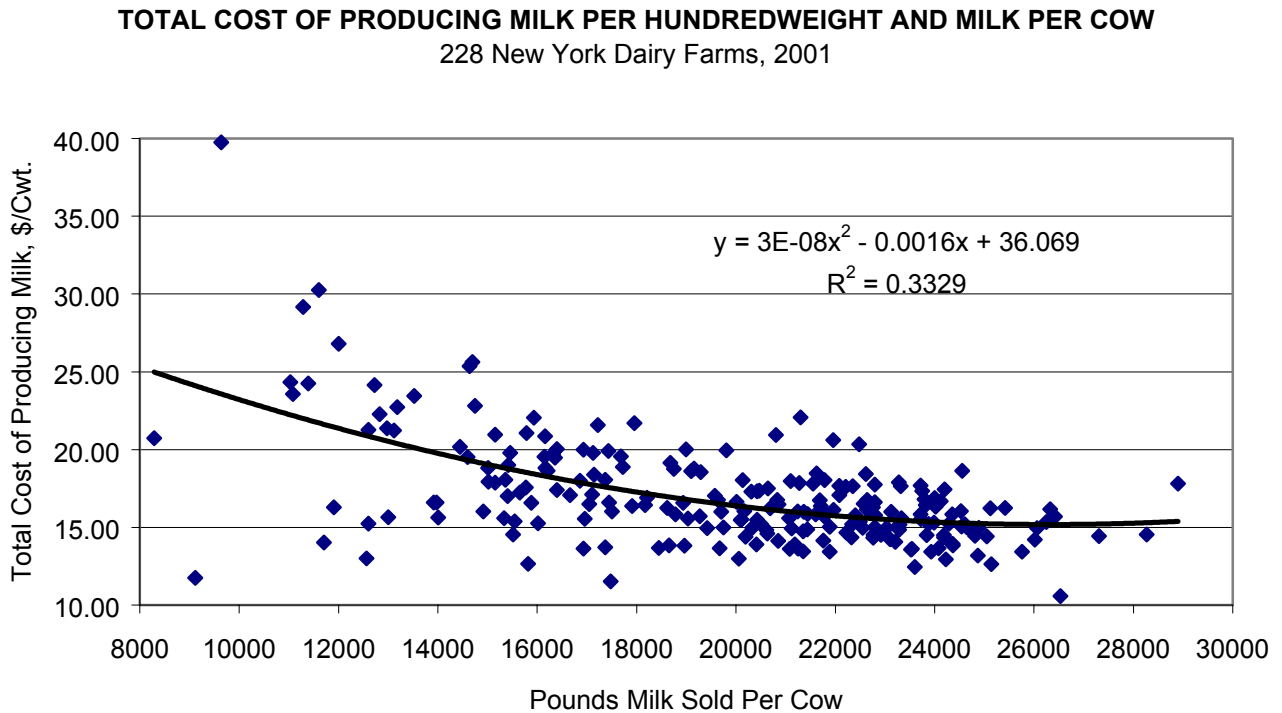
Pounds Milk Sold Per Cow	Cost per Hundredweight					Accrual Receipts From Milk Per Cwt.	Return Per Cwt. To Operator's Labor, Mgmt. & Capital
	Hired Labor	Dairy Grain & Conc.	Total Operating	Purchased Inputs	Total		
Under 16,000	\$1.91	\$4.16	\$13.05	\$14.63	\$19.14	\$17.32	\$2.19
16,000-16,999	2.13	4.67	12.58	14.30	18.20	16.67	2.09
17,000-17,999	1.49	3.99	12.23	13.48	16.74	16.04	2.17
18,000-18,999	1.21	4.20	11.21	12.54	16.07	16.40	3.67
19,000-19,999	1.82	4.02	12.16	13.53	16.25	15.99	2.18
20,000-20,999	2.25	4.03	12.45	13.83	15.56	16.10	2.20
21,000-21,999	1.94	3.98	11.71	13.26	15.25	15.91	2.56
22,000-22,999	2.86	4.03	12.67	13.91	15.59	15.86	1.86
23,000 & over	2.61	3.93	12.06	13.24	14.76	15.83	2.57

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 do not exhibit a trend. However, hired labor cost increases with herd size, while purchased dairy grain and concentrate are not related to herd size.

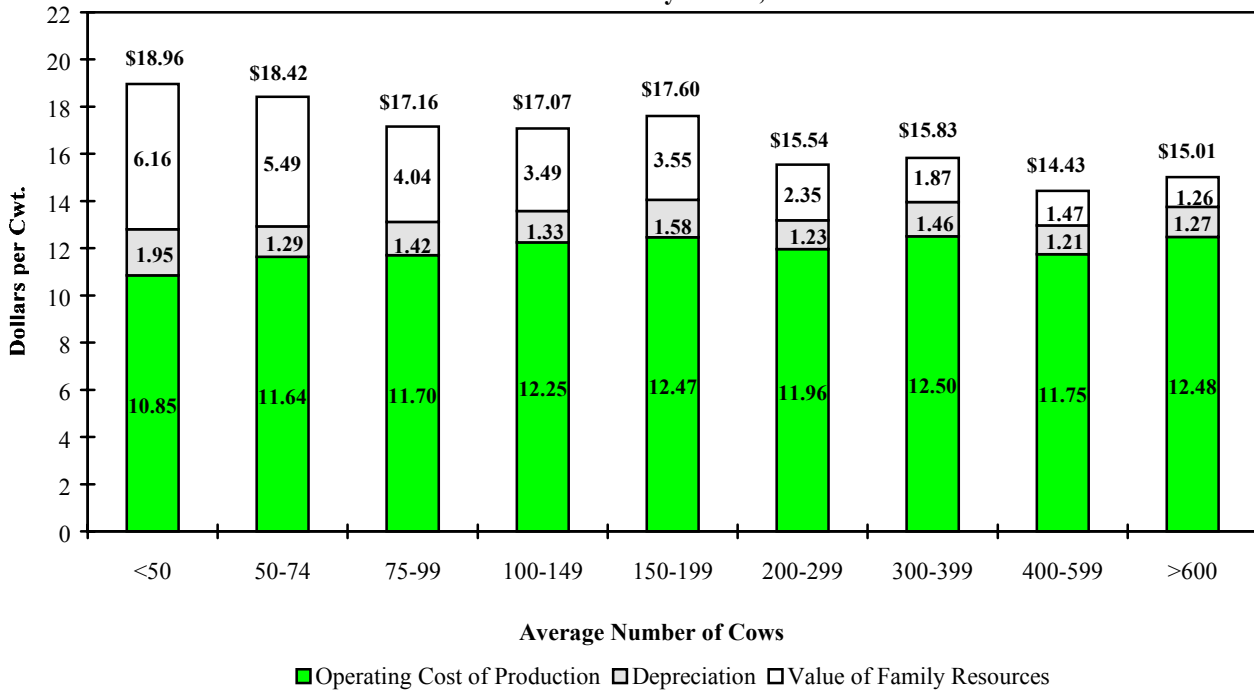
Table 36.

**FARM COST OF PRODUCING MILK BY HERD SIZE
228 New York Dairy Farms, 2001**

Number of Cows	Cost per Hundredweight					Accrual Receipts From Milk	Return Per Cwt. To Operator's Labor, Mgmt. & Capital
	Operating Costs			Purchased Inputs	Total		
	Hired Labor	Dairy Grain & Conc.	Total Operating				
Under 50	\$0.66	\$3.98	\$10.85	\$12.80	\$18.96	\$16.14	\$2.51
50 to 74	1.03	3.77	11.64	12.93	18.42	16.01	2.23
75 to 99	1.57	3.98	11.70	13.12	17.16	15.95	2.35
100 to 149	1.77	4.43	12.25	13.58	17.07	16.34	2.48
150 to 199	2.11	3.38	12.47	14.05	17.60	16.03	1.75
200 to 299	2.16	4.08	11.96	13.19	15.54	16.09	2.85
300 to 399	2.31	3.98	12.50	13.96	15.83	16.29	2.28
400 to 599	2.35	3.86	11.75	12.96	14.43	15.72	2.73
600 and over	2.79	4.05	12.48	13.75	15.01	15.96	2.20

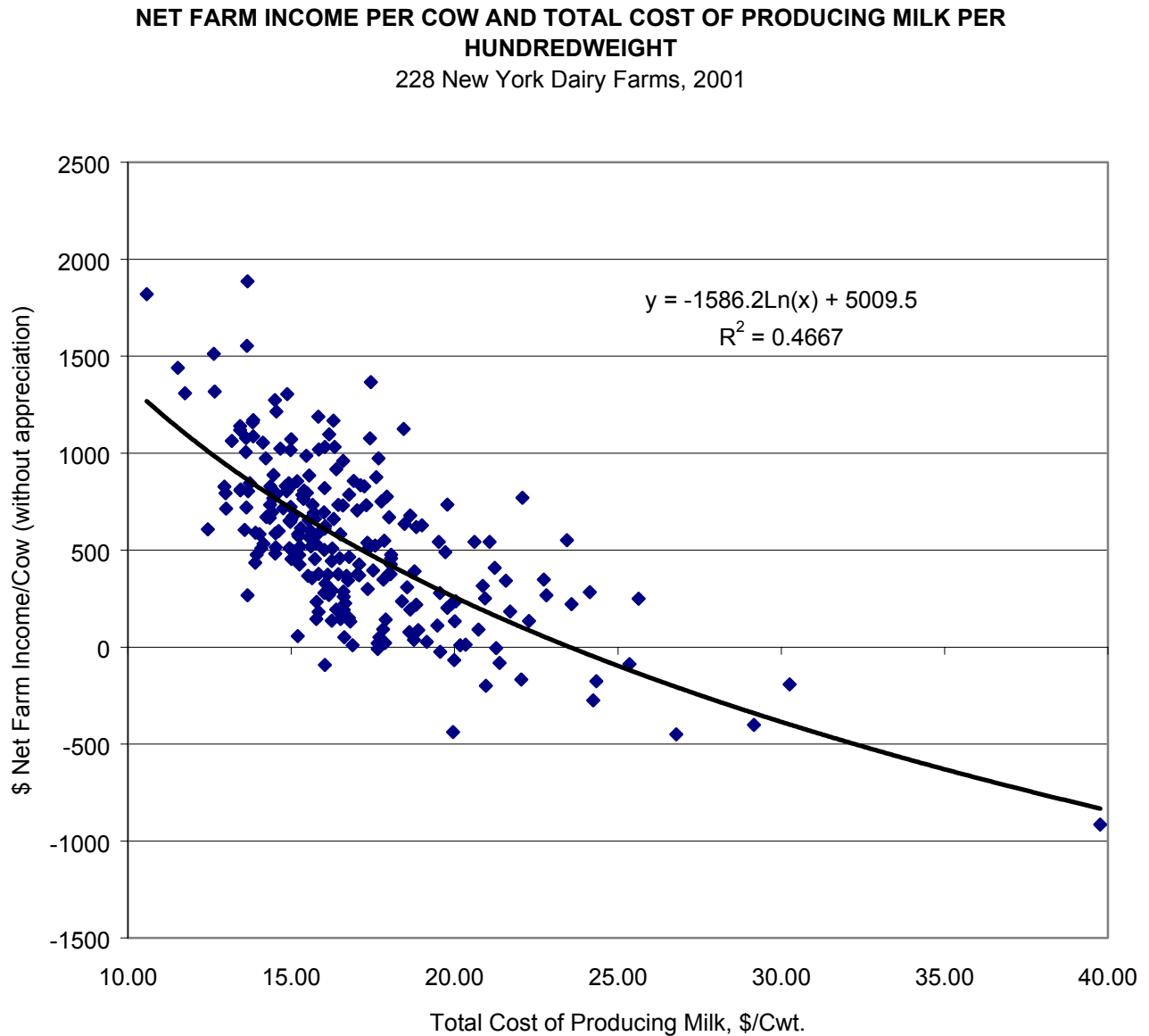
Chart 12.

**PRODUCTION COST BY HERD SIZE
228 New York Dairy Farms, 2001**



The importance of cost control and its impact on farm profitability are illustrated in Chart 13. As the total cost of producing milk per hundredweight increased, net farm income per cow fell. All farms had a positive net farm income per cow until the total cost of producing milk exceeded \$16.00 per hundredweight. The majority of the farms with costs greater than \$24 per hundredweight experienced negative net farm incomes per cow.

Chart 13.



Cost of Producing Milk (continued)

A 10-year comparison of the average costs and returns of producing milk per hundredweight are presented in Table 37 on page 38. Average individual operating and overhead expenses per hundredweight of milk sold are reported on all specialized dairy farms included in the New York State Summary from 1992 through 2001. In 2001 the average operating cost of producing milk increased 5 percent after increasing 1 percent from 1999 to 2000. The average return per hundredweight to operator labor, management, and capital was \$2.71 higher in 2001, 252 percent above 2000.

Hired labor expense per hundredweight has increased consistently from 1992 to 2001. Hired labor expense was \$1.80 in 1992 and has risen to \$2.41 in 2001. Thus, even as pounds of milk sold per worker have increased from 641,893 in 1992 to 897,167 in 2001; labor expense per worker has increased even more rapidly. Some of this effect is due to increasing farm size where a larger portion of the labor force is comprised of hired workers. Purchased feed expense per hundredweight of milk has been remarkably stable. At \$3.92 in 1992, it decreased to a low of \$3.71 in 1995, before reaching its high a year later at \$4.73. In 2001, purchased feed expense was \$0.33 higher than in 1992.

Interest paid on debt per hundredweight of milk sold has fluctuated over this period. In 1992, interest expense was \$0.88 per cwt. While it reached a low of \$0.80 in 1993, interest expense was at \$0.82 in 2001. Property taxes per hundredweight of milk have decreased by 40 percent during this ten-year period. Property taxes were \$0.35 per hundredweight in 1992, but were only \$0.21 in 2001. This is due to productivity increases and more of the land resources being rented, rather than owned.

A 10-year comparison of selected average business factors for all specialized DFBS farms is presented in Table 38 on page 39. Average cow numbers are up 125 percent, tillable acres have increased 79 percent, and milk sold per farm has jumped 161 percent since 1992. Capital investment per cow has increased 2.5 percent, far less than inflation, over the last 10 years. Labor and management income per operator increased 166 percent in 2001 compared to 2000, farm net worth continued to grow, and percent equity increased slightly.

Hay crop yields were 2.8 tons dry matter per acre both in 1992 and 2001. Corn silage yields, as fed, have varied more widely and were 16.5 tons per acre in 2001. As yields increased, fertilizer and lime expense increased \$7.00 per tillable acre, from \$25 to \$32 per acre. Pounds of milk sold per cow increased by 16 percent, from 18,789 pounds in 1992 to 21,762 pounds in 2001.

Average number of workers per farm increased by 3.12 and operators/managers per farm increased by 0.53. Cows per worker equivalent increased from 34 in 1992 to 41 in 2002, but labor cost per cow increased from \$552 to \$706 over the same time period.

The asset turnover ratio has improved in recent years. Total accrual receipts as a proportion of total farm assets (asset turnover ratio) has increased from 0.47 in 1992 to 0.63 in 2001. Percent equity has deteriorated. It was 64 percent in 1992, but was down to 60 percent in 2001 because there are more large (higher leveraged) farms in the sample.

Table 37.

TEN YEAR COMPARISON: AVERAGE COST OF PRODUCING MILK PER HUNDREDWEIGHT
New York Dairy Farms, 1992 to 2001

Item	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<u>Operating Expenses</u>										
Hired labor	\$1.80	\$1.86	\$1.80	\$1.78	\$1.89	\$1.97	\$2.06	\$2.14	\$2.25	\$2.41
Purchased feed	3.92	3.85	3.89	3.71	4.73	4.63	4.18	3.96	3.91	4.25
Machinery repair, vehicle expense & rent	.97	.93	.92	.85	1.02	.94	1.12	1.18	1.06	1.21
Fuel, oil & grease	.35	.34	.31	.27	.31	.28	.25	.24	.34	.32
Replacement livestock	.21	.17	.21	.15	.19	.18	.24	.24	.23	.20
Breeding fees	.18	.19	.17	.15	.15	.15	.16	.17	.17	.19
Veterinary & medicine	.35	.37	.40	.39	.42	.41	.45	.47	.51	.54
Milk marketing	.63	.64	.67	.70	.59	.52	.53	.49	.69	.63
Other dairy expenses	.70	.72	.88	.92	.99	1.05	1.09	1.13	1.16	1.26
Lime & fertilizer	.37	.36	.33	.31	.32	.33	.35	.35	.29	.33
Seeds & plants	.21	.20	.19	.19	.20	.21	.22	.20	.19	.20
Spray & other crop expense	.21	.20	.20	.20	.21	.23	.24	.24	.22	.25
Land, building & fence repair	.24	.21	.21	.16	.23	.19	.27	.27	.21	.26
Taxes	.35	.34	.29	.27	.26	.23	.21	.21	.20	.21
Insurance	.22	.20	.18	.17	.18	.16	.17	.16	.16	.14
Utilities (farm share)	.38	.39	.38	.38	.39	.35	.32	.31	.32	.33
Interest paid	.88	.80	.81	.94	.91	.90	.89	.83	.95	.82
Misc. (including rent)	.44	.41	.40	.40	.41	.38	.41	.44	.45	.42
Total Operating Expenses	\$12.41	\$12.18	\$12.24	\$11.94	\$13.40	\$13.12	\$13.15	\$13.02	\$13.31	\$13.98
Less: Nonmilk cash receipts	1.67	1.65	1.30	1.15	1.07	1.14	1.18	1.44	1.83	1.49
Increase in grown feed & supplies	.23	.13	.25	.14	.15	.07	.25	.25	0.11	0.10
Increase in livestock	.08	.22	.21	.25	.18	.15	.22	.11	0.06	0.52
OPERATING COST OF MILK PRODUCTION	\$10.43	\$10.18	\$10.47	\$10.40	\$12.00	\$11.76	\$11.50	\$11.22	\$11.31	\$11.87
<u>Overhead Expenses</u>										
Depreciation: machinery & buildings	\$1.19	\$1.17	\$1.13	\$1.07	\$1.04	\$0.95	\$1.08	\$1.14	\$1.20	\$1.30
Unpaid labor	.16	.15	.12	.12	.13	.13	.11	.11	.10	.10
Operator(s) labor ³⁸	.99	1.00	.86	.92	.88	.79	.74	.80	.79	.74
Operator(s) management (5% of cash receipts)	.76	.74	.73	.70	.80	.73	.82	.83	.76	.87
Interest on farm equity capital (5%)	1.11	1.11	1.00	.94	.94	.87	.85	.86	.88	.91
Total Overhead Expenses	\$4.21	\$4.17	\$3.84	\$3.75	\$3.79	\$3.47	\$3.60	\$3.74	\$3.73	\$3.92
TOTAL COST OF MILK PRODUCTION	\$14.64	\$14.35	\$14.31	\$14.15	\$15.79	\$15.23	\$15.10	\$14.96	\$15.04	\$15.79
AVERAGE FARM PRICE OF MILK	\$13.58	\$13.14	\$13.44	\$13.03	\$14.98	\$13.65	\$15.60	\$14.91	\$13.38	\$15.98
Return per cwt. to operator labor, capital & mgmt.	\$1.80	\$1.64	\$1.72	\$1.44	\$1.81	\$0.81	\$2.91	\$2.44	\$0.77	\$2.71
Rate of return on farm equity capital	0.2%	-0.4%	0.6%	-1.0%	0.7%	-4.1%	8.0%	4.7%	-4.4%	6.0%

³⁸1992 = \$1,350/month, 1993 = \$1,400/month, 1994 and 1995 = \$1,450/month, 1996 = \$1,500/month, 1997 = \$1,550/month, 1998 = \$1,600/month, 1999 = \$1,800/month, 2000 = \$1,900/month, and 2001 = \$2,000/month of operator labor.

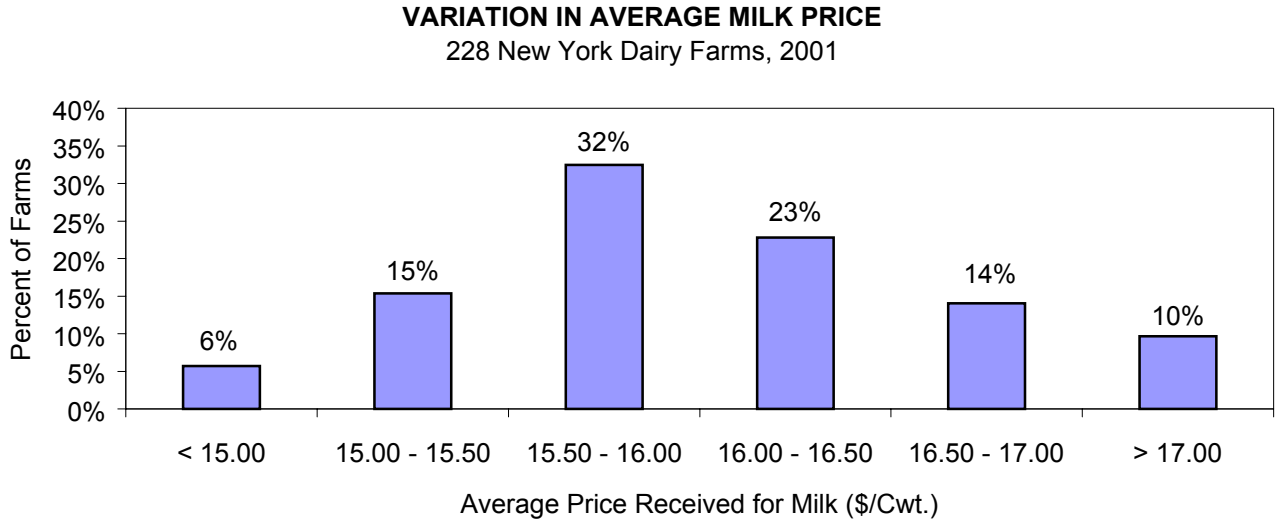
Table 38.

TEN YEAR COMPARISON: SELECTED BUSINESS FACTORS
New York Dairy Farms, 1992 to 2001

Item	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Number of farms	357	343	321	321	300	253	305	314	294	228
<u>Cropping Program</u>										
Total tillable acres	346	351	392	399	415	462	497	516	566	618
Tillable acres rented	135	135	159	166	183	207	232	234	262	290
Hay crop acres	171	182	195	197	198	219	239	248	274	302
Corn silage acres	98	96	110	117	120	156	175	186	192	210
Hay crop, tons DM/acre	2.8	2.7	3.0	2.8	2.8	2.5	3.1	2.9	3.3	2.8
Corn silage, tons/acre	14.5	14.9	16.4	15.6	15.9	16.1	18.0	16.3	15.1	16.5
Fert. & lime exp./tillable acre	\$25	\$25	\$25	\$25	\$26	\$28	\$31	\$32	\$27	\$32
Machinery cost/cow	\$444	\$430	\$438	\$402	\$450	\$429	\$471	\$502	\$513	\$554
<u>Dairy Analysis</u>										
Number of cows	123	130	151	160	167	190	210	224	246	277
Number of heifers	96	100	116	121	124	139	155	164	186	207
Milk sold, cwt.	23,130	24,448	30,335	32,362	33,504	39,309	43,954	47,932	52,871	60,290
Milk sold/cow, lbs.	18,789	18,858	20,091	20,269	20,113	20,651	20,900	21,439	21,516	21,762
Purchased dairy feed/cwt. milk	\$3.91	\$3.85	\$3.89	\$3.70	\$4.73	\$4.63	\$4.18	\$3.96	\$3.91	\$4.25
Purc. grain & conc. as % of milk receipts	28%	29%	28%	27%	30%	33%	26%	25%	27%	25%
Purc. feed & crop exp/cwt. milk	\$4.70	\$4.61	\$4.61	\$4.39	\$5.46	\$5.39	\$5.00	\$4.75	\$4.61	\$5.03
<u>Capital Efficiency</u>										
Farm capital/cow	\$6,587	\$6,462	\$6,398	\$6,264	\$6,218	\$6,196	\$6,161	\$6,368	\$6,535	\$6,755
Real estate/cow	\$3,015	\$2,932	\$2,859	\$2,763	\$2,701	\$2,650	\$2,537	\$2,562	\$2,615	\$2,713
Mach. invest./cow	\$1,203	\$1,165	\$1,150	\$1,098	\$1,107	\$1,108	\$1,118	\$1,163	\$1,225	\$1,222
Asset turnover ratio	.47	.46	.50	.49	.55	.52	0.61	0.59	0.54	0.63
<u>Labor Efficiency</u>										
Worker equivalent	3.60	3.68	4.02	4.40	4.48	5.01	5.35	5.71	6.11	6.72
Operator/manager equivalent	1.41	1.45	1.49	1.56	1.56	1.60	1.62	1.76	1.83	1.94
Milk sold/worker, lbs.	641,893	664,868	755,178	736,269	747,861	784,604	821,565	839,432	865,325	897,167
Cows/worker	34	35	38	36	37	38	39	39	40	41
Labor cost/cow	\$552	\$568	\$558	\$570	\$582	\$598	\$609	\$653	\$674	\$706
<u>Profitability & Financial Analysis</u>										
Labor & mgmt. income/operator	\$11,254	\$9,000	\$14,789	\$10,346	\$18,651	\$-1,424	\$55,917	\$42,942	\$-2,908	\$45,479
Farm net worth, end year	\$515,215	\$542,126	\$608,749	\$624,261	\$648,186	\$685,665	\$798,297	\$865,626	\$942,881	\$1,181,055
Percent equity	64%	65%	63%	61%	61%	57%	59%	58%	57%	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 228 farms was \$15.98 but there was considerable variation among the individual farms. The variation in average price received and the distribution of farms around the mean is shown below.

Chart 14.



Forty-seven percent of the farms received from \$15.00 to \$16.00 per hundredweight of milk sold. Forty-seven percent of the farms received \$16.00 or more and 6 percent received less than \$15.00 per hundredweight. Location and organization of markets are factors contributing to the difference in average milk prices on these dairy farms. Management practices on farms as well as in milk companies also affect farm milk prices. Seasonality of production and butterfat content are two variables that affect milk price. Butterfat content, which varied from an average 3.6 percent to 4.0 percent as the milk price increased from less than \$15.00 per cwt. to more than \$17.00, explains a small portion of the difference in milk price on these farms. 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
228 New York Dairy Farms, 2001

Item	Average 228 Farms		Average Top 10% Farms ³⁹	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	\$870	\$4.00	\$884	\$3.82
Purchased dairy roughage	<u>55</u>	<u>.25</u>	<u>84</u>	<u>.36</u>
Total Purchased Dairy Feed	\$925	\$4.25	\$968	\$4.19
Purchased grain & concentrate as % of milk receipts		25%		24%
Purchased feed & crop expense	\$1,094	\$5.03	\$1,142	\$4.94
Purchased feed & crop expense as % of milk receipts		31%		31%
Breeding	\$42	\$.19	\$41	\$.18
Veterinary & medicine	118	.54	117	.51
Milk marketing	137	.63	129	.56
Bedding	48	.22	45	.19
Milking Supplies	67	.31	69	.30
Cattle lease	8	.04	18	.08
Custom boarding	63	.29	104	.45
bST expense	57	.26	61	.26
Other livestock expense	31	.14	24	.11

³⁹Average of 22 farms with highest rates of return to all capital (without appreciation).

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

Purchased dairy grain and concentrates per cow is calculated by dividing the total accrual expenses for dairy grains and concentrates purchased by the average number of cows. Because this also included the amount spent for calf and heifer feed, it actually represents the feed cost for one cow and 0.75 replacement being raised.

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

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

Cost control has an important affect on farm profitability. The relationship between purchased feed and crop expense per hundredweight of milk and farm profitability is shown in the following table.

Table 40.

**PURCHASED FEED AND CROP EXPENSE PER HUNDREDWEIGHT
OF MILK AND FARM INCOME MEASURES
228 New York Dairy Farms, 2001**

Feed & Crop Exp. Per Cwt. of Milk	Number of Farms	Number of Cows	Forage Dry Matter Harvested Per Cow	Pounds Milk Per Cow	Net Farm Income Without Apprec.	Labor & Management Income Per Operator	Labor & Management Per Operator Per Cow
\$6.00 or more	35	116	7.1	18,067	\$33,191	\$-3,311	\$-29
5.50 to 5.99	39	277	7.4	20,798	156,493	52,193	188
5.00 to 5.49	38	375	7.7	21,969	163,755	41,236	110
4.50 to 4.99	64	371	6.7	22,550	209,830	69,556	187
4.00 to 4.49	27	263	7.3	22,420	143,588	42,985	163
3.50 to 3.99	11	117	8.5	21,478	84,051	38,848	332
Less than 3.50	14	138	6.3	21,453	161,709	82,204	596

On average, farms with feed and crop expenses exceeding \$6.00 per hundredweight of milk reported well below average profits. This is especially striking when the profit measure of labor and management income per operator is presented on a per cow basis. Farms reporting purchased feed and crop expense less than \$3.50 per hundredweight of milk, reported the highest labor and management income per operator per cow.

Capital and Labor Efficiency Analysis

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

Table 41.

**CAPITAL EFFICIENCY
228 New York Dairy Farms, 2001**

Item (Average for Year)	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
Farm capital	\$278,457	\$6,755	\$3,028	\$5,688
Real estate		\$2,713		\$2,285
Machinery & equipment	\$50,377	\$1,222	\$548	
<u>Ratios</u>				
Asset turnover	Operating Expense	Interest Expense		Depreciation Expense
0.63	0.75	0.05		0.07
<u>Average Top 10% Farms:⁴⁰</u>				
Farm capital	\$274,230	\$5,712	\$3,085	\$6,962
Real estate		\$2,101		\$2,561
Machinery & equipment	\$43,745	\$911	\$492	
<u>Ratios</u>				
Asset turnover ratio	Operating Expense	Interest Expense		Depreciation Expense
0.79	0.69	0.04		0.06

⁴⁰Average of 22 farms with highest rates of return to all capital (without appreciation).

Asset turnover ratio measures the relationship between capital investment and farm receipts. It is computed by dividing the year's total farm accrual receipts including appreciation by the average farm assets. The relationship the asset turnover ratio has to farm profitability and other factors is shown in the following table. As a general rule, dairy farmers should aim for an asset turnover ratio of 0.6 or higher. The operational ratios reflect the relationship of expense categories to total farm receipts. The sum of the operating, interest, and depreciation expense ratios expresses total farm expenses per dollar of total farm receipts.

Table 42.

**ASSET TURNOVER AND PROFITABILITY
228 New York Dairy Farms, 2001**

Ratio	No. of Farms	No. of Cows	Farm Capital (average for year)		Labor & Mgt. Inc. Per Operator	Net Farm Income (w/o apprec.)
			Per Cow	Per Worker		
≥ .70	46	580	\$5,545	\$258,753	\$123,786	\$334,404
.60 to .69	51	320	6,732	282,690	71,540	197,851
.50 to .59	46	267	7,739	315,467	19,589	109,914
.40 to .49	40	103	8,255	260,815	12,167	56,388
.30 to .39	30	84	9,598	247,306	-4,864	27,360
Less than .30	15	81	12,827	375,092	-22,683	25,117

Measures of labor efficiency are key indicators of the work accomplished by an average worker. The 22 farms with the highest rates of return on all capital (without appreciation) were above the average of all 228 farms in all measures of labor efficiency. The top 10 percent averaged 7 more cows per worker and sold 24 percent more milk per worker than the average of all farms.

Table 43.

**LABOR EFFICIENCY
228 New York Dairy Farms, 2001**

Labor Efficiency	Average	Farms	Average Top 10% Farms ⁴²	
	Total	Per Worker ⁴¹	Total	Per Worker ⁴¹
Cows, average number	277	41	518	48
Milk sold, pounds	6,028,963	897,167	11,981,049	1,110,385
Tillable acres	618	92	959	89

⁴¹The 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.

⁴²Average of 22 farms with highest rates of return to all capital (without appreciation).

The labor force averaged 6.72 full-time worker equivalents per farm (based on 230 hours per month). Twenty-eight percent of the labor was supplied by the farm operator/managers. There were two operators on 117 farms, three on 38 farms, and 11 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 \$1,108 per cow and \$4.79 per hundredweight on the 22 farms in the top decile.

Table 44.

**LABOR FORCE INVENTORY AND COST ANALYSIS
228 New York Dairy Farms, 2001**

Labor Force	Months ⁴³	Age	Years of Education	Value of Labor & Management	
Operator number 1	13.5	49	14	\$32,893	
Operator number 2	6.4	44	13	15,894	
Operator number 3	1.9	41	14	5,455	
Operator number 4	0.5	31	13	<u>1,621</u>	
Family paid	4.8			Total \$55,863	
Family unpaid	2.9				
Hired	<u>50.6</u>				
Total	80.6	÷ 12 =	6.72 Worker Equivalent		
			1.94 Operator/Manager Equivalent		
<u>Average Top 10% Farms:</u> ⁴⁴					
Total	129.5	÷ 12 =	10.79 Worker Equivalent		
Operators'			2.03 Operator/Manager Equivalent		
	Average 228 Farms			Avg. Top 10% Farms ⁴⁴	
Labor Costs	Total	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Value operators' labor (\$2,000/mo.)	\$44,600	\$161	\$.74	\$97	\$.42
Family unpaid (\$2,000/mo.)	5,800	21	.10	8	.03
Hired	<u>145,185</u>	<u>524</u>	<u>2.41</u>	<u>519</u>	<u>2.25</u>
Total Labor	\$195,585	\$706	\$3.24	\$624	\$2.70
Machinery Cost	<u>153,346</u>	<u>554</u>	<u>2.54</u>	<u>484</u>	<u>2.09</u>
Total Labor & Machinery	\$348,931	\$1,260	\$5.79	\$1,108	\$4.79
Hired labor exp. per hired worker equiv.	\$31,448			\$31,522	
Hired labor exp. as % of milk sales	15.1%			14.1%	

⁴³See footnote for Table 43.

⁴⁴Average of 22 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.

Table 45.

**MILK SOLD PER WORKER AND NET FARM INCOME
228 New York Dairy Farm, 2001**

Pounds of Milk Sold Per Worker	No. of Farms	No. of Cows	Pounds Milk Per Cow	Net Farm Income (w/o apprec.)	Labor & Mgmt. Income Per Operator
Under 400,000	34	69	16,159	\$24,271	\$-7,045
400,000 to 499,999	32	81	15,976	31,820	-1,006
500,000 to 599,999	22	106	19,029	56,506	16,398
600,000 to 699,999	24	176	18,972	88,099	25,965
700,000 to 799,999	30	176	21,294	108,221	31,598
800,000 to 899,999	21	274	23,010	148,924	45,207
900,000 to 999,999	16	398	22,850	218,922	63,399
1,000,000 & over	49	699	22,779	385,806	127,466

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 228 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 228 New York Dairy Farms, 2001

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
22.2	1,102	25,438,687	25,729	5.2	23	62	1,283,348
12.3	541	12,563,997	24,026	3.9	19	50	1,083,667
9.0	359	7,834,392	23,041	3.4	18	45	962,132
6.5	256	5,274,683	22,088	3.0	18	40	833,763
4.7	171	3,340,082	21,175	2.7	17	37	753,431

3.9	125	2,344,530	20,106	2.3	16	33	672,647
3.2	92	1,719,337	18,467	2.0	15	31	555,322
2.7	74	1,301,430	16,707	1.8	13	26	474,968
2.1	58	1,003,069	15,187	1.5	12	23	398,143
1.5	40	597,458	12,002	1.0	9	19	296,530

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		
\$379	14%	\$308	\$848	\$513	\$3.18		
547	20	415	1,061	741	4.22		
647	22	465	1,151	865	4.55		
716	23	511	1,242	943	4.76		
787	24	564	1,311	1,003	4.90		

833	25	603	1,379	1,043	5.08		
875	27	643	1,461	1,103	5.40		
941	28	698	1,580	1,165	5.74		
1,012	31	766	1,676	1,246	6.09		
1,155	36	1,026	2,051	1,445	7.28		

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
228 New York Dairy Farms, 2001**

Milk Receipts Per Cow	Milk Receipts Per Cwt.	Oper. Cost Milk Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cow	Total Cost Production Per Cwt.
\$4,157	\$18.09	\$1,252	\$8.04	\$2,161	\$13.06
3,791	16.78	1,736	9.81	2,747	14.22
3,632	16.49	1,970	10.63	2,940	14.92
3,512	16.24	2,182	11.11	3,110	15.48
3,362	16.03	2,320	11.58	3,251	15.99

3,193	15.90	2,462	12.22	3,392	16.53
3,005	15.77	2,608	12.85	3,517	17.32
2,755	15.61	2,800	13.37	3,676	18.27
2,470	15.36	3,012	14.16	3,872	19.95
1,953	14.77	3,314	16.33	4,261	24.40

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
\$693,355	\$1,291	0.34	\$1,097,490	\$1,848	\$534,835	\$317,764
298,284	955	0.25	456,774	1,386	203,177	117,915
192,627	796	0.22	301,923	1,190	127,620	65,914
118,119	694	0.18	200,348	1,021	68,113	42,908
84,504	595	0.16	142,381	895	38,822	29,023

61,836	507	0.14	97,721	785	25,205	18,332
43,582	397	0.11	70,737	662	12,709	8,845
31,429	274	0.08	49,884	558	-2,066	-1,574
13,639	135	0.04	35,789	394	-23,226	-19,328
-16,775	-150	-0.07	5,443	48	-77,610	-67,313

Farm Business Charts for farms with freestall barns and 150 cows or less, 150 to 300 cows, and more than 300 cows, and farms with conventional barns with 60 cows or less and more than 60 cows are discussed in the supplemental section on pages 63-67.

Financial Analysis and Management

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

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

Table 47.

A FARM FINANCE CHECKLIST 228 New York Dairy Farms, 2001

	Average 228 Farms		Average Top 10% Farms ⁴⁵	
<u>How farm assets are being used (average for the year):</u>				
Total assets (capital) per cow	\$6,755		\$5,712	
Farm assets in livestock	25%		29%	
Farm assets in farm real estate	40%		37%	
Farm assets in machinery	18%		16%	
<u>Measures of debt capacity & debt structure:</u>				
Equity in the business	60%		55%	
Farm debt per cow	\$2,759		\$2,688	
Long term debt/asset ratio ⁴⁶	0.39		0.37	
Intermediate & current term debt/asset ratio ⁴⁶	0.41		0.50	
Intermediate & current term debt as % of total	61%		71%	
<u>Debt repayment ability:</u> ⁴⁷				
Cash flow coverage ratio	1.24		1.42	
Debt coverage ratio	1.59		2.24	
Debt payments made per cow	\$588		\$585	
Debt payments made as % of milk receipts	17%		16%	
<u>Indicators of annual financial progress:</u>				
	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>
Annual change in farm assets	+\$197,907	+11.2%	+\$490,297	+18.1%
Annual change in farm debts	+\$36,354	+4.8%	+\$87,650	+6.5%
Annual change in farm net worth	+\$161,553	+15.8%	+\$402,647	+29.7%

⁴⁵Twenty-two farms with highest rates of return on all capital (without appreciation).

⁴⁶Long or intermediate and current term debt divided by long or intermediate and current term assets.

⁴⁷Average of 201 farms that participated in DFBS both in 2000 and 2001. Eighteen of the 22 top 10 percent farms participated both years.

The most profitable farms carried \$71 less debt per cow, the average equity in their businesses was 5 percent lower than that of the average of all 228 farms, and they had a greater ability to make 2001 debt payments.

Average farm debt grew 6.4 percentage points slower than assets during 2001 on the 228 dairy farms. Average farm net worth increased 15.8 percent.

The farm financial analysis chart is designed just like the farm business chart on pages 44-45 and may be used to measure the financial health of the farm business. Most of the financial measures are defined on pages 14, 16, 18, 22, and 42 in this publication.

Table 48.

FINANCIAL ANALYSIS CHART
228 New York Dairy Farms, 2001
 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		
\$103	\$1,168	9.20	13.72	3%	\$287	47%	27.49
233	819	2.21	2.67	7	963	28	3.78
324	730	1.69	2.21	10	1,551	22	2.80
401	663	1.40	1.79	12	1,889	17	2.14
448	586	1.22	1.53	14	2,255	13	1.72

510	524	1.09	1.27	16	2,670	10	1.52
572	455	0.92	1.05	17	3,126	7	1.31
610	387	0.77	0.84	19	3,528	2	1.08
680	267	0.51	0.60	23	3,968	-4	0.83
876	-95	-0.81	-0.27	32	5,122	-16	0.39

Solvency				Profitability	
Leverage Ratio ⁴⁸	Percent Equity	Debt/Asset Ratio		Percent Rate of Return with appreciation on:	
		Current & Intermediate	Long Term	Equity	Investment ⁴⁹
0.03	97%	0.03	0.00	43%	23%
0.13	89	0.11	0.00	28	18
0.25	80	0.17	0.05	21	15
0.35	75	0.25	0.16	15	12
0.46	69	0.32	0.27	12	10

0.62	63	0.38	0.34	9	8
0.81	56	0.43	0.42	6	6
1.01	50	0.50	0.53	3	4
1.30	44	0.59	0.70	-1	1
3.28	30	0.88	1.04	-14	-4

Efficiency (Capital)						
Asset Turnover (ratio)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow	Change in Net Worth w/Appreciation	Farm Net Worth, End Year	
.89	\$1,350	\$548	\$4,671	\$819,759	\$4,289,891	
.75	1,960	830	5,616	318,049	2,064,561	
.67	2,261	961	6,105	187,919	1,439,486	
.62	2,486	1,102	6,448	125,567	1,131,698	
.58	2,722	1,288	6,855	95,246	885,892	

.53	2,985	1,422	7,359	65,194	701,899	
.48	3,552	1,624	8,045	43,718	581,273	
.43	4,057	1,916	8,808	28,624	433,461	
.36	4,748	2,325	9,966	12,411	302,901	
.27	7,714	3,251	13,321	-45,542	153,069	

⁴⁸Dollars of debt per dollar of equity, computed by dividing total liabilities by total equity.

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

Herd Size Comparisons

The 228 New York dairy farms have been sorted into nine herd size categories and averages for the farms in each category are presented in Tables 49 through 53. Note that after the less than 50 cow category, the herd size categories increase by 25 cows up to 100 cows, by 50 cows up to 200 cows, by 100 cows up to 400 cows, and by 200 cows up to 600 cows.

As herd size increases, the average profitability generally increases (Table 49). Net farm income without appreciation averaged \$21,652 per farm for the less than 50 cow farms and \$515,889 per farm for those with more than 600 cows. This relationship generally holds for all measures of profitability including rate of return on capital.

It is more than size of herd that determines profitability on dairy farms. Farms with 600 and more cows averaged \$508 net farm income per cow while the less than 50 cow dairy farms average \$555 net farm income per cow. The 200 to 299 herd size category had the second highest net farm income per cow at \$609. 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 228 New York Dairy Farms, 2001

Number of Cows	Number of Farms	Ave. No. of Cows	Net Farm Income Without Apprec.	Net Farm Income Per Cow	Labor & Management Inc./Oper.	Return to all Capital Without Apprec.
Under 50	21	39	\$21,652	\$555	\$3,528	0.1%
50 to 74	39	62	34,049	549	2,791	0.6%
75 to 99	29	87	45,786	526	10,773	2.2%
100 to 149	30	126	65,149	517	14,199	3.8%
150 to 199	14	163	65,286	401	763	1.7%
200 to 299	28	248	150,964	609	44,186	7.3%
300 to 399	17	344	172,851	502	54,806	7.2%
400 to 599	23	484	300,386	621	98,441	10.6%
600 & over	27	1,016	515,889	508	137,292	9.1%

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. Net farm income per cow will increase as farms become larger if the costs of increased purchased inputs are offset by greater and more efficient output.

The farms with 600 and more cows averaged more milk sold per cow than any other size category (Table 50). With 23,033 pounds of milk sold per cow, farms in the largest herd size group averaged 17 percent more milk output per cow than the average of all herds in the summary with less than 600 cows.

The ability to reach high levels of milk output per cow with large herds is a major key to high profitability. Three times a day milking (3X) and supplementing with bST are herd management practices commonly used to increase milk output per cow in large herds. Many dairy farmers who have been willing and able to employ and manage the labor required to milk 3X have been successful. Only 4 percent of the 89 DFBS farms with less than 100 cows used a milking frequency greater than 2X. As herd size increased, the percent of herds using a higher milking frequency increased. Farms with 100 to 200 cows reported 11 percent of the herds milking more often than 2X, 200-299 cow herds reported 50 percent, 300-399 cow herds reported 59 percent, 400-599 cow herds reported 87 percent, and the 600 cow and larger herds reported 89 percent exceeding the 2X milking frequency.

Table 50.

**COWS PER FARM AND RELATED FARM FACTORS
228 New York Dairy Farms, 2001**

Number of Cows	Avg. No. of Cows	Milk Sold Per Cow (lbs.)	Milk Sold Per Worker (cwt.)	Till- able Acres Per Cow	Forage DM Per Cow (tons)	Farm Capital Per Cow	Cost of Producing Milk/Cwt.	
							Oper.	Total
Under 50	39	16,585	3,663	3.4	5.8	\$8,772	\$10.85	\$18.96
50 to 74	62	17,763	4,682	3.7	7.5	9,171	11.64	18.42
75 to 99	87	18,678	5,302	3.6	8.4	7,907	11.70	17.16
100 to 149	126	18,733	5,959	2.8	7.4	7,823	12.25	17.07
150 to 199	163	20,253	6,085	3.9	8.7	8,906	12.47	17.60
200 to 299	248	21,052	8,250	2.5	7.6	6,625	11.96	15.54
300 to 399	344	21,511	9,046	2.1	7.2	6,671	12.50	15.83
400 to 599	484	22,489	9,935	2.0	7.3	6,138	11.75	14.43
600 & over	1,016	23,033	11,472	1.8	6.7	6,346	12.48	15.01

Bovine somatotropin (bST), was used to a greater extent on the large herd farms. bST was used sometime during 2001 on 24 percent of the herds with less than 100 cows, 60 percent of the farms with 100 to 299 cows and on 85 percent of the farms with 300 cows and more.

Milk output per worker has always shown a strong correlation with farm profitability. The farms with 100 cows or more averaged over 967,000 pounds of milk sold per worker while the farms with less than 100 cows averaged less than 476,000 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. The farms with 400 to 599 cows had the most efficient use of farm capital with an average investment of \$6,138 per cow.

The last column in Table 50 may be the most important in explaining why profits were significantly higher on the 400 to 599 cow farms. The 23 farms with 400 to 599 cows held their average total costs of producing milk to \$14.43 per hundredweight, \$2.52 below the \$16.95 average for the remaining 205 dairy farms. The lower average costs of production plus a similar milk price gave the managers of the 400 to 599 farms profit margins (milk price less total cost of producing milk) that averaged \$2.14 per hundredweight above the average of the other 205 DFBS farms.

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

Assets, liabilities and financial measures are presented in Table 52 on pages 52-55. All herd size categories saw an increase in net worth during 2001. The largest herd size category experienced an increase in net worth of over \$600,000. However, percent equity went down as herd size increased. The largest herds had 53 percent equity; while the smaller herds averaged 71 percent.

Selected business factors by herd size group are presented in Table 53 on pages 56 and 57. Larger farms are, on average, more profitable; but no farm is large enough to guarantee a profit. For a more detailed analysis of large herd farms, see E.B. 2002-08, Dairy Farm Business Summary, New York Large Herd Farms, 300 Cows or Larger, 2001. For analysis of smaller herds, see E.B. 2002-18, Dairy Farm Business Summary, New York Small Herd Farms, 70 Cows or Fewer, 2001.

Table 51.

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

Item	Farm Size:	Less than 50 Cows	50 to 74 Cows	75 to 99 Cows	100 to 149 Cows
Number of farms		21	39	29	30
<u>ACCRUAL EXPENSES</u>					
Hired labor		\$4,281	\$11,368	\$25,321	\$41,652
Dairy grain & concentrate		25,808	41,634	64,341	104,449
Dairy roughage		4,175	3,580	2,459	5,845
Nondairy feed		0	13	37	300
Machine hire, rent & lease		2,006	3,773	8,236	9,823
Machine repairs & farm vehicle expense		6,230	12,253	18,373	26,749
Fuel, oil & grease		2,812	5,161	7,127	9,556
Replacement livestock		3,276	3,354	2,080	4,484
Breeding		915	2,397	3,838	4,906
Veterinary & medicine		2,605	4,642	6,519	11,216
Milk marketing		5,999	10,210	12,384	19,530
Bedding		966	882	2,428	3,508
Milking supplies		2,506	5,253	5,498	8,330
Cattle lease & rent		0	297	7	855
Custom boarding		225	594	1,718	3,132
bST expense		322	661	2,051	3,857
Other livestock expense		1,691	2,865	4,710	6,076
Fertilizer & lime		1,377	4,402	7,854	9,891
Seeds & plants		963	1,619	3,572	5,361
Spray & other crop expense		1,761	1,665	5,086	4,745
Land, building & fence repair		2,748	4,237	4,968	6,810
Taxes & rent		3,326	7,858	10,947	13,808
Utilities		4,041	7,070	8,211	10,300
Interest paid		6,392	9,106	10,693	19,419
Misc. (including insurance)		3,962	5,490	7,453	8,970
Total Operating Expenses		\$88,387	\$150,385	\$225,911	\$343,5721
Expansion livestock		0	267	411	3,196
Machinery depreciation		7,921	10,686	16,197	20,497
Building depreciation		4,699	3,505	6,810	10,973
Total Accrual Expenses		\$101,007	\$164,843	\$249,329	\$378,238
<u>ACCRUAL RECEIPTS</u>					
Milk sales		\$104,640	\$176,897	\$258,000	\$385,677
Dairy cattle		8,859	7,421	14,965	21,734
Dairy calves		2,596	2,726	3,388	5,871
Other livestock		1,104	1,296	671	2,880
Crops		1,486	1,237	6,280	5,200
Misc. receipts		3,974	9,315	11,812	22,023
Total Accrual Receipts		\$122,659	\$198,892	\$295,115	\$443,387
<u>PROFITABILITY ANALYSIS</u>					
Net farm income (without appreciation)		\$21,652	\$34,049	\$45,786	\$65,149
Net farm income (with appreciation)		\$38,910	\$54,362	\$66,007	\$115,116
Labor & management income		\$4,163	\$3,935	\$13,789	\$23,855
Number of operators		1.18	1.41	1.28	1.68
Labor & management income/operator		\$3,528	\$2,791	\$10,773	\$14,199
Rates of return on:					
Equity capital without appreciation		-2.6%	-1.4%	1.0%	2.5%
Equity capital with appreciation		4.6%	3.5%	5.2%	9.7%
All capital without appreciation		0.1%	0.6%	2.2%	3.8%
All capital with appreciation		5.1%	4.1%	5.2%	8.8%

Table 51. (continued)

FARM BUSINESS SUMMARY BY HERD SIZE
228 New York Dairy Farms, 2001

Item	Farm Size:	150 to 199 Cows	200 to 299 Cows	300 to 399 Cows	400 to 599 Cows	600 or More Cows
Number of farms		14	28	17	23	27
<u>ACCRUAL EXPENSES</u>						
Hired labor		\$70,118	\$112,415	\$170,704	\$256,221	\$654,098
Dairy grain & concentrate		111,075	212,508	294,438	420,030	947,913
Dairy roughage		3,130	15,109	14,862	35,630	53,006
Nondairy feed		0	957	0	147	37
Machine hire, rent & lease		18,594	20,720	44,851	42,714	103,378
Machine repairs & farm vehicle expense		38,836	45,254	62,588	74,598	149,238
Fuel, oil & grease		15,345	19,685	25,849	32,752	61,382
Replacement livestock		2,920	10,728	25,920	27,043	34,250
Breeding		7,484	9,709	15,101	20,239	44,035
Veterinary & medicine		15,254	25,263	42,066	64,180	131,790
Milk marketing		21,127	38,228	44,242	68,515	129,880
Bedding		5,942	10,138	14,098	23,426	61,979
Milking supplies		14,650	16,312	20,860	25,540	73,523
Cattle lease & rent		0	-269	1,207	1,221	14,938
Custom boarding		2,530	13,347	15,520	29,784	91,345
bST expense		8,041	12,427	16,610	25,121	77,568
Other livestock expense		11,033	7,077	15,117	12,964	22,120
Fertilizer & lime		23,818	19,573	18,789	31,053	70,825
Seeds & plants		12,785	11,151	14,553	19,750	44,228
Spray & other crop expense		10,377	12,553	19,170	24,469	61,615
Land, building & fence repair		12,455	12,845	23,099	27,275	52,255
Taxes & rent		19,340	24,696	32,171	41,393	100,740
Utilities		14,670	18,843	26,776	31,446	64,710
Interest paid		20,636	39,113	65,005	92,410	196,325
Misc. (including insurance)		<u>16,043</u>	<u>15,080</u>	<u>25,490</u>	<u>32,012</u>	<u>65,340</u>
Total Operating Expenses		\$476,201	\$723,462	\$1,049,085	\$1,459,932	\$3,306,519
Expansion livestock		1,329	11,573	34,765	35,099	99,897
Machinery depreciation		32,265	38,136	62,108	72,897	153,722
Building depreciation		<u>20,003</u>	<u>26,196</u>	<u>45,672</u>	<u>59,327</u>	<u>143,513</u>
Total Accrual Expenses		\$529,798	\$799,367	\$1,191,630	\$1,627,255	\$3,703,651
<u>ACCRUAL RECEIPTS</u>						
Milk sales		\$529,556	\$838,839	\$1,204,312	\$1,711,649	\$3,734,254
Dairy cattle		20,306	56,379	93,295	121,063	280,420
Dairy calves		5,966	9,215	18,980	18,348	43,958
Other livestock		-141	113	6,230	5,002	4,431
Crops		13,924	16,877	4,074	31,098	36,066
Misc. receipts		<u>25,474</u>	<u>28,908</u>	<u>37,590</u>	<u>40,481</u>	<u>120,412</u>
Total Accrual Receipts		\$595,084	\$950,331	\$1,364,481	\$1,927,641	\$4,219,540
<u>PROFITABILITY ANALYSIS</u>						
Net farm income (without appreciation)		\$65,286	\$150,964	\$172,851	\$300,386	\$515,889
Net farm income (with appreciation)		\$120,268	\$204,091	\$284,724	\$444,422	\$897,252
Labor & management income		\$1,465	\$96,325	\$102,488	\$214,602	\$347,349
Number of operators		1.92	2.18	1.87	2.18	2.53
Labor & management income/operator		\$763	\$44,186	\$54,806	\$98,441	\$137,292
Rates of return on:						
Equity capital without appreciation		0.4%	7.7%	7.6%	13.6%	11.7%
Equity capital with appreciation		5.3%	12.8%	16.0%	22.3%	23.2%
All capital without appreciation		1.7%	7.3%	7.2%	10.6%	9.1%
All capital with appreciation		5.5%	10.5%	12.1%	15.5%	15.0%

Table 52.

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
228 New York Dairy Farms, 2001

Item	Farms with:		50 to 74 Cows	
	Less than 50 Cows		Jan. 1	Dec. 31
	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS				
Farm cash, checking & savings	\$3,141	\$1,748	\$7,988	\$7,959
Accounts receivable	8,661	8,062	12,229	12,329
Prepaid expenses	152	160	13	0
Feed & supplies	18,263	19,905	33,430	33,778
Livestock ⁵⁰	65,720	72,923	109,528	122,016
Machinery & equipment ⁵⁰	62,037	67,556	104,963	111,779
Farm Credit stock	738	753	915	906
Other stock & certificates	1,656	2,577	2,767	3,689
Land & buildings ⁵⁰	<u>171,014</u>	<u>179,172</u>	<u>287,802</u>	<u>285,083</u>
Total Farm Assets	\$331,382	\$352,857	\$559,636	\$577,538
Personal cash, checking & savings	\$3,633	\$5,614	\$3,114	\$4,162
Cash value of life insurance	4,959	5,007	14,070	14,805
Nonfarm real estate	7,185	7,185	20,126	22,931
Auto (personal share)	4,204	5,550	5,489	6,181
Stocks & bonds	2,167	1,907	16,463	16,710
Household furnishings	12,428	12,456	10,926	11,130
All other	<u>1,111</u>	<u>1,305</u>	<u>2,786</u>	<u>14,304</u>
Nonfarm Assets ⁵¹	\$35,687	\$39,024	\$72,974	\$90,223
Farm & Nonfarm Assets	\$367,069	\$391,881	\$632,610	\$667,761
LIABILITIES				
Accounts payable	\$4,475	\$3,124	\$6,821	\$5,589
Operating debt	3,311	2,681	3,815	2,988
Short term	155	210	77	310
Advanced government receipt	24	0	0	0
Current Portion:				
Intermediate	6,881	10,113	9,754	12,483
Long Term	2,846	3,050	4,245	5,410
Intermediate ⁵²	29,811	35,251	76,246	67,457
Long term ⁵⁰	<u>51,103</u>	<u>47,635</u>	<u>58,303</u>	<u>55,122</u>
Total Farm Liabilities	\$98,605	\$102,065	\$159,261	\$149,360
Nonfarm Liabilities ⁵¹	<u>8,965</u>	<u>7,809</u>	<u>5,091</u>	<u>4,542</u>
Farm & Nonfarm Liabilities	\$107,570	\$109,874	\$164,352	\$153,902
Farm Net Worth (Equity Capital)	\$232,777	\$250,792	\$400,375	\$428,178
Farm & Nonfarm Net Worth	\$259,499	\$282,007	\$468,258	\$513,859
FINANCIAL MEASURES				
	<u>Less than 50 Cows</u>		<u>50 to 74 Cows</u>	
Percent Equity	71%		74%	
Debt/asset ratio-long term	0.27		0.19	
Debt/asset ratio-intermediate & current	0.31		0.32	
Change in net worth with appreciation	\$18,015		\$27,803	
Total farm debt per cow	\$2,552		\$2,371	
Debt payments made per cow	\$498		\$534	
Debt payments as % of milk sales	18%		18%	
Amount available for debt service	\$17,267		\$23,616	
Cash flow coverage ratio for 2001	1.04		1.12	
Debt coverage ratio for 2001	1.00		1.25	

⁵⁰Includes discounted lease payments.⁵¹Average of farms reporting nonfarm assets and liabilities for 2001.⁵²Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 52. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
228 New York Dairy Farms, 2001

Item	Farms with:		100 to 149 Cows	
	75 to 99 Cows		Jan. 1	Dec. 31
	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS				
Farm cash, checking & savings	\$4,853	\$2,804	\$5,015	\$9,615
Accounts receivable	16,746	16,977	31,142	31,742
Prepaid expenses	57	122	51	140
Feed & supplies	48,653	54,539	75,514	77,627
Livestock ⁵³	145,786	168,771	203,789	243,756
Machinery & equipment ⁵³	155,922	161,025	197,626	217,487
Farm Credit stock	1,250	1,239	2,412	2,144
Other stock & certificates	10,136	9,441	15,409	17,936
Land & buildings ⁵³	<u>282,466</u>	<u>294,999</u>	<u>414,950</u>	<u>424,970</u>
Total Farm Assets	\$665,869	\$709,917	\$945,908	\$1,025,417
Personal cash, checking & savings	\$1,685	\$4,522	\$8,447	\$8,574
Cash value of life insurance	11,434	12,081	10,659	11,632
Nonfarm real estate	34,325	34,030	91,361	90,722
Auto (personal share)	5,898	8,945	4,889	5,667
Stocks & bonds	9,775	8,071	31,288	29,637
Household furnishings	7,375	12,400	7,361	7,639
All other	<u>17,476</u>	<u>18,710</u>	<u>3,333</u>	<u>5,447</u>
Nonfarm Assets ⁵⁴	\$87,968	\$98,759	\$157,338	\$159,318
Farm & Nonfarm Assets	\$753,837	\$808,676	\$1,103,246	\$1,184,735
LIABILITIES				
Accounts payable	\$12,628	\$10,945	\$12,865	\$6,881
Operating debt	4,923	4,658	17,855	19,356
Short term	2,180	2,850	440	1,394
Advanced government receipt	0	0	0	0
Current Portion:				
Intermediate	18,270	23,451	17,131	25,692
Long Term	4,386	4,806	10,352	11,216
Intermediate ⁵⁵	67,054	70,741	103,217	91,569
Long term ⁵³	<u>92,844</u>	<u>88,189</u>	<u>130,633</u>	<u>134,982</u>
Total Farm Liabilities	\$202,285	\$205,640	\$292,494	\$291,090
Nonfarm Liabilities ⁵⁴	<u>5,787</u>	<u>4,736</u>	<u>3,453</u>	<u>3,378</u>
Farm & Nonfarm Liabilities	\$208,072	\$210,376	\$295,947	\$294,468
Farm Net Worth (Equity Capital)	\$463,584	\$504,277	\$653,414	\$734,327
Farm & Nonfarm Net Worth	\$545,765	\$598,300	\$807,299	\$890,267
FINANCIAL MEASURES				
	75 to 99 Cows		100 to 149 Cows	
Percent equity	71%		72%	
Debt/asset ratio-long term	0.30		0.32	
Debt/asset ratio-intermediate & current	0.28		0.26	
Change in net worth with appreciation	\$40,693		\$80,913	
Total farm debt per cow	\$2,311		\$2,292	
Debt payments made per cow	\$510		\$612	
Debt payments as % of milk sales	17%		20%	
Amount available for debt service	\$41,751		\$68,262	
Cash flow coverage ratio for 2001	1.05		1.05	
Debt coverage ratio for 2001	1.36		1.27	

⁵³Includes discounted lease payments.⁵⁴Average of farms reporting nonfarm assets and liabilities for 2001.⁵⁵Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 52. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
228 New York Dairy Farms, 2001

Item	Farms with: 150 to 199 Cows		200 to 299 Cows	
	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS				
Farm cash, checking & savings	\$10,428	\$11,286	\$8,859	\$8,869
Accounts receivable	40,859	39,631	60,247	70,047
Prepaid expenses	628	443	54	1,173
Feed & supplies	143,610	152,240	150,367	169,957
Livestock ⁵⁶	270,109	304,288	389,176	446,853
Machinery & equipment ⁵⁶	291,983	315,917	303,932	324,515
Farm Credit stock	2,035	1,790	4,442	4,352
Other stock & certificates	19,915	19,993	28,397	31,017
Land & buildings ⁵⁶	<u>632,925</u>	<u>643,369</u>	<u>628,995</u>	<u>654,909</u>
Total Farm Assets	\$1,412,492	\$1,490,957	\$1,574,469	\$1,711,692
Personal cash, checking & savings	\$ 0	\$ 0	\$9,865	\$14,055
Cash value of life insurance	14,701	20,805	51,376	52,466
Nonfarm real estate	53,800	59,827	17,550	13,850
Auto (personal share)	3,125	3,375	8,100	7,600
Stocks & bonds	782	300	51,078	51,083
Household furnishings	8,500	8,500	12,000	12,000
All other	<u>25,720</u>	<u>22,375</u>	<u>8,647</u>	<u>7,088</u>
Nonfarm Assets ⁵⁷	\$106,628	\$115,182	\$158,616	\$158,142
Farm & Nonfarm Assets	\$1,519,120	\$1,606,139	\$1,734,085	\$1,869,834
LIABILITIES				
Accounts payable	\$10,326	\$7,362	\$8,634	\$9,152
Operating debt	27,356	33,116	39,824	49,692
Short term	5,420	2,532	6,259	5,740
Advanced government receipt	101	0	194	188
Current Portion:				
Intermediate	32,437	44,800	42,021	67,193
Long Term	9,945	12,614	12,269	17,254
Intermediate ⁵⁸	133,713	127,919	257,529	248,609
Long term ⁵⁶	<u>110,284</u>	<u>96,679</u>	<u>221,860</u>	<u>218,189</u>
Total Farm Liabilities	\$329,582	\$325,022	\$588,591	\$616,018
Nonfarm Liabilities ⁵⁷	<u>0</u>	<u>0</u>	<u>2,788</u>	<u>2,201</u>
Farm & Nonfarm Liabilities	\$329,582	\$325,022	\$591,379	\$618,219
Farm Net Worth (Equity Capital)	\$1,082,910	\$1,165,935	\$985,878	\$1,095,674
Farm & Nonfarm Net Worth	\$1,189,538	\$1,281,117	\$1,141,706	\$1,251,615
FINANCIAL MEASURES				
	150 to 199 Cows		200 to 299 Cows	
Percent equity	78%		64%	
Debt/asset ratio-long term	0.15		0.33	
Debt/asset ratio-intermediate & current	0.27		0.38	
Change in net worth with appreciation	\$83,025		\$109,796	
Total farm debt per cow	\$2,006		\$2,435	
Debt payments made per cow	\$679		\$504	
Debt payments as % of milk sales	21%		14%	
Amount available for debt service	\$84,385		\$142,208	
Cash flow coverage ratio for 2001	1.12		1.26	
Debt coverage ratio for 2001	1.28		1.64	

⁵⁶Includes discounted lease payments.⁵⁷Average of farms reporting nonfarm assets and liabilities for 2001.⁵⁸Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 52. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
228 New York Dairy Farms, 2001

Item	300 to 399 Cows		400 to 599 Cows		More than 600 Cows	
	Jan. 1	Dec. 31	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS						
Farm cash, checking & savings	\$15,802	\$8,552	\$22,504	\$29,052	\$20,027	\$16,304
Accounts receivable	87,861	102,321	103,115	110,582	196,514	238,663
Prepaid expenses	1,521	512	1,744	2,015	16,822	22,281
Feed & supplies	222,304	243,428	255,123	320,583	739,219	812,782
Livestock ⁵⁹	554,085	655,843	730,632	876,419	1,552,645	1,920,214
Machinery & equipment ⁵⁹	448,604	474,329	482,707	550,709	994,918	1,078,610
Farm Credit stock	4,075	5,279	6,345	7,081	19,812	19,581
Other stock & certificates	36,856	47,135	45,519	53,459	119,054	135,981
Land & buildings ⁵⁹	<u>810,292</u>	<u>870,878</u>	<u>1,106,353</u>	<u>1,237,366</u>	<u>2,389,871</u>	<u>2,602,595</u>
Total Farm Assets	\$2,181,401	\$2,408,277	\$2,754,042	\$3,187,267	\$6,048,881	\$6,847,011
Personal cash, checking & savings	\$2,977	\$3,400	\$6,087	\$7,182	\$3,287	\$8,773
Cash value of life insurance	7,968	9,062	7,416	9,470	57,905	67,008
Nonfarm real estate	0	0	28,193	16,429	5,000	5,667
Auto (personal share)	5,329	10,286	10,143	8,429	7,480	4,833
Stocks & bonds	12,697	18,590	26,915	31,984	30,744	44,820
Household furnishings	11,786	11,786	3,571	3,571	25,867	25,867
All other	<u>21,260</u>	<u>0</u>	<u>243</u>	<u>435</u>	<u>17,923</u>	<u>11,114</u>
Nonfarm Assets ⁶⁰	\$62,017	\$53,124	\$82,568	\$77,500	\$148,206	\$168,082
Farm & Nonfarm Assets	\$2,243,418	\$2,461,401	\$2,836,610	\$3,264,767	\$6,197,087	\$7,015,093
LIABILITIES						
Accounts payable	\$27,297	\$11,815	\$40,487	\$23,058	\$89,240	\$72,195
Operating debt	69,806	74,630	74,892	79,637	334,155	367,083
Short term	1,155	5,588	9,092	8,744	11,900	33,740
Advanced government receipts	0	0	0	0	0	267
Current Portion:						
Intermediate	73,731	92,994	100,463	149,642	170,809	256,879
Long Term	20,372	28,082	23,078	37,845	96,506	128,565
Intermediate ⁶¹	391,754	371,296	529,388	534,870	1,090,971	1,146,785
Long term ⁵⁹	<u>353,885</u>	<u>396,753</u>	<u>490,565</u>	<u>552,189</u>	<u>1,262,173</u>	<u>1,213,029</u>
Total Farm Liabilities	\$938,001	\$981,157	\$1,267,965	\$1,385,985	\$3,055,754	\$3,218,542
Nonfarm Liabilities ⁶⁰	<u>1,118</u>	<u>4,871</u>	<u>4,143</u>	<u>4,223</u>	<u>0</u>	<u>0</u>
Farm & Nonfarm Liabilities	\$939,119	\$986,028	\$1,272,108	\$1,390,208	\$3,055,754	\$3,218,542
Farm Net Worth (Equity Capital)	1,243,400	1,427,120	1,486,077	1,801,282	2,993,127	3,628,469
Farm & Nonfarm Net Worth	\$1,304,299	\$1,475,373	\$1,564,502	\$1,874,559	\$3,141,333	\$3,796,551
FINANCIAL MEASURES						
	<u>300 to 399 Cows</u>		<u>400 to 599 Cows</u>		<u>More than 600 Cows</u>	
Percent equity	59%		57%		53%	
Debt/asset ratio-long term	.46		.43		.47	
Debt/asset ratio-intermediate & current	.38		.46		.47	
Change in net worth with appreciation	\$183,720		\$315,205		\$635,342	
Total farm debt per cow	\$2,756		\$2,772		\$3,045	
Debt payments made per cow	\$661		\$691		\$533	
Debt payments as % of milk sales	19%		20%		15%	
Amount available for debt service	\$218,980		\$315,608		\$678,639	
Cash flow coverage ratio for 2001	1.27		1.22		1.38	
Debt coverage ratio for 2001	1.67		1.64		1.74	

⁵⁹Includes discounted lease payments.⁶⁰Average of farms reporting nonfarm assets and liabilities for 2001.⁶¹Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 53.

SELECTED BUSINESS FACTORS BY HERD SIZE
228 New York Dairy Farms, 2001

Item	Farms with:	Less than 50 Cows	50 to 74 Cows	75 to 99 Cows	100 to 149 Cows
Number of farms		21	39	29	30
<u>Cropping Program Analysis</u>					
Total Tillable acres		134	229	313	352
Tillable acres rented ⁶²		57	98	160	154
Hay crop acres ⁶²		89	148	189	207
Corn silage acres ⁶²		12	35	66	82
Hay crop, tons DM/acre		1.9	2.0	2.0	2.4
Corn silage, tons/acre		12.6	14.3	15.7	15.4
Oats, bushels/acre		0	65	0	0
Forage DM per cow, tons		5.6	7.5	8.4	7.4
Tillable acres/cow		3.4	3.7	3.6	2.8
Fert. & lime expense/tillable acre		\$10.28	\$19.22	\$25.09	\$28.10
Total machinery costs		\$22,209	\$37,292	\$57,857	\$77,003
Machinery cost/tillable acre		\$166	\$163	\$185	\$219
<u>Dairy Analysis</u>					
Number of cows		39	62	87	126
Number of heifers		25	47	68	89
Milk sold, lbs.		648,409	1,104,921	1,617,253	2,359,741
Milk sold/cow, lbs.		16,585	17,763	18,678	18,733
Operating cost of prod. milk/cwt.		\$10.85	\$11.64	\$11.70	\$12.25
Total cost of prod. milk/cwt.		\$18.96	\$18.42	\$17.16	\$17.07
Price/cwt. milk sold		\$16.14	\$16.01	\$15.95	\$16.34
Purchased dairy feed/cow		\$769	\$729	\$768	\$875
Purchased dairy feed/cwt. milk		\$4.62	\$4.09	\$4.13	\$4.67
Purchased grain & concentrate as % of milk receipts		25%	24%	25%	27%
Purchased feed & crop expense/cwt. milk		\$5.26	\$4.79	\$5.15	\$5.52
Cull rate		25.6%	27.4%	27.6%	28.6%
<u>Capital Efficiency</u>					
Farm capital/worker		\$193,288	\$240,927	\$225,539	\$248,905
Farm capital/cow		\$8,772	\$9,171	\$7,907	\$7,823
Farm capital/tillable acre owned		\$4,443	\$4,340	\$4,496	\$4,978
Real estate/cow		\$4,490	\$4,620	\$3,319	\$3,333
Machinery investment/cow		\$1,661	\$1,748	\$1,822	\$1,647
Asset turnover ratio		0.41	0.39	0.46	0.50
<u>Labor Efficiency</u>					
Worker equivalent		1.77	2.36	3.05	3.96
Operator/manager equivalent		1.18	1.41	1.28	1.68
Milk sold/worker, lbs.		366,333	468,187	530,247	595,894
Cows/worker		22	26	29	32
Work units/worker		223	279	306	321
Labor cost/cow		\$1,033	\$887	\$811	\$719
Labor cost/tillable acre		\$301	\$240	\$225	\$257

⁶²Average of all farms, not only those reporting data.

Table 53. (cont'd)

SELECTED BUSINESS FACTORS BY HERD SIZE
228 New York Dairy Farms, 2001

Item	Farms with:	150 to 199 Cows	200 to 299 Cows	300 to 399 Cows	400 to 599 Cows	600 or More Cows
Number of farms		14	28	17	23	27
<u>Cropping Program Analysis</u>						
Total Tillable acres		636	612	715	945	1,840
Tillable acres rented ⁶³		272	282	347	472	862
Hay crop acres ⁶³		275	304	348	424	793
Corn silage acres ⁶³		128	202	262	373	792
Hay crop, tons DM/acre		2.6	2.7	2.9	3.5	3.2
Corn silage, tons/acre		16.3	16.1	17.2	17.5	16.4
Oats, bushels/acre		82	40	0	77	62
Forage DM per cow, tons		8.7	7.6	7.2	7.3	6.7
Tillable acres/cow		3.9	2.5	2.1	2.0	1.8
Fert. & lime expense/tillable acre		\$37.45	\$31.98	\$26.28	\$32.86	\$38.49
Total machinery costs		\$120,238	\$139,506	\$218,469	\$248,796	\$519,558
Machinery cost/tillable acre		\$189	\$228	\$306	\$263	\$282
<u>Dairy Analysis</u>						
Number of cows		163	248	344	484	1,016
Number of heifers		130	183	245	357	777
Milk sold, lbs.		3,304,067	5,214,018	7,390,830	10,888,481	23,402,738
Milk sold/cow, lbs.		20,253	21,052	21,511	22,489	23,033
Operating cost of prod. milk/cwt.		\$12.47	\$11.96	\$12.50	\$11.75	\$12.48
Total cost of prod. milk/cwt.		\$17.60	\$15.54	\$15.83	\$14.43	\$15.01
Price/cwt. milk sold		\$16.03	\$16.09	\$16.29	\$15.72	\$15.96
Purchased dairy feed/cow		\$701	\$918	\$899	\$941	\$985
Purchased dairy feed/cwt. milk		\$3.46	\$4.37	\$4.18	\$4.18	\$4.28
Purchased grain & concentrate as % of milk receipts		21%	25%	24%	25%	25%
Purchased feed & crop expense/cwt. milk		\$4.88	\$5.20	\$4.90	\$4.88	\$5.03
Cull Rate		28.8%	30.6%	31.1%	29.5%	32.0%
<u>Capital Efficiency</u>						
Farm capital/worker		\$267,353	\$259,981	\$280,886	\$271,045	\$316,076
Farm capital/cow		\$8,906	\$6,625	\$6,671	\$6,138	\$6,346
Farm capital/tillable acre owned		\$3,988	\$4,979	\$6,236	\$6,280	\$6,593
Real estate/cow		\$3,915	\$2,589	\$2,444	\$2,421	\$2,457
Machinery investment/cow		\$1,865	\$1,267	\$1,341	\$1,068	\$1,020
Asset turnover ratio		0.45	0.61	0.64	0.70	0.71
<u>Labor Efficiency</u>						
Worker equivalent		5.43	6.32	8.17	10.96	20.40
Operator/manager equivalent		1.92	2.18	1.87	2.18	2.53
Milk sold/worker, lbs.		608,484	825,003	904,630	993,475	1,147,193
Cows/worker		30	39	42	44	50
Work units/worker		322	393	411	431	485
Labor cost/cow		\$786	\$682	\$646	\$644	\$707
Labor cost/tillable acre		\$201	\$276	\$311	\$330	\$390

⁶³Average 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 2001, 21 farms purchased the majority of their feed, including all forages. Less than 10 acres of crops were harvested by the average farm. Table 54 highlights the income and expenses for these 21 farms compared to the income and expenses for 147 farms of similar size that grew their forages. Table 55 compares selected business factors for the two groups of farms. In 2001, the 22 farms buying forages averaged a higher rate of return on all capital by shipping more milk per cow with less capital investment and had an operating cost that was similar to the farms growing all forages.

Comparison by Type of Barn and Herd Size

When analyzing a dairy farm business by comparing it to a group of farms, it is important that the group of farms have as many of the same physical characteristics as possible as the farm being analyzed. To assist in this endeavor, dairy farms in the summary have been divided into those with freestall and those with conventional housing. Conventional housing includes stanchion and tiestall barns. Within each group, is a further classification by size of the dairy herd. Table 56 on page 62 includes the average values for the resulting five groups of dairy farms. The average size in the five groups ranges from 46 cows on the small conventional farms to 663 cows on the largest freestall farms. The largest freestall farms averaged the highest milk output per cow and per worker, the lowest total cost of production and investment per cow, and the greatest returns to labor, management and capital. The small freestall farms showed average profits somewhat lower than the large conventional farm businesses.

Farm business charts have been computed for each of the five housing and herd size categories and are on pages 63-67. By comparing the farm's performance on the most appropriate business chart, a farm manager will be better able to evaluate his or her business performance.

Comparison of Data, Same Farms, 1992 - 2001

Follow ten years of growth, change and progress made by 64 New York DFBS farms in Table 62, pages 68 and 69. Although milk receipts per cwt. increased 18 percent, net farm income without appreciation increased 98 percent from 1992 to 2001. 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. 2001 was a high milk price year.

Comparison of Farms by bST Usage

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

Farms not using bST showed a 5.6 percent increase in pounds of milk sold per cow, from 17,992 pounds in 1997 to 19,004 pounds in 2001. Farms using bST increased milk sold per cow 2.0 percent, from 22,812 pounds per cow in 1997 to 23,272 pounds per cow in 2001. Farms that used bST in 1997 through 2001 were larger, and increased in size more rapidly than did farms not supplementing with bST. Farms not using bST increased by 12 cows, from an average of 107 cows in 1997 to 119 in 2001. Farms adopting bST increased by 119 cows, up to 587 cows in 2001. Both groups saw an increase in net farm income in 2001 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.

Receipts and Expenses per Hundredweight of Milk and per Cow

Average accrual receipts and expenses per cow and per hundredweight of milk sold are listed for all 228 dairy farms, 99 dairy farms selling less than 20,000 pounds of milk per cow, and 129 dairy farms selling 20,000 pounds and more in Table 64 on page 71. Table 65 on page 72 provides the same list of average accrual receipts and expenses for 67 farms averaging less than 80 cows per farm, 65 farms with 80 to 180 cows and 96 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 2001, 54 of the 228 DFBS cooperators practiced intensive grazing. This means the dairy herd was on pasture for three months or more and was moved to a new paddock every third day or less and at least 30 percent of the forage was from pasture. The farms using intensive grazing are compared with a control group of non-grazing farms in Table 66. The control group is a selection of non-grazing dairy farms of similar size. In 2001 average net farm income was somewhat higher on intensive grazing farms. Operating cost of producing milk was 36 cents per cwt. lower while total costs were 18 cents per cwt. higher than the costs of production on the control farms. Table 66 also includes a comparison of 19 profitable grazing farms to 47 profitable non-grazing farms. E.B. 2002-12 contains detailed information on New York farms using intensive grazing.

Comparison of Dairy Farm Business Data by Region

Average farm business summary data from five regions of the State are compared in Tables 67 and 68. The largest average farm size, highest average rate of milk production, and the highest average net farm income (without appreciation) came from the Western and Central Plain Region. Dairy farmers in this region have increased milk production 34.5 percent from 1990-2000, and they produced milk for an average total cost of \$15.22 per hundredweight in 2001. Total milk production has declined 8.7 percent from 1990-2000 in the Central Valleys Region (Figure 2.). This is the region with the highest costs of producing milk and the second lowest returns to labor and management.

Comparison of Farms by Milking Frequency

Twenty-nine percent of the 228 DFBS farms utilized three times per day (3X) milking in 2001. Most of the remaining farms milked twice per day (2X). Two years of selected average business and cost of milk production factors from the two milking frequency groups are compared in Table 69.

In 2001, the 3X farms averaged 47 more cows per farm, sold 6 percent more milk per cow, increased the total cost of producing milk by 5.4 percent, and showed an average \$242,002 increase in net farm income, compared to the 3X farm averages for 2000. The 2X farms increased milk output per cow 0.2 percent, increased total production costs \$1.60 per hundredweight but increased average net farm income \$34,870 per farm in 2001 compared to 2000.

The 3X farms compared with the 2X farms averaged 23 percent more milk per cow and 64 percent additional milk per worker in 2001, very similar to the differences found in 2000. In 2001, the average total cost of producing milk was 11 percent lower on 3X farms than on 2X dairies, similar to 2000. On the average, farmers milking 3X sold more milk per cow and per worker, produced milk at lower costs per hundredweight and received higher returns for their labor, management and capital than the average dairy farmer milking 2X. However, milking frequency was not the only, and probably not the most important, factor that contributed to financial success on these dairy farms. Comparison of herd size, crop yields, labor and capital efficiency indicate there are other important management differences contributing to higher profits.

Other Comparisons

Thirty-four dairy renter farms were smaller, on average, than the 228 owner-operated farms, and averaged lower labor and management incomes than the average for 228 owned dairy farms (Table 70). E.B. 2002-19 contains detailed information on Eastern New York dairy renters. Data for the top 10 percent of farms by rate of return on all capital without appreciation is presented in Table 71. Additional data for the top 10 percent of farms is presented in many of the first 46 tables of this publication. Summary data for the 228 specialized dairy farms are presented in Table 72.

Table 54.

**INCOME & EXPENSE COMPARISON FOR
FARMS BUYING MAJORITY OF FORAGES VERSUS SIMILAR SIZE FARMS GROWING FORAGES, 2001**

Item	21 Farms Buying Majority of Forages		147 Similar Size Farms Growing Forages	
Number of cows	179		178	
Pounds of Milk Sold	3,907,445		3,701,204	
<u>Income</u>	<u>Per Cow</u>	<u>Per Cwt.</u>	<u>Per Cow</u>	<u>Per Cwt.</u>
Milk sold	\$3,396	\$15.56	\$3,345	\$16.08
Dairy cattle	172	0.79	211	1.01
Dairy calves	61	0.28	43	0.21
Other livestock	14	0.07	10	0.05
Crops	-58	-0.27	48	0.23
Miscellaneous	<u>91</u>	<u>0.42</u>	<u>134</u>	<u>0.64</u>
Total Accrual Receipts	\$3,675	\$16.84	\$3,790	\$18.23
<u>Expenses</u>				
Hired Labor	\$345	\$1.58	\$434	\$2.09
Dairy grain & concentrate	892	4.08	834	4.01
Dairy Roughage	328	1.50	35	0.17
Nondairy	0	0.00	1	0.01
Machinery Hire, rent/lease	95	0.44	99	0.48
Machinery repairs/vehicle expense.	86	0.39	195	0.94
Fuel, oil & grease	46	0.21	80	0.39
Replacement livestock	123	0.56	52	0.25
Breeding	46	0.21	44	0.21
Veterinary & medicine	100	0.46	105	0.50
Milk marketing	128	0.59	142	0.68
Bedding	50	0.23	36	0.17
Milking supplies	54	0.25	68	0.33
Cattle lease/rent	17	0.08	2	0.01
Custom boarding	67	0.30	37	0.18
BST expense	38	0.17	45	0.22
Other livestock expenses	38	0.17	43	0.21
Fertilizer & lime	8	0.04	83	0.40
Seeds & plants	7	0.03	47	0.23
Spray, other crop expenses	4	0.02	56	0.27
Land/bldg/fence repair	43	0.20	65	0.31
Taxes	21	0.09	53	0.25
Rent & lease	46	0.21	64	0.31
Insurance	22	0.10	36	0.17
Utilities	77	0.35	82	0.40
Interest paid	199	0.91	152	0.73
Miscellaneous	<u>30</u>	<u>0.14</u>	<u>36</u>	<u>0.17</u>
Total Operating Expenses	\$2,909	\$13.32	\$2,925	\$14.07
Expansion livestock	\$45	\$0.21	\$44	\$0.21
Machinery depreciation	112	0.52	174	0.84
Building depreciation	<u>115</u>	<u>0.53</u>	<u>100</u>	<u>0.48</u>
Total Accrual Expenses	\$3,181	\$14.57	\$3,244	\$15.60
Net Farm Income (without appreciation)	\$494	\$2.26	\$547	\$2.63

Table 55.

**SELECTED BUSINESS FACTORS FOR FARMS BUYING MAJORITY OF FORAGES
VERSUS SIMILAR SIZE FARMS GROWING FORAGES, 2001**

Selected Factors	21 Farms Buying Majority of Forages	147 Similar Size Farms Growing Forages
<u>Size of Business</u>		
Average number of cows	179	178
Average number of heifers	104	134
Milk sold, lbs.	3,907,445	3,701,204
Worker equivalent	3.80	5.07
Total tillable acres	142	486
Tillable acres harvested	88	463
<u>Rates of Production</u>		
Milk sold per cow, lbs.	21,847	20,766
Hay DM per acre, tons	2.0	2.6
Corn silage per acre, tons	0.0	16.2
<u>Labor Efficiency & Costs</u>		
Cows per worker	47	35
Milk sold/worker, lbs.	1,028,275	730,021
Hired labor cost/cwt.	\$1.58	\$2.09
Hired labor cost/worker	\$31,681	\$26,394
Hired labor cost as % of milk sales	10.2%	13.0%
<u>Cost Control</u>		
Grain & conc. purchased as % of milk sales	26%	25%
Grain & concentrate per cwt. milk	\$4.08	\$4.01
Dairy feed & crop expense per cwt. milk	\$5.68	\$5.08
Labor & mach. costs/cow	\$972	\$1,344
Total farm operating costs per cwt. sold	\$12.25	\$12.14
Interest costs per cwt. milk	\$0.91	\$0.73
Milk marketing costs per cwt. milk sold	\$0.59	\$0.68
Operating cost of producing cwt. of milk	\$12.25	\$12.14
<u>Capital Efficiency(average for the year)</u>		
Farm capital per cow	\$5,061	\$7,066
Mach. & equipment per cow	\$773	\$1,456
Asset turnover ratio	0.77	0.58
<u>Income Generation</u>		
Gross milk sales per cow	\$3,396	\$3,345
Gross milk sales per cwt.	\$15.56	\$16.08
Net milk sales per cwt.	\$14.97	\$15.40
Dairy cattle sales per cow	\$172	\$211
Dairy calf sales per cow	\$61	\$43
<u>Profitability</u>		
Net farm income w/o appreciation	\$88,434	\$97,327
Net farm income w/appreciation	\$130,212	\$151,855
Labor & mgt. income per operator/manager	\$41,931	\$27,407
Rate of return on equity capital w/o appreciation	9.5%	4.9%
Rate of return on all capital w/o appreciation	7.5%	5.4%
<u>Cash flow</u>		
Principal & interest payments per cow, 2001	\$597	\$526
Net cash flow	\$146,329	\$147,252
<u>Financial Summary</u>		
Farm net worth, end year	\$386,047	\$882,949
Farm net worth change from last year, %	27.8%	12.1%
Debt to asset ratio	0.60	0.33
Farm debt per cow	\$3,136	\$2,341

Table 56.

SELECTED BUSINESS FACTORS BY TYPE OF BARN AND HERD SIZE
212 New York Dairy Farms, 2001

Item	Farms with:	Conventional		Freestall		
		<= 60 Cows	>60 Cows	<=150 Cows	151-300 Cows	≥300 Cows
Number of farms		35	41	36	33	67
<u>Cropping Program Analysis</u>						
Total Tillable acres		161	328	294	623	1,248
Tillable acres rented ⁶⁴		76	143	127	307	598
Hay crop acres ⁶⁴		101	209	158	304	553
Corn silage acres ⁶⁴		20	53	73	190	514
Hay crop, tons DM/acre		2.0	2.1	2.2	2.6	3.2
Corn silage, tons/acre		12.1	14.6	15.8	16.2	16.8
Oats, bushels/acre		48	71	0	61	79
Forage DM per cow, tons		6.2	7.9	7.1	8.1	6.9
Tillable acres/cow		3.5	3.7	2.8	2.8	1.9
Fertilizer & lime expense/tillable acre		\$15.66	\$24.70	\$26.72	\$34.70	\$35.23
Total machinery costs		\$26,721	\$56,722	\$64,924	\$138,855	\$350,215
Machinery cost/tillable acre		\$166	\$173	\$221	\$223	\$281
<u>Dairy Analysis</u>						
Number of cows		46	88	105	223	663
Number of heifers		30	70	77	168	498
Milk sold, lbs.		772,393	1,596,748	1,937,717	4,782,601	15,044,076
Milk sold/cow, lbs.		16,854	18,100	18,454	21,409	22,697
Operating cost of prod. milk/cwt.		\$10.50	\$11.72	\$12.77	\$11.97	\$12.30
Total cost of prod. milk/cwt.		\$18.60	\$17.44	\$18.12	\$15.75	\$14.96
Price/cwt. milk sold		\$15.81	\$16.21	\$16.40	\$16.01	\$15.94
Purchased dairy feed/cow		\$684	\$769	\$865	\$911	\$963
Purchased dairy feed/cwt. milk		\$4.08	\$4.24	\$4.69	\$4.25	\$4.24
Purchased grain & conc. as % milk rec.		23%	25%	27%	25%	25%
Purchased feed & crop exp./cwt. milk		\$4.74	\$5.17	\$5.52	\$5.18	\$4.98
<u>Capital Efficiency</u>						
Farm capital/worker		\$205,969	\$237,435	\$261,553	\$264,963	\$298,754
Farm capital/cow		\$8,687	\$8,607	\$8,320	\$7,082	\$6,336
Farm capital/tillable acre owned		\$4,701	\$4,094	\$5,263	\$4,997	\$6,462
Real estate/cow		\$4,303	\$3,803	\$3,977	\$2,765	\$2,446
Machinery investment/cow		\$1,803	\$1,769	\$1,642	\$1,454	\$1,074
Asset turnover ratio		0.40	0.44	0.46	0.58	0.70
<u>Labor Efficiency</u>						
Worker equivalent		1.94	3.19	3.34	5.96	14.06
Operator/manager equivalent		1.20	1.60	1.55	1.98	2.31
Milk sold/worker, lbs.		398,141	500,548	580,155	802,450	1,069,991
Cows/worker		24	28	31	37	47
Labor cost/cow		\$966	\$797	\$766	\$702	\$683
Labor cost/tillable acre		\$276	\$214	\$274	\$251	\$363
<u>Profitability & Balance Sheet Analysis</u>						
Net farm income (without appreciation)		\$27,904	\$50,684	\$41,363	\$132,090	\$354,871
Labor & management income/operator		\$ 3,380	\$9,806	\$2,304	\$37,959	\$103,813
Rate return on all capital with appreciation		4.4%	6.6%	6.3%	9.7%	14.7%
Farm debt/cow		\$2,253	\$1,980	\$2,476	\$2,343	\$2,939
Percent equity		74%	77%	71%	68%	55%

⁶⁴Average of all farms, not only those reporting data.

Table 57.

FARM BUSINESS CHART FOR SMALL CONVENTIONAL STALL DAIRY FARMS
35 Conventional Stall Dairy Farms with 60 or Less Cows, New York, 2001

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
3.03	60	1,245,680	23,789	5.0	22	45	827,791
2.67	56	1,114,154	21,861	3.2	18	36	573,917
2.33	54	1,011,693	20,602	2.9	17	32	502,902
2.17	53	911,947	19,527	2.5	15	26	462,086
2.08	50	807,019	17,338	2.2	14	25	421,719

2.02	48	752,098	16,216	2.0	13	23	397,822
1.78	43	673,389	15,102	1.8	11	22	359,863
1.54	40	577,962	13,984	1.5	10	21	330,986
1.35	35	533,036	12,852	1.3	8	19	293,167
1.10	31	404,087	10,797	0.9	7	15	207,406

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		
\$253	9%	\$235	\$963	\$313	\$2.12		
452	17	374	1,114	538	3.55		
482	20	454	1,342	616	4.18		
528	22	482	1,519	709	4.34		
587	24	559	1,632	821	4.72		

662	25	639	1,686	892	5.01		
722	27	702	1,719	957	5.60		
770	30	753	1,827	1,018	5.95		
846	33	819	1,986	1,057	6.33		
1,196	41	1,060	2,347	1,463	7.57		

Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec.		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.	
			Total	Per Cow			
\$3,886	\$6.23	\$13.22	\$65,087	\$1,330	\$40,773	\$68,987	
3,481	8.59	15.56	52,642	1,114	20,880	48,071	
3,161	9.35	15.88	41,747	948	16,972	43,917	
2,987	9.92	17.50	37,922	816	12,592	38,392	
2,801	10.70	18.11	33,433	744	10,095	29,731	

2,597	11.12	18.87	29,002	671	7,909	24,177	
2,456	11.40	21.38	22,857	522	2,894	18,291	
2,264	11.90	22.75	17,034	383	-9,310	9,076	
1,933	13.52	23.99	10,451	248	-18,177	870	
1,709	15.37	27.08	-8,317	-180	-39,146	-9,674	

Table 58.

FARM BUSINESS CHART FOR LARGE CONVENTIONAL STALL DAIRY FARMS
41 Conventional Stall Dairy Farms with More Than 60 Cows, New York, 2001

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- Alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
5.93	160	3,012,877	23,731	4.2	24	45	808,670
4.11	107	1,960,563	22,373	3.4	20	37	748,856
3.78	96	1,792,785	20,947	2.9	19	33	677,622
3.40	89	1,700,932	19,247	2.5	18	32	603,240
3.15	81	1,576,875	18,410	2.2	16	29	512,111

2.89	76	1,454,477	17,459	2.0	15	28	485,483
2.61	74	1,297,603	16,522	1.9	14	27	432,325
2.44	71	1,219,837	16,034	1.7	13	25	403,315
2.18	69	1,140,095	15,213	1.3	12	23	364,184
1.76	65	968,499	12,615	0.8	10	19	320,460

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		
\$463	16%	\$347	\$1,010	\$616	\$3.53		
579	21	419	1,137	727	4.33		
615	23	474	1,243	810	4.57		
664	24	527	1,314	883	4.73		
724	24	558	1,414	941	4.89		

773	26	589	1,477	969	5.10		
828	27	660	1,556	1,047	5.52		
860	29	721	1,598	1,086	5.98		
909	31	822	1,685	1,141	6.66		
1,071	38	1,277	2,129	1,214	7.90		

Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec.		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.	
			Total	Per Cow			
\$3,784	\$8.86	\$14.29	\$153,466	\$1,226	\$59,155	\$190,468	
3,615	9.61	15.08	85,246	1,035	39,571	107,429	
3,350	10.41	15.96	64,686	848	30,194	82,211	
3,117	10.66	16.38	57,634	727	23,697	60,509	
2,970	11.15	16.81	48,402	619	19,165	44,293	

2,846	12.20	17.50	41,736	537	8,984	36,885	
2,707	12.88	18.95	37,701	466	1,811	31,218	
2,590	13.38	19.68	26,773	264	-8,159	21,903	
2,455	14.27	20.66	11,713	155	-23,515	12,476	
2,091	16.51	23.14	-6,281	-89	-49,622	-11,054	

Table 59.

FARM BUSINESS CHART FOR SMALL FREESTALL DAIRY FARMS
36 Freestall Barn Dairy Farms with 150 or Less Cows, New York, 2001

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- Ament	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
5.71	147	3,125,999	25,923	4.1	22	52	972,992
4.33	138	2,805,027	22,303	3.3	19	47	838,821
4.08	134	2,598,943	21,628	3.1	19	39	750,939
3.85	128	2,378,198	21,061	2.8	18	36	677,019
3.61	121	2,199,576	20,054	2.5	17	34	637,439

3.39	111	1,922,201	18,868	2.3	17	33	530,462
3.04	96	1,702,079	17,351	1.9	15	30	502,684
2.73	85	1,421,135	15,864	1.8	13	26	487,951
2.24	71	1,216,851	14,431	1.4	11	23	438,031
1.61	51	796,487	11,195	0.9	5	20	345,091

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		
\$395	16%	\$373	\$843	\$569	\$3.80		
540	22	451	1,163	748	4.72		
635	24	507	1,279	851	5.00		
685	25	583	1,307	926	5.26		
791	26	610	1,348	1,021	5.53		

830	27	642	1,431	1,070	5.78		
948	28	697	1,553	1,174	5.95		
1,015	30	740	1,631	1,233	6.29		
1,071	32	832	1,803	1,339	6.56		
1,282	36	1,116	2,259	1,543	7.58		

Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec.		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.	
			Total	Per Cow			
\$4,090	\$8.58	\$14.01	\$151,837	\$1,325	\$75,610	\$169,291	
3,697	10.10	15.62	95,986	863	45,382	127,063	
3,485	11.57	16.85	81,934	798	31,267	109,818	
3,401	12.08	17.51	67,579	699	22,582	94,812	
3,277	13.03	17.92	56,983	496	11,485	69,980	

3,072	13.37	18.46	38,071	361	342	55,082	
2,905	14.03	19.78	18,038	237	-11,976	37,412	
2,618	14.92	20.49	6,509	71	-19,996	22,873	
2,364	16.14	21.74	-2,877	-21	-32,505	5,401	
1,903	20.27	31.09	-42,456	-423	-89,582	-103,806	

Table 60.

FARM BUSINESS CHART FOR MEDIUM FREESTALL DAIRY FARMS
33 Freestall Barn Dairy Farms with 151-300 Cows, New York, 2001

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- Ament	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
10.22	289	7,255,336	26,610	4.9	22	63	1,166,961
7.65	279	6,558,208	24,402	4.1	19	50	1,002,135
7.24	258	6,068,019	24,010	3.7	18	45	934,842
6.39	244	5,425,361	23,241	3.0	17	42	883,666
6.08	237	4,874,783	22,217	2.7	17	39	828,288

5.71	229	4,548,429	21,488	2.5	16	38	797,911
5.21	220	4,143,400	20,649	2.4	15	37	782,355
4.86	203	3,806,040	19,634	2.1	14	35	743,254
4.41	168	3,513,009	18,225	1.7	13	32	695,570
3.57	156	2,982,254	15,576	1.4	11	25	565,423

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		
\$544	16%	\$328	\$800	\$771	\$3.48		
688	18	425	1,021	908	4.16		
764	21	540	1,184	978	4.56		
788	24	605	1,318	1,016	4.87		
819	26	651	1,394	1,051	5.11		

856	28	693	1,435	1,100	5.65		
922	29	713	1,505	1,153	5.71		
996	31	767	1,582	1,249	5.86		
1,022	31	846	1,641	1,352	6.46		
1,140	34	965	1,769	1,590	7.66		

Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec.		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.	
			Total	Per Cow			
\$4,346	\$8.73	\$12.69	\$325,074	\$1,389	\$133,577	\$218,584	
3,877	10.53	14.32	254,431	1,069	83,691	198,816	
3,746	10.98	15.09	189,385	817	68,669	158,386	
3,666	11.37	15.66	172,176	756	57,389	133,301	
3,571	12.14	15.87	142,906	618	49,017	111,145	

3,368	12.60	16.45	125,827	533	38,343	101,431	
3,262	13.01	16.66	104,666	459	25,932	93,982	
3,158	13.35	17.06	76,465	388	12,611	70,998	
2,950	14.22	17.77	43,192	206	-243	46,897	
2,554	15.38	19.07	-15,762	-57	-52,845	-10,901	

Table 61.

FARM BUSINESS CHART FOR LARGE FREESTALL DAIRY FARMS
67 Freestall Barn Dairy Farms with 300 or More Cows, New York, 2001

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
31.70	1,710	39,350,324	26,320	6.0	22	70	1,478,169
22.13	1,076	24,363,043	24,767	4.4	20	56	1,251,515
17.60	808	18,881,814	24,192	4.0	19	54	1,185,411
14.61	660	15,605,295	23,822	3.7	18	50	1,125,973
12.93	588	13,741,854	23,199	3.4	17	47	1,097,178

11.99	512	11,901,392	22,697	3.1	17	45	1,058,473
10.57	440	10,081,298	22,150	2.9	16	43	1,000,299
9.38	395	8,489,732	21,429	2.5	15	41	925,209
7.65	353	7,436,917	20,578	2.0	14	37	816,506
6.21	317	5,940,943	16,525	1.5	12	32	658,499

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		
\$604	19%	\$341	\$850	\$812	\$4.01		
781	22	428	1,034	980	4.59		
830	23	459	1,117	1,025	4.74		
853	24	502	1,157	1,050	4.83		
881	25	559	1,199	1,105	4.91		

916	26	584	1,255	1,144	5.00		
953	26	611	1,303	1,186	5.14		
991	27	633	1,359	1,228	5.30		
1,054	28	678	1,420	1,299	5.54		
1,139	31	748	1,577	1,390	5.86		

Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec.		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.	
			Total	Per Cow			
\$4,272	\$9.77	\$12.78	\$1,165,364	\$1,207	\$569,366	\$1,471,396	
4,045	10.82	13.68	658,291	843	275,764	679,052	
3,845	11.24	14.14	455,885	754	208,088	536,609	
3,706	11.64	14.53	383,865	656	159,542	453,655	
3,600	12.16	14.92	303,367	603	127,864	363,764	

3,561	12.59	15.19	256,914	543	92,391	283,618	
3,495	12.93	15.83	215,483	437	60,322	223,933	
3,373	13.51	16.16	152,016	317	36,580	175,029	
3,238	13.93	16.62	104,375	192	16,373	132,745	
2,838	14.61	18.13	26,708	45	-79,706	-3,491	

Table 62.

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 64 New York Dairy Farms, 1992 - 2001

Selected Factors	1992	1993	1994	1995
Milk receipts per cwt. milk	\$13.67	\$13.31	\$13.58	\$13.15
<u>Size of Business</u>				
Average number of cows	197	215	232	253
Average number of heifers	149	163	177	189
Milk sold, cwt.	38,366	42,035	48,823	53,916
Worker equivalent	5.15	5.31	5.74	6.21
Total tillable acres	478	496	515	546
<u>Rates of Production</u>				
Milk sold per cow, lbs.	19,486	19,595	21,032	21,337
Hay DM per acre, tons	2.9	2.9	3.2	2.8
Corn silage per acre, tons	14	14	16	14
<u>Labor Efficiency</u>				
Cows per worker	38	40	40	41
Milk sold per worker, lbs.	745,031	791,394	850,641	868,601
<u>Cost Control</u>				
Grain & concn. purchased as % of milk sales	28%	28%	27%	27%
Dairy feed & crop expense per cwt. milk	\$4.93	\$4.71	\$4.66	\$4.42
Operating cost of producing cwt. milk	\$10.43	\$10.10	\$10.13	\$10.48
Total cost of producing cwt. milk	\$14.91	\$14.36	\$14.19	\$14.33
Hired labor cost per cwt.	\$1.56	\$1.56	\$1.54	\$1.54
Interest paid per cwt.	\$0.85	\$0.83	\$0.81	\$0.91
Labor & machinery costs per cow	\$1,024	\$1,014	\$1,032	\$1,019
Replacement livestock expense	\$6,410	\$8,556	\$8,948	\$6,378
Expansion livestock expense	\$19,549	\$15,515	\$14,652	\$10,143
<u>Capital Efficiency</u>				
Farm capital per cow	\$7,122	\$7,051	\$6,970	\$6,847
Machinery & equipment per cow	\$1,291	\$1,280	\$1,237	\$1,224
Real estate per cow	\$3,334	\$3,274	\$3,185	\$3,102
Livestock investment per cow	\$1,518	\$1,525	\$1,551	\$1,525
Asset turnover ratio	0.49	0.48	0.50	0.47
<u>Profitability</u>				
Net farm income without appreciation	\$85,431	\$78,245	\$106,361	\$97,634
Net farm income with appreciation	\$108,252	\$98,784	\$125,646	\$109,887
Labor & management income per operator/manager	\$35,779	\$26,901	\$41,723	\$33,596
Rate return on:				
Equity capital with appreciation	5.7%	2.1%	7.6%	0.5%
All capital with appreciation	5.2%	4.8%	6.1%	4.3%
All capital without appreciation	3.2%	3.2%	4.8%	3.7%
<u>Financial Summary, End Year</u>				
Farm net worth	\$789,569	\$824,585	\$892,732	\$941,919
Change in net worth with appreciation	\$59,677	\$41,568	\$66,952	\$53,316
Debt to asset ratio	0.35	0.36	0.36	0.36
Farm debt per cow	\$2,335	\$2,370	\$2,326	\$2,304

Table 62. (continued)

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 64 New York Dairy Farms, 1992 - 2001

1996	1997	1998	1999	2000	2001
\$15.10	\$13.89	\$15.86	\$15.19	\$13.66	\$16.16
270	286	301	313	330	356
197	215	236	244	258	279
57,566	62,824	65,623	70,777	74,487	79,473
6.49	6.93	7.19	7.51	7.78	8.28
584	606	627	664	689	713
21,350	21,937	21,837	22,605	22,560	22,346
2.7	2.5	2.9	2.7	3.0	2.7
15	15	16	15	13	14
42	41	42	42	42	43
886,863	907,090	912,177	942,365	957,354	959,814
29%	31%	25%	23%	26%	24%
\$5.35	\$5.31	\$5.04	\$4.60	\$4.57	\$5.01
\$11.76	\$11.68	\$11.06	\$10.80	\$10.65	\$12.04
\$15.68	\$15.53	\$14.96	\$14.95	\$14.83	\$16.78
\$1.63	\$1.61	\$1.64	\$1.70	\$1.80	\$1.92
\$0.86	\$0.91	\$0.86	\$0.77	\$0.86	\$0.73
\$1,088	\$1,071	\$1,131	\$1,252	\$1,274	\$1,373
\$7,852	\$9,012	\$14,092	\$17,691	\$17,590	\$16,156
\$15,633	\$15,398	\$11,382	\$18,801	\$33,340	\$28,761
\$6,835	\$6,909	\$6,904	\$7,204	\$7,377	\$7,709
\$1,253	\$1,281	\$1,297	\$1,384	\$1,445	\$1,502
\$3,046	\$3,075	\$3,014	\$3,077	\$3,119	\$3,313
\$1,500	\$1,495	\$1,502	\$1,556	\$1,619	\$1,732
0.53	0.48	0.58	0.55	0.51	0.57
\$125,807	\$76,062	\$210,794	\$202,109	\$52,865	\$169,558
\$137,788	\$81,472	\$240,403	\$234,159	\$100,099	\$271,980
\$55,057	\$9,146	\$93,342	\$93,482	\$-22,817	\$54,493
3.3%	-22.2%	30.5%	11.2%	3.9%	11.6%
6.0%	2.3%	10.9%	9.0%	5.2%	9.0%
5.1%	2.0%	9.5%	7.2%	3.0%	5.2%
\$1,012,873	\$1,009,148	\$1,164,560	\$1,286,567	\$1,275,901	\$1,466,242
\$77,414	\$-7,357	\$160,750	\$120,482	\$-10,811	\$178,549
0.36	0.39	0.36	0.34	0.35	0.33
\$2,342	\$2,466	\$2,296	\$2,318	\$2,331	\$2,363

Table 63.

bST NON-USERS VS. USERS										
Same 64 Farms, 1997 - 2001										
Selected Factors	27 Farms Not Using bST in 1997 - 2001					37 Farms Using bST in 1997 - 2001				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Size of Business										
Average number of cows	107	112	114	117	119	468	494	520	548	587
Average number of heifers	77	76	78	82	83	349	391	408	439	468
Milk sold, cwt.	19,185	19,814	21,199	22,036	22,643	106,742	111,476	120,813	128,204	136,707
Worker equivalent	3.03	3.06	3.12	3.25	3.33	10.61	11.18	11.85	12.36	13.23
Total tillable acres	291	283	284	286	292	913	934	1,012	1,057	1,109
Rates of Production										
Milk sold per cow, lbs.	17,992	17,738	18,583	18,816	19,004	22,812	22,555	23,240	23,391	23,272
Hay DM per acre, tons	1.9	2.2	2.1	2.4	2.2	3.0	3.9	3.3	3.7	3.4
Corn silage per acre, tons	11	10	11	10	11	17	20	17	16	17
Labor Efficiency										
Cows per worker	35	37	37	36	36	44	44	44	44	44
Milk sold per worker, lbs.	632,621	648,542	678,967	678,801	680,050	1,006,174	996,716	1,019,378	1,036,863	1,033,434
Cost Control										
Grain & conc. purchased as percent of milk sales	33%	27%	26%	28%	26%	32%	25%	24%	27%	25%
Dairy feed and crop expense per cwt. milk	\$5.53	\$5.45	\$4.96	\$4.99	\$5.40	\$5.31	\$4.90	\$4.68	\$4.54	\$4.88
Labor and mach. costs per cow	\$1,039	\$1,072	\$1,203	\$1,295	\$1,453	\$1,064	\$1,121	\$1,223	\$1,257	\$1,333
Operating cost of producing milk per cwt.	\$11.18	\$11.01	\$10.49	\$9.75	\$11.72	\$11.77	\$11.22	\$11.35	\$11.52	\$12.47
Capital Efficiency (avg. for year)										
Farm capital per cow	\$7,055	\$6,988	\$7,358	\$7,572	\$8,139	\$6,562	\$6,570	\$6,701	\$6,835	\$6,938
Machinery and equip. per cow	\$1,419	\$1,435	\$1,590	\$1,725	\$1,859	\$1,151	\$1,148	\$1,204	\$1,274	\$1,288
Asset turnover ratio	0.41	0.47	0.47	0.45	0.47	0.57	0.66	0.64	0.59	0.68
Profitability										
Net farm income w/o apprec.	\$27,214	\$57,602	\$68,964	\$47,540	\$69,379	\$112,287	\$321,508	\$309,636	\$31,639	\$253,096
Net farm income with apprec.	\$32,098	\$73,571	\$83,754	\$61,183	\$103,623	\$127,151	\$376,067	\$369,130	\$118,131	\$436,948
Labor & management income per operator/manager	\$-1,473	\$23,789	\$26,562	\$7,481	\$19,118	\$16,395	\$148,190	\$146,186	\$-70,124	\$86,770
Rate return on equity capital with appreciation	-0.4%	6.7%	7.6%	4.2%	7.9%	1.7%	21.8%	14.4%	3.3%	15.8%
Rate return on all capital with appreciation	0.9%	6.2%	7.0%	4.7%	7.2%	4.6%	13.8%	10.6%	5.3%	11.2%
Financial Summary (end of year)										
Farm net worth	\$511,585	\$540,133	\$580,147	\$602,010	\$679,666	\$1,483,067	\$1,742,741	\$1,922,919	\$1,869,139	\$2,181,375
Debt to asset ratio	0.24	0.23	0.22	0.20	0.19	0.44	0.41	0.40	0.43	0.41
Farm debt per cow	\$1,733	\$1,643	\$1,695	\$1,472	\$1,452	\$2,685	\$2,506	\$2,514	\$2,646	\$2,693

Table 64.

**FARM RECEIPTS AND EXPENSES PER COW AND PER
HUNDREDWEIGHT FOR TWO LEVELS OF MILK PRODUCTION
228 New York Dairy Farms, 2001**

Item	228 Dairy Farms		99 Dairy Farms Milk/Cow <20,000#		129 Dairy Farms Milk/Cow ≥20,000#	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<u>ACCRUAL RECEIPTS</u>						
Milk sales	\$3,479	\$15.98	\$2,703	\$16.60	\$3,658	\$15.88
Dairy cattle	243	1.12	195	1.20	254	1.10
Dairy calves	43	0.20	41	0.25	43	0.19
Other livestock	8	0.04	18	0.11	6	0.03
Crops	45	0.21	28	0.17	49	0.21
Government receipts	57	0.26	73	0.45	53	0.23
All other	<u>61</u>	<u>0.28</u>	<u>65</u>	<u>0.40</u>	<u>60</u>	<u>0.26</u>
TOTAL ACCRUAL RECEIPTS	\$3,936	\$18.08	\$3,123	\$19.19	\$4,124	\$17.90
<u>ACCRUAL EXPENSES</u>						
<u>Labor</u> : Hired	\$524	\$2.41	\$289	\$1.77	\$579	\$2.51
<u>Feed</u> : Dairy grain & concentrate	870	4.00	680	4.17	914	3.97
Dairy roughage	55	0.25	48	0.29	56	0.24
Nondairy	1	0.00	0	0.00	1	0.00
<u>Machinery</u> : Machine hire, rent & lease	97	0.44	80	0.49	100	0.44
Machinery repairs & vehicle expense	167	0.77	181	1.11	164	0.71
Fuel, oil & grease	69	0.32	69	0.42	69	0.30
<u>Livestock</u> : Replacement livestock	43	0.20	43	0.26	43	0.19
Breeding	42	0.19	30	0.18	45	0.20
Vet & medicine	118	0.54	75	0.46	128	0.55
Milk marketing	137	0.63	131	0.80	139	0.60
Bedding	48	0.22	26	0.16	54	0.23
Milking supplies	67	0.31	63	0.39	68	0.30
Cattle lease & rent	8	0.04	3	0.02	9	0.04
Custom boarding	63	0.29	19	0.12	73	0.32
bST expense	57	0.26	14	0.09	67	0.29
Other livestock expense	31	0.14	33	0.20	31	0.13
<u>Crops</u> : Fertilizer & lime	72	0.33	77	0.47	71	0.31
Seeds & plants	43	0.20	32	0.20	46	0.20
Spray & other crop expense	54	0.25	42	0.26	57	0.25
<u>Real Estate</u> : Land, building & fence repair	56	0.26	58	0.36	55	0.24
Taxes	46	0.21	63	0.38	42	0.18
Rent & lease	54	0.25	36	0.22	58	0.25
<u>Other</u> : Insurance	31	0.14	43	0.26	28	0.12
Utilities (farm share)	72	0.33	79	0.48	71	0.31
Interest paid	179	0.82	165	1.01	182	0.79
Miscellaneous	<u>38</u>	<u>0.17</u>	<u>34</u>	<u>0.21</u>	<u>39</u>	<u>0.17</u>
TOTAL OPERATING EXPENSES	\$3,043	\$13.98	\$2,410	\$14.80	\$3,189	\$13.85
Expansion livestock	72	0.33	35	0.21	81	0.35
Machinery depreciation	159	0.73	150	0.92	161	0.70
Building depreciation	<u>123</u>	<u>0.57</u>	<u>88</u>	<u>0.54</u>	<u>131</u>	<u>0.57</u>
TOTAL ACCRUAL EXPENSES	\$3,397	\$15.61	\$2,683	\$16.47	\$3,562	\$15.47

Table 65.

**FARM RECEIPTS AND EXPENSES PER COW AND PER
HUNDREDWEIGHT FOR THREE HERD SIZE CATEGORIES
228 New York Dairy Farms, 2001**

Item	67 Dairy Farms with <80 Cows		65 Dairy Farms with 80-180 Cows		96 Dairy Farms with ≥ 180 Cows	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<u>ACCRUAL RECEIPTS</u>						
Milk sales	\$2,876	\$16.04	\$3,067	\$16.14	\$3,585	\$15.96
Dairy cattle	139	0.78	166	0.87	263	1.17
Dairy calves	50	0.28	41	0.22	43	0.19
Other livestock	20	0.11	13	0.07	7	0.03
Crops	27	0.15	67	0.36	43	0.19
Government receipts	78	0.43	93	0.49	50	0.22
All other	<u>55</u>	<u>0.31</u>	<u>71</u>	<u>0.37</u>	<u>60</u>	<u>0.27</u>
TOTAL ACCRUAL RECEIPTS	\$3,245	\$18.10	\$3,519	\$18.52	\$4,049	\$18.03
<u>ACCRUAL EXPENSES</u>						
<u>Labor</u> : Hired	\$183	\$1.02	\$345	\$1.82	\$576	\$2.57
<u>Feed</u> : Dairy grain & concentrate	674	3.76	769	4.05	899	4.00
Dairy roughage	66	0.37	33	0.18	57	0.25
Nondairy	0	0.00	1	0.01	1	0.00
<u>Machinery</u> : Machine hire, rent & lease	60	0.34	95	0.50	99	0.44
Mach. repairs & vehicle expense	190	1.06	216	1.14	158	0.70
Fuel, oil & grease	79	0.44	83	0.44	66	0.30
<u>Livestock</u> : Replacement livestock	54	0.30	29	0.15	44	0.20
Breeding	40	0.22	40	0.21	43	0.19
Vet & medicine	76	0.42	86	0.45	126	0.56
Milk marketing	160	0.89	145	0.76	134	0.60
Bedding	17	0.10	31	0.16	53	0.24
Milking supplies	77	0.43	72	0.38	66	0.29
Cattle lease & rent	3	0.02	3	0.02	9	0.04
Custom boarding	12	0.07	21	0.11	73	0.33
bST expense	15	0.09	33	0.18	64	0.29
Other livestock expense	47	0.26	55	0.29	26	0.12
<u>Crops</u> : Fertilizer & lime	69	0.38	98	0.51	68	0.30
Seeds & plants	27	0.15	52	0.28	43	0.19
Spray & other crop expense	34	0.19	52	0.27	56	0.25
<u>Real Estate</u> : Land, building & fence repair	70	0.39	60	0.32	54	0.24
Taxes	90	0.50	65	0.34	40	0.18
Rent & lease	27	0.15	52	0.28	56	0.25
<u>Other</u> : Insurance	54	0.30	43	0.22	28	0.12
Utilities (farm share)	111	0.62	85	0.45	68	0.30
Interest paid	145	0.81	140	0.74	187	0.83
Miscellaneous	<u>35</u>	<u>0.19</u>	<u>41</u>	<u>0.22</u>	<u>38</u>	<u>0.17</u>
TOTAL OPERATING EXPENSES	\$2,416	\$13.48	\$2,747	\$14.46	\$3,133	\$13.95
Expansion livestock	3	0.02	16	0.08	86	0.38
Machinery depreciation	180	1.01	181	0.96	155	0.69
Building depreciation	<u>75</u>	<u>0.41</u>	<u>96</u>	<u>0.50</u>	<u>131</u>	<u>0.58</u>
TOTAL ACCRUAL EXPENSES	\$2,674	\$14.92	\$3,040	\$16.00	\$3,505	\$15.60

Table 66.

INTENSIVE GRAZING FARMS VS. NON-GRAZING FARMS
New York State Dairy Farms, 2001

Item	All Intensive			
	Grazing Farms ⁶⁵	Non-Grazing Farms ⁶⁶	Profitable Grazing Farms ⁶⁷	Profitable Non-Grazing Farms ⁶⁸
Number of farms	54	98	19	47
<u>Business Size & Production</u>				
Number of cows	94	91	100	102
Number of heifers	70	67	71	79
Milk sold, lbs.	1,539,616	1,729,236	1,663,668	2,067,655
Milk sold/cow, lbs.	16,295	19,105	16,698	20,326
Milk plant test, % butterfat	3.71%	3.74%	3.63%	3.72%
Cull rate	26.6%	28.6%	21.0%	28.4%
Tillable acres, total	288	289	249	298
Hay crop, tons DM/acre	2.2	2.3	2.5	2.6
Corn silage, tons/acre	15.7	15.4	13.5	15.9
Forage DM/cow, tons	5.7	7.8	3.9	8.0
<u>Labor & Capital Efficiency</u>				
Worker equivalent	2.78	3.16	2.83	3.19
Milk sold/worker, lbs.	553,819	547,227	587,869	648,168
Cows/worker	34	29	35	32
Farm capital/worker	\$231,302	\$235,622	\$224,440	\$246,169
Farm capital/cow	\$6,841	\$8,182	\$6,352	\$7,699
Farm capital/cwt. milk	\$42	\$43	\$38	\$38
<u>Milk Production Costs & Returns</u>				
Selected costs/cwt.:				
Hired labor	\$1.60	\$1.54	\$1.83	\$1.30
Grain & concentrate	\$3.79	\$3.95	\$3.23	\$3.60
Purchased roughage	\$0.40	\$0.30	\$0.38	\$0.25
Replacements purchased	\$0.23	\$0.17	\$0.30	\$0.11
Vet & medicine	\$0.41	\$0.46	\$0.35	\$0.43
Milk marketing	\$0.76	\$0.79	\$0.73	\$0.79
Other dairy expenses	\$1.29	\$1.30	\$1.01	\$1.11
Operating cost/cwt.	\$11.71	\$12.07	\$10.58	\$10.21
Total labor cost/cwt.	\$4.38	\$4.20	\$4.14	\$3.76
Operator resources/cwt.	\$2.22	\$2.27	\$1.83	\$2.20
Total cost/cwt.	\$17.45	\$17.55	\$16.00	\$15.29
Average farm price/cwt.	\$16.69	\$16.09	\$17.24	\$16.14
<u>Related Cost Factors</u>				
Hired labor/cow	\$262	\$292	\$305	\$263
Total labor/cow	\$717	\$798	\$689	\$763
Purchased dairy feed/cow	\$686	\$807	\$601	\$779
Purchased grain & concentrate as % of milk receipts	23%	25%	19%	22%
Vet & medicine/cow	\$67	\$87	\$58	\$88
Machinery costs/cow	\$528	\$648	\$533	\$603
Feed & crop exp./cwt.	\$4.94	\$5.23	\$4.28	\$4.79
<u>Profitability Analysis</u>				
Net farm income (without apprec.)	\$52,200	\$45,128	\$80,621	\$96,924
Net farm income per cow (w/o apprec.)	\$555	\$496	\$806	\$950
Labor & management income/operator	\$15,205	\$7,153	\$43,431	\$35,040
Labor & mgmt. income/oper./cow	\$162	\$79	\$434	\$344
Rates of return on:				
Equity capital with appreciation	10.3%	5.8%	19.8%	12.3%
All capital with appreciation	9.1%	5.9%	15.7%	10.6%

⁶⁵Farms grazing at least three months of year, changing paddock at least every three days, and forage from pasture at least 30 percent.

⁶⁶Farms with similar herd size as the 54 rotational grazing farms.

⁶⁷Farms with net farm income per cow greater than \$574, had been grazing at least two years, and forage from pasture at least 40 percent.

⁶⁸Farms with similar herd size as the 19 profitable grazing farms and net farm income per cow greater than \$574.

Table 67.

COMPARISON OF DAIRY FARM BUSINESS DATA BY REGION
228 New York Dairy Farms, 2001

Item	West. & Cent. Plateau Region	West. & Cent. Plain Region	Northern New York	Central Valleys	No. Hudson & Southeastern NY
Number of farms	35	63	36	22	72
<u>ACCRUAL EXPENSES</u>					
Hired labor	\$74,115	\$303,947	\$112,914	\$100,856	\$70,495
Feed	136,468	490,806	239,806	185,730	138,885
Machinery	58,585	161,367	84,416	69,228	59,090
Livestock	82,829	331,421	136,387	146,534	96,510
Crops	26,713	82,780	44,170	35,560	30,634
Real estate	28,355	76,119	39,246	40,149	24,185
Other	<u>51,599</u>	<u>172,075</u>	<u>76,423</u>	<u>76,448</u>	<u>43,711</u>
Total Operating Expenses	\$458,663	\$1,618,513	\$733,361	\$654,507	\$463,510
Expansion livestock	9,137	35,792	21,851	21,130	10,142
Machinery depreciation	28,847	76,344	44,125	48,817	22,061
Building depreciation	<u>18,799</u>	<u>68,181</u>	<u>36,869</u>	<u>31,646</u>	<u>11,313</u>
Total Accrual Expenses	\$515,446	\$1,798,830	\$836,206	\$756,100	\$507,026
<u>ACCRUAL RECEIPTS</u>					
Milk sales	\$539,001	\$1,810,240	\$893,460	\$775,158	\$522,055
Livestock	42,664	149,596	86,047	66,741	43,224
Crops	1,250	7,619	16,387	38,251	12,336
All other	<u>17,419</u>	<u>61,969</u>	<u>22,546</u>	<u>33,963</u>	<u>18,955</u>
Total Accrual Receipts	\$600,334	\$2,029,421	\$1,018,439	\$914,113	\$596,569
<u>PROFITABILITY ANALYSIS</u>					
Net farm income (w/o appreciation)	\$84,887	\$230,591	\$182,233	\$158,013	\$89,543
Net farm income (w/ appreciation)	\$142,586	\$404,631	\$273,630	\$251,475	\$126,742
Labor & management income	\$41,096	\$140,146	\$125,173	\$109,045	\$41,115
Number of operators	1.60	1.95	1.68	1.77	1.76
Labor & mgmt. income/operator	\$25,685	\$71,870	\$74,508	\$61,607	\$23,361
<u>BUSINESS FACTORS</u>					
Worker equivalent	4.60	10.82	6.20	5.11	4.91
Number of cows	164	517	248	226	152
Number of heifers	129	385	191	164	112
Acres of hay crops ⁶⁹	225	388	372	244	246
Acres of corn silage ⁶⁹	117	364	224	154	130
Total tillable acres	432	944	661	532	429
Pounds of milk sold	3,325,138	11,461,798	5,540,995	4,721,669	3,233,027
Pounds of milk sold/cow	20,233	22,162	22,348	20,880	21,295
Tons hay crop dry matter/acre	2.7	3.4	2.3	3.1	2.3
Tons corn silage/acre	15.5	16.4	15.4	16.4	18.1
Cows/worker	36	48	40	44	31
Pounds of milk sold/worker	722,856	1,059,316	893,709	924,006	658,458
% grain & conc. of milk receipts	24%	25%	26%	22%	25%
Feed & crop expense/cwt. milk	\$4.91	\$5.00	\$5.13	\$4.68	\$5.24
Fertilizer & lime/crop acre	\$25.17	\$33.27	\$25.67	\$41.23	\$35.62
Machinery cost/tillable acre	\$229	\$281	\$221	\$248	\$216

⁶⁹Average of all farms in the region, not only those producing the crop.

Figure 2.

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

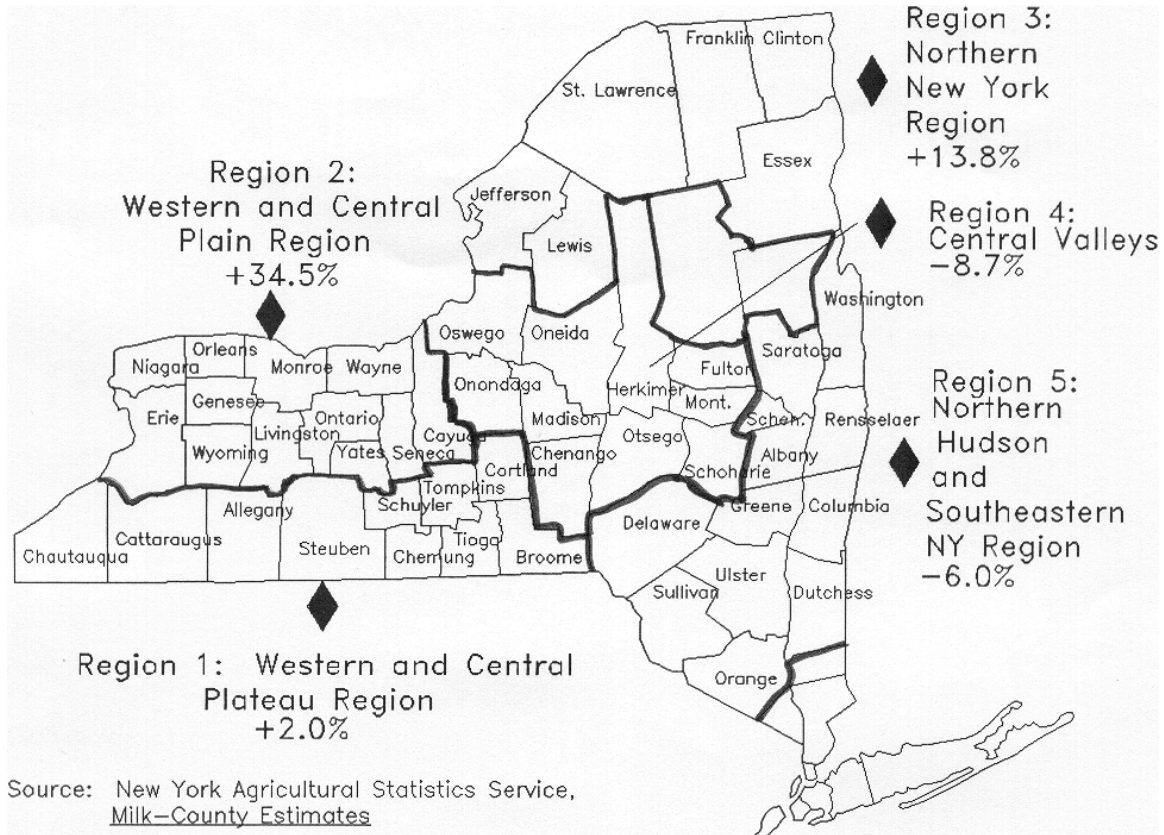


Table 68.

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

Item	Region ⁷⁰				
	1	2	3	4	5
<u>Milk Production</u> ⁷¹	(million pounds)				
1990	2,062.0	2,539.0	2,085.2	2,823.0	1,545.4
2000	2,103.8	3,415.2	2,372.3	2,576.1	1,452.6
Percent change	+2.0%	+34.5%	+13.8%	-8.7%	-6.0%
<u>2001 Cost of Producing Milk</u> ⁷²	(\$ per hundredweight milk)				
Operating cost	\$12.22	\$12.52	\$11.37	\$11.37	\$12.35
Total cost	16.32	15.22	14.81	15.46	16.25
Average price received	16.21	15.79	16.12	16.42	16.15
Return per cwt. to operator labor, management & capital	\$2.41	\$1.97	\$3.18	\$3.28	\$2.52

⁷⁰See Figure 2 for region descriptions.

⁷¹Source: New York Agricultural Statistics Service, Milk-County Estimates. 2001 data were not available.

⁷²From Dairy Farm Business Summary data.

Table 69.

SELECTED BUSINESS FACTORS BY MILKING FREQUENCY
New York State Dairy Farms, 2000 & 2001

Item	2x/Day Milking		3x/Day Milking	
	2000	2001	2000	2001
Number of farms	199	151	77	65
<u>Business Size & Production</u>				
Number of cows	131	136	519	566
Number of heifers	99	104	397	424
Milk sold, lbs.	2,483,754	2,598,578	11,971,070	13,232,371
Milk sold/cow, lbs.	18,999	19,045	22,066	23,387
Milk plant test, % butterfat	3.74%	3.73%	3.63%	3.61%
Tillable acres, total	376	395	1,027	1,075
Hay crop, tons DM/acre	2.9	2.4	3.2	3.2
Corn silage, tons/acre	13.9	16.2	15.8	16.7
Forage DM/cow, tons	7.6	7.7	7.5	6.9
<u>Labor & Capital Efficiency</u>				
Worker equivalent	3.72	3.99	11.79	12.40
Milk sold/worker, lbs.	667,676	651,273	1,015,358	1,067,127
Cows/worker	35	34	44	46
Farm capital/worker	\$243,760	\$251,647	\$279,541	\$298,218
Farm capital/cow	\$6,922	\$7,383	\$6,350	\$6,533
Farm capital/cwt. milk	\$36.51	\$38.64	\$27.53	\$27.94
<u>Milk Production Costs & Returns</u>				
Selected costs/cwt.:				
Hired labor	\$1.84	\$2.09	\$2.46	\$2.52
Grain & concentrate	\$3.65	\$4.05	\$3.68	\$3.95
Purchased roughage	\$0.19	\$0.21	\$0.27	\$0.29
Replacements purchased	\$0.23	\$0.17	\$0.23	\$0.22
Vet & medicine	\$0.45	\$0.47	\$0.52	\$0.55
Milk marketing	\$0.77	\$0.74	\$0.64	\$0.59
Other dairy expenses	\$1.12	\$1.17	\$1.38	\$1.52
Operating costs/cwt.	\$10.78	\$12.11	\$11.47	\$12.19
Total labor costs/cwt.	\$3.61	\$3.93	\$2.92	\$2.96
Operator resources/cwt.	\$2.77	\$2.90	\$1.43	\$1.43
Total costs/cwt.	\$15.03	\$16.63	\$14.12	\$14.92
Average farm price/cwt.	\$13.55	\$16.29	\$13.30	\$15.86
Return over total costs/cwt.	\$-1.48	\$-0.34	\$-0.82	\$0.94
<u>Related Cost Factors</u>				
Hired labor/cow	\$350	\$400	\$568	\$589
Total labor/cow	\$685	\$750	\$673	\$692
Purchased dairy feed/cow	\$728	\$814	\$911	\$990
Purchased grain & concentrate as % of milk receipts	27%	25%	28%	25%
Vet & medicine/cow	\$86	\$91	\$120	\$130
Machinery costs/cow	\$527	\$600	\$500	\$533
<u>Profitability Analysis</u>				
Net farm income (without appreciation)	\$38,279	\$73,149	\$75,629	\$317,631
Labor & management income/operator	\$1,611	\$20,025	\$-7,237	\$92,203
Rates of return on:				
Equity capital with appreciation	2.0%	9.7%	4.1%	21.3%
All capital with appreciation	3.7%	8.6%	5.7%	14.6%

Table 70.

FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
34 New York Dairy-Renter Farms,⁷³ 2001

<u>ACCRUAL EXPENSES</u>		<u>ACCRUAL RECEIPTS</u>			
Labor: Hired	\$38,771	Milk sales	\$420,152		
Feed: Dairy grain & concentrate	109,569	Dairy cattle	28,032		
Dairy roughage	17,942	Dairy calves	6,734		
Nondairy	56	Other livestock	409		
Machinery: Mach. hire, rent & lease	14,759	Crops	3,381		
Mach. repairs & farm vehicle expense	16,798	Government receipts	8,580		
Fuel, oil, grease	8,010	Custom machine work	2,628		
Livestock: Replacement livestock	14,054	Gas tax refund	185		
Breeding	6,146	Other	5,259		
Veterinary & medicine	12,401	TOTAL ACCRUAL RECEIPTS	\$475,360		
Milk marketing	17,170				
Bedding	4,907	<u>PROFITABILITY ANALYSIS</u>			
Milking supplies	8,174	Net farm income (without appreciation)	\$65,137		
Cattle lease & rent	617	Net farm income (with appreciation)	\$101,417		
Custom boarding	11,385	Labor & management income/farm	\$46,135		
bST expense	6,987	Number of operators	1.60		
Other livestock expense	5,574	Labor & management income/operator	\$28,834		
Crops: Fertilizer & lime	8,061	Rate of return on equity			
Seeds & plants	3,605	capital including appreciation	18.3%		
Spray & other crop expense	6,507				
Real estate: Land, building & fence repair	8,302	<u>BUSINESS FACTORS</u>			
Taxes	1,472	Number of cows	131		
Rent & lease	22,252	Number of heifers	85		
Other:		Worker equivalent	3.25		
Insurance	4,031	Total tillable acres	235		
Utilities (farm share)	11,011	Milk sold per cow, lbs.	20,534		
Interest paid	15,205	Hay DM per acre, tons	2.8		
Miscellaneous	4,664	Corn silage per acre, tons	14.7		
TOTAL OPERATING EXPENSES	\$378,432	Milk sold per worker, lbs.	826,572		
		Grain/conc. as % milk sales	26%		
Expansion livestock	\$2,853	Feed & crop expense/cwt. milk	\$5.42		
Machinery depreciation	22,160	Labor & machinery costs/cow	\$1,166		
Building depreciation	6,778	Average price/cwt. milk	\$15.64		
TOTAL ACCRUAL EXPENSES	\$410,223				
<u>ASSETS</u>		<u>LIABILITIES</u>			
	<u>Jan. 1</u>	<u>Dec. 31</u>	<u>Jan. 1</u>	<u>Dec. 31</u>	
Farm cash, checking & savings	\$14,806	\$17,101	Accounts payable	\$9,260	\$7,835
Accounts receivable	27,419	27,040	Operating debt	16,114	19,913
Prepaid expenses	106	952	Short-term	1,767	221
Feed & supplies	62,072	69,852	Advanced gov't receipts	0	0
Dairy cows ⁷⁴	149,013	163,768	Current Portion:		
Heifers	52,711	67,390	Intermediate	23,469	29,935
Bulls & other livestock	615	847	Long Term	2,757	3,641
Machinery & equipment ⁷⁴	127,427	139,170	Intermediate ⁷⁵	145,591	128,554
Farm Credit stock	3,790	2,774	Long term ⁷⁴	64,523	61,436
Other stock & certificates	11,803	13,570	Total Farm Liabilities	\$263,482	\$251,535
Land & buildings ⁷⁴	64,913	65,958	Nonfarm Liabilities ⁷⁶	7,865	8,608
Total Farm Assets	\$514,675	\$568,422	Farm & Nonfarm Liabilities	\$271,347	\$260,143
Nonfarm Assets ⁷⁶	89,917	98,627	Farm Net Worth	\$251,193	\$316,887
Farm & Nonfarm Assets	\$604,592	\$667,049	Farm & Nonfarm Net Worth	\$333,245	\$406,906

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

⁷⁴Includes discounted lease payments.

⁷⁵Includes Farm Credit stock and discounted lease payments for cattle and machinery.

⁷⁶Average of 15 farms reporting.

Table 71.

FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
Average of 22 Top Ten Percent Farms by Rate of Return on All Capital
(without appreciation), 2001

<u>ACCRUAL EXPENSES</u>		<u>ACCRUAL RECEIPTS</u>	
Labor: Hired	\$268,986	Milk sales	\$1,909,368
Feed: Dairy grain & concentrate	457,876	Dairy cattle	142,225
Dairy roughage	43,590	Dairy calves	20,428
Nondairy	176	Other livestock	5,042
Machinery: Mach. hire, rent & lease	60,191	Crops	63,737
Mach. repairs & farm vehicle expense	69,454	Government receipts	19,969
Fuel, oil, grease	31,076	Custom machine work	5,390
Livestock: Replacement livestock	23,285	Gas tax refund	49
Breeding	21,240	Other	36,893
Vet & medicine	60,565	TOTAL ACCRUAL RECEIPTS	\$2,203,101
Milk marketing	66,914		
Bedding	23,301	<u>PROFITABILITY ANALYSIS</u>	
Milking supplies	35,497	Net farm income (without appreciation)	\$458,174
Cattle lease & rent	9,156	Net farm income (with appreciation)	596,904
Custom boarding	53,939	Labor & management income/operator	185,394
bST expense	31,447	Rate of return on equity	
Other livestock expense	12,620	capital without appreciation	24.0%
Crops: Fertilizer & lime	41,429	Rate of return on all	
Seeds & plants	21,631	capital without appreciation	15.7%
Spray & other crop expense	26,776		
Real estate: Land, building & fence repair	27,200	<u>BUSINESS FACTORS</u>	
Taxes	15,789	Number of cows	518
Rent & lease	26,811	Number of heifers	368
Other:		Worker equivalent	10.79
Insurance	12,690	Total tillable acres	959
Utilities (farm share)	30,001	Milk sold per cow, lbs.	23,146
Interest paid	90,402	Hay DM per acre, tons	3.0
Miscellaneous	18,335	Corn silage per acre, tons	16.6
TOTAL OPERATING EXPENSES	\$1,580,377	Milk sold per worker, lbs.	1,110,385
		Grain/conc. as % milk sales	24%
Expansion livestock	\$31,105	Feed & crop exp./cwt. milk	\$4.94
Machinery depreciation	66,506	Labor & mach. costs/cow	\$1,108
Building depreciation	66,939	Average price/cwt. milk	\$15.94
TOTAL ACCRUAL EXPENSES	\$1,744,927		
<u>ASSETS</u>		<u>LIABILITIES</u>	
	Jan. 1	Dec. 31	Jan. 1
Farm cash, checking & savings	\$ 13,902	\$14,474	\$37,919
Accounts receivable	105,692	133,380	129,074
Prepaid expenses	477	1,304	1,271
Feed & supplies	278,972	395,870	0
Dairy cows ⁷⁷	542,270	627,096	Current Portion:
Heifers	236,126	318,926	Intermediate
Bulls & other livestock	3,550	5,630	92,263
Machinery & equipment ⁷⁷	443,016	500,992	Long Term
Farm Credit stock	11,156	11,080	33,736
Other stock & certificates	45,306	51,628	Intermediate ⁷⁸
Land & buildings ⁷⁷	1,033,324	1,143,708	613,533
Total Farm Assets	\$2,713,791	\$3,204,088	Long-term ⁷⁷
Nonfarm Assets ⁷⁹	79,348	80,887	450,813
Farm & Nonfarm Assets	\$2,793,139	\$3,284,975	Total Farm Liabilities
			\$1,358,609
			Nonfarm Liabilities ⁷⁹
			5,123
			Farm & Nonfarm Liabilities
			\$1,363,732
			Farm Net Worth
			\$1,355,182
			Farm & Nonfarm Net Worth
			\$1,429,407
			\$1,834,536

⁷⁷Includes discounted lease payments.

⁷⁸Includes Farm Credit Stock and discounted lease payments for cattle and machinery.

⁷⁹Average of 9 farms reporting.

Table 72.

FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
Average of 228 New York Dairy Farms, 2001

<u>ACCRUAL EXPENSES</u>		<u>ACCRUAL RECEIPTS</u>			
Labor: Hired	\$145,185	Milk sales	\$963,667		
Feed: Dairy grain & concentrate	240,921	Dairy cattle	67,395		
Dairy roughage	15,106	Dairy calves	11,878		
Nondairy	183	Other livestock	2,287		
Machinery: Mach. hire, rent & lease	26,752	Crops	12,471		
Mach. repairs & farm vehicle expense	46,333	Government receipts	15,766		
Fuel, oil, grease	19,166	Custom machine work	3,439		
Livestock: Replacement livestock	11,944	Gas tax refund	261		
Breeding	11,662	Other	13,218		
Vet & medicine	32,595	- Non-cash capital transfer	64		
Milk marketing	38,027	TOTAL ACCRUAL RECEIPTS	\$1,090,318		
Bedding	13,374	<u>PROFITABILITY ANALYSIS</u>			
Milking supplies	18,666	Net farm income (without appreciation)	\$149,044		
Cattle lease & rent	2,113	Net farm income (with appreciation)	241,188		
Custom boarding	17,526	Labor & management income/farm	88,230		
bST expense	15,889	Number of operators	1.94		
Other livestock expense	8,645	Labor & management income/operator	\$45,479		
Crops; Fertilizer & lime	19,967	Rate of return on equity			
Seeds & plants	11,995	capital including appreciation	16.3%		
Spray & other crop expense	15,091	<u>BUSINESS FACTORS</u>			
Real estate: Land, building & fence repair	15,510	Number of cows	277		
Taxes	12,720	Number of heifers	207		
Rent & lease	14,864	Worker equivalent	6.72		
Other:		Total tillable acres	618		
Insurance	8,600	Milk sold per cow, lbs.	21,762		
Utilities (farm share)	20,028	Hay DM per acre, tons	2.8		
Interest paid	49,550	Corn silage per acre, tons	16.5		
Miscellaneous	10,537	Milk sold per worker, lbs.	897,167		
TOTAL OPERATING EXPENSES	\$842,949	Grain/conc. as % milk sales	25%		
Expansion livestock	\$19,984	Feed & crop exp./cwt. milk	\$5.03		
Machinery depreciation	44,168	Labor & mach. costs/cow	\$1,260		
Building depreciation	34,173	Average price/cwt. milk	\$15.98		
TOTAL ACCRUAL EXPENSES	\$941,274				
<hr/>		<hr/>			
<u>ASSETS</u>	<u>Jan. 1</u>	<u>Dec. 31</u>	<u>LIABILITIES</u>	<u>Jan. 1</u>	<u>Dec. 31</u>
Farm cash, checking & savings	\$10,481	\$10,425	Accounts payable	\$23,260	\$16,874
Accounts receivable	59,249	67,270	Operating debt	62,834	69,102
Prepaid expenses	2,357	3,100	Short-term	3,877	6,773
Feed & supplies	180,660	201,846	Advanced gov't rec.	32	55
Dairy cows ⁸⁰	294,016	343,604	Current Portion:		
Heifers	136,280	172,615	Intermediate	49,892	72,882
Bulls & other livestock	3,113	3,175	Long Term	20,301	27,323
Machinery & equipment ⁸⁰	324,720	352,342	Intermediate ⁸¹	289,542	291,662
Farm Credit stock	4,661	4,735	Long-term ⁸⁰	303,036	304,459
Other stock & certificates	30,091	34,476	Total Farm Liabilities	\$752,775	\$789,129
Land & buildings ⁸⁰	726,649	776,596	Nonfarm Liabilities ⁸²	4,297	4,003
Total Farm Assets	\$1,772,277	\$1,970,184	Farm & Nonfarm Liabilities	\$757,072	\$793,132
Nonfarm Assets ⁸²	98,824	106,818	Farm Net Worth	\$1,019,502	\$1,181,055
Farm & Nonfarm Assets	\$1,871,101	\$2,077,002	Farm & Nonfarm Net Worth	\$1,114,029	\$1,283,870

⁸⁰Includes discounted lease payments.

⁸¹Includes Farm Credit stock and discounted lease payments for cattle and machinery.

⁸²Average of 126 farms reporting.

NOTES

APPENDIX

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

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

Table A1.**PRICES PAID BY NEW YORK FARMERS FOR SELECTED ITEMS, 1991-2001**

Year	Mixed Dairy Feed 16% Protein ⁸³ (\$/ton)	Fertilizer, Urea 45-46%N ⁸³ (\$/ton)	Seed Corn, Hybrid ⁸⁴ (\$/80,000 kernels)	Diesel Fuel ⁸³ (\$/gal)	Tractor 50-59 PTO ⁸⁴ (\$)	Wage Rate All Hired Farm Workers ⁸⁵ (\$/hr)
1991	172	243	70.20	0.995	18,650	6.06
1992	174	221	71.80	0.910	18,850	6.42
1993	171	226	72.70	0.900	19,200	6.76
1994	181	233	73.40	0.853	19,800	6.96
1995	175	316	77.10	0.850	20,100	6.92
1996	226	328	77.70	1.020	20,600	7.19
1997	216	287	83.50	0.960	21,200	7.63
1998	199	221	86.90	0.810	21,800	7.63
1999	175	180	88.10	0.750	21,900	8.12
2000	174	201	87.50	1.270	21,800	8.74
2001	176	270	92.20	1.260	22,000	8.72

SOURCE: NYASS, New York Agricultural Statistics. USDA, ASB, Agricultural Prices. ⁸³Northeast region average. ⁸⁴United States average. ⁸⁵New York and New England combined.

Inflation, farm profitability, supply and demand all have a direct impact on the inventory values on New York dairy farms. The table below shows year-end (December) prices paid for dairy cows (replacements), an index of these cow prices, an index of new machinery prices (U.S. average), the average per acre value of farmland and buildings reported in January (February for 1986-89), and an index of the real estate prices.

Table A2.**VALUES AND INDICES OF NEW YORK DAIRY FARM INVENTORY ITEMS, 1986-2001**

Year	Dairy Cows		Machinery ⁸⁶	Farm Real Estate	
	Value/Head	1977=100	1977=100	Value/Acre	1977=100
1986	770	156	178	843	144
1987	870	176	180	960	164
1988	900	182	189	993	169
1989	1,020	206	201	1,045	178
1990	1,060	214	209	1,014	173
1991	1,040	210	219	1,095	187
1992	1,090	220	226	1,139	194
1993	1,100	222	235	1,237	211
1994	1,100	222	249	1,260	215
1995	1,010	204	258	1,280	218
1996	1,030	208	268	1,260	215
1997	980	198	276	1,250	213
1998	1,050	212	286	1,280	218
1999	1,250	253	294	1,340	228
2000	1,250	253	301	1,410	240
2001	1,600	323	312	1,500	256

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

⁸⁶United States average; 1995 - 2001 are estimated due to discontinuation of 1977=100 series.

As the number of milk cow operations decreases, the average number of milk cows per operation increases as shown by Chart A1. There were 5,800 less milk cow operations in 2001 than there were in 1990. The average number of milk cows per operation has increased by 36 cows, or 62 percent over the same period. On January 1, 2002, 29 percent of the total milk cows were in herds with 50-99 head, 61 percent were in herds with over 100 milk cows, and 10 percent were in herds with less than 50 head.

Chart A1.

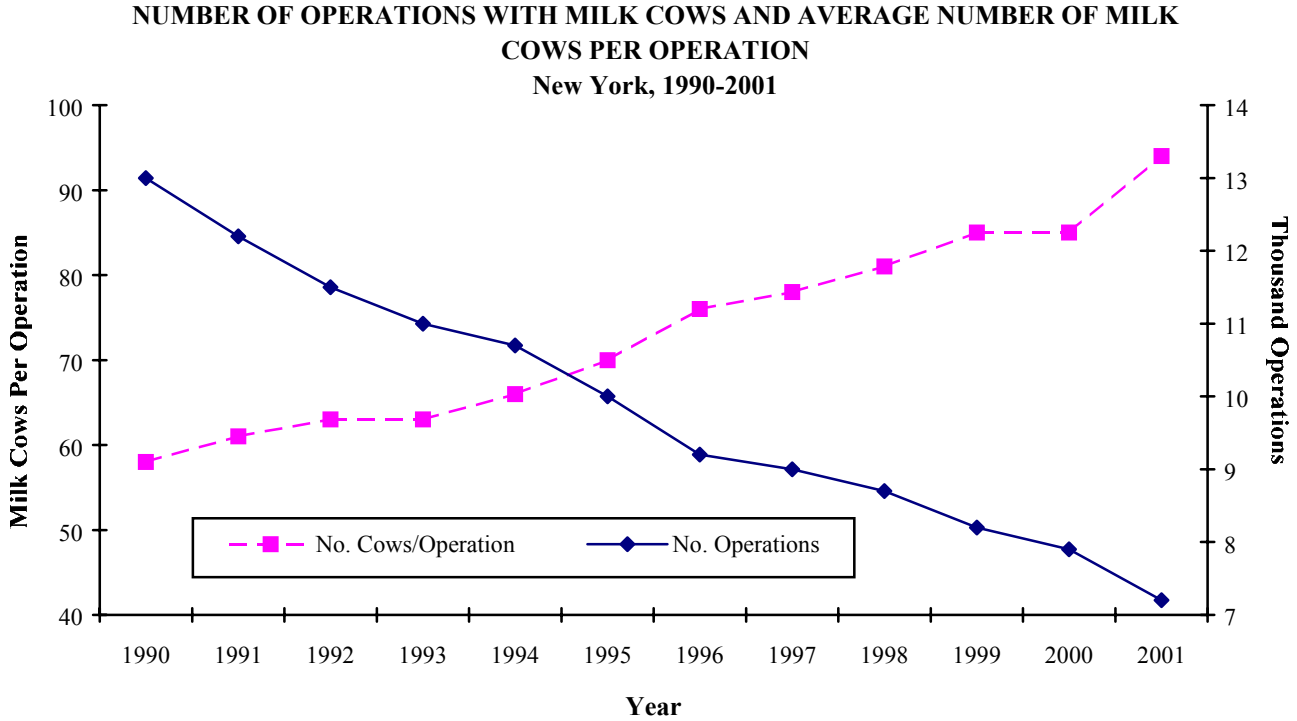


Table A3.

MILK COW OPERATIONS AND MILK COW INVENTORY
by Herd Size, 1990 to 2001

MILK COW OPERATIONS BY HERD SIZE & TOTAL, 1990-2001 (Number of Milk Cows in Herd)						MILK COWS ON FARMS, JAN. 1 BY HERD SIZE & TOTAL, 1991-2002 (Number of Milk Cows in Herd)							
Year	(Number of Operations)					Total	Year	(Thousand Head)					Total
	1-29	30-49	50-99	100-199 ⁸⁷	200 plus			1-29	30-49	50-99	100-199 ⁸⁷	200 plus	
1990	2,650	3,150	5,300	1,900		13,000	1991	27	116	319	288		750
1991	2,500	2,900	5,000	1,800		12,200	1992	24	111	314	291		740
1992	2,600	2,600	4,400	1,900		11,500	1993	22	102	285	190	131	730
1993	2,400	2,500	4,200	1,500	400	11,000	1994	22	87	297	189	130	725
1994	2,400	2,200	4,200	1,500	400	10,700	1995	21	92	277	178	142	710
1995	2,100	2,200	4,000	1,300	400	10,000	1996	19	79	259	189	154	700
1996	1,800	2,000	3,700	1,300	400	9,200	1997	18	73	245	189	175	700
1997	1,700	1,900	3,600	1,300	500	9,000	1998	18	73	238	182	189	700
1998	1,600	1,800	3,500	1,300	500	8,700	1999	14	70	218	189	211	702
1999	1,400	1,600	3,200	1,400	600	8,200	2000	14	63	203	196	224	700
2000	1,400	1,500	3,000	1,400	600	7,900	2001	13	54	194	181	228	670
2001	1,300	1,200	2,800	1,300	600	7,200	2002	13	54	196	182	230	675

⁸⁷100 plus category prior to 1993.

Source: NYASS, New York Agricultural Statistics, 2001-2002

GLOSSARY AND LOCATION OF COMMON TERMS

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

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

Accrual Accounting: (defined on page 11).

Accrual Expenses: (defined on page 13).

Accrual Receipts: (defined on page 13).

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

Appreciation: (defined on page 14).

Asset Turnover Ratio: (defined on page 42).

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

Average Top 10% Farms: Average of 29 farms with highest rate of return on all capital (without appreciation).

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

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

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

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

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

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

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

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

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

Cash Paid: (defined on page 12).

Cash Receipts: (defined on page 13).

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

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

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

Change in Inventory: (defined on page 12).

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

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

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

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

Current (assets and liabilities): Farm inventories and operating capital that usually turnover annually, and the debt associated with their growth and maintenance.

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

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

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

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

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

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

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

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 hayland, including new seedings, harvested once or more as hay or hay crop silage.

Hay Dry Matter: see Dry Matter.

Heifers: Female dairy replacements of all ages.

Hired Labor (expenses): All wages, nonwage compensation, payroll taxes, benefits, and perquisites paid employees.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Net Farm Income: (defined on page 14).

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

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

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

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

Nonfarm Noncash Capital: (defined on page 13).

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

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

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

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

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

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

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

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

Percent 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

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