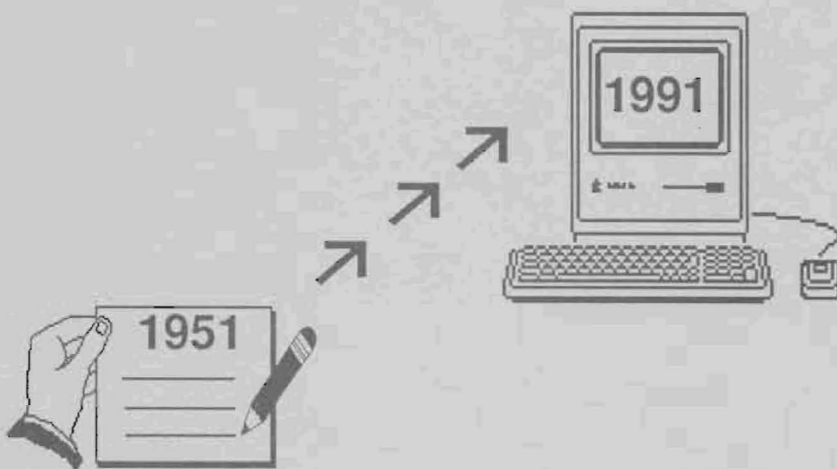


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AUGUST 1992

DAIRY FARM MANAGEMENT

BUSINESS SUMMARY NEW YORK STATE 1991



**DFBS
40th
Anniversary**

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ABSTRACT

This summary and analysis of 407 New York dairy farm businesses demonstrates the use of cash and accrual accounting 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 111 cows per farm and 18,027 pounds of milk sold per cow in 1991, 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 \$26,391 per farm. The rate of return including appreciation to all capital invested in the farm business averaged 3.8 percent in 1991.

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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 Economics of the New York State College of Agriculture and Life Sciences, and County Extension staff, cooperate in sponsoring DFBS projects. In 1991, about 500 dairy farmers participated. Business records submitted by dairy farmers from 47 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 47 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 407 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 407 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 and dairy-cash crop farms 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 6. Four measures of farm profits are calculated on pages 9 through 11. The balance sheet and cash flow statement are featured on pages 12 through 16.

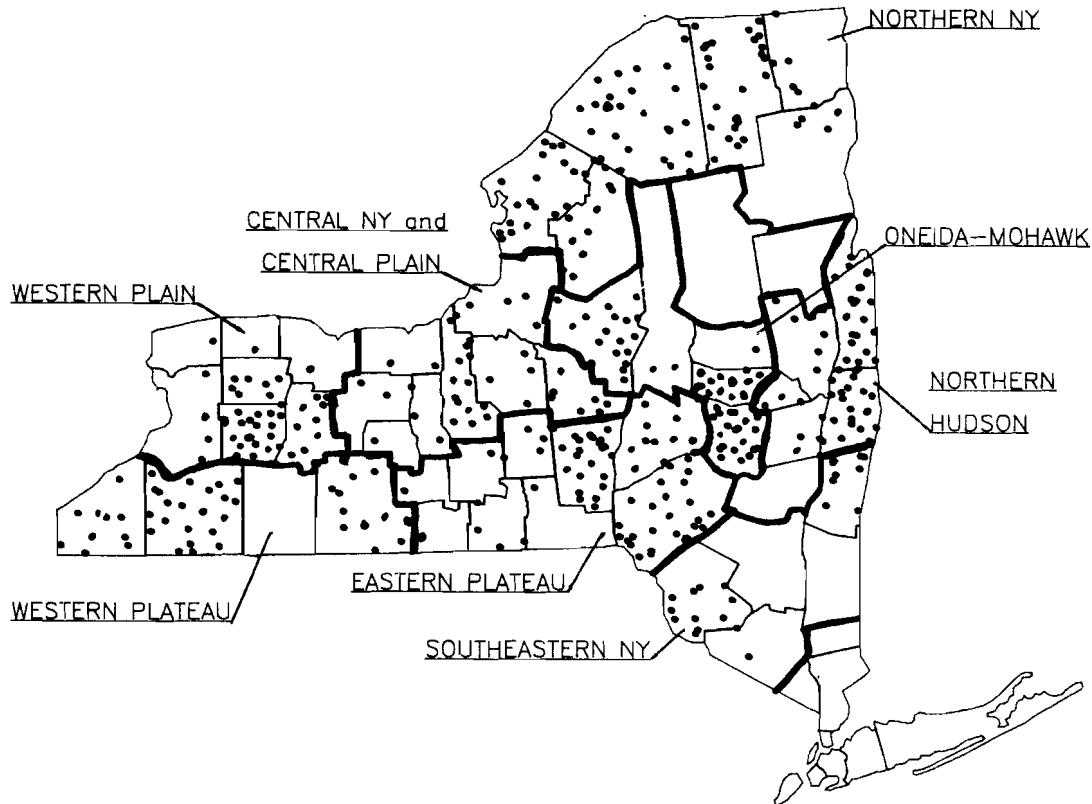
The dairy program analysis includes data on the costs of producing milk (pages 20-28) and separate farm business charts using data from freestall farms versus conventional stall dairy farms (pages 51-54).

Acknowledgements

The authors appreciate the outstanding assistance provided by the following staff members: Cindy Farrell - wordprocessing, and Beverly Carcelli and Kris Petracek - proofreading and distribution.

Figure 1.

LOCATION OF THE 407 NEW YORK DAIRY FARMS
IN THE 1991 DAIRY FARM BUSINESS SUMMARY



1991 Regional Summary Publications

<u>Region</u>	<u>Publications</u>	<u>Author(s)</u>
Western Plain Region	A.E. Ext. 92-6	Stuart F. Smith, Linda D. Putnam, George Allhusen, Jason Karszes & David Thorp
Northern New York	A.E. Ext. 92-7	Stuart F. Smith, Linda D. Putnam, Patricia A. Beyer, J. Russell Coombe, Anita W. Deming, Lou Anne F. King, & George O. Yarnall
Oneida-Mohawk Region	A.E. Ext. 92-8	Eddy L. LaDue, Mark E. Anibal & Jacqueline M. Mierek
Central New York & Central Plain	A.E. Ext. 92-9	Wayne A. Knoblauch, Linda D. Putnam, George Allhusen, June C. Grabemeyer & James A. Hilson
Southeastern New York	A.E. Ext. 92-11	Stuart F. Smith, Linda D. Putnam, Alan S. White, Gerald J. Skoda, Stephen E. Hadcock, & Larry R. Hulle
Western Plateau Region	A.E. Ext. 92-12	George L. Casler, Andrew N. Dufresne, Joan S. Petzen, Michael L. Stratton, & Linda D. Putnam
Eastern Plateau Region	A.E. Ext. 92-13	Robert A. Milligan, Linda D. Putnam, Carl A. Crispell, Gerald A. LeClar, & A. Edward Staehr
Northern Hudson Region	A.E. Ext. 92-14	Stuart F. Smith, Linda D. Putnam, Cathy S. Wickswat, W. Christopher Skellie, & Thomas J. Gallagher

THREE DECADES OF CHANGE

Although the dairy farm business summary projects began in some New York counties as early as 1951, county data were not collected and organized into one state summary until the mid-1950's. Data in Table 1 represent the average dairy farm enrolled in the business summary program over the most recent 30 year period. Here are some of the most dramatic changes that have occurred on DFBS farms.

Size of business - The average number of cows per farm has increased 192 percent while milk output is up 430 percent per farm. The most rapid growth occurred in the 1960's.

Rates of production - Milk sold per cow has increased 81 percent, but the average yields of forage crops have not increased significantly since 1961.

Labor efficiency - Milk output per worker increased 182 percent, although cows per worker show little change after 1971.

Cost control - The cost of purchased grain and concentrates has changed little in relation to milk sales but the operating costs of producing milk are up 270 percent per hundredweight. The price received for milk has increased 190 percent in 30 years. The big increase in costs and prices received occurred during the 1970's.

Capital efficiency - Farm capital invested per cow jumped more than 350 percent, 65 percent of the increase occurred during the 1970's. The relationship between farm receipts and farm capital remained constant for 20 years and strengthened slightly in the 1980's.

Profitability - Net farm income, including appreciation, increased dramatically. However, in 1991 labor and management income per operator dropped to its lowest level since DFBS data have been collected in New York State. A constant interest rate of five percent was used as the opportunity cost of equity capital to recompute labor and management income in each of the four years.

Financial summary - Average farm net worth before taxes has increased more than 13-fold on DFBS farms since 1961. During this same 30 year period the Consumer Price Index has grown 350 percent. Nevertheless, real net worth before taxes has increased more than 850 percent. Although debt per cow has increased more than 300 percent, the average debt to asset ratio has improved slightly.

Conclusions

Average DFBS data from 1961, 1971, 1981, and 1991 are used to identify changes in the structure and productivity of dairy farming over the last 30 years. The greatest increases in farm size and productivity occurred in the 1960's. The greatest increases in costs, prices and capital investments occurred in the 1970's. Compared to the previous 20 years, the 1980's were relatively stable. The average levels of labor and management income and returns on capital reported in Table 1 cannot be used to identify trends in dairy farm profitability. The years selected do not necessarily represent average or typical income years. The returns in 1961 and 1971 were very representative of the average return for 1958-60 and 1968-70, respectively. Returns to labor and management for 1981 and 1991 were \$18,000 and \$21,000 below averages reported in 1978-80 and 1988-90, respectively.

Table 1. COMPARISON OF FARM BUSINESS SUMMARY DATA
New York Dairy Farms, 1961, 1971, 1981, & 1991

Selected Factors	1961	1971	1981	1991
Number of farms	490	569	553	407
<u>Size of Business</u>				
Average number of cows	38	67	79	111
Average number of heifers	23	44	59	92
Milk sold, cwt.	3,787	8,617	11,420	20,060
Worker equivalent	1.8	2.2	2.75	3.38
Total tillable acres	99	185	257	330
<u>Rates of Production</u>				
Milk sold per cow, lbs.	9,965	12,900	14,456	18,027
Hay DM per acre, tons	2.3	2.4	2.5	2.4
Corn silage per acre, tons	12	16	14.9	13.7
<u>Labor Efficiency</u>				
Cows per worker	21	30	29	33
Milk sold per worker, lbs.	210,380	391,700	415,273	593,297
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	28%	24%	26%	29%
Dairy feed & crop expense per cwt. milk	\$1.53	\$1.95	\$4.67	\$4.67
Labor & machinery costs per cow	\$256	\$350	\$800	\$976
Oper. cost of producing cwt. milk	\$2.79	\$3.28	\$10.05	\$10.35
Total cost of producing cwt. milk	\$4.54	\$5.85	\$14.82	\$14.55
Milk receipts per cwt. milk	\$4.47	\$6.21	\$13.66	\$12.95
<u>Capital Efficiency</u>				
Farm capital per cow	\$1,450	\$2,290	\$5,676	\$6,688
Machinery & equipment per cow	\$291	\$480	\$1,078	\$1,267
Real estate per cow	\$680	\$1,125	\$2,693	\$3,063
Livestock investment per cow	\$375	\$527	\$1,500	\$1,455
Capital turnover, years	2.4	2.4	2.4	2.3
<u>Profitability</u>				
Net farm income w/o apprec.	--	--	\$23,458	\$26,391
Net farm income w/apprec.	\$6,380	\$20,600	\$31,951	\$41,074
Labor & management income per operator/manager	\$3,352	\$10,646	\$5,402	\$-955
Rate return on:				
Equity capital w/apprec.	--	--	3.6%	1.4%
All capital w/apprec.	4.5%	9.2%	5.6%	3.8%
All capital w/o apprec.	--	--	3.7%	1.8%
<u>Financial Summary, End Year</u>				
Farm net worth	\$37,000*	\$101,000**	\$301,975	\$486,215
Change in net worth w/apprec.	--	--	\$14,566***	\$12,169
Debt to asset ratio	0.41*	0.37	0.37	0.36
Farm debt per cow	\$530*	\$909	\$2,212	\$2,327

*Average of 74 farms submitting data.

**Average of 319 farms.

***Average of 416 farms.

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 a listing of the average labor, land, and dairy cattle resources used in 1991 are presented in the following table.

Table 2. BUSINESS CHARACTERISTICS AND RESOURCES USED
407 New York Dairy Farms, 1991

<u>No. Dairy Livestock</u>	<u>Cows</u>	<u>Heifers</u>	<u>Dairy Records</u>	<u>Number</u>	<u>Percent</u>
Beginning of Year	109	91	D.H.I.C.	305	75
End of Year	115	94	Owner Sampler	43	11
Average for Year	111	92	Other	25	6
			None	34	8
<u>Type of Business</u>	<u>Number</u>	<u>Percent</u>	<u>Labor Force</u>	<u>Average</u>	<u>Percent</u>
Sole Proprietorship	275	67	Operators	16.42 mo.	41
Partnership	108	27	Family paid	4.97 mo.	12
Corporation	24	6	Family unpaid	2.84 mo.	7
<u>Barn Type</u>	<u>Number</u>	<u>Percent</u>	Hired	16.37 mo.	40
Stanchion	223	55	Total Months	40.57 mo.	100
Freestall	150	37			
Combination	34	8			
<u>Milking System</u>	<u>Number</u>	<u>Percent</u>	<u>Operators</u> (total = 556)	<u>Average</u>	
Bucket & Carry	3	1	Age	1.37	
Dumping Station	16	4	Education	45	
Pipeline	234	57	Estimated Value of	13 yrs.	
Herringbone	131	32	Labor & Management	\$30,794	
Other Parlor	23	6			
<u>Milking Frequency</u>	<u>Number</u>	<u>Percent</u>	<u>Land Used</u>	<u>Farms Reporting</u>	
2x/day	340	84	Total acres:	<u>Number</u>	<u>Average</u>
3x/day	53	13	Owned	407	361
Other	14	3	Rented	342	172
<u>Business Records</u>	<u>Number</u>	<u>Percent</u>	Tillable acres:		
Account Book	169	42	Owned	407	206
Agrifax (mail-in)	51	12	Rented	338	149
ELFAC	17	4	Total	407	330
On-Farm Computer	97	24			
Other	73	18			

There were 556 full-time operator equivalents on the 407 dairy farms for an average of 1.37 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 39.

All 407 farm businesses included in the regular dairy summary own farm real estate. Dairy farm renters are summarized separately later in this publication. However, 338 of the dairy farm owners rented an average of 149 acres of tillable land in 1991. The 407 farms averaged 330 total tillable acres per farm of which 124 acres were rented. Tables 18 and 24 contain additional information on land use and the dairy herd.

Accounting Procedures

Accrual accounting is used for measuring farm profitability. It expresses value of production and cost of production for the year, regardless of whether cash was received or expended. Accrual is a more accurate method than cash accounting when examining the profitability of a business in a particular year. Cash expenses and cash receipts are used when evaluating the cash flow position of the business.

The accrual accounting system considers 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 accounting is 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 407 farms averaged \$676 per day and 89 percent of total farm accrual expenses.

Table 3. **CASH AND ACCRUAL FARM EXPENSES**
407 New York Dairy Farms, 1991

Expense Item	Cash Paid +	Change in Inventory or Prepaid Expense +	Change in Accounts Payable =	Accrual Expenses	Percent
<u>Hired Labor</u>	\$ 34,710	\$-27*	\$ 149	\$ 34,832	14
<u>Feed</u>					
Dairy grain & conc.	72,889	1,533	1,135	75,557	31
Dairy roughage	2,092	-16	-11	2,065	1
Nondairy livestock	140	-1	0	139	<1
<u>Machinery</u>					
Mach. hire, rent/lease	3,339	-5*	36	3,370	1
Machinery repairs/parts	14,460	21	18	14,499	6
Auto expense (farm share)	818	0*	4	822	<1
Fuel, oil & grease	7,308	-18	107	7,397	3
<u>Livestock</u>					
Replacement livestock	2,890	0*	56	2,946	1
Breeding	3,539	70	16	3,625	1
Vet & medicine	6,426	3	107	6,536	3
Milk marketing	11,584	1*	13	11,598	5
Cattle lease/rent	331	0*	0	331	<1
Other livestock expense	12,537	31	81	12,649	5
<u>Crops</u>					
Fertilizer & lime	7,335	543	225	8,103	3
Seeds & plants	3,852	105	96	4,053	2
Spray, other crop exp.	3,617	304	38	3,959	2
<u>Real Estate</u>					
Land/bldg./fence repair	3,808	15	76	3,899	2
Taxes	7,296	21*	297	7,614	3
Rent & lease	4,944	25*	52	5,021	2
<u>Other</u>					
Insurance	4,722	12*	-25	4,709	2
Telephone (farm share)	778	0*	1	779	<1
Electricity (farm share)	7,106	2*	29	7,137	3
Interest paid	21,171	1*	251	21,423	9
Miscellaneous	3,705	-9	-6	3,690	1
Total Operating	\$241,397	\$2,611	\$2,745	\$246,753	100
Expansion livestock	\$3,996	0*	\$1	3,997	
Machinery depreciation				15,739	
Building depreciation				9,871	
TOTAL ACCRUAL EXPENSES				\$276,360	

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). The purchased dairy grain and concentrate inventory decreased \$1,533.

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 \$25 per farm in 1991, and that decrease is added to cash rent to determine the correct 1991 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 \$291,644 per farm. Total accrual receipts averaged \$302,751 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 six head per farm and the homegrown feed inventory per farm increased \$787. Homegrown feed inventory per cow decreased \$18 from beginning to end of year.

Table 4. **CASH AND ACCRUAL FARM RECEIPTS**
407 New York Dairy Farms, 1991

Receipt Item	Cash Receipts	+ Change in Inventory	+ Change in Accounts Receivable	= Accrual Receipts	Percent
Milk sales	\$257,062		\$2,626	\$259,688	86
Dairy cattle	19,364	\$7,714	54	27,132	9
Dairy calves	5,391		-2	5,389	2
Other livestock	577	54	0	631	<1
Crops	2,172	787	59	3,018	1
Government receipts	2,632	-63*	23	2,592	1
Custom machine work	657		5	662	<1
Gas tax refund	169		14	183	<1
Other	3,620		47	3,667	1
- Nonfarm noncash capital**		(-) 211		(-) 211	
Total	\$291,644	\$8,281	\$2,826	\$302,751	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 1990 to 1991. 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 12.

Profitability Analysis

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

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

Net farm income is computed with and without appreciation. Appreciation represents the change in farm inventory values caused by changes in prices during the year. Appreciation is a major factor contributing to changes in farm net worth and must be included in the profitability analysis.

Table 5. **NET FARM INCOME**
407 New York Dairy Farms, 1991

Item	Average 407 Farms	Average Top 10% Farms*
Total accrual receipts	\$302,751	\$790,264
+ Appreciation: Livestock	1,984	6,333
Machinery	2,953	3,548
Real Estate	9,565	18,533
Other Stock/Cert.	181	647
= Total including appreciation	\$317,434	\$819,325
- Total accrual expenses	276,360	656,730
= Net Farm Income (with appreciation)	\$ 41,074	\$162,595
Net Farm Income (without appreciation)	\$ 26,391	\$133,534

*Average of 41 farms with highest net farm incomes (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**
407 New York Dairy Farms, 1991

Item	Average 407 Farms		Average Top 10% Farms	
	With Apprec.	Without Apprec.	With Apprec.	Without Apprec.
Net farm income	\$41,074	\$26,391	\$162,595	\$133,534
- Family labor unpaid @ \$1,300 per month	<u>3,692</u>	<u>3,692</u>	<u>2,444</u>	<u>2,444</u>
= Return to Operator(s') Labor, Management, & Equity	\$37,382	\$22,699	\$160,151	\$131,090

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.

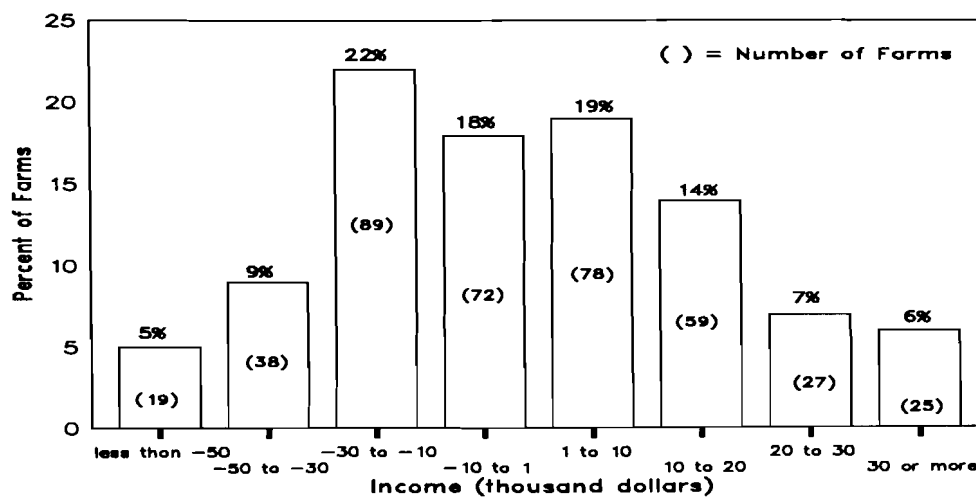
Labor and management income per operator measures the return to one full-time operator's labor and management. A full-time operator provides 12 months of labor and management.

Table 7. **LABOR AND MANAGEMENT INCOME**
407 New York Dairy Farms, 1991

Item	Average 407 Farms		Average Top 10% Farms
Return to operator(s') labor, management, & equity without appreciation	\$22,699		\$131,090
- Real interest @ 5% on \$480,131 equity capital for average & \$1,026,965 for the top 10%	<u>24,007</u>		<u>51,348</u>
= Labor & Management Income (1.37 operators)	\$-1,308	(1.97)	\$ 79,742
Labor & Management Income per Operator	\$-955		\$40,478

Labor and management income per operator averaged \$-955 on these 407 dairy farms in 1991. This is the lowest average labor and management income per operator, adjusted to a five percent charge for equity capital, ever calculated on New York dairy farms. The previous low was \$2,020 in 1962. The range in labor and management income per operator was from less than -\$240,000 to more than \$210,000. Returns to labor and management were negative on 54 percent of the farms. Labor and management income per operator ranged from \$0 to \$19,999 on 33 percent of the farms while 13 percent showed labor and management incomes of \$20,000 or more per operator.

Chart 1. **DISTRIBUTION OF LABOR & MANAGEMENT INCOMES PER OPERATOR**
407 New York Dairy Farms, 1991



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
407 New York Dairy Farms, 1991

Item	Average 407 Farms	Average Top 10% Farms
Return to operators' labor, management, & equity capital with appreciation	\$37,382	\$160,151
- Value of operators' labor & management	<u>30,794</u>	<u>54,611</u>
= Return on equity capital with appreciation	\$ 6,588	\$105,540
+ Interest paid	<u>21,424</u>	<u>40,354</u>
= Return on total capital with appreciation	\$28,012	\$145,894
Return on equity capital without appreciation	\$-8,095	\$76,479
Return on total capital without appreciation	\$13,329	\$116,833
Rate of return on average equity capital:		
with appreciation	1.4%	10.3%
without appreciation	-1.7%	7.5%
Rate of return on average total capital:		
with appreciation	3.8%	9.6%
without appreciation	1.8%	7.7%

Return to all labor and management input 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
407 New York Dairy Farms, 1991

Item	Quartile by Return to All Capital w/Apprec.			
	Lowest 25%	3rd 25%	2nd 25%	Top 25%
Return to all capital (w/apprec.)	\$-22,918	\$3,130	\$23,673	\$108,782
Rate of return on all capital w/apprec.	-4.4%	0.6%	4.0%	8.1%
Total returns to all labor & management	\$-8,012	\$12,873	\$28,373	\$115,572
Worker equivalent	2.61	2.62	2.85	5.41
Return per worker equiv.	\$-3,070	\$4,913	\$9,955	\$21,363
Returns/hour (3,000 hours/ worker/yr.)	\$-1.02	\$1.64	\$3.32	\$7.12

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. 1991 FARM BUSINESS AND NONFARM BALANCE SHEET
407 New York Dairy Farms, 1991

Farm Assets			Farm Liabilities & Net Worth		
	Jan. 1	Dec. 31		Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$ 6,322	\$ 6,039	Accounts payable	\$ 7,553	\$10,256
Accounts rec.	19,528	22,354	Operating debt	10,204	10,002
Prepaid expenses	448	418	Short-term	5,118	4,393
Feed & supplies	<u>60,376</u>	<u>58,582</u>	Advanced Govt. Rec.	<u>0</u>	<u>63</u>
Total	\$86,674	\$87,393	Total	\$22,875	\$24,714
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy cows:			Structured debt		
owned	\$109,162	\$116,060	1-10 years	\$101,960	\$105,605
leased	221	99	Financial lease		
Heifers	48,531	51,320	(cattle/mach.)	2,378	1,924
Bulls/other lvstk.	1,284	1,348	Farm Credit stock	<u>3,319</u>	<u>3,208</u>
Mach./eq. owned	137,893	140,064	Total	\$107,657	\$110,738
Mach./eq. leased	2,157	1,825			
Farm Credit stock	3,319	3,208	<u>Long-Term</u>		
Other stock & cert.	<u>8,080</u>	<u>8,362</u>	Structured debt		
Total	\$310,647	\$322,286	≥10 years	\$127,717	\$134,430
			Financial lease		
<u>Long-Term</u>			(structures)	<u>283</u>	<u>88</u>
Land/buildings:			Total	\$128,000	\$134,519
owned	\$334,974	\$346,419	Total Farm Liab.	\$258,532	\$269,971
leased	<u>283</u>	<u>88</u>			
Total	\$335,257	\$346,507			
Total Farm Assets	\$732,578	\$756,186	FARM NET WORTH	\$474,046	\$486,215
			<u>Nonfarm Liabilities*</u>		
<u>Nonfarm Assets*</u>			<u>& Net Worth</u>		
	Jan. 1	Dec. 31		Jan. 1	Dec. 31
Personal cash, chkg. & savings	\$ 7,271	\$ 7,508	Nonfarm Liab.	\$3,498	\$3,532
Cash value life ins.	7,927	8,171	<u>NONFARM NET WORTH</u>	<u>\$64,826</u>	<u>\$67,409</u>
Nonfarm real estate	28,202	28,478	<u>FARM & NONFARM**</u>		
Auto (personal sh.)	4,119	3,993	Total Assets	\$800,902	\$827,127
Stocks & bonds	6,334	7,308	Total Liabilities	<u>262,030</u>	<u>273,503</u>
Household furn.	8,904	9,279	<u>TOTAL FARM & NON-</u>		
All other	<u>5,567</u>	<u>6,205</u>	FARM NET WORTH	\$538,872	\$553,624
Total Nonfarm	\$68,324	\$70,941			

*Average of 252 farms completing the nonfarm balance sheet.

**Sum of average farm values for 407 farms and nonfarm values for 252 farms.

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

The farm balance sheet analysis includes financial and debt ratios and factors measuring levels of debt. Percent equity is calculated by dividing farm net worth by farm assets. Equity increases as the value of assets increase more than liabilities. The debt to asset 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 11. **FARM BALANCE SHEET ANALYSIS**
407 New York Dairy Farms, 1991

Item	Average 407 Farms	Average Top 10% Farms		
<u>Farm Financial Ratios:</u>				
Percent equity	64%	68%		
Debt/asset ratio: total	0.36	0.32		
long-term	0.39	0.35		
inter. & current	0.33	0.31		
<u>Change in Net Worth:</u>				
Without appreciation	\$-2,514	\$37,785		
With appreciation	\$12,169	\$66,846		
<u>Farm Debt Analysis:</u>				
Accts. payable as % of total debt	4%	1%		
Long-term liab. as % of total debt	50%	44%		
Current & int. liab. as % of tot. debt	50%	56%		
<u>Farm Debt Levels:</u>				
	<u>Per Cow</u>	<u>Per Tillable Acre Owned</u>	<u>Per Cow</u>	<u>Per Tillable Acre Owned</u>
Total farm debt	\$2,327	\$1,311	\$1,837	\$1,341
Long-term debt	1,160	\$653	800	584
Intermediate & current debt	1,168	658	1,037	757

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

Table 12. **FARM INVENTORY BALANCE**
407 New York Dairy Farms, 1991

Item	Real Estate	Machinery/Equip.	Livestock
Value beg. of year	\$334,974	\$137,893	\$158,976
Purchases	\$19,451*	\$15,684	
+ nonfarm noncash transfer**	677	19	
- Lost capital	4,796		
- Sales	2,817	746	
- Depreciation	<u>9,871</u>	<u>15,739</u>	
= Net investment	2,643	-782	7,768
+ Appreciation	<u>8,802***</u>	<u>2,953</u>	<u>1,984</u>
Value end of year	\$346,419	\$140,064	\$168,728

*\$4,713 land and \$14,737 buildings and/or depreciable improvements.

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

***Excludes \$763 of appreciation on assets sold during the year.

Cash Flow Summary and Analysis

Completing an annual cash flow summary and analysis is important to determine how well the cash generated by the business, plus that brought in from outside, met the annual cash needs of the business and the farm family. 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 compare all the cash inflows with all the cash outflows for the year. Cash inflows include all the cash farm receipts, receipts from the sale of farm assets, additional funds borrowed, cash used in the business from the sale of nonfarm capital, as well as the amount of cash available at the beginning of the year. Cash outflows include all the cash farm expenses, capital purchases, principal payments, money taken out of the business, and the cash balance left at year's end. When all the cash inflows and outflows are correct, the statement will balance. The positive imbalance of \$747 indicates that on average, farms had more inflows than were accounted for by outflows.

Table 13. **ANNUAL CASH FLOW STATEMENT**
407 New York Dairy Farms, 1991

<u>Item</u>	<u>Average 407 Farms</u>	<u>Average Top 10% Farms</u>
<u>Cash Inflows</u>		
Beginning farm cash, checking & savings	\$ 6,322	\$ 14,415
Cash farm receipts	291,644	743,005
Sale of assets: Machinery	746	1,222
Real estate	2,986	7,155
Other stock & certificates	232	694
Money borrowed (intermediate & long-term)	46,700	143,794
Money borrowed (short-term)	2,089	4,845
Increase in operating debt	0	0
Nonfarm income	6,219	5,298
Cash from nonfarm capital used in business	3,154	2,818
Money borrowed - nonfarm	<u>351</u>	<u>0</u>
Total	\$360,443	\$923,246
<u>Cash Outflows</u>		
Cash farm expenses	\$241,397	\$578,434
Capital purchases: Expansion livestock	3,996	10,729
Machinery	15,684	40,304
Real estate	19,451	76,252
Other stock & certificates	333	771
Principal payments (intermediate & long-term)	36,340	101,764
Principal payments (short-term)	2,814	7,249
Decrease in operating debt	202	4,361
Personal withdrawals & family expenditures, including nonfarm debt payments	33,441	81,879
Ending farm cash, checking & savings	<u>6,039</u>	<u>18,149</u>
Total	\$359,696	\$919,892
Imbalance (error)	\$747	\$3,354

Table 14.

ANNUAL CASH FLOW BUDGETING DATA
407 New York Dairy Farms, 1991

Item	Average 407 Farms		Average Top 10% Farms	
	Total	Per Cow	Total	Per Cow
Average number of cows	111		262	
<u>Accrual Operating Receipts</u>				
Milk	\$259,688	\$2,333	\$661,819	\$2,522
Dairy cattle	27,132	244	74,566	284
Dairy calves	5,389	48	13,234	51
Other livestock	631	6	2,117	8
Crops	3,018	27	19,814	76
Miscellaneous receipts	7,104	64	18,714	71
Total	\$302,962	\$2,722	\$790,264	\$3,011
<u>Accrual Operating Expenses</u>				
Hired labor	\$ 34,832	\$ 313	\$106,887	\$ 407
Dairy grain & concentrate	75,557	679	176,993	675
Dairy roughage	2,065	19	5,618	21
Nondairy feed	139	1	141	1
Machinery hire/rent/lease	3,370	30	6,210	24
Machinery repairs/parts & auto	15,321	138	34,013	130
Fuel, oil & grease	7,397	66	15,307	58
Replacement livestock	2,946	26	2,999	11
Breeding	3,625	33	8,009	30
Vet & medicine	6,536	59	18,975	72
Milk marketing	11,598	104	22,220	85
Cattle lease	331	3	828	3
Other livestock expense	12,649	114	31,308	119
Fertilizer & lime	8,103	73	20,272	77
Seeds & plants	4,053	36	10,160	39
Spray/other crop expense	3,959	36	11,769	45
Land, building, fence repair	3,899	35	10,371	40
Taxes	7,614	68	13,329	51
Real estate rent/lease	5,021	45	17,034	65
Insurance	4,709	42	9,814	37
Utilities	7,917	71	14,702	56
Miscellaneous	3,690	33	8,088	31
Total Less Interest Paid	\$225,329	\$2,024	\$545,043	\$2,077
<u>Net Accrual Operating Income</u>				
(without interest paid)	\$77,633	\$698	\$245,221	\$934
- Change in livestock/crop inv.	8,281	74	39,916	152
- Change in accounts rec.	2,826	25	7,343	28
+ Change in feed/supply inv.	2,611	23	5,326	20
+ Change in accounts payable*	2,494	22	1,302	5
NET CASH FLOW	\$71,631	\$644	\$204,590	\$779
- Net personal withdrawals & family expenditures	26,871	242	76,582	292
Available for Farm Debt				
Payments & Investments	\$44,760	\$402	\$128,008	\$487
- Farm Debt Payments	59,627	536	150,701	574
Avail. for Farm Investments	\$-14,867	\$-134	\$-22,693	\$-87
- Capital Purchases: cattle, machinery & improvements	39,463	355	128,056	488
Capital Deficit	\$-54,330	\$-489	\$-150,749	\$-575

*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 1990 and 1991.

Table 15. **FARM DEBT PAYMENTS PLANNED**
New York Dairy Farms, 1991

Debt Payments	Same 316 Dairy Farms			Average Top 10% Farms		
	1991 Payments		Planned 1992	1991 Payments		Planned 1992
	Planned	Made		Planned	Made	
Long-term	\$17,873	\$19,405	\$16,933	\$ 31,122	\$ 35,489	\$24,786
Intermediate-term	27,939	37,298	28,862	60,273	102,987	60,961
Short-term	3,943	3,253	3,521	14,243	7,713	8,699
Operating (net red.)	4,630	1,027	1,734	10,999	8,248	3,069
Accts. payable (net reduction)	<u>773</u>	<u>0</u>	<u>1,333</u>	<u>782</u>	<u>0</u>	<u>1,441</u>
Total	\$55,158	\$60,983	\$52,383	\$117,418	\$154,437	\$98,955
Per cow	\$484	\$535		\$448	\$589	
Per cwt. 1991 milk	\$2.67	\$2.96		\$2.33	\$3.07	
% of 1991 milk rec.	21%	23%		18%	24%	

The cash flow coverage ratio measures the ability of the farm business to meet its planned debt payments. The ratio shows the percentage of planned payments for 1991 (as of December 31, 1990) that could have been made with the amount available for debt service in 1991.

Table 16. **CASH FLOW COVERAGE RATIO**
New York Dairy Farms, 1991

Item	Same 316 Dairy Farms	Average Top 10% Farms
Cash farm receipts	\$300,458	\$742,914
- Cash farm expenses	246,254	576,462
+ Interest paid	21,282	37,446
- Net personal withdrawals from farm*	<u>28,515</u>	<u>75,877</u>
(A) = Amount Available for Debt Service	\$ 46,971	\$128,021
(B) = Debt Payments Planned for 1991	\$ 55,158	\$117,418
(A ÷ B) = Cash Flow Coverage Ratio for 1991	0.85	1.09

*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, 35 percent of the farms had a cash flow coverage ratio less than 1.0!

Table 17. **DEBT TO ASSET RATIO VS. CASH FLOW COVERAGE**
316 New York Dairy Farms, 1991

Debt/Asset Ratio	Cash Flow Coverage Ratio (Farm & NonFarm)			
	<.5	.5 to .99	1 to 1.49	≥1.5
	percent of farms			
<40%	15.8	19.0	14.6	11.4
40 to 70%	9.5	16.4	6.3	1.3
70% & over	1.9	3.2	0.6	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 18. **LAND RESOURCES AND CROP PRODUCTION**
407 New York Dairy Farms, 1991

Item	Average 407 Farms			Average Top 10% Farms		
	Owned	Rented	Total	Owned	Rented	Total
<u>Land</u>						
Tillable	206	124	330	378	285	662
Nontillable	50	13	63	43	15	58
Other nontillable	<u>105</u>	<u>8</u>	<u>113</u>	<u>124</u>	<u>15</u>	<u>139</u>
Total	361	145	506	545	315	859
<u>Crop Yields</u>	<u>Farms</u>	<u>Acres</u>	<u>Prod/Acre</u>	<u>Farms</u>	<u>Acres</u>	<u>Prod/Acre</u>
Hay crop	404	170	2.4 tn DM	41	280	2.7 tn DM
Corn silage	378	95	13.7 tn 4.8 tn DM	41	216	14.2 tn 5.0 tn DM
Other forage	53	27	1.6 tn DM	6	54	0.6 tn DM
Total forage	407	260	3.2 tn DM	41	504	3.7 tn DM
Corn grain	191	77	106.6 bu	29	145	111.5 bu
Oats	60	28	48.7 bu	7	33	56.4 bu
Wheat	27	33	54.4 bu	11	41	59.7 bu
Other crops	51	50		10	32	
Tillable pasture	115	31		12	30	
Idle	159	30		25	38	

Crop acres and yields compiled for the average represent only the number of farms reporting each crop. All but three of the 407 farms produced hay or hay crop silage in 1991. Ninety-three percent produced corn silage, 47 percent grew and harvested corn grain, and 15 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.

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 19. **CROP MANAGEMENT FACTORS**
407 New York Dairy Farms, 1991

Item	Average 407 Farms	Average Top 10% Farms
Total tillable acres per cow	2.96	2.52
Total forage acres per cow	2.35	1.92
Harvested forage dry matter, tons per cow	7.43	7.04

In the seventh year of collecting information on individual crop production costs, 131 cooperators allocated direct crop related expenses to hay crop, corn, and other crop production. The data in Table 20 has been compiled to show the average crop related production expenses per acre and per unit for these crops. Note that labor and machinery costs have not been included. Total corn expenses are allocated to corn silage and corn grain based on the proportion of acres in each crop. In Table 20, the total per tillable acre represents all 407 farms and the expenses for individual crops are for the 131 farms which submitted data.

Table 20. **CROP RELATED ACCRUAL EXPENSES**
New York Dairy Farms, 1991

Expense	Average	Average 131 Farms Reporting Individual Crop Costs				
	407 Farms	Hay Crop		All	Corn	Corn
	Total			Corn	Silage	Grain
	Per	Per	Per	Per	Per Ton	Per Dry
	Tillable	Acre	Ton DM	Acre	DM	Shell Bu.
	Acre	Acre				
Fertilizer & lime	\$24.55	\$17.30	\$ 6.98	\$37.06	\$ 7.74	\$0.35
Seeds & plants	12.28	7.79	3.14	22.32	4.66	0.21
Spray & other crop expense	<u>12.00</u>	<u>5.64</u>	<u>2.27</u>	<u>27.95</u>	<u>5.84</u>	<u>0.26</u>
Total	\$48.83	\$30.73	\$12.39	\$87.33	\$18.24	\$0.82
Average of Top 10 Farms						
Average Top 10% Farms:		Reporting Individual Crop Costs				
Fertilizer & lime	\$30.62	\$26.72	\$ 8.80	\$ 35.12	\$ 6.63	\$0.33
Seeds & plants	15.35	11.04	3.63	24.17	4.56	0.23
Spray & other crop expense	<u>17.78</u>	<u>7.28</u>	<u>2.40</u>	<u>40.80</u>	<u>7.70</u>	<u>0.39</u>
Total	\$63.75	\$45.04	\$14.83	\$100.09	\$18.89	\$0.95

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 21. **ACCRUAL MACHINERY EXPENSES**
407 New York Dairy Farms, 1991

Machinery Expense Item	Average 407 Farms		Average Top 10% Farms	
	Total Expenses	Per Til. Acre	Total Expenses	Per Til. Acre
Fuel, oil & grease	\$ 7,397	\$ 22.42	\$ 15,306	\$ 23.12
Machinery repairs & parts	14,499	43.94	32,896	49.69
Machine hire, rent & lease	3,370	10.21	6,210	9.38
Auto expense (farm share)	822	2.49	1,117	1.69
Interest (5%)	6,949	21.06	12,898	19.48
Depreciation	<u>15,739</u>	<u>47.69</u>	<u>32,328</u>	<u>48.83</u>
Total	\$48,776	\$147.81	\$100,755	\$152.20

Table 22. CROP RELATED ACCRUAL EXPENSES BY HAY CROP PRODUCTION PER ACRE
131 New York Dairy Farms, 1991

Item	Tons of Hay Crop Dry Matter Per Acre				
	<2.0	2.0-2.4	2.5-2.9	3.0-3.4	≥3.5
Hay crop, tons DM/acre	1.5	2.2	2.7	3.2	4.1
Farms reporting crop expense breakdowns	43	32	22	17	17
Average number hay crop acres for farms reporting	164	164	157	154	157
<u>Accrual Crop Expense Per Acre of Hay Crop:</u>					
Fertilizer & lime	\$12.55	\$20.08	\$13.17	\$21.81	\$25.33
Seeds & plants	6.13	8.02	9.22	7.44	10.27
Spray & other crop expense	4.74	6.05	6.64	4.98	6.53
Total	\$23.42	\$34.15	\$29.03	\$34.23	\$42.13
<u>Accrual Crop Expense Per Ton DM of Hay Crop:</u>					
Fertilizer & lime	\$ 8.17	\$ 8.91	\$ 4.80	\$ 6.74	\$ 5.84
Seeds & plants	3.99	3.56	3.36	2.30	2.37
Spray & other crop expense	3.09	2.69	2.42	1.54	1.51
Total	\$15.25	\$15.16	\$10.58	\$10.58	\$9.72

Table 23. CROP RELATED ACCRUAL EXPENSES BY CORN PRODUCTION PER ACRE
125 New York Dairy Farms, 1991

Item	Tons Corn Silage/Acre			Dry Shell Bushels of Corn Grain Per Acre		
	0-12	13-17	≥18	0-87	88-112	≥113
Corn yield per acre	10.2	14.9	19.2	71.7	99.1	128.4
Farms reporting crop expense breakdowns	46	59	20	17	26	33
Average number corn acres for farms reporting	138	157	172	172	252	156
<u>Accrual Crop Exp./Acre of Corn</u>						
Fertilizer & lime	\$34.91	\$35.51	\$ 45.10	\$23.92	\$36.25	\$47.01
Seeds & plants	20.42	22.58	25.08	19.09	24.11	22.51
Spray & other crop expense	19.75	28.13	42.25	15.72	37.99	25.25
Total	\$75.08	\$86.22	\$112.43	\$58.73	\$98.35	\$94.77
<u>Accrual Crop Expense Per:*</u>						
	Ton DM of Corn Silage			Dry Shell Bushel of Corn Grain		
Fertilizer & lime	\$ 9.58	\$ 6.85	\$ 7.31	\$0.33	\$0.36	\$0.37
Seeds & plants	5.60	4.35	4.07	0.27	0.24	0.18
Spray & other crop expense	5.42	5.42	6.85	0.22	0.38	0.20
Total	\$20.60	\$16.62	\$18.23	\$0.82	\$0.98	\$0.75

*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 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 2.5 tons per acre. The lower dry matter costs on the group of 17 farms with greater than 3.5 tons per acre can be attributed to significantly higher yields with controlled expenses per acre.

Dairy Program Analysis

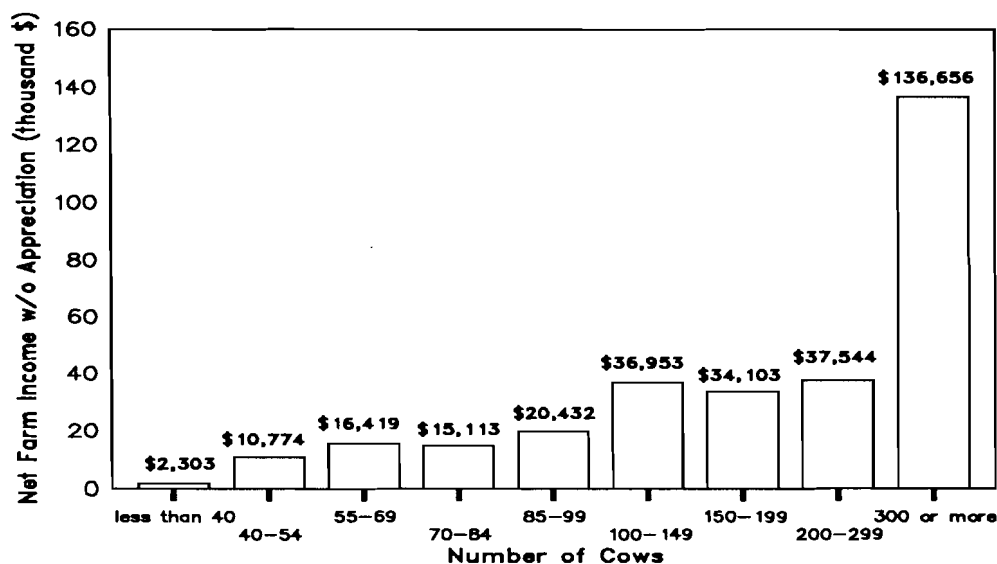
An analysis of the dairy enterprise can be the most important step in evaluating the strengths and weaknesses of the dairy farm business. Changes in dairy herd size and market values are identified in the table below. The change in inventory value without appreciation is attributed to physical changes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

Table 24. **DAIRY HERD INVENTORY**
407 New York Dairy Farms, 1991

Item	Dairy Cows		Heifers					
	No.	Value	Bred		Open		Calves	
	No.	Value	No.	Value	No.	Value	No.	Value
Beg. year (owned)	109	\$109,162	35	\$26,844	29	\$14,708	27	\$6,979
+ Change w/o apprec.		5,544		1,430		579		160
+ Appreciation		1,354		301		220		100
End year (owned)	115	\$116,060	36	\$28,575	30	\$15,507	28	\$7,239
End incl. leased	116							
Average number	111		92	(all age groups)				
Average Top 10% Farms:								
Beg. year (owned)	252	\$241,767	79	\$62,043	66	\$33,179	70	\$18,826
+ Change w/o apprec.		23,110		1,667		2,924		135
+ Appreciation		4,884		594		664		167
End year (owned)	270	\$269,761	83	\$64,304	73	\$36,767	68	\$19,128
End incl. leased	276							
Average number	262		226	(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 \$134,353 while labor and management income per operator jumped \$42,707 as herd size increased from less than 40 to over 300 cows per farm.

Chart 2. **NET FARM INCOME (WITHOUT APPRECIATION) BY HERD SIZE**
407 New York Dairy Farms, 1991



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 25. **MILK PRODUCTION**
407 New York Dairy Farms, 1991

Item	Average 407 Farms	Average Top 10% Farms
Total milk sold, lbs.	2,005,988	5,076,187
Milk sold per cow, lbs.	18,027	19,348
Average milk plant test, percent butterfat	3.7%	3.7%

Farms with higher rates of production tend to have higher profits. In 1991, most of the farms that sold more than 17,000 pounds of milk per cow had above average profit margins.

Table 26. **MILK SOLD PER COW AND FARM INCOME MEASURES**
407 New York Dairy Farms, 1991

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 13,000	30	73	\$ 4,280	\$ 59	\$-12,411
13,000 to 14,999	35	83	7,235	87	-8,408
15,000 to 15,999	43	80	11,794	147	-7,393
16,000 to 16,999	55	101	12,860	127	-13,601
17,000 to 17,999	58	122	33,582	275	2,085
18,000 to 18,999	63	126	28,037	223	391
19,000 to 19,999	46	100	23,399	234	-3,062
20,000 to 20,999	38	153	49,359	323	8,431
21,000 & over	39	148	63,557	429	22,436

The relationship between milk output per cow and net farm income on all 407 dairy farms is diagrammed in Charts 3 and 4 on page 22. Each spot on each scatter diagram represents one of the 407 farms.

Chart 3 shows that as milk sold per cow increased from less than 9,000 pounds to 14,000 pounds, variability in net farm income increased but no apparent improvement in net farm income occurred. As milk output increased from 14,000 pounds to 22,000 pounds per cow, the range or variability in net farm income continued to grow and average net farm income increased.

The relationship between milk output per cow and net farm income per cow is diagrammed in Chart 4. Profitability measured as net farm income per cow rather than per farm removed the influence of herd size and shows a much stronger cause and effect relationship with milk sold per cow. However, there appears to be little or no upward trend in net farm income per cow until milk output exceeds 14,000 pounds per cow. The number of observations above 22,000 pounds per cow is too small to conclude that profitability declines.

Chart 3. NET FARM INCOME & MILK PER COW
407 New York Dairy Farms, 1991

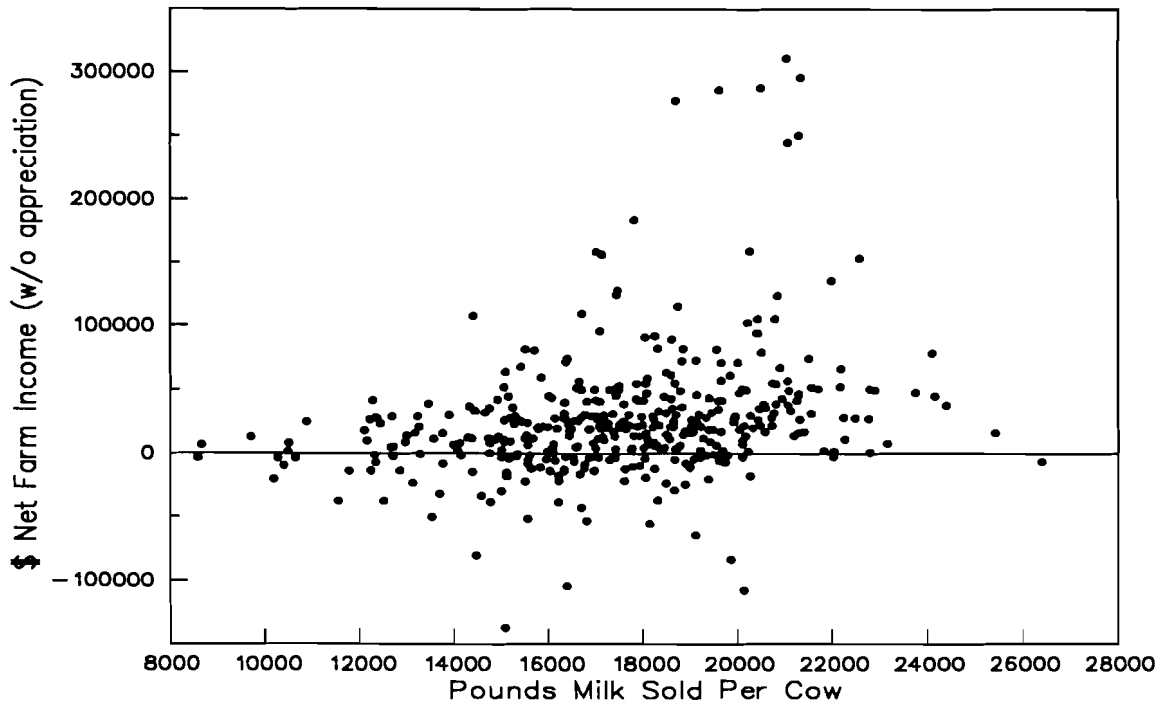
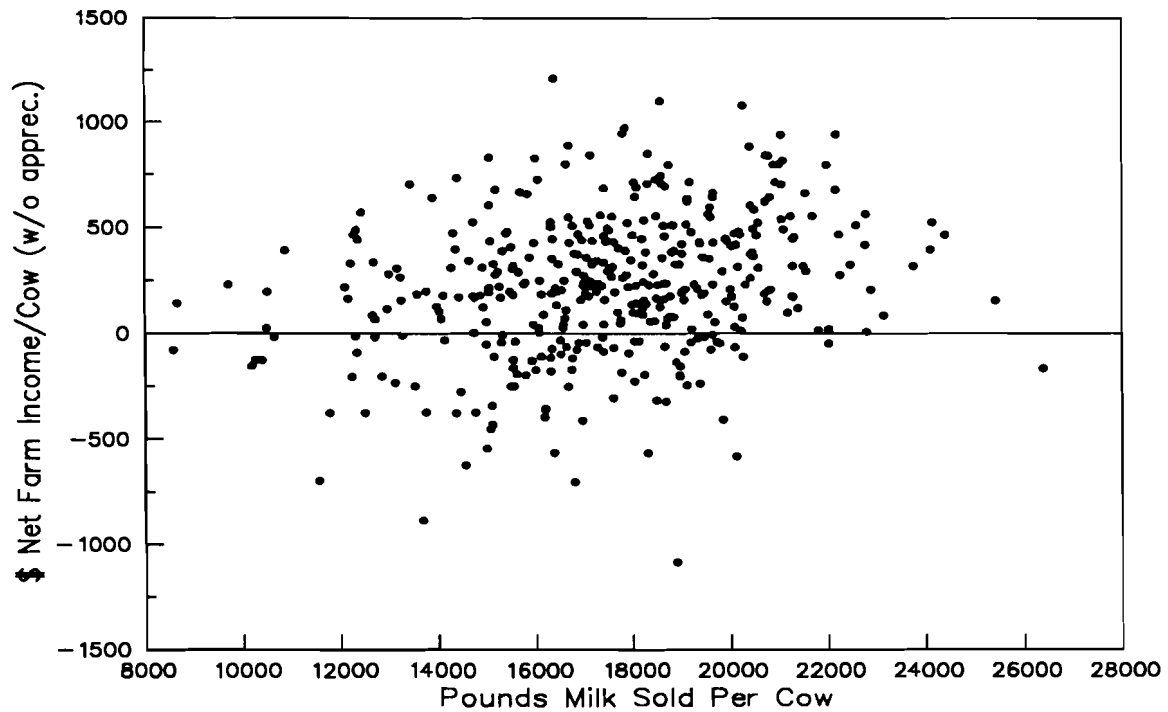


Chart 4. NET FARM INCOME PER COW & MILK PER COW
407 New York Dairy Farms, 1991



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Under 13,000	30	73	\$ 4,280	\$ 59	\$-12,411
13,000 to 14,999	35	83	7,235	87	-8,408
15,000 to 15,999	43	80	11,794	147	-7,393
16,000 to 16,999	55	101	12,860	127	-13,601
17,000 to 17,999	58	122	33,582	275	2,085
18,000 to 18,999	63	126	28,037	223	391
19,000 to 19,999	46	100	23,399	234	-3,062
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407 New York Dairy Farms, 1991

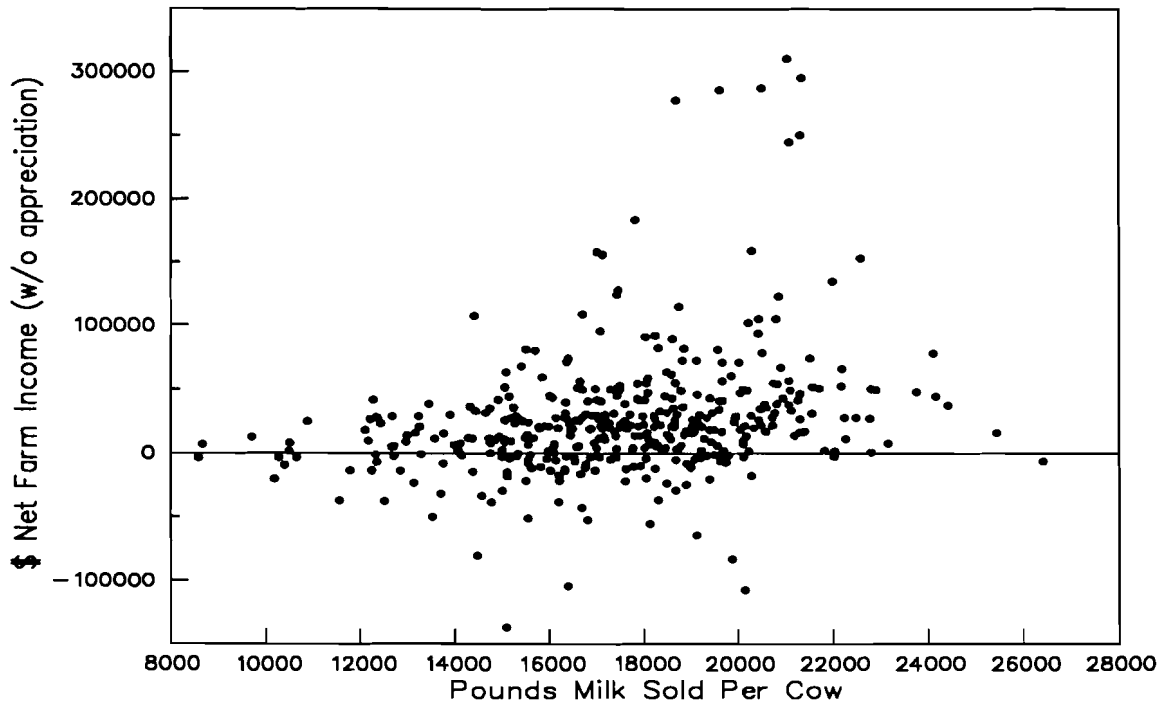
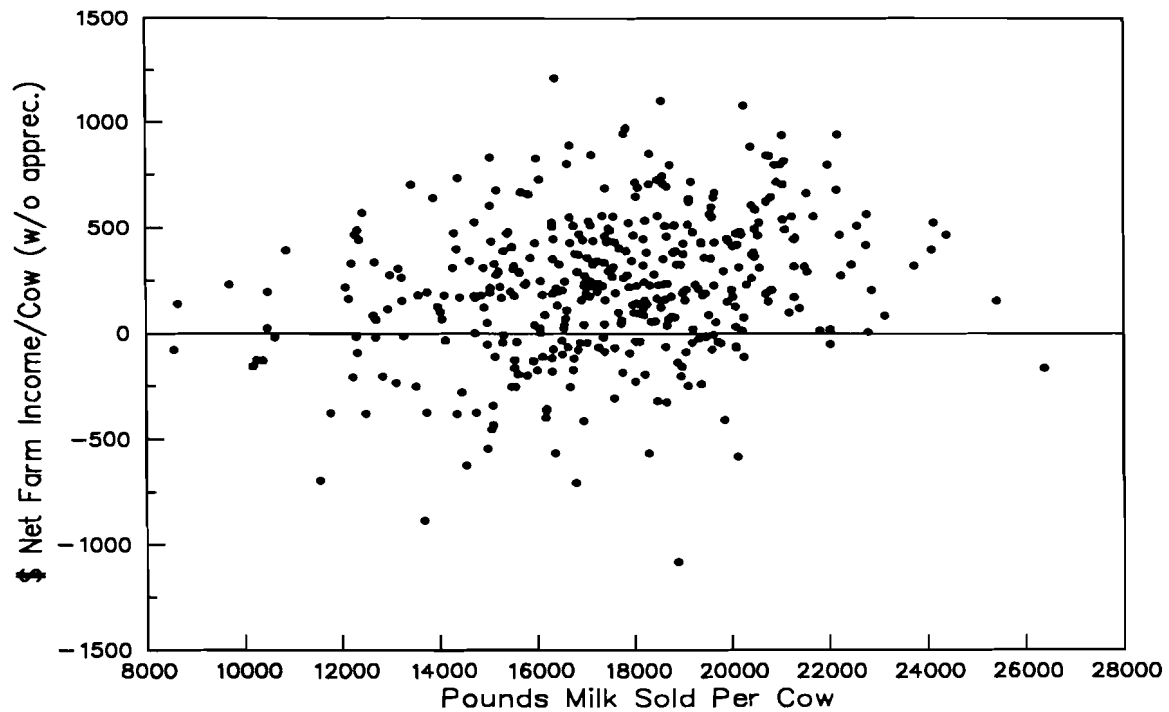


Chart 4. NET FARM INCOME PER COW & MILK PER COW
407 New York Dairy Farms, 1991



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 included in total accrual operating expenses to offset any related inventory increase included in accrual receipts.
2. Accrual milk sales are subtracted from total accrual receipts to obtain total accrual nonmilk receipts which are used as a representation of 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, building depreciation, and the value of family labor unpaid are added to operating costs to determine the total costs of producing milk excluding operator's resources.
5. The opportunity costs of equity capital, operator's labor and operator's management 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 27. COST OF PRODUCING MILK WHOLE FARM METHOD CALCULATIONS
407 New York Dairy Farms and Top 10 Percent of Farms, 1991

Item	Average of 407 New York Dairy Farms	Average of Top 10% Farms
Total Accrual Oper. Expenses	\$246,753	\$585,401
Expansion Livestock, Accrual	<u>+3,997</u>	<u>+10,729</u>
1. Total Accrual Oper. Expenses, Incl. Expansion Livestock	\$250,750	\$596,130
Total Accrual Receipts	\$302,751	\$790,264
Milk Sales, Accrual	<u>-259,688</u>	<u>-661,819</u>
2. Total Accrual Nonmilk Receipts	<u>-43,063</u>	<u>-128,445</u>
3. Oper. Costs of Producing Milk	\$207,687	\$467,685
Cwt. of Milk Sold	÷20,059.9	+50,761.9
Operating Costs/Cwt.	=\$10.35	=\$9.21
Machinery Depreciation	+15,739	+32,328
Building Depreciation	+9,871	+28,272
Family Labor Unpaid (\$1,300/month)	<u>+3,692</u>	<u>+2,444</u>
4. Total Costs of Producing Milk Excl. Operator's Resources	\$236,989	\$530,729
Cwt. of Milk Sold	÷20,059.9	+50,761.9
Total Costs Excluding Operators Resources/Cwt.	=\$11.81	=\$10.46
Real Interest on Equity Cap.	+24,007	+51,348
Value of Oper. Labor & Mgmt.	<u>+30,794</u>	<u>+54,611</u>
5. Total Costs of Producing Milk	\$291,790	\$636,688
Cwt. Milk Sold	÷20,059.9	+50,761.9
Total Costs/Cwt.	=\$14.55	=\$12.54

The three measures of accrual costs of producing milk per cow and per hundredweight are compared with accrual receipts from milk sales in Table 28.

Table 28. ACCRUAL RECEIPTS FROM DAIRY AND COST OF PRODUCING MILK
407 New York Dairy Farms, 1991

Item	Average 407 Farms			Average Top 10% Farms		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
<u>Accrual Costs of Producing Milk</u>						
Operating costs	\$207,687	\$1,866	\$10.35	\$467,685	\$1,782	\$9.21
Total costs with- out op(s') labor, mgmt. & capital	\$236,989	\$2,129	\$11.81	\$530,729	\$2,023	\$10.46
Total Costs	\$291,790	\$2,622	\$14.55	\$636,688	\$2,426	\$12.54
<u>Accrual Receipts from Milk</u>						
	\$259,688	\$2,333	\$12.95	\$661,819	\$2,522	\$13.04

Operating costs of producing milk on all 407 dairy farms averaged \$10.35 per hundredweight, leaving \$2.60 to cover depreciation, unpaid labor and operator resources.

The total cost of producing milk on all 407 dairy farms averaged \$14.55 per hundredweight, \$1.60 more than the average price received for milk sold from these farms during 1991. 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 \$2.73 per hundredweight in 1991. The computed returns averaged \$1.14 per hundredweight. See Table 32 on page 28 for detailed costs per hundredweight of milk.

The 10 most profitable farms held their operating costs to \$9.21 per hundredweight and their total costs of producing milk averaged \$12.54 per hundredweight. This left a profit of \$0.50 per hundredweight of milk sold.

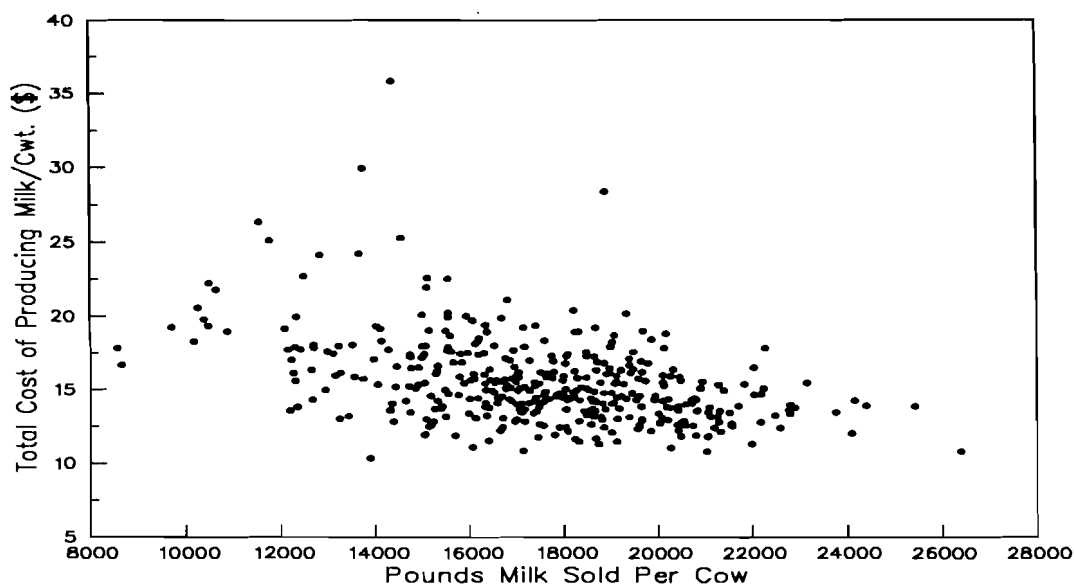
The strong relationship between milk output per cow and the total costs of producing milk are shown in Table 29. Farms selling less than 15,000 pounds of milk per cow had an average total cost of production of \$17.55 per hundredweight while those selling 18,000 pounds and over averaged approximately \$13.95 for a difference of \$3.60 per hundredweight.

Table 29. FARM COST OF PRODUCING MILK BY MILK SOLD PER COW
407 New York Dairy Farms, 1991

Pounds Milk Sold Per Cow	Cost per Hundredweight			Accrual Receipts From Milk Per Cwt.	Return/Cwt. to Operator's Labor, Mgmt. & Capital
	Oper- ating	Excluding Operator's Labor, Mgmt. & Capital	Total		
Under 13,000	\$11.88	\$13.91	\$18.58	\$13.81	\$-0.10
13,000 - 14,999	11.10	12.67	16.51	12.96	0.29
15,000 - 15,999	10.33	12.01	15.83	12.64	0.63
16,000 - 16,999	10.78	12.42	15.41	12.92	0.50
17,000 - 17,999	9.92	11.43	14.32	12.86	1.43
18,000 - 18,999	10.55	11.96	14.34	13.00	1.04
19,000 - 19,999	10.26	11.88	14.73	12.94	1.06
20,000 - 20,999	10.22	11.54	13.72	13.02	1.48
21,000 & over	9.89	11.01	13.04	12.87	1.86

The relationship between total costs of producing milk and milk sold per cow is diagrammed in Chart 5. It shows that as milk sold per cow increases from 12,000 pounds to 22,000 pounds per cow, on the average, total costs of production decrease from nearly \$18 to less than \$14 per hundredweight at a fairly constant rate.

Chart 5. TOTAL COST PRODUCTION PER HUNDREDWEIGHT & MILK PER COW
407 New York Dairy Farms, 1991



Data in Table 30 show average operating costs of producing milk somewhat higher on dairy farms with 150 cows and over because more labor is included as an operating expense. 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 30. FARM COST OF PRODUCING MILK BY HERD SIZE
407 New York Dairy Farms, 1991

Number of Cows	Cost per Hundredweight			Accrual Receipts From Milk Per Cwt.	Return/Cwt. to Operator's Labor, Mgmt. & Capital
	Operating	Excluding Operator's Labor, Mgmt. & Capital	Total		
Under 40	\$10.42	\$12.52	\$18.21	\$12.25	\$-0.27
40 to 54	10.03	11.91	16.51	12.64	0.73
55 to 69	9.83	11.61	15.49	12.78	1.17
70 to 84	10.40	11.95	15.27	12.86	0.91
85 to 99	10.29	11.87	15.20	12.89	1.02
100 to 149	9.95	11.27	14.03	12.81	1.54
150 to 199	10.76	12.12	14.57	13.07	0.95
200 to 299	10.87	12.26	14.44	13.10	0.84
300 & over	10.56	11.86	13.27	13.20	1.34

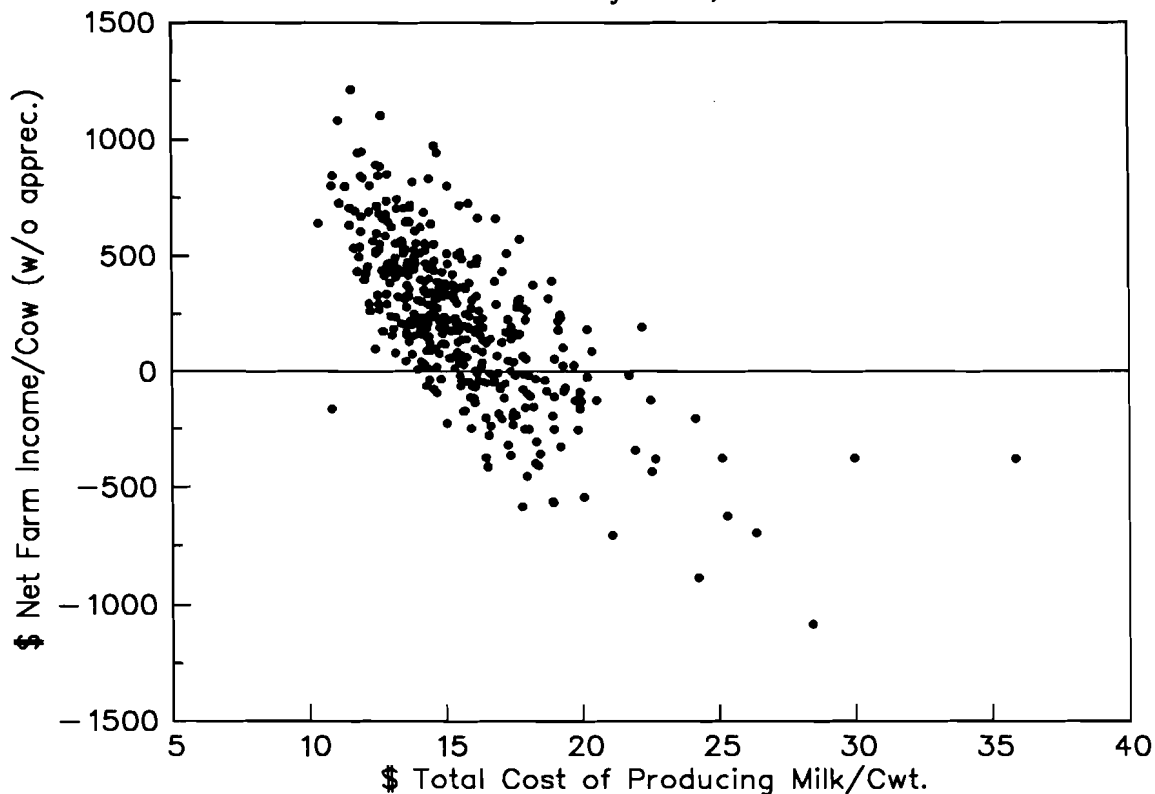
Controlling costs is a very important part of managing a dairy farm business. Farms with lower operating costs are somewhat smaller, but are very similar in milk sold per cow and crop yields to farms with higher costs. The big differences are in hired labor and purchased grain and concentrate expenses per hundredweight of milk. Those two costs are \$0.90 per hundredweight lower on the low cost farms than the next higher cost farm category.

Table 31. **SELECTED BUSINESS FACTORS BY OPERATING COSTS OF PRODUCING MILK PER HUNDREDWEIGHT**
407 New York Dairy Farms, 1991

Item	<u>Operating Cost of Producing Milk Per Cwt.</u>			
	<\$9.00	\$9.00-11.00	\$11.00-12.00	>\$12.00
Number of farms	99	177	71	60
<u>Business Size & Production</u>				
Number of cows	102	109	134	108
Milk sold, cwt.	18,695	20,113	23,965	17,534
Milk sold/cow, lbs.	18,296	18,539	17,869	16,313
Hay crop, tons DM/acre	2.5	2.4	2.4	2.2
Corn silage, tons/acre	13.9	13.6	14.2	12.6
Forage DM/cow, tons	7.9	7.1	7.7	7.3
<u>Labor & Capital Efficiency</u>				
Worker equivalent	3.13	3.32	3.97	3.28
Milk sold/worker, lbs.	597,161	606,560	603,756	534,895
Farm capital/cow	\$6,991	\$6,305	\$6,602	\$7,488
<u>Milk Production Costs & Returns</u>				
Selected costs/cwt.:				
Hired labor	\$1.33	\$1.74	\$2.10	\$1.84
Grain & concentrate	\$3.20	\$3.69	\$4.13	\$4.44
Purchased roughage	\$0.05	\$0.12	\$0.12	\$0.11
Replacements purchased	\$0.07	\$0.17	\$0.14	\$0.20
Vet & medicine	\$0.29	\$0.32	\$0.34	\$0.37
Milk marketing	\$0.48	\$0.55	\$0.60	\$0.81
Other dairy expenses	\$0.56	\$0.66	\$0.65	\$0.74
Operating costs/cwt.	\$7.99	\$10.20	\$11.48	\$13.22
Total labor costs/cwt.	\$2.89	\$2.91	\$3.05	\$3.28
Operator resources/cwt.	\$3.46	\$2.50	\$2.23	\$3.05
Total costs/cwt.	\$13.02	\$14.07	\$15.08	\$17.99
Average farm price/cwt.	\$12.69	\$12.90	\$13.05	\$13.37
Return over total costs/cwt.	\$-0.33	\$-1.17	\$-2.03	\$-4.62
<u>Related Cost Factors</u>				
Purchased dairy feed/cow	\$594	\$706	\$760	\$742
Purchased grain & concentrate as % milk receipts	25%	29%	32%	33%
Machinery costs/cow	\$475	\$415	\$414	\$485
<u>Profitability Analysis</u>				
Net farm income (w/o apprec.)	\$61,787	\$30,330	\$8,388	\$-22,324
Labor & mgmt. income/operator	\$18,575	\$4,213	\$-16,132	\$-40,267
Rates of return on:				
Equity capital w/apprec.	6.6%	1.9%	-0.8%	-7.1%
All capital w/apprec.	6.9%	4.2%	3.2%	-1.2%

Importance of cost control and its impact on farm profitability is illustrated in Chart 6. As total cost of producing milk increased from \$11 to \$26 per hundredweight, net farm income per cow fell from approximately \$800 to \$-600. On the average, net farm income per cow was positive until total costs of production exceeded \$17 per hundredweight.

Chart 6. TOTAL COST PER HUNDREDWEIGHT & NET FARM INCOME PER COW
407 New York Dairy Farm, 1991



A 10 year comparison of the average costs and returns of producing milk per hundredweight are presented in Table 32 on page 28. 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 1982 through 1991. In 1991 average operating costs of producing milk declined seven percent after increasing 19 percent from 1987 to 1990. However, the average return per hundredweight to operator labor, management, and capital fell to \$1.14 in 1991, 50 percent below 1990.

A 10 year comparison of selected average business factors for all specialized DFBS farms is presented in Table 33 on page 29. Average cow numbers are up 35 percent, tillable acres have increased 26 percent, and milk sold per farm has jumped 66 percent since 1982. Capital investment per cow has increased 21 percent, far less than inflation, over the last 10 years. Although labor and management income per operator fell dramatically in 1991, farm net worth continued to grow.

Table 32.

TEN YEAR COMPARISON: AVERAGE COST OF PRODUCING MILK PER HUNDREDWEIGHT
New York Dairy Farms, 1982 to 1991

Item	1982	1983	1984	1985*	1986*	1987*	1988*	1989*	1990*	1991*
<u>Cash Operating Expenses</u>										
Hired labor	\$ 1.29	\$ 1.25	\$ 1.39	\$ 1.38	\$ 1.38	\$ 1.49	\$ 1.46	\$1.62	\$ 1.77	\$ 1.74
Purchased feed	3.40	3.59	3.46	3.09	3.15	3.26	3.73	4.02	4.28	3.88
Machinery repairs & rent	.81	.77	.80	.78	.75	.88	.83	.92	1.06	.89
Auto expenses (farm share)	.04	.04	.03	.03	.04	.04	.04	.04	.05	.04
Fuel, oil & grease	.59	.49	.50	.48	.34	.35	.34	.33	.41	.37
Replacement livestock	.19	.16	.10	.10	.13	.13	.11	.17	.20	.15
Breeding fees	.19	.19	.20	.20	.19	.19	.18	.18	.19	.18
Veterinary & medicine	.29	.28	.29	.27	.28	.28	.28	.30	.32	.33
Milk marketing	.50	.93	1.03	.80	.84	.74	.52	.49	.53	.58
Other dairy expenses	.52	.54	.55	.53	.52	.53	.56	.60	.68	.65
Lime & fertilizer	.71	.63	.66	.63	.49	.50	.51	.50	.50	.40
Seeds & plants	.23	.21	.22	.23	.21	.21	.21	.22	.22	.20
Spray & other crop expense	.18	.19	.20	.22	.20	.19	.19	.21	.22	.20
Land, building, fence repair	.21	.18	.18	.17	.16	.20	.22	.27	.32	.19
Taxes	.34	.34	.33	.34	.33	.35	.35	.36	.37	.38
Insurance	.23	.21	.20	.22	.22	.22	.23	.23	.24	.23
Telephone & elec. (farm share)	.35	.36	.36	.37	.39	.38	.38	.39	.39	.39
Interest paid	1.54	1.40	1.40	1.25	1.18	1.04	1.02	1.06	1.05	1.07
Misc. (including rent)	.43	.44	.44	.40	.41	.45	.41	.43	.47	.43
Total Operating Expenses	\$12.04	\$12.20	\$12.34	\$11.50	\$11.22	\$11.43	\$11.57	\$12.34	\$13.27	\$12.30
<u>Less: Nonmilk cash receipts</u>	1.47	1.49	1.74	1.58	1.52	1.84	1.86	1.75	1.75	1.73
Increase in feed & supplies**	.03	.26	.18	.05	.01	.16	.16	.02	.26	.04
Increase in livestock	.35	.24	.16	.18	.12	.10	.08	.12	.15	.18
OPERATING COST OF MILK PRODUCTION	\$10.19	\$10.21	\$10.26	\$ 9.69	\$ 9.57	\$ 9.33	\$ 9.47	\$10.45	\$11.11	\$10.35
<u>Overhead Expenses</u>										
Depreciation: mach. & bldgs.	\$ 1.60	\$ 1.56	\$ 1.65	\$ 1.64	\$ 1.54	\$ 1.43	\$ 1.31	\$ 1.31	\$ 1.35	\$ 1.28
Unpaid labor	.14	.12	.12	.12	.13	.10	.11	.12	.19	.18
Operator(s) labor***	.93	.89	.87	.97	.86	.87	.95	.98	1.10	1.06
Operator(s) mgmt. (5% of cash rec.)	.75	.76	.76	.72	.71	.74	.74	.81	.85	.73
Interest on farm eq. cap. (5%)	1.27	1.20	1.22	1.16	1.10	1.15	1.19	1.24	1.24	1.20
Total Overhead Expenses	\$ 4.69	\$ 4.53	\$ 4.62	\$ 4.61	\$ 4.34	\$ 4.28	\$ 4.30	\$ 4.46	\$ 4.73	\$4.45
TOTAL COST OF MILK PRODUCTION	\$14.88	\$14.74	\$14.88	\$14.30	\$13.91	\$13.61	\$13.77	\$14.91	\$15.84	\$14.80
AVERAGE FARM PRICE OF MILK	\$13.56	\$13.64	\$13.49	\$12.90	\$12.65	\$12.89	\$13.03	\$14.53	\$14.93	\$12.95
Return per cwt. to operator labor, capital, & management	\$1.63	\$1.75	\$1.46	\$1.45	\$1.41	\$2.04	\$2.14	\$2.65	\$2.28	\$1.14
Rate of return on farm eq. cap.	-0.2%	0.4%	-0.7%	-1.0%	-0.7%	1.9%	1.8%	3.3%	1.3%	-2.7%

*Accrual receipts and expenses. **Increase in grown feeds, 1985-1991. ***1980-1984 = \$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 of operator labor.

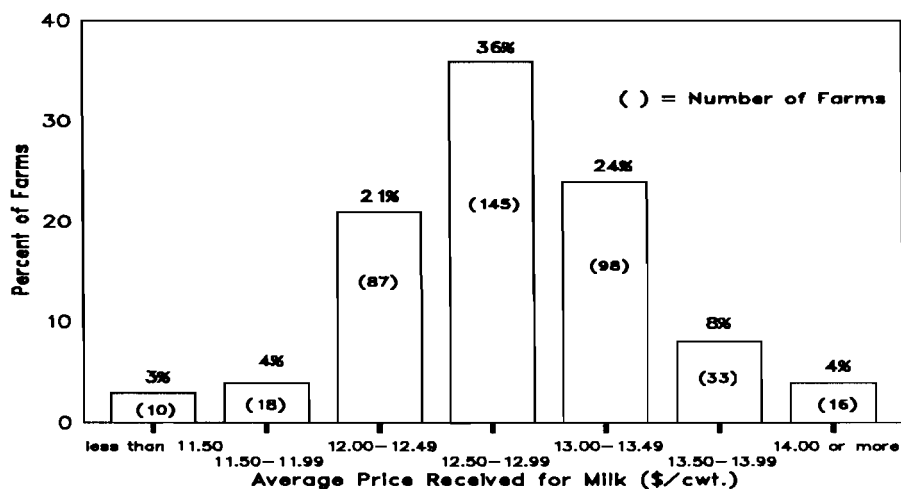
Table 33.

TEN YEAR COMPARISON: SELECTED BUSINESS FACTORS
New York Dairy Farms, 1982 to 1991

Item	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Number of farms	572	510	458	404	414	426	406	409	395	407
<u>Cropping Program</u>										
Total tillable acres	262	272	280	280	288	305	302	316	325	330
Tillable acres rented	83	91	94	93	100	105	104	117	121	124
Hay crop acres	135	139	143	142	147	153	156	164	166	169
Corn silage acres	70	72	76	69	67	67	74	81	82	88
Hay crop, tons DM/acre	2.6	2.5	2.7	2.7	2.7	2.7	2.6	2.6	2.7	2.4
Corn silage, tons/acre	14.0	13.5	14.0	14.3	14.3	16.2	14.1	13.4	14.4	13.7
Fert. & lime exp. /tillable acre	\$33	\$31	\$32	\$32	\$26	\$27	\$29	\$29	\$29	\$25
Machinery cost/cow	\$432	\$413	\$433	\$426	\$400	\$413	\$398	\$425	\$483	\$438
<u>Dairy Analysis</u>										
Number of cows	82	88	89	89	95	101	102	104	107	111
Number of heifers	67	72	76	73	77	79	82	83	87	92
Milk sold, cwt.	12,105	13,432	13,735	14,001	15,374	16,498	17,200	17,975	19,005	20,060
Milk sold/cow, lbs.	14,762	15,264	15,433	15,679	16,237	16,351	16,882	17,259	17,720	18,027
Purchased dairy feed/cwt. milk	\$3.27	\$3.44	\$3.28	\$3.04	\$3.10	\$3.21	\$3.71	\$3.99	\$4.27	\$3.87
Purc. grain & conc. as % milk receipts	24%	25%	24%	23%	24%	24%	28%	27%	28%	29%
Purc. feed & crop exp./cwt. milk	\$4.53	\$4.62	\$4.53	\$4.13	\$4.00	\$4.11	\$4.62	\$4.92	\$5.21	\$4.67
<u>Capital Efficiency</u>										
Farm capital/cow	\$5,517	\$5,421	\$5,520	\$5,801	\$5,792	\$5,894	\$6,133	\$6,407	\$6,556	\$6,688
Real estate/cow	\$2,664	\$2,668	\$2,731	\$2,726	\$2,758	\$2,805	\$2,902	\$2,977	\$2,977	\$3,063
Mach. invest./cow	\$1,047	\$1,038	\$1,057	\$1,083	\$1,062	\$1,057	\$1,083	\$1,154	\$1,233	\$1,267
Capital turnover, yrs.	2.5	2.4	2.3	2.5	2.3	2.2	2.2	2.1	2.1	2.3
<u>Labor Efficiency</u>										
Worker equivalent	2.83	3.00	3.08	3.17	3.17	3.19	3.17	3.30	3.37	3.38
Operator/manager eq.	1.30	1.32	1.31	1.34	1.33	1.32	1.35	1.39	1.39	1.37
Milk sold/worker, lbs.	427,739	447,733	445,942	442,125	497,555	516,728	542,708	544,598	563,349	593,297
Cows/worker	29	29	29	28	31	32	32	32	32	33
Labor cost/cow	\$352	\$344	\$366	\$387	\$385	\$400	\$426	\$469	\$541	\$538
<u>Profitability & Financial Analysis</u>										
Labor & mgmt. income/oper.	\$3,451	\$5,514	\$2,262	\$2,850	\$3,837	\$11,042	\$11,911	\$18,004	\$14,328	\$-955
Farm net worth	\$306,589	\$322,001	\$336,210	\$325,664	\$348,909	\$398,209	\$426,123	\$468,848	\$471,322	\$480,131
Percent equity	63%	63%	64%	63%	62%	65%	66%	68%	66%	64%

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 407 farms was \$12.95 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 7. VARIATION IN AVERAGE MILK PRICE
407 New York Dairy Farms, 1991



Fifty-seven percent of the farms received from \$12.00 to \$12.99 per hundredweight of milk sold. Thirty-six percent of the farms received \$13.00 or more per hundredweight and seven percent received less than \$12.00 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 34. DAIRY RELATED ACCRUAL EXPENSES
407 New York Dairy Farms, 1991

Item	Average 407 Farms		Average Top 10% Farms	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purc. dairy grain & conc.	\$679	\$3.77	\$675	\$3.49
Purchased dairy roughage	19	.10	21	.11
Total Purchased Dairy Feed	\$698	\$3.87	\$696	\$3.60
Purchased grain & conc. as % of milk receipts		29%		27%
Purchased feed & crop exp.	\$842	\$4.67	\$857	\$4.43
Purchased feed & crop exp. as % of milk receipts		36%		34%
Breeding	\$33	\$0.18	\$31	\$0.16
Veterinary & medicine	\$59	\$0.33	\$72	\$0.37
Milk marketing	\$104	\$0.58	\$85	\$0.44
Cattle lease	\$3	\$0.02	\$3	\$0.02
Other livestock expense	\$114	\$0.63	\$119	\$0.62

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 0.83 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 35. PURCHASED FEED AND CROP EXPENSE PER HUNDREDWEIGHT OF MILK AND FARM INCOME MEASURES
407 New York Dairy Farms, 1991

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
\$6.50 or more	21	87	6.8	14,821	\$-6,684	\$-23,953
6.00 to 6.49	18	112	7.1	16,584	5,388	-15,159
5.50 to 5.99	40	121	7.4	17,873	21,400	-6,075
5.00 to 5.49	70	111	8.0	18,015	16,546	-7,184
4.50 to 4.99	73	132	7.5	18,304	29,845	703
4.00 to 4.49	88	99	7.5	18,576	32,145	5,342
3.50 to 3.99	47	126	6.7	18,286	39,341	5,392
Less than 3.50	50	91	7.6	18,156	38,271	6,503

On the average, farms with purchased feed and crop expenses exceeding \$6.00 per hundredweight of milk sold reported well below average farm profits. Farms reporting less than \$4.50 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 amount of work each worker has accomplished.

Table 36. **CAPITAL EFFICIENCY**
407 New York Dairy Farms, 1991

Item (Average for Year)	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
Farm capital	\$220,161	\$6,688	\$2,256	\$3,614
Real estate		\$3,063		\$1,655
Machinery & equipment	\$41,694	\$1,267	\$427	
Capital turnover, years		2.34		
<u>Average Top 10% Farms:</u>				
Farm capital	\$230,967	\$5,780	\$2,291	\$4,013
Real estate		\$2,336		\$1,622
Machinery & equipment	\$40,071	\$1,003	\$398	
Capital turnover, years		1.85		

Capital turnover measures the number of years of farm receipts required to equal or "turnover" capital investment. It is computed by dividing the average farm assets by the year's total farm accrual receipts including appreciation. The relationship capital turnover has to farm profitability and other factors is shown in the following table. As a general rule, dairy farmers should aim for a capital turnover rate of 2.5 years or less.

Table 37. **CAPITAL TURNOVER AND LABOR AND MANAGEMENT INCOME**
407 New York Dairy Farms, 1991

Capital Turnover Rate - Years	No. of Farms	No. of Cows	Farm Capital (average for year) Per Cow Per Worker		Labor & Mgt. Inc. Per Operator	Net Farm Income (w/o apprec.)
Less than 1.5	12	290	\$4,192	\$168,852	\$55,534	\$116,353
1.5 to 1.99	60	171	5,436	198,802	15,777	54,461
2.0 to 2.49	126	122	6,582	224,148	-773	27,633
2.5 to 2.99	91	88	7,344	218,926	-5,381	18,849
3.0 to 3.49	58	77	8,335	248,440	-9,446	12,485
3.5 to 3.99	30	74	9,357	275,378	-18,059	10,713
4.0 & over	30	52	9,754	230,125	-23,775	-5,493

The 41 farms with the highest net farm incomes (without appreciation) were considerably above the average of all 407 farms in two measures of labor efficiency. The top 10 percent sold 30 percent more milk per worker than the average of all farms.

Table 38. **LABOR EFFICIENCY**
407 New York Dairy Farms, 1991

Labor Efficiency	Average 407 Farms		Average Top 10% Farms	
	Total	Per Worker	Total	Per Worker
Cows, average number	111	33	262	40
Milk sold, pounds	2,005,988	593,297	5,076,187	772,997
Tillable acres	330	98	662	101

The labor force averaged 3.38 full-time worker equivalents per farm. Forty percent of the labor was supplied by the farm operator/managers. There were two operators on 139 farms, three on 37 farms, and 11 farms reported four operators.

Labor costs, labor efficiency, and farm profitability are closely related. Farms with high net farm incomes can attribute some of their success to the control of labor and machinery costs. Labor and machinery costs averaged \$58 per cow less on the 41 farms in the top decile.

Table 39. LABOR FORCE INVENTORY AND COST ANALYSIS
407 New York Dairy Farms, 1991

Labor Force	Months	Age	Years of Educ.	Value of Labor & Mgmt.
Operator number 1	11.55	46	13	\$22,419
Operator number 2	3.73	42	13	6,427
Operator number 3	0.86	40	13	1,542
Operator number 4	0.25	42	13	<u>406</u>
Family paid	4.97			Total \$30,794
Family unpaid	2.84			
Hired	<u>16.37</u>			
Total	40.57	÷ 12 = 3.38 Worker Equivalent 1.37 Operator/Manager Equiv.		

Average Top 10% Farms:

Total	78.80 ÷ 12 = 6.57 Worker Equivalent
Operators'	23.65 ÷ 12 = 1.97 Operator/Manager Equiv.

Labor Costs	Average 407 Farms			Avg. Top 10% Farms	
	Total	Per Cow	Per Til. Acre	Per Cow	Per Til. Acre
Value op.s' lab. (\$1,300/mo)	\$ 21,307	\$191	\$ 64.57	\$117	\$ 46.44
Family unpd. (\$1,300/mo.)	3,692	33	11.19	9	3.69
Hired	<u>34,831</u>	<u>313</u>	<u>105.55</u>	<u>407</u>	<u>161.46</u>
Total Labor	\$ 59,830	\$538	\$181.30	\$534	\$211.60
Machinery Cost	<u>48,776</u>	<u>438</u>	<u>147.81</u>	<u>384</u>	<u>152.20</u>
Total Labor & Mach.	\$108,606	\$976	\$329.11	\$918	\$363.80

The relationship of labor efficiency to net farm income is positive on the 407 farms. The higher outputs of milk sold per worker are partially attributable to more and higher producing cows.

Table 40. MILK SOLD PER WORKER AND NET FARM INCOME
407 New York Dairy Farms, 1991

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 300,000	28	44	13,830	\$ 3,448	\$-10,308
300,000 to 399,999	59	65	15,439	13,110	-7,274
400,000 to 499,999	91	73	17,045	16,101	-3,566
500,000 to 599,999	92	94	17,780	22,138	-3,336
600,000 to 699,999	62	121	18,838	30,274	543
700,000 to 799,999	39	195	18,472	20,956	-12,332
800,000 & over	36	272	19,482	102,090	31,870

Miscellaneous Costs

Costs in addition to feed, machinery, and labor make a sizable impact on total dairy farm expenditures and profits. The "cost conscious" manager checks on all cost items both large and small. Good cost management requires careful planning and priority spending on farm inputs. A number of miscellaneous cost items and cost control measures are reported in the following table to help in a detailed checkup on all farm costs.

Table 41. MISCELLANEOUS COST CONTROL MEASURES
407 New York Dairy Farms, 1991

Item	Average 407 Farms	Average Top 10% Farms
<u>Livestock</u>		
Breeding fees per cow	\$33	\$31
Veterinary & medicine per cow	\$59	\$72
Other livestock expense per cow	\$114	\$119
Milk marketing per cow	\$104	\$85
Milk marketing per hundredweight milk	\$0.58	\$0.44
<u>Real Estate</u>		
Land, building, & fence repair per cow	\$35	\$40
Taxes per cow	\$68	\$51
Taxes per \$1,000 year-end real estate value	\$22	\$21
Rent paid per cow	\$45	\$65
Rent paid per acre rented	\$35	\$54
Total real estate expense per cow	\$149	\$155
<u>Capital Cost</u>		
Interest paid per cow	\$192	\$154
Interest on equity per cow	\$216	\$196
Interest paid as percent of average debt	8.1%	8.2%
Machinery depreciation as percent of beginning inventory plus purchases	10%	11%
Total depreciation per cow	\$230	\$231
<u>Fixed & Variable Costs*</u>		
Total fixed costs per cow	\$862	\$782
Fixed costs per hundredweight milk sold	\$4.78	\$4.04
Total variable costs per cow	\$1,870	\$1,925
Variable costs per hundredweight milk sold	\$10.37	\$9.95

*Fixed costs include real estate repairs, taxes, insurance, rent, interest paid, depreciation, unpaid family labor, and interest on equity capital. All other costs were classified as variable.

Fixed costs per cow on the top decile farms were nine percent below the 407 farm average. Fixed costs per hundredweight of milk sold on the top decile farms were \$0.74 below the 407 farm average. This results from more intensive use and better management of the resources associated with fixed costs. Variable costs were \$0.42 lower per hundredweight of milk sold on the top farms.

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 407 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 top 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 42. FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS
407 New York Dairy Farms, 1991

<u>Size of Business</u>			<u>Rates of Production</u>			<u>Labor Efficiency</u>	
Worker Equiv- alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
8.8	360	6,870,298	22,184	4.4	21	50	900,171
4.8	167	3,036,923	20,340	3.4	18	41	733,337
3.8	122	2,195,234	19,365	2.9	16	37	649,588
3.2	100	1,826,683	18,651	2.6	15	33	593,922
2.9	84	1,498,642	17,985	2.3	14	31	550,266

2.6	73	1,259,510	17,277	2.1	14	29	504,178
2.3	62	1,039,997	16,617	1.9	13	27	465,990
2.0	55	918,621	15,757	1.7	11	25	417,823
1.8	47	765,395	14,697	1.4	10	23	367,451
1.3	37	556,444	12,063	1.0	7	18	272,888

<u>Cost Control</u>							
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		
\$ 340	16%	\$234	\$ 649	\$ 468	\$2.95		
459	21	318	781	599	3.62		
527	24	360	839	673	4.01		
577	26	389	902	732	4.26		
624	28	417	961	784	4.48		

674	31	454	1,018	829	4.76		
726	33	488	1,070	885	5.02		
787	35	534	1,129	951	5.27		
850	37	596	1,222	1,029	5.68		
996	43	763	1,489	1,180	6.67		

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 42 (continued) **FARM BUSINESS CHART FOR FARM
MANAGEMENT COOPERATORS
407 New York Dairy Farms, 1991**

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.
\$2,878	\$14.17	\$1,044	\$ 6.81	\$1,903	\$11.87
2,630	13.40	1,368	8.33	2,197	12.92
2,497	13.21	1,541	8.98	2,360	13.60
2,395	13.02	1,642	9.62	2,489	14.14
2,298	12.84	1,738	10.05	2,589	14.61

2,206	12.69	1,840	10.46	2,680	15.24
2,111	12.57	1,945	10.88	2,810	15.88
1,992	12.43	2,055	11.34	2,945	16.77
1,852	12.25	2,183	12.03	3,149	17.94
1,552	11.60	2,480	13.88	3,578	21.49

Profitability

Net Farm Income		Return to Operator's Labor, Management, & Equity Capital		Labor & Management Income	
With Appreciation	Without Appreciation	With Appreciation	Without Appreciation	Per Farm	Per Operator
\$176,029	\$133,540	\$174,444	\$131,468	\$83,710	\$52,031
75,394	54,218	72,052	52,232	25,627	18,117
52,358	38,884	49,622	35,612	14,522	11,194
40,222	28,608	37,513	26,402	6,953	5,181
32,278	22,880	29,348	19,817	292	205

25,325	16,746	21,423	12,846	-5,953	-4,644
18,399	9,151	13,682	5,173	-12,873	-11,042
9,333	1,400	5,351	-3,002	-20,114	-17,922
383	-6,922	-4,921	-12,177	-32,052	-28,881
-22,307	-37,575	-28,088	-44,465	-76,192	-65,860

Farm Business Charts for farms with freestall barns and 120 cows or less and more than 120 cows, and farms with conventional barns with 60 cows or less and more than 60 cows are discussed in the supplemental section on pages 51-54.

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 43. **A FARM FINANCE CHECKLIST**
407 New York Dairy Farms, 1991

	Average 407 New York Farms	Average Top 10% Farms*		
<u>How farm assets are being used</u> (average for the year):				
Total assets (capital) per cow	\$6,688	\$5,780		
Farm assets in livestock	22%	25%		
Farm assets in farm real estate	46%	40%		
Farm assets in machinery	19%	17%		
<u>Measures of debt capacity & debt structure:</u>				
Equity in the business	64%	68%		
Farm debt per cow	\$2,327	\$1,837		
Long term debt/asset ratio**	0.39	0.35		
Intermediate & current term debt/asset ratio**	0.33	0.31		
Intermediate & current term debt as % of total	50%	56%		
<u>Debt repayment ability:***</u>				
Cash flow coverage ratio	0.85	1.09		
Debt payments made per cow	\$535	\$589		
Debt payments made as % of milk receipts	23%	24%		
<u>Indicators of annual financial progress:</u>				
	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>
Annual change in farm assets	+\$23,608	+3.2%	+101,189	+6.9%
Annual change in farm debts	+\$11,439	+4.4%	+\$34,343	+7.3%
Annual change in farm net worth	+\$12,169	+2.6%	+\$66,846	+6.7%

*Forty-one farms with highest net farm incomes (without appreciation).

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

***Average of 316 farms that participated in Summary Program both in 1990 and 1991. Thirty-five of the 41 top 10 percent farms participated both years.

The most profitable farms carried \$490 less debt per cow, had a greater ability to make 1991 debt payments and equity in their business was four percent higher than that of the average.

Average farm debts grew 1.2 percent faster than assets during 1991. Average net farm worth increased 2.6 percent.

The farm financial analysis chart is designed just like the farm business chart on pages 35-36 and may be used to measure the financial health of the farm business. Most of the financial measures are defined on pages 11, 13, 16, and 32 in this publication.

Table 44. **FINANCIAL ANALYSIS CHART**
407 New York Dairy Farms, 1991

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
\$ 50	\$786	2.97	6%	\$ 106
205	608	1.39	11	692
295	513	1.14	15	1,259
372	452	0.97	18	1,665
446	397	0.85	20	2,094
502	351	0.74	22	2,457
551	292	0.63	25	2,820
607	227	0.48	28	3,267
678	122	0.28	32	3,698
866	-96	-0.29	41	4,687

Solvency				Profitability	
Leverage Ratio*	Percent Equity	Debt/Asset Ratio		Percent Rate of Return with appreciation on:	
		Current & Intermediate	Long Term	Equity	Investment**
0.02	98%	0.01	0.00	15%	12%
0.11	90	0.06	0.00	7	8
0.23	81	0.12	0.06	5	6
0.33	75	0.20	0.19	2	4
0.44	68	0.27	0.30	1	3
0.57	63	0.32	0.41	-1	2
0.73	57	0.38	0.49	-4	0
0.98	50	0.45	0.59	-7	-2
1.26	45	0.54	0.72	-12	-4
2.62	30	0.76	1.02	-28	-9

Efficiency (Capital)				
Capital Turnover (years)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow	Change in Net Worth w/Appreciation
1.59	\$1,408	\$ 564	\$ 4,354	\$105,575
1.94	2,046	818	5,293	38,311
2.12	2,342	962	5,847	24,223
2.30	2,677	1,095	6,269	16,153
2.45	3,002	1,243	6,646	10,535
2.63	3,342	1,355	7,016	5,620
2.85	3,694	1,551	7,527	-436
3.13	4,087	1,768	8,210	-7,282
3.48	4,760	2,058	9,140	-16,030
4.57	6,672	2,735	11,260	-57,840

*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.

SUPPLEMENTAL INFORMATION

Introduction

Changes in dairy farms over a period of time and comparisons of business performance by herd size, type of housing, milking frequency, dairy region, and other characteristics are presented in this section. The tables on the following pages are provided for use as a reference, thus, the discussion of each table is at a minimum.

Performance of New York Dairy Farms With Alternative Rates of Growth and Herd Size: Performance factors are compared from groups of farms representing different rates of herd size growth during 1986 and 1987.

Herd Size Comparisons: A detailed comparison of profitability, financial situation, and business analysis factors across herd sizes is contained in Tables 46 through 48. As herd size increases, the average profitability generally increases (Table 46). Net farm income without appreciation was \$136,656 per farm for the 300 or more herd size group and \$2,303 per farm for those with less than 40 cows. This relationship generally holds for all measures of profitability including rate of return on capital.

Farm net worth increases rapidly as herd size increases (Table 47), even though percent equity is higher on the smaller farms. The moderate size herd groups demonstrated the strongest ability to make debt payments.

Crop yields showed little relationship to herd size, but fertilizer and lime expenses, and machinery cost per tillable acre generally increased as herd size increased (Table 48). Milk sold per cow increased as herd size increased, ranging from 16,211 pounds on the farms with less than 40 cows to 19,134 pounds on farms with 300 or more cows. Farm capital per worker increased, and farm capital per cow decreased as herd size increased. Milk sold per worker increased dramatically as herd size increased, ranging from 328,553 pounds at the lowest herd size category up to 864,343 pounds at the largest size category.

Comparisons 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 used have as many of the same physical characteristics as possible as the farm being analyzed. To assist in this endeavor, dairy farms in the summary have been divided into those with freestall and those with conventional housing. Within each group is a further classification by size of the dairy herd.

Table 49 on page 50 shows the average values for the resulting four groups of dairy farms. Within each housing type, the larger herd size had the higher rate of milk sold per cow but the greatest difference is between the conventional and freestall farms. The total cost of producing milk was lower on the larger farms while labor efficiency was greater on the freestall farms. Profitability was higher on the larger farms as well as the freestall farms. Note the similarity of resource use and management performance between the large conventional and small freestall farms.

Farm business charts have been computed for each of the four housing and herd size categories and are on pages 51-54. 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: Selected business and cost of milk production factors from farms milking three times per day (3X) in 1990 and 1991 are compared with farms milking twice per day (2X) in Table 54. The number of farmers milking 3X increased 43 percent from 1990 to 1991. They milked 2.5 times more cows and sold 2.9 times more milk than the 2X dairy farmers in 1991.

The operating costs of producing milk on the 3X farms were 14 cents higher in 1990, and 38 cents per hundredweight higher in 1991. Total costs per hundredweight were substantially lower on 3X farms because the fixed costs of depreciation and the operator's labor, management, and capital were spread over more units of production. The higher returns and profits achieved by the 3X dairy farmers cannot all be attributed to milking frequency. Comparisons of herd size, crop production, cows per worker, capital per cow, and machinery costs per cow indicate there are other important management differences contributing to higher profits.

Receipts and Expenses per Hundredweight of Milk and Per Cow: Average itemized accrual receipts and expenses per cow and per hundredweight of milk sold are listed for all 407 dairy farms, 221 dairy farms selling less than 18,000 pounds of milk per cow, and 186 dairy farms selling 18,000 pounds per cow and more in Table 55 on page 56. Total operating expenses averaged 23 percent higher per cow but 31 cents per hundredweight lower on the more productive farms.

Table 56 on page 57 provides the same list of average accrual receipts and expenses for all 407 dairy farms plus a two group herd size comparison. Farms with 100 cows or more had total operating expenses that averaged 11 percent higher per cow and 48 cents more per hundredweight of milk than the farms with less than 100 cows. Total accrual receipts averaged 64 cents higher per hundredweight of milk sold and total accrual expenses were 59 cents more per hundredweight on the larger farms.

Comparison of Dairy Farm Business Data by Region: Average farm business summary data from four areas or regions of the State are compared in Tables 57 and 58. The largest average farm size, highest average rate of milk production, and highest average farm profits came from the Western Plain and Central Region.

Four Year Comparison: A comparison of change and growth on 215 dairy farms that have been participating in DFBS for four consecutive years is included in Table 59. Cow numbers are up 11 percent, milk output per cow has increased seven percent, and total milk sold is up 18 percent. Farm capital invested per cow has increased 11 percent. Although farm profitability declined in 1991, farm net worth continued to grow and has increased 21 percent since 1988.

Comparisons by Business Organization: A comparison of proprietorships, partnerships, and corporations is in Table 60. Farms organized as a corporation are 1.8 times larger than partnership-operated farms and nearly 2.6 times larger than proprietorship-operated farms. Corporate farm operating expenses were nearly double those on partnerships but productivity and labor efficiency were higher on the corporate farms. Total costs of producing milk were almost identical for corporations and partnerships, 50 cents per hundredweight less than the average cost of producing milk on the single proprietorship farms.

Other Comparisons: Fifty-six dairy renter farms were smaller on the average than the 407 owner-operated farms, and averaged higher returns to labor and management but lower returns to equity capital than the average specialized dairy farm (Table 61). A.E. Ext. 92-17 contains detailed information on Eastern New York dairy renters.

Average data from 13 dairy-cash crop farms is presented in Table 62. They averaged 10 percent fewer cows but 15 percent more farm capital and 56 percent more tillable acres than the 407 specialized dairy farms. Average farm profits were higher on these dairy-cash crop farms than on specialized dairy farms in 1991.

Data for the top 10 percent of farms by net farm income without appreciation is presented in Table 63. Summary data for the 407 specialized dairy farms are presented in Table 64.

Table 45. Performance of New York Dairy Farms With Alternative Rates of Growth in Herd Size

	Change in Herd Size, January 1986 to December 1987*			
	High Growth (+69)	Low Growth (+17)	No Growth (+2)	Decrease (-11)
Number of farms	12	57	121	14
<u>Change from 1986 to 1989:</u>				
Average number of cows	+73 [254]**	+17 [119]	+7 [114]	-4 [69]
Net farm income w/o appreciation	+\$118,786 [\$162,879]	+\$24,469 [\$56,566]	+\$27,246 [\$53,062]	+\$24,854 [\$36,626]
Farm net worth	+66% [\$929,163]	+39% [\$454,949]	+27% [\$517,402]	+35% [\$357,845]
Debt per cow	-13% [\$1,872]	-1% [\$1,972]	-4% [\$2,017]	-10% [\$2,513]
Cash flow coverage ratio	+3.92 [4.99]	+0.28 [1.49]	+0.41 [1.82]	-0.15 [1.15]
Milk per cow, lbs.	+8.7% [17,781]	+5.9% [16,700]	+7.4% [17,200]	+9.0% [16,944]
Milk per worker, lbs.	+16% [626,600]	+12% [552,899]	+8% [532,143]	+6% [480,524]

*Farms were categorized as to rate of growth by change in number of cows from January 1, 1986 to December 31, 1987. High growth is greater than 30 percent increase, low growth is 11 to 30 percent increase, no growth is 10 percent decrease to 10 percent increase and decrease is greater than 10 percent decrease. Farms must have been on the summary each of the four years to be included.

**Values in []'s are values in 1989.

Farms with a high growth rate from 1986 to 1987 attained larger increases in profitability and net worth, and a larger decrease in debt per cow by 1989 than did other farms (Table 45). The high growth herds saw net farm income increase over \$118,000, while the other growth rates saw increases in the mid \$20,000 range. While the high growth rate herds were larger at the beginning of 1986 by about 80 cows, the differences in performance were larger four years later. Farms that decreased in herd size attained similar increases in profitability to the low and no growth groups, but yet were approximately \$20,000 lower in profitability than other growth rate categories at the end of the study period. Cash flow coverage ratio increased dramatically for the high growth group. Cash flow coverage increased by 3.92 to 4.99 or \$4.99 available for each \$1 of scheduled debt payments.

Milk per cow increases were slightly larger on the decreased herd size group, but milk sold per cow was higher at the end of the study period on the high growth farms. Milk sold per worker increased most rapidly and was greatest at the end of the study period on high growth farms.

Table 46.

FARM BUSINESS SUMMARY BY HERD SIZE
407 New York Dairy Farms, 1991

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		24	73	72	55	36
<u>ACCRUAL EXPENSES</u>						
Hired labor		\$ 3,075	\$ 5,894	\$ 8,708	\$ 18,155	\$ 23,886
Dairy grain & concentrate		22,952	29,403	38,259	51,983	58,001
Dairy roughage		211	1,356	1,363	1,513	2,015
Nondairy feed		100	0	223	67	0
Machine hire/rent/lease		981	1,286	2,409	1,138	2,652
Machine repairs/parts		3,612	6,187	6,905	9,877	13,976
Auto expense (farm share)		806	771	600	995	489
Fuel, oil & grease		2,068	3,032	4,066	5,286	7,145
Replacement livestock		1,378	1,418	1,816	1,757	1,863
Breeding		1,279	1,708	2,268	2,980	3,163
Veterinary & medicine		1,387	1,960	3,035	4,180	4,584
Milk marketing		3,522	5,581	6,330	8,732	10,636
Cattle lease/rent		0	209	164	181	90
Other livestock expense		3,850	5,442	6,376	8,254	12,020
Fertilizer & lime		2,194	3,057	3,965	6,138	6,848
Seeds & plants		824	1,492	1,905	2,725	3,426
Spray & other crop expense		876	1,023	1,534	2,273	4,040
Land/building/fence repair		1,992	1,927	2,300	2,349	2,767
Taxes & rent		4,027	5,429	7,328	9,041	12,330
Telephone & electricity		3,013	3,966	4,997	6,619	7,229
Interest paid		7,226	8,207	11,503	15,674	16,262
Misc. (including insurance)		<u>2,781</u>	<u>3,737</u>	<u>4,715</u>	<u>5,611</u>	<u>7,870</u>
Total Operating Expenses		\$68,154	\$ 93,085	\$120,769	\$165,528	\$201,292
Expansion livestock		358	233	1,002	955	1,238
Machinery depreciation		5,434	7,070	8,673	11,572	15,062
Building depreciation		<u>2,245</u>	<u>3,126</u>	<u>5,138</u>	<u>6,481</u>	<u>7,690</u>
Total Accrual Expenses		\$76,191	\$103,514	\$135,582	\$184,536	\$225,282
<u>ACCRUAL RECEIPTS</u>						
Milk sales		\$66,921	\$101,303	\$130,949	\$173,153	\$214,411
Dairy cattle		7,898	7,823	11,978	16,538	18,901
Dairy calves		1,859	2,578	3,098	4,045	4,505
Other livestock		303	174	865	516	330
Crops		-197	-111	1,794	1,333	802
Misc. receipts		<u>1,710</u>	<u>2,521</u>	<u>3,317</u>	<u>4,064</u>	<u>6,765</u>
Total Accrual Receipts		\$78,494	\$114,288	\$152,001	\$199,649	\$245,714
<u>PROFITABILITY ANALYSIS</u>						
Net farm income (w/o apprec.)		\$2,303	\$10,774	\$16,419	\$15,113	\$20,432
Net farm income (w/apprec.)		\$8,645	\$17,336	\$23,975	\$24,807	\$30,428
Labor & mgmt. income		-\$10,910	-\$7,638	-\$3,187	-\$5,905	-\$6,696
Number of operators		1.09	1.17	1.26	1.24	1.45
Labor & mgmt. inc./oper.		-\$10,009	-\$6,528	-\$2,529	-\$4,762	-\$4,618
Rates of return on:						
Equity capital w/o apprec.		-12.3%	-6.4%	-4.1%	-3.9%	-3.1%
Equity capital w/apprec.		-8.9%	-4.0%	-1.6%	-1.3%	-1.0%
All capital w/o apprec.		-5.9%	-2.5%	-0.2%	0.2%	0.2%
All capital w/apprec.		-3.5%	-0.7%	1.5%	1.9%	1.7%

Table 46 (continued) FARM BUSINESS SUMMARY BY HERD SIZE
407 New York Dairy Farms, 1991

Item	Farm Size:	100 to 149 Cows	150 to 199 Cows	200 to 299 Cows	300 or More Cows
Number of farms		77	31	21	18
ACCRUAL EXPENSES					
Hired labor		\$ 32,865	\$ 66,876	\$ 85,569	\$ 265,896
Dairy grain & concentrate		80,142	126,544	166,377	375,815
Dairy roughage		1,382	3,239	536	14,700
Nondairy feed		133	775	0	0
Machine hire/rent/lease		3,628	4,281	6,423	20,859
Machine repairs/parts		16,965	22,940	31,116	63,795
Auto expense (farm share)		848	651	1,647	1,293
Fuel, oil & grease		8,202	13,436	17,288	27,097
Replacement livestock		2,963	5,114	8,445	11,334
Breeding		3,713	6,306	6,039	15,049
Veterinary & medicine		6,575	10,839	14,384	40,334
Milk marketing		12,424	21,472	29,402	37,219
Cattle lease/rent		341	492	600	2,234
Other livestock expense		11,243	18,994	28,294	70,234
Fertilizer & lime		9,903	15,118	18,459	29,659
Seeds & plants		4,338	8,001	8,685	19,217
Spray & other crop expense		3,912	5,823	7,875	27,097
Land/building/fence repair		4,212	6,731	5,180	20,106
Taxes & rent		13,710	20,023	28,567	50,255
Telephone & electricity		9,178	13,114	13,733	26,364
Interest paid		21,048	37,437	44,070	109,131
Misc. (including insurance)		10,459	11,491	19,707	31,761
Total Operating Expenses		\$258,184	\$419,697	\$542,396	\$1,259,449
Expansion livestock		1,851	9,481	2,366	52,540
Machinery depreciation		17,146	27,599	34,499	58,650
Building depreciation		7,731	12,952	21,608	71,212
Total Accrual Expenses		\$284,912	\$469,729	\$600,869	\$1,441,851
ACCRUAL RECEIPTS					
Milk sales		\$277,309	\$422,530	\$551,414	\$1,332,798
Dairy cattle		28,338	45,981	58,333	166,508
Dairy calves		5,090	8,230	10,108	27,423
Other livestock		364	3,465	1,123	-1,359
Crops		3,795	9,505	4,388	18,359
Misc. receipts		6,969	14,121	13,047	34,778
Total Accrual Receipts		\$321,865	\$503,832	\$638,413	\$1,578,507
PROFITABILITY ANALYSIS					
Net farm income (w/o apprec.)		\$36,953	\$34,103	\$37,544	\$136,656
Net farm income (w/apprec.)		\$50,101	\$61,647	\$66,239	\$216,554
Labor & mgmt. income		\$6,927	-\$6,166	-\$12,555	\$55,914
Number of operators		1.47	1.68	1.77	1.71
Labor & mgmt. inc./oper.		\$4,712	-\$3,670	-\$7,093	\$32,698
Rate of return on:					
Equity capital w/o apprec.		0.1%	-1.6%	-0.9%	4.5%
Equity capital w/apprec.		2.5%	2.2%	2.1%	9.6%
All capital w/o apprec.		2.7%	2.2%	2.4%	6.1%
All capital w/apprec.		4.4%	4.6%	4.3%	8.8%

Table 47. FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
407 New York Dairy Farms, 1991

Item	Farms with: <u>Less than 40 Cows</u>		<u>40 to 54 Cows</u>		<u>55 to 69 Cows</u>	
	Jan. 1	Dec. 31	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS						
Farm cash/chkg./sav.	\$ 2,143	\$ 2,521	\$ 5,769	\$ 4,163	\$ 4,544	\$ 3,712
Accounts receivable	5,408	6,036	7,974	9,074	9,669	12,088
Prepaid expenses	22	0	57	7	119	96
Feed & supplies	11,798	10,936	22,126	20,200	26,608	26,925
Livestock*	50,822	53,745	69,908	70,970	90,757	94,774
Machinery & equipment*	48,907	49,210	70,644	71,595	94,028	95,469
Farm Credit stock	484	458	734	966	1,139	1,276
Other stock & cert.	706	664	1,693	1,663	2,766	3,871
Land & buildings*	<u>145,796</u>	<u>155,554</u>	<u>188,352</u>	<u>195,338</u>	<u>214,998</u>	<u>217,547</u>
Total Farm Assets	\$266,086	\$279,124	\$367,257	\$373,976	\$444,628	\$455,758
Pers. cash/chkg./sav.	\$ 1,245	\$ 4,066	\$ 5,566	\$ 3,966	\$ 9,092	\$ 10,541
Cash value of life ins.	1,562	1,592	6,861	7,522	4,885	5,448
Nonfarm real estate	13,077	13,077	26,137	25,169	10,608	10,608
Auto (personal share)	3,508	2,592	3,654	3,884	4,235	4,518
Stocks & bonds	6,738	9,854	4,235	4,166	9,341	9,523
Household furnishings	5,385	5,462	11,506	12,035	8,197	8,554
All other	<u>4,831</u>	<u>1,738</u>	<u>2,996</u>	<u>5,387</u>	<u>6,527</u>	<u>5,434</u>
Tot. Nonfarm Assets**	\$ 36,345	\$ 38,381	\$ 60,955	\$ 62,129	\$ 52,886	\$ 54,626
Total Farm & Nonfarm Assets	\$302,431	\$317,505	\$428,212	\$436,105	\$497,514	\$510,384
LIABILITIES						
Accounts payable	\$ 1,891	\$ 2,796	\$ 3,565	\$ 4,335	\$ 3,815	\$ 4,968
Operating debt	385	526	1,135	1,258	2,576	3,252
Short term	732	44	1,056	1,078	1,877	1,398
Advanced gov't. rec.	0	0	0	0	0	0
Intermediate***	27,130	30,613	38,106	36,650	61,653	63,242
Long term*	<u>51,335</u>	<u>53,069</u>	<u>53,466</u>	<u>59,101</u>	<u>75,097</u>	<u>75,084</u>
Total Farm Liab.	\$ 81,473	\$ 87,048	\$ 97,328	\$102,422	\$145,018	\$147,944
Tot. Nonfarm Liab.**	<u>3,070</u>	<u>2,680</u>	<u>3,179</u>	<u>3,887</u>	<u>2,737</u>	<u>2,622</u>
Total Farm & Nonfarm Liabilities	\$ 84,543	\$ 89,728	\$100,507	\$106,309	\$147,755	\$150,566
Farm Net Worth (Equity Capital)	\$184,613	\$192,076	\$269,929	\$271,554	\$299,610	\$307,814
Farm & Nonfarm Net Worth	\$217,888	\$227,777	\$327,705	\$329,796	\$349,759	\$359,818
FINANCIAL MEASURES						
		<u>Less than 40 Cows</u>	<u>40 to 54 Cows</u>	<u>55 to 69 Cows</u>		
Percent equity		69%	73%	68%		
Debt/asset ratio-long term		0.34	0.30	0.35		
Debt/asset ratio-inter. & current		0.27	0.24	0.31		
Change in net worth with apprec.		\$7,463	\$1,625	\$8,204		
Total farm debt per cow		\$2,487	\$2,134	\$2,312		
Debt payments made per cow		\$602	\$462	\$476		
Debt payments as % of milk sales		30%	21%	22%		
Amount avail. for debt service		\$14,326	\$18,063	\$21,567		
Cash flow coverage ratio for 1991		0.90	0.90	0.78		

*Includes discounted lease payments.

**Average of farms reporting nonfarm assets and liabilities for 1991.

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

Table 47 (cont'd) FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
407 New York Dairy Farms, 1991

Item	Farms with:		85 to 99 Cows	
	70 to 84 Cows		Jan. 1	Dec. 31
	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS				
Farm cash/chkg./savings	\$ 4,023	\$ 2,904	\$ 3,832	\$ 4,713
Accounts receivable	12,973	15,148	16,746	18,867
Prepaid expenses	464	424	63	266
Feed & supplies	38,917	38,500	57,261	54,567
Livestock*	118,525	121,821	138,253	142,314
Machinery & equipment*	113,053	113,216	143,448	146,057
Farm Credit stock	1,920	1,891	2,159	2,167
Other stock & cert.	3,879	3,767	7,244	6,978
Land & buildings*	<u>274,761</u>	<u>278,889</u>	<u>287,469</u>	<u>298,866</u>
Total Farm Assets	\$568,515	\$576,560	\$656,475	\$674,795
Pers. cash/chkg./savings	\$ 8,507	\$ 7,037	\$ 10,581	\$ 10,536
Cash value of life ins.	7,258	7,525	5,473	5,888
Nonfarm real estate	25,697	27,642	66,460	68,660
Auto (personal share)	5,098	4,326	3,372	3,692
Stocks & bonds	1,501	3,396	3,141	3,960
Household furnishings	11,575	12,144	7,804	7,716
All other	<u>2,668</u>	<u>1,407</u>	<u>4,474</u>	<u>5,500</u>
Total Nonfarm Assets**	\$ 62,304	\$ 63,477	\$101,306	\$105,952
Total Farm & Nonfarm Assets	\$630,819	\$640,037	\$757,781	\$780,747
LIABILITIES				
Accounts payable	\$ 5,086	\$ 7,599	\$ 5,317	\$ 7,800
Operating debt	3,274	3,327	3,375	3,489
Short term	5,369	4,587	2,563	3,499
Advanced gov't. rec.	0	16	0	278
Intermediate***	71,470	74,544	86,878	89,176
Long term*	<u>124,134</u>	<u>119,348</u>	<u>92,625</u>	<u>92,592</u>
Total Farm Liab.	\$209,333	\$209,421	\$190,758	\$196,834
Total Nonfarm Liab.**	<u>931</u>	<u>924</u>	<u>11,354</u>	<u>11,164</u>
Total Farm & Nonfarm Liabilities	\$210,264	\$210,345	\$202,112	\$207,998
Farm Net Worth (Equity Capital)	\$359,182	\$367,139	\$465,717	\$477,961
Farm & Nonfarm Net Worth	\$420,555	\$429,692	\$555,669	\$572,749
FINANCIAL MEASURES				
	70 to 84 Cows		85 to 99 Cows	
Percent equity	64%		71%	
Debt/asset ratio-long term	0.43		0.31	
Debt/asset ratio-inter. & current	0.30		0.28	
Change in net worth with apprec.	\$7,957		\$12,244	
Total farm debt per cow	\$2,651		\$2,116	
Debt payments made per cow	\$557		\$523	
Debt payments as % of milk sales	24%		22%	
Amount avail. for debt service	\$32,399		\$39,213	
Cash flow coverage ratio for 1991	0.80		0.91	

*Includes discounted lease payments.

**Average of farms reporting nonfarm assets and liabilities for 1991.

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

Table 47 (cont'd) FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
407 New York Dairy Farms, 1991

Item	Farms with:		150 to 199 Cows	
	100 to 149 Cows		Jan. 1	Dec. 31
	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS				
Farm cash/chkg./savings	\$ 9,992	\$ 9,388	\$ 6,717	\$ 7,124
Accounts receivable	21,846	25,223	31,480	37,613
Prepaid expenses	178	8	586	299
Feed & supplies	65,949	63,458	102,452	99,769
Livestock*	171,510	181,157	265,685	281,125
Machinery & equipment*	157,588	161,112	212,763	220,992
Farm Credit stock	2,910	2,466	5,997	4,999
Other stock & cert.	4,946	5,006	13,160	13,970
Land & buildings*	<u>343,689</u>	<u>352,808</u>	<u>504,054</u>	<u>530,634</u>
Total Farm Assets	\$778,608	\$800,626	\$1,142,894	\$1,196,525
Pers. cash/chkg./savings	\$ 7,962	\$ 8,320	\$ 5,317	\$ 4,328
Cash value of life ins.	8,105	10,658	19,869	12,788
Nonfarm real estate	28,977	28,349	31,222	31,222
Auto (personal share)	4,275	3,927	3,867	3,111
Stocks & bonds	10,047	12,352	1,528	1,147
Household furnishings	9,551	9,900	4,889	5,222
All other	<u>5,120</u>	<u>6,961</u>	<u>428</u>	<u>5,122</u>
Total Nonfarm Assets**	\$ 74,037	\$ 80,466	\$ 67,119	\$ 62,941
Total Farm & Nonfarm Assets	\$852,645	\$881,092	\$1,210,013	\$1,259,466
LIABILITIES				
Accounts payable	\$ 8,397	\$ 10,920	\$ 15,080	\$ 20,366
Operating debt	5,279	6,023	22,115	29,001
Short term	5,655	4,823	6,273	1,569
Advanced gov't. rec. Intermediate***	0	80	0	0
	112,619	118,930	176,880	194,389
Long term*	<u>124,836</u>	<u>121,571</u>	<u>192,148</u>	<u>205,001</u>
Total Farm Liab.	\$256,786	\$262,347	\$ 412,496	\$ 450,326
Total Nonfarm Liab.**	<u>2,518</u>	<u>2,620</u>	<u>5,749</u>	<u>5,166</u>
Total Farm & Nonfarm Liabilities	\$259,304	\$264,967	\$ 418,245	\$ 455,492
Farm Net Worth (Equity Capital)	\$521,822	\$538,279	\$ 730,398	\$ 746,199
Farm & Nonfarm Net Worth	\$593,341	\$616,125	\$ 791,768	\$ 803,974
FINANCIAL MEASURES				
	100 to 149 Cows		150 to 199 Cows	
Percent equity	67%		62%	
Debt/asset ratio-long term	0.34		0.39	
Debt/asset ratio-inter. & current	0.31		0.37	
Change in net worth with apprec.	\$16,457		\$15,801	
Total farm debt per cow	\$2,116		\$2,474	
Debt payments made per cow	\$418		\$586	
Debt payments as % of milk sales	18%		25%	
Amount avail. for debt service	\$47,313		\$67,548	
Cash flow coverage ratio for 1991	0.94		0.79	

*Includes discounted lease payments.

**Average of farms reporting nonfarm assets and liabilities for 1991.

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

Table 47 (cont'd) FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
407 New York Dairy Farms, 1991

Item	Farms with:		More than 300 Cows	
	200 to 299 Cows		Jan. 1	Dec. 31
	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS				
Farm cash/chkg./savings	\$ 13,531	\$ 9,541	\$ 8,461	\$ 19,601
Accounts receivable	42,012	48,467	93,511	99,017
Prepaid expenses	0	10	6,091	6,649
Feed & supplies	133,064	130,972	306,033	297,538
Livestock*	331,527	352,060	668,631	752,080
Machinery & equipment*	289,858	274,158	427,803	442,724
Farm Credit stock	10,627	9,330	21,514	22,737
Other stock & cert.	32,534	31,245	55,709	58,565
Land & buildings*	<u>621,926</u>	<u>629,878</u>	<u>1,283,906</u>	<u>1,357,254</u>
Total Farm Assets	\$1,475,079	\$1,485,661	\$2,871,659	\$3,056,165
Pers. cash/chkg./savings	\$ 4,625	\$ 6,548	\$ 5,171	\$ 15,229
Cash value of life ins.	13,045	13,719	20,736	19,393
Nonfarm real estate	47,545	48,273	25,286	27,143
Auto (personal share)	1,091	1,182	9,929	10,250
Stocks & bonds	22,511	24,084	657	857
Household furnishings	3,636	3,636	6,143	7,571
All other	<u>37,201</u>	<u>35,733</u>	<u>4,145</u>	<u>4,663</u>
Total Nonfarm Assets**	\$ 129,654	\$ 133,175	\$ 72,066	\$ 85,107
Total Farm & Nonfarm Assets	\$1,604,733	\$1,618,836	\$2,943,725	\$3,141,272
LIABILITIES				
Accounts payable	\$ 23,526	\$ 33,178	\$ 23,019	\$ 31,394
Operating debt	19,144	27,335	115,532	82,603
Short term	14,230	9,085	29,829	34,368
Advanced gov't. rec.	0	0	0	486
Intermediate***	244,552	193,056	533,090	586,569
Long term*	<u>225,215</u>	<u>261,570</u>	<u>616,313</u>	<u>702,681</u>
Total Farm Liab.	\$ 526,667	\$ 524,224	\$1,317,783	\$1,438,101
Total Nonfarm Liab.**	<u>264</u>	<u>227</u>	<u>2,309</u>	<u>1,519</u>
Total Farm & Nonfarm Liabilities	\$ 526,931	\$ 524,451	\$1,320,092	\$1,439,620
Farm Net Worth (Equity Capital)	\$ 948,412	\$ 961,437	\$1,553,876	\$1,618,064
Farm & Nonfarm Net Worth	\$1,077,802	\$1,094,385	\$1,623,633	\$1,701,652
FINANCIAL MEASURES				
	200 to 299 Cows		More than 300 Cows	
Percent equity	65%		53%	
Debt/asset ratio-long term	0.42		0.52	
Debt/asset ratio-inter. & current	0.31		0.43	
Change in net worth with apprec.	\$13,025		\$64,188	
Total farm debt per cow	\$2,193		\$2,523	
Debt payments made per cow	\$578		\$686	
Debt payments as % of milk sales	24%		27%	
Amount avail. for debt service	\$83,533		\$284,518	
Cash flow coverage ratio for 1991	0.72		0.89	

*Includes discounted lease payments.

**Average of farms reporting nonfarm assets and liabilities for 1991.

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

**Table 48. SELECTED BUSINESS FACTORS BY HERD SIZE
407 New York Dairy Farms, 1991**

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	24	73	72	55	36
Cropping Program Analysis					
Total Tillable acres	126	171	192	261	324
Tillable acres rented*	43	52	57	87	145
Hay crop acres*	83	112	117	161	171
Corn silage acres*	19	30	40	50	70
Hay crop, tons DM/acre	2.0	1.9	2.3	2.2	2.4
Corn silage, tons/acre	12.0	13.9	12.5	13.9	13.9
Oats, bushels/acre	52.0	43.8	44.0	58.0	65.5
Forage DM per cow, tons	7.6	7.6	7.3	7.8	8.3
Tillable acres/cow	3.7	3.6	3.1	3.4	3.6
Fert. & lime exp./til. acre	\$17.40	\$17.88	\$20.65	\$23.52	\$21.14
Total machinery costs	\$15,323	\$21,866	\$27,343	\$34,478	\$46,533
Machinery cost/tillable acre	\$122	\$128	\$142	\$132	\$144
Dairy Analysis					
Number of cows	34	47	61	77	91
Number of heifers	27	37	49	64	80
Milk sold, lbs.	546,447	801,227	1,024,299	1,346,594	1,663,805
Milk sold/cow, lbs.	16,211	16,924	16,773	17,402	18,334
Operating cost of prod. milk/cwt.	\$10.42	\$10.03	\$9.83	\$10.40	\$10.29
Total cost of prod. milk/cwt.	\$18.21	\$16.51	\$15.49	\$15.27	\$15.20
Price/cwt. milk sold	\$12.25	\$12.64	\$12.78	\$12.86	\$12.89
Purchased dairy feed/cow	\$687	\$650	\$648	\$691	\$661
Purchased dairy feed/cwt. milk	\$4.24	\$3.84	\$3.87	\$3.97	\$3.61
Purchased grain & conc. as % of milk receipts	34%	29%	29%	30%	27%
Purchased feed & crop expense/cwt. milk	\$4.95	\$4.53	\$4.59	\$4.80	\$4.47
Capital Efficiency					
Farm capital/worker	\$163,905	\$187,683	\$203,090	\$210,374	\$209,722
Farm capital/cow	\$8,089	\$7,835	\$7,368	\$7,397	\$7,331
Farm capital/til. acre owned	\$3,324	\$3,114	\$3,310	\$3,290	\$3,719
Real estate/cow	\$4,471	\$4,056	\$3,540	\$3,577	\$3,229
Machinery investment/cow	\$1,456	\$1,504	\$1,551	\$1,462	\$1,594
Capital turnover, years	3.21	3.07	2.82	2.73	2.60
Labor Efficiency					
Worker equivalent	1.66	1.97	2.22	2.72	3.17
Operator/manager equivalent	1.09	1.17	1.26	1.24	1.45
Milk sold/worker, lbs.	328,553	406,137	462,079	494,795	524,216
Cows/worker	20	24	28	28	29
Work units/worker	219	258	291	306	313
Labor cost/cow	\$707	\$613	\$536	\$522	\$550
Labor cost/tillable acre	\$189	\$169	\$171	\$155	\$154

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

Table 48 (continued) SELECTED BUSINESS FACTORS BY HERD SIZE
407 New York Dairy Farms, 1991

Item	Farms with: 149 Cows	100 to 199 Cows	150 to 299 Cows	200 to 300 or More Cows
Number of farms	77	31	21	18
<u>Cropping Program Analysis</u>				
Total tillable acres	363	533	699	1,092
Tillable acres rented*	139	240	287	413
Hay crop acres*	185	243	314	372
Corn silage acres*	88	158	236	469
Hay crop, tons DM/acre	2.5	2.5	2.2	3.0
Corn silage, tons/acre	13.9	13.4	12.4	14.7
Oats, bushels/acre	44.7	72.7	43.3	51.8
Forage DM per cow, tons	7.4	7.8	7.5	6.7
Tillable acres/cow	3.0	3.0	3.0	2.1
Fert. & lime exp./til. acre	\$27.28	\$28.42	\$26.41	\$27.21
Total machinery costs	\$54,605	\$79,738	\$104,889	\$192,673
Machinery cost/tillable acre	\$150	\$150	\$150	\$177
<u>Dairy Analysis</u>				
Number of cows	120	177	232	528
Number of heifers	100	144	203	430
Milk sold, lbs.	2,164,650	3,233,436	4,209,607	10,100,411
Milk sold/cow, lbs.	18,023	18,288	18,137	19,134
Operating cost of prod. milk/cwt.	\$9.95	\$10.76	\$10.87	\$10.56
Total cost of prod. milk/cwt.	\$14.03	\$14.57	\$14.44	\$13.27
Price/cwt. milk sold	\$12.81	\$13.07	\$13.10	\$13.20
Purchased dairy feed/cow	\$679	\$734	\$719	\$740
Purchased dairy feed/cwt. milk	\$3.77	\$4.01	\$3.97	\$3.87
Purchased grain & conc. as % of milk receipts	29%	30%	30%	28%
Purchased feed & crop expense/cwt. milk	\$4.60	\$4.91	\$4.80	\$4.62
<u>Capital Efficiency</u>				
Farm capital/worker	\$221,113	\$232,964	\$244,625	\$253,637
Farm capital/cow	\$6,575	\$6,616	\$6,378	\$5,615
Farm capital/til. acre owned	\$3,525	\$3,992	\$3,593	\$4,365
Real estate/cow	\$2,900	\$2,926	\$2,697	\$2,502
Machinery investment/cow	\$1,327	\$1,227	\$1,215	\$825
Capital turnover, years	2.36	2.20	2.22	1.79
<u>Labor Efficiency</u>				
Worker equivalent	3.57	5.02	6.05	11.69
Operator/manager equivalent	1.47	1.68	1.77	1.71
Milk sold/worker, lbs.	606,158	643,984	695,621	864,343
Cows/worker	34	35	38	45
Work units/worker	354	373	409	450
Labor cost/cow	\$494	\$545	\$497	\$557
Labor cost/tillable acre	\$163	\$181	\$165	\$270

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

**Table 49. SELECTED BUSINESS FACTORS BY TYPE OF BARN
AND HERD SIZE
373 New York Dairy Farms, 1991**

Item	Farms with:		Freestall	
	Conventional ≤60 Cows	>60 Cows	≤120 Cows	>120 Cows
Number of farms	122	101	66	84
<u>Cropping Program Analysis</u>				
Total Tillable acres	162	277	288	658
Tillable acres rented*	52	97	103	269
Hay crop acres*	106	168	150	273
Corn silage acres*	28	53	71	229
Hay crop, tons DM/acre	2.0	2.3	2.4	2.6
Corn silage, tons/acre	13.1	13.6	13.9	13.6
Oats, bushels/acre	48.7	47.0	55.4	52.4
Forage DM per cow, tons	7.2	7.4	8.3	7.2
Tillable acres/cow	3.4	3.2	3.3	2.6
Fert. & lime exp./til. acre	\$18.38	\$22.77	\$27.18	\$26.03
Total machinery costs	\$21,629	\$36,112	\$43,948	\$106,964
Machinery cost/tillable acre	\$134	\$130	\$153	\$163
<u>Dairy Analysis</u>				
Number of cows	47	87	87	250
Number of heifers	37	70	76	206
Milk sold, lbs.	797,052	1,481,199	1,562,487	4,707,816
Milk sold/cow, lbs.	16,824	17,082	18,022	18,812
Operating cost of prod. milk/cwt.	\$9.86	\$10.42	\$10.05	\$10.55
Total cost of prod. milk/cwt.	\$16.36	\$14.96	\$14.98	\$13.89
Price/cwt. milk sold	\$12.58	\$12.85	\$12.93	\$13.10
Purchased dairy feed/cow	\$652	\$668	\$687	\$726
Purchased dairy feed/cwt. milk	\$3.88	\$3.91	\$3.81	\$3.86
Purc. grain & conc. as % milk rec. %	30%	30%	29%	29%
Purc. feed & crop exp./cwt. milk	\$4.56	\$4.67	\$4.75	\$4.65
<u>Capital Efficiency</u>				
Farm capital/worker	\$181,301	\$208,892	\$226,807	\$246,252
Farm capital/cow	\$7,585	\$6,903	\$7,325	\$6,296
Farm capital/til. acre owned	\$3,269	\$3,307	\$3,433	\$4,049
Real estate/cow	\$3,883	\$3,187	\$3,370	\$2,808
Machinery investment/cow	\$1,491	\$1,383	\$1,523	\$1,083
Capital turnover, years	2.98	2.64	2.54	2.06
<u>Labor Efficiency</u>				
Worker equivalent	1.98	2.87	2.80	6.40
Operator/manager equivalent	1.19	1.34	1.36	1.63
Milk sold/worker, lbs.	401,914	516,996	558,026	736,003
Cows/worker	24	30	31	39
Labor cost/cow	\$609	\$508	\$519	\$541
Labor cost/tillable acre	\$178	\$159	\$156	\$206
<u>Profitability & Balance Sheet Analysis</u>				
Net farm income (w/o apprec.)	\$10,935	\$19,495	\$22,444	\$58,491
Labor & mgmt. income/operator	\$-5,520	\$-2,907	\$-1,172	\$4,891
Return on all capital w/apprec.	-0.7%	2.6%	2.6%	6.1%
Farm debt/cow	\$2,159	\$2,239	\$2,524	\$2,437
Percent equity	71%	67%	65%	60%

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

Table 50. FARM BUSINESS CHART FOR SMALL CONVENTIONAL STALL DAIRY FARMS
 122 Conventional Stall Dairy Farms with 60 or Less Cows, New York, 1991

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds of Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
3.1	60	1,161,296	21,471	3.4	20	40	661,204
2.6	57	1,006,402	19,284	2.8	18	32	550,224
2.3	55	947,762	18,742	2.6	16	28	494,803
2.1	53	890,831	17,979	2.4	15	27	462,890
2.0	50	822,459	17,196	2.1	14	25	433,585

1.9	46	760,538	16,335	1.8	13	24	401,914
1.7	43	702,257	15,668	1.7	12	22	369,641
1.5	41	646,896	15,116	1.5	11	21	328,322
1.4	37	564,752	14,129	1.3	9	18	283,503
1.1	31	419,523	11,178	1.0	7	14	214,463

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
\$341	17%	\$212	\$ 632	\$ 438	\$2.93
455	22	297	819	573	3.57
520	25	355	920	632	4.00
546	28	390	971	690	4.20
595	29	412	1,023	735	4.41

644	32	451	1,080	779	4.57
686	34	484	1,136	822	4.98
752	35	530	1,209	894	5.16
816	38	614	1,326	957	5.61
926	43	808	1,615	1,134	6.56

Value and Cost of Production

Profitability

Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income With Apprec.	Net Farm Income Without Apprec.	Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
\$2,740	\$ 6.42	\$12.23	\$53,078	\$42,465	\$19,889	\$30,248
2,489	7.90	13.68	36,007	27,726	9,709	17,867
2,353	8.56	14.61	29,496	22,409	4,709	13,846
2,277	9.26	15.21	23,712	17,446	625	9,309
2,166	9.72	15.81	19,116	12,439	-3,791	6,461

2,040	10.04	16.45	13,857	8,394	-7,738	3,784
1,948	10.44	17.16	7,625	4,234	-12,141	-351
1,852	11.06	17.80	3,156	-1,971	-16,055	-4,980
1,714	11.92	19.22	-1,875	-6,070	-22,626	-10,842
1,383	13.99	25.01	-16,933	-21,744	-38,727	-25,962

Table 51. FARM BUSINESS CHART FOR LARGE CONVENTIONAL STALL DAIRY FARMS
101 Conventional Stall Dairy Farms with More Than 60 Cows, New York, 1991

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds of Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
4.6	142	2,453,279	21,818	4.5	20	49	873,548
3.6	109	2,007,656	19,722	3.5	18	40	684,468
3.2	97	1,739,966	18,796	2.9	16	34	598,951
3.0	87	1,562,748	18,310	2.6	15	32	560,716
2.9	82	1,436,342	17,780	2.4	15	31	523,504

2.7	77	1,346,317	17,148	2.1	14	29	493,477
2.5	73	1,246,501	16,384	1.9	12	28	455,675
2.4	68	1,105,390	15,123	1.7	10	26	416,880
2.1	64	993,013	13,510	1.5	9	24	377,657
1.6	62	823,566	11,607	1.1	6	21	327,086

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
\$ 309	15%	\$222	\$ 636	\$ 434	\$2.91
422	21	296	740	547	3.53
491	24	351	799	640	3.90
543	25	370	837	694	4.19
606	28	390	886	767	4.44

650	31	426	928	821	4.70
707	33	456	993	850	4.97
782	35	490	1,062	915	5.27
861	38	554	1,136	1,005	5.62
1,026	45	645	1,306	1,178	6.68

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income With Apprec.	Net Farm Income Without Apprec.	Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
\$2,867	\$ 7.21	\$12.27	\$95,623	\$66,317	\$24,217	\$79,568
2,510	8.54	13.22	59,028	47,527	15,711	36,142
2,442	9.14	13.71	45,692	34,267	10,979	24,998
2,344	9.75	14.12	37,975	27,772	6,367	17,567
2,242	10.15	14.49	31,274	22,916	1,175	12,531

2,148	10.60	14.84	24,354	17,174	-3,736	6,901
2,051	11.00	15.31	18,295	9,265	-10,773	-1,326
1,938	11.37	16.14	8,667	1,122	-19,843	-9,415
1,761	12.22	17.71	-2,600	-9,656	-33,574	-18,321
1,523	13.87	19.66	-19,012	-26,407	-50,112	-36,366

Table 52. FARM BUSINESS CHART FOR SMALL FREESTALL DAIRY FARMS
66 Freestall Barn Dairy Farms with 120 or Less Cows, New York, 1991

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
4.0	114	2,208,962	22,859	4.4	20	48	828,128
3.6	108	1,993,141	20,423	3.6	18	38	700,061
3.4	102	1,890,636	19,598	3.1	16	36	639,501
3.1	95	1,801,092	18,714	2.7	15	34	595,425
2.8	89	1,671,062	18,040	2.3	15	32	574,105

2.6	82	1,458,043	17,311	2.1	14	31	537,744
2.4	78	1,290,108	16,780	2.0	14	29	508,421
2.2	73	1,173,974	16,382	1.9	13	26	490,526
2.0	63	1,012,572	15,235	1.6	11	25	423,955
1.6	52	850,607	12,679	1.1	8	20	341,458

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
\$ 304	14%	\$257	\$ 689	\$ 511	\$2.96
454	20	341	809	628	3.57
535	23	380	848	705	4.03
576	25	407	887	744	4.28
611	27	441	921	781	4.57

682	30	492	1,001	858	4.95
743	33	520	1,064	938	5.23
812	36	567	1,114	1,022	5.49
882	38	649	1,238	1,075	5.81
1,003	40	876	1,565	1,235	6.80

Value and Cost of Production

Profitability

Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income With Apprec.	Net Farm Income Without Apprec.	Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
\$2,927	\$ 7.48	\$12.08	\$82,214	\$66,646	\$29,929	\$69,398
2,667	8.47	12.94	57,671	46,073	15,194	36,752
2,527	9.22	13.56	45,031	37,230	9,298	24,657
2,425	9.66	14.17	39,035	29,014	4,126	15,276
2,296	9.99	14.75	34,718	23,021	-567	9,326

2,231	10.31	15.53	28,021	17,945	-4,155	3,405
2,158	10.64	15.96	20,709	9,787	-10,866	-2,955
2,085	11.16	16.57	11,223	1,964	-18,096	-8,018
1,993	11.61	17.45	4,475	-4,068	-26,046	-14,391
1,755	12.67	19.25	-10,343	-17,325	-41,780	-38,262

Table 53. FARM BUSINESS CHART FOR LARGE FREESTALL DAIRY FARMS
84 Freestall Barn Dairy Farms with More Than 120 Cows, New York, 1991

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
15.3	687	13,384,842	22,407	4.2	18	56	1,003,143
7.9	328	6,283,512	21,089	3.4	17	46	872,694
6.8	253	4,743,201	20,463	3.1	15	44	809,299
6.1	211	4,020,615	19,950	2.8	15	40	754,498
5.5	195	3,591,100	18,918	2.6	14	38	706,657

5.1	183	3,322,631	18,193	2.3	13	36	663,402
4.6	171	3,100,997	17,466	2.1	12	34	640,597
4.3	153	2,875,093	16,810	1.9	12	32	603,479
3.9	138	2,514,339	16,123	1.8	10	30	547,129
3.1	125	2,041,714	14,028	1.1	7	27	474,745

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
\$ 401	16%	\$258	\$ 642	\$ 545	\$2.91
502	22	333	781	677	3.75
592	25	359	840	758	4.08
635	27	391	915	809	4.40
679	28	420	965	838	4.59

712	29	456	1,010	892	4.78
747	31	481	1,057	933	4.90
800	33	528	1,093	976	5.16
853	35	592	1,166	1,033	5.59
997	42	700	1,328	1,159	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 With Apprec.	Without Apprec.	Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
\$2,921	\$ 6.81	\$11.43	\$331,877	\$255,187	\$115,674	\$192,536
2,754	8.41	12.12	175,987	127,746	42,826	90,274
2,667	9.13	12.77	114,944	90,074	22,567	51,012
2,578	9.99	13.20	89,770	58,939	13,025	35,705
2,459	10.47	13.57	69,743	45,653	3,039	21,327

2,376	10.74	14.04	56,700	34,538	-3,324	11,395
2,276	11.00	14.38	45,465	25,844	-12,124	2,802
2,185	11.53	15.09	29,906	13,628	-23,811	-9,084
2,118	12.21	15.95	16,185	-18,515	-44,840	-27,592
1,850	14.16	18.92	-40,501	-85,430	-137,414	-147,251

Table 54. **SELECTED BUSINESS FACTORS BY MILKING FREQUENCY**
New York State Dairy Farms, 1990 & 1991

Item	2x/Day Milking		3x/Day Milking	
	1990	1991	1990	1991
Number of farms	343	340	37	53
<u>Business Size & Production</u>				
Number of cows	90	91	242	230
Number of heifers	73	76	193	187
Milk sold, lbs.	1,521,148	1,563,022	4,834,005	4,562,561
Milk sold/cow, lbs.	16,996	17,179	19,957	19,858
Milk plant test, % BF	3.64%	3.68%	3.41%	3.61%
Tillable acres, total	284	291	617	568
Hay crop, tons DM/acre	2.7	2.3	2.8	2.7
Corn silage, tons/acre	14.4	13.3	14.3	14.3
Forage DM/cow, tons	8.0	7.6	7.3	7.2
<u>Labor & Capital Efficiency</u>				
Worker equivalent	2.95	2.89	6.49	6.25
Milk sold/worker, lbs.	515,370	540,462	744,912	730,306
Cows/worker	30	31	37	37
Farm capital/worker	\$204,725	\$218,023	\$224,672	\$228,493
Farm capital/cow	\$6,752	\$6,929	\$6,020	\$6,212
Farm capital/cwt. milk	\$39.72	\$40.34	\$30.16	\$31.29
<u>Milk Production Costs & Returns</u>				
Selected costs/cwt.:				
Hired labor	\$1.48	\$1.43	\$2.53	\$2.35
Grain & concentrate	\$4.12	\$3.75	\$4.25	\$3.82
Purchased roughage	\$0.12	\$0.10	\$0.18	\$0.09
Replacements purchased	\$0.24	\$0.16	\$0.13	\$0.13
Vet & medicine	\$0.31	\$0.31	\$0.35	\$0.35
Milk marketing	\$0.58	\$0.64	\$0.39	\$0.44
Other dairy expenses	\$0.68	\$0.61	\$0.62	\$0.66
Operating costs/cwt.	\$11.06	\$10.21	\$11.20	\$10.59
Total labor costs/cwt.	\$3.07	\$3.04	\$3.02	\$2.89
Operator resources/cwt.	\$3.30	\$3.28	\$1.76	\$1.69
Total costs/cwt.	\$15.98	\$15.06	\$14.26	\$13.57
Average farm price/cwt.	\$14.90	\$12.90	\$15.03	\$13.02
Return over total costs/cwt.	\$-1.08	\$-2.16	\$0.77	\$-0.55
<u>Related Cost Factors</u>				
Hired labor/cow	\$252	\$246	\$505	\$466
Total labor/cow	\$522	\$521	\$603	\$574
Purchased dairy feed/cow	\$721	\$661	\$883	\$777
Purchased grain & concentrate as % milk receipts	28%	29%	28%	29%
Vet & medicine/cow	\$52	\$53	\$69	\$70
Machinery costs/cow	\$492	\$451	\$455	\$410
<u>Profitability Analysis</u>				
Net farm income (w/o apprec.)	\$37,452	\$21,443	\$124,477	\$54,465
Labor & mgmt. income/operator	\$9,277	\$-3,181	\$55,437	\$9,276
Rates of return on:				
Equity capital w/apprec.	2.86%	-0.15%	12.43%	6.32%
All capital w/apprec.	4.58%	2.37%	10.81%	7.24%

Table 55. FARM RECEIPTS AND EXPENSES PER COW AND PER HUNDREDWEIGHT FOR TWO LEVELS OF MILK PRODUCTION
407 New York Dairy Farms, 1991

Item	407 Dairy Farms		221 Dairy Farms Milk/Cow <18,000#		186 Dairy Farms Milk/Cow ≥18,000#	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
ACCRUAL RECEIPTS						
Milk sales	\$2,333	\$12.95	\$2,044	\$12.93	\$2,587	\$12.96
Dairy cattle	244	1.35	211	1.34	272	1.36
Dairy calves	48	0.27	44	0.28	52	0.26
Other livestock	6	0.03	9	0.05	3	0.02
Crops	27	0.15	15	0.09	38	0.19
Government receipts	23	0.13	26	0.16	21	0.11
All other	39	0.21	32	0.20	45	0.22
TOTAL ACCRUAL RECEIPTS	\$2,720	\$15.09	\$2,381	\$15.05	\$3,018	\$15.12
ACCRUAL EXPENSES						
<u>Labor: Hired</u>	\$ 313	\$ 1.74	\$ 241	\$ 1.53	\$ 376	\$ 1.88
<u>Feed: Dairy grain & conc.</u>	679	3.77	607	3.84	742	3.71
Dairy roughage	19	0.10	17	0.11	20	0.10
Nondairy	1	0.01	1	0.01	1	0.01
<u>Machinery: Machine hire/ rent/ lease</u>	30	0.17	27	0.17	33	0.16
Mach. repairs/parts	130	0.72	125	0.79	135	0.68
Auto expense (farm share)	7	0.04	7	0.05	7	0.04
Fuel, oil, grease	66	0.37	67	0.42	66	0.33
<u>Livestock: Replacement</u>						
livestock	26	0.15	26	0.16	27	0.14
Breeding	33	0.18	27	0.17	37	0.19
Vet & medicine	59	0.33	50	0.31	67	0.33
Milk marketing	104	0.58	92	0.58	115	0.57
Cattle lease/rent	3	0.02	4	0.02	2	0.01
Other livestock expense	114	0.63	92	0.58	133	0.67
<u>Crops: Fertilizer & lime</u>	73	0.40	71	0.45	75	0.37
Seeds & plants	36	0.20	35	0.22	37	0.19
Spray & other crop expense	36	0.20	28	0.18	42	0.21
<u>Real Estate: Land/ building/fence repair</u>	35	0.19	32	0.20	38	0.19
Taxes	68	0.38	72	0.46	65	0.33
Rent & lease	45	0.25	37	0.23	52	0.26
<u>Other: Insurance</u>	42	0.23	44	0.28	41	0.20
Telephone (farm share)	7	0.04	8	0.05	6	0.03
Electricity (farm share)	64	0.35	63	0.40	65	0.33
Interest paid	192	1.07	170	1.08	212	1.06
Miscellaneous	33	0.18	30	0.19	36	0.18
TOTAL OPERATING EXPENSES	\$2,215	\$12.30	\$1,973	\$12.48	\$2,430	\$12.17
Expansion livestock	36	0.20	24	0.15	47	0.23
Machinery depreciation	141	0.78	137	0.86	146	0.73
Building depreciation	89	0.49	78	0.49	98	0.49
TOTAL ACCRUAL EXPENSES	\$2,481	\$13.77	\$2,212	\$13.98	\$2,721	\$13.62

Table 56. FARM RECEIPTS AND EXPENSES PER COW AND PER
HUNDREDWEIGHT FOR TWO HERD SIZE CATEGORIES
407 New York Dairy Farms, 1991

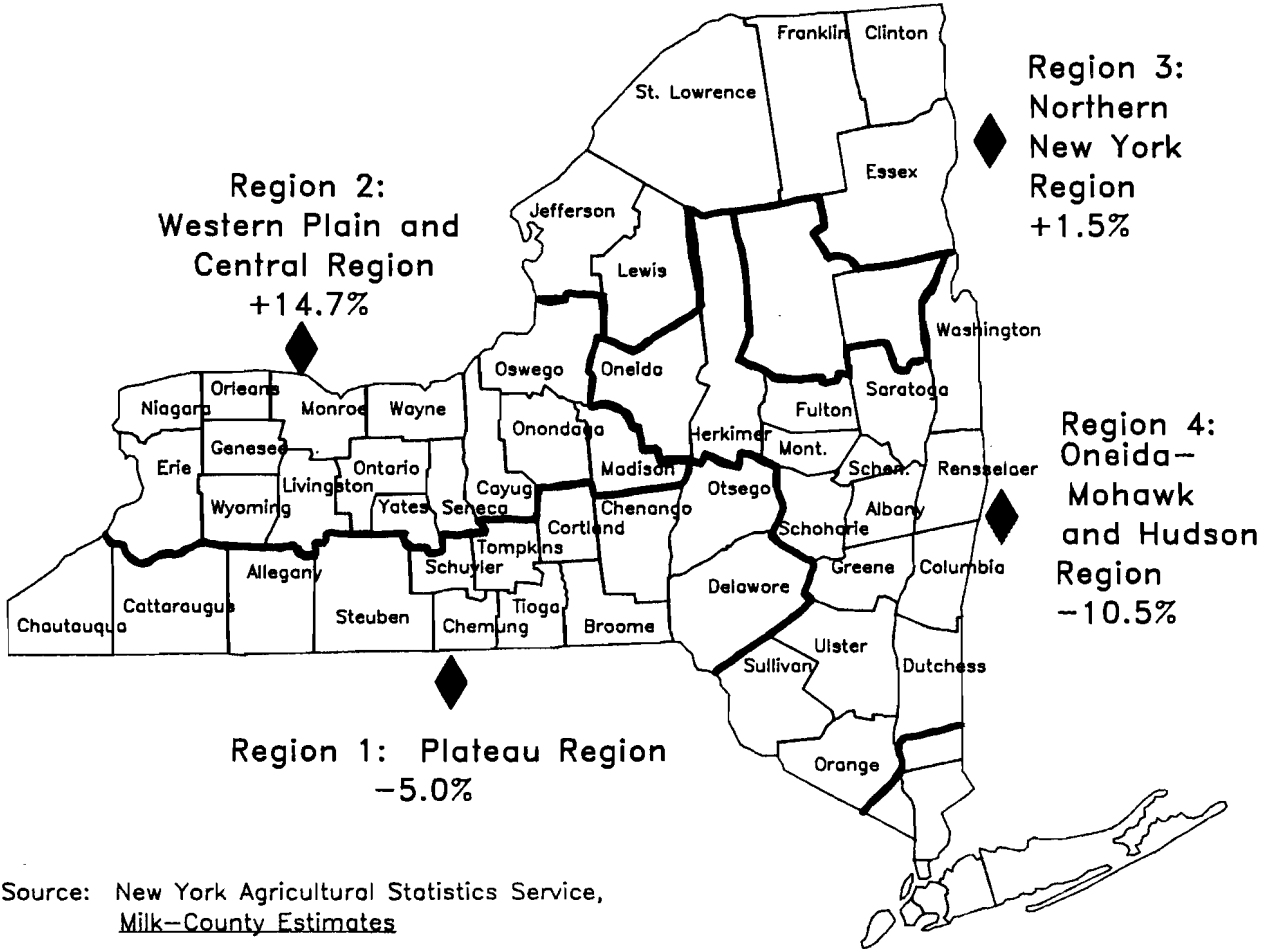
Item	407 Dairy Farms		260 Dairy Farms with <100 Cows		147 Dairy Farms with ≥100 Cows	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
ACCRUAL RECEIPTS						
Milk sales	\$2,333	\$12.95	\$2,202	\$12.77	\$2,406	\$13.04
Dairy cattle	244	1.35	198	1.15	269	1.46
Dairy calves	48	0.27	52	0.30	46	0.25
Other livestock	6	0.03	8	0.04	5	0.02
Crops	27	0.15	13	0.08	35	0.19
Government receipts	23	0.13	23	0.13	24	0.13
All other	39	0.21	35	0.20	41	0.22
TOTAL ACCRUAL RECEIPTS	\$2,720	\$15.09	\$2,531	\$14.67	\$2,826	\$15.31
ACCRUAL EXPENSES						
<u>Labor</u> : Hired	\$ 313	\$ 1.74	\$ 185	\$ 1.07	\$ 384	\$ 2.08
<u>Feed</u> : Dairy grain & conc.	679	3.77	643	3.72	699	3.79
Dairy roughage	19	0.10	22	0.13	17	0.09
Nondairy	1	0.01	1	0.01	1	0.01
<u>Machinery</u> : Machine hire/ rent/ lease	30	0.17	28	0.16	32	0.17
Mach. repairs/parts	130	0.72	129	0.75	131	0.71
Auto expense (farm share)	7	0.04	12	0.07	5	0.03
Fuel, oil, grease	66	0.37	69	0.40	65	0.35
<u>Livestock</u> : Replacement livestock	26	0.15	27	0.15	26	0.14
Breeding	33	0.18	37	0.21	30	0.16
Vet & medicine	59	0.33	49	0.28	64	0.35
Milk marketing	104	0.58	112	0.65	100	0.54
Cattle lease/rent	3	0.02	2	0.01	3	0.02
Other livestock expense	114	0.63	113	0.66	114	0.62
<u>Crops</u> : Fertilizer & lime	73	0.40	71	0.41	74	0.40
Seeds & plants	36	0.20	33	0.19	38	0.21
Spray & other crop expense	36	0.20	29	0.17	39	0.21
<u>Real Estate</u> : Land/ building/fence repair	35	0.19	36	0.21	34	0.19
Taxes	68	0.38	86	0.50	59	0.32
Rent & lease	45	0.25	35	0.20	51	0.27
<u>Other</u> : Insurance	42	0.23	48	0.28	39	0.21
Telephone (farm share)	7	0.04	10	0.06	5	0.03
Electricity (farm share)	64	0.35	73	0.43	59	0.32
Interest paid	192	1.07	188	1.09	195	1.05
Miscellaneous	33	0.18	30	0.17	35	0.19
TOTAL OPERATING EXPENSES	\$2,215	\$12.30	\$2,068	\$11.98	\$2,299	\$12.46
Expansion livestock	36	0.20	12	0.07	49	0.27
Machinery depreciation	141	0.78	151	0.88	136	0.74
Building depreciation	89	0.49	79	0.46	94	0.51
TOTAL ACCRUAL EXPENSES	\$2,481	\$13.77	\$2,310	\$13.39	\$2,578	\$13.98

Table 57. COMPARISON OF DAIRY FARM BUSINESS DATA BY REGION
407 New York Dairy Farms, 1991

Item	Plateau Region	W. Plain & Central Region	Northern New York	Oneida- Mohawk & Hudson Reg.
Number of farms	113	81	90	123
ACCRUAL EXPENSES				
Hired labor	\$ 22,270	\$ 84,414	\$ 24,453	\$ 21,314
Feed	64,049	137,982	60,783	63,120
Machinery	20,857	46,518	19,569	22,207
Livestock	29,547	67,540	22,830	36,374
Crops	11,765	32,038	10,510	13,729
Real estate	13,544	28,560	11,831	14,802
Other	29,058	66,207	30,572	32,207
Total Operating Expenses	\$191,090	\$463,259	\$180,548	\$203,753
Expansion livestock	3,004	12,787	1,176	1,184
Machinery depreciation	13,124	27,020	13,230	12,548
Building depreciation	6,289	23,361	5,626	7,385
Total Accrual Expenses	\$213,507	\$526,427	\$200,580	\$224,870
ACCRUAL RECEIPTS				
Milk sales	\$199,530	\$489,305	\$191,771	\$213,440
Livestock	28,339	66,598	23,365	22,710
Crops	1,402	8,055	1,495	2,299
All other	5,956	13,313	4,819	5,044
Total Accrual Receipts	\$235,227	\$577,271	\$221,450	\$243,493
PROFITABILITY ANALYSIS				
Net farm income (w/o apprec.)	\$21,720	\$50,844	\$20,870	\$18,623
Net farm income (w/apprec.)	\$34,436	\$78,450	\$29,670	\$30,902
Labor & mgmt. income	\$-3,117	\$10,160	\$-1,180	\$-7,269
Number of operators	1.40	1.48	1.19	1.39
Labor & mgmt. income/operator	\$-2,226	\$6,865	\$-992	\$-5,229
BUSINESS FACTORS				
Worker equivalent	2.94	5.31	2.80	2.94
Number of cows	88	201	86	92
Number of heifers	73	165	77	72
Acres of hay crops*	149	197	168	169
Acres of corn silage*	61	176	64	73
Total tillable acres	261	535	278	296
Pounds of milk sold	1,544,106	3,776,421	1,508,141	1,628,702
Pounds of milk sold/cow	17,603	18,749	17,491	17,724
Tons hay crop dry matter/acre	2.2	2.7	2.3	2.2
Tons corn silage/acre	13.2	13.9	14.5	13.1
Cows/worker	30	38	31	31
Pounds of milk sold/worker	525,537	711,443	538,266	554,408
% grain & conc. of milk receipts	31%	27%	31%	29%
Feed & crop expense/cwt. milk	\$4.89	\$4.49	\$4.73	\$4.72
Fertilizer & lime/crop acre	\$24.14	\$27.61	\$19.30	\$24.90
Machinery cost/tillable acre	\$154	\$158	\$139	\$137

*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, 1981-1991



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

Table 58. MILK PRODUCTION & AVERAGE COST OF PRODUCING MILK
Four Regions of New York, 1991

Item	Region*			
	1	2	3	4
<u>Milk Production**</u>	(million pounds)			
1981	3,311.3	2,970.0	2,003.1	2,761.8
1991	3,144.4	3,407.1	2,063.3	2,472.2
Percent change	-5.0%	+14.7%	+1.5%	-10.5%
<u>Cost of Producing Milk</u>	(\$ per hundredweight milk)			
Operating cost	\$10.26	\$10.28	\$10.08	\$10.74
Total cost	15.08	13.74	14.55	15.30
Average price received	12.92	12.96	12.72	13.10
Return per cwt. to operator labor, mgmt. & capital	\$1.18	\$1.27	\$1.08	\$0.92

*See Figure 2 for region descriptions.

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

Table 59. COMPARISON OF FARM BUSINESS SUMMARIES FOR 1988-1991
Same 215 New York Dairy Farms

Selected Factors	1988	1989	1990	1991
<u>Size of Business</u>				
Average number of cows	108	112	116	120
Average number of heifers	87	89	95	100
Milk sold, cwt.	18,639	19,858	20,824	22,078
Worker equivalent	3.25	3.36	3.47	3.53
Total tillable acres	308	316	335	339
<u>Rates of Production</u>				
Milk sold per cow, lbs.	17,209	17,702	17,986	18,425
Hay DM per acre, tons	2.6	2.7	2.8	2.6
Corn silage per acre, tons	14.3	13.7	14.6	14.2
<u>Labor Efficiency</u>				
Cows per worker	33	33	33	34
Milk sold per worker, lbs.	574,047	590,139	599,937	624,856
<u>Cost Control</u>				
Grain & concentrate purchased as percent of milk sales	28%	27%	28%	29%
Dairy feed & crop expense per cwt. milk	\$4.57	\$4.89	\$5.16	\$4.63
Labor & machinery costs per cow	\$827	\$891	\$1,027	\$997
Oper. cost of producing cwt. milk	\$9.36	\$10.24	\$11.07	\$10.24
Total cost of producing cwt. milk	\$13.40	\$14.32	\$15.28	\$14.34
Milk receipts per cwt. milk	\$13.04	\$14.55	\$14.96	\$12.98
<u>Capital Efficiency (avg. for year)</u>				
Farm capital per cow	\$5,986	\$6,219	\$6,530	\$6,670
Machinery & equip. per cow	\$1,079	\$1,141	\$1,216	\$1,263
Real estate per cow	\$2,737	\$2,787	\$2,928	\$3,008
Livestock investment per cow	\$1,270	\$1,338	\$1,409	\$1,435
Capital turnover, years	2.14	1.97	2.05	2.27
<u>Profitability</u>				
Net farm income w/o apprec.	\$43,828	\$59,098	\$53,093	\$31,307
Net farm income w/apprec.	\$62,101	\$84,215	\$62,361	\$47,622
Labor & management income per operator/manager	\$15,207	\$24,581	\$17,650	\$1,406
Rate return on:				
equity capital w/apprec.	7.8%	11.4%	5.5%	2.4%
all capital w/apprec.	7.9%	10.5%	6.5%	4.4%
all capital w/o apprec.	5.1%	6.9%	5.3%	2.4%
<u>Financial Summary, End Year</u>				
Farm net worth	\$433,412	\$488,591	\$510,321	\$522,416
Change in net worth w/apprec.	\$33,510	\$51,743	\$19,263	\$11,142
Debt to asset ratio	0.35	0.32	0.35	0.36
Farm debt per cow	\$2,120	\$2,021	\$2,295	\$2,296

Table 60. FARM BUSINESS SUMMARIES FOR SINGLE PROPRIETORSHIPS,
PARTNERSHIPS, AND CORPORATIONS
407 New York Dairy Farms, 1991

Item	275 Single Prop.	108 Partnerships	24 Corporations
<u>ACCRUAL EXPENSES</u>			
Hired labor	\$ 28,626	\$ 36,384	\$ 98,946
Feed	65,535	90,648	159,849
Machinery	21,692	30,563	56,291
Livestock	30,371	44,639	90,217
Crops	12,384	19,968	41,526
Real estate	13,080	20,595	37,828
Other	<u>31,084</u>	<u>46,641</u>	<u>73,930</u>
Total Operating Expenses	\$202,772	\$289,438	\$558,587
Expansion livestock	1,342	8,352	14,817
Machinery depreciation	13,091	18,425	33,988
Building depreciation	<u>7,050</u>	<u>11,055</u>	<u>36,864</u>
Total Accrual Expenses	\$224,255	\$327,270	\$644,256
<u>ACCRUAL RECEIPTS</u>			
Milk sales	\$210,611	\$310,633	\$592,773
Livestock	24,587	44,397	80,692
Crops	1,131	6,514	8,899
All other	<u>4,496</u>	<u>10,729</u>	<u>17,117</u>
Total Accrual Receipts	\$240,825	\$372,273	\$699,481
<u>PROFITABILITY ANALYSIS</u>			
Net farm income (without appreciation)	\$16,570	\$45,003	\$55,225
Net farm income (with appreciation)	\$28,503	\$61,464	\$93,406
Labor & management income	\$-7,525	\$14,073	\$850
Number of operators	1.02	2.08	2.06
Labor & management income per operator	\$-7,377	\$6,766	\$413
Return on all capital w/apprec.	3.0%	4.7%	5.0%
<u>FINANCIAL MEASURES</u>			
Percent equity	64%	64%	68%
Debt/asset ratio - long-term	0.41	0.39	0.27
Debt/asset ratio - inter. & current	0.32	0.34	0.36
Farm net worth, end year	\$402,336	\$574,454	\$1,050,290
Change in net worth w/appreciation	\$11,435	\$12,605	\$18,641
Total farm debt per cow	\$2,431	\$2,345	\$1,957
Debt payments made per cow	\$528	\$541	\$600
Cash flow coverage ratio for 1991	0.81	0.83	1.24
<u>BUSINESS FACTORS</u>			
Worker equivalent	2.88	4.05	6.06
Number of cows	92	132	241
Pounds of milk sold per cow	17,821	18,069	18,822
Total tillable acres	277	389	663
Tons hay crop dry matter per acre	2.3	2.5	2.6
Tons corn silage per acre	13.9	13.8	12.7
Cows per worker	32	33	40
Pounds of milk sold per worker	567,076	590,322	747,380
Purc. grain & conc. as % of milk receipts	30%	29%	26%
Average price per cwt. milk	\$12.88	\$13.00	\$13.08
Total cost of producing milk	\$14.77	\$14.27	\$14.28

Table 61. FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
56 New York Dairy-Renter Farms,* 1991

<u>ACCRUAL EXPENSES</u>		<u>ACCRUAL RECEIPTS</u>			
Labor: Hired	\$ 17,622	Milk sales	\$177,521		
Feed: Dairy grain & conc.	49,077	Dairy cattle	17,937		
Dairy roughage	2,380	Dairy calves	3,457		
Nondairy	121	Other livestock	397		
Machinery:Mach. hire/rent/lease	2,311	Crops	-211		
Mach. repairs/parts	8,842	Government receipts	830		
Auto expense (farm share)	425	Custom machine work	389		
Fuel, oil, grease	5,409	Gas tax refund	103		
Livestock: Replacement lvstk.	4,801	Other	1,357		
Breeding	2,388	TOTAL ACCRUAL RECEIPTS	\$201,780		
Vet & medicine	3,812				
Milk marketing	9,498	<u>PROFITABILITY ANALYSIS</u>			
Cattle lease/rent	258	Net farm inc. (w/o apprec.)	\$17,018		
Other livestock expense	9,123	Net farm inc. (w/apprec.)	\$21,793		
Crops: Fertilizer & lime	5,822	Labor & mgt. income/farm	\$4,268		
Seeds & plants	2,688	Number of operators	1.22		
Spray & other crop expense	2,481	Labor & mgt. income/oper.	\$3,498		
Real Estate: Land/building/ fence repair	2,500	Rate of return on equity capital including apprec.	-4.2%		
Taxes	2,681				
Rent & lease	15,734	<u>BUSINESS FACTORS</u>			
Other:		Number of cows	79		
Insurance	3,733	Number of heifers	56		
Telephone (farm share)	611	Worker equivalent	2.46		
Electricity (farm share)	5,416	Total tillable acres	249		
Interest paid	7,836	Milk sold per cow, lbs.	17,378		
Miscellaneous	2,362	Hay DM per acre, tons	2.4		
TOTAL OPERATING EXPENSES	\$167,931	Corn silage per acre, tons	12.0		
		Milk sold per worker, lbs.	555,296		
Expansion livestock	3,839	Grain/conc. as % milk sales	28%		
Machinery depreciation	11,520	Feed & crop exp./cwt. milk	\$4.57		
Building depreciation	1,472	Labor & mach. costs/cow	\$931		
TOTAL ACCRUAL EXPENSES	\$184,762	Average price/cwt. milk	\$12.99		
<u>ASSETS</u>	<u>Jan. 1</u>	<u>Dec. 31</u>	<u>LIABILITIES</u>	<u>Jan. 1</u>	<u>Dec. 31</u>
Farm cash/chkg./sav.	\$ 3,675	\$ 3,374	Accounts payable	\$ 4,756	\$ 6,767
Accounts receivable	13,550	16,555	Operating debt	6,613	8,192
Prepaid expenses	0	0	Short-term	1,629	1,970
Feed & supplies	36,200	34,116	Advanced gov't. rec.	0	0
Dairy cows**	77,531	81,741	Intermediate***	64,470	76,828
Heifers	29,129	31,661	Long-term**	14,343	12,995
Bulls & other lvstk.	606	758	Total Farm Liab.	\$ 91,811	\$106,752
Machinery & equip**	84,751	87,586	Nonfarm Liab.****	9,093	10,675
Farm Credit stock	697	849	Total Farm & Nonfarm		
Other stock & cert.	5,141	5,669	Liabilities	\$100,904	\$117,427
Land & buildings**	19,561	25,151			
Total Farm Assets	\$270,841	\$287,460	Farm Net Worth	\$179,030	\$180,708
Nonfarm Assets****	44,713	49,313	Farm & Nonfarm		
Total Farm & Nonfarm			Net Worth	\$214,650	\$219,346
Assets	\$315,554	\$336,773			

*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 30 farms reporting.

Table 62. FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
13 New York Dairy-Cash Crop Farms,* 1991

<u>ACCRUAL EXPENSES</u>		<u>ACCRUAL RECEIPTS</u>			
<u>Labor</u> : Hired	\$ 31,970	Milk sales	\$237,902		
<u>Feed</u> : Dairy grain & conc.	45,812	Dairy cattle	20,366		
Dairy roughage	8	Dairy calves	5,207		
Nondairy	483	Other livestock	1,849		
<u>Machinery</u> : Mach. hire/rent/lease	5,019	Crops	24,747		
Mach. repairs/parts	17,460	Government receipts	8,096		
Auto expense (farm share)	799	Custom machine work	835		
Fuel, oil, grease	8,483	Gas tax refund	304		
<u>Livestock</u> : Replacement lvstk.	2,787	Other	<u>9,550</u>		
Breeding	3,494	TOTAL ACCRUAL RECEIPTS	\$308,856		
Vet & medicine	5,768				
Milk marketing	8,081				
Cattle lease/rent	0	<u>PROFITABILITY ANALYSIS</u>			
Other livestock expense	11,406	Net farm inc. (w/o apprec.)	\$57,678		
<u>Crops</u> : Fertilizer & lime	13,977	Net farm inc. (w/apprec.)	\$71,538		
Seeds & plants	7,720	Labor & mgt. income/farm	\$21,088		
Spray & other crop expense	8,625	Number of operators	1.88		
<u>Real Estate</u> : Land/building/ fence repair	4,981	Labor & mgt. income/oper.	\$11,217		
Taxes	9,547	Rate of return on equity capital including apprec.	4.0%		
Rent & lease	4,864				
<u>Other</u> :		<u>BUSINESS FACTORS</u>			
Insurance	4,794	Number of cows	100		
Telephone (farm share)	792	Number of heifers	81		
Electricity (farm share)	6,685	Worker equivalent	3.65		
Interest paid	13,097	Total tillable acres	515		
Miscellaneous	<u>5,190</u>	Milk sold per cow, lbs.	18,538		
TOTAL OPERATING EXPENSES	\$221,842	Hay DM per acre, tons	2.7		
		Corn silage per acre, tons	13.1		
Expansion livestock	1,215	Milk sold per worker, lbs.	509,848		
Machinery depreciation	17,682	Grain/conc. as % milk sales	19%		
Building depreciation	<u>10,439</u>	Feed & crop exp./cwt. milk	\$4.09		
TOTAL ACCRUAL EXPENSES	\$251,178	Labor & mach. costs/cow	\$1,213		
		Average price/cwt. milk	\$12.79		

<u>ASSETS</u>	<u>Jan. 1</u>	<u>Dec. 31</u>	<u>LIABILITIES</u>	<u>Jan. 1</u>	<u>Dec. 31</u>
Farm cash/chkg./sav.	\$ 8,436	\$ 4,969	Accounts payable	\$ 4,341	\$ 4,451
Accounts receivable	19,423	20,150	Operating debt	12,966	18,400
Prepaid expenses	0	0	Short-term	5,769	7,938
Feed & supplies	89,745	81,347	Advanced gov't. rec.	0	0
Dairy cows**	96,304	101,938	Intermediate***	69,411	69,122
Heifers	39,924	41,169	Long-term**	<u>91,518</u>	<u>87,030</u>
Bulls & other lvstk.	1,631	3,008	Total Farm Liab.	\$184,005	\$186,941
Machinery & equip**	157,597	157,852	Nonfarm Liab.****	<u>200</u>	<u>0</u>
Farm Credit stock	1,585	1,250	Total Farm & Nonfarm		
Other stock & cert.	7,666	7,695	Liabilities	\$184,205	\$186,941
Land & buildings**	<u>430,154</u>	<u>438,953</u>	Farm Net Worth	\$668,460	\$671,390
Total Farm Assets	\$852,465	\$858,331	Farm & Nonfarm		
Nonfarm Assets****	<u>139,704</u>	<u>158,107</u>	Net Worth	\$807,964	\$829,497
Total Farm & Nonfarm					
Assets	\$992,169	\$1,016,438			

*A farm is classified as dairy-cash crop if cash crop sales amounted to 10 percent or more of accrual milk sales. **Includes discounted lease payments.

Includes Farm Credit stock and discounted lease payments for cattle and machinery. *Average of seven farm reporting nonfarm assets and liabilities.

Table 64. FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
Average of 407 New York Dairy Farms, 1991

<u>ACCRUAL EXPENSES</u>		<u>ACCRUAL RECEIPTS</u>			
Labor: Hired	\$ 34,832	Milk sales	\$259,688		
Feed: Dairy grain & conc.	75,557	Dairy cattle	27,132		
Dairy roughage	2,065	Dairy calves	5,389		
Nondairy	139	Other livestock	631		
Machinery:Mach. hire/rent/lease	3,370	Crops	3,018		
Mach. repairs/parts	14,499	Government receipts	2,592		
Auto expense (farm share)	822	Custom machine work	662		
Fuel, oil, grease	7,397	Gas tax refund	183		
Livestock: Replacement lvstk.	2,946	Other	3,667		
Breeding	3,625	- Non-cash capital transfer	(-) 211		
Vet & medicine	6,536	TOTAL ACCRUAL RECEIPTS	\$302,751		
Milk marketing	11,598	<u>PROFITABILITY ANALYSIS</u>			
Cattle lease/rent	331	Net farm inc. (w/o apprec.)	\$26,391		
Other livestock expense	12,649	Net farm inc. (w/apprec.)	\$41,074		
Crops: Fertilizer & lime	8,103	Labor & mgt. income/farm	\$-1,308		
Seeds & plants	4,053	Number of operators	1.37		
Spray & other crop expense	3,959	Labor & mgt. income/oper.	\$-955		
Real Estate: Land/building/ fence repair	3,899	Rate of return on equity capital including apprec.	1.4%		
Taxes	7,614	<u>BUSINESS FACTORS</u>			
Rent & lease	5,021	Number of cows	111		
Other:		Number of heifers	92		
Insurance	4,709	Worker equivalent	3.38		
Telephone (farm share)	779	Total tillable acres	330		
Electricity (farm share)	7,137	Milk sold per cow, lbs.	18,027		
Interest paid	21,423	Hay DM per acre, tons	2.4		
Miscellaneous	3,690	Corn silage per acre, tons	13.7		
TOTAL OPERATING EXPENSES	\$246,753	Milk sold per worker, lbs.	593,297		
Expansion livestock	3,997	Grain/conc. as % milk sales	29%		
Machinery depreciation	15,739	Feed & crop exp./cwt. milk	\$4.67		
Building depreciation	9,871	Labor & mach. costs/cow	\$976		
TOTAL ACCRUAL EXPENSES	\$276,360	Average price/cwt. milk	\$12.95		
<u>ASSETS</u>		<u>LIABILITIES</u>			
	Jan. 1	Dec. 31	Jan. 1	Dec. 31	
Farm cash/chkg./sav.	\$ 6,322	\$ 6,039	Accounts payable	\$ 7,553	\$ 10,256
Accounts receivable	19,528	22,354	Operating debt	10,204	10,002
Prepaid expenses	448	418	Short-term	5,118	4,393
Feed & supplies	60,376	58,582	Advanced gov't. rec.	0	63
Dairy cows*	109,383	116,159	Intermediate**	107,657	110,738
Heifers	48,531	51,320	Long-term*	128,000	134,519
Bulls & other lvstk.	1,284	1,348	Total Farm Liab.	\$258,532	\$269,971
Machinery & equip.*	140,050	141,889	Nonfarm Liab.***	3,498	3,532
Farm Credit stock	3,319	3,208	Total Farm & Nonfarm		
Other stock & cert.	8,080	8,362	Liabilities	\$262,030	\$273,503
Land & buildings*	335,257	346,507	Farm Net Worth	\$474,046	\$486,215
Total Farm Assets	\$732,578	\$756,186	Farm & Nonfarm		
Nonfarm Assets***	68,324	70,941	Net Worth	\$538,872	\$553,624
Total Farm & Nonfarm					
Assets	\$800,902	\$827,127			

*Includes discounted lease payments. **Includes Farm Credit stock and discounted lease payments for cattle and machinery. ***Average of 252 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.

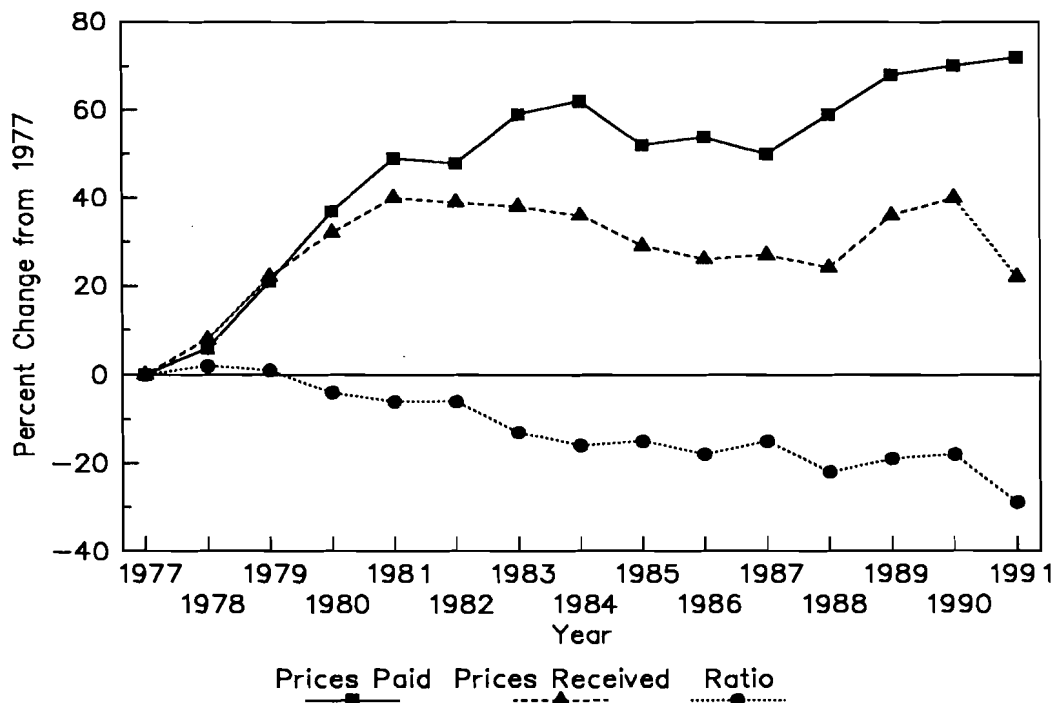
Table A1. PRICES PAID BY NEW YORK FARMERS FOR SELECTED ITEMS, 1981-1991

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)
1981	193.70	275	60.00	1.310	14,900	3.26
1982	176.60	278	63.70	1.240	16,000	3.26
1983	192.60	249	64.60	1.140	17,200	3.52
1984	194.30	250	70.20	1.140	17,400	3.60
1985	164.20	238	67.30	1.080	16,800	4.01***
1986	162.90	200**	65.60	0.840**	16,550	4.41***
1987	152.80**	190**	64.90	0.765**	16,650	4.60***
1988	180.80**	208**	64.20	0.810**	17,150	5.02***
1989	188.50**	227**	71.40	0.828**	17,350	5.25***
1990	176.75**	215**	69.90	1.080**	17,950	5.51***
1991	171.75**	243**	70.20	0.995**	18,650	5.79***

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

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, and 1990.

Chart A1. Ratio of Prices Received for Milk and Prices Paid by New York Dairy Farmers, 1977-1991



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.

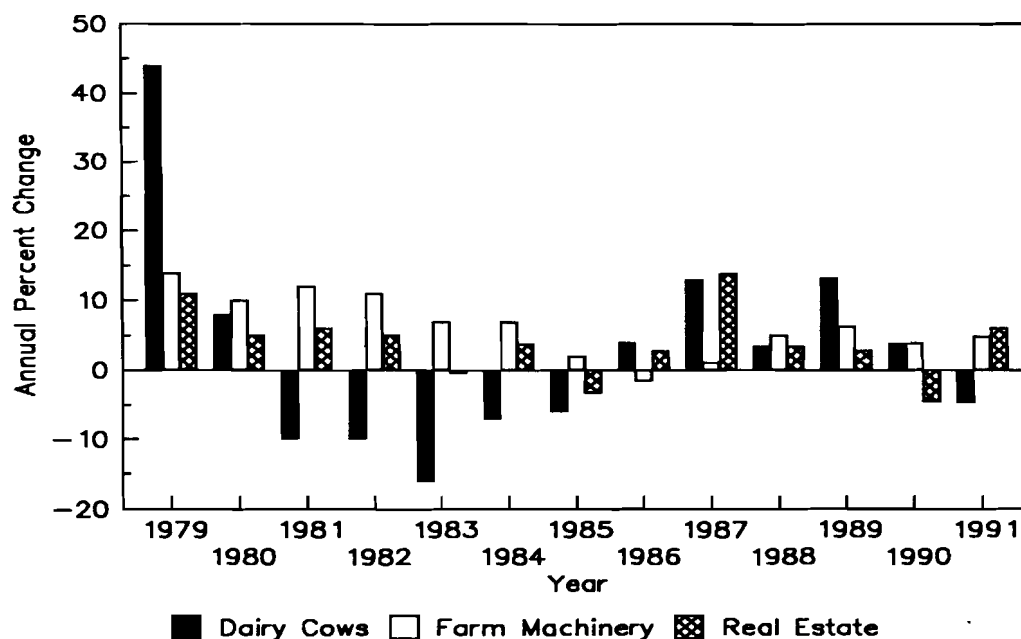
Table A2. VALUES OF NEW YORK DAIRY FARM INVENTORY ITEMS, 1977-1991

Year	Dairy Cows		Machinery*	Farm Real Estate	
	Value/Head	1977=100	1977=100	Value/Acre	1977=100
1977	\$ 495	100	100	\$587	100
1978	800	162	109	600	102
1979	1,150	232	121	670	114
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	204	219	1,031	176

SOURCE: NYCRS, New York Agricultural Statistics. USDA, ASB, Agricultural Prices. USDA, ERS, Agricultural Resources Situation and Outlook Report.
*United States average.

Dairy cow prices turned down in 1991 after increasing for five consecutive years. The December 1991 value per head averaged \$20 lower than in December 1990. New machinery prices have increased since 1977 with a slight decline in 1986. The 1991 machinery prices increased 4.8 percent over the 1990 level. Farm real estate values increased 6 percent in 1991.

Chart A2. Annual Changes in Dairy Cow, Farm Machinery, and Farm Real Estate Values, New York Dairy Farms, 1977-1991



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 6)

Accrual Expenses - (defined on page 8)

Accrual Receipts - (defined on page 8)

Annual Cash Flow Statement - (defined on page 14)

Appreciation - (defined on page 9)

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 41 farms with highest net farm incomes (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 32.)

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 14)

Cash Flow Coverage Ratio - (defined on page 16)

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 7)

Cash Receipts - (defined on page 8)

Change in Accounts Payable - (defined on page 8)

Change in Accounts Receivable - (defined under Accrual Receipts on page 8)

Change in Advanced Government Receipts - (defined under Accrual Receipts, page 8)

Change in Inventory - (defined on page 7)

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 23)

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

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 13)

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 35)

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 16 and 38.

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 38.

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 10)

Labor and Management Income Per Operator - (defined on page 10)

Labor Efficiency - Production capacity and output per worker. (See analysis on pages 32 and 33.)

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

Net Farm Income - (defined on page 9)

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 8)

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 23)

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 7)

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.

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 11)

Return on Total Capital - (defined on page 11)

Return to Operators' Labor, Management, and Equity Capital - (defined on page 9)

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.

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 23)

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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