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**DAIRY FARM  
BUSINESS SUMMARY**

**NEW YORK  
SMALL HERD  
FARMS,  
65 COWS  
OR FEWER  
1998**



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**1998 DAIRY FARM BUSINESS SUMMARY**  
**Small Herd Dairy Farms**  
**65 Cows or Fewer**  
**Table of Contents**

	<u>Page</u>
INTRODUCTION .....	1
Program Objectives .....	1
Format Features .....	1
PROGRESS OF THE FARM BUSINESS .....	2
SUMMARY AND ANALYSIS OF THE FARM BUSINESS .....	4
Business Characteristics .....	4
Income Statement .....	4
Profitability Analysis .....	6
Farm and Family Financial Status .....	9
Statement of Owner Equity .....	13
Cash Flow Statement .....	14
Repayment Analysis .....	16
Cropping Analysis .....	19
Dairy Analysis .....	21
Capital and Labor Efficiency Analysis .....	23
COMPARATIVE ANALYSIS OF THE FARM BUSINESS .....	24
Progress of the Farm Business .....	24
Regional Farm Business Chart .....	27
New York State Farm Business Chart .....	28
Financial Analysis Chart .....	30
Comparisons by Type of Barn and Herd Size .....	31
Herd Size Comparisons .....	31
IDENTIFY AND SET GOALS .....	38
GLOSSARY AND LOCATION OF COMMON TERMS .....	40
INDEX .....	43

# 1998 DAIRY FARM BUSINESS SUMMARY SMALL HERD DAIRY FARMS\*

## INTRODUCTION

Dairy farm managers throughout New York State have been participating in Cornell Cooperative Extension's farm business summary and analysis program since the early 1950's. Managers of each participating farm business receive a comprehensive summary and analysis of their farm business. The information in this report represents averages of the data submitted from dairy farms in New York for 1998 with herds of 65 cows or fewer and no milking parlors.

Small farms are facing increasing management challenges in their efforts to control costs and remain profitable. This publication reports the average performance and characteristics of small farms and the average of the top 25 percent of those small farms with the highest rate of return on assets without appreciation. Thus, not only can the average performance of small farms be used as a benchmark, but the performance of the most profitable small farms as well. Identifying strengths and areas for improvement by comparing your business to that of similar farms is an important first step in focusing attention on ways to improve the business.

### **Program Objective**

The primary objective of the dairy farm business summary, DFBS, is to help farm managers improve the business and financial management of their business through appropriate use of historical data and the application of modern farm business analysis techniques. This information can also be used to establish goals that enable the business to better fulfill its mission. In short, DFBS provides business and financial information needed in identifying and evaluating strengths and weaknesses of the farm business.

### **Format Features**

This report follows the same general format as the 1998 DFBS individual farm report received by participating dairy farmers. The analysis tables have a column that compares the average to the top 25% of the farms by rate of return on all capital without appreciation. This report may be used by any dairy farm manager who wants to compare his or her business with the average data of small farms. The individual farm data, the averages and other data can then be used to establish goals for the business. A DFBS Data Check-in Form can be used by non-DFBS participants to summarize their businesses.

This report features:

- (1) an income statement including accrual adjustments for farm business expenses and receipts, as well as measures of profitability with and without appreciation,
- (2) a complete balance sheet with analytical ratios;
- (3) a statement of owner equity which shows the sources of the change in owner equity during the year;
- (4) a cash flow statement and debt repayment ability analysis;
- (5) an analysis of crop acreage, yields, and expenses;
- (6) an analysis of dairy livestock numbers, production, and expenses;
- (7) a capital and labor efficiency analysis; and
- (8) progress of the farm business over the past two years.

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\*The small herd summary is comprised of farms with 65 or fewer cows and that do not use a milking parlor. Many counties had farms that met this criteria in 1998. This report was written by Wayne A. Knoblauch, Professor, Farm Management; Carry Oostveen, Cooperative Extension Educator in Cayuga County; Mariane Kiraly, Cooperative Extension Educator in Delaware County; and Jason Karszes, Senior Extension Associate, Pro-Dairy. Linda Putnam was in charge of data preparation. Faye Butts prepared the publication.

## PROGRESS OF THE FARM BUSINESS

Significant changes in three major areas impacting dairy farms made 1998 a very different year than 1997. Milk price, feed costs and growing conditions changed in a favorable direction for most dairy producers. The combination of these factors dramatically changed the profitability of dairy farms in 1998. Profit generation and net worth growth were the largest to occur in the 90's and many farms made significant financial progress towards their individual goals.

For both 1997 and 1998, 45 farms that averaged less than 65 cows in New York participated in the Dairy Farm Business Summary Program (DFBS), administered by Cornell Cooperative Extension and Cornell University. The table shows selected factors from the 45 farms that participated in the DFBS project each of the last two years. Comparing your business' performance with average data from these DFBS dairy farms can help you establish goals for your business. It is equally important to determine the progress your business has made over the past two or three years, to compare this progress to your goals, and to set goals for the future.

The price these farms received for milk increased 13.8 percent or \$1.88 per cwt. from 1997 to 1998. This large increase in milk price coupled with an increase in milk sold per cow of 3.6 percent increased gross milk sales per cow by 19.6 percent. With herd size remaining stable, milk sold per farm increased 5.1 percent.

While milk sold increased, the farms decreased the number of worker equivalents on the farm by 2.3 percent, which led to an increase of 5.6 percent in the milk sold per worker equivalent. With the actual decrease in worker equivalents on the farm, labor costs fell, with labor cost per cwt. of milk decreasing 7.7 percent.

Grain & concentrate purchased per hundredweight of milk produced fell from \$4.20 to \$3.87, a decrease of 7.9 percent. This decrease coupled with the increase in milk price lowered grain and concentrate purchased as percent of milk sales from 31 to 25 percent, a 19.4 percent decrease. Total farm operating costs fell 1.4 percent and operating costs to produce milk decreased 5.6 percent. These decreases resulted from the increases in crop and repair expenses not completely offsetting the decreases in feed and labor expenses.

The small increase in crop acres and corn yields and the larger increase in hay yields led to increase forage inventories.

The combination of these three events led to significant increases in farm profitability. Net farm income without appreciation increased from \$10,869 to \$33,335. Net farm income, with appreciation, increased from \$13,899 to \$41,815 and labor and management income increased from -\$7,858 to \$8,453. Rate of return on equity capital with appreciation increased 103 percent to 0.2 percent and return to all capital increased 161 percent to 1.9 percent.

The increase in profits led to an 8.5 percent increase in net worth and a 2.7 percent decrease in debt per cow.

Overall, 1998 was a significantly better year than 1997, with profits generated and net worth growth being the largest that occurred in the 90's. Many farms made significant financial progress towards their individual goals. While there was significant improvement in profitability, the changes on individual farm were quite varied, with some farms actually doing worse in 1998 than 1997. The challenge in 1998 was to maximize milk production while maintaining cost control and wisely managing the excess cash flow. Farms that took advantage of 1998 most profitably were those farms that have improved their ability to produce milk at a lower cost and to manage through low cash price cycles in the years ahead.

**PROGRESS OF THE FARM BUSINESS**  
Same 45 Small Herd Dairy Farms, 1997 & 1998

Selected Factors	Average of 45 Farms		Percent Change
	1997	1998	
<u>Size of Business</u>			
Average number of cows	50	50	0.0
Average number of heifers	36	37	2.8
Milk sold, lbs.	839,461	881,928	5.1
Worker equivalent	1.29	1.26	-2.3
Total tillable acres	169	171	1.2
<u>Rates of Production</u>			
Milk sold per cow, lbs.	16,917	17,522	3.6
Hay DM per acre, tons	1.7	2.1	23.5
Corn silage per acre, tons	12.9	13.0	.8
<u>Labor Efficiency &amp; Costs</u>			
Cows per worker	24	25	4.2
Milk sold/worker, lbs.	409,493	432,318	5.6
Hired labor cost/cwt.	\$0.65	\$.60	-7.7
Hired labor cost/worker	\$16,420	\$14,885	-9.4
Hired labor cost as % of milk sales	4.9%	3.9%	-20.4
<u>Cost Control</u>			
Grain & conc. purchased as % of milk sales	31%	25%	-19.4
Grain & conc. per cwt. milk	\$4.20	\$3.87	-7.9
Dairy feed & crop expense per cwt. milk	\$5.49	\$5.13	-6.6
Labor & mach. costs/cow	\$1,225	\$1,287	5.1
Total farm operating costs per cwt. sold	\$12.68	\$12.50	-1.4
Interest costs per cwt. milk	\$0.86	\$0.84	-2.3
Milk marketing costs per cwt. milk sold	\$0.71	\$0.71	0.0
Operating cost of producing cwt. of milk	\$11.06	\$10.44	-5.6
<u>Capital Efficiency</u> (average for the year)			
Farm capital per cow	\$8,155	\$8,443	3.5
Mach. & equip. per cow	\$1,686	\$1,750	3.8
Asset turnover ratio	0.32	0.39	21.9
<u>Income Generation</u>			
Gross milk sales per cow	\$2,290	\$2,738	19.6
Gross milk sales per cwt.	\$13.64	\$15.52	13.8
Net milk sales per cwt.	\$12.93	\$14.81	14.5
Dairy cattle sales per cow	\$133	\$169	27.1
Dairy calf sales per cow	\$25	\$25	0.0
<u>Profitability</u>			
Net farm income w/o apprec.	\$10,869	\$33,335	206
Net farm income w/apprec.	\$13,899	\$41,815	201
Labor & mgt. income per oper./manager	\$-7,858	\$8,453	207
Rate of return on equity capital w/o apprec.	-6.4%	0.2%	103
Rate of return on all capital w/o apprec.	-3.1%	1.90%	161
<u>Financial Summary</u>			
Farm net worth, end year	\$305,525	\$331,332	8.5
Debt to asset ratio	0.25	0.24	-4.0
Farm debt per cow	\$2,067	\$2,011	-2.7

## SUMMARY AND ANALYSIS OF THE FARM BUSINESS

### Business Characteristics

Planning optimal management strategies is a crucial component of operating a successful farm. Various combinations of farm resources, enterprises, business arrangements, and management techniques are used by the dairy farmers. The following table shows important farm business characteristics and the number of farms with each characteristic. Farms with a parlor milking system were eliminated from the small herd (65 or fewer cows) group of dairy farms.

### BUSINESS CHARACTERISTICS 53 Small Herd Dairy Farms, 1998

Type of Farm	Number	Milking System	Number
Dairy	53	Bucket & carry	0
Part-time dairy	0	Dumping station	3
Dairy cash-crop	0	Pipeline	50
Certified organic milk producer	1	Herringbone parlor	0
Rotational grazing farm	27	Other parlor	0
Type of Ownership	Number	Production Records	Number
Owner	53	DHIC	32
Renter	0	Owner-Sampler	7
		Other	4
		None	10
Type of Business	Number	bST Usage	Number
Sole Proprietorship	46	Used on <25% of herd	2
Partnership	6	Used on 25-75% of herd	7
Corporation	1	Used on >75% of herd	1
		Stopped using in 1998	2
		Not used in 1998	41
Type of Barn	Number	Business Record System	Number
Stanchion or Tie-Stall	50	Account Book	25
Freestall	0	AgriFax (mail-in only)	5
Combination	3	On-farm computer	16
		Other	7
Milking Frequency	Number		
2 times per day	52		
3 times per day	1		
Other	0		

### Income Statement

In order for an income statement to accurately measure farm income, it must include cash transactions and accrual adjustments (changes in accounts payable, accounts receivable, inventories, and prepaid expenses).

Cash paid is the actual cash outlay during the year and does not necessarily represent the cost of goods and services actually used in 1998.

Change in inventory: Increases in inventories of supplies and other purchased inputs are subtracted in computing accrual expenses because they represent purchased inputs not actually used during the year. Decreases in purchased inventories are added to expenses because they represent inputs purchased in a prior year and used this year.

**CASH AND ACCRUAL FARM EXPENSES**  
53 Small Herd Dairy Farms, 1998

Expense Item	Cash Paid	-	Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses
<u>Hired Labor</u>	\$ 5,075		\$ 0	<<	\$ 0		\$ 5,075
<u>Feed</u>							
Dairy grain & concentrate	35,063		720		-655		33,688
Dairy roughage	4,479		633		11		3,857
Nondairy	37		4		0		33
<u>Machinery</u>							
Machinery hire, rent & lease	1,897		0	<<	-26		1,870
Machinery repairs & farm vehicle exp.	8,703		-73		189		8,964
Fuel, oil & grease	2,688		28		0		2,661
<u>Livestock</u>							
Replacement livestock	2,467		0	<<	0		2,467
Breeding	1,830		5		18		1,842
Veterinary & medicine	2,791		20		7		2,778
Milk marketing	6,076		0	<<	-14		6,062
Bedding	748		31		0		718
Milking supplies	3,686		-1		-35		3,652
Cattle lease & rent	0		0	<<	0		0
Custom boarding	140		0	<<	0		140
bST	495		9		-18		467
Other livestock expense	2,011		32		9		1,987
<u>Crops</u>							
Fertilizer & lime	3,391		88		-17		3,286
Seeds & plants	1,740		208		10		1,542
Spray, other crop expense	1,566		64		-23		1,479
<u>Real Estate</u>							
Land, building & fence repair	2,126		91		45		2,079
Taxes	4,274		35	<<	-233		4,006
Rent & lease	1,792		25	<<	-4		1,763
<u>Other</u>							
Insurance	2,629		0	<<	0		2,629
Utilities (farm share)	4,543		0	<<	-41		4,502
Interest paid	7,436		0	<<	-1		7,435
Miscellaneous	1,775		-4		36		1,815
Total Operating	\$109,456		\$ 1,918		\$ -742		\$ 106,797
Expansion livestock	215		0	<<	0		215
Machinery depreciation							7,575
Building depreciation							3,578
<b>TOTAL ACCRUAL EXPENSES</b>							<b>\$ 118,165</b>

Change in prepaid expenses (noted above by <<) is a net change in non-inventory expenses that have been paid in advance of their use. For example, prepaid lease expense on the beginning of year balance sheet represents last year's payment for use of the asset during this year. End of year prepaid expense represents payments made this year for next year's use of the asset. Adding payments made last year for this year's use of the asset, and subtracting payments made this year for next year's use of the asset is accomplished by subtracting the difference.

Change in accounts payable: An increase in accounts payable from beginning to end of year is added when calculating accrual expenses because these expenses were incurred (resources used) in 1998 but not paid for. A decrease is subtracted because it represents payment for resources used before 1998.

Accrual expenses are an estimate of the costs of inputs, except operator/family labor and equity capital, actually used in this year's production. They are the cash paid, less changes in inventory and prepaid expenses, plus accounts payable.



**CASH AND ACCRUAL FARM RECEIPTS**  
53 Small Herd Dairy Farms, 1998

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts
Milk sales	\$ 131,048				\$ 2,311		\$ 133,359
Dairy cattle	5,654		\$ 2,123		-9		7,768
Dairy calves	1,116				8		1,124
Other livestock	523		-81		0		442
Crops	577		1,252		-162		1,666
Government receipts	2,868		108 *		0		2,976
Custom machine work	611				59		669
Gas tax refund	111				0		111
Other	<u>2,181</u>				<u>220</u>		2,401
Less nonfarm noncash capital**		(-)	<u>57</u> **			(-)	<u>57</u>
Total Receipts	\$ 144,688		\$ 3,345		\$ 2,427		\$ 150,461

\*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 from the sale of farm products, services, and government programs. Nonfarm income is not included in calculating farm profitability.

Changes in inventory of assets produced by the business are calculated by subtracting beginning of year values from end of year values excluding appreciation. Increases in livestock inventory caused by herd growth and/or quality are added, and decreases caused by herd reduction and/or quality are subtracted. Changes in inventories of crops grown are also included. An increase in advanced government receipts is subtracted from cash income because it represents income received in 1998 for the 1999 crop year in excess of funds earned for 1998. Likewise, a decrease is added to cash government receipts because it represents funds earned for 1998 but received in 1997.

Changes in accounts receivable are calculated by subtracting beginning year balances from end year balances. Payments in January 1999 for milk produced in December 1998 compared to January 1998 payments for milk produced in 1997 are included as a change in accounts receivable in determining accrual milk sales.

Accrual receipts represent the value of all farm commodities produced and services actually generated by the farm business during the year.

### **Profitability Analysis**

Farm operators\* contribute labor, management, and equity capital to their businesses and the combination of these resources, and the other resources used in the business, determines profitability. Farm profitability 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.

The return to any individual resource must be viewed as an estimate because the cost of other family resources must be approximated to calculate returns to the selected resource. For example, the costs of operator and family labor and management must be approximated to calculate the returns to equity capital.

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\* Operators are the individuals who are integrally involved in the operation and management of the farm business. They are not limited to those who are the owner of a sole proprietorship or are formally a member of the partnership or corporation.

Net farm income is the return to the farm operators and other unpaid family members for their labor, management, and equity capital. It is the farm family's net annual return from working, managing, and financing 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 both with and without appreciation. Appreciation represents the change in values caused by annual changes in prices of livestock, machinery, real estate inventory, and stocks and certificates (other than Farm Credit). Appreciation is a major factor contributing to changes in farm net worth and must be included for a complete profitability analysis.

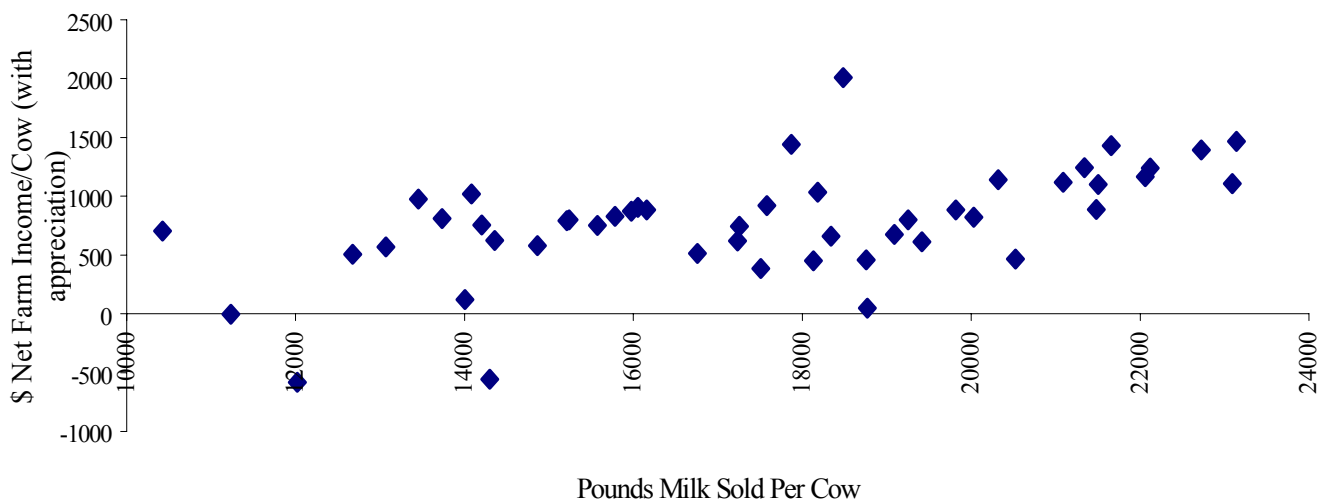
**NET FARM INCOME**  
53 Small Herd Dairy Farms, 1998

Item	Average 53 Farms		Top 25% Farms*	
	Total	Per Cow	Total	Per Cow
Total accrual receipts	\$ 150,461		\$ 169,889	
Appreciation: Livestock	2,153		-369	
Machinery	1,670		2,224	
Real Estate	4,664		3,476	
Other Stock & Certificates	-15		431	
Total Including Appreciation	\$ 158,933		\$ 175,651	
Total accrual expenses	- 118,165		- 125,758	
Net Farm Income (with appreciation)	\$ 40,768	\$ 799	\$ 49,893	\$ 924
Net Farm Income (without appreciation)	\$ 32,296	\$ 633	\$ 44,131	\$ 817

\*Top 25% of small herd farms by rate of return on all assets without appreciation.

The chart below shows the relationship between net farm income per cow (with appreciation) and pounds of milk sold per cow. Generally, farms with a higher production per cow have higher profitability per cow.

NET FARM INCOME/COW AND MILK/COW  
53 Small Herd Dairy Farms, 1998



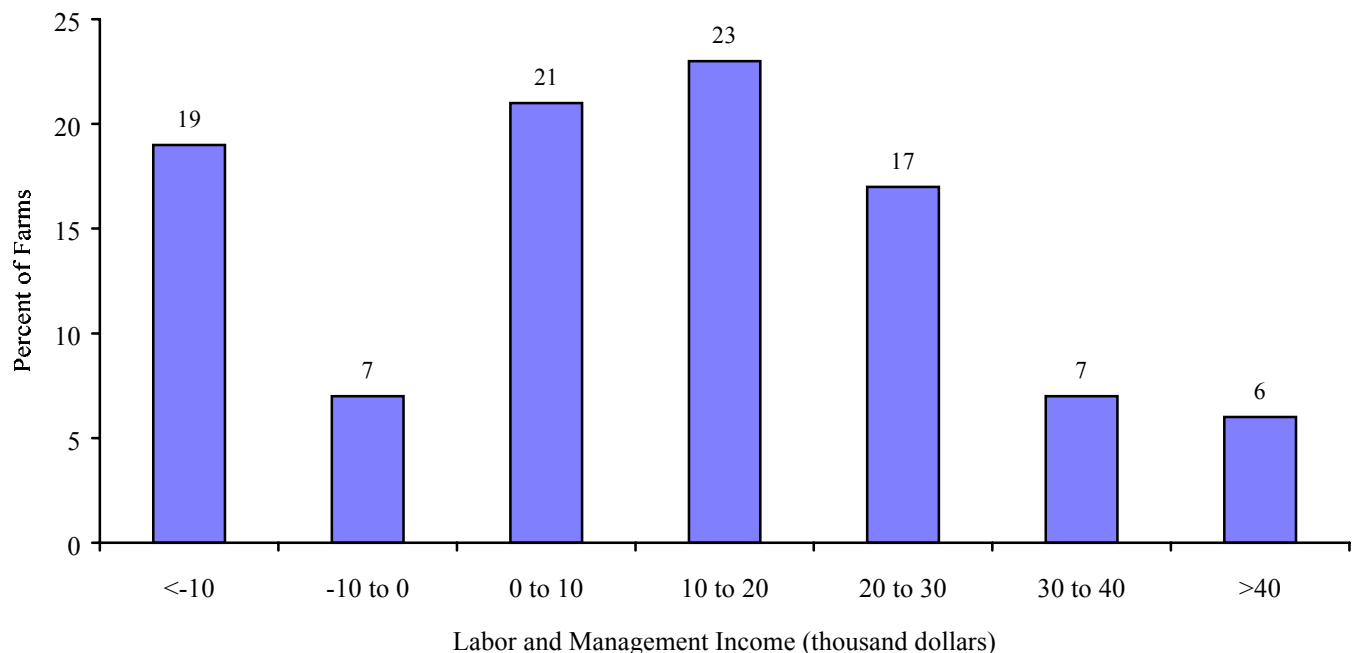
Labor and management income is the return which farm operators receive for their labor and management used in the farm business. Appreciation is not included as part of the return to labor and management because it results from ownership of assets rather than management of the farm business. Labor and management income is calculated by deducting a charge for unpaid family labor and the opportunity cost of equity capital, at a real interest rate of five percent, from net farm income excluding appreciation. The interest charge of five percent 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**  
53 Small Herd Dairy Farms, 1998

Item	Average 53 Farms	Top 25% Farms
Net farm income without appreciation	\$ 32,296	\$ 44,131
Family labor unpaid @ \$1,600 per month	- 7,200	- 4,640
Interest on \$301,264 average equity capital @ 5% real rate (\$203,652 average equity capital for top 25% farms)	<u>- 15,063</u>	<u>- 10,183</u>
Labor & Management Income per farm (1.23 Operators/farm) (1.00 operator per farm for top 25% farms)	\$ 10,033	\$ 29,308
Labor & Management Income per Operator/Manager	\$ 8,157	\$ 29,308

Labor and management income per operator averaged \$8,157 on these 53 farms in 1998. The range in labor and management income per operator was from about -\$60,000 to more than \$46,000. Returns to labor and management were negative on 26% of the farms. Labor and management income per operator was between \$0 and \$20,000 on 44% of the farms while 30% showed labor and management incomes of \$20,000 or more per operator.

**DISTRIBUTION OF LABOR & MANAGEMENT INCOMES PER OPERATOR**  
53 Small Herd Dairy Farms, 1998



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 of operators' 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. Rate of return on total capital is calculated by adding interest paid to the return on equity capital and then dividing by average farm assets.

**RETURN ON EQUITY CAPITAL AND RETURN ON TOTAL CAPITAL**  
53 Small Herd Dairy Farms, 1998

Item	Average 53 Farms	Top 25% Farm
Net farm income with appreciation	\$ 40,768	\$ 49,893
Family labor unpaid @\$1,600 per month	- 7,200	- 4,640
Value of operators' labor & management	- <u>25,895</u>	- 20,956
Return on equity capital with appreciation	\$ 7,673	\$ 24,297
Interest paid	+ <u>7,435</u>	+ 10,986
Return on total capital with appreciation	\$ 15,108	\$ 35,283
Return on equity capital without appreciation	\$ -799	\$ 18,535
Return on total capital without appreciation	\$ 6,636	\$ 29,521
Rate of return on average equity capital:		
with appreciation	2.6%	11.9%
without appreciation	-0.3%	9.1%
Rate of return on average total capital:		
with appreciation	3.7%	10.7%
without appreciation	1.6%	9.0%

**Farm and Family Financial Status**

The first step in evaluating the financial position of the farm is to construct a balance sheet which identifies and values all the assets and liabilities of the business. The second step is to evaluate the relationship between assets, liabilities, and net worth and changes that occurred during the year.

Financial lease obligations are included in the balance sheet. The present value of all future payments is listed as a liability since the farmer is committed to make the payments by signing the lease. The present value is also listed as an asset, representing the future value the item has to the business. For 1998, lease payments were discounted by 8.75 percent to obtain their present value.

Advanced government receipts are included as current liabilities. Government payments received in 1998 that are for participation in the 1999 program are the end year balance and payments received in 1997 for participation in the 1998 program are the beginning year balance.

Current Portion or principal due in the next year for intermediate and long term debt is included as a current liability.

**1998 FARM BUSINESS & NONFARM BALANCE SHEET**  
53 Small Herd Dairy Farms, 1998

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$ 4,168	\$ 6,665	Accounts payable	\$ 4,404	\$ 3,662
Accounts receivable	10,045	12,472	Operating debt	4,308	4,360
Prepaid expenses	21	81	Short Term	340	453
Feed & supplies	22,797	25,906	Advanced govt. receipts	118	10
			Current Portion:		
			Intermediate	7,607	8,548
			Long Term	<u>3,151</u>	<u>3,371</u>
Total Current	\$ 37,031	\$ 45,124	Total Current	\$ 19,929	\$ 20,405
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy cows:			Structured debt		
owned	\$ 50,977	\$ 53,730	1-10 years	\$ 35,236	\$ 34,222
leased	0	0	Financial lease		
Heifers	21,213	22,818	(cattle/machinery)	774	456
Bulls & other livestock	910	747	Farm Credit stock	<u>979</u>	<u>993</u>
Mach. & equip. owned	80,850	85,248	Total Intermediate	\$ 36,989	\$ 35,671
Mach. & equip. leased	774	456			
Farm Credit stock	979	993			
Other stock/certificate	<u>2,175</u>	<u>2,162</u>			
Total Intermediate	\$ 157,878	\$ 166,154			
<u>Long Term</u>			<u>Long Term</u>		
Land & buildings:			Structured debt		
owned	\$ 203,193	\$ 210,718	>10 years	\$ 51,944	\$ 52,633
leased	<u>220</u>	<u>82</u>	Financial lease		
Total Long Term	\$ 203,413	\$ 210,800	(structures)	<u>220</u>	<u>82</u>
			Total Long Term	\$ 52,164	\$ 52,715
Total Farm Assets	\$ 398,322	\$ 422,078	Total Farm Liab.	\$ 109,082	\$ 108,791
			FARM NET WORTH	\$ 289,240	\$ 313,287

Nonfarm Assets, Liabilities & Net Worth (Average of 42 farms reporting)

Assets	Jan. 1	Dec. 31	Liabilities & Net Worth	Jan. 1	Dec. 31
Personal cash, checking & savings	\$ 2,234	\$ 3,231	Nonfarm Liabilities	\$ 4,858	\$ 6,416
Cash value life insurance	5,943	6,358			
Nonfarm real estate	21,836	22,788			
Auto (personal share)	3,586	4,455			
Stocks & bonds	2,909	4,720			
Household furnishings	10,802	11,248			
All other nonfarm assets	<u>7,495</u>	<u>8,219</u>			
Total Nonfarm Assets	\$ 54,805	\$ 61,019	NONFARM NET WORTH	\$ 49,947	\$ 54,603

Farm & Nonfarm Assets, Liabilities, and Net Worth*	Jan. 1	Dec. 31
Total Assets	\$ 453,127	\$ 483,097
Total Liabilities	<u>113,940</u>	<u>115,207</u>
TOTAL FARM & NONFARM NET WORTH	\$ 339,187	\$ 367,890

\*Assumes that average nonfarm assets and liabilities for the nonreporting farms were the same as for those reporting.

The following condensed balance sheet, including deferred taxes, contains average data from only those farmers who elected to provide the additional information required to compute deferred taxes. Deferred taxes represent an estimate of the taxes that would be paid if the farm were sold at year end fair market values on the date of the balance sheet. Accuracy is dependent on the accuracy of the market values and the tax basis data provided. Any tax liability for assets other than livestock, machinery, land, buildings and nonfarm assets is excluded. It is assumed that all gain on purchased livestock and machinery is ordinary gain and that listed market values are net of selling costs. The effects of investment tax credit carry-over and recapture, carryover of operating losses, alternative minimum taxes and other than average exemptions and deductions are excluded because they have only minor influence on the taxes of most farms. The dramatic impact of including deferred taxes is clear. Total liabilities were increased 59 percent on these 6 farms by including deferred taxes.

Deferred taxes on these six farms totaled an average of \$305,913, roughly one-third of the pretax net worth. Net worth decreased from 63 percent to 43 percent when deferred taxes are included on these farms. When examining net worth, especially as a source of cash for retirement or other purposes, deferred taxes become an important consideration. Deferred taxes in this calculation specify that all assets were sold during one tax year. Therefore, tax management strategies such as making sales in more than one year or installment sales warrant careful consideration to reduce income tax liabilities.

**CONDENSED BALANCE SHEET INCLUDING DEFERRED TAXES**

December 31, 1998

6 New York Dairy Farms, 1998

Assets		Liabilities & Net Worth	
		Current debts & payables	\$ 110,688
		Current deferred taxes	<u>60,728</u>
Total Current Assets	\$ 198,183	Total Current Liabilities	\$ 171,416
		Intermediate debts & leases	\$ 196,519
		Intermediate deferred taxes	<u>165,443</u>
Total Inter. Assets	\$ 703,305	Total Intermediate Liabilities	\$ 361,962
		Long term debts & leases	\$ 215,577
		Long term deferred taxes	<u>79,742</u>
Total Long Term Assets	<u>\$ 531,142</u>	Total Long Term Liabilities	\$ 295,319
TOTAL FARM ASSETS	\$ 1,432,630	TOTAL FARM LIABILITIES	\$ 828,697
		Farm Net Worth	\$ 603,933
		Percent Equity (Farm)	42%
<hr/>			
		Nonfarm debts	\$ 1,250
		Nonfarm deferred taxes	<u>13,287</u>
Total Nonfarm Assets	\$ 48,538	Total Nonfarm Liabilities	\$ 14,537
<hr/>			
TOTAL ASSETS	\$ 1,481,168	TOTAL LIABILITIES	\$ 843,234
		Total Net Worth	\$ 637,934
		Percent Equity (Total)	43%

Balance sheet analysis involves examination of relative asset and debt levels for the business. Percent equity is calculated by dividing end of year net worth by end of year assets and multiplying by 100. The debt to asset ratio is compiled by dividing liabilities by assets. Low debt to asset ratios reflect business solvency and the potential capacity to borrow. Debt levels per productive unit represent old standards that are still useful if used with measures of cash flow and repayment ability. A current ratio of less than 1.5 or that has been falling warrants additional evaluation. The amount of working capital that is adequate must be related to the size of the farm business.

**BALANCE SHEET ANALYSIS**  
53 Small Herd Dairy Farms, 1998

Item	Average 53 Farms		Top 25% Farm	
<u>Financial Ratios - Farm:</u>				
Percent equity		74%		64%
Debt/asset ratio: total		0.26		0.36
long-term		0.25		0.43
intermediate/current		0.27		0.31
Current Ratio:		2.21		1.95
Working capital	\$24,719	As % of total Expenses:	21%	(\$22,524) 18%
<u>Farm Debt Analysis:</u>				
Accounts payable as % of total debt		3%		3%
Long-term liabilities as a % of total debt		48%		51%
Current & inter. liabilities as a % of total debt		52%		49%
<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	\$2,092	\$1,077	\$2,331	\$1,398
Long-term debt	1,014	522	1,190	714
Intermediate & long term	1,700	875	1,893	1,136
Intermediate & current debt	1,078	555	1,141	685

Farm inventory balance is an accounting of the value of assets used on the balance sheet and the changes that occur from the beginning to end of year. Changes in the livestock inventory are included in the dairy analysis. Net investment indicates whether the capital stock is being expanded (positive) or depleted (negative).

**FARM INVENTORY BALANCE**  
53 Small Herd Dairy Farms, 1998

Item	Average 53 Farms			
	Real Estate		Machinery & Equipment	
Value beginning of year	\$	203,193	\$	80,850
Purchases	\$	8,755*	\$	10,294
Gift & inheritance	+	1,957	+	186
Lost capital	-	3,235		
Sales	-	1,038	-	177
Depreciation	-	3,578	-	7,575
Net investment		= 2,861		= 2,728
Appreciation		+ 4,664		+ 1,670
Value end of year	\$	210,718	\$	85,248

\*\$3,604 land and \$5,151 buildings and/or depreciable improvements.

The Statement of Owner Equity has two purposes. It allows (1) verification that the accrual income statement and market value balance sheet are consistent (in accountants terms, they reconcile) and (2) identification of the causes of change in equity that occurred on the farm during the year. The Statement of Owner Equity allows you to determine to what degree the change in equity was caused by (1) earnings from the business, and nonfarm income, in excess of withdrawals being retained in the business (called retained earnings), (2) outside capital being invested in the business or farm capital being removed from the business (called contributed/withdrawn capital), (3) increases or decreases in the value (price) of assets owned by the business (called change in valuation equity), and (4) the error in the business cash flow accounting.

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

**STATEMENT OF OWNER EQUITY (RECONCILIATION)**  
53 Small Herd Dairy Farms, 1998

Item	Average 53 Farms	Top 25% Farms
Beginning of year farm net worth	\$ 289,240	\$ 187,141
Net farm income w/o appreciation	\$ 32,296	\$ 44,131
+Nonfarm cash income	+ 10,117	+ 15,877
-Personal withdrawals & family expenditures excluding nonfarm borrowings	<u>- 27,389</u>	<u>- 32,641</u>
RETAINED EARNINGS	+ \$ 15,024	+\$ 27,367
Nonfarm noncash transfers to farm	\$ 2,200	\$ 0
+Cash used in business from nonfarm capital	+ 1,770	+ 380
-Note or mortgage from farm real estate sold (nonfarm)	<u>- 0</u>	<u>- 0</u>
CONTRIBUTED/WITHDRAWN CAPITAL	+ \$ 3,970	+\$ 380
Appreciation	\$ 8,472	\$ 5,762
-Lost capital	<u>- 3,235</u>	- 285
CHANGE IN VALUATION EQUITY	+ \$ 5,237	+\$ 5,477
IMBALANCE/ERROR	<u>- 184</u>	<u>- \$ 203</u>
End of year net worth*	= \$ 313,287	=\$ 220,162
<u>Change in Net Worth</u>		
Without appreciation	\$ 15,575	\$ 27,259
With appreciation	\$ 24,047	\$ 33,021

\*May not add due to rounding.



**Cash Flow Statement**

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

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

**ANNUAL CASH FLOW STATEMENT**  
53 Small Herd Dairy Farms, 1998

Item	Average 53 Farms	
<b><u>Cash Flow from Operating Activities</u></b>		
Cash farm receipts	\$ 144,688	
- Cash farm expenses	<u>109,456</u>	
= Net cash farm income		\$ 35,232
Personal withdrawals & family expenses including nonfarm debt payments	\$ 29,152	
- Nonfarm income	<u>10,117</u>	
- Net cash withdrawals from the farm		<u>\$ 19,035</u>
= Net Provided by Operating Activities		\$ 16,197
<b><u>Cash Flow From Investing Activities</u></b>		
Sale of assets: machinery	\$ 177	
+ real estate	1,038	
+ other stock & cert.	<u>329</u>	
= Total asset sales		\$ 1,544
Capital purchases: expansion livestock	\$ 215	
+ machinery	10,294	
+ real estate	8,755	
+ other stock& cert.	<u>331</u>	
- Total invested in farm assets		<u>\$ 19,595</u>
= Net Provided by Investment Activities		\$ -18,051
<b><u>Cash Flow From Financing Activities</u></b>		
Money borrowed (intermediate & long term)	\$ 13,700	
+ Money borrowed (short term)	608	
+ Increase in operating debt	52	
+ Cash from nonfarm capital used in business	1,770	
+ Money borrowed - nonfarm	<u>1,763</u>	
= Cash inflow from financing		\$ 17,893
Principal payments (intermediate & long term)	\$ 12,864	
+ Principal payments (short term)	495	
+ Decrease in operating debt	<u>0</u>	
- Cash outflow for financing		<u>\$ 13,359</u>
= Net Provided by Financing Activities		\$ 4,534
<b><u>Cash Flow From Reserves</u></b>		
Beginning farm cash, checking & savings		\$ 4,168
- Ending farm cash, checking & savings		<u>6,665</u>
= Net Provided from Reserves		\$ -2,497
Imbalance (error)		\$ 183

**ANNUAL CASH FLOW STATEMENT**  
13 Top 25% Small Herd Dairy Farms, 1998

Item	Top 25% Farms	
<u>Cash Flow from Operating Activities</u>		
Cash farm receipts	\$ 159,646	
- Cash farm expenses	<u>121,931</u>	
= Net cash farm income		\$ 37,715
Personal withdrawals & family expenses including nonfarm debt payments	\$ 36,474	
- Nonfarm income	<u>15,877</u>	
- Net cash withdrawals from the farm		<u>\$ 20,597</u>
= Net Provided by Operating Activities		\$ 17,118
<u>Cash Flow From Investing Activities</u>		
Sale of assets: machinery	\$ 315	
+ real estate	0	
+ other stock & cert.	<u>1,300</u>	
= Total asset sales		\$ 1,615
Capital purchases: expansion livestock	\$ 0	
+ machinery	12,493	
+ real estate	9,564	
+ other stock & cert.	<u>691</u>	
- Total invested in farm assets		<u>\$ 22,748</u>
= Net Provided by Investment Activities		\$ -21,133
<u>Cash Flow From Financing Activities</u>		
Money borrowed (intermediate & long term)	\$ 16,516	
+ Money borrowed (short term)	1,858	
+ Increase in operating debt	0	
+ Cash from nonfarm capital used in business	380	
+ Money borrowed - nonfarm	<u>3,833</u>	
= Cash inflow from financing		\$ 22,587
Principal payments (intermediate & long term)	\$ 14,125	
+ Principal payments (short term)	1,038	
+ Decrease in operating debt	<u>688</u>	
- Cash outflow for financing		<u>\$ 15,851</u>
= Net Provided by Financing Activities		\$ 6,736
<u>Cash Flow From Reserves</u>		
Beginning farm cash, checking & savings		\$ 2,137
- Ending farm cash, checking & savings		<u>4,655</u>
= Net Provided from Reserves		\$ -2,518
Imbalance (error)		\$ 203

**Repayment Analysis**

A valuable use of cash flow analysis is to compare the debt payments planned for the last year with the amount actually paid. The measures listed below provide a number of different perspectives on the repayment performance of the business. However, the critical question to many farmers and lenders is whether planned payments can be made in 1999. The cash flow projection worksheet on the next page can be used to estimate repayment ability, which can then be compared to planned 1999 debt payments shown below.

**FARM DEBT PAYMENTS PLANNED**

Small Herd Dairy Farms, 1997 &amp; 1998

Debt Payments	Same 45 Dairy Farms			Same 12 Top 25% Farms		
	1998 Payments		Planned 1999	1998 Payments		Planned 1999
	Planned	Made		Planned	Made	
Long-term	\$ 7,288	\$ 8,066	\$ 7,031	\$ 9,297	\$ 8,780	\$ 8,021
Intermediate-term	11,735	13,596	12,128	12,999	16,096	14,393
Short-term	228	596	296	0	1,128	600
Operating (net reduction)	454	0	563	1,207	395	71
Accounts payable (net reduction)	721	841	373	769	2,242	87
Total	\$ 20,426	\$ 23,099	\$ 20,391	\$ 24,272	\$ 28,641	\$ 23,172
Per cow	\$ 409	\$ 462		\$ 458	\$ 540	
Per cwt. 1998 milk	\$ 2.32	\$ 2.62		\$ 2.60	\$ 3.07	
Percent of total 1998 receipts	13%	15%		15%	17%	
Percent of 1998 milk receipts	15%	17%		17%	20%	

The cash flow coverage ratio and debt coverage ratio measure the ability of the farm business to meet its planned debt payments schedule. The ratios show the percentage of payments planned for 1998 (as of December 31, 1997) that could have been made with the amount available for debt service in 1998. Farmers who did not participate in DFBS in 1997 have their 1998 cash flow coverage ratio based on planned debt payments for 1999.

**COVERAGE RATIOS**

Same 45 Small Herd Dairy Farms, 1997 &amp; 1998

Item	Average	Item	Average
<b>Cash Flow Coverage Ratio</b>		<b>Debt Coverage Ratio</b>	
Cash farm receipts	\$ 149,271	Net farm income (w/o apprec.)	\$ 33,335
- Cash farm expenses	112,978	+ Depreciation	11,500
+ Interest paid (cash)	7,450	+ Interest paid (accrual)	7,450
- Net personal withdrawals from farm <sup>9</sup>	18,276	- Net personal withdrawals from farm*	18,276
(A) = Amount Available for Debt Service	\$ 25,467	(A') = Repayment Capacity	\$ 34,009
(B) = Debt Payments Planned for 1998 (as of December 31, 1997)	\$ 20,426	(B) = Debt Payments Planned for 1998 (as of December 31, 1997)	\$ 20,426
(A/B)= Cash Flow Coverage Ratio for 1998	1.25	(A'/B)= Debt Coverage Ratio for 1998	1.66
-----			
Same 12 Top 25% Dairy Farms, 1997 & 1998			
(A) = Amount Available for Debt Service	\$ 31,244	(A') = Repayment Capacity	\$ 48,124
(B) = Debt Payments Planned for 1998	24,272	(B) = Debt Payments Planned for 1998	24,272
(A/B)= Cash Flow Coverage Ratio for 1998	1.29	(A'/B)= Debt Coverage Ratio for 1998	1.98

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



## ANNUAL CASH FLOW WORKSHEET

53 Small Herd Dairy Farms, 1998

Item	Average 53 Farms		
	Per Cow	Per Cwt.	Total
Number cows and cwt. milk	51	8,599	
<u>Accrual Operating Receipts</u>			
Milk	\$ 2,615	\$ 15.51	\$ 133,359
Dairy cattle	152	0.90	7,768
Dairy calves	22	0.13	1,124
Other livestock	9	0.05	442
Crops	33	0.19	1,666
Misc. receipts	120	0.71	6,100
Total	\$ 2,950	\$ 17.50	\$ 150,461
<u>Accrual Operating Expenses</u>			
Hired labor	\$ 100	\$ 0.59	\$ 5,075
Dairy grain & concentrate	661	3.92	33,688
Dairy roughage	76	0.45	3,857
Nondairy feed	1	0.00	33
Mach. hire/rent/lease	37	0.22	1,870
Mach. repair & farm vehicle expense	176	1.04	8,964
Fuel, oil & grease	52	0.31	2,661
Replacement livestock	48	0.29	2,467
Breeding	36	0.21	1,842
Vet & medicine	54	0.32	2,778
Milk marketing	119	0.70	6,062
Bedding	14	0.08	718
Milking supplies	72	0.42	3,652
Cattle lease	0	0.00	0
Custom boarding	3	0.02	140
bST expense	9	0.05	467
Other livestock expense	39	0.23	1,987
Fertilizer & lime	64	0.38	3,286
Seeds & plants	30	0.18	1,542
Spray/other crop expenses	29	0.17	1,479
Land, building, fence repair	41	0.24	2,079
Taxes	79	0.47	4,006
Real estate rent/lease	35	0.21	1,763
Insurance	52	0.31	2,629
Utilities	88	0.52	4,502
Miscellaneous	36	0.21	1,815
Total Less Interest Paid	\$ 1,948	\$ 11.56	\$ 99,362
<u>Net Accrual Operating Income</u>			
(without interest paid)	\$ 1,002	\$ 5.94	\$ 51,099
- Change in livestock/crop inventory*	66	0.39	3,345
- Change in accounts receivable	48	0.28	2,427
- Change in feed/supply inventory**	38	0.22	1,918
+ Change in accts. Payable***	-15	-0.09	-741
NET CASH FLOW	\$ 837	\$ 4.96	\$ 42,668
- Net personal withdrawals from farm (see footnote on p. 16)	\$ 339	\$ 2.01	\$ 17,272
Available for Farm Debt Payments & Investments	\$ 498	\$ 2.95	\$ 25,396
- Farm debt payments	414	2.45	21,107
Available for Farm Investment	\$ 84	\$ 0.50	\$ 4,289
- Capital purchases: cattle, machinery & improvements	\$ 384	\$ 2.28	\$ 19,595

\*Includes change in advance government receipts.

\*\*Includes change in prepaid expenses.

\*\*\*Excludes change in interest account payable.

## ANNUAL CASH FLOW WORKSHEET

13 Top 25% Small Herd Dairy Farms, 1998

Item	Average Top 20% Farms		
	Per Cow	Per Cwt.	Total
No. cows or cwt. milk	54	9,621	
<u>Accrual Operating Receipts</u>			
Milk	\$ 2,759	\$ 15.48	\$ 148,964
Dairy cattle	162	0.91	8,743
Dairy calves	25	0.14	1,338
Other livestock	15	0.08	787
Crops	56	0.32	3,048
Misc. receipts	130	0.73	7,010
Total	\$ 3,146	\$ 17.66	\$ 169,889
<u>Accrual Operating Expenses</u>			
Hired labor	\$ 103	\$ 0.58	\$ 5,554
Dairy grain & concentrate	672	3.77	36,261
Dairy roughage	145	0.81	7,830
Nondairy feed	2	0.01	91
Mach. hire/rent/lease	26	0.14	1,393
Mach. repair & farm vehicle expense	131	0.73	7,052
Fuel, oil & grease	40	0.22	2,158
Replacement livestock	97	0.55	5,263
Breeding	32	0.18	1,740
Vet & medicine	45	0.25	2,428
Milk marketing	134	0.75	7,222
Bedding	13	0.07	704
Milking supplies	84	0.47	4,560
Cattle lease	0	0.00	0
Custom boarding	2	0.01	108
bST expense	19	0.11	1,015
Other livestock expense	33	0.19	1,796
Fertilizer & lime	34	0.19	1,845
Seeds & plants	27	0.15	1,462
Spray/other crop expenses	11	0.06	618
Land, building, fence repair	26	0.15	1,398
Taxes	71	0.40	3,827
Real estate rent/lease	36	0.20	1,920
Insurance	40	0.23	2,179
Utilities	83	0.47	4,495
Miscellaneous	25	0.14	1,355
Total Less Interest Paid	\$ 1,931	\$ 10.84	\$ 104,272
<u>Net Accrual Operating Income</u>			
(without interest paid)	\$ 1,215	\$ 6.82	\$ 65,617
- Change in livestock/crop inventory*	124	0.70	6,706
- Change in accounts receivable	66	0.37	3,537
- Change in feed/supply inventory**	85	0.48	4,604
+ Change in accounts payable***	-38	-0.21	-2,067
NET CASH FLOW	\$ 902	\$ 5.06	\$ 48,703
- Net personal withdrawals from farm(see footnote p.18)	\$ 310	\$ 1.74	\$ 16,764
Available for Farm Debt Payments & Investments	\$ 591	\$ 3.32	\$ 31,939
- Farm debt payments	528	2.97	28,534
Available for Farm Investment	\$ 63	\$ 0.35	\$ 3,405
- Capital purchases: cattle, machinery & improvements	\$ 421	\$ 2.36	\$ 22,748

\*Includes change in advance government receipts.

\*\*Includes change in prepaid expenses.

\*\*\*Excludes change in interest account payable.

### Cropping Analysis

The cropping program is an important part of the dairy farm business and often represents opportunities for improved productivity and profitability. A complete evaluation of what the available land resources are, how they are being used, the level of crop yields, and what it costs to produce crops is important in evaluating alternative cropping and feed purchasing alternatives.

#### **LAND RESOURCES AND CROP PRODUCTION** 53 Small Herd Dairy Farms, 1998

Item	Average 53 Farms			Top 25% Farm		
<u>Land</u>	<u>Owned</u>	<u>Rented</u>	<u>Total</u>	<u>Owned</u>	<u>Rented</u>	<u>Total</u>
Tillable	101	71	172	90	69	159
Nontillable	44	13	57	21	9	30
Other nontillable	71	4	75	75	1	76
Total	216	88	304	186	79	265
<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	49	127	2.09 tn DM	11	115	2.36 tn DM
Corn silage	38	33	13.06 tn	7	30	14.57 tn
			4.30 tn DM			4.93 tn DM
Other forage	3	26	2.46 tn DM	1	28	1.79 tn DM
Total forage	49	154	2.47 tn DM	11	137	2.70 tn DM
Corn grain	10	40	105 bu	4	34	98 bu
Oats	3	24	67 bu	0	0	0 bu
Wheat	1	29	68 bu	0	0	0 bu
Other crops	5	33		1	117	
Tillable pasture	22	37		7	34	
Idle	8	17		3	23	
Total Tillable Acres	53	172		13	159	

\*This column represents the average acreage for the farms producing that crop. Average acreages including those farms not producing were hay crop 117, corn silage 24, corn grain 8, oats 1, tillable pasture 15, and idle 3.

Average crop acres and yields compiled for the region are for the farms reporting each crop. 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 based on dry matter information provided.

The following crop/dairy ratios indicate the relationship between forage production, forage production resources, and the dairy herd.

#### **CROP/DAIRY RATIOS** 53 Small Herd Dairy Farms, 1998

Item	Average 53 Farms	Top 25% Farm
Total tillable acres per cow	3.39	2.94
Total forage acres per cow	2.78	2.13
Harvested forage dry matter, tons per cow	6.88	5.80

**Cropping Analysis** (continued)

A number of cooperators have allocated crop expenses among the hay crop, corn, and other crops produced. Fertilizer and lime, seeds and plants, and spray and other crop expenses have been computed per acre and per production unit for hay and corn. Additional expense items such as fuels, labor, and machinery repairs are not included. Rotational grazing was used on 27 farms.

**CROP RELATED ACCRUAL EXPENSES**

Small Herd Dairy Farms Reporting, 1998

Item	Total Per Till. Acre	All Corn Per Acre	Corn Silage Per Ton DM	Corn Grain Per Dry Sh. Bu.	Hay Crop		Pasture	
					Per Acre	Per Ton DM	Per Till. Acre	Per Total Acre
No. of farms reporting	53	9			8		2	
Ave. number of acres	173	50			103		13	47
Fert. & lime	\$ 18.99	\$ 52.00	\$ 11.01	\$ 0.33	\$ 10.69	\$ 4.49	\$ 116.46	\$ 31.54
Seeds & plants	8.91	31.92	6.76	0.20	6.03	2.53	26.62	7.21
Spray & other crop exp.	8.55	47.76	10.11	0.30	5.15	2.16	0.00	0.00
TOTAL	\$ 36.45	\$ 131.68	\$ 27.88	\$ 0.83	\$ 21.87	\$ 9.18	\$ 143.08	\$ 38.75
<u>Top 25% Farms</u>								
No. of farms reporting	13	2			2		1	
Ave. number of acres	159	32			63		25	55
Fert. & lime	\$ 11.60	\$ 19.38	\$ 3.31	\$ 0.08	\$ 11.49	\$ 3.15	\$ 52.08	\$ 23.67
Seeds & plants	9.19	22.06	3.77	0.09	7.30	2.00	21.08	9.58
Spray & other crop exp.	3.89	36.78	6.29	0.15	10.52	2.88	0.00	0.00
TOTAL	\$ 24.68	\$ 78.22	\$ 13.37	\$ 0.32	\$ 29.31	\$ 8.03	\$ 73.16	\$ 33.25

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. Although machinery costs have not been allocated to individual crops, they are shown below per total tillable acre.

**ACCRUAL MACHINERY EXPENSES**

53 Small Herd Dairy Farms, 1998

Machinery Expense	Average 53 Farms		Top 25% Farms	
	Total Expenses	Per Till. Acre	Total Expenses	Per Till. Acre
Fuel, oil & grease	\$ 2,661	\$ 15.38	\$ 2,158	\$ 13.57
Mach. repair & vehicle exp.	8,964	51.82	7,052	44.35
Machine hire, rent & lease	1,870	10.81	1,393	8.76
Interest (5%)	4,183	24.18	3,478	21.87
Depreciation	7,575	43.79	6,816	42.87
Total	\$ 25,253	\$ 145.97	\$ 20,897	\$ 131.43



**Dairy Analysis**

Analysis of the dairy enterprise can reveal strengths and weaknesses of the dairy farm business. Information on this page should be used in conjunction with DHI and other dairy production information. Changes in dairy herd size and market values that occur during the year are identified in the table below. The change in inventory value without appreciation is attributed to physical changes in herd size and quality. Any change in inventory is included as an accrual farm receipt when calculating all of the profitability measures on pages 8 and 9.

**DAIRY HERD INVENTORY**  
53 Small Herd Dairy Farms, 1998

Item	Dairy Cows		Heifer					
	No.	Value	Bred		Open		Calves	
			No.	Value	No.	Value	No.	Value
<u>Average 53 Farms:</u>								
Beg. year (owned)	51	\$ 50,977	13	\$ 11,161	13	\$ 6,867	12	\$ 3,185
+ Change w/o apprec.		1,185		695		270		-27
+ Appreciation		<u>1,568</u>		<u>234</u>		<u>290</u>		<u>143</u>
End year (owned)	52	\$ 53,730	13	\$ 12,090	13	\$ 7,427	12	\$ 3,301
End including leased	52							
Average number	51		37	(all age groups)				
<u>Top 25% Farms:</u>								
Beg. year (owned)	52	\$ 51,627	12	\$ 9,962	10	\$ 4,912	10	\$ 2,458
+ Change w/o apprec.		2,261		-343		542		239
+ Appreciation		0		0		31		84
End year (owned)	54	\$ 53,888	12	\$ 9,619	10	\$ 5,485	10	\$ 2,781
End including leased	54							
Average number	54		32	(all age groups)				

Total milk sold and milk sold per cow are extremely valuable measures of size and productivity, respectively, on the dairy farm. These measures of milk output are based on pounds of milk marketed during the year. Farm managers on DHI should compare milk sold per cow with their rolling herd average on the test date nearest December 31 to see how close the DHI estimate of milk produced is to actual milk sales.

**MILK PRODUCTION**  
53 Small Herd Dairy Farms, 1998

Item	Average 53 Farms	Top 25% Farms
Total milk sold, lbs.	859,888	962,054
Milk sold per cow, lbs.	16,974	17,969
Average milk plant test, percent butterfat	3.68	3.58

The cost of producing milk has been compiled using the whole farm method and is featured in the following table. Accrual receipts from milk sales can be compared with the accrual costs of producing milk per cow and per hundredweight of milk. Using the whole farm method, operating costs of producing milk are estimated by deducting nonmilk accrual receipts from total accrual operating expenses including expansion livestock purchased. Purchased inputs cost of producing milk are the operating costs plus depreciation. Total costs of producing milk include the operating costs of producing milk plus depreciation on machinery and buildings, the value of unpaid family labor, the value of operators' labor and management, and the interest charge for using equity capital.

**ACCRUAL RECEIPTS FROM DAIRY, COSTS OF PRODUCING MILK,  
AND PROFITABILITY**  
53 Small Herd Dairy Farms, 1998

Item	Average 53 Farms			Top 25% Farms		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
<u>Accrual Cost of Producing Milk</u>						
Operating costs	\$ 89,910	\$ 1,763	\$ 10.46	\$ 94,333	\$ 1,747	\$ 9.80
Purchased inputs costs	\$ 101,063	\$ 1,982	\$ 11.75	\$ 104,833	\$ 1,941	\$ 10.90
Total Costs	\$ 149,221	\$ 2,926	\$ 17.35	\$ 140,612	\$ 2,604	\$ 14.62
<u>Accrual Receipts</u>						
<u>From Milk</u>	\$ 133,359	\$ 2,615	\$ 15.51	\$ 148,964	\$ 2,759	\$ 15.48
Net Milk Receipts	\$ 127,297	\$ 2,496	\$ 14.80	\$ 141,742	\$ 2,625	\$ 14.73
Net Farm Income without Apprec.	\$ 32,296	\$ 633	\$ 3.76	\$ 44,131	\$ 817	\$ 4.59
Net Farm Income with Apprec.	\$ 40,768	\$ 799	\$ 4.74	\$ 49,893	\$ 924	\$ 5.19

The accrual operating expenses most commonly associated with the dairy enterprise are listed in the table below. Feed and crop expenses include total purchased dairy feed plus fertilizer, seeds, spray and other crop expenses.

**DAIRY RELATED ACCRUAL EXPENSES**  
53 Small Herd Dairy Farms, 1998

Item	Average 53 Farms		Top 25% Farms	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	\$ 661	\$ 3.92	\$ 672	\$ 3.77
Purchased dairy roughage	76	0.45	145	0.81
Total Purchased Dairy Feed	\$ 737	\$ 4.37	\$ 817	\$ 4.58
Purchased grain & conc. as % of milk receipts		25%		24%
Purchased feed & crop exp.	\$ 860	\$ 5.10	\$ 889	\$ 4.99
Purchased feed & crop exp. as % of milk receipts		33%		32%
Breeding	\$ 36	\$ 0.21	\$ 32	\$ 0.18
Veterinary & medicine	54	0.32	45	0.25
Milk marketing	119	0.70	134	0.75
Bedding	14	0.08	13	0.07
Milking supplies	72	0.42	84	0.47
Cattle lease	0	0.00	0	0.00
Custom boarding	3	0.02	2	0.01
bST	9	0.05	19	0.11
Other livestock expense	39	0.23	33	0.19

**Capital and Labor Efficiency Analysis**

Capital efficiency factors measure how effectively the capital is being used in the farm business. Measures of labor efficiency are key indicators of management's success in generating products per unit of labor input.

**CAPITAL EFFICIENCY**  
53 Small Herd Dairy Farms, 1998

Item	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
<u>Average 53 Farms:</u>				
Farm capital	\$ 203,069	\$ 8,043	\$ 2,371	\$ 4,061
Real estate		4,061		2,051
Machinery & equipment	41,418	1,640	484	
<u>Ratios</u>				
Asset turnover	Operating Expense	Interest Expense	Depreciation Expense	
0.39	0.66	0.05	0.07	
<u>Top 25% Farms:</u>				
Farm capital	\$ 187,178	\$ 6,101	\$ 2,072	\$ 3,660
Real estate		2,685		1,611
Machinery & equipment	39,528	1,288	438	
<u>Ratios</u>				
Asset turnover	Operating Expense	Interest Expense	Depreciation Expense	
0.53	0.61	0.06	0.06	

**LABOR FORCE INVENTORY AND ANALYSIS**

53 Small Herd Dairy Farms, 1998

Labor Force	Months	Age	Years of Educ.	Value of Labor & Mgmt.
<u>Average 53 Farms:</u>				
Operator number 1	13.8	44	13	\$ 22,829
Operator number 2	1.9	56	12	3,066
Family paid	1.9			
Family unpaid	4.5			
Hired	<u>2.1</u>			
Total	24.2	/ 12 = 2.02 Worker Equivalent 1.23 Operator/Manager Equivalent		
<u>Top 25% Farms: Total</u>				
Operator's	21.2	/ 12 = 1.76 Worker Equivalent 1.00 Operator/Manager Equivalent		

Labor Efficiency	Average 53 Farms		Top 25% Farms	
	Total	Per Worker	Total	Per Worker
Cows, average number	51	25	54	31
Milk sold, pounds	859,888	425,687	962,054	546,622
Tillable acres	173	86	159	90
Work units	530	262	522	297

Labor Costs	Average 53 Farms			Top 25% Farms		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Value of operator(s) labor (\$1,600/mo.)	\$ 25,120	\$ 493	\$ 2.92	\$21,760	\$ 403	\$ 2.26
Family unpaid (\$1,600/mo.)	7,200	141	0.84	4,640	86	0.48
Hired	<u>5,075</u>	<u>100</u>	<u>0.59</u>	<u>5,554</u>	<u>103</u>	<u>0.58</u>
Total Labor	\$ 37,395	\$ 733	\$ 4.35	\$31,954	\$ 592	\$ 3.32
Machinery Cost	<u>\$ 25,253</u>	<u>\$ 495</u>	<u>\$ 2.94</u>	<u>\$20,897</u>	<u>\$ 387</u>	<u>\$ 2.17</u>
Total Labor & Mach.	\$ 62,648	\$ 1,228	\$ 7.29	\$52,851	\$ 979	\$ 5.49

## COMPARATIVE ANALYSIS OF THE FARM BUSINESS

### Comparison to Top 25 Percent

Comparing your business with average data from DFBS cooperators that participated in both of the last two years can be helpful in establishing your goals for these parameters. Both the average of the same 45 farms and the top 25% of farms based on rate of return of all assets without appreciation are presented below. It is equally important for you to determine the progress your business has made over the past two or three years, to compare this progress to your goals, and to set goals for the future.

### PROGRESS OF THE FARM BUSINESS Same Small Herd Dairy Farms, 1997 & 1998

Selected Factors	Average of Same 45 Farms*		Same 12 Top 25% Farms*	
	1997	1998	1997	1998
<u>Size of Business</u>				
Average number of cows	50	50	51	53
Average number of heifers	36	37	30	30
Milk sold, lbs.	839,461	881,928	889,315	933,736
Worker equivalent	2.05	2.04	1.79	1.77
Total tillable acres	169	171	147	164
<u>Rates of Production</u>				
Milk sold per cow, lbs.	16,917	17,522	17,523	17,645
Hay DM per acre, tons	1.7	2.1	1.7	2.3
Corn silage per acre, tons	12.9	13.0	13.9	13.3
<u>Labor Efficiency</u>				
Cows per worker	24	25	28	30
Milk sold/worker, lbs.	409,493	432,318	496,824	527,534
<u>Cost Control</u>				
Grain & conc. purchased as % of milk sales	31%	25%	30%	24%
Dairy feed & crop exp.				
per cwt. milk	\$ 5.49	\$ 5.13	\$ 5.70	\$ 5.00
Labor & mach. costs/cow	\$ 1,225	\$ 1,287	\$ 988	\$ 987
Operating cost of producing cwt. of milk	\$ 11.06	\$ 10.44	\$ 11.53	\$ 9.94
<u>Capital Efficiency**</u>				
Farm capital per cow	\$ 8,155	\$ 8,443	\$ 6,108	\$ 6,228
Mach. & equip. per cow	\$ 1,686	\$ 1,750	\$ 1,260	\$ 1,330
Asset turnover ratio	0.32	0.39	0.44	0.52
<u>Profitability</u>				
Net farm income w/o apprec.	\$ 10,869	\$ 33,335	\$ 7,476	\$ 42,967
Net farm income w/apprec.	\$ 13,899	\$ 41,815	\$ 12,328	\$ 47,730
Labor & mgt. income per operator/manager	\$ -7,858	\$ 8,453	\$ -6,464	\$ 28,802
Rate of return on equity capital w/appreciation	-5.4%	2.8%	-5.9%	11.3%
Rate of return on all capital w/appreciation	-2.3%	3.9%	-0.1%	10.4%
<u>Financial Summary</u>				
Farm net worth, end year	\$ 305,525	\$ 331,332	\$ 188,747	\$ 222,659
Debt to asset ratio	0.25	0.24	0.39	0.36
Farm debt per cow	\$ 2,067	\$ 2,011	\$ 2,366	\$ 2,288

\*Farms participating both years.

\*\*Average for the year.

**RECEIPTS AND EXPENSES PER COW AND PER CWT.**  
Same 45 Small Herd Dairy Farms, 1997 & 1998

Item	1997		1998	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	50		50	
Cwt. Of Milk Sold		8,395		8,819
<u>ACCRUAL OPERATING RECEIPTS</u>				
Milk	\$ 2,290	\$ 13.64	\$ 2,738	\$ 15.52
Dairy cattle	133	0.79	169	0.96
Dairy calves	25	0.15	25	0.14
Other livestock	10	0.06	10	0.06
Crops	7	0.04	30	0.17
Miscellaneous receipts	98	0.58	134	0.76
Total Receipts	\$ 2,563	\$ 15.27	\$ 3,106	\$ 17.61
<u>ACCRUAL OPERATING EXPENSES</u>				
Hired labor	\$ 112	\$ 0.67	\$ 107	\$ 0.60
Dairy grain & concentrate	705	4.20	683	3.87
Dairy roughage	84	0.50	89	0.50
Nondairy feed	1	0.01	1	0.00
Machine hire/rent/lease	31	0.18	42	0.24
Mach. repair & vehicle exp.	150	0.89	194	1.10
Fuel, oil & grease	60	0.36	57	0.33
Replacement livestock	48	0.29	51	0.29
Breeding	34	0.20	38	0.22
Veterinary & medicine	48	0.28	57	0.33
Milk marketing	119	0.71	126	0.71
Bedding	16	0.10	14	0.08
Milking supplies	64	0.38	74	0.42
Cattle lease	0	0.00	0	0.00
Custom boarding	8	0.05	3	0.02
bST expense	10	0.06	10	0.05
Other livestock expense	47	0.28	40	0.22
Fertilizer & lime	57	0.34	68	0.39
Seeds & plants	36	0.22	34	0.19
Spray/other crop expense	38	0.23	31	0.18
Land, building, fence repair	31	0.19	41	0.23
Taxes	78	0.46	78	0.44
Real estate rent/lease	34	0.20	38	0.22
Insurance	49	0.29	53	0.30
Utilities	91	0.54	89	0.51
Interest paid	144	0.86	149	0.84
Miscellaneous	32	0.19	38	0.22
Total Operating Expenses	\$ 2,128	\$ 12.68	\$ 2,205	\$ 12.50
Expansion Livestock	2	0.01	5	0.03
Machinery Depreciation	152	0.91	153	0.87
Real Estate Depreciation	63	0.37	77	0.43
Total Expenses	\$ 2,346	\$ 13.97	\$ 2,440	\$ 13.83
Net Farm Income Without Appreciation	\$ 217	\$ 1.29	\$ 667	\$ 3.78

**RECEIPTS AND EXPENSES PER COW AND PER CWT.**  
Same 12 Top 25% Small Herd Dairy Farms, 1997 & 1998

Item	1997		1998	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	51		53	
Cwt. Of Milk Sold		8,893		9,337
<u>ACCRUAL OPERATING RECEIPTS</u>				
Milk	\$ 2,338	\$ 13.41	\$ 2,744	\$ 15.58
Dairy cattle	123	0.70	161	0.92
Dairy calves	31	0.18	25	0.14
Other livestock	2	0.01	16	0.09
Crops	-20	-0.12	58	0.33
Miscellaneous receipts	98	0.56	138	0.79
Total Receipts	\$ 2,571	\$ 15.74	\$ 3,143	\$ 17.84
<u>ACCRUAL OPERATING EXPENSES</u>				
Hired labor	\$ 104	\$ 0.60	\$ 114	\$ 0.64
Dairy grain & concentrate	710	4.07	654	3.71
Dairy roughage	157	0.90	160	0.91
Nondairy feed	1	0.01	2	0.01
Machine hire/rent/lease	22	0.13	26	0.15
Mach. repair & vehicle exp.	126	0.72	136	0.77
Fuel, oil & grease	54	0.31	40	0.23
Replacement livestock	91	0.52	108	0.61
Breeding	32	0.18	31	0.18
Veterinary & medicine	51	0.29	45	0.26
Milk marketing	106	0.61	133	0.75
Bedding	17	0.10	11	0.06
Milking supplies	63	0.36	82	0.47
Cattle lease	0	0.00	0	0.00
Custom boarding	6	0.04	2	0.01
bST expense	20	0.11	16	0.09
Other livestock expense	43	0.25	34	0.19
Fertilizer & lime	54	0.31	27	0.15
Seeds & plants	39	0.22	28	0.16
Spray/other crop expense	34	0.19	12	0.07
Land, building, fence repair	13	0.07	25	0.14
Taxes	77	0.44	72	0.41
Real estate rent/lease	36	0.21	39	0.22
Insurance	47	0.27	38	0.22
Utilities	93	0.53	87	0.50
Interest paid	213	1.22	206	1.17
Miscellaneous	36	0.20	22	0.12
Total Operating Expenses	\$ 2,242	\$ 12.86	\$ 2,150	\$ 12.20
Expansion Livestock	2	0.01	0	0.00
Machinery Depreciation	111	0.64	116	0.66
Real Estate Depreciation	69	0.40	67	0.38
Total Expenses	\$ 2,424	\$ 13.90	\$ 2,333	\$ 13.24
Net Farm Income Without Appreciation	\$ 147	\$ 0.84	\$ 811	\$ 4.60

### Regional Farm Business Chart

The Farm Business Chart is a tool which can be used in analyzing your business. Compare your business by drawing a line through or near the figure in each column which represents your current level of performance. The five figures in each column represent the average of each 20 percent or quintile of farms included in the regional summary. Use this information to identify business areas where more challenging goals are needed.

#### FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS

53 Small Herd Dairy Farms, 1998

Size of Business			Rate of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
3.08	63	1,234,121	22,021	3.4	20	41	752,583
2.26	57	1,032,581	19,446	2.6	16	32	549,927
1.94	51	875,232	17,370	2.2	13	27	442,241
1.66	45	696,286	14,959	1.6	12	22	336,220
1.28	39	510,941	11,434	1.1	8	17	258,468

Cost Control						Culling Rates**	
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	Death Rate	Sell Rate
(10)	(10)	(11)	(11)	(10)	(10)		
\$ 413	18%	\$ 241	\$ 820	\$ 547	\$ 3.80	1.2%	13.4%
554	22	392	1,061	727	4.52	2.1	19.3
637	25	470	1,276	844	4.97	2.5	22.5
777	27	610	1,440	1,033	5.64	3.6	28.1
962	37	828	1,725	1,231	7.11	5.8	38.0

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income w/Apprec.	Net Farm Inc. w/o Apprec.	Labor & Mgt. Inc. Per Oper.	Change in Net Worth w/Apprec.
(10)	(10)	(10)	(3)	(3)	(3)	(6)
\$ 3,400	\$ 8.04	\$ 14.26	\$ 81,449	\$ 61,906	\$ 35,369	\$ 61,298
2,997	9.41	15.64	51,566	45,041	21,477	31,460
2,662	10.64	16.80	39,747	35,119	13,533	20,993
2,353	11.47	18.91	29,963	23,329	2,842	14,534
1,817	14.68	25.65	4,635	-1,229	-28,650	-5,153

\*Page number of the participant's DFBS where the factor is located.

\*\*Average of 22 farms that completed a supplementary survey. See the glossary for the definition.

### New York State Farm Business Charts

The Farm Business Chart is a tool which can be used in analyzing a business by drawing a line through the figure in each column which represents the current level of management performance. The figure at the top of each column is the average of the top 10 percent of the 253 farms for that factor. The other figures in each column are the average for the second 10 percent, third 10 percent, etc. Each column of the chart is independent of the others. The farms which are in the top 10 percent for one factor would not necessarily be the same farms which make up the 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.

#### FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS

253 New York Dairy Farms, 1997

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent (11)*	No. of Cows (11)	Pounds Milk Sold (11)	Pounds Milk Sold Per Cow (10)	Tons Hay Crop DM/Acre (9)	Tons Corn Silage Per Acre (9)	Cows Per Worker (11)	Pounds Milk Sold Per Worker (11)
16.3	749	16,977,721	24,322	4.1	22	57	1,169,242
8.0	318	6,801,234	22,395	3.4	19	46	929,873
5.8	214	4,351,063	21,446	3.0	18	41	819,044
4.5	155	3,051,237	20,524	2.6	17	37	731,958
3.9	128	2,361,619	19,512	2.4	16	34	659,774
-----							
3.4	106	1,896,078	18,496	2.2	15	32	597,572
2.9	85	1,512,359	17,718	2.0	14	30	532,282
2.4	69	1,177,556	16,584	1.8	13	28	486,658
1.9	55	940,983	15,088	1.5	11	24	413,316
1.4	40	601,704	12,762	1.0	8	19	288,154

Cost Control					
Grain Bought Per Cow (10)	% Grain is of Milk Receipts (10)	Machinery Costs Per Cow (11)	Labor & Machinery Costs Per Cow (11)	Feed & Crop Expenses Per Cow (10)	Feed & Crop Expenses Per Cwt. Milk (10)
\$435	20%	\$226	\$675	\$576	\$3.68
600	26	296	813	774	4.51
673	28	336	903	874	4.82
745	29	393	975	943	5.10
820	32	429	1,021	1,016	5.37
-----					
883	33	465	1,079	1,092	5.61
939	35	503	1,172	1,146	5.85
987	37	550	1,254	1,202	6.09
1,059	39	613	1,350	1,279	6.47
1,183	45	741	1,553	1,411	7.41

\*Page number of the participant's DFBS where the factor is located.



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

Milk Receipts Per Cow	Milk Receipts Per Cwt.	Oper. Cost Milk Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cow	Total Cost Production Per Cwt.
(10)	(10)	(10)	(10)	(10)	(10)
\$3,381	\$15.09	\$1,319	\$8.30	\$2,127	\$12.68
3,052	14.56	1,690	10.02	2,552	13.72
2,941	14.20	1,870	10.58	2,726	14.27
2,836	13.86	2,079	11.05	2,847	14.84
2,719	13.66	2,158	11.46	2,947	15.45
-----					
2,553	13.53	2,279	11.81	3,056	16.12
2,428	13.41	2,403	12.24	3,151	16.61
2,271	13.25	2,525	12.81	3,285	17.46
2,030	13.01	2,682	13.59	3,486	18.63
1,686	12.54	3,039	15.55	3,820	22.37

Profitability						
Net Farm Income Without Appreciation			Net Farm Income With Appreciation		Labor & Management Income	
Total	Per Cow	As % of Total Accrual Receipts	Total	Per Cow	Per Farm	Per Operator
(3)	(10)	(3)	(3)	(10)	(3)	(3)
\$258,543	\$806	25.1%	\$270,808	\$847	\$160,233	\$98,682
77,869	516	17.3	100,963	573	37,347	28,721
46,999	392	13.3	63,703	461	15,083	11,972
34,998	326	11.1	45,449	396	5,143	3,819
27,155	261	8.6	34,877	320	-1,948	-1,611
-----						
19,291	165	5.8	24,515	239	-10,582	-7,542
8,889	86	3.0	14,345	147	-20,185	-14,855
-2,819	-28	-1.1	4,254	40	-31,873	-25,017
-19,342	-181	-6.9	-11,524	-118	-52,868	-39,548
-74,027	-473	-22.2	-67,379	-442	-114,768	-93,571

Farm Business Charts for farms with freestall barns and 150 cows or less, 151-300 cows, and more than 300 cows; and farms with conventional barns with 60 cows or less and more than 60 cows are shown on pages 33-37.

**Financial Analysis Chart**

The farm financial analysis chart on page 30 is designed just like the Farm Business Chart and may be used to assess the financial health of the farm business. Most of the financial measures used in the chart are defined on pages 8, 12, 16 and 23 of this publication. References to DFBS output page numbers for participating dairy farmers are provided in the table headings.

**FINANCIAL ANALYSIS CHART**  
253 New York Dairy Farms, 1997

Liquidity (repayment)					
Planned Debt Payments Per Cow	Available for Debt Service Per Cow	Cash Flow Coverage Ratio	Debt Payments as Percent of Milk Sales	Debt Per Cow	
(8)*	(12)	(8)	(8)	(5)	
\$66	\$720	2.32	3%	\$218	
209	565	1.40	8	910	
297	500	1.18	11	1,452	
363	442	1.01	13	1,913	
410	379	0.89	16	2,291	
-----					
445	318	0.76	18	2,675	
496	258	0.62	19	3,031	
565	197	0.44	22	3,349	
620	87	0.17	25	3,818	
770	-210	-0.60	38	4,870	
-----					
Solvency			Profitability		
Leverage Ratio**	Percent Equity	Debt/Asset Ratio		Percent Rate of Return with appreciation on:	
		Current & Intermediate	Long Term	Equity	Investment***
	(5)	(5)	(5)	(3)	(3)
0.02	97%	0.04	0.00	15%	10%
0.10	89	0.13	0.00	7	7
0.23	79	0.21	0.08	4	5
0.37	72	0.29	0.21	1	4
0.51	65	0.36	0.31	-1	2
-----					
0.71	57	0.41	0.41	-3	1
0.90	52	0.47	0.49	-5	-1
1.12	46	0.56	0.59	-8	-3
1.55	38	0.68	0.71	-14	-5
7.09	16	1.01	1.14	-58	-11
-----					
Efficiency (Capital)					
Asset Turnover (ratio)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow	Change in Net Worth w/Appreciation	
(11)	(11)	(11)	(11)	(6)	
.75	\$1,142	\$513	\$3,881	\$144,340	
.62	1,845	749	4,914	49,494	
.55	2,138	900	5,538	31,463	
.52	2,395	1,041	6,043	19,820	
.48	2,708	1,169	6,505	10,964	
-----					
.44	3,158	1,319	6,937	2,421	
.40	3,544	1,484	7,378	-6,589	
.35	3,888	1,704	7,957	-22,343	
.30	4,476	2,033	9,059	-48,040	
.22	7,015	2,778	11,938	-157,818	

\*Page number of the participant's DFBS where the factor is located.

\*\*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.

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

When analyzing a dairy farm business by comparing it to a group of farms, it is important that the group of farms have used as many of the same physical characteristics as possible as the farm being analyzed. To assist in this endeavor, dairy farms in the summary have been divided into those with freestall and those with conventional housing. Conventional housing includes stanchion and tiestall barns. Within each group, is a further classification by size of the dairy herd.

The table on page 32 includes the average values for the resulting five groups of dairy farms. The average size of farms in the five groups ranges from 46 cows on the small conventional farms to 587 cows on the largest freestall farms.

The largest freestall farms averaged the highest milk output per cow and per worker, the lowest total cost of production and investment per cow, and the greatest returns to labor, management and capital. The large conventional farms showed average profits somewhat higher than the small freestall farm businesses.

Farm business charts have been computed for each of the five housing and herd size categories and are on pages 33-37. 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.

### **Herd Size Comparisons**

A detailed comparison of profitability, financial situation and business analysis factors across herd sizes is contained on pages 42-51 of the 1997 State Summary\*. As herd size increases, the average profitability generally increases (page 42)\*. Net farm income without appreciation averaged \$ -603 per farm for the less than 40 cow farms and \$131,897 per farm for those with 300 cows and over. This relationship generally holds for all measures of profitability including rate of return on capital.

Farm net worth increases rapidly as herd size increases (pages 46-49)\*, even though percent equity was higher on the smaller farms. The group with 85 to 99 cows 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 (pages 50-51)\*. The farms with 300 and more cows per farm averaged 57 percent more milk sold per cow than the smallest farms. All of the groups with 85 or more cows averaged above 18,000 pounds of milk sold per cow while the farms smaller than 85 cows averaged 16,650 pounds of milk sold per cow. 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 288,076 pounds at the lowest herd size category up to 1,011,165 pounds at the largest size category.

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\*Wayne A. Knoblauch, and Linda D. Putnam, Dairy Farm Management Business Summary, New York, 1997, Department of Agricultural, Resource, and Managerial Economics, Cornell University, R.B. 98-06, August 1998.

**SELECTED BUSINESS FACTORS BY TYPE OF BARN AND HERD SIZE**

222 New York Dairy Farms, 1997

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

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

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

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
3.21	59	1,101,928	20,866	3.4	19	39	693,273
2.44	55	1,003,781	19,995	2.5	18	32	565,561
2.17	53	914,960	18,631	2.2	17	30	495,451
2.01	51	879,648	18,136	2.1	16	28	468,090
1.96	48	803,954	17,338	2.0	15	26	434,043
-----							
1.82	46	731,007	15,900	1.8	14	24	400,376
1.68	42	680,016	15,083	1.6	12	23	346,975
1.58	41	624,372	14,511	1.4	10	22	311,828
1.50	39	555,439	13,519	1.2	8	20	286,172
1.33	34	416,286	10,729	0.8	5	15	202,070
-----							
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		
(10)	(10)	(11)	(11)	(10)	(10)		
\$361	19%	\$197	\$744	\$462	\$3.64		
519	24	297	1,000	639	4.34		
575	27	360	1,080	746	4.68		
637	28	411	1,131	807	4.88		
658	31	449	1,175	853	5.27		
-----							
725	33	470	1,246	944	5.68		
798	35	493	1,311	998	5.95		
847	38	570	1,382	1,069	6.23		
905	41	639	1,515	1,148	6.59		
1,084	46	789	1,840	1,349	7.67		
-----							
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.	
(10)	(10)	(10)	Total (3)	Per Cow (10)	(3)	(6)	
\$3,082	\$7.59	\$13.87	\$42,028	\$872	\$21,550	\$38,588	
2,831	9.03	15.37	31,895	732	11,197	21,215	
2,552	9.85	16.36	28,320	603	5,762	15,630	
2,454	10.36	16.62	23,690	436	718	12,112	
2,377	10.54	17.44	14,588	349	-1,899	9,298	
-----							
2,102	11.16	17.81	10,027	215	-4,866	3,903	
1,978	11.63	18.76	5,331	112	-11,366	696	
1,904	12.40	20.20	-504	-11	-22,365	-5,288	
1,780	12.96	22.27	-5,675	-130	-28,673	-11,140	
1,403	14.95	27.10	-16,537	-446	-43,483	-22,635	

\*Page number of the participant's DFBS where the factor is located.

### FARM BUSINESS CHART FOR LARGE CONVENTIONAL STALL DAIRY FARMS

39 Conventional Stall Dairy Farms with More Than 60 Cows, New York, 1997

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
4.05	126	2,056,671	22,995	4.1	21	48	884,871
3.78	103	1,865,087	20,647	3.1	19	38	677,191
3.46	91	1,675,072	18,877	2.8	18	35	636,310
3.21	82	1,581,941	18,329	2.4	17	33	559,715
2.98	77	1,383,678	17,873	2.3	16	31	517,084
-----							
2.63	74	1,248,877	17,266	2.1	15	29	497,963
2.50	70	1,182,772	16,701	1.9	14	28	479,995
2.32	67	1,152,870	15,718	1.7	12	26	441,783
1.93	64	1,063,871	14,601	1.2	12	22	354,372
1.47	62	896,128	12,637	0.8	9	19	300,834
-----							
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		
(10)	(10)	(11)	(11)	(10)	(10)		
\$448	21%	\$184	\$664	\$608	\$3.75		
563	25	246	816	699	4.10		
633	28	299	936	774	4.67		
680	29	394	978	834	4.88		
723	31	431	1,033	900	5.09		
-----							
800	33	460	1,123	938	5.46		
868	35	509	1,207	1,072	5.97		
951	38	564	1,311	1,131	6.44		
1,011	42	655	1,357	1,202	6.84		
1,086	47	748	1,541	1,360	7.95		
-----							
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.	
(10)	(10)	(10)	Total	Per Cow	(3)	(6)	
\$3,044	\$8.78	\$13.65	\$42,169	\$555	\$15,671	\$56,186	
2,854	10.51	14.98	36,176	416	9,029	25,240	
2,652	11.24	15.59	28,970	354	3,396	17,846	
2,517	11.73	15.96	24,309	323	628	8,612	
2,432	11.92	16.27	17,957	244	-7,852	2,860	
-----							
2,377	12.21	16.70	11,509	142	-11,099	-3,089	
2,270	12.79	17.47	-159	-0.8	-17,743	-10,909	
2,183	13.57	18.33	-10,805	-136	-25,059	-22,645	
2,046	14.17	19.55	-17,203	-224	-30,421	-36,438	
1,690	15.53	23.35	-33,218	-423	-55,370	-69,723	

\*Page number of the participant's DFBS where the factor is located.

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

Size of Business			Rates of Production			Labor Efficiency	
Worker 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
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
5.28	145	3,195,348	24,936	3.8	21	58	993,037
4.44	139	2,748,342	21,844	3.0	19	42	782,022
4.08	134	2,549,753	20,493	2.7	18	38	721,468
3.67	122	2,283,113	19,390	2.5	16	34	672,546
3.46	114	2,103,312	18,563	2.2	15	33	638,941
-----							
3.13	107	1,942,241	17,900	2.0	14	32	596,502
2.84	96	1,657,370	17,259	1.8	14	31	550,538
2.58	85	1,425,509	16,213	1.7	13	29	513,301
2.03	73	1,182,037	15,070	1.4	11	27	458,883
1.38	54	887,209	13,256	1.0	8	22	357,100

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	
(10)	(10)	(11)	(11)	(10)	(10)	
\$530	23%	\$263	\$659	\$630	\$4.09	
615	26	307	819	834	4.74	
652	27	335	878	879	5.05	
703	29	395	965	916	5.20	
759	31	442	1,021	1,015	5.35	
-----						
827	32	494	1,062	1,060	5.54	
883	34	535	1,160	1,129	5.87	
948	36	575	1,213	1,176	6.16	
992	39	640	1,303	1,244	6.52	
1,131	42	756	1,458	1,377	7.23	

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
(10)	(10)	(10)	Total (3)	Per Cow (10)	(3)	(6)
\$3,439	\$8.88	\$12.77	\$80,921	\$746	\$42,272	\$66,765
3,026	10.20	13.87	54,208	486	25,117	42,074
2,831	10.49	14.54	42,104	382	9,790	34,040
2,646	10.73	15.20	32,497	332	-73	23,877
2,558	11.07	15.91	25,051	267	-4,267	15,215
-----						
2,506	11.41	16.45	16,655	176	-9,885	4,624
2,347	11.84	16.99	7,778	90	-17,559	-5,834
2,197	12.84	17.83	-3,503	-33	-26,980	-25,878
2,023	14.03	18.94	-22,366	-260	-50,159	-59,207
1,798	16.51	21.41	-68,863	-590	-87,562	-107,335

\*Page number of the participant's DFBS where the factor is located.

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

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
8.87	287	6,731,911	24,776	3.8	23	63	1,224,427
6.95	272	5,348,971	22,961	3.4	20	50	980,478
6.47	254	5,094,989	22,007	3.3	18	48	910,554
5.75	235	4,872,494	21,306	3.1	17	45	872,906
5.51	220	4,497,454	20,775	2.9	16	42	811,162
-----							
5.36	203	4,025,898	20,268	2.5	15	39	776,088
5.00	190	3,690,005	19,634	2.4	13	36	739,869
4.38	182	3,483,656	18,313	2.2	12	34	701,973
4.05	171	3,278,840	17,079	2.0	10	31	635,417
3.21	158	2,748,721	14,619	1.0	9	29	553,188

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
(10)	(10)	(11)	(11)	(10)	(10)
\$512	20%	\$262	\$656	\$747	\$4.06
674	26	327	779	920	4.70
770	28	399	873	955	4.94
862	30	436	946	1,003	5.14
901	32	463	983	1,080	5.45
-----					
925	33	491	1,024	1,122	5.61
970	34	531	1,156	1,186	5.91
1,002	36	562	1,269	1,265	6.11
1,055	39	635	1,346	1,369	6.38
1,261	46	710	1,418	1,525	7.77

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec.		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
(10)	(10)	(10)	Total	Per Cow	(3)	(6)
\$3,568	\$9.13	\$13.07	\$167,103	\$838	\$60,411	\$118,357
3,298	10.55	13.65	100,768	548	40,779	70,965
3,057	11.15	13.96	76,563	336	25,167	52,519
2,932	11.44	14.21	56,942	256	9,952	29,714
2,904	12.20	14.83	35,560	160	-1,910	7,348
-----						
2,809	12.66	15.37	16,759	68	-7,808	-16,957
2,721	13.00	15.81	-934	-4	-18,240	-34,456
2,471	13.54	16.41	-20,243	-90	-31,069	-49,012
2,370	14.12	17.60	-41,389	-214	-47,750	-67,973
2,004	16.10	19.65	-84,122	-439	-112,680	-168,740

\*Page number of the participant's DFBS where the factor is located.



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

Size of Business			Rates of Production			Labor Efficiency	
Worker 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
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
30.16	1,612	36,966,226	25,557	4.7	21	60	1,365,046
18.07	853	20,303,842	23,339	3.8	20	53	1,220,599
15.91	631	14,342,577	23,090	3.5	19	50	1,127,199
13.08	555	12,345,606	22,744	3.2	18	46	1,016,973
11.73	493	10,427,122	22,491	2.9	18	44	986,127
-----							
10.03	394	9,006,380	22,162	2.6	17	43	922,153
8.90	365	8,011,622	21,646	2.5	15	41	866,314
8.16	341	7,378,266	20,921	2.3	15	38	845,784
7.54	321	6,683,887	20,230	2.1	14	37	781,372
6.32	310	6,231,661	18,428	1.4	13	33	687,109
-----							
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		
(10)	(10)	(11)	(11)	(10)	(10)		
\$783	27%	\$254	\$726	\$948	\$4.37		
846	28	289	779	1,055	4.61		
923	30	309	831	1,102	4.95		
976	32	357	885	1,156	5.27		
991	34	374	968	1,206	5.45		
-----							
1,034	35	397	1,017	1,230	5.56		
1,089	37	422	1,036	1,241	5.70		
1,117	38	467	1,068	1,283	5.79		
1,139	39	492	1,164	1,301	5.93		
1,210	41	595	1,323	1,370	6.56		
-----							
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.	
(10)	(10)	(10)	Total	Per Cow	(3)	(6)	
\$3,466	\$9.84	\$11.88	595,440	\$724	\$275,911	\$325,657	
3,219	10.85	12.93	333,662	436	107,574	153,526	
3,113	11.16	13.23	217,681	381	65,647	95,093	
3,034	11.52	13.51	142,588	317	44,564	59,203	
3,010	11.73	13.82	120,804	244	24,904	36,690	
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2,983	11.82	14.06	71,533	160	5,076	4,542	
2,904	12.06	14.24	40,577	103	-9,912	-25,129	
2,815	12.38	14.66	10,600	23	-30,893	-60,317	
2,746	12.92	15.29	-38,458	-81	-55,740	-154,390	
2,555	14.28	17.30	-143,065	-355	-142,233	-341,572	

\*Page number of the participant's DFBS where the factor is located.

### IDENTIFY AND SET GOALS

If businesses are to be successful, they must have direction. Written goals help provide businesses with an identifiable direction over both the long and short term. Goal setting is as important on a dairy farm as it is in other businesses. Written goals are a tool which farm operators can use to ensure that the business continues to move in the desired direction. Goals should be SMART:

1. Goals should be Specific.
2. Goals should be Measurable.
3. Goals should be Achievable but challenging.
4. Goals should be Rewarding.
5. Goals should be Timed with a designated date by which the goal will be achieved.

Goal setting on a dairy farm should be a process for writing down and agreeing on goals that you have already given some thought to. It is also important to remember that once you write out your goals they are not cast in concrete. If a change takes place which has a major impact on the farm business, the goals should be reworked to accommodate that change. Refer to your goals as often as necessary to keep the farm business progressing.

It is important to identify both objectives (long-range) and goals (short-range) when looking at the future of your farm business.

A suggested format for writing out your goals is as follows:

- a. Begin with a mission statement which describes why the business exists based on the preferences and values of the owners.
- b. Identify 4-6 objectives.
- c. Identify SMART goals.

#### Worksheet for Setting Goals

##### I. Mission and Objectives

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## 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 Expenses** - (defined on page 5)

**Accrual Receipts** - (defined on page 6)

**Annual Cash Flow Statement** - (defined on page 14)

**Appreciation** - (defined on page 7)

**Asset Turnover Ratio** - The ratio of total farm income to total farm assets, calculated by dividing total accrual operating receipts plus appreciation by average total farm assets.

**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.

**bST Usage** - An estimate of the percentage of herd, on average, that was supplemented with bovine somatotropin during the year.

**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.

**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 Flow Coverage Ratio** - (defined on page 16)

**Cash Paid** - (defined on page 4)

**Cash Receipts** - (defined on page 6)

**Change in Accounts Payable** - (defined on page 5)

**Change in Accounts Receivable** - (defined on page 6)

**Change in Inventory** - (defined on page 4)

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

**Current Portion** - (defined on page 9)

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

**Dairy (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.

**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.

**Death Rate** – The number of animals that died divided by the average number of milking and dry cows for the year.

**Debt Coverage Ratio** – (defined on page 16)

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

**Debt to Asset Ratios** - (defined on page 12)

**Deferred Taxes** - (defined on page 11)

**Depreciation Expense Ratio** – Machinery and building depreciation divided by total accrual receipts.

**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 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 page 16.

**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.

**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.

**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.

**Interest Expense Ratio** – Accrual interest expense divided by total accrual receipts.

**Labor and Management Income** - (defined on page 8)

**Labor and Management Income Per Operator** - The return to the owner/manager's labor and management per full-time operator.

**Labor Efficiency** - Production capacity and output per worker.

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

**Net Farm Income** - (defined on page 7)

**Net Milk Receipts** – Accrual milk receipts less milk marketing expense.

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

**Operating Costs of Producing Milk** - (defined on page 22)

**Operating Expense Ratio** – Total accrual expenses less interest and machinery and building depreciation, divided by total accrual receipts.

**Opportunity Costs** - 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 Livestock Expenses** - All other dairy herd and livestock expenses not included in more specific categories. Other livestock expenses include; bST, DHIC, 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.

**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.

**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 the costs including the opportunity costs of the owner/manager's labor, management, and equity capital.

**Purchased Inputs Cost of Producing Milk** - (defined on page 22)

**Renter** - Farm business owner/operator owns no tillable land and commonly rents all other farm real estate.

**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 9)

**Return on Total Capital** - (defined on page 9)

**Sell Rate** – The number of animals that were sold for culling purposes divided by the average number of milking and dry cows for the year.

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

**Total Costs of Producing Milk** - (defined on page 22)

**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.

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

## INDEX

	<u>Page(s)</u>		<u>Page(s)</u>
Accounts Payable .....	5,10	Farm Debt Payments as Percent	
Accounts Receivable .....	6,10	of Milk Sales .....	16
Accrual Expenses .....	5,7	Farm Debt Payments Per Cow .....	16
Accrual Receipts .....	6,7	Financial Analysis Chart .....	30
Acreage .....	19	Financial Lease .....	10
Advanced Government Receipts .....	9,10	Income Statement .....	4
Age .....	21	Inflows .....	14
Amount Available for Debt Service .....	16	Interest Expense Ratio .....	23
Annual Cash Flow Statement .....	14	Labor & Mgmt. Income .....	8
Appreciation .....	7,13,21	Labor & Mgmt. Income Per Oper. ....	8
Asset Turnover Ratio .....	23	Labor Efficiency .....	23
Balance Sheet .....	10	Land Resources .....	19
Barn Type .....	4	Liquidity .....	12
bST Usage .....	4	Lost Capital .....	12
Business Type .....	4	Machinery Expenses .....	5,20
Capital Efficiency .....	23	Milking Frequency .....	4
Cash From Nonfarm Capital Used in		Milk Production .....	21
the Business .....	14	Milking System .....	4
Cash Flow Coverage Ratio .....	16	Money Borrowed .....	14
Cash Paid .....	4	Net Farm Income .....	17
Cash Receipts .....	6,14	Net Investment .....	12
Certified Organic Milk Producer .....	4	Net Milk Receipts .....	22
Change in Accounts Payable .....	5	Net Worth .....	10
Change in Accounts Receivable .....	6	Number of Cows .....	21
Change in Inventory .....	4,5	Operating Costs of Prod. Milk .....	22
Change in Net Worth .....	13	Operating Expense Ratio .....	23
Crop Expenses .....	5,20	Opportunity Cost .....	8
Crop/Dairy Ratios .....	19	Other Livestock Expenses .....	5
Current Portion .....	9,10	Outflows .....	14
Current Ratio .....	12	Part-Time Cash-Crop Dairy (farm) .....	4
Dairy (farm) .....	4	Part-Time Dairy (farm) .....	4
Dairy Cash-Crop (farm) .....	4	Percent Equity .....	11,12
Debt Coverage Ratio .....	16	Personal Withdrawals and Family Expenditures	
Debt per Cow .....	12	Including Nonfarm Debt Payments .....	14
Debt to Asset Ratios .....	12	Principal Payments .....	14
Deferred Taxes .....	11	Profitability .....	6
Depreciation .....	5,12	Purchased Inputs Cost .....	22
Depreciation Expense Ratio .....	21	Receipts .....	6
Dry Matter .....	19	Record System .....	4
Education .....	23	Repayment Analysis .....	16
Equity Capital .....	9	Replacement Livestock .....	5
Expansion Livestock .....	5,14	Retained Earnings .....	13
Expenses .....	5	Return on Equity Capital .....	9
Farm Business Chart .....	27-30,33-37	Return on Total Capital .....	9

Rotational Grazing .....	4,20
Solvency .....	12
Total Costs of Producing Milk .....	22
Whole Farm Method .....	22

Worker Equivalent .....	23
Working Capital .....	12
Yields Per Acre.....	19