DAIRY FARM MANAGEMENT

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BUSINESS SUMMARY NEW YORK STATE 1993

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ABSTRACT

This summary and analysis of 343 New York dairy farm businesses 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. These farms averaged 130 cows per farm and 18,858 pounds of milk sold per cow in 1993, 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 $43,936 per farm. The rate of return including appreciation to all capital invested in the farm business averaged 4.6 percent in 1993.

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INTRODUCTION

Dairy farm business summary (DFBS) projects are an integral part of Cornell Cooperative Extension's agriculture educational program in New York State. The Department of Agricultural, Resource, and Managerial Economics of the New York State College of Agriculture and Life Sciences, and County Extension staff, cooperate in sponsoring DFBS projects. In 1993, about 400 dairy farmers participated. Business records submitted by dairy farmers from 46 counties provide the basis for continuing Extension programs, data for applied studies, and for use in the classroom. Regardless of the use of the data, confidentiality of individual farm data is maintained.

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. More than 95 percent of the 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 with regional averages. The DFBS program helps farmers develop managerial skills and solve business management problems.

Records from the eight regions and 46 counties of the State have been combined and the total data set analyzed as a study of the effects of changes in price, technology, and management on dairy farm incomes (Figure 1, page 2). This study provides current farm business information for use by dairy farmers, Cooperative Extension staff, teachers, and others concerned with the New York dairy industry.

Farms Included

Data from 343 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). The 343 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

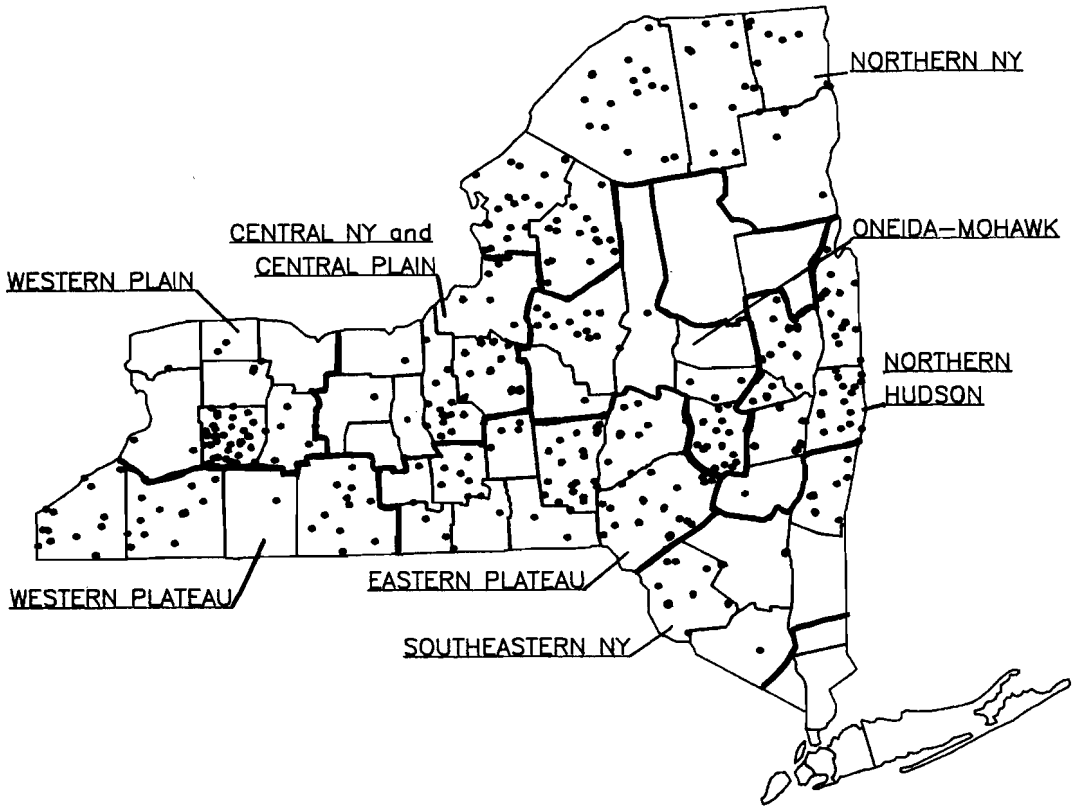
Accrual procedures have been used to provide the most accurate accounting of farm receipts and farm expenses for measuring farm profits. An explanation of these procedures is found on page 7. Four measures of farm profits are calculated on pages 10 through 12. The balance sheet, statement of owner equity, and cash flow statement are featured on pages 13 through 17.

Data on the costs of producing milk are included on pages 26-31. Separate farm business charts using data from freestall farms versus conventional stall dairy farms are on pages 54-57.

Acknowledgements

The authors appreciate the outstanding assistance provided by the following staff members: Khadija Alia Bah - wordprocessing, and Beverly Carcelli - proofreading and distribution.

Figure 1. **LOCATION OF THE 343 NEW YORK DAIRY FARMS IN THE 1993 DAIRY FARM BUSINESS SUMMARY**



1993 Regional Summary Publications

Region	Publications	Author(s)
Western Plain Region	E.B. 94-7	Stuart F. Smith, Linda D. Putnam, Jason Karszes, Michael Stratton & David Thorp
Northern New York	E.B. 94-9	Stuart F. Smith, Linda D. Putnam, George Allhusen, Patricia A. Beyer, German Davalos, Anita Deming, Gleason Wally & George O. Yarnall
Central New York & Central Plain	E.B. 94-10	Wayne A. Knoblauch, Linda D. Putnam, James A. Hilson, A. Edward Staehr & Michael L. Stratton
Western Plateau Region	E.B. 94-11	George L. Casler, Andrew N. Dufresne, Joan S. Petzen, Carl W. Albers, Stuart F. Smith & Linda D. Putnam
Northern Hudson Region	E.B. 94-12	Stuart F. Smith, Linda D. Putnam, Cathy S. Wickswat, & John M. Thurgood
Oneida-Mohawk Region	E.B. 94-13	Eddy L. LaDue, Jacqueline M. Hilts , Charles Z. Radick & Linda D. Putnam
Southeastern New York	E.B. 94-14	Stuart F. Smith, Linda D. Putnam, Alan S. White, Gerald J. Skoda, Stephen E. Hadcock, & Larry R. Hulle
Eastern Plateau Region	E.B. 94-15	Robert A. Milligan, Linda D. Putnam, John S. Carlson, Carl A. Crispell, and Gerald A. LeClar

A DECADE OF GROWTH AND ADJUSTMENT ON 70 NEW YORK DAIRY FARMS

Seventy New York dairy farms have been DFBS cooperators each year since 1984. The data in Table 1 are the averages for the 70 farms which are located in 27 different counties. They were all operated by full-time owner-managers in 1993. There is a brief overview of some changes and adjustments these dairy farmers made to maintain their profitability and to accumulate farm net worth.

Milk Price and Cost of Production

The average price these farmers received for milk peaked in 1990 at $14.94 per cwt. and then dropped to $13.15 per cwt. in 1993, $0.19 below the 1984 average. The operating costs of producing milk also peaked in 1990 and declined to $10.11 per cwt. of milk sold in 1993. But 1993 operating costs exceeded 1984 operating costs by $0.56 per cwt. How did these dairy farmers reduce operating costs in the last four years and how did they maintain profitability when operating margins have been reduced from $3.79 to $3.04 per cwt. of milk sold over the last 10 years?

Productivity Increased

The average output of milk per farm more than doubled in nine years. A 74 percent increase in cows per farm and 17 percent gain in milk sold per cow were responsible for the additional milk output per farm. Quantities of feeds produced increased over this period of time.

Cost Management

The costs of dairy feed and crop expenses were cut $0.65 per cwt. of milk sold from 1990 to 1993 and accounted for 92 percent of the reduction in operating costs of producing milk during the same time period. This implies that more effective and efficient feeding strategies and improved crop management systems were used. At the same time labor and machinery costs dropped $37 per cow. Labor costs were controlled by increased milk output per worker; 41 percent since 1984 and 13 percent since 1990. A six percent decline in the average investment in machinery and equipment per cow contributed to lower machinery costs since 1990.

Profits and Wealth

Labor and management income per operator averaged $10,439 in 1984, $8,000 above the 458 DFBS farm average. Their 1993 average labor and management income of $17,581 was $8,500 above the DFBS average. In 1984 and 1985 returns on farm capital of less than six percent were far below the competitive rates of 10 percent and more. In 1992 and 1993 returns to farm capital of five to six percent are much more attractive.

Average farm net worth increased 79 percent on these farms since the end of 1984. The average annual growth was $37,666 or 8.4 percent, a healthy rate of equity accumulation during a period of low inflation. Debt was not eliminated on most of these farms, but it was managed successfully. At no time did average debt per cow exceed $2,400.

Conclusions

Table 1 shows average changes and adjustments that took place on 70 NY DFBS farms from 1984 to 1993. These averages do not necessarily represent the most progressive or profitable segment of our dairy farms. They are the dairy farmers who were interested and fortunate enough to continue as DFBS cooperators for 10 consecutive years. Their use of DFBS and similar data has helped them to improve productivity, cost management and farm profitability.

Table 1. COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 70 New York Dairy Farms, 1984 - 1993

Selected Factors	1984*	1985	1986	1987
Milk receipts per cwt. milk	$13.34	$12.80	$12.60	$12.76
Size of Business				
Average number of cows	110	117	124	132
Average number of heifers	96	98	100	102
Milk sold, cwt.	18,008	19,499	20,892	22,537
Worker equivalent	3.40	3.51	3.58	3.64
Total tillable acres	322	343	350	352
Rates of Production				
Milk sold per cow, lbs.	16,422	16,733	16,800	17,126
Hay DM per acre, tons	3.0	2.9	2.9	2.9
Corn silage per acre, tons	14.7	15.2	14.9	16.6
Labor Efficiency				
Cows per worker	32	33	35	36
Milk sold per worker, lbs.	529,102	555,199	584,326	619,019
Cost Control				
Grain & concentrate purchased as % of milk sales	23%	20%	23%	23%
Dairy feed & crop expense per cwt. milk	$ 4.05	$ 3.84	$ 3.88	$ 4.01
Oper. cost of producing cwt. milk	$ 9.55	$ 8.98	$ 9.12	$ 8.63
Total cost of producing cwt. milk	$13.89	$13.14	$13.16	$12.50
Hired labor cost per cwt.	$ 1.53	$ 1.45	$ 1.47	$ 1.62
Interest paid per cwt.	$ 1.30	$ 1.24	$ 1.07	$ 0.95
Labor & machinery costs per cow	$ 828	$ 805	$ 777	$ 812
Capital Efficiency				
Farm capital per cow	$6,051	$5,825	$5,669	$5,749
Machinery & equipment per cow	$1,173	$1,116	$1,065	$1,062
Real estate per cow	$2,759	$2,681	$2,616	$2,634
Livestock investment per cow	$1,291	$1,222	$1,157	$1,184
Asset turnover ratio	0.41	0.43	0.45	0.49
Profitability				
Net farm income w/o apprec.	$37,014	$41,556	$38,782	$59,359
Net farm income w/apprec.	$34,131	$39,155	$54,430	$90,715
Labor & management income per operator/manager	$10,439	$13,499	$10,783	$24,776
Rate return on:				
Equity capital w/apprec.	2.0%	2.9%	5.9%	12.6%
All capital w/apprec.	4.7%	5.4%	6.9%	11.0%
All capital w/o apprec.	5.1%	5.8%	4.7%	6.8%
Financial Summary, End Year				
Farm net worth	$428,020	$437,660	$461,231	$517,955
Change in net worth w/apprec.	N/A	$ 8,678	$ 23,793	$ 58,715
Debt to asset ratio	0.37	0.36	0.36	0.34
Farm debt per cow	$ 2,230	$ 2,019	$ 2,042	$ 1,990

*Cash accounting, with adjustments for inventory changes, was used.

Table 1 (continued) COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 70 New York Dairy Farms, 1984 - 1993

1988	1989	1990	1991	1992	1993
$13.17	$14.57	$14.94	$13.03	$13.57	$13.15
137	145	150	157	174	191
109	112	120	130	133	141
24,322	26,573	27,705	29,376	33,581	36,837
3.79	4.02	4.20	4.41	4.64	4.92
362	371	416	423	431	445
17,698	18,280	18,428	18,673	19,271	19,266
2.8	2.7	2.9	2.8	3.1	3.0
13.9	12.9	14.1	14.2	15.2	15.6
36	36	36	36	37	39
641,207	661,614	660,207	665,789	723,583	748,195
27%	26%	26%	28%	27%	28%
$ 4.48	$ 4.70	$ 5.02	$ 4.55	$ 4.47	$ 4.37
$ 9.11	$ 9.99	$10.82	$10.20	$10.31	$10.11
$12.79	$13.73	$14.68	$13.99	$13.73	$13.46
$ 1.68	$ 1.95	$ 2.18	$ 2.23	$ 2.25	$ 2.29
$ 0.95	$ 0.94	$ 0.96	$ 1.05	$ 0.84	$ 0.82
$ 826	$ 908	$1,034	$1,004	$1,000	$ 997
$5,964	$6,097	$6,444	$6,671	$6,420	$6,267
$1,089	$1,149	$1,227	$1,269	$1,189	$1,152
$2,696	$2,689	$2,866	$3,042	$2,941	$2,856
$1,246	$1,290	$1,352	$1,387	$1,373	$1,370
0.49	0.53	0.51	0.46	0.50	0.49
$66,081	$ 85,185	$76,517	$42,019	$68,552	$65,432
$85,626	$116,050	$91,744	$63,344	$93,659	$83,239
$27,917	$39,006	$29,344	$4,019	$21,764	$17,581
10.3%	13.8%	8.5%	4.0%	7.8%	5.8%
9.6%	12.2%	8.4%	5.5%	7.4%	6.2%
7.2%	8.7%	6.9%	3.5%	5.2%	4.7%
$561,195	$637,313	$664,406	$679,115	$729,900	$767,008
$ 45,784	$ 70,140	$ 26,425	$ 7,773	$ 45,016	$ 30,913
0.34	0.31	0.35	0.37	0.37	0.38
$ 2,041	$ 1,879	$ 2,305	$ 2,324	$ 2,324	$ 2,309

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 1993 are presented in the following table.

Table 2. BUSINESS CHARACTERISTICS AND RESOURCES USED
343 New York Dairy Farms, 1993

No. Dairy Livestock	Cows	Heifers
Beginning of Year	125	97
End of Year	134	102
Average for Year	130	100

Type of Business	Number	Percent
Sole Proprietorship	216	63
Partnership	105	31
Corporation	22	6

Barn Type	Number	Percent
Stanchion	175	51
Freestall	143	42
Combination	25	7

Milking System	Number	Percent
Bucket & Carry	1	1
Dumping Station	8	2
Pipeline	181	53
Herringbone	125	36
Other Parlor	28	8

Milking Frequency	Number	Percent
2x/day	268	78
3x/day	59	17
Other	16	5

Business Records	Number	Percent
Account Book	115	37
Agrifax (mail-in)	47	14
ELFAC	8	2
On-Farm Computer	103	30
Other	70	20

Dairy Records	Number	Percent
D.H.I.C.	245	71
Owner Sampler	38	11
Other	26	8
None	34	10

Labor Force	Average	Percent
Operators	17.45 mo.	40
Family paid	3.97 mo.	9
Family unpaid	2.70 mo.	6
Hired	20.01 mo.	45
Total Months	44.13 mo.	100

	Average
Operators (total = 497)	1.45
Age	45
Education	13 yrs.
Estimated Value of Labor & Management	$33,292

	Farms Reporting	
Land Used	Number	Average
Total acres:		
Owned	334	369
Rented	298	174
Tillable acres:		
Owned	343	216
Rented	294	158
Total	343	351

There were 497 full-time operator equivalents on the 343 dairy farms for an average of 1.45 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 343 farm businesses included in the regular dairy summary own farm real estate. Dairy farm renters are summarized separately later in this publication. However, 294 of the dairy farm owners rented an average of 158 acres of tillable land in 1993. The 343 farms averaged 351 total tillable acres per farm of which 135 acres were rented. Tables 20 and 26 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 costs 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

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

Hired labor includes gross wages plus the farm share of social security, worker's compensation insurance, employee health insurance, and other employee benefits paid by the farm employer.

Feed expenses are divided into purchased dairy grain and concentrate, purchased dairy roughage, and all feed purchased for nondairy livestock to allow more thorough analysis of dairy herd feeding costs. The costs of growing grain and roughage are not included in cash and accrual feed expenses.

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.

Livestock expenses include the cost of supplies and services directly associated with the care and maintenance of the dairy herd, plus milk marketing costs. The purchase of replacement cattle is considered a herd maintenance expense while expansion livestock is not.

Crop expenses include the costs of fertilizer, lime, seeds, pesticides, and other crop supplies.

Real estate expenses are the direct costs associated with owning and maintaining farmland and buildings.

Other includes insurance, the farm share of utilities, interest paid on all farm indebtedness, and miscellaneous costs. Expansion livestock and machinery and building depreciation are nonoperating costs included in total expenses. Depreciation charges are based on income tax figures.

Cash and accrual farm expenses are summarized below. Total operating accrual expenses for the 343 farms averaged $815 per day and 89 percent of total farm accrual expenses.

Table 3. CASH AND ACCRUAL FARM EXPENSES
343 New York Dairy Farms, 1993

Expense Item	Cash Paid +	Change in Inventory or Prepaid Expense +	Change in Accounts Payable =	Accrual Expenses	Percent
Hired Labor	$ 45,260	$ 34«	$ 155	$ 45,449	15
Feed					
Dairy grain & conc.	90,879	977	-29	91,827	31
Dairy roughage	2,466	-229	47	2,284	1
Nondairy livestock	21	1	0	22	<1
Machinery					
Mach. hire, rent/lease	3,434	16«	35	3,485	1
Machinery repairs/parts	18,129	-41	65	18,153	6
Auto expense (farm share)	1,037	0«	0	1,037	<1
Fuel, oil & grease	8,229	-2	5	8,232	3
Livestock					
Replacement livestock	4,248	0«	18	4,266	1
Breeding	4,572	0	-3	4,569	1
Vet & medicine	9,072	-29	13	9,056	3
Milk marketing	15,742	-1«	6	15,747	5
Cattle lease/rent	370	0«	10	380	<1
Other livestock expense	17,052	10	21	17,083	6
Crops					
Fertilizer & lime	8,328	512	-173	8,667	3
Seeds & plants	4,717	216	41	4,974	2
Spray, other crop exp.	4,868	86	10	4,964	2
Real Estate					
Land/bldg./fence repair	5,104	-21	27	5,110	2
Taxes	8,342	-29	54	8,367	3
Rent & lease	5,357	3«	-6	5,354	2
Other					
Insurance	4,873	-3«	21	4,891	2
Telephone (farm share)	766	-2«	-2	762	<1
Electricity (farm share)	8,792	-29«	-9	8,754	3
Interest paid	19,422	0«	51	19,473	6
Miscellaneous	4,773	-23	-13	4,737	1
Total Operating	$295,853	$ 1,446	$ 344	$297,643	100
Expansion livestock	$ 6,857	160«	-91	6,927	
Machinery depreciation				17,389	
Building depreciation				11,100	
TOTAL ACCRUAL EXPENSES				$331,059	

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 (negative change), and inputs purchased in a prior year and used this year (positive change). Purchased dairy grain and concentrate inventory decreased $977.

Prepaid expenses (noted by « in the above table) are advance payments made for services and noninventory items. For example, advance payments for rent decreased an average of $3 per farm in 1993, and that decrease is added to cash rent to determine the correct 1993 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.

Cash and accrual farm receipts are presented in the following table. Total cash receipts averaged $359,384 per farm. Total accrual receipts averaged $376,995 per farm. Accrual receipts were greater than cash receipts due to dairy herd growth and increases in crop inventory. Cow numbers increased an average of nine head per farm and the homegrown feed inventory per farm increased $3,101. Homegrown feed inventory per cow decreased $5 from beginning to end of year.

Table 4. CASH AND ACCRUAL FARM RECEIPTS
343 New York Dairy Farms, 1993

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts	Percent
Milk sales	$318,834				$2,424		$321,258	85
Dairy cattle	20,462		$12,657		41		33,160	9
Dairy calves	5,918				-2		5,916	2
Other livestock	481		4		-29		456	<1
Crops	2,587		3,101		-16		5,672	1
Government receipts	6,131		12*		-158		5,985	2
Custom machine work	655				-3		652	<1
Gas tax refund	272				4		276	<1
Other	4,044				-49		3,995	1
- Nonfarm noncash capital**			(-) 375				(-) 375	
Total	$359,384		$15,399		$2,212		$376,995	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 accounted for. Changes in advanced government receipts are the amount government payments received for participating in a future year's program have changed from 1992 to 1993. An increase requires a negative adjustment to cash receipts and a decrease a positive adjustment. Changes in accounts receivable include the difference between the January milk check for this December's 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 13.

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.

Table 5. NET FARM INCOME
343 New York Dairy Farms, 1993

Item	Average 343 Farms	Average Top 10% Farms*
Total accrual receipts	$376,995	$958,825
+ Appreciation: Livestock	1,643	5,874
Machinery	2,331	1,419
Real Estate	7,555	16,502
Other Stock/Cert.	738	3,851
= Total including appreciation	$389,262	$986,471
- Total accrual expenses	333,059	801,069
= Net Farm Income (with appreciation)	$ 56,203	$185,402
Net Farm Income (without appreciation)	$ 43,936	$157,756

*Average of 34 farms with highest rates of return on all capital (without appreciation).

Return to operator(s') labor, management, and equity capital measures the total business profits for the farm operators. It is calculated by deducting a charge for unpaid family labor from net farm income. Operator(s') labor is not included in unpaid family labor. Return to operator(s') labor, management, and equity capital has been compiled with and without appreciation. Appreciation is considered an important part of the return to ownership of farm assets.

Table 6. RETURN TO OPERATOR(S') LABOR, MANAGEMENT, AND EQUITY
343 New York Dairy Farms, 1993

Item	Average 343 Farms		Average Top 10% Farms	
	With Apprec.	Without Apprec.	With Apprec.	Without Apprec.
Net farm income	$56,203	$43,936	$185,402	$157,756
- Family labor unpaid @ $1,400 per month	3,780	3,780	2,436	2,436
= Return to Operator(s') Labor, Management, & Equity	$52,423	$40,156	$182,966	$155,320

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 cost of using equity capital at a real interest rate of five percent, from the return to operator(s') labor, management, and equity capital 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.

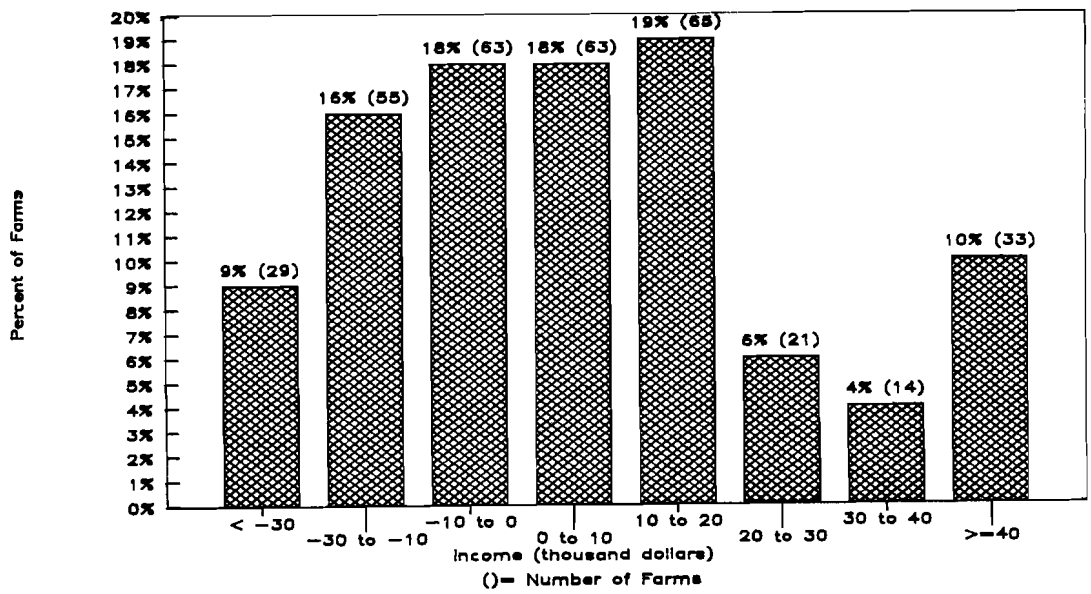
Labor and management income per operator measures the return to one full-time operator's labor and management. A full-time operator provides 12 months of labor and management.

Table 7. LABOR AND MANAGEMENT INCOME
343 New York Dairy Farms, 1993

Item	Average 343 Farms		Average Top 10% Farms
Return to operator(s') labor, management, & equity without appreciation	$40,156		$155,320
- Real interest @ 5% on $542,126 equity capital for average & $907,042 for the top 10%	27,106		45,352
= Labor & Management Income (1.45 operators)	$13,050	(1.62)	$109,968
Labor & Management Income per Operator	$ 9,000		$ 67,881

Labor and management income per operator averaged $9,000 on these 343 dairy farms in 1993. The range in labor and management income per operator was from less than -$115,000 to more than $395,000. Returns to labor and management were negative on 43 percent of the farms. Labor and management income per operator ranged from $0 to $19,999 on 37 percent of the farms while 20 percent showed labor and management incomes of $20,000 or more per operator.

Chart 1. DISTRIBUTION OF LABOR & MANAGEMENT INCOMES PER OPERATOR
343 New York Dairy Farms, 1993



Return on 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 on total 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 total capital.

Table 8. RETURN ON CAPITAL
343 New York Dairy Farms, 1993

Item	Average 343 Farms	Average Top 10% Farms
Return to operators' labor, management, & equity capital with appreciation	$52,423	$182,966
- Value of operators' labor & management	33,292	42,608
= Return on equity capital with appreciation	$19,131	$140,358
+ Interest paid	19,473	50,930
= Return on total capital with appreciation	$38,604	$191,288
Return on equity capital without appreciation	$ 6,864	$112,712
Return on total capital without appreciation	$26,337	$163,642
Rate of return on average equity capital:		
with appreciation	3.5%	15.5%
without appreciation	1.3%	12.4%
Rate of return on average total capital:		
with appreciation	4.6%	11.4%
without appreciation	3.1%	9.8%

Return to all labor and management is another measure of profitability of a business that can be calculated. 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
343 New York Dairy Farms, 1993

	Quartile by Return to All Capital w/Apprec.			
Item	Lowest 25%	3rd 25%	2nd 25%	Top 25%
Return to all capital (w/apprec.)	$-18,422	$ 6,859	$30,404	$136,235
Rate of return on all capital w/apprec.	-3.4%	1.3%	4.4%	8.6%
Total returns to all labor & management	$6,521	$21,175	$43,543	$178,454
Worker equivalent	2.78	2.48	3.02	6.41
Return per worker equiv.	$2,346	$ 8,538	$14,418	$27,840
Returns/hour (3,000 hours/ worker/yr.)	$0.78	$2.85	$4.81	$9.28

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 completed balance sheet by evaluating the relationships between assets and liabilities and changes made during the year.

Table 10. 1993 FARM BUSINESS AND NONFARM BALANCE SHEET
343 New York Dairy Farms, 1993

Farm Assets	Jan. 1	Dec. 31
Current		
Farm cash, checking & savings	$ 6,841	$ 6,135
Accounts rec.	23,160	25,372
Prepaid expenses	646	495
Feed & supplies	67,574	69,217
Total	$98,221	$101,219
Intermediate		
Dairy cows:		
owned	$128,712	$138,696
leased	292	147
Heifers	55,014	59,308
Bulls/other lvstk.	1,330	1,355
Mach./eq. owned	146,420	152,522
Mach./eq. leased	1,548	1,577
Farm Credit stock	3,507	3,750
Other stock & cert.	10,207	11,027
Total	$347,030	$368,382
Long-Term		
Land/buildings:		
owned	$371,769	$387,466
leased	256	529
Total	$372,025	$387,995
Total Farm Assets	$817,276	$857,596

Farm Liabilities & Net Worth	Jan. 1	Dec. 31
Current		
Accounts payable	$ 9,137	$ 9,367
Operating debt	12,090	10,375
Short-term	2,973	6,200
Advanced Govt. Rec.	12	0
Current portion:		
Intermediate	0	23,807
Long-term	0	8,997
Total	$24,212	$58,746
Intermediate		
Structured debt 1-10 years	$123,422	$110,336
Financial lease (cattle/mach.)	1,840	1,724
Farm Credit stock	3,507	3,750
Total	$128,769	$115,810
Long-Term		
Structured debt ≥10 years	$133,158	$129,141
Financial lease (structures)	256	529
Total	$133,414	$129,670
Total Farm Liab.	$286,395	$304,226
FARM NET WORTH	$530,881	$553,370

Nonfarm Assets*	Jan. 1	Dec. 31
Personal cash, chkg. & savings	$7,359	$6,425
Cash value life ins.	8,554	9,270
Nonfarm real estate	30,613	31,447
Auto (personal sh.)	3,463	3,622
Stocks & bonds	6,455	7,551
Household furn.	9,097	9,342
All other	6,060	6,180
Total Nonfarm	$71,602	$73,837

Nonfarm Liabilities* & Net Worth	Jan. 1	Dec. 31
Nonfarm Liab.	$3,065	$2,986
NONFARM NET WORTH	$68,537	$70,851

FARM & NONFARM**	Jan. 1	Dec. 31
Total Assets	$888,878	$931,433
Total Liabilities	289,460	307,212
TOTAL FARM & NON-FARM NET WORTH	$599,418	$624,221

*Average of 201 farms completing the nonfarm balance sheet.
**Sum of average farm values for 343 farms and nonfarm values for 201 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 following condensed balance sheet, including deferred taxes, contains average data from only those farmers who elected to provide the additional information required to compute deferred taxes. This was the first year this information was collected, therefore this data should not be considered representative of all DFBS farms.

Deferred taxes represent an estimate of the taxes that would be paid if the farm were sold at year end fair market values and date on the balance sheet. Accuracy is dependent on the accuracy of the market values and the tax basis data provided. Any tax liability for assets other than livestock, machinery, land, buildings and nonfarm assets is excluded. It is assumed that all gain on purchased livestock and machinery is ordinary gain and that listed market values are net of selling costs. The effects of investment tax credit carryover and recapture, carryover of operating losses, alternative minimum taxes and other than average exemptions and deductions are excluded because they have only minor influence on the taxes of most farms. However, they could be important.

Table 11. CONDENSED BALANCE SHEET INCLUDING DEFERRED TAXES
December 31, 1993
16 New York Dairy Farms, 1993

ASSETS		LIABILITIES & NET WORTH	
		Current debts & payables	$ 44,121
		Current deferred taxes	22,447
Total Current Assets	$ 67,751	Total Current Liabilities	$ 66,568
		Intermediate debts & leases	$ 80,485
		Intermediate deferred taxes	70,976
Total Inter. Assets	$243,440	Total Inter. Liabilities	$151,461
		Long term debts & leases	$ 66,083
		Long term deferred taxes	34,246
Total Long Term Assets	$234,047	Total Long Term Liab.	$100,329
TOTAL FARM ASSETS	$545,238	TOTAL FARM LIABILITIES	$318,358
		Farm Net Worth	$226,880
		Percent Equity (Farm)	42
		Nonfarm debts	$ 3,684
		Nonfarm deferred taxes	18,347
Total Nonfarm Assets	$ 73,436	Total Nonfarm Liabilities	$ 22,031
TOTAL ASSETS	$618,674	TOTAL LIABILITIES	$340,389
		Total Net Worth	$278,286
		Percent Equity (Total)	45

Deferred taxes are listed as current, intermediate and long term farm liabilities and nonfarm liabilities in Table 11. Total farm deferred taxes averaged $127,669 per farm and 23 percent of total farm assets on these 16 moderate-sized dairy farms. Total deferred taxes averaged $146,016 and accounted for 43 percent o total debt.

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 ratio is compiled by dividing farm liabilities by farm assets. Low 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 12. FARM BALANCE SHEET ANALYSIS
343 New York Dairy Farms, 1993

Item	Average 343 Farms	Average Top 10% Farms
Farm Financial Ratios:		
Percent equity	65%	55%
Debt/asset ratio: total	.35	.45
long-term	.33	.41
inter. & current	.37	.49
Farm Debt Analysis:		
Accts. payable as % of total debt	3%	2%
Long-term liab. as % of total debt	43%	39%
Current & intermediate liabilities as % of total debt	57%	61%

Farm Debt Levels:	Per Cow	Per Tillable Acre Owned	Per Cow	Per Tillable Acre Owned
Total farm debt	$2,254	$1,408	$2,487	$2,223
Long-term debt	961	600	979	876
Intermediate & current debt	1,293	808	1,507	1,348

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 13. FARM INVENTORY BALANCE
343 New York Dairy Farms, 1993

Item	Real Estate		Machinery/Equip.		Livestock
Value beg. of year		$371,769		$146,420	$185,056
Purchases	$26,517*		$22,581		
+ nonfarm noncash transfer**	679		109		
- Lost capital	6,237				
- Net sales	1,717		1,529		
- Depreciation	11,100		17,389		
= Net investment		8,142		3,772	12,661
+ Appreciation		7,555		2,331	1,643
Value end of year		$387,466		$152,522	$199,360

*$5,009 land and $21,508 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 change in equity was caused by (1) earnings 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 14. STATEMENT OF OWNER EQUITY (RECONCILIATION)
343 New York Dairy Farms, 1993

Item	Average 343 Farms		Average Top 10% Farms	
Beginning of year farm net worth		$530,881		$853,705
Net farm income w/o apprec.	$43,936		$157,756	
+Nonfarm cash income	+ 7,963		+ 6,610	
-Personal withdrawals & family expenditures excluding non-farm borrowings	-38,063		- 72,728	
RETAINED EARNINGS		+$ 13,836		+ 91,638
Nonfarm noncash transfers to farm	$ 1,163		$ 706	
+Cash used in business from nonfarm capital	+ 2,576		+ 2,748	
-Note/mortgage from farm real estate sold (nonfarm)	- 233		- 0	
CONTRIBUTED/WITHDRAWN CAPITAL		+$ 3,506		+$ 3,454
Appreciation	$12,267		$ 27,646	
-Lost capital	- 6,237		- 14,649	
CHANGE IN VALUATION EQUITY		+$ 6,030		+$ 12,997
IMBALANCE/ERROR		-$ 900		-$ 1,413
End of year farm net worth*		=$553,370		=$960,379
Change in net worth with apprec.		$ 22,489		$106,674
Change in Net Worth				
Without appreciation	$10,222		$ 79,028	
With appreciation	$22,489		$106,674	

*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 15. ANNUAL CASH FLOW STATEMENT
343 New York Dairy Farms, 1993

Item		Average	
Cash Flow from Operating Activities			
Cash farm receipts	$ 359,384		
- Cash farm expenses	295,853		
= Net cash farm income		$ 63,530	
Nonfarm income	$ 7,963		
- Personal withdrawals/family expenses including nonfarm debt payments	38,328		
+ Net cash nonfarm income		$ -30,365	
= Net Provided by Operating Activities			$ 33,165
Cash Flow From Investing Activities			
Sale of assets: Machinery	$ 1,529		
+ real estate	1,483		
+ other stock/cert.	372		
= Total asset sales		$ 3,384	
Capital purchases: expansion livestock	$ 6,857		
+ machinery	22,581		
+ real estate	26,517		
+ other stock/cert.	454		
- Total invested in farm assets		$ 56,409	
= Net Provided by Investment Activities			$-53,025
Cash Flow From Financing Activities			
Money borrowed (inter. & long-term)	$ 61,225		
+ Money borrowed (short-term)	5,642		
+ Increase in operating debt	0		
+ Cash from nonfarm cap. used in business	2,576		
+ Money borrowed - nonfarm	265		
= Cash inflow from financing		$ 69,708	
Principal payments (inter. & long-term)	$ 45,524		
+ Principal payments (short-term)	2,415		
+ Decrease in operating debt	1,715		
- Cash outflow for financing		$ 49,654	
= Net Provided by Financing Activities			$ 20,054
Cash Flow From Reserves			
Beginning farm cash, checking & savings		$ 6,841	
- Ending farm cash, checking & savings		6,135	
= Net Provided from Reserves			$ 706
Imbalance (error)			$ 900

Table 16. ANNUAL CASH FLOW BUDGETING DATA
343 New York Dairy Farms, 1993

Item	Average 343 Farms Total	Average 343 Farms Per Cow	Average 343 Farms Per Cwt.	Average Top 10% Farms Total	Average Top 10% Farms Per Cow	Average Top 10% Farms Per Cwt.
Average no. of cows and cwt.		130	24,448		305	61,268
Accrual Operating Receipts						
Milk	$321,258	$2,479	$13.14	$807,150	$2,648	$13.17
Dairy cattle	33,160	256	1.36	92,348	303	1.51
Dairy calves	5,916	46	.24	14,193	47	.23
Other livestock	456	3	.02	1,206	4	.02
Crops	5,672	44	.23	23,272	76	.38
Miscellaneous receipts	10,907	84	.45	20,656	68	.34
Total	$377,369	$2,912	$15.44	$958,825	$3,146	$15.65
Accrual Operating Expenses						
Hired labor	$45,449	$ 351	$1.86	$138,577	$ 455	$2.26
Dairy grain & concentrate	91,827	709	3.76	232,137	762	3.79
Dairy roughage	2,284	18	.09	5,611	18	.09
Nondairy feed	22	0	.00	73	0	.00
Machinery hire/rent/lease	3,485	27	.14	10,366	34	.17
Machinery repairs/parts & auto	19,190	148	.78	37,411	123	.61
Fuel, oil & grease	8,232	63	.34	16,001	53	.26
Replacement livestock	4,266	33	.17	6,702	22	.11
Breeding	4,569	35	.19	8,755	29	.14
Vet & medicine	9,056	70	.37	22,258	73	.36
Milk marketing	15,747	121	.64	33,403	110	.55
Cattle lease	380	3	.02	426	1	.01
Other livestock expense	17,083	132	.70	43,281	142	.71
Fertilizer & lime	8,667	67	.36	17,116	56	.28
Seeds & plants	4,974	38	.20	10,087	33	.16
Spray/other crop expense	4,964	38	.20	9,360	31	.15
Land, building, fence repair	5,110	39	.21	12,457	41	.20
Taxes	8,367	65	.34	13,517	44	.22
Real estate rent/lease	5,354	41	.22	13,939	46	.23
Insurance	4,891	38	.20	9,172	30	.15
Utilities	9,516	73	.39	20,034	66	.33
Miscellaneous	4,737	37	.19	19,017	62	.31
Total Less Interest Paid	$278,169	$2,146	$11.37	$679,699	$2,230	$11.09
Net Accrual Operating Income (without interest paid)	$ 99,200	$ 765	$ 4.07	$279,126	$ 916	$ 4.56
- Change in livestock/crop inv.	15,399	119	.63	63,752	209	1.04
- Change in accounts rec.	2,212	17	.09	3,411	11	.06
+ Change in feed/supply inv.	1,446	11	.06	1,515	5	.02
+ Change in accounts payable*	293	2	.01	-1,498	-5	-.02
NET CASH FLOW	$ 83,328	$ 643	$ 3.42	$211,980	$ 695	$ 3.46
- Net personal withdrawals & family expenditures	30,100	232	1.23	66,118	217	1.08
Available for Farm Debt Payments & Investments	$ 53,228	$ 411	$ 2.19	$145,862	$ 478	$ 2.38
- Farm Debt Payments	67,945	524	2.78	178,276	585	2.91
Cash available for Farm Investments	$-14,717	$ -113	$ -.59	$-32,414	$ -107	$ -.53

*Excludes 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 1992 and 1993.

Table 17. FARM DEBT PAYMENTS PLANNED
New York Dairy Farms, 1993

	Same 257 Dairy Farms			Average Top 10% Farms		
	1993 Payments		Planned	1993 Payments		Planned
Debt Payments	Planned	Made	1994	Planned	Made	1994
Long-term	$19,049	$21,819	$20,500	$ 51,539	$ 45,746	$56,481
Intermediate-term	36,295	47,272	34,293	105,825	138,452	94,957
Short-term	2,371	3,169	3,807	2,955	3,826	14,047
Operating (net red.)	2,284	2,360	1,832	3,651	15,832	2,738
Accts. payable (net reduction)	1,394	0	1,470	3,558	2,707	2,518
Total	$61,393	$74,620	$61,903	$167,528	$206,563	$170,741
Per Cow	$ 458	$ 557		$ 481	$ 594	
Per cwt. 1993 milk	$ 2.40	$ 2.92		$ 2.38	$ 2.93	
% of 1993 milk rec.	18%	22%		18%	22%	

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 1993 covered debt payments planned for 1993 (as of December 31, 1992).

Table 18. CASH FLOW COVERAGE RATIO
New York Dairy Farms, 1993

Item	Same 257 Dairy Farms	Average Top 10% Farms
Cash farm receipts	$374,401	$1,022,660
- Cash farm expenses	306,621	850,423
+ Interest paid	20,919	60,038
- Net personal withdrawals from farm*	31,632	72,654
(A) = Amount Available for Debt Service	$ 57,067	$ 159,621
(B) = Debt Payments Planned for 1993	$ 61,393	$ 167,528
(A ÷ B) = Cash Flow Coverage Ratio for 1993	0.93	0.95

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

Table 19. DEBT TO ASSET RATIO VS. CASH FLOW COVERAGE
237 New York Dairy Farms, 1993

	Cash Flow Coverage Ratio (Farm & NonFarm)			
Debt/Asset Ratio	<.5	.5 to .99	1 to 1.49	≥1.5
	percent of farms			
<40%	5.9	22.4	16.0	13.1
40 to 70%	5.9	20.3	11.4	2.5
70% & over	0.0	1.7	0.8	0.0

Cropping Program Analysis

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

Table 20. LAND RESOURCES AND CROP PRODUCTION
343 New York Dairy Farms, 1993

Item	Average 343 Farms			Average Top 10% Farms		
Land	Owned	Rented	Total	Owned	Rented	Total
Tillable	216	135	351	359	270	629
Nontillable	50	11	61	68	7	75
Other nontillable	103	5	108	125	5	130
Total	369	151	520	552	282	834
Crop Yields	Farms	Acres	Prod/Acre	Farms	Acres	Prod/Acre
Hay crop	339	185	2.7 tn DM	33	276	3.3 tn DM
Corn silage	317	104	15.0 tn	32	256	16.3 tn
			5.0 tn DM			5.5 tn DM
Other forage	42	32	2.0 tn DM	2	9	1.8 tn DM
Total forage	340	285	3.5 tn DM	33	526	4.3 tn DM
Corn grain	145	87	106.3 bu	14	105	116.2 bu
Oats	38	28	65.3 bu	1	25	67.2 bu
Wheat	13	40	41.8 bu	2	70	24.8 bu
Other crops	50	54		7	186	
Tillable pasture	100	33		8	60	
Idle	121	29		15	42	

Crop acres and yields compiled for the average represent only the number of farms reporting each crop. All but four of the 343 farms produced hay or hay crop silage in 1993. Ninety-two percent produced corn silage, 42 percent grew and harvested corn grain, and 11 percent grew oats for grain. 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 plantings, therefore, unharvested acres are reflected in low 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 21. CROP MANAGEMENT FACTORS
343 New York Dairy Farms, 1993

Item	Average 343 Farms	Average Top 10% Farms
Total tillable acres per cow	2.71	2.06
Total forage acres per cow	2.18	1.67
Harvested forage dry matter, tons per cow	7.54	7.12

In the first year of collecting information on pasture costs, 10 cooperators provided pasture-related expenses. Ninety-eight cooperators allocated direct crop related expenses to hay crop, corn, and other crop production. The data in Table 22 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 22, the total per tillable acre represents all 343 farms, the expenses for hay and corn crops are for the 98 farms, and the pasture costs are for the 10 farms which submitted data.

Table 22. CROP RELATED ACCRUAL EXPENSES
New York Dairy Farms, 1993

Expenses	Average 343 Farms Total Per Tillable Acre	Average 98 Farms Reporting Crop Costs: Hay Crop Per Acre	Hay Crop Per Ton DM	All Corn Per Acre	Corn Silage Per Ton DM	Corn Grain Per Dry Shell Bu.	Average 10 Farms Pasture Per Till. Acre	Pasture Per Total Acre
Fert. & lime	$24.69	$17.19	$ 5.99	$36.80	$ 7.17	$0.34	$ 9.41	$5.29
Seeds & plants	14.17	11.67	4.07	24.28	4.73	0.22	3.24	1.82
Spray & other crop exp.	14.14	4.25	1.48	29.06	5.66	0.26	1.73	.97
Total	$53.00	$33.11	$11.54	$90.14	$17.56	$0.82	$14.38	$8.08
Ave. Top 10% Farms:		Average 10 Farms Reporting Crop Costs						
Fert. & lime	$27.21	$14.79	$ 4.20	$34.87	$ 6.02	$0.28		
Seeds & plants	16.04	12.54	3.56	24.61	4.25	0.20		
Spray & other crop exp.	14.88	5.27	1.49	28.28	4.88	0.23		
Total	$58.13	$32.60	$9.25	$87.76	$15.15	$0.71		

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 23. ACCRUAL MACHINERY EXPENSES
343 New York Dairy Farms, 1993

Machinery Expense Item	Average 343 Farms Total Expenses	Average 343 Farms Per Til. Acre	Average Top 10% Farms Total Expenses	Average Top 10% Farms Per Til. Acre
Fuel, oil & grease	$ 8,232	$ 23.45	$ 16,001	$ 25.44
Machinery repairs & parts	18,153	51.72	35,759	56.85
Machine hire, rent & lease	3,485	9.93	10,366	16.48
Auto expense (farm share	1,037	2.95	1,652	2.63
Interest (5%)	7,474	21.29	12,524	19.91
Depreciation	17,389	49.54	30,137	47.91
Total	$55,771	$158.89	$106,440	$169.22

Table 24. CROP RELATED ACCRUAL EXPENSES BY HAY CROP PRODUCTION PER ACRE 98 New York Dairy Farms, 1993

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	2.3	2.7	3.2	4.2
Farms reporting crop expense breakdowns	21	22	15	14	25
Average number hay crop acres for farms reporting	194	146	181	154	209
Accrual Crop Expense Per Acre of Hay Crop:					
Fertilizer & lime	$ 7.30	$14.19	$21.51	$21.82	$22.60
Seeds & plants	6.34	12.33	19.79	9.17	12.23
Spray & other crop expense	2.19	3.64	8.09	2.96	4.76
Total	$15.83	$30.16	$49.39	$33.95	$39.59
Accrual Crop Expense Per Ton DM of Hay Crop:					
Fertilizer & lime	$ 4.71	$ 6.11	$ 7.95	$ 6.79	$5.41
Seeds & plants	4.10	5.31	7.31	2.85	2.93
Spray & other crop expense	1.42	1.57	2.99	.92	1.14
Total	$10.23	$12.99	$18.25	$10.56	$9.48

Table 25. CROP RELATED ACCRUAL EXPENSES BY CORN PRODUCTION PER ACRE 94 New York Dairy Farms, 1993

Item	Tons Corn Silage/Acre			Dry Shell Bushels of Corn Grain Per Acre		
	≤12	13-17	≥18	≤87	88-112	≥113
Corn yield per acre	10.5	15.6	19.2	76	101	128
Farms reporting crop expense breakdowns	28	44	22	11	27	18
Average number corn acres for farms reporting	135	173	206	118	189	243
Accrual Crop Exp./Acre of Corn						
Fertilizer & lime	$33.48	$32.57	$46.25	$38.81	$42.14	$36.76
Seeds & plants	22.33	24.48	25.35	25.15	24.82	24.07
Spray & other crop expense	22.91	32.74	27.65	29.09	31.33	25.18
Total	$78.72	$89.79	$99.25	$93.05	$98.29	$86.01
Accrual Crop Expense Per:*	Ton DM of Corn Silage			Dry Shell Bushel of Corn Grain		
Fertilizer & lime	$ 9.53	$ 6.00	$ 7.47	$0.51	$0.41	$0.29
Seeds & plants	6.36	4.51	4.09	0.33	0.24	0.19
Spray & other crop expense	6.52	6.04	4.47	0.38	0.31	0.20
Total	$22.41	$16.55	$16.03	$1.22	$0.96	$0.68

*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 group of 25 farms with greater than 3.5 tons per acre can be attributed to significantly higher yields with controlled expenses per acre.

Dairy Program Analysis

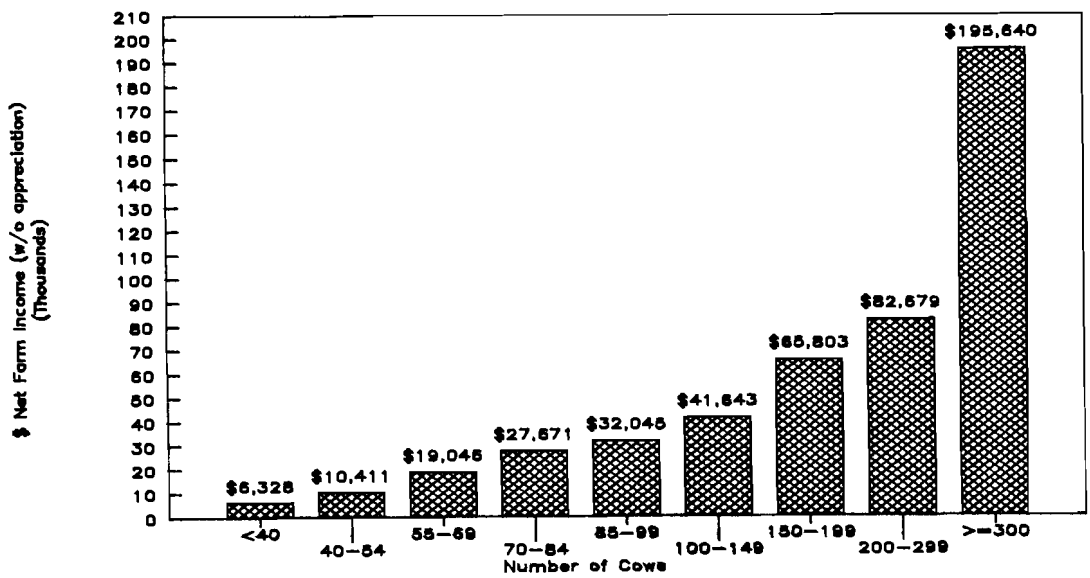
An analysis of the dairy enterprise can be the most important steop in evaluating the strengths and weaknesses of the dairy farm business. Changes in dairy herd size and market values are identified in the table below. The change in inventory value without appreciation is attributed to physical changes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

Table 26. **DAIRY HERD INVENTORY**
343 New York Dairy Farms, 1993

	Dairy Cows		Heifers					
			Bred		Open		Calves	
Item	No.	Value	No.	Value	No.	Value	No.	Value
Beg. year (owned)	125	$128,712	39	$31,310	29	$15,601	29	$8,103
+ Change w/o apprec.		9,243		201		2,738		475
+ Appreciation		741		283		447		150
End year (owned)	134	$138,696	37	$31,794	35	$18,786	30	$8,728
End incl. leased	135							
Average number	130		100	(all age groups)				
Average Top 10% Farms:								
Beg. year (owned)	288	$282,789	115	$78,879	39	$20,813	55	$16,155
+ Change w/o apprec.		32,317		-6,649		14,578		2,659
+ Appreciation		2,298		803		2,417		282
End year (owned)	318	$317,404	93	$73,033	74	$37,808	62	$19,096
End incl. leased	321							
Average number	305		222	(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 2. Net farm income increased $189,312 while labor and management income per operator jumped $62,888 as herd size increased from less than 40 to over 300 cows per farm.

Chart 2. **NET FARM INCOME (WITHOUT APPRECIATION) BY HERD SIZE**
343 New York Dairy Farms, 1993



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 27. MILK PRODUCTION
343 New York Dairy Farms, 1993

Item	Average 343 Farms	Average Top 10% Farms
Total milk sold, lbs.	2,444,774	6,126,810
Milk sold per cow, lbs.	18,858	20,101
Average milk plant test, percent butterfat	3.7%	3.6%

Farms with higher rates of production tend to have higher profits. In 1993, most of the farms that sold more than 19,000 pounds of milk per cow had above average profit margins.

Table 28. MILK SOLD PER COW AND FARM INCOME MEASURES
343 New York Dairy Farms, 1993

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	25	78	$17,510	$224	$-2,300
14,000 to 15,999	44	80	20,361	255	-1,464
16,000 to 16,999	32	101	21,594	214	-608
17,000 to 17,999	51	120	33,355	278	3,716
18,000 to 18,999	48	112	29,472	263	880
19,000 to 19,999	52	187	56,622	303	11,163
20,000 to 20,999	39	150	72,045	480	24,141
21,000 to 21,999	30	189	92,427	489	28,594
22,000 & over	22	140	63,742	455	19,726

The relationship between milk output per cow and net farm income on all 343 dairy farms is shown in Table 28 above and is diagrammed in Charts 3 and 4 on page 25. Each spot on each scatter diagram represents one of the 343 farms.

The relationship between milk output per cow and net farm income per cow is presented in Chart 3 and Table 28. 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. There is a consistent upward trend in net farm income per cow when milk output increases from 18,000 to 22,000 pounds per cow. Six of the 10 farms that achieved $1,000 or more of net farm income per cow sold between 19,000 and 22,000 pounds of milk per cow.

Chart 4 and Table 28 show that as milk sold per cow increased from less than 14,000 pounds to 21,999 pounds, net farm income increased at a variable rate. As milk output increased from 19,000 pounds to 22,000 pounds per cow, the range or variability in net farm income continued to grow.

CHART 3. **NET FARM INCOME/COW & MILK/COW**
343 New York Dairy Farms, 1993

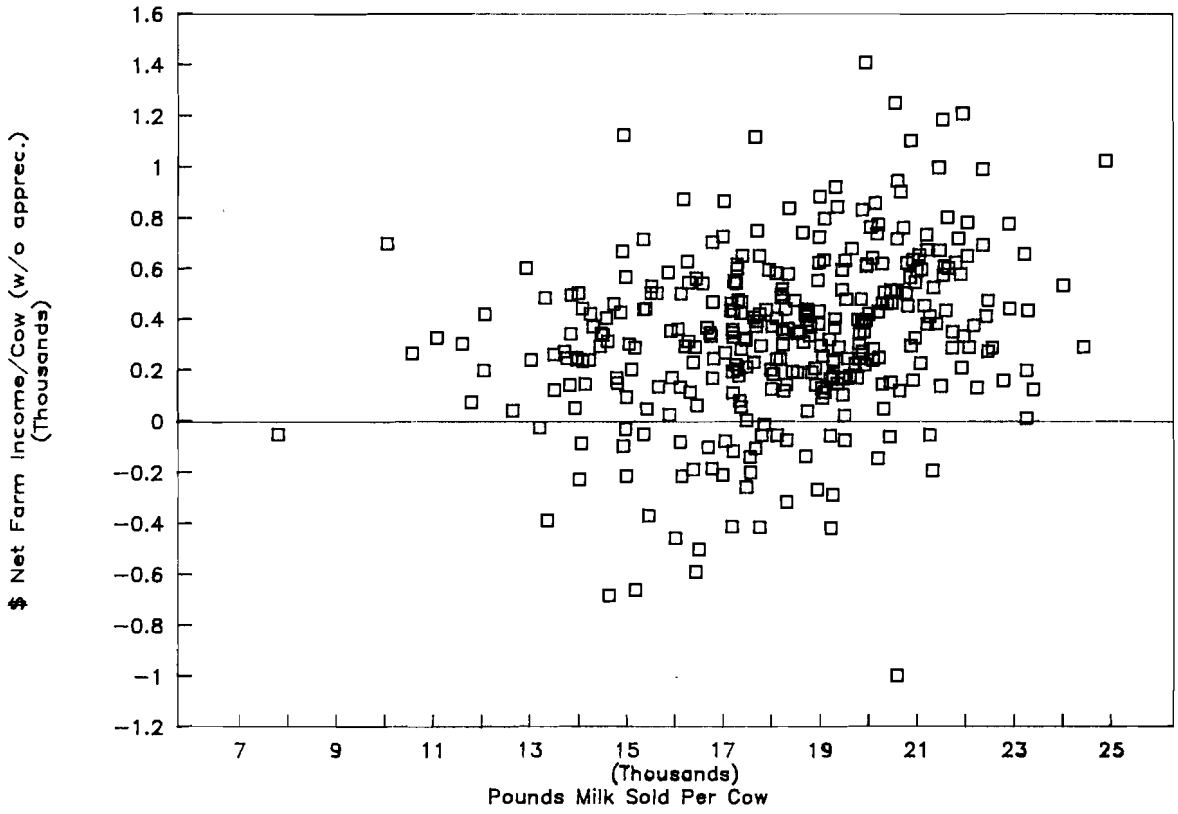
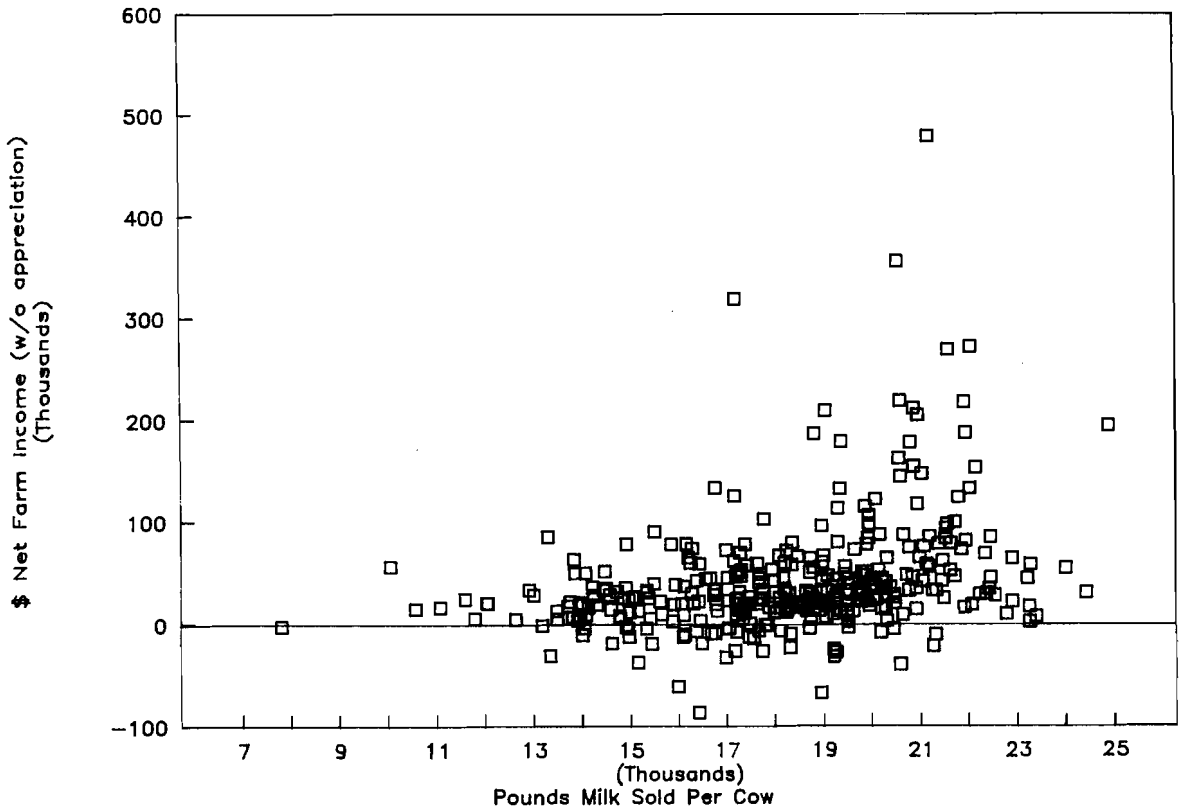


CHART 4. **NET FARM INCOME & MILK PER COW**
343 New York Dairy Farms, 1993



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 costs 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 costs 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 costs of producing milk. This cost includes all the operating, depreciation, and imputed costs of producing milk.

Table 29. COST OF PRODUCING MILK WHOLE FARM METHOD CALCULATIONS
343 New York Dairy Farms, 1993

Item	Average 343 Farms		Average Top 10% Farms	
Total Accrual Oper. Expenses	$297,643		$730,628	
Expansion Livestock, Accrual	+6,927		+16,214	
1. Total Accrual Oper. Expenses, Incl. Expansion Livestock		$304,570		$746,842
Total Accrual Receipts	$376,995		$958,825	
Milk Sales, Accrual	-321,258		-807,150	
2. Total Accrual Nonmilk Receipts		-55,737		-151,675
3. Oper. Costs of Producing Milk		$248,833		$595,167
Cwt. of Milk Sold	÷24,447.7		÷61,268.1	
Operating Costs/Cwt.	= $10.18		= $9.71	
Machinery Depreciation		+17,389		+30,137
Building Depreciation		+11,100		+24,090
4. Purchased Inputs Cost of Producing Milk		$277,322		$649,394
Cwt. of Milk Sold	÷24,447.7		÷61,268.1	
Purchased Inputs Cost/Cwt.	= $11.34		= $10.60	
Family Labor Unpaid ($1,400/month)		+ 3,780		+ 2,436
Real Interest on Equity Cap.		+27,106		+45,352
Value of Oper. Labor & Mgmt.		+33,292		+42,608
5. Total Costs of Producing Milk		$341,500		$739,790
Cwt. Milk Sold	÷24,447.7		÷61,268.1	
Total Costs/Cwt.	= $13.97		= $12.07	

Costs of producing milk per hundredweight are presented for eight expenditure categories in Table 30. The whole farm method assumption that accrual nonmilk receipts represent nonmilk operating costs is used in computing net costs. A $3,101 average increase in crop inventories per farm, ($0.13 per cwt. of milk), is included in crop sales.

Table 30. ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT BASED ON WHOLE FARM DATA 343 New York Dairy Farms, 1993

Item	Average 343 Farms	Average Top 10% Farms
Dairy grain and concentrate	$3.76	$3.79
Total feed expense	$3.85	$3.88
Crop expense	0.76	0.60
- Crop sales and government receipts*	-0.47	-0.52
Net Feed and Crop Expense	$4.14	$3.96
Hired labor	1.86	2.26
Operator's and family labor	1.52	0.74
Total Labor Expense	$3.38	$3.00
Machine repairs, fuel and hire	1.26	1.04
Machinery depreciation	0.71	0.49
- Gas tax refunds and custom work	-0.04	-0.02
Net machinery expense	$1.93	$1.51
Replacement and expansion cattle purch.	0.46	0.37
- Sales and inventory growth	-1.61	-1.76
Net Cattle Purchases	$-1.15	$-1.39
Milk marketing costs	0.64	0.55
All other livestock exp. excl. purch.	1.28	1.22
Net livestock expense	$1.92	$1.77
Real estate repairs, rent and taxes	0.77	0.65
Building depreciation	0.45	.39
Total real estate expense	$1.22	$1.04
Interest paid	0.80	0.83
Interest on equity	1.11	0.74
Total Interest Expense	$1.91	$1.57
Other operating and misc. expenses	0.78	0.79
- Miscellaneous income	-0.16	- 0.18
Net miscellaneous expenses	$ 0.62	$ 0.61
Total Cost of Producing Milk	$13.97	$12.07
Purchased Inputs Cost	$11.34	$10.60
Total Operating Costs	$10.18	$ 9.71

*Non-crop related government payments may produce irregular results.

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

Table 31. ACCRUAL RECEIPTS FROM DAIRY AND COST OF PRODUCING MILK 343 New York Dairy Farms, 1993

Item	Average 343 Farms			Average Top 10% Farms		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Accrual Costs of Producing Milk						
Operating Costs	$248,833	$1,920	$10.18	$595,167	$1,953	$ 9.71
Purchased Inputs Cost	$277,322	$2,140	$11.34	$649,394	$2,131	$10.60
Total Costs	$341,500	$2,635	$13.97	$739,790	$2,427	$12.07
Accrual Receipts from Milk	$321,258	$2,479	$13.14	$807,150	$2,648	$13.17

Operating costs of producing milk on all 343 dairy farms averaged $10.18 per hundredweight, leaving $2.96 to cover depreciation, unpaid labor and operator resources.

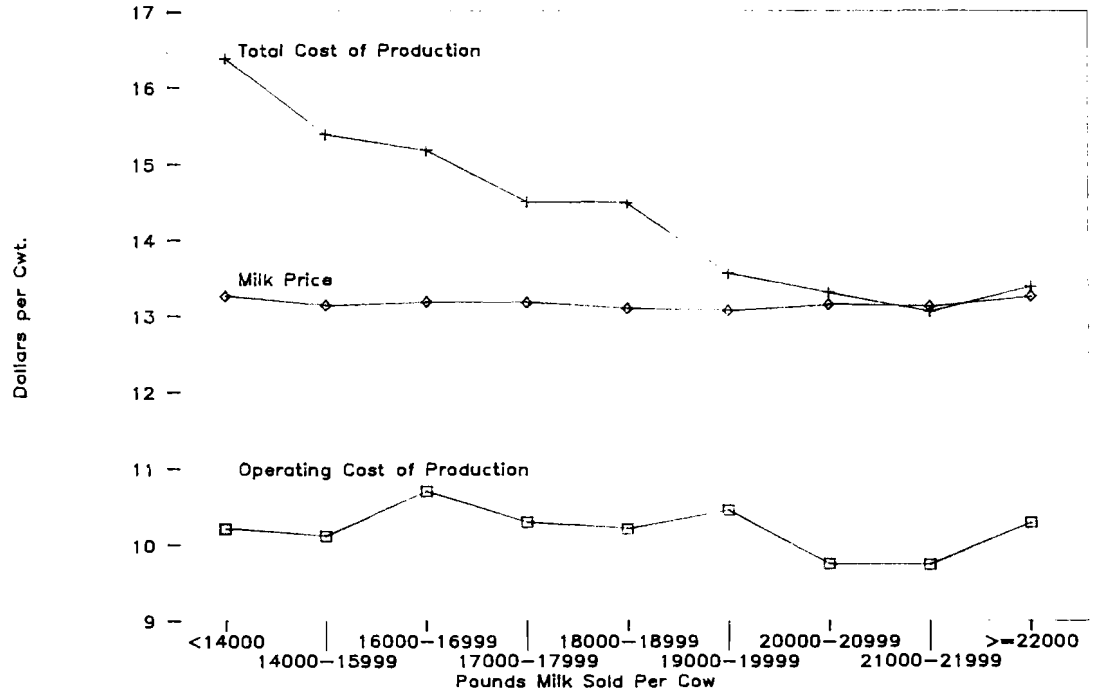
The total cost of producing milk on all 343 dairy farms averaged $13.97 per hundredweight, $0.83 more than the average price received for milk sold from these farms during 1993. This implies dairy farmers are willing to receive returns less than the stated charges on their labor and equity capital to remain in farming. The imputed costs or charge for the operator's labor, management, and equity capital averaged $2.47 per hundredweight in 1993. The computed returns averaged $1.64 per hundredweight. The 34 most profitable farms held their operating costs to $9.71 per hundredweight and their total costs of producing milk averaged $12.07 per hundredweight. This left a profit of $1.10 per hundredweight of milk sold.

The strong relationship between milk output per cow and the costs of producing milk are shown in Table 32 and Chart 5 on page 29. Farms selling less than 18,000 pounds of milk per cow had an average total cost of production of $15.37 per hundredweight while those selling 18,000 pounds and over averaged $13.56 for a difference of $1.81 per hundredweight.

Table 32. FARM COST OF PRODUCING MILK BY MILK SOLD PER COW 343 New York Dairy Farms, 1993

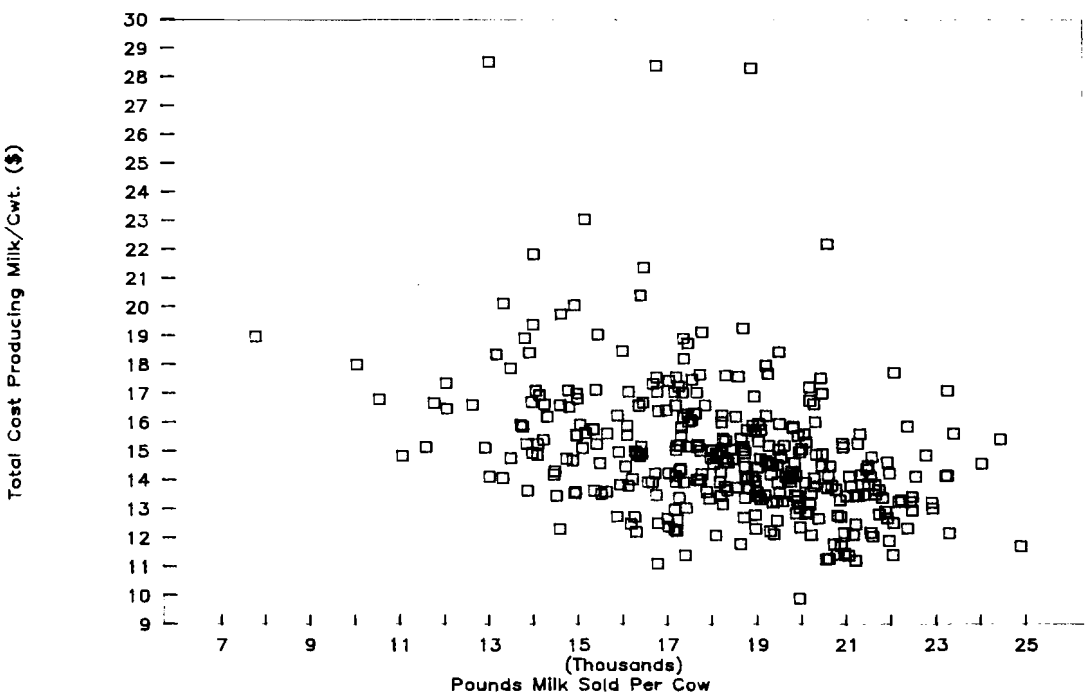
Pounds Milk Sold Per Cow	Cost per Hundredweight			Accrual Receipts From Milk Per Cwt.	Return/Cwt. to Operator's Labor, Mgmt. & Capital
	Operating	Purchased Inputs	Total		
Under 14,000	$10.22	$11.52	$16.39	$13.27	$1.25
14,000 - 15,999	10.12	11.44	15.39	13.14	1.42
16,000 - 16,999	10.71	11.89	15.18	13.19	1.06
17,000 - 17,999	10.30	11.59	14.51	13.18	1.40
18,000 - 18,999	10.21	11.69	14.49	13.10	1.27
19,000 - 19,999	10.46	11.52	13.56	13.07	1.45
20,000 - 20,999	9.75	10.81	13.31	13.15	2.24
21,000 - 21,999	9.74	10.84	13.05	13.12	2.21
22,000 & over	10.29	11.25	13.39	13.26	1.80

Chart 5. **PRODUCTION COST & MILK PRICE BY MILK/COW**
343 New York Dairy Farms, 1993



The relationship between total costs of producing milk and milk sold per cow is diagrammed in Chart 6. It shows that as milk sold per cow increases from 13,000 pounds to 23,000 pounds per cow, on the average, total costs of production decrease from nearly $18 to less than $13 per hundredweight at a fairly constant rate.

Chart 6. **TOTAL COST OF PRODUCTION & MILK PER COW**
343 New York Dairy Farms, 1993

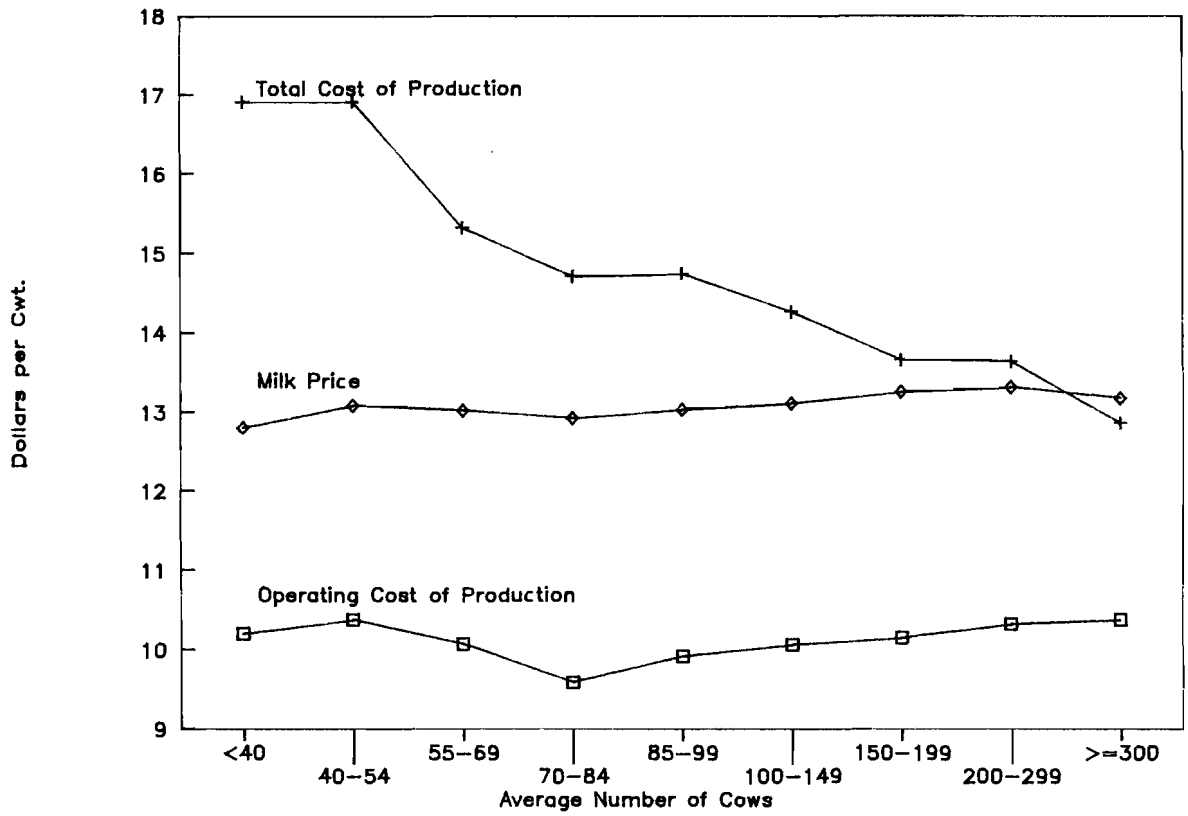


Data in Table 33 and Chart 7 show average operating costs of producing milk somewhat higher on dairy farms with 150 ot over 300 cows. More labor is included as an operating expense on large farms because hired labor is a greater proportion of the total labor resources used. Total costs of production generally decline as herd size increases because the costs of operator's resources are spread over more units of production.

Table 33. FARM COST OF PRODUCING MILK BY HERD SIZE
343 New York Dairy Farms, 1993

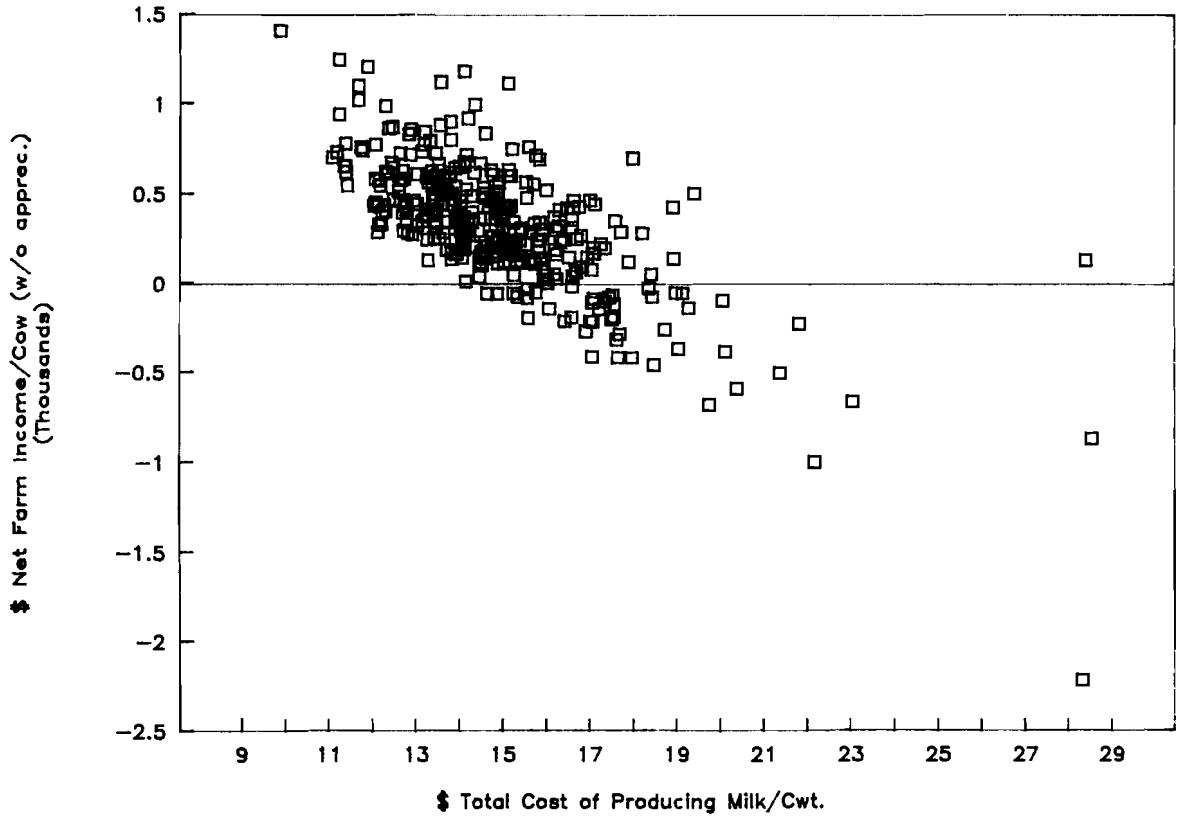
Number of Cows	Cost per Hundredweight: Operating	Purchased Inputs	Total	Accrual Receipts From Milk Per Cwt.	Return/Cwt. to Operator's Labor, Mgmt. & Capital
Under 40	$10.21	$11.70	$16.92	$12.80	$0.44
40 to 54	10.38	11.74	16.92	13.08	0.70
55 to 69	10.08	11.30	15.32	13.02	1.33
70 to 84	9.59	10.90	14.71	12.92	1.74
85 to 99	9.92	11.14	14.74	13.03	1.64
100 to 149	10.07	11.23	14.26	13.11	1.73
150 to 199	10.16	11.23	13.66	13.26	1.96
200 to 299	10.33	11.48	13.64	13.32	1.73
300 & over	10.38	11.51	12.86	13.17	1.65

Chart 7. PRODUCTION COST & MILK PRICE BY HERD SIZE
343 New York Dairy Farms, 1993



The importance of cost control and its impact on farm profitability are illustrated in Chart 8. As total cost of producing milk increased from $11 to $23 per hundredweight, net farm income per cow fell from approximately $1,000 to $-1,000. On the average, net farm income per cow was positive until total costs of production exceeded $17 per hundredweight.

Chart 8. NET FARM INCOME/COW & TOTAL COST OF PRODUCING MILK
343 New York Dairy Farms, 1993



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 1984 through 1993. In 1993 average operating costs of producing milk decreased two percent after increasing eight percent from 1991 to 1992. The average return per hundredweight to operator labor, management, and capital fell to $1.64 in 1993, nine percent below 1992.

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 46 percent, tillable acres have increased 25 percent, and milk sold per farm has jumped 78 percent since 1984. Capital investment per cow has increased 17 percent, far less than inflation, over the last 10 years. Labor and management income per operator decreased 20 percent in 1993 compared to 1992, and farm net worth continued to grow.

Table 34. TEN YEAR COMPARISON: AVERAGE COST OF PRODUCING MILK PER HUNDREDWEIGHT
New York Dairy Farms, 1984 to 1993

Item	1984*	1985	1986	1987	1988	1989	1990	1991	1992	1993
Operating Expenses										
Hired labor	$ 1.39	$ 1.38	$ 1.38	$ 1.49	$ 1.46	$ 1.62	$ 1.77	$ 1.74	$ 1.80	$ 1.86
Purchased feed	3.46	3.09	3.15	3.26	3.73	4.02	4.28	3.88	3.92	3.85
Machinery repairs & rent	.80	.78	.75	.88	.83	.92	1.06	.89	.93	.89
Auto expenses (farm share)	.03	.03	.04	.04	.04	.04	.05	.04	.04	.04
Fuel, oil & grease	.50	.48	.34	.35	.34	.33	.41	.37	.35	.34
Replacement livestock	.10	.10	.13	.13	.11	.17	.20	.15	.21	.17
Breeding fees	.20	.20	.19	.19	.18	.18	.19	.18	.18	.19
Veterinary & medicine	.29	.27	.28	.28	.28	.30	.32	.33	.35	.37
Milk marketing	1.03	.80	.84	.74	.52	.49	.53	.58	.63	.64
Other dairy expenses	.55	.53	.52	.53	.56	.60	.68	.65	.70	.72
Lime & fertilizer	.66	.63	.49	.50	.51	.50	.50	.40	.37	.36
Seeds & plants	.22	.23	.21	.21	.21	.22	.22	.20	.21	.20
Spray & other crop expense	.20	.22	.20	.19	.19	.21	.22	.20	.21	.20
Land, building, fence repair	.18	.17	.16	.20	.22	.27	.32	.19	.24	.21
Taxes	.33	.34	.33	.35	.35	.36	.37	.38	.35	.34
Insurance	.20	.22	.22	.22	.23	.23	.24	.23	.22	.20
Telephone & elec. (farm share)	.36	.37	.39	.38	.38	.39	.39	.39	.38	.39
Interest paid	1.40	1.25	1.18	1.04	1.02	1.06	1.05	1.07	.88	.80
Misc. (including rent)	.44	.40	.41	.45	.41	.43	.47	.43	.44	.41
Total Operating Expenses	$12.34	$11.50	$11.22	$11.43	$11.57	$12.34	$13.27	$12.30	$12.41	$12.18
Less: Nonmilk cash receipts	1.74	1.58	1.52	1.84	1.86	1.75	1.75	1.73	1.67	1.65
Increase in feed & supplies**	.18	.05	.01	.16	.16	.02	.26	.04	.23	.13
Increase in livestock	.16	.18	.12	.10	.08	.12	.15	.18	.08	.22
OPERATING COST OF MILK PRODUCTION	$10.26	$ 9.69	$ 9.57	$ 9.33	$ 9.47	$10.45	$11.11	$10.35	$10.43	$10.18
Overhead Expenses										
Depreciation: mach. & bldgs.	$ 1.65	$ 1.64	$ 1.54	$ 1.43	$ 1.31	$ 1.31	$ 1.35	$ 1.28	$ 1.19	$ 1.17
Unpaid labor	.12	.12	.13	.10	.11	.12	.19	.18	.16	.15
Operator(s) labor***	.87	.97	.86	.87	.95	.98	1.10	1.06	.99	1.00
Operator(s) mgmt. (5% of cash rec.)	.76	.72	.71	.74	.74	.81	.85	.73	.76	.74
Interest on farm eq. cap. (5%)	1.22	1.16	1.10	1.15	1.19	1.24	1.24	1.20	1.11	1.11
Total Overhead Expenses	$ 4.62	$ 4.61	$ 4.34	$ 4.28	$ 4.30	$ 4.46	$ 4.73	$ 4.45	$ 4.21	$ 4.17
TOTAL COST OF MILK PRODUCTION	$14.88	$14.30	$13.91	$13.61	$13.77	$14.91	$15.84	$14.80	$14.64	$14.35
AVERAGE FARM PRICE OF MILK	$13.49	$12.90	$12.65	$12.89	$13.03	$14.53	$14.93	$12.95	$13.58	$13.14
Return per cwt. to operator labor, capital, & management	$1.46	$1.45	$1.41	$2.04	$2.14	$2.65	$2.28	$1.14	$1.80	$1.64
Rate of return on farm eq. cap.	-0.7%	-1.0%	-0.7%	1.9%	1.8%	3.3%	1.3%	-2.7%	0.2%	-0.4%

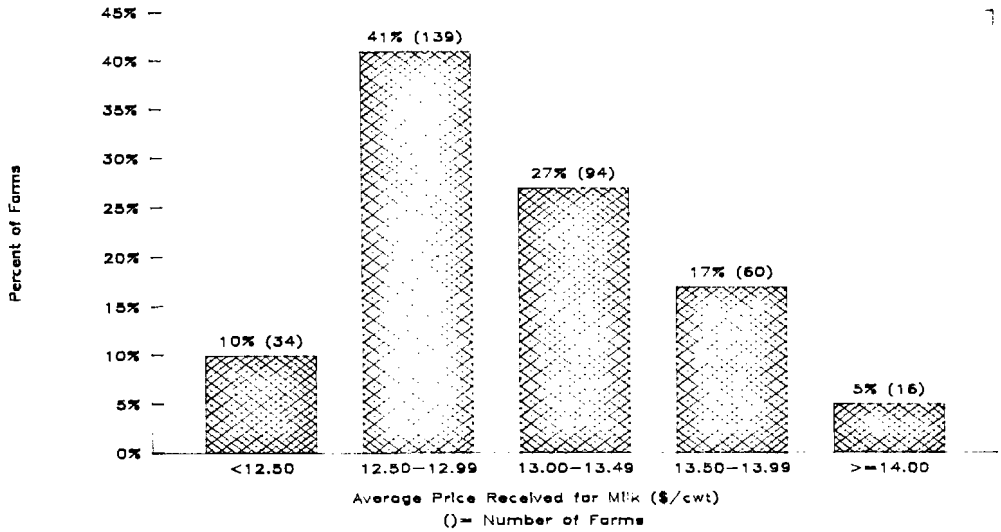
*Cash receipts and expenses. **Increase in grown feeds, 1985-1992. ***1984 = $750/month, 1985 = $800/month, 1986 = $850/month, 1987 = $900/month, 1988 = $1,000/month, 1989 = $1,050/month, 1990 = $1,250/month, 1991 = $1,300/month, 1992 = $1,350/month and 1993 = $1,400/month of operator labor.

Table 35. **TEN YEAR COMPARISON: SELECTED BUSINESS FACTORS**
New York Dairy Farms, 1984 to 1993

Item	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Number of farms	458	404	414	426	406	409	395	407	357	343
Cropping Program										
Total tillable acres	280	280	288	305	302	316	325	330	346	351
Tillable acres rented	94	93	100	105	104	117	121	124	135	135
Hay crop acres	143	142	147	153	156	164	166	169	171	182
Corn silage acres	76	69	67	67	74	81	82	88	98	96
Hay crop, tons DM/acre	2.7	2.7	2.7	2.7	2.6	2.6	2.7	2.4	2.8	2.7
Corn silage, tons/acre	14.0	14.3	14.3	16.2	14.1	13.4	14.4	13.7	14.5	14.9
Fert. & lime exp. /tillable acre	$32	$32	$26	$27	$29	$29	$29	$25	$25	$25
Machinery cost/cow	$433	$426	$400	$413	$398	$425	$483	$438	$444	$430
Dairy Analysis										
Number of cows	89	89	95	101	102	104	107	111	123	130
Number of heifers	76	73	77	79	82	83	87	92	96	100
Milk sold, cwt.	13,735	14,001	15,374	16,498	17,200	17,975	19,005	20,060	23,130	24,448
Milk sold/cow, lbs.	15,433	15,679	16,237	16,351	16,882	17,259	17,720	18,027	18,789	18,858
Purchased dairy feed/cwt. milk	$3.28	$3.04	$3.10	$3.21	$3.71	$3.99	$4.27	$3.87	$3.91	$3.85
Purc. grain & conc. as % milk receipts	24%	23%	24%	24%	28%	27%	28%	29%	28%	29%
Purc. feed & crop exp./cwt. milk	$4.53	$4.13	$4.00	$4.11	$4.62	$4.92	$5.21	$4.67	$4.70	$4.61
Capital Efficiency										
Farm capital/cow	$5,520	$5,801	$5,792	$5,894	$6,133	$6,407	$6,556	$6,688	$6,587	$6,462
Real estate/cow	$2,731	$2,726	$2,758	$2,805	$2,902	$2,977	$2,977	$3,063	$3,015	2,932
Mach. invest./cow	$1,057	$1,083	$1,062	$1,057	$1,083	$1,154	$1,233	$1,267	$1,203	1,165
Asset turnover ratio	.43	.40	.43	.45	.45	.48	.48	.43	.47	.46
Labor Efficiency										
Worker equivalent	3.08	3.17	3.17	3.19	3.17	3.30	3.37	3.38	3.60	3.68
Operator/manager eq.	1.31	1.34	1.33	1.32	1.35	1.39	1.39	1.37	1.41	1.45
Milk sold/worker, lbs.	445,942	442,125	497,555	516,728	542,708	544,598	563,349	593,297	641,893	664,868
Cows/worker	29	28	31	32	32	32	32	33	34	35
Labor cost/cow	$366	$387	$385	$400	$426	$469	$541	$538	$552	$568
Profitability & Financial Analysis										
Labor & mgmt. income/oper.	$2,262	$2,850	$3,837	$11,042	$11,911	$18,004	$14,328	$-955	$11,254	$ 9,000
Farm net worth	$336,210	$325,664	$348,909	$398,209	$426,123	$468,848	$471,322	$480,131	$515,215	$542,126
Percent equity	64%	63%	62%	65%	66%	68%	66%	64%	64%	65%

The average or mean price per hundredweight of milk sold is calculated by dividing the gross milk receipts for the year by the total pounds of milk sold. The average price for the 343 farms was $13.14 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 9. **VARIATION IN AVERAGE MILK PRICE**
343 New York Dairy Farms, 1993



Sixty-eight percent of the farms received from $12.50 to $13.49 per hundred-weight of milk sold. Twenty-two percent of the farms received $13.50 or more per hundredweight and 10 percent received less than $12.50 per hundredweight. Location and organization of markets are factors contributing to the variability of 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 test are two variables under the direct control of the farm manager.

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**
343 New York Dairy Farms, 1993

Item	Average 343 Farms		Average Top 10% Farms	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purch. dairy grain & conc.	$708	$3.76	$762	$3.79
Purchased dairy roughage	18	.09	18	.09
Total Purchased Dairy Feed	$726	$3.85	$780	$3.88
Purchased grain & conc. as % of milk receipts	29%		29%	
Purchased feed & crop exp.	$870	$4.61	$900	$4.48
Purchased feed & crop exp. as % of milk receipts	35%		34%	
Breeding	$35	$0.19	$29	$0.14
Veterinary & medicine	$70	$0.37	$73	$0.36
Milk marketing	$122	$0.64	$110	$0.55
Cattle lease	$3	$0.02	$1	$0.01
Other livestock expense	$132	$0.70	$142	$0.71

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 includes the amount spent for calf and heifer feed, it actually represents the feed cost for one cow and 0.77 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
343 New York Dairy Farms, 1993

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
$6.00 or more	23	102	7.3	17,889	$10,581	$-10,027
5.50 to 5.99	29	97	7.9	18,410	27,598	2,648
5.00 to 5.49	57	139	7.4	18,271	35,685	3,714
4.50 to 4.99	92	131	7.9	18,920	43,734	9,519
4.00 to 4.49	69	157	7.4	19,363	63,481	19,731
3.50 to 3.99	39	105	6.9	19,190	49,712	13,591
Less than 3.50	34	130	7.6	18,989	48,505	7,742

On the average, farms with purchased feed and crop expenses exceeding $5.00 per hundredweight of milk sold reported well below average farm profits. Farms reporting less than $5.00 per hundredweight showed above average profits. However, reducing feed and crop expenses does not necessarily lead to higher profits particularly when milk output per cow falls below average.

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
343 New York Dairy Farms, 1993

Item (Average for Year)	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
Farm capital	$227,745	$6,462	$2,386	$3,877
Real estate		$2,932		$1,759
Machinery & equipment	$41,074	$1,165	$430	
Asset turnover ratio		0.46		
Average Top 10% Farms:				
Farm capital	$243,320	$5,498	$2,664	$4,668
Real estate		$2,410		$2,046
Machinery & equipment	$37,091	$838	$406	
Asset turnover ratio		0.59		

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
343 New York Dairy Farms, 1993

Asset Turnover Ratio	No. of Farms	No. of Cows	Farm Capital (average for year) Per Cow	Farm Capital (average for year) Per Worker	Labor & Mgt. Inc. Per Operator	Net Farm Income (w/o apprec.)
≥ .70	16	299	$4,172	$182,913	$ 42,120	$106,212
.60 to .69	18	169	4,908	176,065	31,689	72,252
.50 to .59	61	201	5,677	216,816	21,643	74,649
.40 to .49	100	131	6,782	234,083	9,080	45,787
.30 to .39	103	80	7,898	246,909	-1,459	24,889
Less than .30	45	67	9,495	279,510	-15,138	8,323

The 34 farms with the highest rates of return on all capital (without appreciation) were considerably above the average of all 343 farms in two measures of labor efficiency. The top 10 percent sold 34 percent more milk per worker than the average of all farms.

Table 40. LABOR EFFICIENCY
343 New York Dairy Farms, 1993

Labor Efficiency	Average 343 Farms Total	Average 343 Farms Per Worker	Average Top 10% Farms Total	Average Top 10% Farms Per Worker
Cows, average number	130	35	305	44
Milk sold, pounds	2,444,774	664,868	6,126,810	889,581
Tillable acres	351	95	629	91

The labor force average 3.68 full-time worker equivalents per farm (based on 230 hours per month). Forty percent of the labor was supplied by the farm operator/managers. There were two operators on 138 farms, three on 40 farms, 10 farms reported four operators, and two farms reported five 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 $97 per cow less on the 34 farms in the top decile.

Table 41. LABOR FORCE INVENTORY AND COST ANALYSIS
343 New York Dairy Farms, 1993

Labor Force	Months	Age	Years of Educ.	Value of Labor & Mgmt.
Operator number 1	11.63	47	13	$22,576
Operator number 2	4.30	42	13	7,843
Operator number 3	1.14	37	14	2,259
Operator number 4	0.33	35	13	586
Operator number 5	0.05	36	12	28
Family paid	3.97		Total	$33,292
Family unpaid	2.70			
Hired	20.01			
Total	44.13	12 = 3.68 Worker Equivalent		
		1.45 Operator/Manager Equiv.		
Average Top 10% Farms:				
Total	82.65	÷ 12 = 6.89 Worker Equivalent		
Operators'	19.41	÷ 12 = 1.62 Operator/Manager Equiv.		

	Average 343 Farms			Avg. Top 10% Farms	
Labor Costs	Total	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Value op.s' lab.($1,400/mo.)	$ 24,430	$188	$1.00	$ 89	$0.44
Family unpaid ($1,400/mo.)	3,780	29	0.15	8	0.04
Hired	45,449	351	1.86	455	2.26
Total Labor	$ 73,659	$568	$3.01	$552	$2.74
Machinery Cost	55,771	430	2.28	349	1.74
Total Labor & Mach.	$129,430	$998	$5.29	$901	$4.48

The relationship of labor efficiency to net farm income is positive on the 343 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
343 New York Dairy Farms, 1993

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	39	59	15,295	$ 13,306	$-3,977
400,000 to 499,999	80	76	17,146	17,921	-4,412
500,000 to 599,999	68	92	17,922	29,460	1,779
600,000 to 699,999	65	117	19,194	45,964	10,430
700,000 to 799,999	36	149	19,366	48,092	9,042
800,000 to 899,999	31	211	19,856	73,455	20,685
900,000 & over	24	433	20,076	171,554	66,667

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 343 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
343 New York Dairy Farms, 1993

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
10.7	462	9,210,867	22,475	4.9	21	50	963,128
5.2	179	3,493,545	21,010	3.8	18	43	804,714
4.0	138	2,565,387	20,106	3.3	17	38	709,611
3.4	114	2,073,209	19,397	3.0	16	35	642,389
3.0	96	1,728,227	18,760	2.7	15	33	599,692
2.6	80	1,451,335	17,998	2.4	15	31	557,105
2.4	68	1,226,267	17,311	2.2	13	28	499,590
2.1	60	1,040,531	16,476	1.9	12	26	456,139
1.8	50	826,069	15,121	1.7	10	24	415,686
1.4	38	598,906	13,045	1.1	8	20	327,680

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
$ 368	16	$246	$ 684	$ 523	$3.14
506	22	323	822	642	3.78
569	25	365	888	700	4.10
612	27	399	948	761	4.37
656	28	428	1,009	819	4.55
701	30	462	1,061	872	4.75
750	31	499	1,114	915	4.93
795	33	533	1,178	963	5.18
869	35	597	1,243	1,043	5.49
1,000	40	766	1,482	1,202	6.21

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 343 New York Dairy Farms, 1993**

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.
$2,976	$14.08	$1,139	$ 7.14	$1,961	$11.84
2,761	13.64	1,398	8.36	2,247	12.90
2,637	13.40	1,546	8.87	2,409	13.50
2,531	13.17	1,668	9.33	2,520	13.95
2,439	13.06	1,773	9.72	2,631	14.36
2,363	12.95	1,882	10.17	2,736	14.85
2,255	12.87	1,992	10.58	2,829	15.27
2,126	12.75	2,107	11.05	2,940	15.96
1,985	12.60	2,237	11.80	3,073	16.92
1,698	12.27	2,568	13.90	3,577	19.81

Profitability

Net Farm Income Without Appreciation			Return to Operator's Labor, Management, & Equity Capital Without Appreciation	Labor & Management Income	
Total	Per Cow	As % of Total Accrual Receipts		Per Farm	Per Operator
$192,832	$ 940	31%	$191,192	$124,134	$85,449
77,826	652	22	75,244	43,729	27,233
55,227	521	18	51,356	26,801	16,175
42,463	436	16	39,250	15,841	11,141
32,415	370	14	29,500	8,538	6,547
25,580	303	11	21,117	980	723
19,375	232	8	14,467	-5,165	-4,119
12,786	154	6	7,783	-11,741	-9,895
1,493	19	1	-3,421	-21,147	-19,125
-26,148	-377	-16	-30,572	-56,479	-49,025

Farm Business Charts for farms with freestall barns and 180 cows or less and more than 180 cows, and farms with conventional barns with 60 cows or less and more than 60 cows are discussed in the supplemental section on pages 55-58.

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
343 New York Dairy Farms, 1993

	Average 343 New York Farms	Average Top 10% Farms*
How farm assets are being used (average for the year):		
Total assets (capital) per cow	$6,462	$5,498
Farm assets in livestock	23%	25%
Farm assets in farm real estate	45%	44%
Farm assets in machinery	18%	15%
Measures of debt capacity & debt structure:		
Equity in the business	65%	55%
Farm debt per cow	$2,254	$2,487
Long term debt/asset ratio**	0.33	0.41
Intermediate & current term debt/asset ratio**	0.37	0.49
Intermediate & current term debt as % of total	57%	61%
Debt repayment ability:***		
Cash flow coverage ratio	0.93	0.95
Debt payments made per cow	$ 557	$ 594
Debt payments made as % of milk receipts	22%	22%

Indicators of annual financial progress:	Amount	Percent	Amount	Percent
Annual change in farm asets	+$40,320	+4.9%	+$165,584	+10.4%
Annual change in farm debts	+$17,831	+6.2%	+$ 58,910	+ 8.0%
Annual change in farm net worth	+$22,489	+4.2%	+$106,674	+12.5%

*Thirty-four 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 257 farms that participated in Summary Program both in 1992 and 1993. Twenty-seven of the 34 top 10 percent farms participated both years.

The most profitable farms carried $233 more debt per cow, had a greater ability to make 1993 debt payments but equity in their business was ten percent lower than that of the average.

Average farm debts grew 1.3 percent faster than assets during 1993. Average farm net worth increased 4.2 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, 15, 19, and 36 in this publication.

Table 45. FINANCIAL ANALYSIS CHART
343 New York Dairy Farms, 1993

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
$ 44	$855	3.03	6%	$ 122
217	606	1.46	10	734
295	522	1.21	13	1,211
358	450	1.06	15	1,611
414	407	0.93	18	1,979
458	359	0.81	20	2,335
512	308	0.70	22	2,657
581	256	0.59	25	3,005
674	170	0.37	29	3,510
935	-52	-0.77	41	4,601

Solvency				Profitability	
		Debt/Asset Ratio		Percent Rate of Return with appreciation on:	
Leverage Ratio*	Percent Equity	Current & Intermediate	Long Term	Equity	Investment**
-0.11	98%	0.03	0.00	16%	12%
0.11	90	0.10	0.00	9	8
0.22	82	0.17	0.01	6	6
0.33	75	0.23	0.12	4	5
0.41	70	0.29	0.23	2	3
0.55	64	0.35	0.33	0	2
0.70	58	0.41	0.43	-1	1
0.86	53	0.46	0.54	-4	-1
1.17	46	0.56	0.67	-7	-2
3.07	30	0.78	0.94	-30	-8

Efficiency (Capital)				
Asset Turnover (ratio)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow	Change in Net Worth w/Appreciation
.70	$1,308	$ 555	$ 4,257	$140,006
.56	1,935	765	5,051	53,236
.51	2,251	889	5,643	34,723
.47	2,562	1,039	6,137	24,685
.43	2,849	1,175	6,527	15,292
.40	3,190	1,303	6,950	9,229
.37	3,538	1,505	7,422	4,779
.34	4,034	1,750	8,155	-210
.31	4,617	2,043	8,908	-9,542
.23	6,511	2,678	11,227	-52,027

*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 343 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 increases (Table 46). Net farm income without appreciation averaged $6,328 per farm for the less than 40 cow farms and $195,640 per farm for those with 300 cows and over. This relationship generally holds for all measures of profitability including rate of return on capital. However the 85 to 99 herd size group showed a lower rate of return on capital in 1993 than the farms with 70 to 84 cows.

It is more than size alone that determines profitability on dairy farms. Average net farm income per cow was the lowest at $186 for the smallest farms and highest at $387 for the farms with 150 to 199 cows, and there was much variety among herd size groups. The 70 to 84 cow group averaged $364 net farm income per cow while the 300 and over cow group averaged only $332 per cow. 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
343 New York Dairy Farms, 1993

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 on all capital without Apprec.
Under 40	17	34	$ 6,328	$186	$-6,190	-3.2%
40 to 54	46	47	10,411	222	-6,258	-2.5%
55 to 69	58	61	19,046	312	-798	-0.3%
70 to 84	42	76	27,671	364	2,632	1.2%
85 to 99	33	92	32,045	348	3,000	1.0%
100 to 149	70	121	41,643	344	7,266	2.4%
150 to 199	36	170	65,803	387	13,882	4.4%
200 to 299	19	232	82,679	356	20,652	4.6%
300 & over	22	590	195,640	332	56,698	6.8%

Further study and comparison of the 150 to 199 cow size group to the 100 to 149 cow size group reveals some of the reasons for the substantial difference in average farm profitability between these two size groups. Milk sold per cow (Table 47) averaged 19,090 pounds on the 150 to 199 cow farms more than 800 pounds per cow or four percent higher than the 100 to 149 cow farm average. Milk sold per worker increased an average of 661 hundredweight per farm or 11 percent between these two cow size groups.

Farm capital invested per cow (Table 47) was $290 lower on the 150 to 199 cow size group. Although average operating costs of producing milk were somewhat higher on the 150 to 199 cow farms, total costs of producing milk were $0.60 per hundredweight lower compared to the 100 to 149 cow size group.

Table 47. COWS PER FARM AND RELATED FARM FACTORS
343 New York Dairy Farms, 1993

Number of Cows	Avg. No. of Cows	Milk Sold Per Cow (lbs.)	Milk Sold Per Worker (cwt.)	Tillable Acres Per Cow	Forage DM Per Cow (tons)	Farm Capital Per Cow	Cost of Producing Milk/Cwt. Oper.	Cost of Producing Milk/Cwt. Total
Under 40	34	16,881	3,668	3.9	6.8	$8,011	$10.21	$16.92
40 to 54	47	16,582	4,454	3.2	7.2	7,757	10.38	16.92
55 to 69	61	18,147	4,982	3.1	7.6	7,292	10.08	15.32
70 to 84	76	17,924	5,218	3.4	8.5	7,535	9.59	14.71
85 to 99	92	18,375	5,760	3.4	8.2	7,057	9.92	14.74
100 to 149	121	18,283	6,233	3.2	8.1	6,793	10.07	14.26
150 to 199	170	19,090	6,894	2.8	7.6	6,503	10.16	13.66
200 to 299	232	19,408	7,536	2.4	6.8	5,801	10.33	13.64
300 & over	590	19,936	8,988	1.9	7.1	5,530	10.38	12.86

The farms with 300 and more cows per farm averaged 18 percent more milk sold per cow than the smallest farms. All of the groups with 85 or more cows average well above 18,000 pounds of milk sold per cow while the farms smaller than 85 cows averaged 17,380 pounds of milk sold per cow.

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 eight percent of the 196 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 freqency increased. Farms with 100 to 149 cows reported 14 percent of the herds milking more often than 2x, the 150-199 cow herds reported 42 percent, 200-299 cow herds reported 79 percent and the 300 cow and larger herds reported 86 percent exceeding the 2x milking frequency.

Milk output per worker has always shown a strong correlation with farm profitability. The farms with 100 cows or more averaged over 740,000 lbs. of milk sold per worker while the farms with less than 85 cows averaged only 458,000 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 1.9 tillable acres per cow, and farm capital with an average investment of $5,530 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 22 farms with 300 and more cows held their average total costs of producing milk to $12.86 per hundredweight, $2.16 below the $15.02 average for the remaining 321 dairy farms. The lower average costs of production plus a $0.07 per hundredweight higher average milk price gave the managers of the 300 plus cow dairy farms profit margins that averaged $2.23 per hundredweight above the average of the other 321 DFBS farms.

Table 48. FARM BUSINESS SUMMARY BY HERD SIZE
343 New York Dairy Farms, 1993

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	17	46	58	42	33
ACCRUAL EXPENSES					
Hired labor	$ 3,871	$ 4,790	$ 10,474	$ 18,722	$ 19,518
Dairy grain & concentrate	23,449	29,049	44,328	48,515	62,583
Dairy roughage	867	1,304	1,565	1,541	796
Nondairy feed	2	29	4	0	73
Machine hire/rent/lease	1,580	1,600	2,322	1,647	3,019
Machine repairs/parts	3,874	5,939	8,105	10,756	15,965
Auto expense (farm share)	535	812	622	875	1,080
Fuel, oil & grease	2,075	2,665	3,833	4,929	7,530
Replacement livestock	2,126	2,377	2,207	1,304	2,900
Breeding	1,734	1,788	2,782	2,714	3,605
Veterinary & medicine	2,053	2,136	3,372	3,689	5,336
Milk marketing	4,210	6,526	8,030	8,966	12,963
Cattle lease/rent	15	0	80	0	142
Other livestock expense	4,041	4,903	7,914	8,880	12,346
Fertilizer & lime	1,715	2,698	3,444	5,585	7,186
Seeds & plants	816	1,307	2,165	2,984	3,850
Spray & other crop expense	865	1,392	2,080	2,657	4,201
Land/building/fence repair	1,460	1,590	2,540	2,389	3,860
Taxes & rent	4,185	4,928	6,665	9,364	11,670
Telephone & electricity	3,303	4,020	5,433	6,799	6,866
Interest paid	5,883	8,048	8,500	10,837	12,848
Misc. (including insurance)	2,298	3,932	4,876	5,624	5,970
Total Operating Expenses	$70,957	$ 91,833	$131,341	$158,777	$204,307
Expansion livestock	588	916	1,053	286	1,915
Machinery depreciation	6,046	7,011	9,103	12,476	14,518
Building depreciation	2,482	3,519	4,483	5,473	6,146
Total Accrual Expenses	$80,073	$103,279	$145,980	$177,012	$226,886
ACCRUAL RECEIPTS					
Milk sales	$73,234	$101,128	$144,567	$176,603	$220,903
Dairy cattle	8,423	8,004	12,396	14,443	22,837
Dairy calves	1,379	2,365	2,651	3,590	4,043
Other livestock	212	507	361	243	254
Crops	1,257	-130	377	2,028	2,354
Misc. receipts	1,896	1,816	4,674	7,776	8,540
Total Accrual Receipts	$86,401	$113,690	$165,026	$204,683	$258,931
PROFITABILITY ANALYSIS					
Net farm income (w/o apprec.)	$ 6,328	$10,411	$19,046	$27,671	$32,045
Net farm income (w/apprec.)	$12,991	$16,102	$27,096	$31,215	$42,426
Labor & mgmt. income	$-6,500	$-7,071	$-1,029	$ 3,448	$ 4,920
Number of operators	1.05	1.13	1.29	1.31	1.64
Labor & mgmt. inc./oper.	$-6,190	$-6,258	$ -798	$ 2,632	$ 3,000
Rates of return on:					
Equity capital w/o apprec.	-8.0%	-6.8%	-3.1%	-1.0%	-1.4%
Equity capital w/apprec.	-4.4%	-4.6%	-0.5%	-0.1%	0.9%
All capital w/o apprec.	-3.2%	-2.5%	-0.3%	1.2%	1.0%
All capital w/apprec.	-0.7%	-0.9%	1.5%	1.8%	2.6%

Table 48. (continued) FARM BUSINESS SUMMARY BY HERD SIZE
343 New York Dairy Farms, 1993

Item Farm Size:	100 to 149 Cows	150 to 199 Cows	200 to 299 Cows	300 or More Cows
Number of farms	70	36	19	22
ACCRUAL EXPENSES				
Hired labor	$ 36,174	$ 60,180	$ 91,722	$ 310,158
Dairy grain & concentrate	80,120	121,534	177,907	442,006
Dairy roughage	1,814	1,511	7,601	9,137
Nondairy feed	11	9	125	0
Machine hire/rent/lease	3,139	4,413	6,645	13,036
Machine repairs/parts	17,365	25,133	35,549	74,683
Auto expense (farm share)	1,390	1,048	746	2,340
Fuel, oil & grease	8,355	12,898	15,676	29,132
Replacement livestock	4,826	6,415	11,349	11,581
Breeding	4,087	6,222	8,967	17,309
Veterinary & medicine	7,729	14,569	16,871	48,207
Milk marketing	14,770	24,331	33,925	54,759
Cattle lease/rent	10	498	1,900	2,988
Other livestock expense	14,389	21,886	31,591	87,750
Fertilizer & lime	8,071	13,307	18,095	34,545
Seeds & plants	4,985	7,788	9,801	19,930
Spray & other crop expense	5,210	6,122	10,290	21,488
Land/building/fence repair	4,857	7,463	8,274	23,374
Taxes & rent	14,305	19,232	23,255	50,361
Telephone & electricity	9,358	12,758	14,442	36,674
Interest paid	17,714	24,229	34,404	94,133
Misc. (including insurance)	8,706	10,796	14,084	50,032
Total Operating Expenses	$267,385	$402,342	$573,219	$1,433,623
Expansion livestock	5,104	4,043	4,884	72,363
Machinery depreciation	16,156	22,856	29,884	67,578
Building depreciation	9,355	11,673	21,841	64,574
Total Accrual Expenses	$298,000	$440,914	$629,828	$1,638,138
ACCRUAL RECEIPTS				
Milk sales	$289,618	$429,156	$599,591	$1,549,437
Dairy cattle	28,591	45,231	62,754	180,057
Dairy calves	5,171	7,156	10,321	29,252
Other livestock	311	1,221	1,074	162
Crops	5,012	8,303	13,649	38,010
Misc. receipts	10,940	15,650	25,118	36,860
Total Accrual Receipts	$339,643	$506,717	$712,507	$1,833,778
PROFITABILITY ANALYSIS				
Net farm income (w/o apprec.)	$41,643	$65,803	$ 82,679	$195,640
Net farm income (w/apprec.)	$52,069	$80,899	$103,575	$250,355
Labor & mgmt. income	$10,826	$26,098	$ 35,935	$103,757
Number of operators	1.49	1.88	1.74	1.83
Labor & mgmt. inc./oper.	$ 7,266	$13,882	$ 20,652	$ 56,698
Rate of return on:				
Equity capital w/o apprec.	0.3%	3.3%	3.3%	7.0%
Equity capital w/apprec.	2.3%	5.3%	5.8%	10.1%
All capital w/o apprec.	2.4%	4.4%	4.6%	6.8%
All capital w/apprec.	3.7%	5.8%	6.2%	8.5%

Table 49. FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
343 New York Dairy Farms, 1993

Farms with:	Less than 40 Cows		40 to 54 Cows		55 to 69 Cows	
Item	Jan. 1	Dec. 31	Jan. 1	Dec. 31	Jan. 1	Dec. 1
ASSETS						
Farm cash/chkg./sav.	$ 2,507	$ 1,778	$ 2,780	$ 3,341	$ 5,303	$ 5,289
Accounts receivable	6,212	5,977	8,131	8,680	10,817	11,683
Prepaid expenses	0	0	49	43	3	3
Feed & supplies	11,744	12,290	20,469	19,293	27,581	27,144
Livestock*	50,824	55,149	68,397	69,978	93,790	97,192
Machinery & equipment*	53,649	53,956	68,940	72,084	88,699	92,702
Farm Credit stock	552	543	741	731	789	767
Other stock & cert.	381	1,230	1,606	1,095	2,438	2,823
Land & buildings*	143,376	142,965	185,108	190,856	211,334	214,238
Total Farm Assets	$269,245	$273,888	$356,221	$366,701	$440,754	$451,841
Pers. cash/chkg./sav.	$ 2,075	$ 2,014	$ 2,196	$ 1,744	$ 10,607	$ 10,459
Cash value of life ins.	4,793	6,545	3,820	4,168	5,316	6,337
Nonfarm real estate	20,000	20,000	26,193	26,193	20,300	20,476
Auto (personal share)	1,859	1,918	2,388	2,736	4,817	5,133
Stocks & bonds	29	29	2,486	3,309	10,178	10,244
Household furnishings	9,893	9,893	11,517	11,724	9,342	9,491
All other	1,016	314	2,174	2,241	4,965	5,004
Nonfarm Assets**	$ 39,664	$ 40,713	$ 50,774	$ 52,116	$ 65,524	$ 67,144
Farm & Nonfarm Assets	$308,909	$314,601	$406,995	$418,817	$506,278	$518,985
LIABILITIES						
Accounts payable	$ 5,258	$ 5,289	$ 3,152	$ 4,378	$ 4,940	$ 5,703
Operating debt	235	425	1,504	1,585	2,059	1,993
Short term	235	195	916	1,393	2,376	1,963
Advanced gov't. rec.	0	0	0	0	0	0
Current Portion:						
Intermediate	0	6,664	0	8,912	0	12,069
Long Term	0	4,055	0	4,319	0	3,927
Intermediate***	38,192	23,955	34,070	27,219	55,680	44,938
Long term*	50,567	46,696	70,256	63,042	63,290	59,775
Total Farm Liab.	$ 94,487	$ 87,279	$109,898	$110,848	$128,345	$130,368
Nonfarm Liab.**	1,323	1,713	2,967	3,023	1,972	2,670
Farm & Nonfarm Liab.	$ 95,810	$ 88,992	$112,865	$113,871	$130,317	$133,038
Farm Net Worth (Equity Capital)	$174,758	$186,609	$246,323	$255,853	$312,409	$321,473
Farm & Nonfarm Net Worth	$213,099	$225,612	$294,130	$304,946	$375,961	$385,947

FINANCIAL MEASURES	Less than 40 Cows	40 to 54 Cows	55 to 69 Cows
Percent equity	68%	70%	71%
Debt/asset ratio-long term	0.33	0.33	0.28
Debt/asset ratio-inter. & current	0.31	0.27	0.30
Change in net worth with apprec.	$11,851	$ 9,530	$ 9,064
Total farm debt per cow	$ 2,424	$ 2,309	$ 2,103
Debt payments made per cow	$ 534	$ 529	$ 457
Debt payments as % of milk sales	24%	24%	20%
Amount avail. for debt service	$16,256	$19,837	$21,386
Cash flow coverage ratio for 1993	0.86	0.93	0.86

*Includes discounted lease payments.
**Average of farms reporting nonfarm assets and liabilities for 1993.
***Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 49. (cont'd) FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
343 New York Dairy Farms, 1993

Farms with:	70 to 84 Cows		85 to 99 Cows	
Item	Jan.1	Dec. 31	Jan. 1	Dec. 31
ASSETS				
Farm cash/chkg./sav.	$ 4,085	$ 4,341	$ 7,137	$ 4,640
Accounts receivable	13,863	15,511	16,313	18,326
Prepaid expenses	2	0	115	96
Feed & supplies	42,136	40,195	55,266	54,621
Livestock*	114,623	118,272	146,366	154,370
Machinery & equipment*	113,816	114,736	144,893	147,723
Farm Credit stock	1,103	943	1,893	1,830
Other stock & cert.	6,852	7,118	5,675	5,740
Land & buildings*	273,576	277,091	263,840	273,899
Total Farm Assets	$570,056	$578,207	$641,498	$661,245
Pers. cash/chkg./sav.	$ 7,514	$ 8,384	$ 5,135	$ 4,406
Cash value of life ins.	10,018	10,743	8,849	9,792
Nonfarm real estate	47,003	52,037	28,386	29,068
Auto (personal share)	4,240	4,548	3,416	3,273
Stocks & bonds	2,860	4,523	10,134	12,372
Household furnishings	9,857	10,333	8,527	8,718
All other	1,543	2,557	5,932	6,434
Nonfarm Assets**	$ 83,034	$ 93,136	$ 70,379	$ 74,064
Farm & Nonfarm Assets	$653,090	$671,333	$711,877	$735,309
LIABILITIES				
Accounts payable	$ 4,196	$ 4,932	$ 9,069	$ 12,477
Operating debt	5,395	5,198	3,045	5,523
Short term	1,892	2,705	1,212	1,775
Advanced gov't. rec.	0	0	0	0
Current Portion:				
Intermediate	0	16,159	0	21,640
Long Term	0	5,271	0	5,367
Intermediate***	76,647	64,403	112,219	83,189
Long term*	76,881	70,219	67,394	66,194
Total Farm Liab.	$165,011	$168,887	$192,939	$196,165
Nonfarm Liab.**	784	748	886	522
Farm & Nonfarm Liab.	$165,795	$169,635	$193,825	$196,687
Farm Net Worth (Equity Capital)	$405,045	$409,320	$448,559	$465,080
Farm & Nonfarm Net Worth	$487,295	$501,698	$518,052	$538,622

FINANCIAL MEASURES	70 to 84 Cows	85 to 99 Cows
Percent equity	71%	70%
Debt/asset ratio-long term	0.25	0.24
Debt/asset ratio-inter. & current	0.33	0.34
Change in net worth with apprec.	$ 4,275	$16,521
Total farm debt per cow	$ 2,138	$ 2,043
Debt payments made per cow	$ 715	$ 489
Debt payments as % of milk sales	31%	20%
Amount avail. for debt service	$32,437	$38,919
Cash flow coverage ratio for 1993	0.90	0.86

*Includes discounted lease payments.
**Average of farms reporting nonfarm assets and liabilities for 1993.
***Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 49. (cont'd) FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
343 New York Dairy Farms, 1993

Farms with:	100 to 149 Cows		150 to 199 Cows	
Item	Jan.1	Dec. 31	Jan. 1	Dec. 31
ASSETS				
Farm cash/chkg./sav.	$ 8,808	$ 7,339	$ 9,494	$ 10,261
Accounts receivable	22,055	24,190	34,816	36,965
Prepaid expenses	5	0	56	168
Feed & supplies	64,622	67,482	91,681	96,729
Livestock*	176,647	187,625	249,459	265,539
Machinery & equipment*	155,764	156,712	197,013	205,331
Farm Credit stock	3,560	3,768	4,812	5,399
Other stock & cert.	7,342	8,333	16,356	16,612
Land & buildings*	366,426	378,372	475,310	488,472
Total Farm Assets	$806,465	$834,715	$1,078,997	$1,125,476
Pers. cash/chkg./sav.	$ 16,623	$ 11,582	$ 1,603	$ 1,277
Cash value of life ins.	11,273	10,918	14,021	15,216
Nonfarm real estate	41,031	40,563	34,167	34,167
Auto (personal share)	4,127	4,392	2,500	2,183
Stocks & bonds	5,433	7,402	11,036	11,651
Household furnishings	7,188	7,442	8,839	9,283
All other	11,870	13,365	3,924	1,463
Nonfarm Assets**	$ 97,544	$ 95,662	$ 76,089	$ 75,240
Farm & Nonfarm Assets	$904,009	$930,377	$1,155,086	$1,200,716
LIABILITIES				
Accounts payable	$ 11,676	$ 9,777	$ 12,488	$ 10,943
Operating debt	6,512	6,328	13,821	14,267
Short term	4,402	4,208	1,335	1,999
Advanced gov't. rec.	0	0	0	0
Current Portion:				
Intermediate	0	22,189	0	27,792
Long Term	0	6,569	0	9,747
Intermediate***	120,860	98,379	169,866	152,077
Long term*	126,734	130,864	153,979	142,615
Total Farm Liab.	$270,184	$278,314	$ 351,489	$ 359,440
Nonfarm Liab.**	3,487	3,158	5,813	5,091
Farm & Nonfarm Liab.	$273,671	$281,472	$ 357,302	$ 364,531
Farm Net Worth				
(Equity Capital)	$536,281	$556,401	$ 727,508	$ 766,036
Farm & Nonfarm Net Worth	$630,338	$648,905	$ 797,784	$ 836,185

FINANCIAL MEASURES	100 to 149 Cows	150 to 199 Cows
Percent equity	67%	68%
Debt/asset ratio-long term	0.35	0.29
Debt/asset ratio-inter. & current	0.32	0.34
Change in net worth with apprec.	$20,120	$38,528
Total farm debt per cow	$ 2,209	$ 2,078
Debt payments made per cow	$ 515	$ 602
Debt payments as % of milk sales	21%	23%
Amount avail. for debt service	$43,685	$69,959
Cash flow coverage ratio for 1993	0.79	0.92

*Includes discounted lease payments.
**Average of farms reporting nonfarm assets and liabilities for 1993.
***Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 49. (cont'd) FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
343 New York Dairy Farms, 1993

Farms with:	200 to 299 Cows		More than 300 Cows	
Item	Jan.1	Dec. 31	Jan. 1	Dec. 31
ASSETS				
Farm cash/chkg./sav.	$ 3,492	$ 5,142	$ 19,838	$ 13,522
Accounts receivable	39,523	45,573	98,550	108,085
Prepaid expenses	264	199	9,450	7,036
Feed & supplies	120,687	129,320	305,742	314,408
Livestock*	335,950	366,799	761,416	859,688
Machinery & equipment*	225,177	230,331	436,486	488,713
Farm Credit stock	7,126	5,846	20,314	24,077
Other stock & cert.	18,626	20,623	61,251	66,275
Land & buildings*	567,913	569,110	1,393,032	1,540,270
Total Farm Assets	$1,318,758	$1,372,943	$3,106,079	$3,422,074
Pers. cash/chkg./sav.	$ 7,543	$ 7,007	$ 1,492	$ 816
Cash value of life ins.	11,324	14,205	13,992	12,380
Nonfarm real estate	13,636	13,636	31,250	32,500
Auto (personal share)	2,386	2,654	2,125	1,813
Stocks & bonds	14,636	16,379	763	975
Household furnishings	8,818	8,909	5,125	5,375
All other	6,885	7,158	31,755	29,569
Nonfarm Assets**	$ 65,230	$ 69,949	$ 86,501	$ 83,427
Farm & Nonfarm Assets	$1,383,988	$1,442,892	$3,192,580	$3,505,501
LIABILITIES				
Accounts payable	$ 17,759	$ 22,208	$ 24,233	$ 21,439
Operating debt	23,230	20,529	101,474	73,444
Short term	1,747	1,931	14,859	62,273
Advanced gov't. rec.	221	0	0	0
Current Portion:				
Intermediate	0	44,905	0	97,398
Long Term	0	17,051	0	48,066
Intermediate***	250,901	205,340	566,200	624,746
Long term*	202,769	202,078	649,043	638,558
Total Farm Liab.	$ 496,627	$ 514,042	$1,355,809	$1,565,924
Nonfarm Liab.**	7,515	6,557	12,087	11,367
Farm & Nonfarm Liab.	$ 504,142	$ 520,599	$1,367,896	$1,577,291
Farm Net Worth				
(Equity Capital)	$ 822,131	$ 858,901	$1,750,270	$1,856,150
Farm & Nonfarm Net Worth	$ 879,846	$ 922,293	$1,824,684	$1,928,210

FINANCIAL MEASURES	200 to 299 Cows	More than 300 Cows
Percent equity	63%	54%
Debt/asset ratio-long term	0.36	0.41
Debt/asset ratio-inter. & current	0.39	0.49
Change in net worth with apprec.	$36,770	$105,880
Total farm debt per cow	$ 2,142	$ 2,490
Debt payments made per cow	$ 478	$ 606
Debt payments as % of milk sales	19%	23%
Amount avail. for debt service	$76,961	$309,049
Cash flow coverage ratio for 1993	0.85	1.06

*Includes discounted lease payments.
**Average of farms reporting nonfarm assets and liabilities for 1993.
***Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 50. SELECTED BUSINESS FACTORS BY HERD SIZE
343 New York Dairy Farms, 1993

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	17	40	58	42	33
Cropping Program Analysis					
Total Tillable acres	131	150	191	258	315
Tillable acres rented*	59	52	54	71	141
Hay crop acres*	94	101	118	158	181
Corn silage acres*	20	26	39	48	62
Hay crop, tons DM/acre	1.7	2.2	2.3	2.7	2.5
Corn silage, tons/acre	11.3	13.1	14.4	13.0	14.1
Oats, bushels/acre	N/A	65.3	65.0	56.0	57.0
Forage DM per cow, tons	6.8	7.2	7.6	8.5	8.2
Tillable acres/cow	3.9	3.2	3.1	3.4	3.4
Fert. & lime exp./til. acre	$ 13.09	$ 17.99	$ 18.03	$ 21.65	$ 22.81
Total machinery costs	$16,744	$21,526	$28,471	$36,362	$49,331
Machinery cost/tillable acre	$ 128	$ 144	$ 149	$ 141	$ 157
Dairy Analysis					
Number of cows	34	47	61	76	92
Number of heifers	31	32	49	64	79
Milk sold, lbs.	571,954	772,860	1,110,389	1,366,525	1,695,527
Milk sold/cow, lbs.	16,881	16,582	18,147	17,924	18,375
Operating cost of prod. milk/cwt.	$ 10.21	$ 10.38	$ 10.08	$ 9.59	$ 9.92
Total cost of prod. milk/cwt.	$ 16.92	$ 16.92	$ 15.32	$ 14.71	$ 14.74
Price/cwt. milk sold	$ 12.80	$ 13.08	$ 13.02	$ 12.92	$ 13.03
Purchased dairy feed/cow	$ 717	$ 651	$ 750	$ 657	$ 687
Purchased dairy feed/cwt. milk	$ 4.25	$ 3.93	$ 4.13	$ 3.66	$ 3.74
Purchased grain & conc. as % of milk receipts	32%	29%	31%	27%	28%
Purchased feed & crop expense/cwt. milk	$ 4.85	$ 4.63	$ 4.83	$ 4.48	$ 4.64
Capital Efficiency					
Farm capital/worker	$174,157	$208,296	$200,226	$219,247	$221,270
Farm capital/cow	$ 8,011	$ 7,757	$ 7,292	$ 7,535	$ 7,057
Farm capital/til. acre owned	$ 3,772	$ 3,688	$ 3,282	$ 3,070	$ 3,744
Real estate/cow	$ 4,223	$ 4,034	$ 3,477	$ 3,613	$ 2,913
Machinery investment/cow	$ 1,587	$ 1,513	$ 1,482	$ 1,500	$ 1,585
Asset turnover ratio	0.34	0.33	0.39	0.36	0.41
Labor Efficiency					
Worker equivalent	1.56	1.74	2.23	2.62	2.94
Operator/manager equivalent	1.05	1.13	1.39	1.31	1.64
Milk sold/worker, lbs.	366,798	445,369	498,163	521,843	575,967
Cows/worker	22	27	27	29	31
Work units/worker	240	277	288	312	339
Labor cost/cow	$746	$615	$595	$585	$557
Labor cost/tillable acre	$193	$191	$191	$173	$163

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

Table 50. (continued) SELECTED BUSINESS FACTORS BY HERD SIZE
343 New York Dairy Farms, 1993

Item / Farms with:	100 to 149 Cows	150 to 199 Cows	200 to 299 Cows	300 or more Cows
Number of farms	70	36	19	22
Cropping Program Analysis				
Total Tillable acres	384	467	557	1,127
Tillable acres rented*	147	200	270	439
Hay crop acres*	200	233	266	430
Corn silage acres*	87	131	170	499
Hay crop, tons DM/acre	2.7	2.8	2.7	3.4
Corn silage, tons/acre	14.6	14.4	15.2	16.2
Oats, bushels/acre	64.8	67.0	N/A	67.0
Forage DM per cow, tons	8.1	7.6	6.8	7.1
Tillable acres/cow	3.2	2.8	2.4	1.9
Fert. & lime exp./til. acre	$ 21.02	$ 28.50	$ 32.49	$ 30.65
Total machinery costs	$54,217	$76,233	$99,758	$209,690
Machinery cost/tillable acre	$ 141	$ 163	$ 179	$ 186
Dairy Analysis				
Number of cows	121	170	232	590
Number of heifers	98	128	177	430
Milk sold, lbs.	2,208,892	3,236,366	4,502,592	11,766,034
Milk sold/cow, lbs	18,283	19,090	19,408	19,936
Operating cost of prod. milk/cwt.	$10.07	$10.16	$10.33	$10.38
Total cost of prod. milk/cwt.	$14.26	$13.66	$13.64	$12.86
Price/cwt. milk sold	$13.11	$13.26	$13.32	$13.17
Purchased dairy feed/cow	$ 678	$ 726	$ 800	$ 764
Purchased dairy feed/cwt. milk	$ 3.71	$ 3.80	$ 4.12	$ 3.83
Purchased grain & conc. as % of milk receipts	28%	28%	30%	29%
Purchased feed & crop expense/cwt. milk	$ 4.54	$ 4.64	$ 4.97	$ 4.48
Capital Efficiency				
Farm capital/worker	$231,556	$234,805	$225,262	$249,329
Farm capital/cow	$ 6,793	$ 6,503	$ 5,801	$ 5,530
Farm capital/til. acre owned	$ 3,462	$ 4,128	$ 4,689	$ 4,744
Real estate/cow	$ 3,083	$ 2,843	$ 2,450	$ 2,485
Machinery investment/cow	$ 1,302	$ 1,187	$ 982	$ 784
Asset turnover ratio	0.43	0.47	0.54	0.58
Labor Efficiency				
Worker equivalent	3.54	4.69	5.97	13.09
Operator/manager equivalent	1.49	1.88	1.74	1.83
Milk sold/worker, lbs.	623,310	689,431	753,621	898,758
Cows/worker	34	36	39	45
Work units/worker	360	371	391	438
Labor cost/cow	$536	$555	$542	$580
Labor cost/tillable acre	$169	$201	$226	$304

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

SUPPLEMENTAL INFORMATION

Comparisons of business performance by types of housing and herd size, milking frequency, dairy region and type of business entity 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 are included. One page summaries of the averages of DFBS dairy-renter farms, the top 10 percent farms by rate of return to all capital and all 343 dairy farms are also included.

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 four groups of dairy farms. The average size of farms in the four groups ranges from 48 cows on the small conventional farms to 386 cows on the large freestall farms.

The large freestall farms averaged the highest milk output per cow and per worker, the lowest total costs 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 four housing and herd size categories and are on pages 55-58. By comparing the farm's performance on the most appropriate business chart, a farm manager will be better able to evaluate his or her business performance.

Comparison of Farms by Milking Frequency: Seventeen percent of the 343 DFBS farms utilized three times per day (3x) milking in 1993, the same percent as in 1992. 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 56.

In 1993 the 3x farms average 28 more cows per farm, sold one percent less milk per cow, cut total costs of producing milk 19 cents per hundredweight and showed an average 14 percent decrease in net farm income, compared to the 3x farm averages for 1992. The 2x farms increased milk output per cow one percent, reduced total production costs 51 cents per hundredweight and increased average net farm income $2,036 per farm in 1993 compared to 1992.

The 3x farms compared with the 2x farms averaged 14 percent more milk per cow and 39 percent additional milk per worker in 1993, very similar to the differences found in 1992. In 1993 the average total costs of producing milk were 10 percent lower on 3x farms than on 2x dairies. In 1992 the 3x farms showed a 12 percent cost advantage.

In summary, this data set shows that 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, cows per worker, capital invested per cow and machinery costs indicate there are other important management differences contributing to higher profits.

Receipts and Expenses per Hundredweight of Milk per Cow: Average itemized accrual receipts and expense per cow and per hundredweight of milk sold are listed for all 343 dairy farms, 252 dairy farms selling less than 20,000 pounds of milk per cow, and 91 dairy farms selling 20,000 pounds per cow and more in Table 57 on page 60. Table 58 on page 61 provides the same list of average accrual receipts and expenses for 149 farms averaging less than 80 cows per farm, 144 farms with 80 to 180 cows and 50 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.

Comparison of Dairy Farm Business Data by Region: Average farm business summary data from our four areas or regions of the State are compared in Tables 59 and 60. The largest average farm size, highest average rate of milk production, and highest average farm profits came from the Western Plain and Central Region. Dairy farmers in this region have increased milk production 15 percent over the last ten years and they produced milk for an average total cost of $13.11 per hundredweight in 1993, $1.47 below the average of all the other New York dairy regions. Total milk production has declined 12.5 percent over ten years in the Oneida-Mohawk and Hudson region. This is the region with the highest costs of producing milk and the lowest returns to labor and management.

Comparisons by Business Organization: A comparison of proprietorships, partnerships, and corporations is in Table 61. Farms organized as a corporation are two times larger than partnership-operated farms and more than three times larger than proprietorship-operated farms. Corporate farm operating expenses were more than double those on partnerships but productivity and labor efficiency were higher on the corporate farms. Total costs of producing milk were 51 cents lower for corporations than for partnerships, and $1.05 lower than the average cost of producing milk on the single proprietorship farms.

Other Comparison: Thirty-eight dairy renter farms were smaller on the average than the 343 owner-operated farms, and averaged higher returns to labor and management than the average for 343 owned dairy farms (Table 62). However, the dairy renters received a lower average rate of return on equity capital compared to the dairy farm owners. E.B. 94-21 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 63. Using this measure of farm profitability resulted in the selection of the 34 farms that were consistently the highest in all measures of farm profitability. Additional data for the top 10 percent of farms is presented in many of the first 41 tables of this publication.

Summary data for the 343 specialized dairy farms are presented in Table 64.

Table 51. SELECTED BUSINESS FACTORS BY TYPE OF BARN AND HERD SIZE
318 New York Dairy Farms, 1993

Farms with:	Conventional		Freestall	
Item	<= 60 Cows	>60 Cows	<= 180 Cows	>180 Cows
Number of farms	89	86	95	48
Cropping Program Analysis				
Total Tillable acres	152	270	378	798
Tillable acres rented*	50	91	157	325
Hay crop acres*	102	166	189	332
Corn silage acres*	28	51	90	313
Hay crop, tons DM/acre	2.1	2.5	2.7	3.1
Corn silage, tons/acre	12.9	14.1	14.3	15.8
Oats, bushels/acre	95.5	57.5	71.0	60.0
Forage DM per cow, tons	7.0	7.9	8.1	7.0
Tillable acres/cow	3.2	3.2	3.3	2.1
Fert. & lime exp./til. acre	$17.34	$21.46	$22.04	$31.72
Total machinery costs	$21,915	$37,677	$57,748	$145,560
Machinery cost/tillable acre	$144	$140	$153	$182
Dairy Analysis				
Number of cows	48	85	116	386
Number of heifers	37	69	96	280
Milk sold, lbs.	816,340	1,533,621	2,182,035	7,617,959
Milk sold/cow, lbs.	17,164	17,969	18,770	19,727
Operating cost of prod. milk/cwt.	$10.26	$10.01	$10.07	$10.37
Total cost of prod. milk/cwt.	$16.38	$14.63	$14.31	$13.08
Price/cwt. milk sold	$12.98	$13.01	$13.17	$13.23
Purchased dairy feed/cow	$705	$685	$684	$768
Purchased dairy feed/cwt. milk	$4.11	$3.81	$3.65	$3.89
Purc. grain & conc. as % milk rec.	30%	29%	27%	29%
Purc. feed & crop exp./cwt. milk	$4.78	$4.58	$4.51	$4.61
Capital Efficiency				
Farm capital/worker	$197,229	$209,788	$236,729	$246,514
Farm capital/cow	$7,591	$7,034	$6,948	$5,673
Farm capital/til. acre owned	$3,542	$3,371	$3,656	$4,632
Real estate/cow	$3,835	$3,254	$3,069	$2,539
Machinery investment/cow	$1,498	$1,378	$1,363	$867
Asset turnover ratio	0.35	0.39	0.44	0.56
Labor Efficiency				
Worker equivalent	1.83	2.86	3.41	8.89
Operator/manager equivalent	1.16	1.46	1.51	1.69
Milk sold/worker, lbs.	445,590	536,209	639,227	857,074
Cows/worker	26	30	34	43
Labor cost/cow	$633	$575	$548	$562
Labor cost/tillable acre	$198	$182	$169	$272
Profitability & Balance Sheet Analysis				
Net farm income (w/o apprec.)	$11,606	$29,193	$40,576	$132,377
Labor & mgmt. income/operator	$-4,625	$2,921	$6,744	$38,811
Return on all capital w/apprec.	-0.5%	2.6%	3.9%	7.7%
Farm debt/cow	$2,280	$2,039	$2,298	$2,362
Percent equity	69%	71%	66%	58%

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

Table 52. FARM BUSINESS CHART FOR SMALL CONVENTIONAL STALL DAIRY FARMS
89 Conventional Stall Dairy Farms with 60 or Less Cows, New York, 1993

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
2.8	60	1,212,080	21,711	4.4	21	42	684,109
2.3	58	1,064,987	20,121	3.1	17	34	606,087
2.1	56	948,553	18,929	2.7	15	31	545,106
2.0	53	878,192	18,297	2.4	15	29	491,677
1.9	49	834,515	17,622	2.2	14	27	455,896
1.7	46	773,615	16,974	2.0	13	25	436,105
1.5	43	695,797	15,866	1.8	12	24	410,769
1.5	41	661,816	14,962	1.6	11	23	367,001
1.3	37	596,911	14,182	1.3	9	21	327,041
1.1	30	457,003	12,147	1.0	6	16	268,937

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
$388	19%	$236	$ 675	$ 509	$3.23
501	24	305	859	607	3.88
562	26	356	942	661	4.13
593	27	402	1,021	703	4.32
620	29	427	1,060	761	4.52
662	30	454	1,115	800	4.78
708	32	500	1,164	861	5.06
755	34	546	1,232	928	5.34
833	37	608	1,337	1,023	5.67
1,058	42	810	1,645	1,282	6.57

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec. Total	Net Farm Income Without Apprec. Per Cow	Labor &. Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
$2,877	$7.23	$12.91	$40,922	$ 839	$ 20,186	$ 55,216
2,627	8.23	13.96	30,984	635	10,285	22,000
2,464	8.76	14.76	24,240	502	6,446	14,486
2,379	9.05	15.10	20,806	427	3,582	10,246
2,263	9.35	15.69	17,349	372	581	6,959
2,171	9.78	16.38	13,210	290	-3,052	4,300
2,041	10.57	16.87	7,460	171	-9,308	1,323
1,951	11.47	17.63	190	-1	-14,096	-2,420
1,830	12.85	18.99	-8,025	-168	-23,601	-7,799
1,058	15.56	23.73	-35,523	-821	-56,378	-21,844

Table 53. FARM BUSINESS CHART FOR LARGE CONVENTIONAL STALL DAIRY FARMS
86 Conventional Stall Dairy Farms with More Than 60 Cows, New York, 1993

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
4.7	144	2,719,201	22,035	5.1	21	44	771,502
3.7	106	1,916,656	20,507	3.7	18	37	648,458
3.2	91	1,687,647	19,540	3.2	16	34	609,112
3.0	84	1,560,310	19,079	3.0	16	32	582,040
2.7	80	1,431,819	18,203	2.6	15	31	559,614
2.5	74	1,360,480	17,652	2.4	14	29	523,110
2.4	71	1,270,716	17,204	2.1	13	27	477,984
2.3	68	1,176,700	16,356	1.9	12	25	447,489
2.0	65	1,103,896	15,033	1.6	11	23	422,245
1.8	62	924,485	12,690	1.2	8	21	355,438

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
$278	14%	$231	$ 678	$ 461	$3.02
480	20	311	822	607	3.62
552	24	357	886	683	3.88
603	27	389	946	711	4.19
643	29	417	974	783	4.56
681	30	453	1,034	844	4.70
737	31	490	1,088	889	4.84
789	33	518	1,174	948	4.99
858	34	563	1,209	1,035	5.34
990	40	717	1,381	1,136	5.99

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. Total	Net Farm Income Without Apprec. Per Cow	Labor &. Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
$2,868	$ 6.68	$12.35	$ 82,324	$ 923	$ 31,899	$ 63,923
2,687	8.24	13.10	53,888	635	18,147	39,116
2,578	8.68	13.73	45,966	529	13,273	23,274
2,470	9.17	14.18	35,632	452	9,585	13,292
2,389	9.73	14.45	30,858	361	4,417	9,085
2,308	10.25	14.77	23,307	284	-2,041	5,798
2,193	10.63	15.10	17,058	204	-6,936	1,717
2,080	10.90	15.49	9,660	131	-12,907	-5,447
1,971	11.70	16.58	-36	2	-20,766	-20,823
1,637	12.92	18.05	-18,775	-256	-45,216	-45,873

Table 54. FARM BUSINESS CHART FOR SMALL FREESTALL DAIRY FARMS
95 Freestall Barn Dairy Farms with 180 or Less Cows, New York, 1993

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
5.8	168	3,559,901	23,024	4.6	20	51	951,201
4.6	150	2,938,553	21,379	3.8	18	46	826,524
3.9	137	2,588,880	20,130	3.3	17	41	774,998
3.6	126	2,333,571	19,698	3.0	16	38	717,679
3.4	117	2,147,365	19,141	2.8	15	36	665,532
3.1	110	1,992,534	18,494	2.5	15	33	617,331
2.9	101	1,805,227	17,484	2.2	14	31	580,615
2.6	95	1,656,006	16,764	2.0	12	28	514,799
2.2	83	1,441,095	15,611	1.8	10	26	477,497
1.7	63	1,061,874	13,252	1.0	9	24	398,276

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
$346	15%	$274	$ 671	$ 522	$2.95
483	20	354	809	631	3.54
531	23	391	874	714	3.92
580	24	426	927	761	4.19
624	26	459	1,001	794	4.40
658	28	497	1,065	853	4.54
699	29	521	1,114	900	4.81
770	31	578	1,170	962	5.20
877	34	677	1,263	1,031	5.51
985	39	805	1,505	1,171	6.08

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. Total	Net Farm Income Without Apprec. Per Cow	Labor &. Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
$3,039	$ 6.96	$11.77	$116,153	$ 950	$ 48,320	$ 97,010
2,784	8.23	12.78	72,642	633	27,441	56,522
2,660	8.83	13.33	60,299	505	17,082	43,864
2,580	9.27	13.54	49,765	424	13,070	31,882
2,475	9.53	13.99	38,264	356	8,275	25,860
2,391	9.93	14.29	30,101	301	244	16,948
2,322	10.33	14.88	23,187	219	-4,248	9,113
2,234	11.01	15.54	17,420	172	-8,965	3,416
2,077	11.64	16.23	9,753	91	-18,782	-9,918
1,763	13.50	17.65	-26,664	-220	-42,358	-57,440

Table 55. FARM BUSINESS CHART FOR LARGE FREESTALL DAIRY FARMS
48 Freestall Barn Dairy Farms with More than 180 Cows, New York, 1993

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
23.2	1,174	22,553,675	22,666	5.0	20	58	1,090,785
12.4	551	11,544,889	21,710	4.4	18	49	1,030,797
9.9	396	8,275,051	21,163	3.8	18	47	941,981
8.6	345	6,907,353	20,841	3.6	17	45	881,114
7.6	281	5,711,010	20,176	3.2	16	43	853,879
6.2	239	4,738,923	19,325	2.8	15	40	801,184
5.8	220	4,226,435	18,835	2.5	14	38	753,126
5.1	201	3,869,202	17,652	2.3	13	36	675,313
4.7	189	3,580,283	17,091	2.0	11	33	644,525
3.8	185	3,052,051	15,598	1.6	10	29	511,771

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
$481	19%	$231	$ 661	$ 653	$3.41
577	24	286	764	756	4.05
689	26	329	819	852	4.35
737	27	352	886	885	4.51
761	29	373	922	916	4.70
774	30	391	959	927	4.89
788	31	429	1,016	956	4.98
824	32	471	1,073	999	5.11
874	33	515	1,163	1,079	5.34
949	36	612	1,239	1,216	5.91

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. Total	Net Farm Income Without Apprec. Per Cow	Labor &. Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
$3,113	$ 7.65	$11.22	$418,400	$886	$250,416	$ 328,392
2,903	9.18	11.82	225,831	610	75,579	150,558
2,799	9.76	12.26	189,019	452	63,248	101,419
2,715	10.15	12.75	145,176	368	50,347	76,913
2,621	10.36	13.18	113,549	325	34,098	49,307
2,546	10.56	13.54	79,606	288	19,490	31,606
2,484	10.79	13.95	56,282	236	8,196	20,355
2,399	11.08	14.22	42,209	195	-1,094	6,657
2,263	11.41	14.77	26,860	119	-13,372	-5,039
2,121	12.40	16.10	-25,950	-84	-74,673	-131,065

Table 56. SELECTED BUSINESS FACTORS BY MILKING FREQUENCY
New York State Dairy Farms, 1992 & 1993

Item	2x/Day Milking 1992	2x/Day Milking 1993	3x/Day Milking 1992	3x/Day Milking 1993
Number of farms	280	268	61	59
Business Size & Production				
Number of cows	92	93	237	265
Number of heifers	73	74	179	195
Milk sold, lbs.	1,619,107	1,649,682	4,846,003	5,370,281
Milk sold/cow, lbs.	17,662	17,816	20,470	20,259
Milk plant test, % BF	3.70%	3.68%	3.65%	3.64%
Tillable acres, total	285	283	563	606
Hay crop, tons DM/acre	2.6	2.6	3.0	2.9
Corn silage, tons/acre	13.6	14.1	15.7	15.4
Forage DM/cow, tons	7.8	7.8	7.3	7.0
Labor & Capital Efficiency				
Worker equivalent	2.89	2.86	6.23	6.71
Milk sold/worker, lbs.	560,453	577,328	777,706	799,919
Cows/worker	32	33	38	39
Farm capital/worker	$218,509	$223,507	$236,841	$228,726
Farm capital/cow	$6,884	$6,897	$6,235	$5,792
Farm capital/cwt. milk	$38.99	$38.71	$30.45	$28.59
Milk Production Costs & Returns				
Selected costs/cwt.:				
Hired labor	$1.40	$1.42	$2.27	$2.31
Grain & concentrate	$3.87	$3.75	$3.73	$3.77
Purchased roughage	$0.11	$0.09	$0.09	$0.10
Replacements purchased	$0.21	$0.19	$0.21	$0.14
Vet & medicine	$0.33	$0.33	$0.37	$0.42
Milk marketing	$0.69	$0.72	$0.55	$0.55
Other dairy expenses	$0.70	$0.66	$0.72	$0.80
Operating costs/cwt.	$10.42	$9.93	$10.53	$10.49
Total labor costs/cwt.	$3.02	$3.11	$2.83	$2.86
Operator resources/cwt.	$3.22	$3.22	$1.70	$1.56
Total costs/cwt.	$15.14	$14.63	$13.40	$13.21
Average farm price/cwt.	$13.54	$13.12	$13.66	$13.15
Return over total costs/cwt.	$-1.60	$-1.51	$0.26	$-0.06
Related Cost Factors				
Hired labor/cow	$247	$252	$464	$468
Total labor/cow	$534	$554	$579	$580
Purchased dairy feed/cow	$703	$683	$783	$785
Purchased grain & concentrate as % milk receipts	29%	29%	27%	29%
Vet & medicine/cow	$59	$58	$76	$84
Machinery costs/cow	$459	$452	$420	$402
Profitability Analysis				
Net farm income (w/o apprec.)	$30,137	$32,173	$97,952	$83,849
Labor & mgmt. income/operator	$3,473	$3,987	$35,407	$24,253
Rates of return on:				
Equity capital w/apprec.	2.08%	1.51%	10.51%	7.5%
All capital w/apprec.	3.63%	3.00%	8.97%	7.1%

Table 57. FARM RECEIPTS AND EXPENSES PER COW AND PER HUNDREDWEIGHT FOR TWO LEVELS OF MILK PRODUCTION
343 New York Dairy Farms, 1993

Item	343 Dairy Farms		252 Dairy Farms Milk/Cow <20,000#		91 Dairy Farms Milk/Cow ≥ 20,000#	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
ACCRUAL RECEIPTS						
Milk sales	$2,479	$13.14	$2,313	$13.13	$2,817	$13.16
Dairy cattle	256	1.36	242	1.38	283	1.32
Dairy calves	46	0.24	44	0.25	49	0.23
Other livestock	3	0.02	3	0.01	5	0.03
Crops	44	0.23	35	0.20	61	0.29
Government receipts	46	0.24	46	0.25	50	0.23
All other	38	0.21	34	0.18	43	0.20
TOTAL ACCRUAL RECEIPTS	$2,912	$15.44	$2,717	$15.40	$3,308	$15.46
ACCRUAL EXPENSES						
Labor: Hired	$ 351	$ 1.86	$ 314	$ 1.78	$ 425	$ 1.99
Feed: Dairy grain & conc.	709	3.76	673	3.82	781	3.65
Dairy roughage	18	0.09	13	0.07	28	0.13
Nondairy	0	0.00	0	0.00	0	0.00
Machinery:Machine hire/ rent/ lease	27	0.14	29	0.16	23	0.11
Mach. repairs/parts	140	0.74	135	0.77	150	0.70
Auto expense (farm share)	8	0.04	7	0.04	9	0.04
Fuel, oil, grease	63	0.34	62	0.35	67	0.31
Livestock: Replacement livestock	33	0.17	39	0.22	20	0.09
Breeding	35	0.19	33	0.19	39	0.18
Vet & medicine	70	0.37	63	0.35	84	0.39
Milk marketing	121	0.64	110	0.63	144	0.67
Cattle lease/rent	3	0.02	1	0.01	7	0.03
Other livestock expense	132	0.70	115	0.65	167	0.78
Crops: Fertilizer & lime	67	0.36	62	0.35	77	0.36
Seeds & plants	38	0.20	36	0.20	44	0.21
Spray & other crop expense	38	0.20	34	0.19	47	0.22
Real Estate: Land/ building/fence repair	39	0.21	36	0.20	46	0.22
Taxes	65	0.34	67	0.38	59	0.28
Rent & lease	41	0.22	40	0.23	44	0.21
Other: Insurance	38	0.20	36	0.20	42	0.20
Telephone (farm share)	6	0.03	6	0.04	5	0.02
Electricity (farm share)	68	0.36	64	0.36	75	0.35
Interest paid	150	0.80	151	0.86	148	0.69
Miscellaneous	37	0.19	39	0.22	32	0.15
TOTAL OPERATING EXPENSES	$2,297	$12.17	$2,165	$12.29	$2,563	$11.98
Expansion livestock	53	0.28	60	0.34	40	0.18
Machinery depreciation	134	0.71	133	0.75	136	0.64
Building depreciation	86	0.45	84	0.48	89	0.42
TOTAL ACCRUAL EXPENSES	$2,570	$13.62	$2,442	$13.86	$2,828	$13.22

Table 58. FARM RECEIPTS AND EXPENSES PER COW AND PER HUNDREDWEIGHT FOR THREE HERD SIZE CATEGORIES
343 New York Dairy Farms, 1993

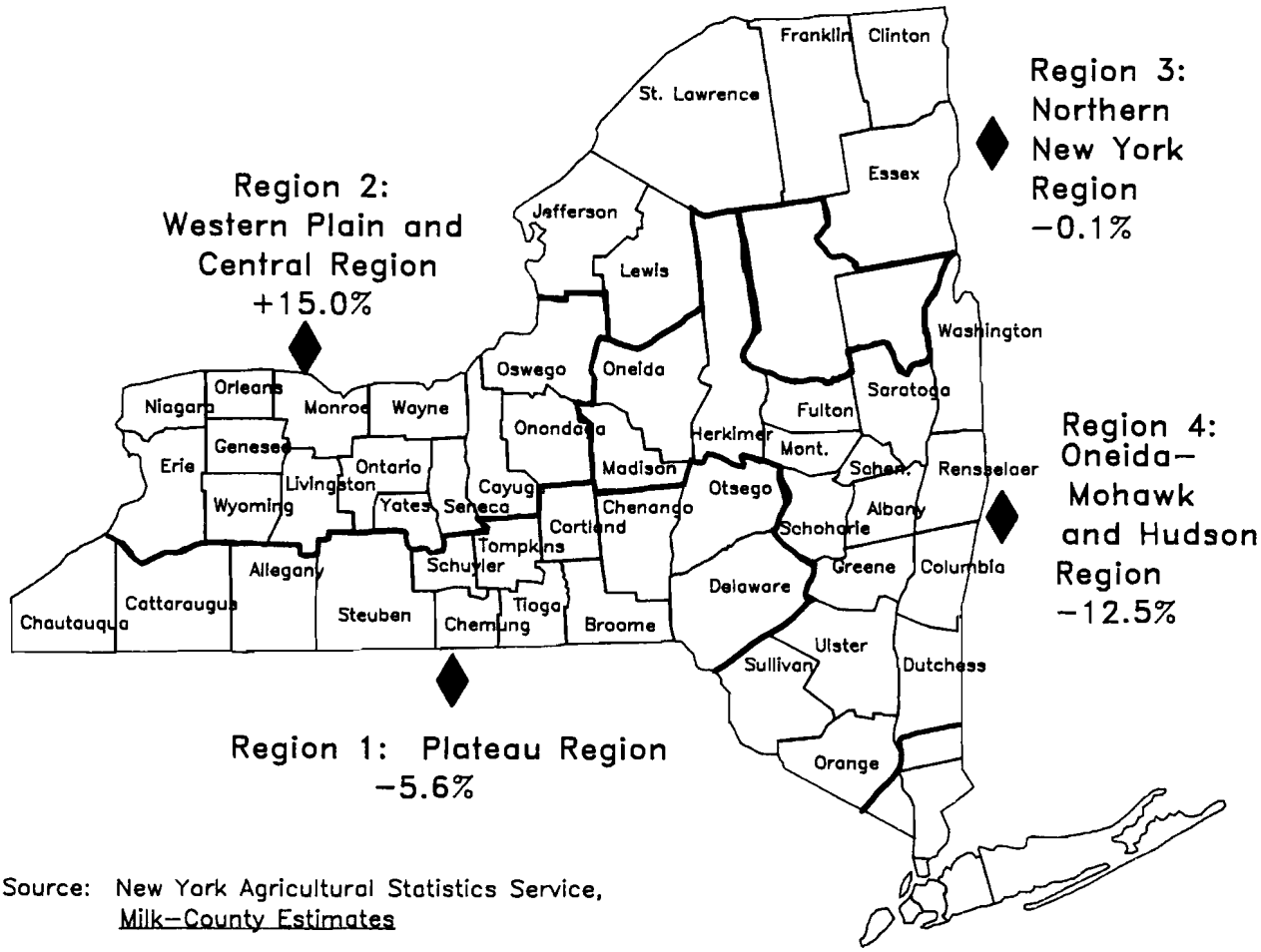
Item	149 Dairy Farms with <80 Cows		144 Dairy Farms with 80-180 Cows		50 Dairy Farms with ≥ 180 Cows	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
ACCRUAL RECEIPTS						
Milk sales	$2,291	$12.99	$2,423	$13.10	$2,608	$13.23
Dairy cattle	193	1.09	245	1.32	293	1.49
Dairy calves	46	0.26	43	0.23	48	0.24
Other livestock	6	0.04	4	0.02	2	0.01
Crops	9	0.05	44	0.24	58	0.29
Government receipts	45	0.25	57	0.31	37	0.19
All other	43	0.16	37	0.20	37	0.19
TOTAL ACCRUAL RECEIPTS	$2,633	$14.84	$2,853	$15.42	$3,084	$15.64
ACCRUAL EXPENSES						
Labor: Hired	$ 163	$ 0.93	$ 295	$ 1.60	$ 482	$ 2.45
Feed: Dairy grain & conc.	671	3.80	679	3.67	751	3.81
Dairy roughage	26	0.15	13	0.07	18	0.09
Nondairy	0	0.00	0	0.00	0	0.00
Machinery:Machine hire/ rent/ lease	34	0.19	27	0.15	23	0.12
Mach. repairs/parts	131	0.74	153	0.83	132	0.67
Auto expense (farm share)	13	0.07	10	0.05	4	0.02
Fuel, oil, grease	61	0.35	74	0.40	55	0.28
Livestock: Replacement livestock	38	0.21	34	0.18	29	0.15
Breeding	42	0.24	36	0.20	32	0.16
Vet & medicine	53	0.30	68	0.37	79	0.40
Milk marketing	130	0.74	128	0.69	112	0.57
Cattle lease/rent	1	0.00	1	0.01	6	0.03
Other livestock expense	119	0.68	127	0.69	142	0.72
Crops: Fertilizer & lime	59	0.34	72	0.39	65	0.33
Seeds & plants	34	0.19	42	0.22	37	0.19
Spray & other crop expense	34	0.19	40	0.22	38	0.19
Real Estate: Land/ building/fence repair	38	0.21	40	0.22	40	0.20
Taxes	89	0.51	73	0.40	46	0.23
Rent & lease	23	0.13	46	0.25	45	0.23
Other: Insurance	46	0.26	43	0.23	30	0.15
Telephone (farm share)	8	0.05	7	0.04	4	0.02
Electricity (farm share)	81	0.46	72	0.39	58	0.30
Interest paid	154	0.87	145	0.78	154	0.78
Miscellaneous	32	0.18	28	0.15	46	0.23
TOTAL OPERATING EXPENSES	$2,080	$11.79	$2,253	$12.18	$2,428	$12.32
Expansion livestock	13	0.08	28	0.15	93	0.47
Machinery depreciation	157	0.89	137	0.74	122	0.62
Building depreciation	74	0.42	74	0.40	101	0.51
TOTAL ACCRUAL EXPENSES	$2,324	$13.18	$2,492	$13.47	$2,744	$13.92

Table 59. COMPARISON OF DAIRY FARM BUSINESS DATA BY REGION
343 New York Dairy Farms, 1993

Item	Plateau Region	W. Plain & Central Region	Northern New York	Oneida-Mohawk & Hudson Reg.
Number of farms	98	77	72	96
ACCRUAL EXPENSES				
Hired labor	$ 30,845	$101,341	$ 24,300	$ 31,387
Feed	76,294	174,824	60,686	72,709
Machinery	25,552	50,667	21,390	27,665
Livestock	40,112	90,233	29,961	46,785
Crops	13,769	33,605	11,208	17,055
Real estate	15,838	30,594	13,008	16,823
Other	30,768	71,525	27,175	28,812
Total Operating Expenses	$233,178	$552,789	$187,728	$241,236
Expansion livestock	1,903	21,315	788	5,119
Machinery depreciation	14,971	29,275	13,112	13,533
Building depreciation	8,252	23,937	6,264	7,340
Total Accrual Expenses	$258,304	$627,316	$207,892	$267,228
ACCRUAL RECEIPTS				
Milk sales	$251,623	$598,495	$208,338	$254,667
Livestock	27,763	78,691	20,938	34,081
Crops	3,959	17,458	900	1,548
All other	10,199	16,758	4,287	10,565
Total Accrual Receipts	$293,544	$711,402	$234,463	$300,861
PROFITABILITY ANALYSIS				
Net farm income (w/o apprec.)	$35,240	$84,086	$26,571	$33,633
Net farm income (w/apprec.)	$45,711	$108,738	$37,114	$39,091
Labor & mgmt. income	$8,833	$40,300	$3,198	$2,888
Number of operators	1.47	1.57	1.31	1.46
Labor & mgmt. income/operator	$6,009	$25,669	$2,441	$1,978
BUSINESS FACTORS				
Worker equivalent	3.16	5.67	2.79	3.27
Number of cows	104	234	88	104
Number of heifers	87	169	71	81
Acres of hay crops*	171	211	154	193
Acres of corn silage*	65	179	65	83
Total tillable acres	292	534	267	328
Pounds of milk sold	1,904,676	4,596,202	1,611,973	1,895,100
Pounds of milk sold/cow	18,305	19,658	18,367	18,286
Tons hay crop dry matter/acre	2.6	3.3	2.6	2.3
Tons corn silage/acre	14.2	16.6	13.5	13.6
Cows/worker	33	41	32	32
Pounds of milk sold/worker	602,285	810,844	577,423	579,566
% grain & conc. of milk receipts	30%	28%	28%	28%
Feed & crop expense/cwt. milk	$4.73	$4.53	$4.46	$4.74
Fertilizer & lime/crop acre	$22.44	$27,35	$16.76	$28.05
Machinery cost/tillable acre	$161	$171	$152	$145

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

Figure 2. **Percent Increase in Milk Production, Four Regions in New York, 1983-1993**



Source: New York Agricultural Statistics Service, Milk–County Estimates

Table 60. **MILK PRODUCTION & AVERAGE COST OF PRODUCING MILK Four Regions of New York, 1993**

Item	Region* 1	2	3	4
Milk Production**		(million pounds)		
1983	3,412.8	2,716.0	2,153.8	3,337.6
1993	3,220.3	3,124.3	2,152.6	2,920.8
Percent change	-5.6%	+15.0%	-0.1%	-12.5%
Cost of Producing Milk		($ per hundredweight milk)		
Operating cost	$10.14	$10.03	$10.07	$10.56
Total cost	$14.42	$13.11	$14.47	$14.85
Average price received	$13.21	$13.02	$12.92	$13.44
Return per cwt. to operator labor, mgmt. & capital	$1.65	$1.75	$1.35	$1.60

*See Figure 2 for region descriptions.
**Source: New York Agricultural Statistics Service, Milk-County Estimates.

Table 61. FARM BUSINESS SUMMARIES FOR SINGLE PROPRIETORSHIPS, PARTNERSHIPS, AND CORPORATIONS 343 New York Dairy Farms, 1993

Item	216 Single Prop.	105 Partnerships	22 Corporations
ACCRUAL EXPENSES			
Hired labor	$ 34,656	$ 48,028	$139,095
Feed	73,572	109,837	221,061
Machinery	24,891	37,017	60,832
Livestock	40,327	59,417	117,174
Crops	14,068	20,973	51,846
Real estate	14,234	22,350	47,184
Other	30,313	46,142	84,223
Total Operating Expenses	$232,061	$343,764	$721,415
Expansion livestock	3,141	6,600	45,666
Machinery depreciation	13,443	19,943	43,946
Building depreciation	7,395	11,838	43,962
Total Accrual Expenses	$256,040	$382,145	$854,989
ACCRUAL RECEIPTS			
Milk sales	$244,623	$379,717	$794,661
Livestock	28,643	44,003	125,101
Crops	2,878	8,656	18,869
All other	7,573	13,012	27,757
Total Accrual Receipts	$282,717	$445,388	$966,388
PROFITABILITY ANALYSIS			
Net farm income (without appreciation)	$27,677	$63,243	$111,399
Net farm income (with appreciation)	$37,546	$76,621	$141,894
Labor & management income	$1,497	$28,652	$51,915
Number of operators	1.08	2.12	1.98
Labor & management income per operator	$1,386	$13,515	$26,220
Return on all capital w/apprec.	3.7%	4.9%	7.1%
FINANCIAL MEASURES			
Percent equity	64%	66%	63%
Debt/asset ratio - long-term	0.36	0.34	0.24
Debt/asset ratio - inter. & current	0.37	0.34	0.48
Farm net worth, end year	$434,784	$663,142	$1,193,720
Change in net worth w/appreciation	$18,356	$24,386	$54,001
Total farm debt per cow	$2,379	$2,118	$2,122
Debt payments made per cow	$611	$501	$514
Cash flow coverage ratio for 1993	0.80	0.99	1.34
BUSINESS FACTORS			
Worker equivalent	3.00	4.30	7.38
Number of cows	100	153	307
Pounds of milk sold per cow	18,600	18,912	19,553
Total tillable acres	286	409	719
Tons hay crop dry matter per acre	2.5	2.8	3.1
Tons corn silage per acre	14.7	14.6	16.2
Cows per worker	33	36	42
Pounds of milk sold per worker	621,752	672,925	813,995
Purc. grain & conc. as % of milk receipts	29%	28%	27%
Average price per cwt. milk	$13.12	$13.13	$13.22
Total cost of producing milk	$14.33	$13.79	$13.28

Table 62. FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
38 New York Dairy-Renter Farms,* 1993

ACCRUAL EXPENSES	
Labor: Hired	$14,680
Feed: Dairy grain & conc.	53,364
Dairy roughage	6,000
Nondairy	136
Machinery:Mach. hire/rent/lease	3,955
Mach. repairs/parts	9,202
Auto expense (farm share)	716
Fuel, oil, grease	5,345
Livestock: Replacement lvstk.	8,755
Breeding	3,370
Vet & medicine	5,406
Milk marketing	12,141
Cattle lease/rent	439
Other livestock expense	11,652
Crops: Fertilizer & lime	4,425
Seeds & plants	2,802
Spray & other crop expense	2,657
Real Estate: Land/building/ fence repair	2,075
Taxes	618
Rent & lease	17,620
Other:	
Insurance	2,786
Telephone (farm share)	737
Electricity (farm share)	5,974
Interest paid	6,190
Miscellaneous	2,389
TOTAL OPERATING EXPENSES	$183,434
Expansion livestock	1,711
Machinery depreciation	10,113
Building depreciation	1,515
TOTAL ACCRUAL EXPENSES	$196,773

ACCRUAL RECEIPTS	
Milk sales	$197,459
Dairy cattle	17,257
Dairy calves	4,098
Other livestock	307
Crops	1,110
Government receipts	2,812
Custom machine work	291
Gas tax refund	69
Other	2,257
TOTAL ACCRUAL RECEIPTS	$225,660

PROFITABILITY ANALYSIS	
Net farm inc. (w/o apprec.)	$28,887
Net farm inc. (w/apprec.)	$34,548
Labor & mgt. income/farm	$14,217
Number of operators	1.27
Labor & mgt. income/oper.	$11,194
Rate of return on equity capital including apprec.	2.0%

BUSINESS FACTORS	
Number of cows	82
Number of heifers	55
Worker equivalent	2.39
Total tillable acres	215
Milk sold per cow, lbs.	18,093
Hay DM per acre, tons	2.3
Corn silage per acre, tons	12.2
Milk sold per worker, lbs.	621,357
Grain/conc. as % milk sales	27%
Feed & crop exp./cwt. milk	$4.66
Labor & mach. costs/cow	$902
Average price/cwt. milk	$13.28

ASSETS	Jan. 1	Dec. 31
Farm cash/chkg./sav.	$ 5,183	$ 4,581
Accounts receivable	16,412	17,999
Prepaid expenses	39	0
Feed & supplies	36,384	36,671
Dairy cows**	85,884	90,516
Heifers	31,300	33,155
Bulls & other lvstk.	736	796
Machinery & equip**	96,064	98,686
Farm Credit stock	1,200	1,455
Other stock & cert.	7,512	7,851
Land & buildings**	17,825	24,811
Total Farm Assets	$298,539	$316,521
Nonfarm Assets****	68,655	70,304
Farm & Nonfarm Assets	$367,194	$386,825

LIABILITIES	Jan. 1	Dec. 31
Accounts payable	$ 6,162	$ 6,073
Operating debt	10,617	12,096
Short-term	2,003	2,946
Advanced gov't. rec.	0	72
Current Portion:		
Intermediate	0	15,310
Long Term	0	383
Intermediate***	73,472	58,297
Long-term**	1,521	5,637
Total Farm Liab.	$ 93,775	$100,814
Nonfarm Liab.****	11,668	12,830
Farm & Nonfarm Liab.	$105,443	$113,644
Farm Net Worth	$204,764	$215,707
Farm & Nonfarm Net Worth	$261,751	$273,181

*A renter owns no farm real estate at the end of year or no tillable land. **Includes discounted lease payments. ***Includes Farm Credit stock and discounted lease payments for cattle and machinery ****Average of 21 farms reporting.

Table 63. FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
Average of 34 Top Ten Percent Farms by Rate of Return on All Capital (without appreciation), 1993

ACCRUAL EXPENSES	
Labor: Hired	$138,577
Feed: Dairy grain & conc.	232,137
Dairy roughage	5,611
Nondairy	73
Machinery:Mach.hire/rent/lease	10,366
Mach. repairs/parts	35,758
Auto expense (farm share)	1,652
Fuel, oil, grease	16,001
Livestock: Replacement lvstk.	6,702
Breeding	8,755
Vet & medicine	22,258
Milk marketing	33,403
Cattle lease/rent	426
Other livestock expense	43,281
Crops: Fertilizer & lime	17,116
Seeds & plants	10,087
Spray & other crop expense	9,360
Real Estate: Land/building/ fence repair	12,457
Taxes	13,517
Rent & lease	13,939
Other:	
Insurance	9,172
Telephone (farm share)	1,171
Electricity (farm share)	18,862
Interest paid	50,930
Miscellaneous	19,017
TOTAL OPERATING EXPENSES	$730,628
Expansion livestock	$ 16,214
Machinery depreciation	30,137
Building depreciation	24,090
TOTAL ACCRUAL EXPENSES	$801,069

ACCRUAL RECEIPTS	
Milk sales	$807,150
Dairy cattle	92,348
Dairy calves	14,193
Other livestock	1,206
Crops	23,272
Government receipts	8,798
Custom machine work	706
Gas tax refund	321
Other	10,831
TOTAL ACCRUAL RECEIPTS	$958,825

PROFITABILITY ANALYSIS	
Net farm inc. (w/o apprec.)	$157,756
Net farm inc. (w/apprec.)	$185,402
Labor & mgt. income/oper.	$ 67,881
Rate of return on equity capital without apprec.	12.4%
Rate of return on all capital without appreciation	9.8%

BUSINESS FACTORS	
Number of cows	305
Number of heifers	222
Worker equivalent	6.89
Total tillable acres	629
Milk sold per cow, lbs.	20,101
Hay DM per acre, tons	3.2
Corn silage per acre, tons	16.3
Milk sold per worker, lbs.	889,581
Grain/conc. as % milk sales	29%
Feed & crop exp./cwt. milk	$4.48
Labor & mach. costs/cow	$901
Average price/cwt. milk	$13.17

ASSETS	Jan. 1	Dec. 31
Farm cash/chkg./sav.$	6,018 $	4,656
Accounts receivable	52,200	55,610
Prepaid expenses	4,268	4,041
Feed & supplies	151,739	170,852
Dairy cows*	283,307	317,676
Heifers	115,847	129,937
Bulls & other lvstk.	1,990	2,510
Machinery & equip*	237,313	273,601
Farm Credit stock	10,853	11,991
Other stock & cert.	22,231	25,806
Land & buildings*	707,262	761,932
Total Farm Assets	$1,593,028	$1,758,612
Nonfarm Assets***	90,441	94,540
Farm & Nonfarm Assets	$1,683,469	$1,853,152

LIABILITIES	Jan. 1	Dec. 31
Accounts payable	$ 19,518	$ 17,829
Operating debt	41,349	28,878
Short-term	2,571	11,742
Advanced gov't. rec.	0	0
Current Portion:		
Intermediate	0	57,019
Long Term	0	23,637
Intermediate**	336,836	344,790
Long-term*	339,049	314,338
Total Farm Liab.	$739,323	$ 798,233
Nonfarm Liab.***	11,472	10,159
Farm & Nonfarm Liab	$750,795	$ 808,392
Farm Net Worth	$853,705	$ 960,379
Farm & Nonfarm Net Worth	$932,674	$1,044,760

*Includes discounted lease payments. **Includes Farm Credit Stock and discounted lease payments for cattle and machinery. *** Average of 18 farms reporting.

Table 64. FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
Average of 343 New York Dairy Farms, 1993

ACCRUAL EXPENSES	
Labor: Hired	$ 45,449
Feed: Dairy grain & conc.	91,827
Dairy roughage	2,284
Nondairy	22
Machinery:Mach. hire/rent/lease	3,485
Mach. repairs/parts	18,153
Auto expense (farm share)	1,037
Fuel, oil, grease	8,232
Livestock: Replacement lvstk.	4,266
Breeding	4,569
Vet & medicine	9,056
Milk marketing	15,747
Cattle lease/rent	380
Other livestock expense	17,083
Crops: Fertilizer & lime	8,667
Seeds & plants	4,974
Spray & other crop expense	4,964
Real Estate: Land/building/ fence repair	5,110
Taxes	8,367
Rent & lease	5,354
Other	
Insurance	4,891
Telephone (farm share)	762
Electricity (farm share)	8,754
Interest paid	19,473
Miscellaneous	4,737
TOTAL OPERATING EXPENSES	$297,643
Expansion livestock	6,927
Machinery depreciation	17,389
Building depreciation	11,100
TOTAL ACCRUAL EXPENSES	$333,059

ACCRUAL RECEIPTS	
Milk sales	$321,258
Dairy cattle	33,160
Dairy calves	5,916
Other livestock	456
Crops	5,672
Government receipts	5,985
Custom machine work	652
Gas tax refund	276
Other	3,995
- Non-cash capital transfer(-)	375
TOTAL ACCRUAL RECEIPTS	$376,995
PROFITABILITY ANALYSIS	
Net farm inc. (w/o apprec.)	$ 43,936
Net farm inc. (w/apprec.)	$ 56,203
Labor & mgt. income/farm	$ 13,050
Number of operators	1.45
Labor & mgt. income/oper.	$ 9,000
Rate of return on equity capital including apprec.	3.5%
BUSINESS FACTORS	
Number of cows	130
Number of heifers	100
Worker equivalent	3.68
Total tillable acres	351
Milk sold per cow, lbs.	18,858
Hay DM per acre, tons	2.7
Corn silage per acre, tons	14.9
Milk sold per worker, lbs.	664,868
Grain/conc. as % milk sales	29%
Feed & crop exp./cwt. milk	$4.61
Labor & mach. costs/cow	$999
Average price/cwt. milk	$13.14

ASSETS	Jan. 1	Dec. 31
Farm cash/chkg./sav.	$ 6,841	$ 6,135
Accounts receivable	23,160	25,372
Prepaid expenses	646	495
Feed & supplies	67,574	69,217
Dairy cows*	129,004	138,843
Heifers	55,014	59,308
Bulls & other lvstk.	1,330	1,355
Machinery & equip.*	147,968	154,099
Farm Credit stock	3,507	3,750
Other stock & cert.	10,207	11,027
Land & buildings*	372,025	387,995
Total Farm Assets	$817,276	$857,596
Nonfarm Assets***	71,602	73,837
Farm & Nonfarm Assets	$888,878	$931,433

LIABILITIES	Jan. 1	Dec. 31
Accounts payable	$ 9,137	$ 9,367
Operating debt	12,090	10,375
Short-term	2,973	6,200
Advanced gov't. rec.	12	0
Current Portion:		
Intermediate	0	23,807
Long Term	0	8,997
Intermediate**	128,769	115,810
Long-term*	133,414	129,670
Total Farm Liab.	$286,395	$304,226
Nonfarm Liab.***	3,065	2,986
Farm & Nonfarm Liab.	$289,460	$307,212
Farm Net Worth	$530,881	$553,370
Farm & Nonfarm Net Worth	$599,418	$624,221

*Includes discounted lease payments. **Includes Farm Credit stock and discounted lease payments for cattle and machinery. ***Average of 201 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.

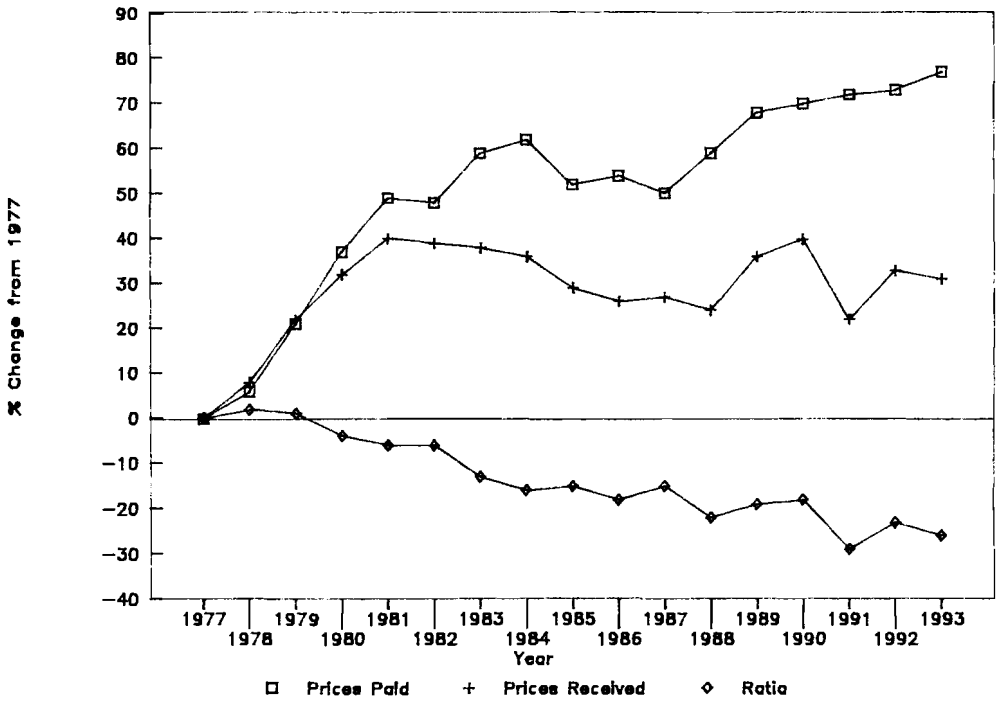
Table A1. PRICES PAID BY NEW YORK FARMERS FOR SELECTED ITEMS, 1983-1993

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)
1983	192.6	249	64.60	1.140	17,200	3.52
1984	194.3	250	70.20	1.140	17,400	3.60
1985	164.2	238	67.30	1.080	16,800	4.01***
1986	162.9	200**	65.60	0.840**	16,550	4.41***
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	5.76
1993	171.3**	226**	72.70	0.895**	19,200	6.20

SOURCE: NYASS, New York Agricultural Statistics. USDA, ASB, Agricultural Prices. *United States average. **Northeast region average. ***New York and New England combined, 1985-1991.

The table above shows average prices of selected goods and services used on New York dairy farms. Chart A1 shows the ratio of prices received for milk and prices paid by New York dairy farmers as a percent change from 1977. The ratio has been on a downward trend since 1978 except for slight increases in 1985, 1987, 1989, 1990 and 1992.

Chart A1. Ratio of Prices Received for Milk and Prices Paid by New York Dairy Farmers, 1977-1993



SOURCE: NYASS, New York Agricultural Statistics.

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.

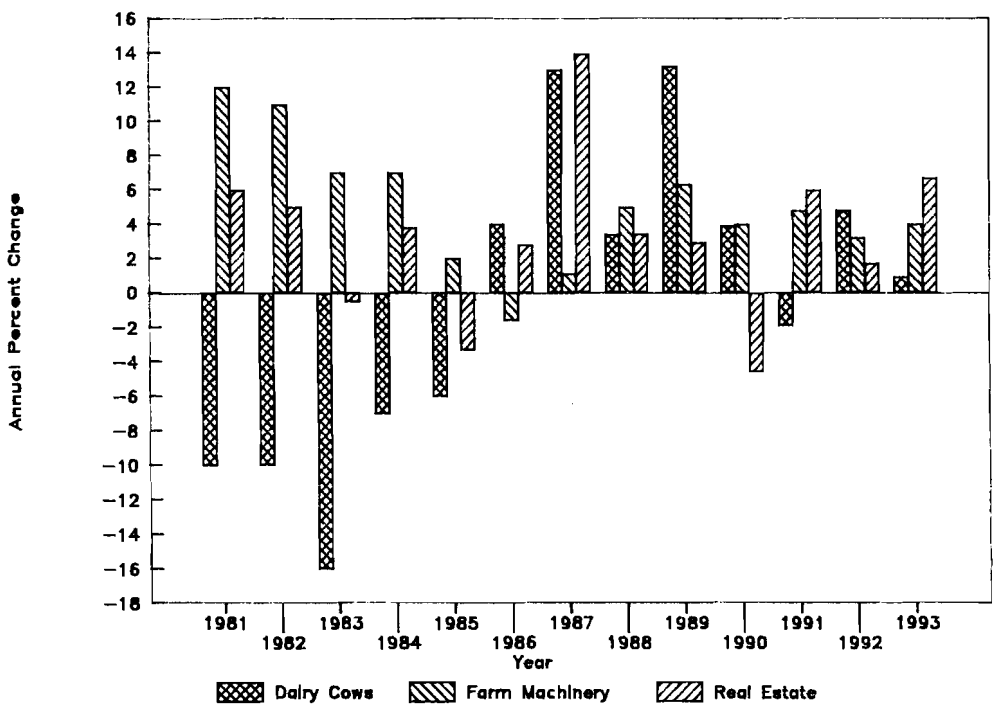
Table A2. VALUES OF NEW YORK DAIRY FARM INVENTORY ITEMS, 1980-1993

	Dairy Cows		Machinery*	Farm Real Estate	
Year	Value/Head	1977=100	1977=100	Value/Acre	1977=100
1980	$1,240	251	134	$ 720	123
1981	1,120	226	149	773	132
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	1,024	174
1990	1,060	214	209	974	166
1991	1,040	210	219	1,031	176
1992	1,090	220	226	1,051	179
1993	1,100	222	235	1,119	191

SOURCE: NYCRS, New York Agricultural Statistics and New York Crop and Livestock Report. USDA, ASB, Agricultural Prices.
*United States average.

Dairy cow prices continued to rise in 1993. The December 1993 value per head averaged $10 higher than in December 1992. New machinery prices have increased since 1977 with a slight decline in 1986. The 1993 machinery prices increased 4.0 percent over the 1992 level. Farm real estate values increased 7 percent in 1993.

Chart A2. Annual Changes in Dairy Cow, Farm Machinery, and Farm Real Estate Values, New York Dairy Farms, 1980-1993



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 17)

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 34 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.

Business Records - Account Book: any organized farm record book or ledger. Agrifax (mail-in); Farm Credit's recordkeeping service. ELFAC: ELFAC II mail in record 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 17)

Cash Flow Coverage Ratio - (defined on page 19)

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

Cash Paid - (defined on page 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 26)

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 10 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 15)

Deferred Taxes - (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 19 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-cancellable 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.

Intermediate (assets and liabilities) - Farm business property and associated debt that is turned over from one to 10 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 10 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 transfered 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 semipermanent pasture land that could not be included in a regular cropping sequence or rotation.

Operating Costs of Producing Milk - (defined on page 26)

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 8)

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 26)

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 on Total Capital - (defined on page 12)

Return to Operators' Labor, Management, and Equity Capital - (defined on page 10)

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 16)

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 double 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 26)

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 230 hours per month) and dividing by 12.

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