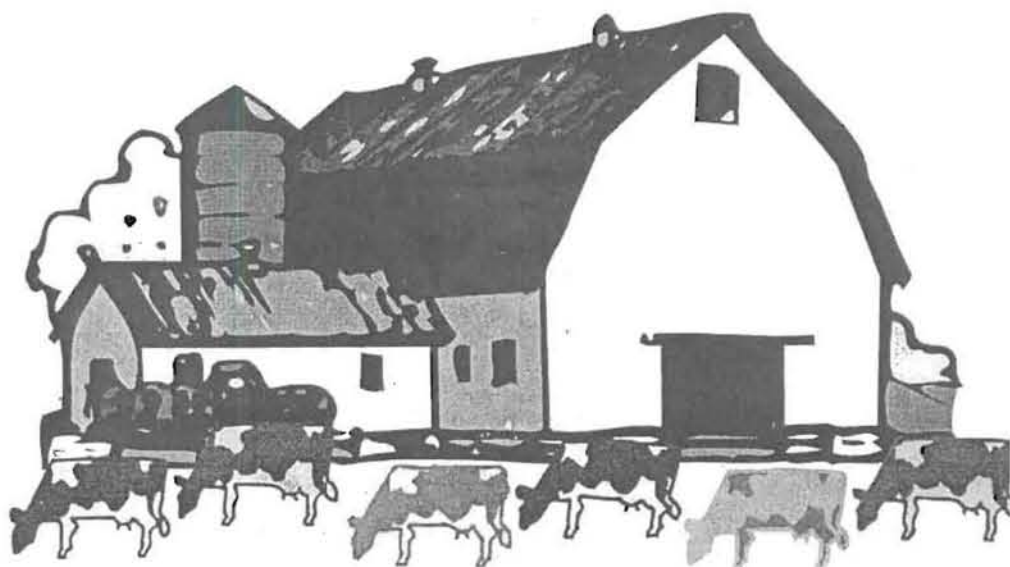


DAIRY FARM MANAGEMENT

AUGUST 1998

R.B. 98-06

BUSINESS SUMMARY NEW YORK STATE 1997



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ABSTRACT

Business and financial records from 253 New York dairy farm businesses are summarized and analyzed. This analysis demonstrates the use of cash accounting and accrual adjustments to measure farm profitability, cash flow, financial performance, and costs of producing milk. Traditional methods of analyzing dairy farm businesses are combined with improved evaluation techniques to show the relationship between good management performance and financial success.

The farms in the project averaged 190 cows per farm and 20,651 pounds of milk sold per cow in 1997, which are above the average size and management level of all 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 \$36,928 per farm. The rate of return including appreciation to all capital invested in the farm business averaged 3.2 percent in 1997.

Differences in profitability between farms continue to widen. The top 10 percent of farms average net farm income excluding appreciation was \$258,543, while the lowest 10 percent was a negative \$74,027. Rates of return on equity with appreciation ranged from 15 percent to negative 241 percent from the highest 10 percent to the lowest 10 percent of farms.

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

Large freestall farms averaged the highest milk output per cow and per worker, the lowest total cost of production and investment per cow, and the greatest returns to labor, management and capital. Farms milking three times a day (3X) were larger, produced more milk per cow and were more profitable than herds milking two times per day (2X). Operating cost per cwt. of milk was \$0.09/cwt. higher for 3X than 2X milking herds.

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INTRODUCTION*

Dairy farm business summary (DFBS) projects are an integral part of Cornell Cooperative Extension's agricultural educational program in New York State. The Department of Agricultural, Resource, and Managerial Economics of the College of Agriculture and Life Sciences at Cornell University, and County Extension staff, cooperate in sponsoring DFBS projects. In 1997, about 300 dairy farms participated. Business records submitted by dairy farmers from 44 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.

Cooperative Extension agents and specialists enroll the cooperators and collect the records. Each cooperator receives a detailed summary and analysis of his or her business. All agents and specialists are using a microcomputer in their offices and/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 44 counties of the State have been combined and the total data set analyzed to determine the status and study the effects of changes in price, technology, and management on dairy farm incomes (Figure 1, page 2). 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 253 specialized dairy farms are included in the main body of this report. These farms do NOT represent the "average" for all dairy farms in the State. Participation was on a voluntary basis, therefore, not all areas or types of operations were equally represented (Figure 1, page 2). Participation averages about 3 percent of the milk cow operations in New York (see Appendix Table A3). The 253 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. Dairy farm renters are summarized separately in the supplemental information section of the publication.

Features

Accrual 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 7. Four measures of farm profits; net farm income, labor and management income, return on equity and all capital, and return to all labor and management are calculated on pages 10 through 12. The balance sheet is presented with the current portion of intermediate and long term debt identified as a current liability, on pages 13 and 14. The statement of owner equity, which shows the interrelationship between farm profitability, non-farm cash flows and net worth is presented on page 15. A detailed cash flow statement, including budgeting data and debt repayment analysis is presented on pages 16 through 18.

The whole farm method of calculating the cost of producing milk is detailed on pages 25 through 31. 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 55 through 59. Specific studies of the performance of dairy farms using bST, rotational grazing and three times (3X) a day milking are presented on pages 62, 65 and 68.

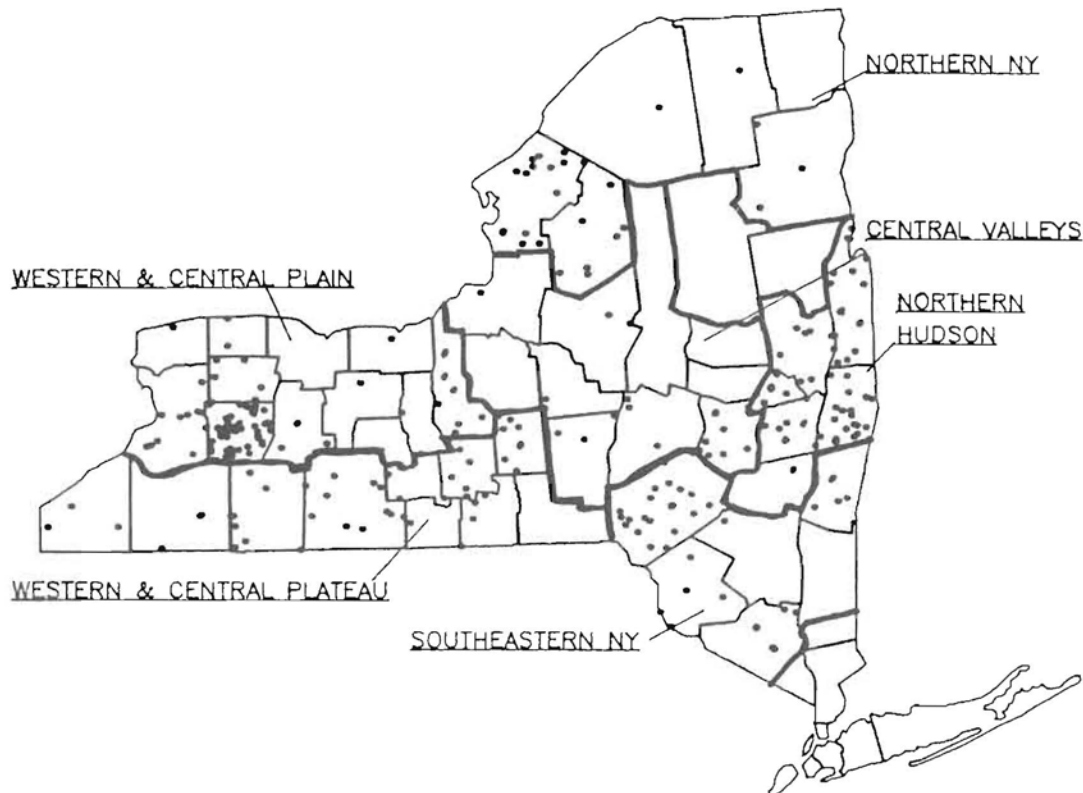
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* This report was written by Wayne A. Knoblach, Professor; and Linda D. Putnam, Extension Support Specialist, in the Department of Agricultural, Resource, and Managerial Economics at Cornell University.

Figure 1.

**LOCATION OF THE 253 NEW YORK DAIRY FARMS
IN THE 1997 DAIRY FARM BUSINESS SUMMARY**



1997 Regional Summary Publications

<u>Region</u>	<u>Publications</u>	<u>Author(s)</u>
Western and Central Plain	E.B. 98-07	Wayne A. Knoblauch, Linda D. Putnam, Jason Karszes, Charles Mentis, George Allhusen and John Hanchar
Northern Hudson	E.B. 98-08	George J. Conneman, Linda D. Putnam, Cathy S. Wickswat, Sandra Buxton & David R. Wood
Western and Central Plateau	E.B. 98-09	Wayne A. Knoblauch, Linda D. Putnam, Carl A. Crispell, Joan S. Petzen, James W. Grace, Andrew N. Dufresne & Greg Albrecht
Southeastern New York	E.B. 98-10	Wayne A. Knoblauch, Linda D. Putnam, Stephen E. Hadcock, Larry R. Hulle, Mariane Kiraly & Joseph J. Walsh
Northern New York	E.B. 98-11	Robert A. Milligan, Linda D. Putnam, George Yarnall, Patricia Beyer, Anita Deming & Bill Van Loo
Central Valleys	E.B. 98-12	Eddy L. LaDue, Stuart F. Smith, Wayne Knoblauch, Doug Bowne, Zaid Kurdieh, Charles Mentis, Charles Z. Radick & Linda D. Putnam

THIRTY YEARS OF NEW YORK STATE DAIRY FARM BUSINESS DATA

Refer to Table 1 on page 4 to see how dairy farming has changed since 1967. Dairy cows per farm increased 273 percent between 1967 and 1997 and more than one-third of that increase occurred in the last 10 years. Milk output per cow increased 71 percent and the largest increase occurred between 1987 and 1997. Labor efficiency is up 41 percent even though there was practically no change from 1967 to 1977, notwithstanding the change to hours actually worked by owner/operator instead of standard 12 months per full-time owner/operator in 1997. The operating cost of producing milk has increased more than 570 percent with the big jump occurring between 1967 and 1977.

There is a large increase in farm capital invested per farm, up 1,183 percent since 1967. Net farm worth excluding deferred taxes has increased 960 percent over the last 30 years. Net farm income per farm has increased three-fold but return on capital has not improved since 1967. Labor and management income per operator is down 122 percent in the last 30 years, well below the 210 percent inflation rate.

FOUR YEARS OF EXTREMES

Recognition and evaluation of the progress that has occurred on DFBS farms can best be achieved by studying the same farms over a period of time. Table 2 presents average data from 146 farms that have been DFBS cooperators each year since 1994. Chart 1 shows the price received for milk in comparison to the operating cost of producing a hundredweight of milk. The high milk price and rising costs in 1996 have provided dairy farmers with extreme variability in the price/cost environment.

Net farm income without appreciation in 1997 was 28 percent below the 1994 average largely due to increasing costs, most notably, feed. However, the previous three years were good years for dairy farm profits with 1996 being an excellent year. Net worth declined by a small amount in 1997, a first in recent history.

The last 4 years have been a period requiring critical decision making and improved management skills on New York dairy farms. However, 1997 has been especially challenging. Yet those farms who controlled costs, especially feed, produced good results in 1997.

Chart 1.

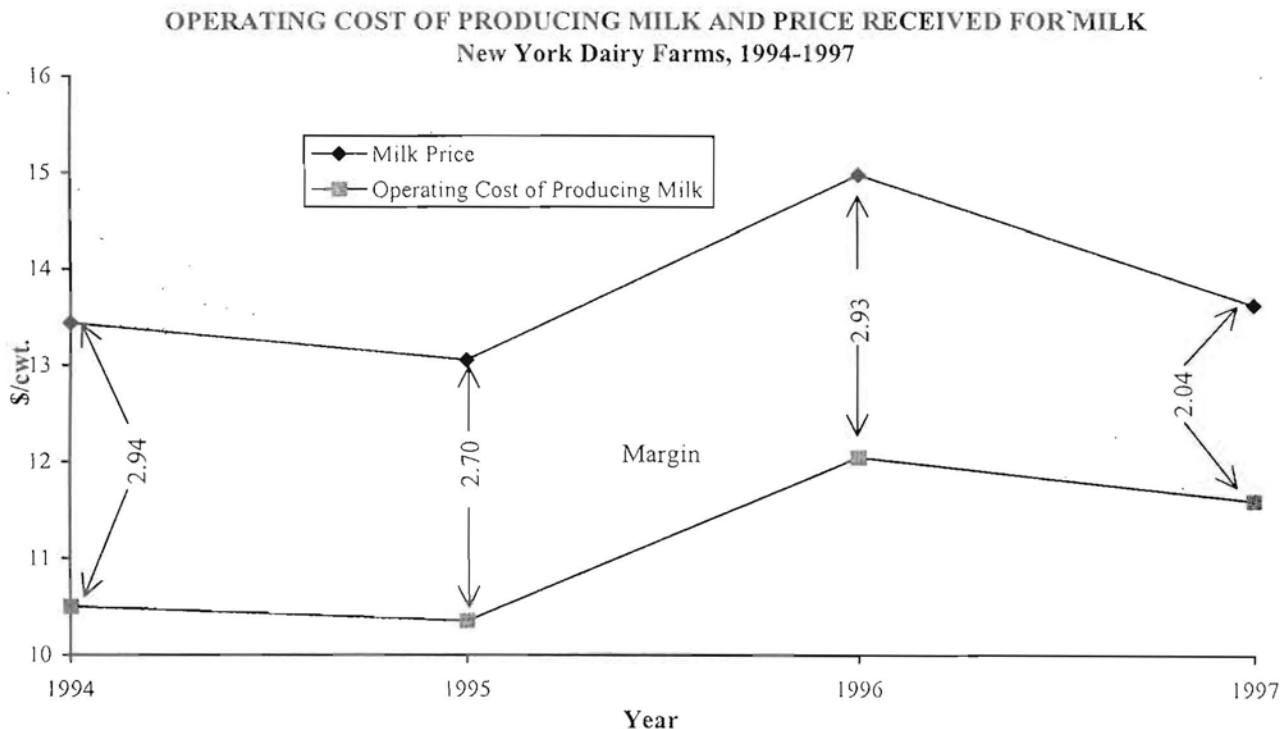


Table 1.

COMPARISON OF FARM BUSINESS SUMMARY DATA
New York Dairy Farms, 1967 - 1997

Selected Factors	1967	1977	1987	1997
Number of farms	548	570	426	253
<u>Size of Business</u>				
Average number of cows	51	71	101	190
Average number of heifers	33	51	79	139
Milk sold, cwt.	6,166	9,648	16,498	39,309
Worker equivalent	1.9	2.5	3.19	5.01***
Total tillable acres	138*	219*	305	462
<u>Rates of Production</u>				
Milk sold per cow, lbs.	12,100	13,600	16,351	20,651
Hay DM per acre, tons	2.6	2.3	2.7	2.5
Corn silage per acre, tons	17.0	14.1	16.2	16.1
<u>Labor Efficiency</u>				
Cows per worker	27	28	32	38***
Milk sold per worker, lbs.	324,500	385,920	516,728	784,604***
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	26%	28%	24%	33%
Dairy feed & crop expense per cwt. milk	\$1.74	\$3.56	\$4.11	\$5.39
Operating cost of producing cwt. milk	\$1.75	\$7.23	\$9.33	\$11.76
Total cost of producing cwt. milk	\$4.86	\$11.09	\$13.55	\$14.71
Milk receipts per cwt. milk	\$5.25	\$9.76	\$12.89	\$13.65
<u>Capital Efficiency</u>				
Total farm capital	\$91,810	\$296,248	\$594,714	\$1,177,289
Farm capital per cow	\$1,800	\$4,003	\$5,894	\$6,196
Machinery & equipment per cow	\$397	\$778	\$1,057	\$1,108
Real estate per cow	\$835	\$2,137	\$2,805	\$2,650
Livestock investment per cow	\$435	\$793	\$1,214	\$1,463
Asset turnover ratio	0.48	0.38	0.46	0.52
<u>Profitability</u>				
Net farm income without appreciation	\$12,089	\$18,175	\$35,192	\$36,928
Net farm income with appreciation	\$13,589	\$22,403	\$58,047	\$47,139
Labor & management income per operator/manager	\$7,511	\$3,049	\$11,042	\$-1,424
Rate of return on:				
Equity capital with appreciation	-----	3.6%	8.1%	0.4%
All capital with appreciation	7.7%	4.6%	8.1%	3.2%
All capital without appreciation	6.0%	3.2%	4.2%	2.4%
<u>Financial Summary, End Year</u>				
Farm net worth	\$64,650**	\$189,104	\$398,209	\$685,665
Change in net worth with appreciation	-----	-----	\$35,023	\$1,446
Debt to asset ratio	0.27**	0.36	0.35	0.43
Farm debt per cow	\$520**	\$1,509	\$2,046	\$2,611

*Acres of cropland harvested.

**Average of 145 dairy farms cooperators submitting financial information in 1966.

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

Table 2.

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 146 New York Dairy Farms, 1994 - 1997

Selected Factors	1994	1995	1996	1997
Milk receipts per cwt. milk	\$ 13.44	\$ 13.05	\$ 14.97	\$ 13.62
<u>Size of Business</u>				
Average number of cows	178	193	208	220
Average number of heifers	137	145	153	164
Milk sold, cwt.	36,844	40,364	43,397	46,989
Worker equivalent	4.71	5.09	5.26*	5.53*
Total tillable acres	440	459	483	504
<u>Rates of Production</u>				
Milk sold per cow, lbs.	20,740	20,901	20,905	21,344
Hay DM per acre, tons	3.1	3.0	2.9	2.6
Corn silage per acre, tons	16	17	16	16
<u>Labor Efficiency</u>				
Cows per worker	38	38	40*	40*
Milk sold per worker, lbs.	782,252	793,009	825,045*	849,707*
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	28%	27%	30%	33%
Dairy feed & crop expense per cwt. milk	\$ 4.60	\$ 4.33	\$ 5.37	\$ 5.30
Operating cost of producing cwt. milk	\$ 10.50	\$ 10.35	\$ 12.04	\$ 11.59
Total cost of producing cwt. milk	\$ 13.59	\$ 13.32	\$ 14.97	\$ 14.34
Hired labor cost per cwt.	\$ 2.00	\$ 1.97	\$ 2.07	\$ 2.06
Interest paid per cwt.	\$ 0.79	\$ 0.89	\$ 0.86	\$ 0.86
Labor & machinery costs per cow	\$ 993	\$ 983	\$ 1,046	\$ 1,030
<u>Capital Efficiency</u>				
Farm capital per cow	\$ 6,321	\$ 6,226	\$ 6,189	\$ 6,197
Machinery & equipment per cow	\$ 1,099	\$ 1,082	\$ 1,068	\$ 1,081
Real estate per cow	\$ 2,772	\$ 2,692	\$ 2,646	\$ 2,623
Livestock investment per cow	\$ 1,506	\$ 1,493	\$ 1,480	\$ 1,483
Asset turnover ratio	0.52	0.51	0.57	0.53
<u>Profitability</u>				
Net farm income without appreciation	\$ 71,583	\$ 69,940	\$ 83,802	\$ 51,737
Net farm income with appreciation	\$ 86,087	\$ 82,315	\$ 96,568	\$ 59,948
Labor & management income per operator/manager	\$ 20,133	\$ 17,269	\$ 24,214	\$ 4,730
Rate return on:				
Equity capital with appreciation	6.3%	5.2%	6.7%	1.8%
All capital with appreciation	6.5%	6.2%	6.9%	4.0%
All capital without appreciation	5.2%	5.1%	6.0%	3.4%
<u>Financial Summary, End Year</u>				
Farm net worth	\$ 717,806	\$ 753,201	\$ 806,177	\$ 804,659
Change in net worth with appreciation	\$ 43,806	\$ 37,216	\$ 52,191	\$ 824
Debt to asset ratio	0.38	0.39	0.39	0.42
Farm debt per cow	\$ 2,398	\$ 2,389	\$ 2,446	\$ 2,564

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

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 1997 are presented in the following table.

Table 3.

BUSINESS CHARACTERISTICS AND RESOURCES USED
253 New York Dairy Farms, 1997

<u>Dairy Livestock (number)</u>	<u>Cows</u>	<u>Heifers</u>	<u>Dairy Records</u>	<u>Number</u>	<u>Percent</u>
Beginning of Year	183	136	D.H.I.C.	171	68
End of Year	198	143	Owner Sampler	28	11
Average for Year	190	139	Other	24	9
			None	30	12
<u>Type of Business</u>	<u>Number</u>	<u>Percent</u>	<u>bST Usage</u>	<u>Number</u>	<u>Percent</u>
Sole Proprietorship	155	61	Used on <25% of herd	25	10
Partnership	77	31	Used on 25-75% of herd	89	35
Corporation	21	8	Used on >75% of herd	8	3
<u>Barn Type</u>	<u>Number</u>	<u>Percent</u>	Stopped using in 1997	15	6
Stanchion	81	32	Not used in 1997	116	46
Freestall	141	56			
Combination	31	12	<u>Labor Force</u>	<u>Average</u>	<u>Percent</u>
<u>Milking System</u>	<u>Number</u>	<u>Percent</u>	Operators	20.0	33
Bucket & Carry	1	0	Family Paid	5.1	9
Dumping Station	3	1	Family Unpaid	3.2	5
Pipeline	100	40	Hired	<u>31.8</u>	<u>53</u>
Herringbone	106	42	Total Months	60.1	100
Other Parlor	43	17			
<u>Milking Frequency</u>	<u>Number</u>	<u>Percent</u>	<u>Operators</u> (total = 405)	<u>Average</u>	
2 times per day	180	71	Age	1.60	
3 times per day	56	22	Education	45	
Other	17	7	Estimated Value of	13 years	
			Labor & Management	\$39,430	
<u>Business Records</u>	<u>Number</u>	<u>Percent</u>			
Account Book	73	29	<u>Land Used</u>	<u>Number</u>	<u>Average</u>
Agifax (mail-in)	25	10	Total acres:		
On-Farm Computer	116	46	Owned	253	412
Other	39	15	Rented	231	247
			Tillable acres:		
			Owned	253	255
			Rented	230	208
			Total	253	462

There were 405 full-time operator equivalents on the 253 dairy farms for an average of 1.60 operators per farm. The operators averaged 45 years of age and 13 years of formal education. Additional data on the labor force is in Table 41.

All 253 farm businesses included in the regular dairy summary own farm real estate. Dairy farm renters are summarized separately later in this publication. However, 230 of the dairy farm owners rented an average of 208 acres of tillable land in 1997. The 253 farms averaged 462 total tillable acres per farm of which 207 acres were rented. Tables 19 and 25 contain additional information on land use and the dairy herd.

Accounting Procedures

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

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

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

Income Statement - Expenses

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

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

Cash and accrual farm expenses are summarized below. Total operating accrual expenses for the 253 farms averaged \$1,414 per day and 92 percent of total farm accrual expenses.

Table 4.

CASH AND ACCRUAL FARM EXPENSES
253 New York Dairy Farms, 1997

Expense Item	Cash Paid	- Change in Inventory or Prepaid Expense	+ Change in Accounts Payable	= Accrual Expenses	Percent
<u>Hired Labor</u>	\$ 77,498	\$-33 <<	\$ 87	\$ 77,617	15
<u>Feed</u>					
Dairy grain & concentrate	170,661	-1,793	3,754	176,207	34
Dairy roughage	5,889	704	629	5,814	1
Nondairy livestock	104	-2	0	107	<1
<u>Machinery</u>					
Machinery hire, rent & lease	10,561	-31 <<	37	10,629	2
Machinery repairs & farm vehicle exp.	26,169	-24	301	26,494	5
Fuel, oil & grease	10,973	-54	66	11,093	2
<u>Livestock</u>					
Replacement livestock	6,950	0 <<	-37	6,913	1
Breeding	5,723	24	75	5,775	1
Veterinary & medicine	15,856	-111	313	16,280	3
Milk marketing	20,439	-11 <<	6	20,456	4
Bedding	6,146	-38	54	6,238	1
Milking Supplies	11,950	-180	135	12,266	2
Cattle lease & rent	1,176	0 <<	-37	1,139	<1
Custom boarding	4,913	0 <<	46	4,958	1
BST expense	8,961	-154 <<	147	9,262	2
Other livestock expense	7,080	-147	18	7,245	1
<u>Crops</u>					
Fertilizer & lime	11,033	-905	868	12,805	3
Seeds & plants	7,736	-264	121	8,121	2
Spray & other crop expense	8,777	82	381	9,076	2
<u>Real Estate</u>					
Land, building & fence repair	7,446	18	198	7,626	1
Taxes	9,044	16 <<	-13	9,015	2
Rent & lease	9,569	71 <<	5	9,504	2
<u>Other</u>					
Insurance	6,402	-13 <<	16	6,431	1
Utilities	13,835	-6 <<	33	13,874	3
Interest paid	35,097	0 <<	196	35,293	7
Miscellaneous	5,555	-93	47	5,696	1
Total Operating	\$ 505,546	\$-2,942	\$ 7,446	\$ 515,934	100
Expansion livestock	\$ 10,426	\$ 0 <<	\$ 119	\$ 10,545	
Machinery depreciation				\$ 22,781	
Building depreciation				\$ 14,435	
TOTAL ACCRUAL EXPENSES				\$ 563,695	

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

Change in inventory represents feeds and supplies purchased this year but not used (positive change), and inputs purchased in a prior year and used this year (negative change). For example, purchased dairy grain and concentrate inventory decreased \$1,793.

Prepaid expenses (noted by « in the table on page 8) are advance payments made for services and noninventory items. For example, advance payments for rent increased an average of \$71 per farm in 1997, and that increase is subtracted from cash rent to determine the correct 1997 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 \$-2,942, and total change in accounts payable equals \$7,446.

Income Statement - Receipts

Cash and accrual farm receipts are presented in the following table. Total cash receipts averaged \$576,406 per farm. Total accrual receipts averaged \$600,623 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 12 head per farm and the homegrown feed inventory per farm increased \$2,902. Homegrown feed inventory per cow decreased \$12 from beginning to end of year.

Table 5.

CASH AND ACCRUAL FARM RECEIPTS 253 New York Dairy Farms, 1997

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts	Percent
Milk sales	\$ 531,664				\$ 4,763		\$ 536,427	89
Dairy cattle	21,952		\$ 16,438		88		38,478	6
Dairy calves	3,660				-5		3,655	1
Other livestock	1,529		183		1		1,713	<1
Crops	4,510		2,902		7		7,418	1
Government receipts	6,925		-99*		-25		6,800	1
Custom machine work	797				-21		776	<1
Gas tax refund	261				-5		256	<1
Other	5,110				164		5,273	1
- Nonfarm noncash capital**			(-) 173				(-) 173	
Total	\$ 576,406		\$ 19,251		\$ 4,966		\$ 600,623	100

*Change in advanced government receipts.

**Gifts or inheritances of cattle or crops included in inventory.

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

Accrual receipts represent the value of all farm commodities produced and services actually provided by the farmer during the year. Increases in livestock inventory caused by herd growth and/or quality, are included. Decreases in inventory caused by herd reduction are deducted. Changes in inventories of crops grown are included. Changes in advanced government receipts are the amount by which government payments received for participating in a future year's program have changed from 1996 to 1997. 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 1997 marketings and the previous January's check, and other delayed payments.

Nonfarm noncash capital are gifts and inheritances of cattle and crops received by the farm owner/operator, and included in inventory or used in the business during the year. They are deducted from growth in inventory and reduce accrual receipts because they came from outside the farm business. Gifts and inheritances of machinery and real estate are accounted for in Table 12.

Profitability Analysis

Farm owners/operators contribute labor, management, and capital to their businesses. The best combination of these resources produces optimum profits. Farm profits can be measured as the return to all family resources or as the return to one or more individual resources such as labor and management.

Net farm income is the total combined return to the farm operator(s) and other unpaid family members for their labor, management and equity capital. It is the farm family's net annual return from working, managing, financing and owning the farm business. This is not a measure of cash available from the year's business operation. Cash flow is evaluated later in this report.

Net farm income is computed with and without appreciation. Appreciation represents the change in farm inventory values caused by changes in prices during the year. Appreciation is a major factor contributing to changes in farm net worth and must be included in the profitability analysis. Net appreciation totaled \$10,211 per farm in 1997. On the average, farm real estate appreciated \$8,626 or less than 2 percent of beginning fair market value. Machinery appreciated approximately 1 percent while dairy cattle prices appreciated negative 1 percent in 1997.

Average data from 25 farms with the highest rates of return to all capital (without appreciation) are compared with the 253 farm average in Table 6 and in many of the following tables. Net farm income with appreciation averaged \$208,513 per farm on the top 10 percent farms, 342 percent above the 253 farm average.

Table 6.

NET FARM INCOME 253 New York Dairy Farms, 1997

Item	Average 253 Farms		Average Top 10% Farms*	
	Per Farm	Per Cow	Per Farm	Per Cow
Total accrual receipts	\$ 600,623		\$ 1,566,299	
+ Appreciation: Livestock	-1,753		-7,720	
Machinery	2,461		-455	
Real Estate	8,626		11,420	
Other Stock & Certificates	<u>877</u>		<u>1,547</u>	
= Total including appreciation	\$ 610,834		\$ 1,571,091	
- Total accrual expenses	<u>563,695</u>		<u>1,362,578</u>	
= Net Farm Income (with appreciation)	\$ 47,139	\$ 248	\$ 208,513	\$ 462
Net Farm Income (without appreciation)	\$ 36,928	\$ 194	\$ 203,721	\$ 452

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

Labor and management income is the share of net farm income without appreciation returned to the operator(s) labor and management. Appreciation is not included as part of the return to labor and management. Labor and management income is determined by deducting the charge for unpaid family labor and the cost of using equity capital at a real interest rate of 5 percent, from net farm income excluding appreciation. The interest charge reflects the long-term average rate of return above inflation that a farmer might expect to earn in comparable risk investments. Operator(s) labor is not included in unpaid family labor.

Labor and management income per operator measures the return to one full-time operator's labor and management. A full-time operator provides 12 months of labor and management.

Table 7.

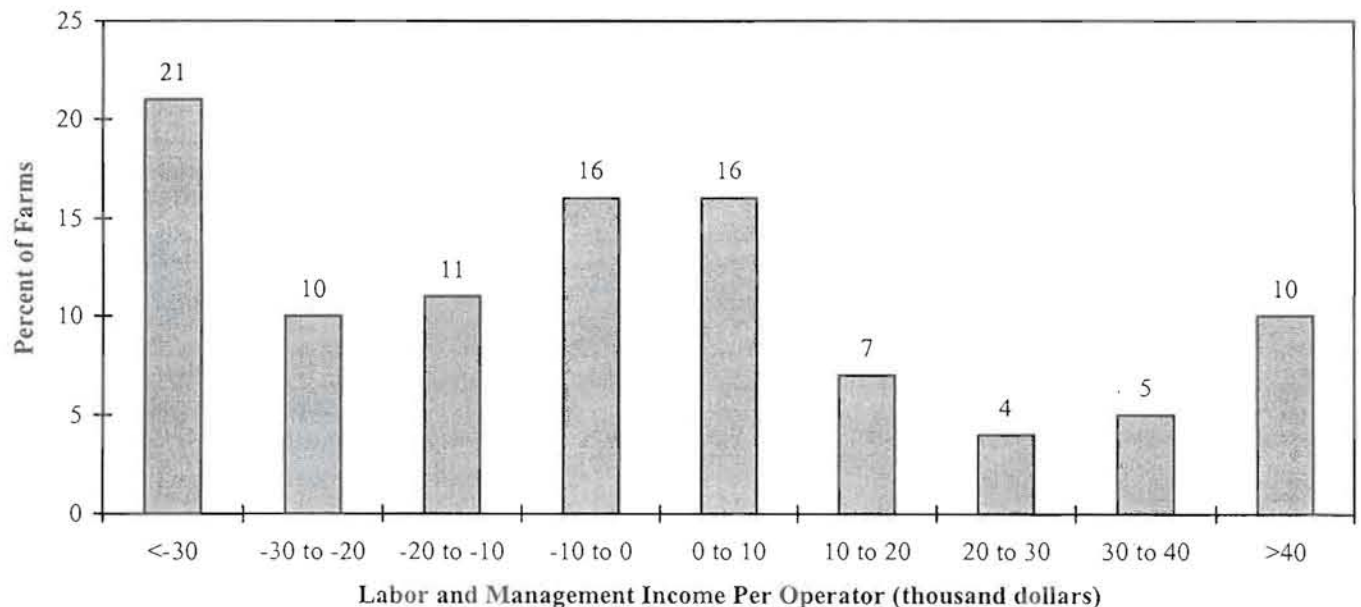
LABOR AND MANAGEMENT INCOME
253 New York Dairy Farms, 1997

Item	Average 253 Farms	Average Top 10% Farms
Net farm income without appreciation	\$ 36,928	\$ 203,721
- Family labor unpaid @ \$1,550 per month	\$ 4,960	\$ 1,550
- Real interest @ 5% on \$684,942 equity capital for average & \$1,393,923 for the top 10%	34,247	69,696
= Labor & Management Income (1.60 operators)	\$ -2,279 (1.82 operators)	\$ 132,475
Labor & Management Income per Operator	\$ -1,424	\$ 72,788

Labor and management income per operator averaged \$-1,424 on these 253 dairy farms in 1997. The range in labor and management income per operator was from less than \$-250,000 to more than \$405,000. Returns to labor and management were negative on 58 percent of the farms. Labor and management income per operator ranged from \$0 to \$19,999 on 23 percent of the farms while 19 percent showed labor and management incomes of \$20,000 or more per operator.

Chart 2.

DISTRIBUTION OF LABOR & MANAGEMENT INCOMES PER OPERATOR
253 New York Dairy Farms, 1997



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. 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.

Table 8.

RETURN TO CAPITAL
253 New York Dairy Farms, 1997

Item	Average 253 Farms	Average Top 10% Farms
Net farm income with appreciation	\$ 47,139	\$ 208,513
- Family labor unpaid at \$1,550 per month	4,960	1,550
- Value of operators' labor & management	39,430	54,520
= Return to equity capital with appreciation	\$ 2,749	\$ 152,443
+ Interest paid	35,293	78,999
= Return to all capital with appreciation	\$ 38,042	\$ 231,442
Return to equity capital without appreciation	\$ -7,462	\$ 147,651
Return to all capital without appreciation	\$ 27,831	\$ 226,650
Rate of return on average equity capital:		
with appreciation	0.4%	10.9%
without appreciation	-1.1%	10.6%
Rate of return on all capital:		
with appreciation	3.2%	9.2%
without appreciation	2.4%	9.0%

Return to all labor and management is another measure of profitability of a business that can be calculated. It is calculated by adding the charge for unpaid family labor and the hired labor expense to labor and management income. Table 9 shows that farms with higher return to all capital with appreciation also had significantly higher return per hour to all labor and management.

Table 9.

**RETURNS TO ALL LABOR AND MANAGEMENT BY RETURN
TO ALL CAPITAL WITH APPRECIATION**
253 New York Dairy Farms, 1997

Item	Quartile by Return to All Capital With Appreciation			
	Lowest 25%	3rd 25%	2nd 25%	Top 25%
Return to all capital with appreciation	\$ -45,559	\$ -1,623	\$ 27,026	\$ 173,768
Rate of return on all capital with appreciation	-5.6%	-0.3%	3.0%	7.2%
Total returns to all labor & management	\$ -14,568	\$ 12,879	\$ 53,893	\$ 270,493
Worker equivalent	3.83	2.87	4.02	9.32
Return per worker equivalent	\$ -3,804	\$ 4,487	\$ 13,406	\$ 29,023
Returns/hour (3,000 hours/worker/year)	\$ -1.27	\$ 1.50	\$ 4.47	\$ 9.67

Farm and Family Financial Status

Evaluating the financial status of the farm business and the farm family is an important part of business analysis. The first step is to inventory all the assets, determine all liabilities and fill out the balance sheet. The second step is to analyze the complete balance sheet by evaluating the relationships between assets and liabilities and changes made during the year.

Table 10.

1997 FARM BUSINESS AND NONFARM BALANCE SHEET 253 New York Dairy Farms, 1997

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$ 7,453	\$ 7,359	Accounts payable	\$ 18,212	\$ 25,777
Accounts receivable	39,935	44,901	Operating debt	29,023	37,018
Prepaid expenses	794	788	Short term	4,108	5,518
Feed & supplies	109,611	109,577	Advanced gov't. receipt	49	147
Total Current	\$ 157,793	\$ 162,625	Current portion:		
			Intermediate	30,677	36,520
			Long term	11,518	12,517
			Total Current	\$ 93,588	\$ 117,496
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy Cows:			Structured debt		
owned	\$ 186,874	\$ 197,629	1-10 years	\$ 155,218	\$ 176,349
leased	1,726	877	Financial lease		
Heifers	80,078	84,001	(cattle & machinery)	13,104	10,414
Bulls & other livestock	2,283	2,473	Farm Credit stock	5,385	5,326
Mach. & equip. owned	193,207	206,980	Total Intermediate	\$ 173,707	\$ 192,089
Mach. & equip. leased	11,378	9,537			
Farm Credit stock	5,385	5,326	<u>Long Term</u>		
Other stock & certificates	20,075	19,199	Structured debt		
Total Intermediate	\$ 501,006	\$ 526,022	≥ 10 years	\$ 198,243	\$ 205,502
<u>Long Term</u>			Financial lease		
Land & buildings:			(structures)	2,194	1,875
owned	\$ 490,958	\$ 512,105	Total Long Term	\$ 200,437	\$ 207,377
leased	2,194	1,875			
Total Long Term	\$ 493,152	\$ 513,980	Total Farm Liabilities	\$ 467,732	\$ 516,962
Total Farm Assets	\$ 1,151,951	\$ 1,202,627	FARM NET WORTH	\$ 684,219	\$ 685,665
<u>Nonfarm Assets*</u>	<u>Jan. 1</u>	<u>Dec. 31</u>	<u>Nonfarm Liabilities*</u>	<u>Jan. 1</u>	<u>Dec. 31</u>
Personal cash, checking & savings	\$ 5,142	\$ 5,123	Nonfarm Liabilities	\$ 3,963	\$ 3,872
Cash value life insurance	11,382	12,199	NONFARM NET WORTH	\$ 74,270	\$ 81,875
Nonfarm real estate	31,053	33,531			
Auto (personal share)	4,319	4,630	<u>FARM & NONFARM**</u>	<u>Jan. 1</u>	<u>Dec. 31</u>
Stocks & bonds	9,029	11,023	Total Assets	\$ 1,230,184	\$ 1,288,374
Household furnishings	9,286	9,600	Total Liabilities	471,695	520,834
All other	8,022	9,641			
Total Nonfarm	\$ 78,233	\$ 85,747	TOTAL FARM & NON- FARM NET WORTH	\$ 758,489	\$ 767,540

*Average of 137 farms completing the nonfarm balance sheet.

**Sum of average farm values for 253 farms and nonfarm values for 137 farms.

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

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

Table 11.

FARM BALANCE SHEET ANALYSIS
253 New York Dairy Farms, 1997

Item	Average 253 Farms	Average Top 10% Farms		
<u>Farm Financial Ratios:</u>				
Percent equity	57%	56%		
Debt/asset ratio: total	0.43	0.44		
long term	0.40	0.40		
intermediate & current	0.45	0.47		
<u>Farm Debt Analysis:</u>				
Accounts payable as % of total debt	5%	4%		
Long term liab. as % of total debt	40%	35%		
Current & intermediate liabilities as % of total debt	60%	65%		
<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	\$2,611	\$2,027	\$2,449	\$2,241
Long term debt	1,047	813	858	786
Intermediate & long term	2,018	1,567	1,740	1,592
Intermediate & current debt	1,564	1,214	1,591	1,456

The farm inventory balance accounts for the changes in the values of major farm assets from the beginning to the end of the year.

Table 12.

FARM INVENTORY BALANCE
253 New York Dairy Farms, 1997

Item	Real Estate	Machinery & Equipment	Livestock
Value beginning of year	\$ 490,958	\$ 193,207	\$ 269,235
Purchases	\$ 38,477*	\$ 35,351	
+ nonfarm noncash transfer**	397	148	
- Lost capital	10,443		
- Net sales	1,474	1,406	
- Depreciation	14,435	22,781	
= Net Investment	12,521	11,312	16,621
+ Appreciation	8,626	2,461	-1,753
Value end of year	\$ 512,105	\$ 206,980	\$ 284,103

*\$5,358 land and \$33,119 buildings and/or depreciable improvements.

**Gifts and inheritances of property transferred into the farm business from outside.

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

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

Table 13.

STATEMENT OF OWNER EQUITY (RECONCILIATION)
253 New York Dairy Farms, 1997

Item	Average 253 Farms	Average Top 10% Farms
Beginning of year farm net worth	\$ 684,219	\$ 1,362,105
Net farm income without appreciation	\$ 36,928	\$203,721
+ Nonfarm cash income	9,443	8,805
- Personal withdrawals & family expenditures excluding nonfarm borrowings	<u>45,051</u>	<u>95,944</u>
RETAINED EARNINGS	+ \$ 1,320	+ \$ 116,582
Nonfarm noncash transfers to farm	\$ 718	\$ 0
+ Cash used in business from nonfarm capital	189	-41,935
- Note or mortgage from farm real estate sold (nonfarm)	<u>305</u>	<u>0</u>
CONTRIBUTED/WITHDRAWN CAPITAL	+ \$ 602	+ \$ -41,935
Appreciation	\$ 10,211	\$ 4,792
- Lost capital	<u>10,443</u>	<u>15,387</u>
CHANGE IN VALUATION EQUITY	+ \$ -232	+ \$ -10,595
IMBALANCE/ERROR	- \$ 244	- \$ 416
End of year farm net worth*	\$ 685,665	\$ 1,425,741
<u>Change in Net Worth</u>		
Without appreciation	\$-8,765	\$58,844
With appreciation	\$ 1,446	\$63,636

*May not add due to rounding.

Cash Flow Summary and Analysis

Completing an annual cash flow statement is an important step in understanding 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 14.

ANNUAL CASH FLOW STATEMENT 253 New York Dairy Farms, 1997

Item	Average 253 Farms		
<u>Cash Flow from Operating Activities</u>			
Cash farm receipts	\$ 576,406		
- Cash farm expenses	<u>505,546</u>		
= Net cash farm income		\$ 70,860	
Personal withdrawals & family expenses including nonfarm debt payments	\$ 45,364		
- Nonfarm income	<u>9,443</u>		
- Net cash withdrawals from the farm		<u>\$ 35,921</u>	
= Net Provided by Operating Activities			\$ 34,939
<u>Cash Flow From Investing Activities</u>			
Sale of assets: machinery	\$ 1,406		
+ real estate	1,169		
+ other stock & certificates	<u>5,335</u>		
= Total asset sales		\$ 7,910	
Capital purchases: expansion livestock	\$ 10,426		
+ machinery	35,351		
+ real estate	38,477		
+ other stock & certificates	<u>3,582</u>		
- Total invested in farm assets		<u>\$ 87,836</u>	
+ Net Provided by Investment Activities			\$ -79,926
<u>Cash Flow From Financing Activities</u>			
Money borrowed (intermediate & long term)	\$ 88,145		
+ Money borrowed (short term)	3,602		
+ Increase in operating debt	7,994		
+ Cash from nonfarm capital used in business	189		
+ Money borrowed - nonfarm	<u>313</u>		
= Cash inflow from financing		\$ 100,243	
Principal payments (intermediate & long term)	\$ 52,914		
+ Principal payments (short term)	2,193		
+ Decrease in operating debt	<u>0</u>		
- Cash outflow for financing		<u>\$ 55,107</u>	
= Net Provided by Financing Activities			\$ 45,136
<u>Cash Flow From Reserves</u>			
Beginning farm cash, checking & savings		\$ 7,453	
- Ending farm cash, checking & savings		<u>\$ 7,359</u>	
= Net Provided from Reserves			\$ 94
<u>Imbalance (error)</u>			\$ 243

Table 15.

ANNUAL CASH FLOW BUDGETING DATA
253 New York Dairy Farms, 1997

Item	Average 253 Farms			Average Top 10% Farms		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Average number of cows and cwt. milk		190	39,309		451	100,741
<u>Accrual Operating Receipts</u>						
Milk	\$ 536,427	\$2,823	\$ 13.65	\$ 1,371,836	\$ 3,042	\$ 13.62
Dairy cattle	38,478	203	0.98	106,510	236	1.06
Dairy calves	3,655	19	0.09	9,194	20	0.09
Other livestock	1,713	9	0.04	4,600	10	0.05
Crops	7,418	39	0.19	47,206	105	0.47
Miscellaneous receipts	12,932	68	0.33	26,953	60	0.27
Total	\$ 600,623	\$3,161	\$ 15.28	\$ 1,566,299	\$ 3,473	\$ 15.55
<u>Accrual Operating Expenses</u>						
Hired labor	\$ 77,617	\$409	\$ 1.97	\$ 234,736	\$ 520	\$ 2.33
Dairy grain & concentrate	176,207	927	4.48	449,931	998	4.47
Dairy roughage	5,814	31	0.15	9,428	21	0.09
Nondairy feed	107	1	0.00	0	0	0.00
Machinery hire, rent & lease	10,629	56	0.27	26,357	58	0.26
Machinery repairs & vehicle expense	26,494	139	0.67	52,959	117	0.53
Fuel, oil & grease	11,093	58	0.28	23,067	51	0.23
Replacement livestock	6,913	36	0.18	16,186	36	0.16
Breeding	5,775	30	0.15	12,884	29	0.13
Vet & medicine	16,280	86	0.41	44,777	99	0.44
Milk marketing	20,456	108	0.52	44,612	99	0.44
Bedding	6,238	33	0.16	20,273	45	0.20
Milking supplies	12,266	65	0.31	30,890	68	0.31
Cattle lease	1,139	6	0.03	6,201	14	0.06
Custom boarding	4,958	26	0.13	7,219	16	0.07
bST expense	9,262	49	0.24	30,471	68	0.30
Other livestock expense	7,245	38	0.18	10,290	23	0.10
Fertilizer & lime	12,805	67	0.33	23,304	52	0.23
Seeds & plants	8,121	43	0.21	17,196	38	0.17
Spray/other crop expense	9,076	48	0.23	17,271	38	0.17
Land, building & fence repair	7,626	40	0.19	20,250	45	0.20
Taxes	9,015	47	0.23	15,122	34	0.15
Real estate rent & lease	9,504	50	0.24	20,601	46	0.20
Insurance	6,431	34	0.16	12,697	28	0.13
Utilities	13,874	73	0.35	30,839	68	0.31
Miscellaneous	5,696	30	0.14	13,722	30	0.14
Total Less Interest Paid	\$ 480,641	\$2,530	\$ 12.23	\$ 1,191,285	\$ 2,641	\$ 11.83
<u>Net Accrual Operating Income</u>						
(without interest paid)	\$ 119,982	\$631	\$ 3.05	\$ 375,014	\$ 832	\$ 3.72
- Change in livestock & crop inventory	19,251	101	0.49	88,953	197	0.88
- Change in accounts receivable	4,966	26	0.13	10,497	23	0.10
- Change in feed & supply inventory	-2,942	-15	-0.07	-1,259	-3	-0.01
+ Change in accounts payable*	7,250	38	0.18	13,199	29	0.13
NET CASH FLOW	\$ 105,957	\$558	\$ 2.70	\$ 290,023	\$ 643	\$ 2.88
- Net personal withdrawals & family exp.	35,608	187	0.91	87,139	193	0.86
Available for Farm Debt Payments & Invest.	\$ 70,349	\$370	\$ 1.79	\$ 202,884	\$ 450	\$ 2.01
- Farm debt payments	88,922	468	2.26	197,232	437	1.96
Cash available for Farm Investments	\$ -18,573	\$-98	\$ -0.47	\$ 5,652	\$ 13	\$ 0.06

*Exclude change in interest account payable.

Repayment Analysis

The second step in cash flow planning 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 for farms that completed summaries for both 1996 and 1997.

Table 16.

FARM DEBT PAYMENTS PLANNED New York Dairy Farms, 1997

Debt Payments	Same 211 Dairy Farms			Same 23 Top 10% Farms		
	1997 Payments		Planned 1998	1997 Payments		Planned 1998
	Planned	Made		Planned	Made	
Long term	\$ 30,374	\$ 41,122	\$ 32,351	\$ 72,756	\$ 117,191	\$ 73,529
Intermediate term	48,339	51,207	54,708	101,916	92,676	109,064
Short term	2,420	2,420	3,644	587	0	787
Operating (net reduction)	2,207	0	4,111	1,565	0	7,522
Accts. payable (net reduction)	1,485	0	2,879	87	0	6,826
Total	\$ 84,825	\$ 94,749	\$ 97,693	\$ 176,911	\$ 209,867	\$ 197,728
Per cow	\$ 435	\$ 486		\$ 369	\$ 437	
Per cwt. 1997 milk	\$ 2.08	\$ 2.33		\$ 1.64	\$ 1.95	
% of 1997 milk receipts	15%	17%		12%	14%	

The cash flow coverage ratio measures the ability of the farm business to meet its planned debt payments. The ratio shows the number of times the amount available for debt service in 1997 covered debt payments planned for 1997 (as of December 31, 1996).

Table 17.

CASH FLOW COVERAGE RATIO New York Dairy Farms, 1997

Item	Same 211 Dairy Farms	Same 23 Top 10% Farms
Cash farm receipts	\$ 595,552	\$ 1,570,159
- Cash farm expenses	522,545	1,344,090
+ Interest paid	36,850	82,248
- Net personal withdrawals from farm*	37,521	91,189
(A) = Amount Available for Debt Service	\$ 72,336	\$ 217,128
(B) = Debt Payments Planned for 1997	84,825	176,911
(A ÷ B) = Cash Flow Coverage Ratio for 1997	0.85	1.23

*Personal withdrawals and family expenditures less nonfarm income and nonfarm money borrowed. If excluded, the cash flow coverage ratio will be incorrect.

A 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, 30 percent of the farms had a cash flow coverage ratio less than 1.0.

Table 18.

DEBT TO ASSET RATIO VS. CASH FLOW COVERAGE 211 New York Dairy Farms, 1997

Debt/Asset Ratio	Cash Flow Coverage Ratio (Farm & Nonfarm)			
	<.5	.5 to .99	1 to 1.49	≥1.5
	percent of farms			
<40%	13.3	17.0	12.3	9.0
40 to 70%	10.0	17.0	10.4	2.4
70% & over	4.3	3.3	0.5	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 producing and what it costs to produce them, is required to evaluate alternative cropping and feed purchase choices.

Table 19.

LAND RESOURCES AND CROP PRODUCTION 253 New York Dairy Farms, 1997

Item	Average 253 Farms			Average Top 10% Farms		
	<u>Owned</u>	<u>Rented</u>	<u>Total</u>	<u>Owned</u>	<u>Rented</u>	<u>Total</u>
<u>Land</u>						
Tillable	255	207	462	507	330	838
Nontillable	46	13	59	67	16	82
Other nontillable	<u>111</u>	<u>6</u>	<u>117</u>	<u>139</u>	<u>4</u>	<u>142</u>
Total	412	226	638	713	349	1,062
 <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	249	223	2.5 tn DM	24	356	3.1 tn DM
Corn silage	235	168	16.0 tn	23	390	18.2 tn
			5.1 tn DM			5.7 tn DM
Other forage	30	35	1.5 tn DM	3	74	1.2 tn DM
Total forage	249	385	3.5 tn DM	24	739	4.4 tn DM
 Corn grain	102	98	105 bu	11	103	105 bu
Oats	26	34	59 bu	0	0	0 bu
Wheat	23	59	58 bu	3	130	72 bu
Other crops	48	84		4	380	
Tillable pasture	65	45		3	26	
Idle	48	38		3	25	

Crop acres and yields compiled for the average represent only the number of farms reporting each crop. All but 4 of the 253 farms produced hay or hay crop silage in 1997. Ninety-three percent produced corn silage, 40 percent grew and harvested corn grain, and 10 percent grew oats for grain. Although 65 farms used tillable pasture in 1997, only 44 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 20.

CROP MANAGEMENT FACTORS 253 New York Dairy Farms, 1997

Item	Average 253 Farms	Average Top 10% Farms
Total tillable acres per cow	2.43	1.86
Total forage acres per cow	1.99	1.57
Harvested forage dry matter, tons per cow	7.07	6.89

In the fifth year of collecting information on pasture costs, 9 cooperators provided pasture-related expenses. Fifty-four cooperators allocated direct crop related expenses to hay crop, corn and other crop production. The data in Table 21 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 21, the total per tillable acre represents all 253 farms, the expenses for hay and corn crops are for the 54 farms, and the pasture costs are for the 9 farms which submitted data.

Table 21.

CROP RELATED ACCRUAL EXPENSES
New York Dairy Farms, 1997

Expenses	Average 253 Farms	Average 54 Farms Reporting Crop Costs					Average 9 Farms	
	Total per Tillable Acre	Hay Crop		All Corn Per Acre	Corn Silage Per Ton DM	Corn Grain Per Dry Shell Bu.	Pasture	
		Per Acre	Per Ton DM				Per Till. Acre	Per Total Acre
Fertilizer & lime	\$27.72	\$16.75	\$6.60	\$37.18	\$7.43	\$0.35	\$50.95	\$11.00
Seeds & plants	17.58	10.30	4.06	28.71	5.73	0.27	19.47	4.20
Spray & other crop exp.	<u>19.65</u>	<u>6.11</u>	<u>2.41</u>	<u>42.54</u>	<u>8.50</u>	<u>0.40</u>	<u>0.00</u>	<u>0.00</u>
Total	\$64.95	\$33.16	\$13.07	\$108.43	\$21.66	\$1.02	\$70.42	\$15.20
Ave. Top 10% Farms:		Average 8 Farms Reporting Crop Costs						
Fertilizer & lime	\$27.81	\$16.70	\$5.50	\$36.33	\$7.26	\$0.44		
Seeds & plants	20.52	9.88	3.25	23.08	4.61	0.28		
Spray & other crop exp.	<u>20.61</u>	<u>7.72</u>	<u>2.54</u>	<u>40.89</u>	<u>8.17</u>	<u>0.50</u>		
Total	\$68.94	\$34.30	\$11.29	\$100.30	\$20.04	\$1.22		

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

Table 22.

ACCRUAL MACHINERY EXPENSES
253 New York Dairy Farms, 1997

Machinery Expense Item	Average 253 Farms		Average Top 10% Farms	
	Total Expenses	Per Til. Acre	Total Expenses	Per Til. Acre
Fuel, oil & grease	\$11,093	\$24.01	\$23,067	\$27.53
Machinery repairs & vehicle expense	26,494	57.35	52,959	63.20
Machine hire, rent & lease	10,629	23.01	26,357	31.45
Interest (5%)	10,528	22.79	18,968	22.63
Depreciation	<u>22,781</u>	<u>49.31</u>	<u>48,585</u>	<u>57.98</u>
Total	\$81,525	\$176.46	\$169,936	\$202.79

Table 23.

CROP RELATED ACCRUAL EXPENSES BY HAY CROP PRODUCTION PER ACRE
54 New York Dairy Farms, 1997

Item	Tons of Hay Crop Dry Matter Per Acre				
	<2.0	2.0-2.4	2.5-2.9	3.0-3.4	≥3.5
Hay crop, tons DM/acre	1.5	2.2	2.8	3.3	4.1
Farms reporting crop expense breakdowns	12	18	11	8	5
Average number hay crop acres for farms reporting	116	221	284	240	226
<u>Accrual Crop Expenses</u>					
<u>Per Acre of Hay Crop:</u>					
Fertilizer & lime	\$ 19.84	\$ 11.91	\$ 24.71	\$ 16.54	\$ 8.52
Seeds & plants	12.37	6.81	13.18	10.10	12.51
Spray & other crop expenses	4.69	3.85	6.49	5.08	16.63
Total	\$ 36.90	\$ 22.57	\$ 44.38	\$ 31.72	\$ 37.66
<u>Accrual Crop Expense</u>					
<u>Per Ton DM of Hay Crop:</u>					
Fertilizer & lime	\$ 7.50	\$ 5.52	\$ 11.62	\$ 4.85	\$ 1.73
Seeds & plants	4.67	3.16	6.20	2.96	2.54
Spray & other crop expenses	1.77	1.78	3.05	1.49	3.38
Total	\$ 13.94	\$ 10.46	\$ 20.87	\$ 9.30	\$ 7.65

Table 24.

CROP RELATED ACCRUAL EXPENSES BY CORN PRODUCTION PER ACRE
54 New York Dairy Farms, 1997

Item	Tons Corn Silage/Acre			Dry Shell Bushels of Corn Grain Per Acre		
	<13	13-18	≥18	<88	88-113	≥113
Corn yield per acre	10.7	15.4	19.8	75	98	129
Farms reporting crop expense breakdowns	10	30	13	11	7	10
Average number corn acres for farms reporting	211	211	201	296	144	347
<u>Accrual Crop Expense/Acre of Corn</u>						
Fertilizer & lime	\$ 47.46	\$ 36.08	\$ 31.33	\$ 47.56	\$ 26.60	\$ 32.92
Seeds & plants	27.05	25.70	36.82	31.67	26.72	30.34
Spray & other crop expenses	46.17	38.14	49.79	41.09	61.13	39.86
Total	\$ 120.68	\$ 99.92	\$ 117.94	\$ 120.32	\$ 114.45	\$ 103.12
<u>Accrual Crop Expense Per:*</u>						
	Ton DM of Corn Silage			Dry Shell Bushel of Corn Grain		
Fertilizer & lime	\$ 13.10	\$ 7.40	\$ 4.86	\$ 0.71	\$ 0.27	\$ 0.25
Seeds & plants	7.47	5.27	5.72	0.47	0.27	0.23
Spray & other crop expense	12.74	7.82	7.73	0.61	0.63	0.31
Total	\$ 33.31	\$ 20.49	\$ 18.31	\$ 1.79	\$ 1.17	\$ 0.79

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

From the above two tables, it is important to observe that as forage yields per acre increase, crop related expenses per acre generally also increase. For corn silage and corn grain, crop expense per ton of dry matter and per bushel are highest at the low levels of production. Hay crop expenses per ton of dry matter decrease substantially as yields exceed 3.0 tons per acre. The lower dry matter costs on the farms with greater than 3.0 tons per acre can be attributed to significantly higher yields with controlled expenses per acre.

Dairy Program Analysis

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

Table 25.

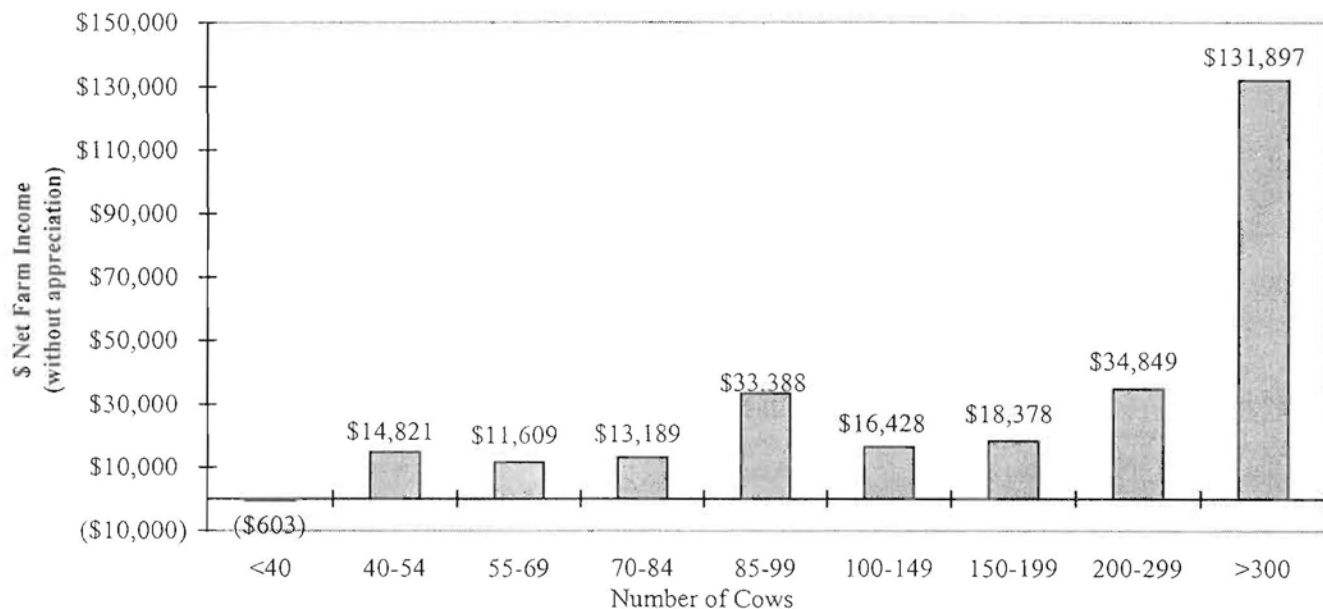
DAIRY HERD INVENTORY 253 New York Dairy Farms, 1997

Item	Dairy Cows		Bred		Heifers		Calves	
	No.	Value	No.	Value	No.	Value	No.	Value
Beg. year (owned)	183	\$ 186,874	50	\$ 44,509	48	\$ 24,985	38	\$ 10,584
+ Change w/o apprec.		12,070		2,497		1,364		508
+ Appreciation		-1,315		-222		-177		-47
End year (owned)	195	\$ 197,629	53	\$ 46,784	50	\$ 26,172	40	\$ 11,045
End including leased	198							
Average number	190		139	(all age groups)				
<u>Average Top 10% Farms:</u>								
Beg. year (owned)	427	\$ 426,578	117	\$ 97,898	122	\$ 58,126	73	\$ 20,448
+ Change w/o apprec.		28,468		13,175		6,157		-1,241
+ Appreciation		-4,815		-1,116		-1,446		-382
End year (owned)	453	\$ 450,231	130	\$ 109,957	125	\$ 62,837	69	\$ 18,825
End including leased	464							
Average number	451		317	(all age groups)				

There is a strong relationship between farm size and farm income on well managed dairy farms. When data are sorted by herd size categories this relationship becomes apparent as shown in Chart 3. Net farm income increased \$132,500 while labor and management income per operator jumped \$37,471 as herd size increased from less than 40 to over 300 cows per farm. For more information on herd size comparisons, see pages 42-51.

Chart 3.

NET FARM INCOME (WITHOUT APPRECIATION) BY HERD SIZE 253 New York Dairy Farms, 1997



Total milk sold and milk sold per cow are extremely valuable measures of productivity on the dairy farm. These measures of milk output are based on pounds of milk marketed during the year.

Table 26.

MILK PRODUCTION
253 New York Dairy Farms, 1997

Item	Average 253 Farms	Average Top 10% Farms
Total milk sold, lbs.	3,930,866	10,074,130
Milk sold per cow, lbs.	20,651	22,325
Average milk plant test, percent butterfat	3.69	3.68

Farms with higher rates of production tend to have higher profits. In 1997, most of the farms that sold more than 20,000 pounds of milk per cow had above average profit margins.

Table 27.

MILK SOLD PER COW AND FARM INCOME MEASURES
253 New York Dairy Farms, 1997

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 14,000	21	70	\$-1,016	\$-15	\$-18,529
14,000 to 15,999	35	97	-535	-6	-14,121
16,000 to 16,999	13	99	-11,613	-117	-31,511
17,000 to 17,999	29	108	14,912	138	-9,086
18,000 to 18,999	33	123	2,748	22	-21,723
19,000 to 19,999	20	152	38,977	256	-687
20,000 to 20,999	27	229	50,872	222	7,006
21,000 to 21,999	28	206	48,285	234	5,333
22,000 & over	47	421	117,135	278	24,084

The relationship between milk output per cow and net farm income on all dairy farms is shown in Table 27 above and is diagrammed in Charts 4 and 5 on page 24. Each spot on each scatter diagram represents one of the 253 farms.

Data in Chart 4 and Table 27 show that as milk sold per cow increased from 8,000 to 18,000 pounds, there was an increase in net farm income and the variation was \$150,000 or less at each production level. As milk output exceeded 19,000 pounds per cow, average net farm income increased rapidly and net farm income variability exceeded \$400,000 at some levels of milk output.

The relationship between milk output per cow and net farm income per cow is presented in Chart 5 and Table 27. Profitability measured as net farm income per cow rather than per farm removes the influence of herd size and also shows a positive relationship with milk sold per cow. The majority of the farms that achieved \$1,000 or more of net farm income per cow sold between 20,000 and 27,000 pounds of milk per cow.

Chart 4.

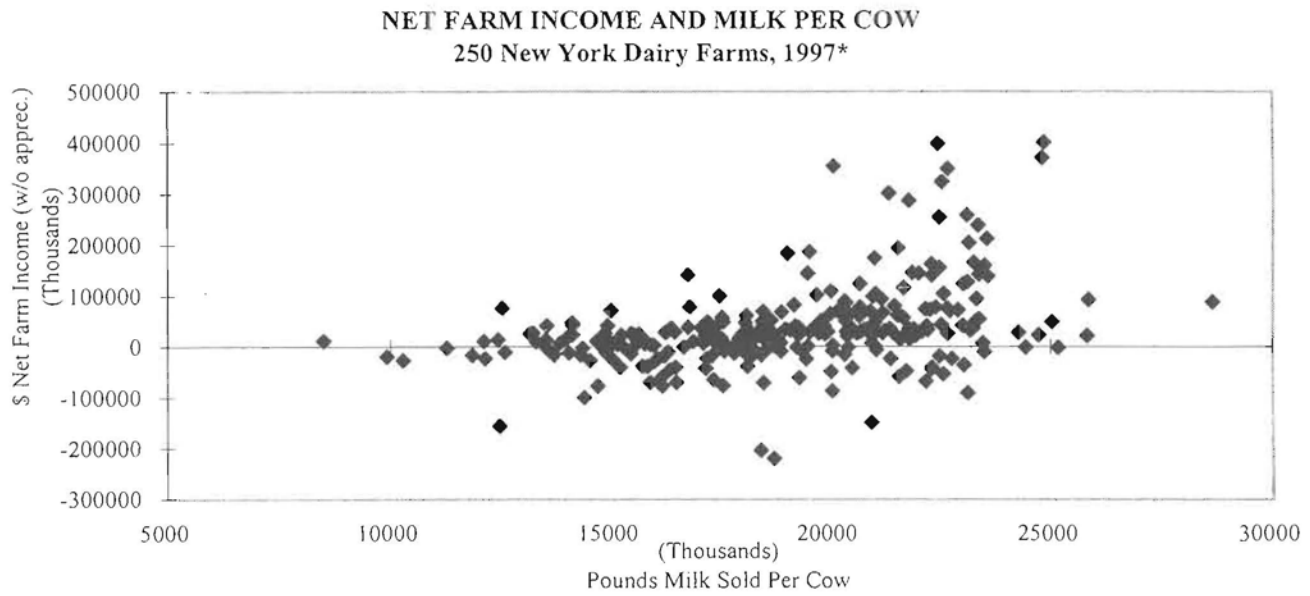
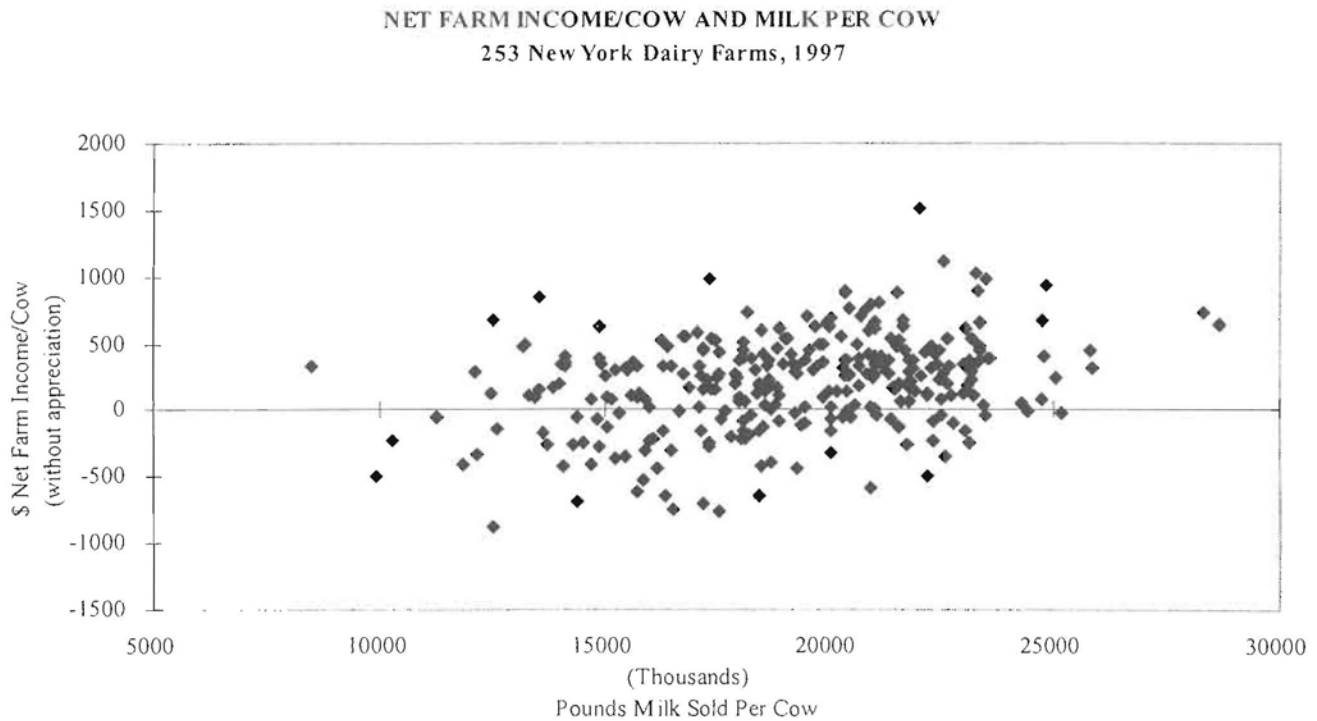


Chart 5.



*Farms with net farm incomes exceeding \$600,000 have been excluded to avoid disclosure of financial position.

Cost of Producing Milk

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

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

Table 28.

COST OF PRODUCING MILK, WHOLE FARM METHOD
253 New York Dairy Farms, 1997

Item	Average 253 Farms	Average Top 10% Farms
Total Accrual Operating Expenses	\$ 515,934	\$ 1,270,284
Expansion Livestock, Accrual	+ 10,545	+ 16,920
1. Total Accrual Operating Expenses, Including Expansion Livestock	\$ 526,479	\$1,287,204
Total Accrual Receipts	\$ 600,623	\$ 1,566,299
Milk Sales, Accrual	- 536,427	- 1,371,836
2. Total Accrual Nonmilk Receipts	- \$ 64,196	- \$194,463
3. Operating Cost of Producing Milk	\$ 462,283	\$1,092,741
Machinery Depreciation	+\$ 22,781	+ 48,585
Building Depreciation	+ 14,435	+ 26,789
4. Purchased Inputs Cost of Producing Milk	\$ 499,499	\$1,168,115
Family Labor Unpaid (\$1,550/month)	+ 4,960	+ 1,550
Real Interest on Equity Capital	+ 34,247	+ 69,696
Value of Operator's Labor & Management	+ 39,430	+ 54,520
5. Total Costs of Producing Milk	\$ 578,136	\$1,293,881
6. Costs Per Cwt.:		
Cwt. Milk Sold	39,309	100,741
Operating Cost Per Cwt.	\$ 11.76	\$ 10.85
Purchased Inputs Cost Per Cwt.	\$ 12.71	\$ 11.60
Total Cost Per Cwt.	\$ 14.71	\$ 12.84

Costs of producing milk per hundredweight are presented for eight expenditure categories in Table 29. The whole farm method assumption that accrual nonmilk receipts represent nonmilk operating costs is used in computing net costs. A \$2,902 average increase in crop inventories per farm, (\$.07 per cwt. of milk), is included in crop sales.

Table 29.

**ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT
BASED ON WHOLE FARM DATA
253 New York Dairy Farms, 1997**

Item	Average 253 Farms	Average Top 10% Farms
Dairy grain and concentrate	\$4.48	\$4.47
Dairy roughage	0.15	0.09
Nondairy feed	<u>0.00</u>	<u>0.00</u>
Total feed expense	\$4.63	\$4.56
Crop expense	0.77	0.57
- Crop sales and government receipts*	<u>0.36</u>	<u>0.61</u>
Net Feed and Crop Expense	\$5.04	\$4.52
Hired labor	1.97	2.33
Operator's and family labor	<u>1.13</u>	<u>0.56</u>
Total Labor Expense	\$3.10	\$2.89
Machine repairs, fuel and hire	1.22	1.02
Machinery depreciation	0.58	0.48
- Gas tax refunds and custom work	<u>0.03</u>	<u>0.01</u>
Net Machinery Expense	\$1.77	\$1.49
Replacement and expansion cattle purchases	0.45	0.33
- Sales and inventory growth	<u>1.11</u>	<u>1.19</u>
Net Cattle Purchases	\$-0.66	\$-0.86
Milk marketing costs	0.52	0.44
All other livestock expense excluding purchases	<u>1.61</u>	<u>1.62</u>
Net Livestock Expense	\$2.13	\$2.06
Real estate repairs, rent and taxes	0.66	0.56
Building depreciation	<u>0.37</u>	<u>0.26</u>
Total Real Estate Expense	\$1.03	\$0.82
Interest paid	0.90	0.78
Interest on equity	<u>0.87</u>	<u>0.69</u>
Total Interest Expense	\$1.77	\$1.47
Other operating and miscellaneous expenses	0.66	0.57
- Miscellaneous income	<u>0.13</u>	<u>0.12</u>
Net Miscellaneous Expenses	\$0.53	\$0.45
Total Cost of Producing Milk	\$14.71	\$12.84
Purchased Inputs Cost	\$12.71	\$11.60
Total Operating Cost	\$11.76	\$10.85

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

Costs of producing milk per hundredweight are presented in the table below for 211 farms that participated both in 1996 and 1997. Costs of production decreased in all expense categories when 1997 data are compared to 1996.

Table 30.

**ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT
BASED ON WHOLE FARM DATA
Same 211 New York Dairy Farms, 1996-1997**

Item	1996	1997	Percent Change
Dairy grain and concentrate	\$4.62	\$4.48	-3.0%
Dairy roughage	0.16	0.14	-12.5
Nondairy feed	<u>0.01</u>	<u>0.00</u>	
Total feed expense	\$4.79	\$4.62	-3.5
Crop expense	0.70	0.73	
- Crop sales and government receipts*	<u>0.42</u>	<u>0.34</u>	
Net Feed and Crop Expense	\$5.07	\$5.01	-1.2%
Hired labor	1.98	1.98	
Operator's and family labor	<u>1.17</u>	<u>1.10</u>	
Total Labor Expense	\$3.15	\$3.08	-2.2%
Machine repairs, fuel and hire	1.32	1.22	
Machinery depreciation	0.60	0.57	
- Gas tax refunds and custom work	<u>0.03</u>	<u>0.03</u>	
Net Machinery Expense	\$1.89	\$1.76	-6.9%
Replacement and expansion cattle purchases	0.50	0.46	
- Sales and inventory growth	<u>1.13</u>	<u>1.13</u>	
Net Cattle Purchases	\$-0.63	\$-0.67	-6.3%
Milk marketing costs	0.58	0.52	
All other livestock expense excluding purchases	<u>1.59</u>	<u>1.59</u>	
Net Livestock Expense	\$2.17	\$2.11	-2.8%
Real estate repairs, rent and taxes	0.71	0.64	
Building depreciation	<u>0.40</u>	<u>0.36</u>	
Total Real Estate Expense	\$1.11	\$1.00	-9.9%
Interest paid	0.90	0.91	
Interest on equity	<u>0.91</u>	<u>0.86</u>	
Total Interest Expense	\$1.81	\$1.77	-2.2%
Other operating and miscellaneous expenses	0.69	0.66	
- Miscellaneous income	<u>0.11</u>	<u>0.14</u>	
Net Miscellaneous Expenses	\$0.58	\$0.52	-10.3%
Total Cost of Producing Milk	\$15.15	\$14.58	-3.8%
Purchased Inputs Cost	\$13.07	\$12.61	-3.5%
Total Operating Cost	\$12.05	\$11.69	-3.0%
Average Price Received for Milk	\$14.94	\$13.61	-8.9%

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

The three measures of the accrual cost of producing milk per cow and per hundredweight are compared with accrual receipts from milk sales in Table 31.

Table 31.

COST OF PRODUCING MILK, ACCRUAL RECEIPTS FROM DAIRY, AND PROFITABILITY
253 New York Dairy Farms, 1997

Item	Average 253 Farms			Average Top 10% Farms		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
<u>Accrual Cost of Producing Milk</u>						
Operating Cost	\$ 462,283	\$2,433	\$11.76	\$1,092,741	\$2,423	\$10.85
Purchased Inputs Cost	499,499	2,629	12.71	1,168,115	2,590	11.60
Total Cost	578,136	3,043	14.71	1,293,881	2,869	12.84
<u>Accrual Receipts from Milk</u>						
	\$536,427	\$2,823	\$13.65	\$1,371,836	\$3,042	\$13.62
<u>Profitability</u>						
Net Farm Income without						
Appreciation	\$ 36,928	\$ 194	\$ 0.94	\$203,721	\$ 452	\$ 2.02
Net Farm Income with						
Appreciation	\$ 47,139	\$ 248	\$ 1.20	\$208,513	\$ 462	\$ 2.07

The operating cost of producing milk on all 253 dairy farms averaged \$11.76 per hundredweight, leaving \$1.89 to cover depreciation, unpaid labor and operator resources.

The total cost of producing milk on all 253 dairy farms averaged \$14.71 per hundredweight, \$1.06 more than the average price received for milk sold from these farms during 1997. This implies dairy farmers are willing to receive returns less than the stated charges on their labor and equity capital to remain in farming. The imputed costs or charge for the operator's labor, management and equity capital average \$1.87 per hundredweight in 1997. The computed returns averaged \$0.81 per hundredweight. The 25 most profitable farms held their operating costs to \$10.85 per hundredweight and their total cost of producing milk averaged \$12.84 per hundredweight. This left a profit of \$0.78 per hundredweight of milk sold.

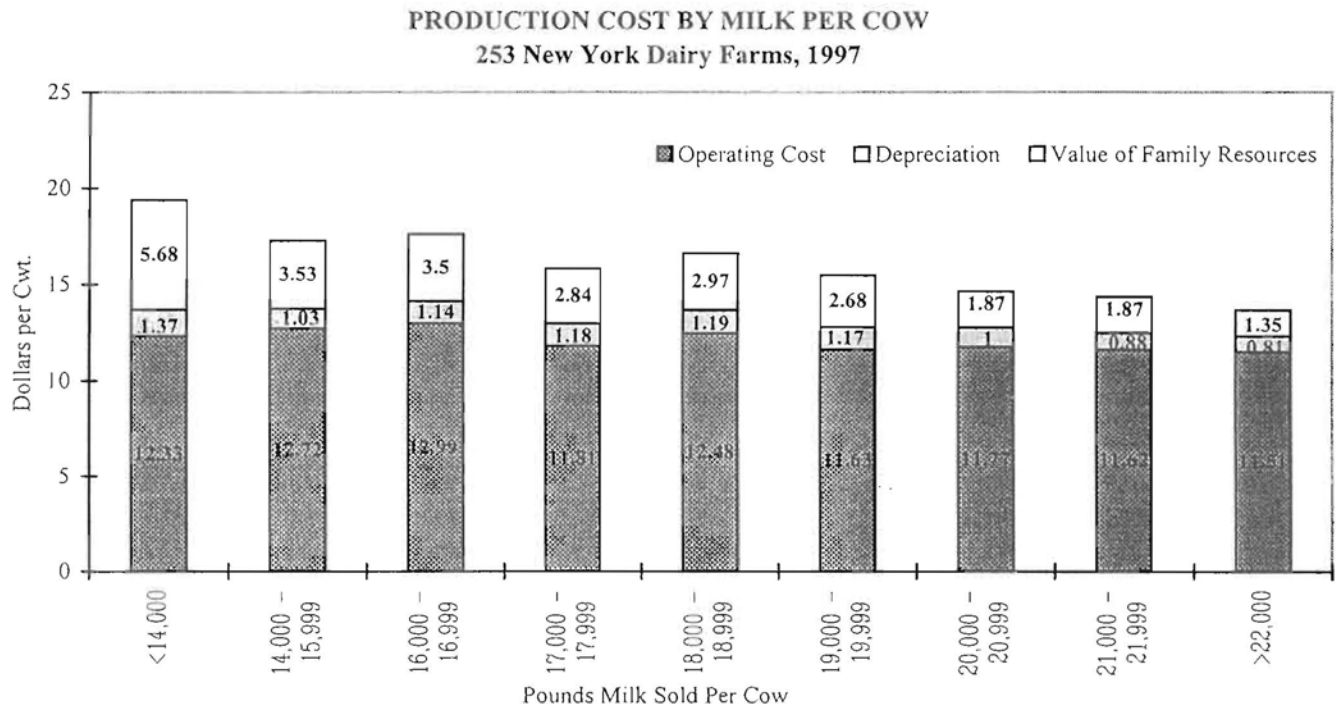
The strong relationship between milk output per cow and the cost of producing milk are shown in Table 32 and Chart 6 on page 30. Farms selling less than 18,000 pounds of milk per cow had average total costs of production of \$17.53 per hundredweight while those selling 18,000 pounds and over average \$14.96 for a difference of \$2.57 per hundredweight.

Table 32.

FARM COST OF PRODUCING MILK BY MILK SOLD PER COW
253 New York Dairy Farms, 1997

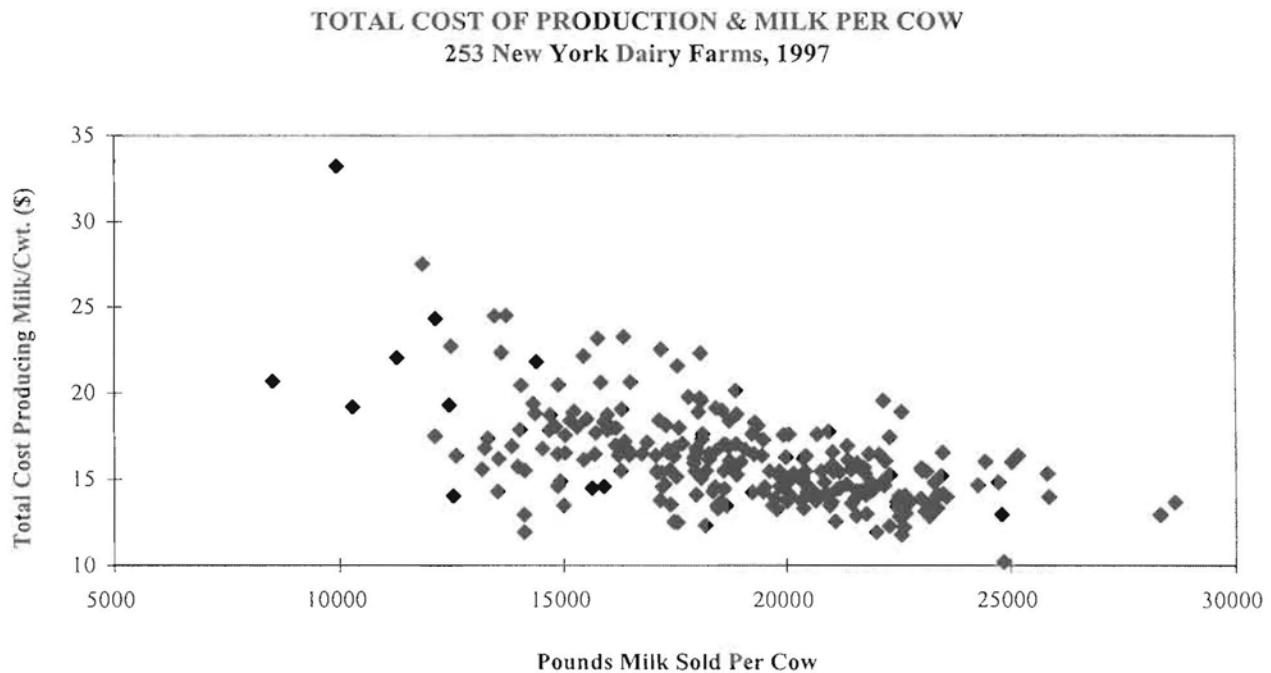
Pounds Milk Sold Per Cow	Cost per Hundredweight			Accrual Receipts From Milk Per Cwt.	Return/Cwt. to Operator's Labor, Mgmt. & Capital
	Operating	Purchased Inputs	Total		
Under 14,000	\$12.33	\$13.70	\$19.38	\$13.59	\$-0.80
14,000 - 15,999	12.72	13.75	17.28	13.71	-0.37
16,000 - 16,999	12.99	14.13	17.63	13.42	-1.15
17,000 - 17,999	11.81	12.99	15.83	13.78	0.51
18,000 - 18,999	12.48	13.67	16.64	13.79	-0.24
19,000 - 19,999	11.63	12.80	15.48	14.10	1.15
20,000 - 20,999	11.77	12.77	14.64	13.86	0.99
21,000 - 21,999	11.62	12.50	14.37	13.58	1.00
22,000 & over	11.51	12.32	13.67	13.51	1.16

Chart 6.



The relationship between total cost of producing milk and milk sold per cow is diagrammed in Chart 7. It shows that as milk sold per cow increases on the average, total cost of production decreases, at a fairly constant rate.

Chart 7.



Data in Table 33 and Chart 8 show the total cost of production generally declines as herd size increases because the cost of operator's resources are spread over more units of production.

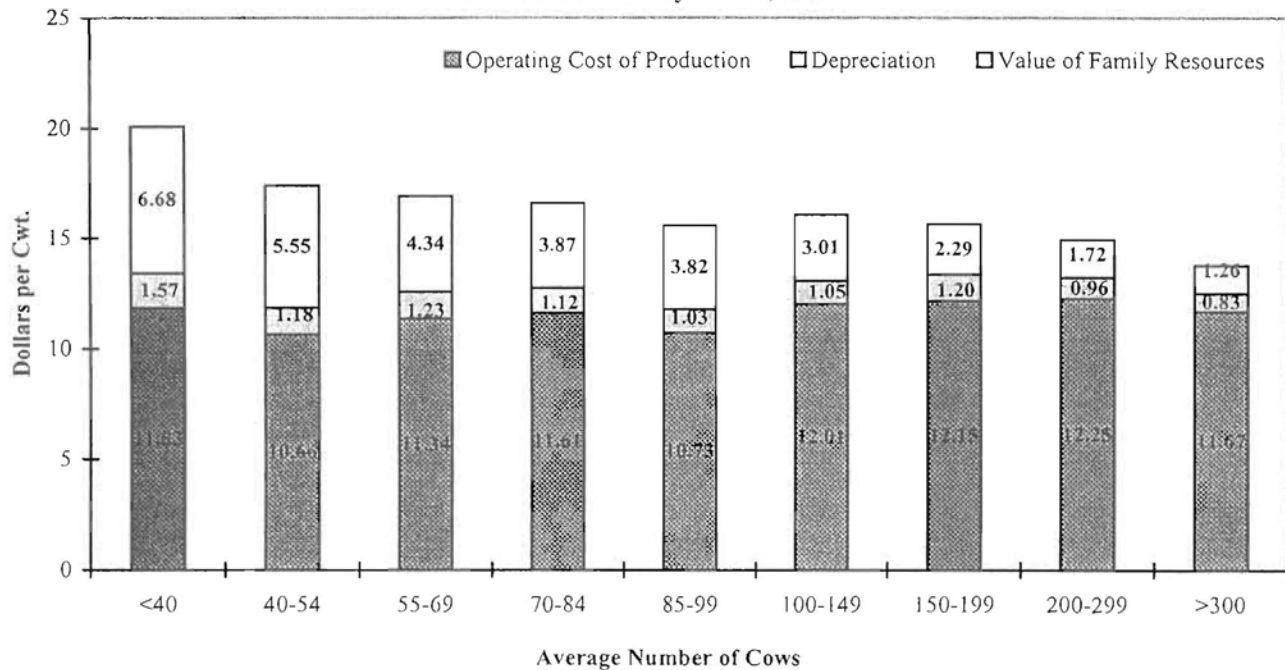
Table 33.

FARM COST OF PRODUCING MILK BY HERD SIZE
253 New York Dairy Farms, 1997

Number of Cows	Cost per Hundredweight			Accrual Receipts From Milk Per Cwt.	Return/Cwt. to Operator's Labor, Mgmt. & Capital
	Operating	Purchased Inputs	Total		
Under 40	\$11.83	\$13.40	\$20.08	\$13.28	\$-1.42
40 to 54	10.66	11.84	17.39	13.67	1.18
55 to 69	11.34	12.57	16.91	13.63	0.66
70 to 84	11.61	12.73	16.60	13.72	0.64
85 to 99	10.73	11.76	15.58	13.76	1.38
100 to 149	12.01	13.06	16.07	13.78	0.43
150 to 199	12.15	13.35	15.64	13.90	0.43
200 to 299	12.25	13.21	14.93	13.89	0.65
300 & over	11.67	12.50	13.76	13.52	1.00

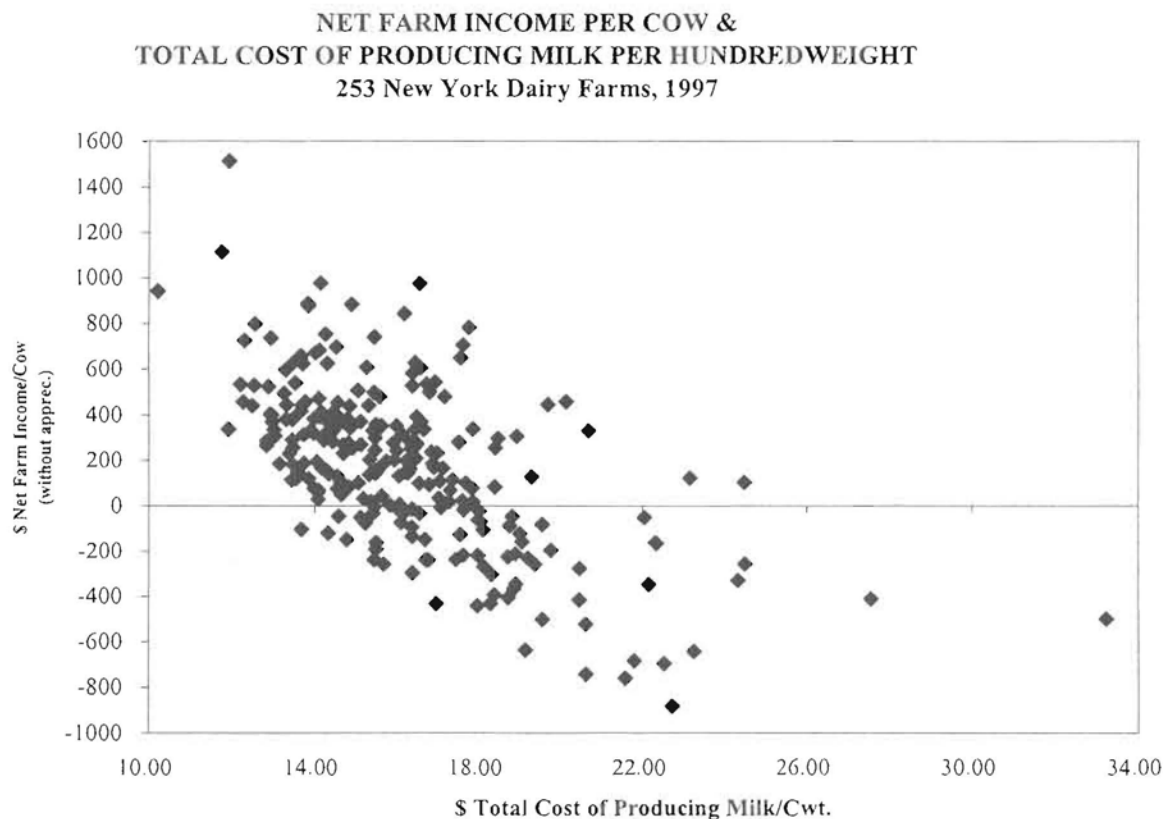
Chart 8.

PRODUCTION COST BY HERD SIZE
253 New York Dairy Farms, 1997



The importance of cost control and its impact on farm profitability are illustrated in Chart 9. As the total cost of producing milk per hundredweight increased, net farm income per cow fell. All farms had a positive net farm income per cow until the total cost of producing milk exceeded \$13 per hundredweight. The majority of the farms with costs greater than \$19 per hundredweight experienced negative net farm incomes per cow.

Chart 9.



A 10-year comparison of the average costs and returns of producing milk per hundredweight are presented in Table 34 on page 32. 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 1988 through 1997. In 1997 the average operating cost of producing milk decreased 2 percent after increasing 5 percent from 1995 to 1996. The average return per hundredweight to operator labor, management, and capital fell to \$0.81 in 1997, 55 percent below 1996.

A 10-year comparison of selected average business factors for all specialized DFBS farms is presented in Table 35 on page 33. Average cow numbers are up 86 percent, tillable acres have increased 53 percent, and milk sold per farm has jumped 129 percent since 1988. Capital investment per cow has increased 1 percent, far less than inflation, over the last 10 years. Labor and management income per operator decreased 108 percent in 1997 compared to 1996, however, farm net worth continued to grow.

Table 34.

TEN YEAR COMPARISON: AVERAGE COST OF PRODUCING MILK PER HUNDREDWEIGHT
New York Dairy Farms, 1988 to 1997

Item	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
<u>Operating Expenses</u>										
Hired labor	\$ 1.46	\$ 1.62	\$ 1.77	\$ 1.74	\$ 1.80	\$ 1.86	\$ 1.80	\$1.78	\$1.89	\$1.97
Purchased feed	3.73	4.02	4.28	3.88	3.92	3.85	3.89	3.71	4.73	4.63
Machinery repair, vehicle expense & rent	.87	.96	1.11	.93	.97	.93	.92	.85	1.02	.94
Fuel, oil & grease	.34	.33	.41	.37	.35	.34	.31	.27	.31	.28
Replacement livestock	.11	.17	.20	.15	.21	.17	.21	.15	.19	.18
Breeding fees	.18	.18	.19	.18	.18	.19	.17	.15	.15	.15
Veterinary & medicine	.28	.30	.32	.33	.35	.37	.40	.39	.42	.41
Milk marketing	.52	.49	.53	.58	.63	.64	.67	.70	.59	.52
Other dairy expenses	.56	.60	.68	.65	.70	.72	.88	.92	.99	1.05
Lime & fertilizer	.51	.50	.50	.40	.37	.36	.33	.31	.32	.33
Seeds & plants	.21	.22	.22	.20	.21	.20	.19	.19	.20	.21
Spray & other crop expense	.19	.21	.22	.20	.21	.20	.20	.20	.21	.23
Land, building & fence repair	.22	.27	.32	.19	.24	.21	.21	.16	.23	.19
Taxes	.35	.36	.37	.38	.35	.34	.29	.27	.26	.23
Insurance	.23	.23	.24	.23	.22	.20	.18	.17	.18	.16
Utilities (farm share)	.38	.39	.39	.39	.38	.39	.38	.38	.39	.35
Interest paid	1.02	1.06	1.05	1.07	.88	.80	.81	.94	.91	.90
Misc. (including rent)	.41	.43	.47	.43	.44	.41	.40	.40	.41	.38
Total Operating Expenses	\$11.57	\$12.34	\$13.27	\$12.30	\$12.41	\$12.18	\$12.24	\$11.94	\$13.40	\$13.12
Less: Nonmilk cash receipts	1.86	1.75	1.75	1.73	1.67	1.65	1.30	1.15	1.07	1.14
Increase in grown feed & supplies	.16	.02	.26	.04	.23	.13	.25	.14	.15	.07
Increase in livestock	.08	.12	.15	.18	.08	.22	.21	.25	.18	.15
OPERATING COST OF MILK PRODUCTION	\$ 9.47	\$10.45	\$11.11	\$10.35	\$10.43	\$10.18	\$10.47	\$10.40	\$12.00	\$11.76
<u>Overhead Expenses</u>										
Depreciation: machinery & buildings	\$ 1.31	\$ 1.31	\$1.35	\$ 1.28	\$ 1.19	\$ 1.17	\$ 1.13	\$1.07	\$1.04	\$0.95
Unpaid labor	.11	.12	.19	.18	.16	.15	.12	.12	.13	.13
Operator(s) labor *	.95	.98	1.10	1.06	.99	1.00	.86	.92	.88	.79
Operator(s) management (5% of cash receipts)	.74	.81	.85	.73	.76	.74	.73	.70	.80	.73
Interest on farm equity capital (5%)	1.19	1.24	1.24	1.20	1.11	1.11	1.00	.94	.94	.87
Total Overhead Expenses	\$ 4.30	\$ 4.46	\$ 4.73	\$ 4.45	\$ 4.21	\$ 4.17	\$ 3.84	\$ 3.75	\$3.79	\$3.47
TOTAL COST OF MILK PRODUCTION	\$13.77	\$14.91	\$15.84	\$14.80	\$14.64	\$14.35	\$14.31	\$14.15	\$15.79	\$15.23
AVERAGE FARM PRICE OF MILK	\$13.03	\$14.53	\$14.93	\$12.95	\$13.58	\$13.14	\$13.44	\$13.03	\$14.98	\$13.65
Return per cwt. to operator labor, capital & mgmt.	\$ 2.14	\$ 2.65	\$ 2.28	\$ 1.14	\$ 1.80	\$ 1.64	\$ 1.72	\$ 1.44	\$ 1.81	\$ 0.81
Rate of return on farm equity capital	1.8%	3.3%	1.3%	-2.7%	0.2%	-0.4%	0.6%	-1.0%	0.7%	-4.1%

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*1988 = \$1,000/month, 1989 = \$1,050/month, 1990 = \$1,250/month, 1991 = \$1,300/month, 1992 = \$1,350/month,
 1993 = \$1,400/month, 1994 and 1995 = \$1,450/month, 1996 = \$1,500/month and 1997 = \$1,550/month of operator labor.

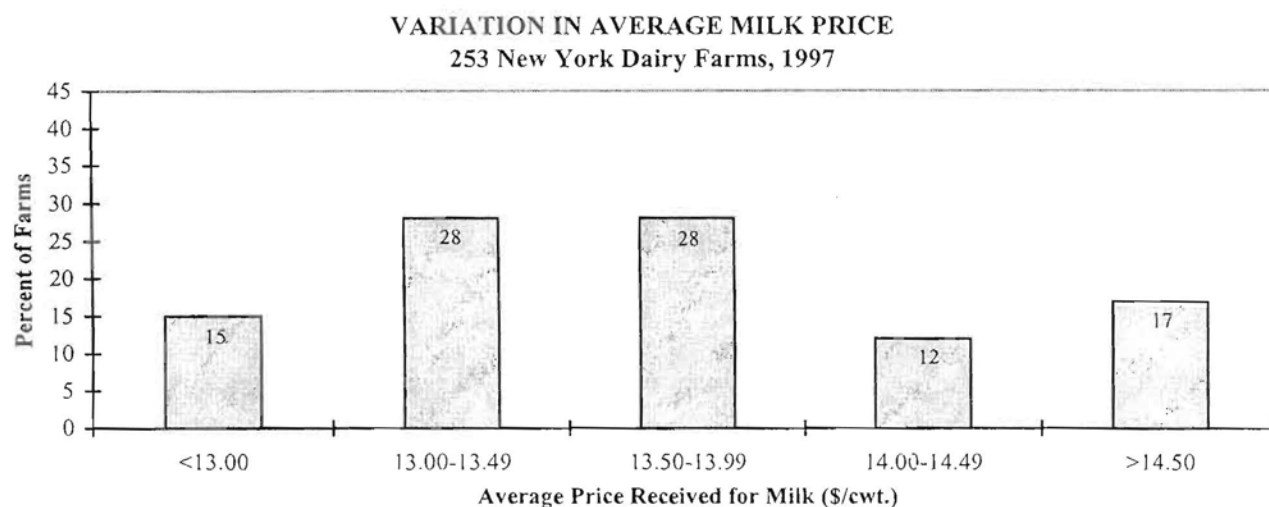
Table 35.

TEN YEAR COMPARISON: SELECTED BUSINESS FACTORS
New York Dairy Farms, 1988 to 1997

Item	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Number of farms	406	409	395	407	357	343	321	321	300	253
<u>Cropping Program</u>										
Total tillable acres	302	316	325	330	346	351	392	399	415	462
Tillable acres rented	104	117	121	124	135	135	159	166	183	207
Hay crop acres	156	164	166	169	171	182	195	197	198	219
Corn silage acres	74	81	82	88	98	96	110	117	120	156
Hay crop, tons DM/acre	2.6	2.6	2.7	2.4	2.8	2.7	3.0	2.8	2.8	2.5
Corn silage, tons/acre	14.1	13.4	14.4	13.7	14.5	14.9	16.4	15.6	15.9	16.1
Fert. & lime exp./tillable acre	\$29	\$29	\$29	\$25	\$25	\$25	\$25	\$25	\$26	\$28
Machinery cost/cow	\$398	\$425	\$483	\$438	\$444	\$430	\$438	\$402	\$450	\$429
<u>Dairy Analysis</u>										
Number of cows	102	104	107	111	123	130	151	160	167	190
Number of heifers	82	83	87	92	96	100	116	121	124	139
Milk sold, cwt.	17,200	17,975	19,005	20,060	23,130	24,448	30,335	32,362	33,504	39,309
Milk sold/cow, lbs.	16,882	17,259	17,720	18,027	18,789	18,858	20,091	20,269	20,113	20,651
Purchased dairy feed/cwt. milk	\$3.71	\$3.99	\$4.27	\$3.87	\$3.91	\$3.85	\$3.89	\$3.70	\$4.73	\$4.63
Purc. grain & conc. as % of milk receipts	28%	27%	28%	29%	28%	29%	28%	27%	30%	33%
Purc. feed & crop exp/cwt. milk	\$4.62	\$4.92	\$5.21	\$4.67	\$4.70	\$4.61	\$4.61	\$4.39	\$5.46	\$5.39
<u>Capital Efficiency</u>										
Farm capital/cow	\$6,133	\$6,407	\$6,556	\$6,688	\$6,587	\$6,462	\$6,398	\$6,264	\$6,218	\$6,196
Real estate/cow	\$2,902	\$2,977	\$2,977	\$3,063	\$3,015	\$2,932	\$2,859	\$2,763	\$2,701	\$2,650
Mach. invest./cow	\$1,083	\$1,154	\$1,233	\$1,267	\$1,203	\$1,165	\$1,150	\$1,098	\$1,107	\$1,108
Asset turnover ratio	.45	.48	.48	.43	.47	.46	.50	.49	.55	.52
<u>Labor Efficiency</u>										
Worker equivalent	3.17	3.30	3.37	3.38	3.60	3.68	4.02	4.40	4.48	5.01
Operator/manager equivalent	1.35	1.39	1.39	1.37	1.41	1.45	1.49	1.56	1.56	1.60
Milk sold/worker, lbs.	542,708	544,598	563,349	593,297	641,893	664,868	755,178	736,269	747,861	784,604
Cows/worker	32	32	32	33	34	35	38	36	37	38
Labor cost/cow	\$426	\$469	\$541	\$538	\$552	\$568	\$558	\$570	\$582	\$598
<u>Profitability & Financial Analysis</u>										
Labor & mgmt. income/operator	\$11,911	\$18,004	\$14,328	\$-955	\$11,254	\$9,000	\$14,789	\$10,346	\$18,651	\$-1,424
Farm net worth, end year	\$426,123	\$468,848	\$471,322	\$480,131	\$515,215	\$542,126	\$608,749	\$624,261	\$648,186	\$685,665
Percent equity	66%	68%	66%	64%	64%	65%	63%	61%	61%	57%

The average or mean price per hundredweight of milk sold is calculated by dividing gross milk receipts by total pounds of milk sold. The average price for the 253 farms was \$13.65 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 10.



Fifty-six percent of the farms received from \$13.00 to \$13.99 per hundredweight of milk sold. Twenty-nine percent of the farms received \$14.00 or more and 15 percent received less than \$13.00 per hundredweight. Location and organization of markets are factors contributing to the difference in average milk prices on these dairy farms. Management practices on farms as well as in milk companies also affect farm milk prices. Seasonality of production and butterfat content are two variables that affect milk price. Butterfat content, which ranges from an average 3.6 percent to 3.8 percent as the milk price increases from less than \$13.00 per cwt. to more than \$14.50, explains a small portion of the difference in milk price on these farms.

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

Table 36.

DAIRY RELATED ACCRUAL EXPENSES
253 New York Dairy Farms, 1997

Item	Average 253 Farms		Average Top 10% Farms	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	\$927	\$4.48	\$998	\$4.47
Purchased dairy roughage	31	.15	21	.09
Total Purchased Dairy Feed	\$958	\$4.63	\$1,019	\$4.56
Purchased grain & concentrate as % of milk receipts		33%		33%
Purchased feed & crop expense	\$1,116	\$5.39	\$1,147	\$5.13
Purchased feed & crop expense as % of milk receipts		40%		38%
Breeding	\$ 30	\$.15	\$ 29	\$.13
Veterinary & medicine	86	.41	99	.44
Milk marketing	108	.52	99	.44
Bedding	33	.16	45	.20
Milking Supplies	65	.31	68	.31
Cattle lease	6	.03	14	.06
Custom boarding	26	.13	16	.07
bST expense	49	.24	68	.30
Other livestock expense	38	.18	23	.10

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

Purchased dairy grain and concentrates per cow is calculated by dividing the total accrual expenses for dairy grains and concentrates purchased by the average number of cows. Because this also included the amount spent for calf and heifer feed, it actually represents the feed cost for one cow and 0.73 replacement being raised.

Purchased feed and crop expense per hundredweight of milk is one of the most useful feed cost measures because it accounts for some of the variations in feeding and cropping programs, and milk production between herds. It includes all purchased feeds used on the farm, and it includes crop expenses that are associated with feed production.

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 and milk prices can have an adverse effect. 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 purchased feed and crop expense per hundredweight of milk has with farm profitability is shown in the following table.

Table 37.

**PURCHASED FEED AND CROP EXPENSE PER HUNDREDWEIGHT
OF MILK AND FARM INCOME MEASURES
253 New York Dairy Farms, 1997**

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
\$7.00 or more	19	128	6.5	18,061	\$-23,949	\$-34,161	\$-267
6.50 to 6.99	17	100	7.1	16,145	\$-912	\$-16,213	-162
6.00 to 6.49	35	158	6.8	19,035	\$-5,069	\$-22,552	-143
5.50 to 5.99	56	232	7.1	20,642	\$32,410	\$-4,461	-19
5.00 to 5.49	47	223	7.5	21,888	\$70,641	\$16,547	74
4.50 to 4.99	43	236	6.6	21,466	\$73,984	\$15,853	67
Less than 4.50	36	135	7.5	21,022	\$46,507	\$4,744	35

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 between \$5.00 and \$5.49 per hundredweight of milk, reported the highest labor and management income per operator per cow. Farms in this range had the highest pounds of milk sold per cow.

Capital and Labor Efficiency Analysis

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

Table 38.

CAPITAL EFFICIENCY 253 New York Dairy Farms, 1997

Item (Average for Year)	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
Farm capital	\$234,988	\$6,196	\$2,548	\$4,617
Real estate		\$2,650		\$1,975
Machinery & equipment	\$42,026	\$1,108	\$456	
Asset turnover ratio	.52			
<u>Average Top 10% Farms:</u>				
Farm capital	\$264,164	\$5,559	\$2,992	\$4,945
Real estate		\$2,203		\$1,960
Machinery & equipment	\$39,974	\$841	\$453	
Asset turnover ratio	.63			

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 0.5 or higher.

Table 39.

ASSET TURNOVER AND PROFITABILITY 253 New York Dairy Farms, 1997

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	17	434	\$4,124	\$187,607	\$29,010	\$100,979
.60 to .69	29	339	5,099	223,019	10,134	60,477
.50 to .59	60	256	6,341	257,252	14,477	73,260
.40 to .49	61	147	6,896	233,044	-9,194	17,661
.30 to .39	48	88	8,232	239,863	-15,970	12,372
Less than .30	38	65	9,433	256,556	-25,247	-5,121

The 25 farms with the highest rates of return on all capital (without appreciation) were considerably above the average of all 253 farms in 2 measures of labor efficiency. The top 10 percent averaged 10 more cows per worker and sold 35 percent more milk per worker than the average of all farms.

Table 40.

LABOR EFFICIENCY 253 New York Dairy Farms, 1997

Labor Efficiency	Average	Farms	Average Top 10% Farms	
	Total	Per Worker*	Total	Per Worker*
Cows, average number	190	38	451	48
Milk sold, pounds	3,930,866	784,604	10,074,130	1,061,552
Tillable acres	462	92	838	88

*The method used to calculate worker equivalent incorporates the number of hours actually worked by the owner/operators instead of using a standard 12 months for each full-time owner/operator of the business.

The labor force averaged 5.01 full-time worker equivalents per farm (based on 230 hours per month). Thirty-three percent of the labor was supplied by the farm operator/managers. There were two operators on 102 farms, three on 30 farms, and 5 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 \$51 per cow less on the 25 farms in the top decile.

Table 41.

LABOR FORCE INVENTORY AND COST ANALYSIS
253 New York Dairy Farms, 1997

Labor Force	Months*	Age	Years of Education	Value of Labor & Management
Operator number 1	13.5	47	13	\$26,251
Operator number 2	4.8	43	13	9,417
Operator number 3	1.4	40	14	3,209
Operator number 4	0.3	22	14	553
Family paid	45.1			Total \$39,430
Family unpaid	3.2			
Hired	31.8			
Total	60.1	÷ 12 =	5.01 Worker Equivalent 1.60 Operator/Manager Equivalent	
<u>Average Top 10% Farms:</u>				
Total	113.9	÷ 12 =	9.49 Worker Equivalent	
Operators'	21.8	÷ 12 =	1.82 Operator/Manager Equivalent	

Labor Costs	Average 253 Farms			Avg. Top 10% Farms	
	Total	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Value operators' labor (\$1,550/mo.)	\$ 31,000	\$ 163	\$.79	\$ 75	\$.34
Family unpaid (\$1,550/mo.)	4,960	26	.13	3	.02
Hired	77,617	409	1.97	520	2.33
Total Labor	\$ 113,577	\$ 598	\$ 2.89	\$ 599	\$ 2.69
Machinery Cost	81,525	429	2.07	377	1.69
Total Labor & Machinery	\$ 195,102	\$ 1,027	\$ 4.96	\$ 976	\$ 4.38

*See footnote for Table 40.

The relationship of labor efficiency to net farm income is positive on the farms. The higher outputs of milk sold per worker are partially attributable to more and higher producing cows.

Table 42.

MILK SOLD PER WORKER AND NET FARM INCOME
253 New York Dairy Farm, 1997

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	36	60	14,585	\$5,042	\$-14,756
400,000 to 499,999	35	74	17,297	11,265	-10,701
500,000 to 599,999	43	109	17,932	6,717	-15,788
600,000 to 699,999	43	142	20,323	17,839	-10,717
700,000 to 799,999	32	184	20,385	28,009	-7,040
800,000 to 899,999	21	298	20,732	68,350	9,240
900,000 & over	43	477	22,485	125,101	34,970

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 253 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 43.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS 253 New York Dairy Farms, 1997

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
16.3	749	16,977,721	24,322	4.1	22	57	1,169,242
8.0	318	6,801,234	22,395	3.4	19	46	929,873
5.8	214	4,351,063	21,446	3.0	18	41	819,044
4.5	155	3,051,237	20,524	2.6	17	37	731,958
3.9	128	2,361,619	19,512	2.4	16	34	659,774
3.4	106	1,896,078	18,496	2.2	15	32	597,572
2.9	85	1,512,359	17,718	2.0	14	30	532,282
2.4	69	1,177,556	16,584	1.8	13	28	486,658
1.9	55	940,983	15,088	1.5	11	24	413,316
1.4	40	601,704	12,762	1.0	8	19	288,154
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		
\$435	20%	\$226	\$675	\$576	\$3.68		
600	26	296	813	774	4.51		
673	28	336	903	874	4.82		
745	29	393	975	943	5.10		
820	32	429	1,021	1,016	5.37		
883	33	465	1,079	1,092	5.61		
939	35	503	1,172	1,146	5.85		
987	37	550	1,254	1,202	6.09		
1,059	39	613	1,350	1,279	6.47		
1,183	45	741	1,553	1,411	7.41		

The next section of the Farm Business Chart provides for comparative analysis of the value and costs of dairy production.

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 43. (continued)

**FARM BUSINESS CHART FOR
FARM MANAGEMENT COOPERATORS
253 New York Dairy Farms, 1997**

Milk Receipts Per Cow	Milk Receipts Per Cwt.	Oper. Cost Milk Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cow	Total Cost Production Per Cwt.	
\$3,381	\$15.09	\$1,319	\$8.30	\$2,127	\$12.68	
3,052	14.56	1,690	10.02	2,552	13.72	
2,941	14.20	1,870	10.58	2,726	14.27	
2,836	13.86	2,079	11.05	2,847	14.84	
2,719	13.66	2,158	11.46	2,947	15.45	

2,553	13.53	2,279	11.81	3,056	16.12	
2,428	13.41	2,403	12.24	3,151	16.61	
2,271	13.25	2,525	12.81	3,285	17.46	
2,030	13.01	2,682	13.59	3,486	18.63	
1,686	12.54	3,039	15.55	3,820	22.37	

Profitability						
Net Farm Income Without Appreciation			Net Farm Income <u>With Appreciation</u>		Labor & Management Income	
Total	Per Cow	As % of Total Accrual Receipts	Total	Per Cow	Per Farm	Per Operator
\$258,543	\$806	25.1%	\$270,808	\$847	\$160,233	\$98,682
77,869	516	17.3	100,963	573	37,347	28,721
46,999	392	13.3	63,703	461	15,083	11,972
34,998	326	11.1	45,449	396	5,143	3,819
27,155	261	8.6	34,877	320	-1,948	-1,611

19,291	165	5.8	24,515	239	-10,582	-7,542
8,889	86	3.0	14,345	147	-20,185	-14,855
-2,819	-28	-1.1	4,254	40	-31,873	-25,017
-19,342	-181	-6.9	-11,524	-118	-52,868	-39,548
-74,027	-473	-22.2	-67,379	-442	-114,768	-93,571

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 55-59.

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 44.

A FARM FINANCE CHECKLIST 253 New York Dairy Farms, 1997

	Average 253 Farms		Average Top 10% Farms*	
<u>How farm assets are being used (average for the year):</u>				
Total assets (capital) per cow	\$6,196		\$5,559	
Farm assets in livestock	24%		25%	
Farm assets in farm real estate	43%		40%	
Farm assets in machinery	18%		15%	
<u>Measures of debt capacity & debt structure:</u>				
Equity in the business	57%		56%	
Farm debt per cow	\$2,611		\$2,449	
Long term debt/asset ratio**	0.40		0.40	
Intermediate & current term debt/asset ratio**	0.45		0.47	
Intermediate & current term debt as % of total	60%		65%	
<u>Debt repayment ability:***</u>				
Cash flow coverage ratio	0.85		1.23	
Debt payments made per cow	\$486		\$437	
Debt payments made as % of milk receipts	17%		14%	
<u>Indicators of annual financial progress:</u>				
	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>
Annual change in farm assets	+\$50,676	+4.4%	+\$110,476	+4.5%
Annual change in farm debts	+\$49,230	+10.5%	+\$46,840	+4.3%
Annual change in farm net worth	+\$1,446	+0.2%	+\$63,636	+4.7%

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

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

***Average of 211 farms that participated in DFBS both in 1996 and 1997. Twenty-three of the 25 top 10 percent farms participated both years.

The most profitable farms carried \$162 less debt per cow, the average equity in their businesses was 1 percent lower than that of the average of all 253 farms, but they had a greater ability to make 1997 debt payments.

Average farm debt grew 6.1 percentage points faster than assets during 1997 on the 253 dairy farms. Average farm net worth only increased 0.2 percent.

The farm financial analysis chart is designed just like the farm business chart on pages 38-39 and may be used to measure the financial health of the farm business. Most of the financial measures are defined on pages 12, 14, 18, and 36 in this publication.

Table 45.

FINANCIAL ANALYSIS CHART
253 New York Dairy Farms, 1997

Liquidity (repayment)					
Planned Debt Payments Per Cow	Available for Debt Service Per Cow	Cash Flow Coverage Ratio	Debt Payments as Percent of Milk Sales	Debt Per Cow	
\$66	\$720	2.32	3%	\$218	
209	565	1.40	8	910	
297	500	1.18	11	1,452	
363	442	1.01	13	1,913	
410	379	0.89	16	2,291	
445	318	0.76	18	2,675	
496	258	0.62	19	3,031	
565	197	0.44	22	3,349	
620	87	0.17	25	3,818	
770	-210	-0.60	38	4,870	
Solvency				Profitability	
Leverage Ratio*	Percent Equity	Debt/Asset Ratio		Percent Rate of Return with appreciation on:	
		Current & Intermediate	Long Term	Equity	Investment**
-3.88	97%	0.04	0.00	15%	10%
0.10	89	0.13	0.00	7	7
0.23	79	0.21	0.08	4	5
0.37	72	0.29	0.21	1	4
0.51	65	0.36	0.31	-1	2
0.71	57	0.41	0.41	-3	1
0.90	52	0.47	0.49	-5	-1
1.12	46	0.56	0.59	-8	-3
1.55	38	0.68	0.71	-14	-5
7.09	16	1.01	1.14	-241	-11
Efficiency (Capital)					Change in Net Worth w/Appreciation
Asset Turnover (ratio)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow		
.75	\$1,142	\$513	\$3,881	\$144,340	
.62	1,845	749	4,914	49,494	
.55	2,138	900	5,538	31,463	
.52	2,395	1,041	6,043	19,820	
.48	2,708	1,169	6,505	10,964	
.44	3,158	1,319	6,937	2,421	
.40	3,544	1,484	7,378	-6,589	
.35	3,888	1,704	7,957	-22,343	
.30	4,476	2,033	9,059	-48,040	
.22	7,015	2,778	11,938	-157,818	

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

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

Herd Size Comparisons

The 253 New York dairy farms have been sorted into nine herd size categories and averages for the farms in each category are presented in Tables 46 through 50. Note that after the less than 40 cow category, the herd size categories increase by 15 cows up to 100 cows, then by 50 cows up to 200 cows and by 100 cows up to 300 cows. The 300 or more cow category contains the greatest herd size range with one herd exceeding 2000 cows.

As herd size increases, the average profitability generally increases (Table 46). Net farm income without appreciation averaged \$-603 per farm for the less than 40 cow farms and \$131,897 per farm for those with 300 cows and over. 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. If size were the only factor, net farm income per cow would be constant throughout all size categories. Farms with 85 to 99 cows averaged \$367 net farm income per cow while the 150 to 199 cow dairy farms average only \$106 net farm income per cow. The 40 to 54 herd size category had the second highest net farm income per cow at \$315. Other factors that affect profitability and their relationship to the size classifications are shown in Table 47.

Table 46.

COWS PER FARM AND FARM FAMILY INCOME MEASURES 253 New York Dairy Farms, 1997

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 40	10	35	\$-603	\$-17	\$-16,100	-5.8%
40 to 54	30	47	14,821	315	-4,263	-1.9%
55 to 69	26	63	11,609	184	-9,170	-1.5%
70 to 84	24	76	13,189	174	-8,682	-1.2%
85 to 99	16	91	33,388	367	-527	0.6%
100 to 149	58	123	16,428	134	-9,455	-0.8%
150 to 199	23	173	18,378	106	-10,602	0.8%
200 to 299	24	246	34,849	142	-4,863	2.3%
300 & over	42	582	131,897	227	21,371	5.2%

As herd size increased to 85 to 99 cows, net farm income per cow generally increased. Net farm income per cow increased as economies were attained while utilizing family labor. Farms with over 100 cows saw purchased inputs increase per cow before economies of size again appeared.

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.

Table 47.

COWS PER FARM AND RELATED FARM FACTORS
253 New York Dairy Farms, 1997

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 40	35	14,200	2,881	3.51	5.11	\$8,798	\$11.83	\$20.08
40 to 54	47	17,093	4,330	3.51	7.53	8,609	10.66	17.39
55 to 69	63	17,620	5,067	3.33	7.41	7,988	11.34	16.91
70 to 84	76	17,704	4,644	3.08	7.51	7,599	11.61	16.60
85 to 99	91	18,265	5,685	3.58	8.78	6,789	10.73	15.58
100 to 149	123	18,511	5,971	2.90	7.11	6,571	12.01	16.07
150 to 199	173	19,361	7,302	2.78	6.66	6,535	12.15	15.64
200 to 299	246	20,726	7,993	2.73	7.67	6,176	12.25	14.93
300 & over	582	22,329	10,112	1.90	6.79	5,583	11.67	13.76

The dairy farms with 85 to 99 cows averaged 18,265 pounds of milk sold per cow, 1,611 pounds more per cow than the average of all the smaller farms in the study. The operating costs of producing milk were \$10.73 per hundredweight on this group of farms, the second lowest of all size categories.

The farms with 300 and more cows averaged more milk sold per cow than any other size category. With 22,329 pounds of milk sold per cow, farms in the largest herd size group averaged 18 percent more milk output per cow than the average of all herds in the summary with less than 300 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) is a herd management practice commonly used to increase milk output per cow in large herds. Many dairy farmers who have been willing and able to employ and manage the labor required to milk 3X have been successful. Only 5 percent of the 106 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 149 cows reported 14 percent of the herds milking more often than 2X, the 150-199 cow herds reported 39 percent, 200-299 cow herds reported 58 percent and the 300 cow and larger herds reported 88 percent exceeding the 2X milking frequency.

A new technology, bovine somatotropin (bST), was used on a much larger proportion of the large herd farms. bST was used sometime during 1997 on 28 percent of the herds with less than 100 cows, 64 percent of the farms with 100 to 299 cows and on 95 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 780,000 pounds of milk sold per worker while the farms with less than 100 cows averaged less than 500,000 pounds per worker.

In addition to achieving the highest productivity per cow and per worker, the largest farms practiced the most efficient use of cropland with 1.90 tillable acres per cow, and the most efficient use of farm capital with an average investment of \$5,583 per cow.

The last column in Table 47 may be the most important in explaining why profits were significantly higher on the 300 plus cow farms. The 42 farms with 300 and more cows held their average total costs of producing milk to \$13.76 per hundredweight, \$2.10 below the \$15.86 average for the remaining 193 dairy farms. The lower average costs of production plus a similar milk price gave the managers of the 300 plus cow dairy farms profit margins (milk price less total cost of producing milk) that averaged \$1.81 per hundredweight above the average of the other 193 DFBS farms.

Table 48.

FARM BUSINESS SUMMARY BY HERD SIZE
253 New York Dairy Farms, 1997

Item	Farm Size:	Less than 40 Cows	40 to 54 Cows	55 to 69 Cows	70 to 84 Cows	85 to 99 Cows
Number of farms		10	30	26	24	16
<u>ACCRUAL EXPENSES</u>						
Hired labor		\$2,107	\$4,862	\$11,677	\$18,913	\$15,850
Dairy grain & concentrate		23,293	32,487	49,748	58,017	69,068
Dairy roughage		3,234	2,528	1,767	2,009	1,740
Nondairy feed		131	99	12	7	352
Machine hire, rent & lease		1,686	1,625	1,999	3,762	3,763
Machine repairs & farm vehicle expense		3,441	7,492	9,068	11,244	14,422
Fuel, oil & grease		1,836	2,996	3,568	4,200	7,001
Replacement livestock		3,189	1,162	3,217	1,133	3,961
Breeding		1,111	1,763	2,415	3,102	3,408
Veterinary & medicine		1,111	2,844	3,144	5,002	5,027
Milk marketing		4,769	6,416	6,298	10,558	12,280
Bedding		266	677	981	693	1,773
Milking supplies		1,842	3,520	3,980	4,443	7,464
Cattle lease & rent		0	0	0	0	45
Custom boarding		0	314	492	669	0
bST expense		68	367	488	1,511	942
Other livestock expense		642	1,861	3,768	3,663	2,832
Fertilizer & lime		1,587	3,626	4,077	4,418	6,282
Seeds & plants		905	1,676	2,434	2,480	4,359
Spray & other crop expense		583	2,140	2,536	3,035	4,241
Land, building & fence repair		1,667	1,693	1,966	1,718	3,330
Taxes & rent		3,580	5,456	7,030	8,588	10,279
Utilities		3,125	4,813	5,756	7,200	7,640
Interest paid		5,710	7,942	9,848	11,359	10,156
Misc. (including insurance)		2,100	4,604	4,302	6,013	5,565
Total Operating Expenses		\$67,982	\$102,961	\$140,570	\$173,797	\$201,778
Expansion livestock		1,543	1,856	73	2,884	1,570
Machinery depreciation		5,471	6,445	8,922	8,827	11,992
Building depreciation		2,426	3,137	4,673	6,208	5,166
Total Accrual Expenses		\$77,422	\$114,399	\$154,238	\$191,716	\$220,506
<u>ACCRUAL RECEIPTS</u>						
Milk sales		\$66,573	\$110,669	\$150,507	\$183,502	\$229,256
Dairy cattle		5,751	8,822	8,974	13,300	14,155
Dairy calves		1,012	1,033	1,178	1,457	1,302
Other livestock		-112	950	609	-115	1,176
Crops		665	2,050	319	2,018	2,416
Misc. receipts		2,930	5,695	4,260	4,743	5,589
Total Accrual Receipts		\$76,819	\$129,220	\$165,847	\$204,905	\$253,894
<u>PROFITABILITY ANALYSIS</u>						
Net farm income (without appreciation)		\$-603	\$14,821	\$11,609	\$13,189	\$33,388
Net farm income (with appreciation)		\$192	\$17,948	\$12,893	\$20,106	\$36,668
Labor & management income		\$-17,710	\$-5,158	\$-11,463	\$-11,895	\$-648
Number of operators		1.10	1.21	1.25	1.37	1.23
Labor & management income/operator		\$-16,100	\$-4,263	\$-9,170	\$8,682	\$-527
Rates of return on:						
Equity capital without appreciation		-11.1%	-5.2%	-4.7%	-4.4%	-1.4%
Equity capital with appreciation		-10.7%	-4.2%	-4.4%	-2.7%	-0.7%
All capital without appreciation		-5.8%	-1.9%	-1.5%	-1.2%	0.6%
All capital with appreciation		-5.5%	-1.1%	-1.3%	0.1%	1.1%

Table 48. (continued)

FARM BUSINESS SUMMARY BY HERD SIZE
253 New York Dairy Farms, 1997

Item	Farm Size:	100 to 149 Cows	150 to 199 Cows	200 to 299 Cows	300 or More Cows
Number of farms		58	23	24	42
<u>ACCRUAL EXPENSES</u>					
Hired labor		\$33,780	\$52,716	\$112,548	\$299,675
Dairy grain & concentrate		100,355	152,574	221,648	593,634
Dairy roughage		5,579	12,461	4,898	12,215
Nondairy feed		90	22	0	259
Machine hire, rent & lease		5,246	6,160	11,787	40,292
Machine repairs & farm vehicle expense		18,672	25,536	43,681	71,158
Fuel, oil & grease		8,433	12,189	16,498	29,223
Replacement livestock		5,580	13,687	3,795	18,538
Breeding		3,560	4,358	8,040	16,800
Veterinary & medicine		8,495	11,490	26,453	55,915
Milk marketing		13,410	18,412	31,980	56,021
Bedding		2,350	4,267	7,452	25,510
Milking supplies		7,685	10,688	14,338	38,429
Cattle lease & rent		69	0	0	6,749
Custom boarding		1,572	1,796	5,846	22,462
bST expense		3,094	5,244	14,613	38,493
Other livestock expense		5,286	5,346	11,166	20,049
Fertilizer & lime		10,323	11,835	19,662	34,754
Seeds & plants		6,334	6,247	12,934	23,366
Spray & other crop expense		5,791	7,926	15,765	26,737
Land, building & fence repair		4,421	3,488	10,877	26,599
Taxes & rent		12,500	17,686	28,483	50,404
Utilities		9,635	12,438	17,596	38,630
Interest paid		20,116	34,702	46,799	115,583
Misc. (including insurance)		9,492	11,351	15,302	32,973
Total Operating Expenses		\$301,869	\$442,620	\$702,161	\$1,694,469
Expansion livestock		10,237	12,665	10,493	32,467
Machinery depreciation		15,960	27,154	28,236	63,144
Building depreciation		8,071	13,290	20,532	45,571
Total Accrual Expenses		\$336,137	\$495,729	\$761,422	\$1,835,651
<u>ACCRUAL RECEIPTS</u>					
Milk sales		\$313,577	\$466,910	\$708,416	\$1,757,536
Dairy cattle		24,126	28,357	50,025	128,134
Dairy calves		2,257	5,674	4,340	10,277
Other livestock		731	-292	4,795	5,317
Crops		4,046	-2,140	9,937	30,700
Misc. receipts		7,828	15,599	18,757	35,583
Total Accrual Receipts		\$352,565	\$514,107	\$796,271	\$1,967,548
<u>PROFITABILITY ANALYSIS</u>					
Net farm income (without appreciation)		\$16,428	\$18,378	\$34,849	\$131,897
Net farm income (with appreciation)		\$25,340	\$24,234	\$52,429	\$159,413
Labor & management income		\$-15,600	\$-18,660	\$-8,364	\$45,092
Number of operators		1.65	1.76	1.72	2.11
Labor & management income/operator		\$-9,455	\$-10,602	\$-4,863	\$21,371
Rates of return on:					
Equity capital without appreciation		-5.2%	-3.8%	-1.4%	3.1%
Equity capital with appreciation		-3.5%	-2.9%	0.7%	4.8%
All capital without appreciation		-0.8%	0.8%	2.3%	5.2%
All capital with appreciation		0.3%	1.4%	3.5%	6.0%

Table 49.

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
253 New York Dairy Farms, 1997

Item	Farms with:					
	Less than 40 Cows	40 to 54 Cows	55 to 69 Cows			
	Jan. 1	Dec. 31	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS						
Farm cash, checking & savings	\$3,027	\$2,157	\$3,447	\$3,120	\$7,201	\$6,350
Accounts receivable	5,763	5,595	9,226	10,768	11,922	13,128
Prepaid expenses	0	0	29	30	0	8
Feed & supplies	11,023	11,968	22,826	23,300	32,841	31,185
Livestock*	47,603	49,718	71,183	71,737	91,951	94,132
Machinery & equipment*	57,314	59,606	82,169	87,455	104,548	107,054
Farm Credit stock	735	570	1,473	1,056	668	1,094
Other stock & certificates	983	1,237	3,155	2,752	3,667	2,599
Land & buildings*	178,941	179,622	199,649	215,880	248,202	248,898
Total Farm Assets	\$305,389	\$310,473	\$393,157	\$416,099	\$501,000	\$505,448
Personal cash, checking & savings	\$13	\$31	\$2,297	\$3,008	\$1,189	\$3,031
Cash value of life insurance	3,748	4,232	6,098	6,249	6,133	6,794
Nonfarm real estate	12,500	12,500	28,787	28,787	20,329	20,090
Auto (personal share)	2,119	2,638	2,201	2,766	3,490	3,543
Stocks & bonds	1,200	1,114	3,884	6,368	13,068	16,334
Household furnishings	4,563	4,525	13,022	13,152	7,381	7,786
All other	20,625	20,625	4,013	6,222	1,034	993
Nonfarm Assets**	\$44,768	\$45,665	\$60,302	\$66,552	\$52,624	\$58,571
Farm & Nonfarm Assets	\$350,157	\$356,138	\$453,459	\$482,651	\$553,624	\$564,019
LIABILITIES						
Accounts payable	\$9,885	\$7,330	\$3,265	\$4,129	\$3,832	\$5,449
Operating debt	7,549	5,885	4,625	5,874	3,701	2,512
Short term	0	0	37	479	556	550
Advanced government receipt	0	0	179	209	0	0
Current Portion:						
Intermediate	6,317	7,746	6,293	8,479	10,526	12,817
Long Term	3,011	3,000	3,712	3,513	3,276	3,510
Intermediate***	35,880	46,114	27,627	36,763	38,452	46,238
Long term*	31,136	28,127	54,732	60,986	64,104	61,636
Total Farm Liabilities	\$93,778	\$98,202	\$100,470	\$120,432	\$124,448	\$132,711
Nonfarm Liabilities**	10,722	10,500	1,983	1,365	471	1,012
Farm & Nonfarm Liabilities	\$104,500	\$108,702	\$102,453	\$121,797	\$124,919	\$133,723
Farm Net Worth (Equity Capital)	\$211,611	\$212,271	\$292,687	\$295,667	\$376,552	\$372,737
Farm & Nonfarm Net Worth	\$245,657	\$247,436	\$351,006	\$360,854	\$428,705	\$430,296
FINANCIAL MEASURES						
	Less than 40 Cows		40 to 54 Cows		55 to 69 Cows	
Percent Equity	68%		71%		74%	
Debt/asset ratio-long term	0.16		0.28		0.25	
Debt/asset ratio-intermediate & current	0.54		0.30		0.28	
Change in net worth with appreciation	\$660		\$2,980		\$3,815	
Total farm debt per cow	\$2,518		\$2,458		\$2,074	
Debt payments made per cow	\$894		\$390		\$468	
Debt payments as % of milk sales	49%		16%		20%	
Amount available for debt service	\$5,299		\$15,092		\$16,735	
Cash flow coverage ratio for 1997	0.27		0.83		0.63	

*Includes discounted lease payments.

**Average of farms reporting nonfarm assets and liabilities for 1997.

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

Table 49. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
253 New York Dairy Farms, 1997

Item	Farms with:		85 to 99 Cows	
	70 to 84 Cows		Jan. 1	Dec. 31
	Jan. 1	Dec. 31		
ASSETS				
Farm cash, checking & savings	\$2,294	\$4,928	\$6,966	\$6,938
Accounts receivable	14,594	16,148	20,733	23,056
Prepaid expenses	107	104	216	0
Feed & supplies	41,255	41,143	46,122	48,146
Livestock*	112,986	117,120	136,260	142,385
Machinery & equipment*	107,649	109,601	120,670	128,784
Farm Credit stock	1,182	1,637	2,748	2,085
Other stock & certificates	7,164	7,344	9,260	10,690
Land & buildings*	<u>281,229</u>	<u>288,549</u>	<u>264,678</u>	<u>265,934</u>
Total Farm Assets	\$568,460	\$586,574	\$607,653	\$628,019
Personal cash, checking & savings	\$2,199	\$3,285	\$4,374	\$3,840
Cash value of life insurance	16,129	17,164	20,249	19,872
Nonfarm real estate	31,153	31,153	14,000	15,667
Auto (personal share)	3,867	4,067	3,750	4,345
Stocks & bonds	7,255	6,182	13,014	18,661
Household furnishings	6,067	6,067	9,417	9,417
All other	<u>4,608</u>	<u>7,809</u>	<u>5,856</u>	<u>7,159</u>
Nonfarm Assets**	\$71,278	\$75,727	\$70,660	\$78,961
Farm & Nonfarm Assets	\$639,738	\$662,301	\$678,313	\$706,980
LIABILITIES				
Accounts payable	\$8,523	\$11,635	\$6,118	\$6,586
Operating debt	7,584	7,054	2,038	1,634
Short term	354	2,106	876	1,098
Advanced government receipt	0	0	0	0
Current Portion:				
Intermediate	10,978	12,107	11,767	14,417
Long Term	4,709	4,957	4,324	4,583
Intermediate***	40,307	49,573	63,330	64,631
Long term*	<u>89,222</u>	<u>88,584</u>	<u>54,363</u>	<u>53,855</u>
Total Farm Liabilities	\$161,677	\$176,016	\$142,816	\$146,803
Nonfarm Liabilities**	<u>3,290</u>	<u>3,187</u>	<u>1,789</u>	<u>1,614</u>
Farm & Nonfarm Liabilities	\$164,967	\$179,203	\$144,605	\$148,417
Farm Net Worth (Equity Capital)	\$406,783	\$410,558	\$464,837	\$481,216
Farm & Nonfarm Net Worth	\$474,771	\$483,098	\$533,708	\$558,563
FINANCIAL MEASURES				
	70 to 84 Cows		85 to 99 Cows	
Percent equity	70%		77%	
Debt/asset ratio-long term	0.31		0.20	
Debt/asset ratio-intermediate & current	0.29		0.26	
Change in net worth with appreciation	\$3,775		\$16,379	
Total farm debt per cow	\$2,257		\$1,562	
Debt payments made per cow	\$412		\$308	
Debt payments as % of milk sales	17%		12%	
Amount available for debt service	\$27,508		\$30,025	
Cash flow coverage ratio for 1997	0.97		1.09	

*Includes discounted lease payments.

**Average of farms reporting nonfarm assets and liabilities for 1997.

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

Table 49. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
253 New York Dairy Farms, 1997

Item	Farms with:		150 to 199 Cows	
	100 to 149 Cows		Jan. 1	Dec. 31
	Jan. 1	Dec. 31		
ASSETS				
Farm cash, checking & savings	\$5,879	\$4,829	\$9,186	\$12,277
Accounts receivable	25,915	29,924	48,438	55,437
Prepaid expenses	68	39	177	65
Feed & supplies	62,559	62,937	120,704	116,529
Livestock*	173,822	183,572	252,028	259,850
Machinery & equipment*	158,252	166,027	223,370	240,916
Farm Credit stock	4,622	3,858	4,119	2,905
Other stock & certificates	9,351	10,549	23,362	25,909
Land & buildings*	352,396	361,864	422,265	443,415
Total Farm Assets	\$792,865	\$823,598	\$1,103,649	\$1,157,303
Personal cash, checking & savings	\$10,561	\$8,197	\$6,748	\$6,567
Cash value of life insurance	7,185	8,157	9,455	10,685
Nonfarm real estate	71,286	73,893	17,889	17,889
Auto (personal share)	5,643	6,720	6,389	6,078
Stocks & bonds	8,266	8,766	667	778
Household furnishings	8,918	9,786	11,889	12,222
All other	16,026	16,723	5,911	5,800
Nonfarm Assets**	\$127,885	\$132,242	\$58,948	\$60,019
Farm & Nonfarm Assets	\$920,750	\$955,840	\$1,162,597	\$1,217,322
LIABILITIES				
Accounts payable	\$20,209	\$24,866	\$25,739	\$38,300
Operating debt	11,038	13,783	18,717	22,253
Short term	1,472	4,557	4,678	4,501
Advanced government receipt	7	73	0	131
Current Portion:				
Intermediate	19,936	25,892	36,466	37,274
Long Term	6,731	7,287	7,112	8,431
Intermediate***	98,972	107,639	174,811	199,515
Long term*	125,353	134,118	162,079	194,444
Total Farm Liabilities	\$283,718	\$318,215	\$429,602	\$504,850
Nonfarm Liabilities**	5,382	4,871	7,177	5,283
Farm & Nonfarm Liabilities	\$289,100	\$323,086	\$436,779	\$510,133
Farm Net Worth (Equity Capital)	\$509,147	\$505,383	\$674,047	\$652,453
Farm & Nonfarm Net Worth	\$631,650	\$632,754	\$725,818	\$707,189
FINANCIAL MEASURES				
	100 to 149 Cows		150 to 199 Cows	
Percent equity	61%		56%	
Debt/asset ratio-long term	0.37		0.44	
Debt/asset ratio-intermediate & current	0.40		0.43	
Change in net worth with appreciation	-\$3,764		-\$21,594	
Total farm debt per cow	\$2,429		\$2,789	
Debt payments made per cow	\$505		\$504	
Debt payments as % of milk sales	20%		19%	
Amount available for debt service	\$25,553		\$72,009	
Cash flow coverage ratio for 1997	0.49		0.86	

*Includes discounted lease payments.

**Average of farms reporting nonfarm assets and liabilities for 1997.

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

Table 49. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
253 New York Dairy Farms, 1997

Item	Farms with:		More than 300 Cows	
	200 to 299 Cows		Jan. 1	Dec. 31
	Jan. 1	Dec. 31		
ASSETS				
Farm cash, checking & savings	\$7,884	\$11,907	\$15,637	\$12,000
Accounts receivable	51,195	59,723	117,415	129,504
Prepaid expenses	241	365	4,291	4,360
Feed & supplies	137,952	133,388	348,549	352,472
Livestock*	367,279	385,403	808,717	858,114
Machinery & equipment*	256,589	270,309	500,356	553,968
Farm Credit stock	9,330	7,749	15,103	17,441
Other stock & certificates	27,623	22,654	67,061	61,813
Land & buildings*	634,727	654,490	1,289,677	1,361,728
Total Farm Assets	\$1,492,820	\$1,545,988	\$3,166,806	\$3,331,400
Personal cash, checking & savings	\$12,088	\$11,064	\$3,839	\$4,571
Cash value of life insurance	31,240	32,052	14,605	16,647
Nonfarm real estate	17,077	20,647	9,643	25,000
Auto (personal share)	5,100	5,538	6,321	5,229
Stocks & bonds	29,662	37,135	3,833	5,133
Household furnishings	11,000	11,192	9,571	9,714
All other	7,605	15,106	8,214	8,214
Nonfarm Assets**	\$113,772	\$132,734	\$56,026	\$74,508
Farm & Nonfarm Assets	\$1,606,592	\$1,678,722	\$3,222,832	\$3,405,908
LIABILITIES				
Accounts payable	\$30,577	\$42,464	\$35,972	\$58,474
Operating debt	17,910	21,647	126,597	167,593
Short term	16,585	18,891	9,766	11,379
Advanced government receipts	271	399	0	338
Current Portion:				
Intermediate	43,335	54,132	89,256	104,641
Long Term	12,322	14,899	39,420	42,231
Intermediate***	256,949	282,430	567,903	619,012
Long term*	289,195	282,669	622,388	636,435
Total Farm Liabilities	\$667,143	\$717,531	\$1,491,302	\$1,640,104
Nonfarm Liabilities**	0	231	9,021	10,669
Farm & Nonfarm Liabilities	\$667,143	\$717,762	\$1,500,323	\$1,650,773
Farm Net Worth (Equity Capital)	\$825,677	\$828,457	\$1,675,504	\$1,691,296
Farm & Nonfarm Net Worth	\$939,449	\$960,960	\$1,722,509	\$1,755,135
FINANCIAL MEASURES				
	200 to 299 Cows		More than 300 Cows	
Percent equity	54%		51%	
Debt/asset ratio-long term	.43		.47	
Debt/asset ratio-intermediate & current	.49		.51	
Change in net worth with appreciation	\$2,780		\$15,792	
Total farm debt per cow	\$2,792		\$2,734	
Debt payments made per cow	\$557		\$462	
Debt payments as % of milk sales	19%		15%	
Amount available for debt service	\$91,250		\$240,721	
Cash flow coverage ratio for 1997	0.82		0.98	

*Includes discounted lease payments.

**Average of farms reporting nonfarm assets and liabilities for 1997.

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

Table 50.

SELECTED BUSINESS FACTORS BY HERD SIZE
253 New York Dairy Farms, 1997

Item	Farms with:	Less than 40 Cows	40 to 54 Cows	55 to 69 Cows	70 to 84 Cows	85 to 99 Cows
Number of farms		10	30	26	24	16
<u>Cropping Program Analysis</u>						
Total Tillable acres		123	165	210	234	326
Tillable acres rented*		38	66	87	77	162
Hay crop acres*		81	99	141	133	194
Corn silage acres*		20	34	41	59	79
Hay crop, tons DM/acre		1.6	2.0	2.0	2.3	2.1
Corn silage, tons/acre		8.2	13.5	14.2	13.5	14.6
Oats, bushels/acre		0	73	45	67	51
Forage DM per cow, tons		5.1	7.5	7.4	7.5	8.8
Tillable acres/cow		3.5	35	3.3	3.1	3.6
Fert. & lime expense/tillable acre		\$12.90	\$21.98	\$19.41	\$18.88	\$19.27
Total machinery costs		\$15,357	\$22,799	\$28,847	\$33,464	\$43,414
Machinery cost/tillable acre		\$125	\$138	\$137	\$143	\$133
<u>Dairy Analysis</u>						
Number of cows		35	47	63	76	91
Number of heifers		215	36	47	60	69
Milk sold, lbs.		501,252	809,628	1,104,636	1,337,418	1,665,570
Milk sold/cow, lbs.		14,200	17,093	17,620	17,704	18,265
Operating cost of prod. milk/cwt.		\$11.83	\$10.66	\$11.34	\$11.61	\$10.73
Total cost of prod. milk/cwt.		\$20.08	\$17.39	\$16.91	\$16.60	\$15.58
Price/cwt. milk sold		\$13.28	\$13.67	\$13.63	\$13.72	\$13.76
Purchased dairy feed/cow		\$758	\$745	\$818	\$790	\$778
Purchased dairy feed/cwt. milk		\$5.29	\$4.32	\$4.66	\$4.49	\$4.25
Purchased grain & concentrate as % of milk receipts		35%	29%	33%	32%	30%
Purchased feed & crop expense/cwt. milk		\$5.91	\$5.24	\$5.48	\$5.23	\$5.14
<u>Capital Efficiency</u>						
Farm capital/worker		\$176,972	\$216,379	\$230,837	\$200,527	\$210,866
Farm capital/cow		\$8,798	\$8,609	\$7,988	\$7,599	\$6,789
Farm capital/tillable acre owned		\$3,623	\$4,087	\$4,091	\$3,678	\$3,767
Real estate/cow		\$5,122	\$4,421	\$3,953	\$3,749	\$2,915
Machinery investment/cow		\$1,670	\$1,805	\$1,679	\$1,429	\$1,371
Asset turnover ratio		0.25	0.33	0.33	0.37	0.42
<u>Labor Efficiency</u>						
Worker equivalent		1.74	1.87	2.18	2.88	2.93
Operator/manager equivalent		1.10	1.21	1.25	1.37	1.23
Milk sold/worker, lbs.		288,076	432,956	506,714	464,381	568,454
Cows/worker		20	25	29	26	31
Work units/worker		209	267	304	277	337
Labor cost/cow		\$884	\$720	\$643	\$675	\$566
Labor cost/tillable acre		\$252	\$205	\$193	\$219	\$158

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

Table 50. (cont'd)

SELECTED BUSINESS FACTORS BY HERD SIZE
253 New York Dairy Farms, 1997

Item	Farms with:	100 to 149 Cows	150 to 199 Cows	200 to 299 Cows	300 or More Cows
Number of farms		58	23	24	42
<u>Cropping Program Analysis</u>					
Total Tillable acres		357	481	672	1,105
Tillable acres rented*		149	222	374	489
Hay crop acres*		187	237	290	439
Corn silage acres*		98	124	228	488
Hay crop, tons DM/acre		2.1	2.4	2.6	3.0
Corn silage, tons/acre		15.2	14.4	15.2	17.3
Oats, bushels/acre		63	57	83	38
Forage DM per cow, tons		7.1	6.7	7.7	6.8
Tillable acres/cow		2.9	2.8	2.7	1.9
Fert. & lime expense/tillable acre		\$28.92	\$24.60	\$29.26	\$31.45
Total machinery costs		\$56,418	\$82,646	\$113,374	\$229,675
Machinery cost/tillable acre		\$158	\$172	\$169	\$208
<u>Dairy Analysis</u>					
Number of cows		123	173	246	582
Number of heifers		89	110	192	421
Milk sold, lbs.		2,274,989	3,358,780	5,099,517	13,003,580
Milk sold/cow, lbs.		18,511	19,361	20,726	22,329
Operating cost of prod. milk/cwt.		\$12.01	\$12.15	\$12.25	\$11.67
Total cost of prod. milk/cwt.		\$16.07	\$15.64	\$14.93	\$13.76
Price/cwt. milk sold		\$13.78	\$13.90	\$13.89	\$13.52
Purchased dairy feed/cow		\$861	\$954	\$921	\$1,041
Purchased dairy feed/cwt. milk		\$4.66	\$4.91	\$4.44	\$4.66
Purchased grain & concentrate as % of milk receipts		32%	33%	31%	34%
Purchased feed & crop expense/cwt. milk		\$5.64	\$5.69	\$5.39	\$5.31
<u>Capital Efficiency</u>					
Farm capital/worker		\$212,134	\$245,756	\$238,151	\$252,652
Farm capital/cow		\$6,571	\$6,535	\$6,176	\$5,583
Farm capital/tillable acre owned		\$3,886	\$4,365	\$5,099	\$5,275
Real estate/cow		\$2,903	\$2,502	\$2,620	\$2,278
Machinery investment/cow		\$1,318	\$1,342	\$1,071	\$889
Asset turnover ratio		0.45	0.46	0.54	0.61
<u>Labor Efficiency</u>					
Worker equivalent		3.81	4.60	6.38	12.86
Operator/manager equivalent		1.65	1.76	1.72	2.11
Milk sold/worker, lbs.		597,110	730,170	799,297	1,011,165
Cows/worker		32	38	39	45
Work units/worker		333	376	399	441
Labor cost/cow		\$591	\$532	\$598	\$591
Labor cost/tillable acre		\$204	\$191	\$219	\$311

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

SUPPLEMENTAL INFORMATION

Comparisons of business performance by 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 on DHIA have higher pounds of milk sold per cow. Is it DHIA or is it that DHIA cooperators value production data and would acquire the data by other means and even without DHIA would have higher milk production than non-cooperators? Keep this distinction in mind when reviewing the following data.

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 used as many of the same physical characteristics as possible for 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 51 on page 54 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 587 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 higher 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 55-59. 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, 1988 - 1997

Follow ten years of growth, change and progress made by 63 New York DFBS farms in Table 57, pages 60 and 61. Although milk receipts per cwt. increased less than 5 percent, net farm income without appreciation increased 15 percent from 1988 to 1997.

Comparison of Farms by bST Usage

Farms adopting bovine somatotropin (bST) experienced greater increases in milk production, had larger herds and were more profitable than farms not adopting bST (Table 58). Thirty-seven farms used bST in each year 1994, 1995, 1996 and 1997 and were also participants in the summary in 1993. In comparison, 40 farms did not use bST in 1994, 1995, and 1996, and were also participants in 1993.

Farms not using bST showed a decrease in pounds of milk sold per cow, from 17,428 pounds in 1993 to 17,147 pounds in 1997. Farms using bST increased milk sold per cow over 14 percent, from 20,253 pounds per cow in 1993 to 23,081 pounds per cow in 1997. Farms that used bST in 1994, 1995, 1996, and 1997 were larger, and increased in size more rapidly than did farms not supplementing with bST. Farms not using bST increased by 9 cows, from an average of 80 cows in 1993 to 89 in 1997. Farms adopting bST increased by 124 cows, up to 451 cows in 1997. Both groups saw a decline in rate of return on all capital and net farm income in 1997. Both groups saw an increase in net worth, with the bST group increasing more rapidly. Debt to asset ratio and debt per cow changed very little over the study period.

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 253 dairy farms, 151 dairy farms selling less than 20,000 pounds of milk per cow, and 102 dairy farms selling 20,000 pounds and more in Table 59 on page 63. Table 60 on page 64 provides the same list of average accrual receipts and expenses for 84 farms averaging less than 80 cows per farm, 95 farms with 80 to 180 cows and 74 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.

Intensive Grazing Farms vs. Non-Grazing Farms

In 1997, 44 of the 253 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 61. The control group is a selection of non-grazing dairy farms of similar size and production per cow and from the same counties. In 1997 average net farm income was somewhat higher on intensive grazing farms. Operating cost of producing milk was 90 cents per cwt. lower and total costs were \$1.38 per cwt. below the costs of production on the control farms. Table 61 also includes a comparison of 19 profitable grazing farms to 61 profitable non-grazing farms.

Comparison of Dairy Farm Business Data by Region

Average farm business summary data from five regions of the State are compared in Tables 62 and 63. The largest average farm size, highest average rate of milk production, and highest average farm profits came from the Western and Central Plain Region. Dairy farmers in this region have increased milk production 37.8 percent over the last 10 years and they produced milk for an average total cost of \$11.72 per hundredweight in 1997, \$1.40 below the average of all the other New York dairy regions. Total milk production has declined 17.9 percent over 10 years in the Northern Hudson and Southeastern New York Region. 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-two percent of the 253 DFBS farms utilized three times per day (3X) milking in 1997. 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 64.

In 1997, the 3X farms averaged 29 more cows per farm, sold 2 percent more milk per cow, decreased the total cost of producing milk 47 cents per hundredweight but showed an average 44 percent decrease in net farm income, compared to the 3X farm averages for 1996. The 2X farms increased milk output per cow 0.6 percent, decreased total production costs \$0.32 per hundredweight and decreased average net farm income \$16,463 per farm in 1997 compared to 1996.

The 3X farms compared with the 2X farms averaged 24 percent more milk per cow and 62 percent additional milk per worker in 1997, very similar to the differences found in 1996. In 1997 the average total cost of producing milk was 14 percent lower on 3X farms than on 2X dairies. In 1996 the 3X farms showed a 11 percent cost advantage. 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-one dairy renter farms were smaller, on average, than the 253 owner-operated farms, but averaged higher returns to labor and management than the average for 253 owned dairy farms (Table 65). E.B. 98-13 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 66. Additional data for the top 10 percent of farms is presented in many of the first 44 tables of this publication. Summary data for the 253 specialized dairy farms are presented in Table 67.

Table 51.

SELECTED BUSINESS FACTORS BY TYPE OF BARN AND HERD SIZE
222 New York Dairy Farms, 1997

Item	Farms with:	Conventional		Freestall		
		<= 60 Cows	>60 Cows	<=150 Cows	151-300 Cows	≥300 Cows
Number of farms		42	39	60	41	40
<u>Cropping Program Analysis</u>						
Total Tillable acres		153	247	332	597	1,108
Tillable acres rented*		58	101	143	311	500
Hay crop acres*		100	156	174	269	437
Corn silage acres*		26	52	92	185	495
Hay crop, tons DM/acre		1.9	2.1	2.1	2.5	3.0
Corn silage, tons/acre		12.2	14.3	14.6	14.9	17.2
Oats, bushels/acre		71	65	58	55	40
Forage DM per cow, tons		6.6	7.2	7.4	7.3	6.8
Tillable acres/cow		3.3	3.1	3.1	2.8	1.9
Fert. & lime exp./tillable acre		\$17.31	\$23.18	\$27.38	\$27.65	\$31.89
Total machinery costs		\$21,065	\$35,299	\$50,301	\$101,405	\$229,353
Machinery cost/tillable acre		\$138	\$143	\$152	\$170	\$207
<u>Dairy Analysis</u>						
Number of cows		46	80	107	216	587
Number of heifers		36	63	77	156	422
Milk sold, lbs.		757,555	1,394,133	1,997,423	4,337,572	13,169,719
Milk sold/cow, lbs.		16,392	17,327	18,714	20,118	22,421
Operating cost of prod. milk/cwt.		\$10.80	\$12.07	\$11.82	\$12.23	\$11.65
Total cost of prod. milk/cwt.		\$17.82	\$16.81	\$16.12	\$15.21	\$13.68
Price/cwt. milk sold		\$13.61	\$13.73	\$13.77	\$13.93	\$13.49
Purchased dairy feed/cow		\$765	\$808	\$850	\$926	\$1,041
Purchased dairy feed/cwt. milk		\$4.65	\$4.64	\$4.55	\$4.61	\$4.64
Purchased grain & conc. as % milk rec.		31%	32%	32%	32%	34%
Purchased feed & crop exp./cwt. milk		\$5.43	\$5.46	\$5.57	\$5.51	\$5.29
<u>Capital Efficiency</u>						
Farm capital/worker		\$207,363	\$199,094	\$226,750	\$246,641	\$249,800
Farm capital/cow		\$8,745	\$6,968	\$6,972	\$6,280	\$5,528
Farm capital/tillable acre owned		\$4,235	\$3,818	\$3,947	\$4,760	\$5,337
Real estate/cow		\$4,597	\$3,355	\$3,169	\$2,603	\$2,236
Machinery investment/cow		\$1,762	\$1,310	\$1,423	\$1,145	\$875
Asset turnover ratio		0.30	0.38	0.43	0.51	0.62
<u>Labor Efficiency</u>						
Worker equivalent		1.94	2.80	3.29	5.50	12.99
Operator/manager equivalent		1.25	1.31	1.41	1.73	2.08
Milk sold/worker, lbs.		390,492	497,905	607,119	788,649	1,013,835
Cows/worker		24	29	33	39	45
Labor cost/cow		\$757	\$640	\$577	\$562	\$597
Labor cost/tillable acre		\$228	\$207	\$186	\$203	\$316
<u>Profitability & Balance Sheet Analysis</u>						
Net farm income (without appreciation)		\$12,153	\$9,146	\$16,448	\$27,901	\$135,137
Labor & management income/operator		\$-6,954	\$-12,276	\$-9,715	\$-7,221	\$23,612
Rate return on all capital with appreciation		-1.8%	-1.4%	0.4%	2.7%	6.1%
Farm debt/cow		\$2,153	\$1,980	\$2,448	\$2,779	\$2,737
Percent equity		74%	71%	63%	55%	50%

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

Table 52.

FARM BUSINESS CHART FOR SMALL CONVENTIONAL STALL DAIRY FARMS
42 Conventional Stall Dairy Farms with 60 or Less Cows, New York, 1997

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
3.21	59	1,101,928	20,866	3.4	19	39	693,273
2.44	55	1,003,781	19,995	2.5	18	32	565,561
2.17	53	914,960	18,631	2.2	17	30	495,451
2.01	51	879,648	18,136	2.1	16	28	468,090
1.96	48	803,954	17,338	2.0	15	26	434,043
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1.82	46	731,007	15,900	1.8	14	24	400,376
1.68	42	680,016	15,083	1.6	12	23	346,975
1.58	41	624,372	14,511	1.4	10	22	311,828
1.50	39	555,439	13,519	1.2	8	20	286,172
1.33	34	416,286	10,729	0.8	5	15	202,070
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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		
\$361	19%	\$197	\$744	\$462	\$3.64		
519	24	297	1,000	639	4.34		
575	27	360	1,080	746	4.68		
637	28	411	1,131	807	4.88		
658	31	449	1,175	853	5.27		
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725	33	470	1,246	944	5.68		
798	35	493	1,311	998	5.95		
847	38	570	1,382	1,069	6.23		
905	41	639	1,515	1,148	6.59		
1,084	46	789	1,840	1,349	7.67		
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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			
\$3,082	\$7.59	\$13.87	\$42,028	\$872	\$21,550	\$38,588	
2,831	9.03	15.37	31,895	732	11,197	21,215	
2,552	9.85	16.36	28,320	603	5,762	15,630	
2,454	10.36	16.62	23,690	436	718	12,112	
2,377	10.54	17.44	14,588	349	-1,899	9,298	
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2,102	11.16	17.81	10,027	215	-4,866	3,903	
1,978	11.63	18.76	5,331	112	-11,366	696	
1,904	12.40	20.20	-504	-11	-22,365	-5,288	
1,780	12.96	22.27	-5,675	-130	-28,673	-11,140	
1,403	14.95	27.10	-16,537	-446	-43,483	-22,635	

Table 53.

FARM BUSINESS CHART FOR LARGE CONVENTIONAL STALL DAIRY FARMS
39 Conventional Stall Dairy Farms with More Than 60 Cows, New York, 1997

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
4.05	126	2,056,671	22,995	4.1	21	48	884,871
3.78	103	1,865,087	20,647	3.1	19	38	677,191
3.46	91	1,675,072	18,877	2.8	18	35	636,310
3.21	82	1,581,941	18,329	2.4	17	33	559,715
2.98	77	1,383,678	17,873	2.3	16	31	517,084
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2.63	74	1,248,877	17,266	2.1	15	29	497,963
2.50	70	1,182,772	16,701	1.9	14	28	479,995
2.32	67	1,152,870	15,718	1.7	12	26	441,783
1.93	64	1,063,871	14,601	1.2	12	22	354,372
1.47	62	896,128	12,637	0.8	9	19	300,834
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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		
\$448	21%	\$184	\$664	\$608	\$3.75		
563	25	246	816	699	4.10		
633	28	299	936	774	4.67		
680	29	394	978	834	4.88		
723	31	431	1,033	900	5.09		
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800	33	460	1,123	938	5.46		
868	35	509	1,207	1,072	5.97		
951	38	564	1,311	1,131	6.44		
1,011	42	655	1,357	1,202	6.84		
1,086	47	748	1,541	1,360	7.95		
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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			
\$3,044	\$8.78	\$13.65	\$42,169	\$555	\$15,671	\$56,186	
2,854	10.51	14.98	36,176	416	9,029	25,240	
2,652	11.24	15.59	28,970	354	3,396	17,846	
2,517	11.73	15.96	24,309	323	628	8,612	
2,432	11.92	16.27	17,957	244	-7,852	2,860	
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2,377	12.21	16.70	11,509	142	-11,099	-3,089	
2,270	12.79	17.47	-159	-0.8	-17,743	-10,909	
2,183	13.57	18.33	-10,805	-136	-25,059	-22,645	
2,046	14.17	19.55	-17,203	-224	-30,421	-36,438	
1,690	15.53	23.35	-33,218	-423	-55,370	-69,723	

Table 54.

FARM BUSINESS CHART FOR SMALL FREESTALL DAIRY FARMS
60 Freestall Barn Dairy Farms with 150 or Less Cows, New York, 1997

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
5.28	145	3,195,348	24,936	3.8	21	58	993,037
4.44	139	2,748,342	21,844	3.0	19	42	782,022
4.08	134	2,549,753	20,493	2.7	18	38	721,468
3.67	122	2,283,113	19,390	2.5	16	34	672,546
3.46	114	2,103,312	18,563	2.2	15	33	638,941
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3.13	107	1,942,241	17,900	2.0	14	32	596,502
2.84	96	1,657,370	17,259	1.8	14	31	550,538
2.58	85	1,425,509	16,213	1.7	13	29	513,301
2.03	73	1,182,037	15,070	1.4	11	27	458,883
1.38	54	887,209	13,256	1.0	8	22	357,100
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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		
\$530	23%	\$263	\$659	\$630	\$4.09		
615	26	307	819	834	4.74		
652	27	335	878	879	5.05		
703	29	395	965	916	5.20		
759	31	442	1,021	1,015	5.35		
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827	32	494	1,062	1,060	5.54		
883	34	535	1,160	1,129	5.87		
948	36	575	1,213	1,176	6.16		
992	39	640	1,303	1,244	6.52		
1,131	42	756	1,458	1,377	7.23		
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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			
\$3,439	\$8.88	\$12.77	\$80,921	\$746	\$42,272	\$66,765	
3,026	10.20	13.87	54,208	486	25,117	42,074	
2,831	10.49	14.54	42,104	382	9,790	34,040	
2,646	10.73	15.20	32,497	332	-73	23,877	
2,558	11.07	15.91	25,051	267	-4,267	15,215	
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2,506	11.41	16.45	16,655	176	-9,885	4,624	
2,347	11.84	16.99	7,778	90	-17,559	-5,834	
2,197	12.84	17.83	-3,503	-33	-26,980	-25,878	
2,023	14.03	18.94	-22,366	-260	-50,159	-59,207	
1,798	16.51	21.41	-68,863	-590	-87,562	-107,335	

Table 55.

FARM BUSINESS CHART FOR MEDIUM FREESTALL DAIRY FARMS
41 Freestall Barn Dairy Farms with 151-300 Cows, New York, 1997

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
8.87	287	6,731,911	24,776	3.8	23	63	1,224,427
6.95	272	5,348,971	22,961	3.4	20	50	980,478
6.47	254	5,094,989	22,007	3.3	18	48	910,554
5.75	235	4,872,494	21,306	3.1	17	45	872,906
5.51	220	4,497,454	20,775	2.9	16	42	811,162
5.36	203	4,025,898	20,268	2.5	15	39	776,088
5.00	190	3,690,005	19,634	2.4	13	36	739,869
4.38	182	3,483,656	18,313	2.2	12	34	701,973
4.05	171	3,278,840	17,079	2.0	10	31	635,417
3.21	158	2,748,721	14,619	1.0	9	29	553,188
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		
\$512	20%	\$262	\$656	\$747	\$4.06		
674	26	327	779	920	4.70		
770	28	399	873	955	4.94		
862	30	436	946	1,003	5.14		
901	32	463	983	1,080	5.45		
925	33	491	1,024	1,122	5.61		
970	34	531	1,156	1,186	5.91		
1,002	36	562	1,269	1,265	6.11		
1,055	39	635	1,346	1,369	6.38		
1,261	46	710	1,418	1,525	7.77		
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec.		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.	
			Total	Per Cow			
\$3,568	\$9.13	\$13.07	\$167,103	\$838	\$60,411	\$118,357	
3,298	10.55	13.65	100,768	548	40,779	70,965	
3,057	11.15	13.96	76,563	336	25,167	52,519	
2,932	11.44	14.21	56,942	256	9,952	29,714	
2,904	12.20	14.83	35,560	160	-1,910	7,348	
2,809	12.66	15.37	16,759	68	-7,808	-16,957	
2,721	13.00	15.81	-934	-4	-18,240	-34,456	
2,471	13.54	16.41	-20,243	-90	-31,069	-49,012	
2,370	14.12	17.60	-41,389	-214	-47,750	-67,973	
2,004	16.10	19.65	-84,122	-439	-112,680	-168,740	

Table 56.

FARM BUSINESS CHART FOR LARGE FREESTALL DAIRY FARMS
40 Freestall Barn Dairy Farms with 300 or More Cows, New York, 1997

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
30.16	1,612	36,966,226	25,557	4.7	21	60	1,365,046
18.07	853	20,303,842	23,339	3.8	20	53	1,220,599
15.91	631	14,342,577	23,090	3.5	19	50	1,127,199
13.08	555	12,345,606	22,744	3.2	18	46	1,016,973
11.73	493	10,427,122	22,491	2.9	18	44	986,127
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10.03	394	9,006,380	22,162	2.6	17	43	922,153
8.90	365	8,011,622	21,646	2.5	15	41	866,314
8.16	341	7,378,266	20,921	2.3	15	38	845,784
7.54	321	6,683,887	20,230	2.1	14	37	781,372
6.32	310	6,231,661	18,428	1.4	13	33	687,109
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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		
\$783	27%	\$254	\$726	\$948	\$4.37		
846	28	289	779	1,055	4.61		
923	30	309	831	1,102	4.95		
976	32	357	885	1,156	5.27		
991	34	374	968	1,206	5.45		
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1,034	35	397	1,017	1,230	5.56		
1,089	37	422	1,036	1,241	5.70		
1,117	38	467	1,068	1,283	5.79		
1,139	39	492	1,164	1,301	5.93		
1,210	41	595	1,323	1,370	6.56		
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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			
\$3,466	\$9.84	\$11.88	\$595,440	\$724	\$275,911	\$325,657	
3,219	10.85	12.93	333,662	436	107,574	153,526	
3,113	11.16	13.23	217,681	381	65,647	95,093	
3,034	11.52	13.51	142,588	317	44,564	59,203	
3,010	11.73	13.82	120,804	244	24,904	36,690	
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2,983	11.82	14.06	71,533	160	5,076	4,542	
2,904	12.06	14.24	40,577	103	-9,912	-25,129	
2,815	12.38	14.66	10,600	23	-30,893	-60,317	
2,746	12.92	15.29	-38,458	-81	-55,740	-154,390	
2,555	14.28	17.30	-143,065	-355	-142,233	-341,572	

Table 57.

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 63 New York Dairy Farms, 1988 - 1997

Selected Factors	1988	1989	1990	1991
Milk receipts per cwt. milk	\$13.05	\$14.54	\$14.85	\$12.90
<u>Size of Business</u>				
Average number of cows	125	134	139	148
Average number of heifers	101	105	115	123
Milk sold, cwt.	22,329	24,586	25,580	27,692
Worker equivalent	3.64	3.82	3.96	4.19
Total tillable acres	342	346	387	397
<u>Rates of Production</u>				
Milk sold per cow, lbs.	17,879	18,361	18,375	18,663
Hay DM per acre, tons	2.8	2.6	2.9	2.5
Corn silage per acre, tons	13	13	14	13
<u>Labor Efficiency</u>				
Cows per worker	34	35	35	35
Milk sold per worker, lbs.	612,803	643,658	646,573	661,027
<u>Cost Control</u>				
Grain & concn. purchased as % of milk sales	28%	27%	28%	29%
Dairy feed & crop expense per cwt. milk	\$4.70	\$5.06	\$5.22	\$4.75
Operating cost of producing cwt. milk	\$8.81	\$9.75	\$10.61	\$9.77
Total cost of producing cwt. milk	\$13.76	\$14.91	\$16.26	\$15.03
Hired labor cost per cwt.	\$1.12	\$1.27	\$1.50	\$1.37
Interest paid per cwt.	\$0.80	\$0.86	\$0.84	\$0.86
Labor & machinery costs per cow	\$875	\$948	\$1,055	\$1,027
Replacement livestock expense	\$1,873	\$2,806	\$4,221	\$2,388
Expansion livestock expense	\$8,692	\$7,965	\$8,363	\$17,576
<u>Capital Efficiency</u>				
Farm capital per cow	\$6,249	\$6,674	\$7,011	\$7,068
Machinery & equipment per cow	\$1,245	\$1,359	\$1,473	\$1,510
Real estate per cow	\$2,843	\$2,947	\$3,059	\$3,112
Livestock investment per cow	\$1,278	\$1,387	\$1,484	\$1,485
Asset turnover ratio	0.50	0.53	0.48	0.44
<u>Profitability</u>				
Net farm income without appreciation	\$62,261	\$82,377	\$69,969	\$37,757
Net farm income with appreciation	\$79,843	\$115,907	\$84,436	\$59,792
Labor & management income per operator/manager	\$29,063	\$42,505	\$26,210	\$1,390
Rate return on:				
Equity capital with appreciation	7.5%	12.0%	4.3%	0.9%
All capital with appreciation	7.0%	10.4%	5.4%	3.1%
All capital without appreciation	3.9%	5.8%	4.0%	0.7%
<u>Financial Summary, End Year</u>				
Farm net worth	\$506,546	\$586,768	\$616,155	\$627,789
Change in net worth with appreciation	\$43,009	\$78,215	\$27,683	\$5,639
Debt to asset ratio	0.30	0.28	0.29	0.31
Farm debt per cow	\$1,801	\$1,783	\$1,997	\$2,037

Table 57. (continued)

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 63 New York Dairy Farms, 1988 - 1997

1992	1993	1994	1995	1996	1997
\$13.51	\$13.17	\$13.47	\$13.03	\$15.02	\$13.67
167	183	196	211	225	230
126	137	150	160	168	177
32,388	35,327	40,703	44,038	47,373	50,156
4.40	4.61	4.95	5.19	5.44	5.65
405	429	452	476	500	521
19,350	18,855	19,628	20,852	21,093	21,831
2.9	2.8	3.1	2.8	2.8	2.5
14	15	16.4	15	15	14
38	40	40	41	41	41
735,515	766,109	822,583	848,989	870,978	887,712
29%	29%	27%	27%	29%	31%
\$4.82	\$4.69	\$4.53	\$4.34	\$5.21	\$5.18
\$9.71	\$9.77	\$9.72	\$9.90	\$11.15	\$11.01
\$14.74	\$14.68	\$14.63	\$14.63	\$16.09	\$15.72
\$1.34	\$1.41	\$1.41	\$1.44	\$1.51	\$1.48
\$0.72	\$0.71	\$0.68	\$0.75	\$0.72	\$0.73
\$1,044	\$1,046	\$1,089	\$1,067	\$1,152	\$1,133
\$4,997	\$5,749	\$7,564	\$3,674	\$4,975	\$6,074
\$16,760	\$11,888	\$11,704	\$10,701	\$7,446	\$6,873
\$7,087	\$7,207	\$7,236	\$7,194	\$7,235	\$7,261
\$1,500	\$1,518	\$1,527	\$1,505	\$1,505	\$1,538
\$3,160	\$3,243	\$3,231	\$3,216	\$3,239	\$3,232
\$1,474	\$1,498	\$1,532	\$1,526	\$1,521	\$1,509
0.47	0.45	0.47	0.44	0.49	0.44
\$76,317	\$70,992	\$89,072	\$81,373	\$106,797	\$71,617
\$97,966	\$91,061	\$110,110	\$97,829	\$123,766	\$79,693
\$31,829	\$22,630	\$34,271	\$26,717	\$46,669	\$12,199
4.5%	3.0%	4.4%	1.9%	4.9%	-1.1%
4.9%	4.0%	4.8%	3.5%	5.3%	1.4%
2.9%	2.2%	3.3%	2.3%	3.7%	0.8%
\$687,366	\$729,504	\$785,951	\$831,229	\$912,066	\$915,259
\$50,089	\$40,644	\$55,104	\$46,218	\$71,765	\$6,395
0.29	0.30	0.29	0.29	0.28	0.29
\$1,985	\$2,020	\$2,007	\$1,934	\$1,914	\$1,943

Table 58.

bST NON-USERS VS. USERS

Same 77 Farms, 1993 - 1997

Selected Factors	40 Farms Not Using bST in 1994, 1995, 1996 & 1997					37 Farms Using bST in 1994, 1995, 1996 & 1997				
	1993	1994	1995	1996	1997	1993	1994	1995	1996	1997
Size of Business										
Average number of cows	80	83	85	89	89	327	354	393	423	451
Average number of heifers	64	66	70	72	71	239	267	289	306	345
Milk sold, cwt.	13,921	14,488	14,684	15,079	15,730	66,157	78,477	88,335	94,808	104,199
Worker equivalent	2.71	2.67	2.85	2.71	2.79	7.69	8.49	9.17	9.79	10.50
Total tillable acres	244	245	242	251	264	706	740	788	850	893
Rates of Production										
Milk sold per cow, lbs.	17,428	17,529	17,321	17,000	17,147	20,253	22,194	22,875	22,438	23,081
Hay DM per acre, tons	2.3	2.8	2.3	2.5	2.2	3.2	3.5	3.6	3.2	3.0
Corn silage per acre, tons	13	16	13	13	12	16	17	17	16	16
Labor Efficiency										
Cows per worker	30	31	30	33	32	38	42	43	43	3
Milk sold per worker, lbs.	512,882	533,205	516,086	556,126	563,278	788,553	924,086	962,997	968,765	992,451
Cost Control										
Grain & conc. purchased as percent of milk sales	30%	29%	29%	32%	33%	28%	27%	26%	29%	31%
Dairy feed and crop expense per cwt. milk	\$4.84	\$4.84	\$4.56	\$5.59	\$5.38	\$4.65	\$4.55	\$4.16	\$5.16	\$5.20
Labor and mach. costs per cow	\$1,040	\$1,100	\$1,072	\$1,088	\$1,098	\$1,035	\$1,067	\$1,051	\$1,151	\$1,113
Operating cost of producing milk per cwt.	\$9.91	\$9.72	\$10.38	\$11.39	\$11.01	\$10.01	\$10.53	\$10.08	\$12.04	\$11.66
Capital Efficiency (avg. for year)										
Farm capital per cow	\$7,203	\$7,247	\$7,316	\$7,172	\$7,357	\$6,605	\$6,677	\$6,466	\$6,606	\$6,597
Machinery and equip. per cow	\$1,497	\$1,502	\$1,520	\$1,485	\$1,544	\$1,180	\$1,175	\$1,166	\$1,205	\$1,195
Asset turnover ratio	0.42	0.43	0.38	0.43	0.39	0.54	0.56	0.57	0.61	0.57
Profitability										
Net farm income w/o apprec.	\$26,171	\$33,749	\$23,331	\$30,345	\$20,114	\$122,657	\$151,275	\$160,735	\$181,145	\$120,211
Net farm income with apprec.	\$35,908	\$40,619	\$33,949	\$39,259	\$24,184	\$156,410	\$180,269	\$184,453	\$199,074	\$133,146
Labor & management income per op/mgr.	\$1,746	\$7,046	\$-2,573	\$4,760	\$-5,319	\$47,204	\$61,167	\$67,206	\$79,057	\$27,752
Rate return on equity capital with appreciation	1.7%	2.0%	-1.3%	1.5%	-1.9%	7.7%	4.3%	11.7%	-5.7%	-1.5%
Rate return on all capital with appreciation	2.6%	2.8%	0.5%	2.4%	-0.2%	6.8%	6.6%	7.3%	7.2%	4.0%
Financial Summary (end of year)										
Farm net worth	\$414,091	\$430,184	\$436,957	\$457,387	\$468,041	\$1,178,841	\$1,279,307	\$1,369,353	\$1,482,439	\$1,488,045
Debt to asset ratio	0.23	0.22	0.22	0.21	0.21	0.38	0.38	0.39	0.41	0.43
Farm debt per cow	\$1,666	\$1,602	\$1,585	\$1,521	\$1,491	\$2,292	\$2,298	\$2,345	\$2,516	\$2,558

Table 59.

**FARM RECEIPTS AND EXPENSES PER COW AND PER
HUNDREDWEIGHT FOR TWO LEVELS OF MILK PRODUCTION
253 New York Dairy Farms, 1997**

Item	253 Dairy Farms		151 Dairy Farms Milk/Cow <20,000#		102 Dairy Farms Milk/Cow ≥20,000#	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<u>ACCRUAL RECEIPTS</u>						
Milk sales	\$2,823	\$13.65	\$2,349	\$13.80	\$3,059	\$13.59
Dairy cattle	203	0.98	173	1.02	217	0.96
Dairy calves	19	0.09	18	0.11	20	0.09
Other livestock	9	0.04	10	0.06	8	0.04
Crops	39	0.19	7	0.04	56	0.25
Government receipts	36	0.17	39	0.23	34	0.15
All other	<u>32</u>	<u>0.16</u>	<u>36</u>	<u>0.21</u>	<u>30</u>	<u>0.13</u>
TOTAL ACCRUAL RECEIPTS	\$3,161	\$15.28	\$2,632	\$15.47	\$3,424	\$15.21
<u>ACCRUAL EXPENSES</u>						
Labor: Hired	\$409	\$1.97	\$260	\$1.52	\$484	\$2.15
Feed: Dairy grain & concentrate	927	4.48	788	4.63	997	4.43
Dairy roughage	31	0.15	34	0.20	29	0.13
Nondairy	1	0.00	2	0.01	0	0.00
Machinery: Machine hire, rent & lease	56	0.27	43	0.25	62	0.28
Machinery repairs & vehicle expense	139	0.67	145	0.85	136	0.60
Fuel, oil & grease	58	0.28	62	0.36	56	0.25
Livestock: Replacement livestock	36	0.18	36	0.21	356	0.16
Breeding	30	0.15	27	0.16	32	0.14
Vet & medicine	86	0.41	64	0.37	97	0.43
Milk marketing	108	0.52	106	0.62	108	0.48
Bedding	33	0.16	18	0.10	41	0.18
Milking supplies	65	0.31	63	0.37	65	0.29
Cattle lease & rent	6	0.03	1	0.00	9	0.04
Custom boarding	26	0.13	6	0.03	37	0.16
bST expense	49	0.24	15	0.09	66	0.29
Other livestock expense	38	0.18	42	0.25	36	0.16
Crops: Fertilizer & lime	67	0.33	71	0.42	65	0.29
Seeds & plants	43	0.21	40	0.23	44	0.20
Spray & other crop expense	48	0.23	46	0.27	48	0.21
Real Estate: Land, building & fence repair	40	0.19	28	0.17	46	0.21
Taxes	47	0.23	63	0.37	39	0.17
Rent & lease	50	0.24	35	0.21	58	0.26
Other: Insurance	34	0.16	41	0.24	30	0.13
Utilities (farm share)	73	0.35	76	0.45	71	0.32
Interest paid	186	0.90	171	1.00	193	0.86
Miscellaneous	<u>30</u>	<u>0.14</u>	<u>32</u>	<u>0.19</u>	<u>29</u>	<u>0.13</u>
TOTAL OPERATING EXPENSES	\$2,716	\$13.13	\$2,314	\$13.59	\$2,914	\$12.94
Expansion livestock	56	0.27	53	0.31	56	0.25
Machinery depreciation	120	0.58	126	0.74	116	0.52
Building depreciation	<u>76</u>	<u>0.37</u>	<u>72</u>	<u>0.43</u>	<u>78</u>	<u>0.34</u>
TOTAL ACCRUAL EXPENSES	\$2,968	\$14.35	\$2,565	\$15.07	\$3,164	\$14.05

Table 60.

**FARM RECEIPTS AND EXPENSES PER COW AND PER
HUNDREDWEIGHT FOR THREE HERD SIZE CATEGORIES
253 New York Dairy Farms, 1997**

Item	84 Dairy Farms with <80 Cows		95 Dairy Farms with 80-180 Cows		74 Dairy Farms with ≥ 180 Cows	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<u>ACCRUAL RECEIPTS</u>						
Milk sales	\$2,347	\$13.61	\$2,580	\$13.82	\$2,971	\$13.60
Dairy cattle	171	0.99	184	0.99	213	0.98
Dairy calves	21	0.12	20	0.11	19	0.09
Other livestock	9	0.05	5	0.02	10	0.05
Crops	24	0.14	26	0.14	46	0.21
Government receipts	41	0.24	42	0.23	32	0.15
All other	<u>43</u>	<u>0.25</u>	<u>30</u>	<u>0.15</u>	<u>32</u>	<u>0.14</u>
TOTAL ACCRUAL RECEIPTS	\$2,656	\$15.40	\$2,887	\$15.46	\$3,323	\$15.22
<u>ACCRUAL EXPENSES</u>						
Labor: Hired	\$159	\$0.92	\$276	\$1.48	\$492	\$2.25
Feed: Dairy grain & concentrate	752	4.36	802	4.30	995	4.55
Dairy roughage	40	0.23	41	0.22	25	0.12
Nondairy	1	0.01	1	0.01	0	0.00
Machinery: Machine hire, rent & lease	40	0.23	43	0.23	63	0.29
Mach. repairs & vehicle expense	149	0.86	153	0.82	132	0.61
Fuel, oil & grease	60	0.35	69	0.37	54	0.25
Livestock: Replacement livestock	37	0.22	51	0.27	31	0.14
Breeding	37	0.22	31	0.16	29	0.13
Vet & medicine	56	0.32	67	0.36	97	0.44
Milk marketing	123	0.72	115	0.62	102	0.47
Bedding	13	0.07	21	0.11	40	0.18
Milking supplies	65	0.38	62	0.33	65	0.30
Cattle lease & rent	0	0.00	0	0.00	9	0.04
Custom boarding	8	0.05	11	0.06	34	0.16
bST expense	11	0.06	26	0.14	63	0.29
Other livestock expense	45	0.26	42	0.22	36	0.16
Crops: Fertilizer & lime	65	0.38	80	0.43	63	0.29
Seeds & plants	35	0.20	49	0.26	42	0.19
Spray & other crop expense	37	0.21	49	0.26	49	0.22
Real Estate: Land, building & fence repair	32	0.18	34	0.18	44	0.20
Taxes	85	0.49	62	0.33	36	0.17
Rent & lease	29	0.17	38	0.21	57	0.26
Other: Insurance	48	0.28	44	0.23	28	0.13
Utilities (farm share)	96	0.56	78	0.42	68	0.31
Interest paid	163	0.95	162	0.87	197	0.90
Miscellaneous	<u>31</u>	<u>0.18</u>	<u>30</u>	<u>0.16</u>	<u>30</u>	<u>0.14</u>
TOTAL OPERATING EXPENSES	\$2,218	\$12.86	\$2,437	\$13.05	\$2,880	\$13.18
Expansion livestock	30	0.18	62	0.33	57	0.26
Machinery depreciation	135	0.78	140	0.75	110	0.50
Building depreciation	<u>75</u>	<u>0.43</u>	<u>71</u>	<u>0.38</u>	<u>78</u>	<u>0.36</u>
TOTAL ACCRUAL EXPENSES	\$2,458	\$14.25	\$2,710	\$14.51	\$3,125	\$14.30

Table 61.

INTENSIVE GRAZING FARMS VS. NON-GRAZING FARMS
New York State Dairy Farms, 1997

Item	All Intensive Grazing Farms	Non-Grazing Farms*	Profitable Grazing Farms**	Profitable Non- Grazing Farms***
Number of farms	46	48	19	61
<u>Business Size & Production</u>				
Number of cows	82	83	89	87
Number of heifers	57	58	66	67
Milk sold, lbs.	1,422,734	1,453,758	1,626,657	1,603,331
Milk sold/cow, lbs.	17,277	17,463	18,288	18,422
Milk plant test, % butterfat	3.68%	3.71%	3.72%	3.73%
Tillable acres, total	234	266	244	282
Hay crop, tons DM/acre	2.2	2.1	2.4	2.2
Corn silage, tons/acre	14.1	15.1	14.1	15.5
Forage DM/cow, tons	5.9	8.1	5.4	8.3
<u>Labor & Capital Efficiency</u>				
Worker equivalent	2.79	2.78	2.87	2.98
Milk sold/worker, lbs.	509,941	522,935	566,779	538,031
Cows/worker	29	30	31	29
Farm capital/worker	\$188,646	\$209,802	\$197,629	\$213,136
Farm capital/cow	\$6,419	\$7,027	\$6,373	\$7,301
Farm capital/cwt. milk	\$37	\$40	\$35	\$40
<u>Milk Production Costs & Returns</u>				
Selected costs/cwt.:				
Hired labor	\$1.48	\$1.05	\$1.52	\$1.27
Grain & concentrate	\$4.00	\$4.55	\$3.69	\$4.13
Purchased roughage	\$0.22	\$0.25	\$0.21	\$0.19
Replacements purchased	\$0.16	\$0.29	\$0.09	\$0.23
Vet & medicine	\$0.32	\$0.37	\$0.32	\$0.35
Milk marketing	\$0.57	\$0.67	\$0.55	\$0.66
Other dairy expenses	\$0.94	\$1.05	\$0.94	\$1.06
Operating cost/cwt.	\$11.08	\$11.90	\$10.12	\$10.67
Total labor cost/cwt.	\$3.75	\$3.55	\$3.50	\$3.39
Operator resources/cwt.	\$3.23	\$3.34	\$3.08	\$3.13
Total cost/cwt.	\$15.74	\$17.08	\$14.52	\$15.36
Average farm price/cwt.	\$13.47	\$13.80	\$13.53	\$13.87
Return over total costs/cwt.	\$-2.27	\$-3.28	\$-0.99	\$-1.49
<u>Related Cost Factors</u>				
Hired labor/cow	\$256	\$184	\$278	\$234
Total labor/cow	\$651	\$623	\$639	\$624
Purchased dairy feed/cow	\$731	\$839	\$711	\$796
Purchased grain & concentrate as % of milk receipts	30%	33%	27%	30%
Vet & medicine/cow	\$55	\$65	\$58	\$65
Machinery costs/cow	\$421	\$490	\$411	\$460
Feed & crop exp./cwt.	\$4.97	\$5.64	\$4.69	\$5.28
<u>Profitability Analysis</u>				
Net farm income (without appreciation)	\$19,705	\$9,502	\$40,258	\$33,527
Net farm income per cow (w/o apprec.)	\$240	\$114	\$452	\$385
Labor & management income/operator	\$-2,348	\$-12,589	\$11,435	\$2,457
Rates of return on:				
Equity capital with appreciation	-2.5%	-5.8%	1.7%	1.2%
All capital with appreciation	1.0%	-1.3%	3.4%	2.7%

*Farms with similar herd size, production per cow, and location as the 46 rotational grazing farms.

**Farms with net farm income/cow without appreciation greater than the state average of \$194, had been grazing at least two years, and forage from pasture at least 40 percent.

***Farms with similar herd size and production per cow as the 19 profitable grazing farms and net farm income/cow without appreciation greater than \$194.

Table 62.

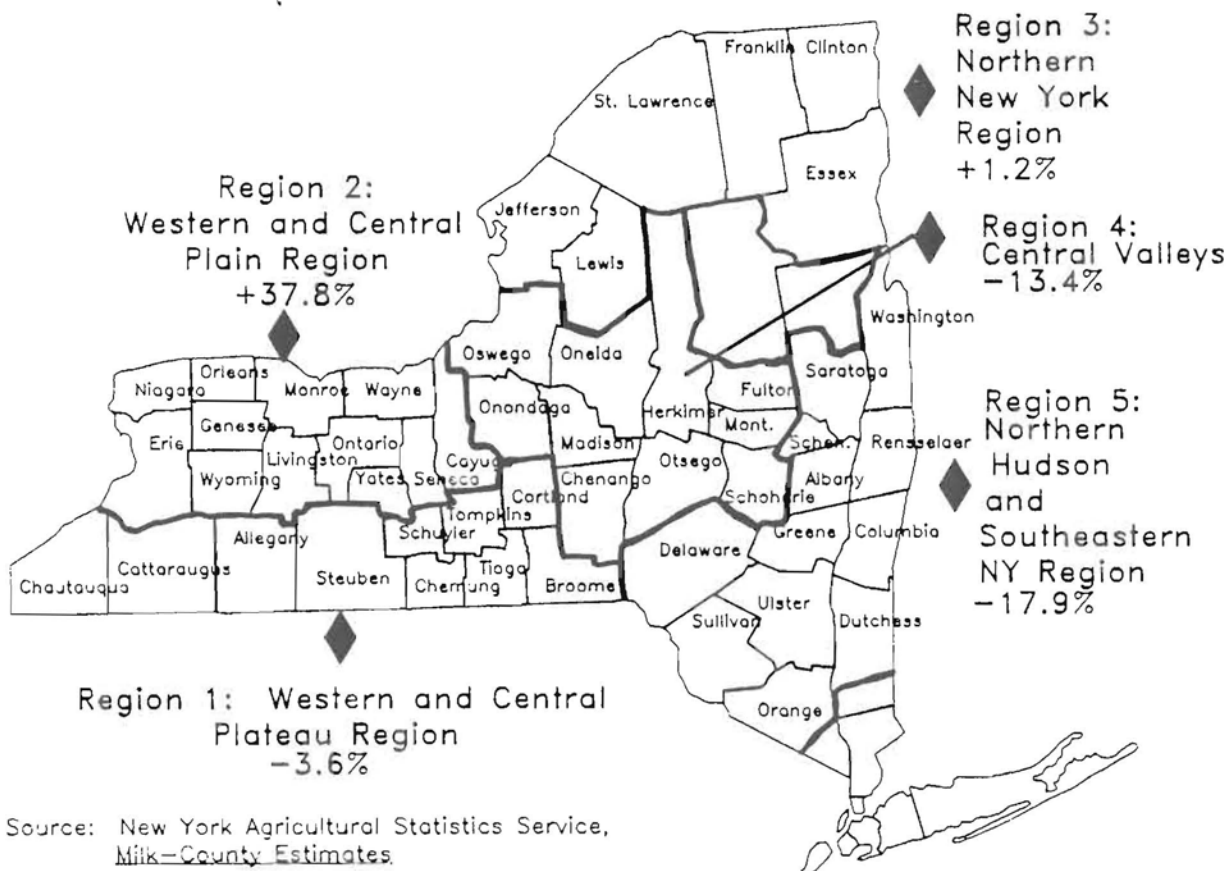
COMPARISON OF DAIRY FARM BUSINESS DATA BY REGION
253 New York Dairy Farms, 1997

Item	West. & Cent. Plateau Region	West. & Cent. Plain Region	Northern New York	Central Valleys	No. Hudson & Southeastern NY
Number of farms	46	84	26	17	80
<u>ACCRUAL EXPENSES</u>					
Hired labor	\$47,219	\$154,276	\$33,931	\$29,850	\$38,954
Feed	113,259	337,347	84,480	94,297	109,148
Machinery	37,893	78,305	26,777	23,409	34,797
Livestock	48,475	170,605	38,495	37,800	58,760
Crops	19,093	50,152	18,128	14,094	22,356
Real estate	19,837	41,899	15,983	22,756	17,250
Other	44,937	109,078	29,277	34,133	36,700
Total Operating Expenses	330,713	\$941,662	\$247,071	\$256,339	\$317,965
Expansion livestock	5,282	23,870	1,762	1,141	4,433
Machinery depreciation	20,091	37,407	14,632	11,686	13,978
Building depreciation	13,538	24,712	6,575	7,209	8,250
Total Accrual Expenses	\$369,624	\$1,027,651	\$270,040	\$276,375	\$344,626
<u>ACCRUAL RECEIPTS</u>					
Milk sales	\$342,174	\$970,987	\$274,760	\$281,934	\$330,956
Livestock	28,162	83,502	21,281	9,644	25,825
Crops	1,716	17,136	6,116	4,220	1,597
All other	9,915	20,598	7,048	5,975	10,009
Total Accrual Receipts	\$381,967	\$1,092,223	\$309,205	\$301,773	\$368,387
<u>PROFITABILITY ANALYSIS</u>					
Net farm income (w/o appreciation)	\$12,343	\$64,572	\$39,165	\$25,398	\$23,761
Net farm income (w/ appreciation)	\$25,384	\$79,883	\$43,383	\$27,916	\$30,569
Labor & management income	\$-20,289	\$11,979	\$10,804	\$3,188	\$-12,125
Number of operators	1.46	1.77	1.40	1.37	1.56
Labor & mgmt. income/operator	\$-13,897	\$6,768	\$7,717	\$2,327	\$-7,772
<u>BUSINESS FACTORS</u>					
Worker equivalent	4.01	7.74	3.14	2.97	3.75
Number of cows	135	329	107	105	121
Number of heifers	110	228	79	72	94
Acres of hay crops*	215	257	190	181	199
Acres of corn silage*	98	264	86	56	120
Total tillable acres	403	658	338	283	367
Pounds of milk sold	2,544,862	7,201,685	2,040,011	2,068,523	2,303,735
Pounds of milk sold/cow	18,866	21,871	18,990	19,645	18,980
Tons hay crop dry matter/acre	2.4	3.0	2.5	2.5	1.9
Tons corn silage/acre	16.2	17.4	16.4	15.4	12.9
Cows/worker	34	43	34	35	32
Pounds of milk sold/worker	634,629	930,450	649,685	696,472	614,329
% grain & conc. of milk receipts	33%	34%	30%	33%	31%
Feed & crop expense/cwt. milk	\$5.20	\$5.38	\$5.03	\$5.24	\$5.70
Fertilizer & lime/crop acre	\$16.80	\$32.01	\$22.35	\$20.94	\$29.36
Machinery cost/tillable acre	\$163	\$201	\$147	\$147	\$154

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

Figure 2.

**Percent Increase in Milk Production, Five Regions in New York,
1987-1997**



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

Table 63.

**MILK PRODUCTION & AVERAGE COST OF PRODUCING MILK
Five Regions of New York, 1997**

Item	Region*				
	1	2	3	4	5
<u>Milk Production**</u>	(million pounds)				
1987	2,151.3	2,351.1	2,170.7	3,043.9	1,699.9
1997	2,073.9	3,240.6	2,196.9	2,635.5	1,395.6
Percent change	-3.6%	+37.8%	+1.2%	-13.4%	-17.9%
<u>Cost of Producing Milk</u>	(\$ per hundredweight milk)				
Operating cost	\$11.64	\$11.72	\$10.51	\$11.49	\$12.37
Total cost	15.76	14.04	14.60	14.98	16.19
Average price received	13.45	13.48	13.47	13.63	14.37
Return per cwt. to operator labor, management & capital	\$0.30	\$0.82	\$1.75	\$1.15	\$0.79

*See Figure 2 for region descriptions.

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

Table 64.

SELECTED BUSINESS FACTORS BY MILKING FREQUENCY
New York State Dairy Farms, 1996 & 1997

Item	2x/Day Milking		3x/Day Milking	
	1996	1997	1996	1997
Number of farms	225	180	59	56
<u>Business Size & Production</u>				
Number of cows	104	108	395	424
Number of heifers	83	81	278	297
Milk sold, lbs.	1,890,634	1,963,345	8,718,450	9,569,929
Milk sold/cow, lbs.	18,093	18,209	22,058	22,558
Milk plant test, % butterfat	3.72%	3.72%	3.63%	3.62%
Tillable acres, total	311	327	787	835
Hay crop, tons DM/acre	2.5	2.2	3.2	2.9
Corn silage, tons/acre	15.2	14.9	16.9	16.9
Forage DM/cow, tons	7.6	7.4	6.6	6.6
<u>Labor & Capital Efficiency</u>				
Worker equivalent	3.18	3.28	8.92	9.86
Milk sold/worker, lbs.	594,539	598,581	977,405	970,581
Cows/worker	33	33	44	43
Farm capital/worker	\$221,359	\$226,718	\$253,935	\$251,166
Farm capital/cow	\$6,768	\$6,886	\$5,734	\$5,841
Farm capital/cwt. milk	\$37.23	\$37.88	\$25.98	\$25.88
<u>Milk Production Costs & Returns</u>				
Selected costs/cwt.:				
Hired labor	\$1.37	\$1.49	\$2.30	\$2.27
Grain & concentrate	\$4.64	\$4.35	\$4.50	\$4.49
Purchased roughage	\$0.19	\$0.17	\$0.16	\$0.13
Replacements purchased	\$0.19	\$0.19	\$0.18	\$0.17
Vet & medicine	\$0.37	\$0.39	\$0.45	\$0.42
Milk marketing	\$0.67	\$0.64	\$0.52	\$0.46
Other dairy expenses	\$1.00	\$1.02	\$1.22	\$1.33
Operating costs/cwt.	\$11.80	\$11.64	\$12.11	\$11.73
Total labor costs/cwt.	\$3.12	\$3.26	\$2.72	\$2.67
Operator resources/cwt.	\$2.91	\$2.86	\$1.37	\$1.33
Total costs/cwt.	\$16.22	\$15.90	\$14.40	\$13.93
Average farm price/cwt.	\$15.02	\$13.82	\$14.93	\$13.57
Return over total costs/cwt.	\$-1.20	\$-2.08	\$0.53	\$-0.36
<u>Related Cost Factors</u>				
Hired labor/cow	\$248	\$271	\$508	\$513
Total labor/cow	\$567	\$594	\$600	\$603
Purchased dairy feed/cow	\$878	\$821	\$1,028	\$1,044
Purchased grain & concentrate as % of milk receipts	31%	31%	30%	33%
Vet & medicine/cow	\$68	\$72	\$99	\$96
Machinery costs/cow	\$482	\$456	\$419	\$410
<u>Profitability Analysis</u>				
Net farm income (without appreciation)	\$37,294	\$20,831	\$168,879	\$95,252
Labor & management income/operator	\$6,454	\$-6,142	\$56,827	\$14,513
Rates of return on:				
Equity capital with appreciation	2.1%	-1.9%	10.2%	3.8%
All capital with appreciation	4.0%	1.2%	9.0%	5.4%

Table 65.

FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
31 New York Dairy-Renter Farms,* 1997

<u>ACCRUAL EXPENSES</u>			<u>ACCRUAL RECEIPTS</u>		
Labor: Hired		\$28,326	Milk sales		\$314,323
Feed: Dairy grain & concentrate		101,339	Dairy cattle		21,664
Dairy roughage		15,720	Dairy calves		3,085
Nondairy		58	Other livestock		24
Machinery: Mach. hire, rent & lease		5,696	Crops		2,229
Mach. repairs & farm vehicle expense		13,609	Government receipts		2,453
Fuel, oil, grease		5,646	Custom machine work		2,773
Livestock: Replacement livestock		12,887	Gas tax refund		79
Breeding		3,625	Other		1,809
Veterinary & medicine		9,495	TOTAL ACCRUAL RECEIPTS		\$348,439
Milk marketing		15,616			
Bedding		2,669	<u>PROFITABILITY ANALYSIS</u>		
Milking supplies		7,438	Net farm income (without appreciation)		\$33,900
Cattle lease & rent		283	Net farm income (with appreciation)		\$38,224
Custom boarding		451	Labor & management income/farm		\$16,440
bST expense		4,796	Number of operators		1.47
Other livestock expense		4,140	Labor & management income/operator		\$11,184
Crops: Fertilizer & lime		6,287	Rate of return on equity		
Seeds & plants		2,913	capital including appreciation		0.3%
Spray & other crop expense		4,517			
Real estate: Land, building & fence repair		3,444	<u>BUSINESS FACTORS</u>		
Taxes		1,586	Number of cows		119
Rent & lease		19,642	Number of heifers		63
Other:			Worker equivalent		3.18
Insurance		2,686	Total tillable acres		195
Utilities (farm share)		9,124	Milk sold per cow, lbs.		19,182
Interest paid		10,419	Hay DM per acre, tons		2.4
Miscellaneous		2,936	Corn silage per acre, tons		15.9
TOTAL OPERATING EXPENSES		\$295,349	Milk sold per worker, lbs.		718,596
			Grain/conc. as % milk sales		32%
Expansion livestock		\$6,671	Feed & crop expense/cwt. milk		\$5.72
Machinery depreciation		10,656	Labor & machinery costs/cow		\$879
Building depreciation		1,863	Average price/cwt. milk		\$13.76
TOTAL ACCRUAL EXPENSES		\$314,539			
<u>ASSETS</u>			<u>LIABILITIES</u>		
	Jan. 1	Dec. 31		Jan. 1	Dec. 31
Farm cash, checking & savings	\$9,373	\$10,997	Accounts payable	\$12,448	\$15,436
Accounts receivable	26,911	28,035	Operating debt	8,352	7,922
Prepaid expenses	648	551	Short-term	765	2,391
Feed & supplies	50,691	54,216	Advanced gov't receipts	0	0
Dairy cows**	123,906	129,142	Current Portion:		
Heifers	33,030	36,878	Intermediate	16,528	21,064
Bulls & other livestock	426	423	Long Term	943	1,452
Machinery & equipment**	84,643	97,853	Intermediate***	92,260	101,120
Farm Credit stock	2,495	2,703	Long term**	25,366	36,660
Other stock & certificates	3,707	6,585	Total Farm Liabilities	\$156,662	\$186,045
Land & buildings**	34,955	48,732	Nonfarm Liabilities****	3,601	3,730
Total Farm Assets	\$370,785	\$416,115	Farm & Nonfarm Liabilities	\$160,263	\$189,775
Nonfarm Assets****	56,885	70,642	Farm Net Worth	214,123	230,070
Farm & Nonfarm Assets	\$427,670	\$486,757	Farm & Nonfarm Net Worth	\$267,407	\$296,982

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

**Includes discounted lease payments.

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

****Average of 18 farms reporting.

Table 66.

FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
Average of 25 Top Ten Percent Farms by Rate of Return on All Capital
(without appreciation), 1997

<u>ACCRUAL EXPENSES</u>			<u>ACCRUAL RECEIPTS</u>		
Labor: Hired		\$234,736	Milk sales		\$1,371,836
Feed: Dairy grain & concentrate		449,931	Dairy cattle		106,510
Dairy roughage		9,428	Dairy calves		9,194
Nondairy		0	Other livestock		4,600
Machinery: Mach. hire, rent & lease		26,357	Crops		47,206
Mach. repairs & farm vehicle expense		52,959	Government receipts		14,188
Fuel, oil, grease		23,067	Custom machine work		660
Livestock: Replacement livestock		16,186	Gas tax refund		311
Breeding		12,884	Other		11,794
Vet & medicine		44,777	TOTAL ACCRUAL RECEIPTS		\$1,566,299
Milk marketing		44,612			
Bedding		20,273	<u>PROFITABILITY ANALYSIS</u>		
Milking supplies		30,890	Net farm income (without appreciation)		\$203,721
Cattle lease & rent		6,201	Net farm income (with appreciation)		208,513
Custom boarding		7,219	Labor & management income/operator		72,788
bST expense		30,471	Rate of return on equity		
Other livestock expense		10,290	capital without appreciation		10.6%
Crops: Fertilizer & lime		23,304	Rate of return on all		
Seeds & plants		17,196	capital without appreciation		9.0%
Spray & other crop expense		17,271			
Real estate: Land, building & fence repair		20,250	<u>BUSINESS FACTORS</u>		
Taxes		15,122	Number of cows		451
Rent & lease		20,601	Number of heifers		317
Other:			Worker equivalent		9.49
Insurance		12,697	Total tillable acres		838
Utilities (farm share)		30,839	Milk sold per cow, lbs.		22,325
Interest paid		78,999	Hay DM per acre, tons		3.1
Miscellaneous		13,722	Corn silage per acre, tons		18.2
TOTAL OPERATING EXPENSES		\$1,270,284	Milk sold per worker, lbs.		1,061,552
			Grain/conc. as % milk sales		33%
Expansion livestock		\$16,920	Feed & crop exp./cwt. milk		\$5.13
Machinery depreciation		48,585	Labor & mach. costs/cow		\$976
Building depreciation		26,789	Average price/cwt. milk		\$13.62
TOTAL ACCRUAL EXPENSES		\$1,362,578			
<u>ASSETS</u>			<u>LIABILITIES</u>		
	Jan. 1	Dec. 31		Jan. 1	Dec. 31
Farm cash, checking & savings	\$12,822	\$10,266	Accounts payable	\$26,702	\$41,563
Accounts receivable	93,316	103,813	Operating debt	125,482	180,750
Prepaid expenses	6,419	6,735	Short-term	540	2,647
Feed & supplies	305,747	343,356	Advanced gov't receipts	16	41
Dairy cows*	435,915	455,073	Current Portion:		
Heifers	176,472	191,618	Intermediate	62,142	69,826
Bulls & other livestock	5,202	8,475	Long Term	31,835	34,207
Machinery & equipment*	365,331	393,379	Intermediate**	401,714	409,112
Farm Credit stock	12,906	12,486	Long-term*	441,138	398,264
Other stock & certificates	55,704	31,383	Total Farm Liabilities	\$1,089,569	\$1,136,409
Land & buildings*	981,840	1,005,566	Nonfarm Liabilities***	9,991	8,256
Total Farm Assets	\$2,451,674	\$2,562,150	Farm & Nonfarm Liabilities	\$1,099,560	\$1,144,665
Nonfarm Assets***	64,553	66,505	Farm Net Worth	\$1,362,105	\$1,425,741
Farm & Nonfarm Assets	\$2,516,227	\$2,628,655	Farm & Nonfarm Net Worth	\$1,416,667	\$1,483,990

*Includes discounted lease payments.

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

***Average of 10 farms reporting.

Table 67.

FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
Average of 253 New York Dairy Farms, 1997

<u>ACCRUAL EXPENSES</u>			<u>ACCRUAL RECEIPTS</u>		
Labor: Hired	\$77,617		Milk sales	\$536,427	
Feed: Dairy grain & concentrate	176,207		Dairy cattle	38,478	
Dairy roughage	5,814		Dairy calves	3,655	
Nondairy	107		Other livestock	1,713	
Machinery: Mach. hire, rent & lease	10,629		Crops	7,418	
Mach. repairs & farm vehicle expense	26,494		Government receipts	6,800	
Fuel, oil, grease	11,093		Custom machine work	776	
Livestock: Replacement livestock	6,913		Gas tax refund	256	
Breeding	5,775		Other	5,273	
Vet & medicine	16,280		- Non-cash capital transfer	-173	
Milk marketing	20,456		TOTAL ACCRUAL RECEIPTS	\$600,623	
Bedding	6,238		<u>PROFITABILITY ANALYSIS</u>		
Milking supplies	12,266		Net farm income (without appreciation)	\$36,928	
Cattle lease & rent	1,139		Net farm income (with appreciation)	47,139	
Custom boarding	4,958		Labor & management income/farm	-2,279	
bST expense	9,262		Number of operators	1.60	
Other livestock expense	7,245		Labor & management income/operator	\$-1,424	
Crops: Fertilizer & lime	12,805		Rate of return on equity		
Seeds & plants	8,121		capital including appreciation	0.4%	
Spray & other crop expense	9,076		<u>BUSINESS FACTORS</u>		
Real estate: Land, building & fence repair	7,626		Number of cows	190	
Taxes	9,015		Number of heifers	139	
Rent & lease	9,504		Worker equivalent	5.01	
Other:			Total tillable acres	462	
Insurance	6,431		Milk sold per cow, lbs.	20,651	
Utilities (farm share)	13,874		Hay DM per acre, tons	2.5	
Interest paid	35,293		Corn silage per acre, tons	16.1	
Miscellaneous	\$5,696		Milk sold per worker, lbs.	784,604	
TOTAL OPERATING EXPENSES	\$515,934		Grain/conc. as % milk sales	33%	
Expansion livestock	\$10,545		Feed & crop exp./cwt. milk	\$5.39	
Machinery depreciation	22,781		Labor & mach. costs/cow	\$1,027	
Building depreciation	14,435		Average price/cwt. milk	\$13.65	
TOTAL ACCRUAL EXPENSES	\$563,695				

<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	\$7,453	\$7,359	Accounts payable	\$18,212	\$25,777
Accounts receivable	39,935	44,901	Operating debt	29,023	37,018
Prepaid expenses	794	788	Short-term	4,108	5,518
Feed & supplies	109,611	109,577	Advanced gov't rec.	49	147
Dairy cows*	188,600	198,506	Current Portion:		
Heifers	80,078	84,001	Intermediate	30,677	36,520
Bulls & other livestock	2,283	2,473	Long Term	11,518	12,517
Machinery & equipment*	204,585	216,517	Intermediate***	173,707	192,089
Farm Credit stock	5,385	5,326	Long-term**	200,437	207,377
Other stock & certificates	20,075	19,199	Total Farm Liabilities	\$467,732	\$516,962
Land & buildings*	493,152	513,980	Nonfarm Liabilities****	3,963	3,872
Total Farm Assets	\$1,151,951	\$1,202,627	Farm & Nonfarm Liabilities	\$471,695	\$520,834
Nonfarm Assets***	78,233	85,747	Farm Net Worth	684,219	685,665
Farm & Nonfarm Assets	\$1,230,184	\$1,288,374	Farm & Nonfarm Net Worth	\$758,489	\$767,540

*Includes discounted lease payments.

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

***Average of 137 farms reporting.

NOTES

APPENDIX

THE ECONOMIC ENVIRONMENT FACING
NEW YORK DAIRY FARMERS

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

Table A1.

PRICES PAID BY NEW YORK FARMERS FOR SELECTED ITEMS, 1987-1997

Year	Mixed Dairy Feed 16% Protein* (\$/ton)	Fertilizer, Urea 45-46%N* (\$/ton)	Seed Corn, Hybrid** (\$/80,000 kernels)	Diesel Fuel* (\$/gal)	Tractor 50-59 PTO** (\$)	Wage Rate All Hired Farm Workers*** (\$/hr)
1987	152.8	190	64.90	0.765	16,650	4.60
1988	180.8	208	64.20	0.810	17,150	5.02
1989	188.5	227	71.40	0.828	17,350	5.25
1990	176.8	215	69.90	1.080	17,950	5.51
1991	171.8	243	70.20	0.995	18,650	6.06
1992	173.8	221	71.80	0.910	18,850	6.42
1993	171.3	226	72.70	0.900	19,200	6.76
1994	180.8	233	73.40	0.853	19,800	6.96
1995	175.0	316	77.10	0.850	20,100	6.92
1996	226.0	328	77.70	1.020	20,600	7.19
1997	216.0	287	83.50	0.960	21,200	7.33

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

United States average. *New York and New England combined.

Inflation, farm profitability, supply and demand all have a direct impact on the inventory values on New York dairy farms. The table below shows year-end (December) prices paid for dairy cows (replacements), an index of these cow prices, an index of new machinery prices (U.S. average), the average per acre value of farmland and buildings reported in January (February for 1986-89 and April for 1982-85), and an index of the real estate prices.

Table A2.

VALUES OF NEW YORK DAIRY FARM INVENTORY ITEMS, 1982-1997

Year	Dairy Cows		Machinery*	Farm Real Estate	
	Value/Head	1977=100	1977=100	Value/Acre	1977=100
1982	1,010	204	163	821	140
1983	850	172	173	817	139
1984	790	160	181	848	144
1985	740	149	181	820	140
1986	770	156	178	843	144
1987	870	176	180	960	164
1988	900	182	189	993	169
1989	1,020	206	201	1,045	178
1990	1,060	214	209	1,014	173
1991	1,040	210	219	1,095	187
1992	1,090	220	226	1,139	194
1993	1,100	222	235	1,237	211
1994	1,100	222	249	1,383	236
1995	1,010	204	250	1,380	235
1996	1,030	208	269	1,333	227
1997	980	198	271	1,390	237

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

*United States average; 1995 - 1997 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 5,900 less milk cow operations in 1997 than there were in 1987. The average number of milk cows per operation has increased by 27 cows, or 50 percent over the same period. On January 1, 1998, 35 percent of the total milk cows were in herds with 50-99 head, 51 percent were in herds with over 100 milk cows, and 14 percent were in herds with less than 50 head.

Chart A1.



Table A3.

MILK COW OPERATIONS AND MILK COW INVENTORY
by Herd Size, 1987 to 1998

MILK COW OPERATIONS BY HERD SIZE & TOTAL, 1987-1997 (Number of Milk Cows in Herd)							MILK COWS ON FARMS, JAN. 1 BY HERD SIZE & TOTAL, 1988-1998 (Number of Milk Cows in Herd)						
Year	1-29	30-49	50-99	100-199 ^a	200 plus	Total	Year	1-29	30-49	50-99	100-199 ^a	200 plus	Total
(Number of Operations)							(Thousand Head)						
1987	3,300	4,300	5,000	1,900		14,500	1988	32	171	332	281		816
1988	3,200	3,850	5,300	1,850		14,200	1989	30	144	335	271		780
1989	2,700	3,400	5,400	2,000		13,500	1990	29	121	321	289		760
1990	2,650	3,150	5,300	1,900		13,000	1991	27	116	319	288		750
1991	2,500	2,900	5,000	1,800		12,200	1992	24	111	314	291		740
1992	2,600	2,600	4,400	1,900		11,500	1993	27	97	300	306		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	196	147	700
1996	1,800	2,000	3,700	1,300	400	9,200	1997	18	80	245	196	161	700
1997	1,700	2,000	3,300	1,200	400	8,600	1998	18	80	245	196	161	700

^a100 plus category prior to 1993.

Source: NYASS, New York Agricultural Statistics, 1997-1998.

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 7).

Accrual Expenses: (defined on page 9).

Accrual Receipts: (defined on page 9).

Annual Cash Flow Statement: (defined on page 16).

Appreciation: (defined on page 10).

Asset Turnover Ratio: (defined on page 36).

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 25 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 36).

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 16).

Cash Flow Coverage Ratio: (defined on page 18).

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 8).

Cash Receipts: (defined on page 9).

Change in Accounts Payable: (defined on page 9).

Change in Accounts Receivable: (defined under Accrual Receipts on page 9).

Change in Advanced Government Receipts: (defined under Accrual Receipts page 9).

Change in Inventory: (defined on page 8).

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 25).

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.

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

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

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

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

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

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

Debt to Asset Ratios: (defined on page 14).

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: Purchased dairy cattle and other livestock that cause an increase in herd size from the beginning to the end of the year.

Farm Business Chart: (see definition and application on page 38).

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 18 and 41.

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 41.

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.

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.

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 11).

Labor and Management Income Per Operator: (defined on page 11).

Labor Efficiency: Production capacity and output per worker. (See analysis on pages 36 and 37).

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 10).

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 9).

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 25).

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.

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

Prepaid Expenses: (defined on page 9).

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 25).

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 12).

Return to all Capital: (defined on page 12).

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 15).

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 25).

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.

NOTES

OTHER A.R.M.E. RESEARCH BULLETINS

<u>RB No</u>	<u>Title</u>	<u>Author(s)</u>
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