DAIRY FARM BUSINESS SUMMARY

OCTOBER 2003 *E.B. 2003-18*

PRO-DAIRY

NEW YORK SMALL HERD FARMS, 80 COWS OR FEWER 2002

Wayne A. Knoblauch
Linda D. Putnam
Mariane Kiraly
Jason Karszes

PARTICIPANT COPY

Department of Applied Economics and Management
College of Agriculture and Life Sciences
Cornell University, Ithaca, New York 14853-7801

2002 DAIRY FARM BUSINESS SUMMARY
Small Herd Dairy Farms
80 Cows or Fewer
Table of Contents

2002 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 2002 with herds of 80 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 2002 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.

---

*The small herd summary is comprised of farms with 80 or fewer cows and that do not use a milking parlor. Many counties had farms that met this criteria in 2002. This report was written by Wayne A. Knoblauch, Professor, Farm Management; Mariane Kiraly, Cooperative Extension Educator in Delaware County; and Jason Karszes, Senior Extension Associate, Pro-Dairy. Linda Putnam was in charge of data preparation.

PROGRESS OF THE FARM BUSINESS

The average herd size of small dairies in the 2002 summary was up by one cow or 1.7 percent over 2001. Milk sold was up 0.6 percent probably due to genetics as crops were good, but in lesser quantity. Dry weather impacted the 2002 season, as it did in 2001. Mediocre crops, such as corn silage, with yield down nearly 13 percent resulted from dry weather especially in July and August. Hired labor cost as a percent of milk sales jumped 20 percent as a result of extremely low milk prices coupled with a reluctance to let hard-to-find labor go as milk prices dropped.

Low milk prices forced farmers to cut back on all expenses associated with producing milk, resulting in lower labor and machinery costs per cow, down 3.9 percent, and reduced total farm operating expenses from $13.58 per hundredweight in 2001 to $13.05 per hundredweight in 2002, a 3.9 percent drop. Conversely, in 2001, operating costs went up along with the 17 percent higher milk prices. Farmers tend to cut in lean years and splurge a little in fat years, but 2002 prices left little choice for those who wanted to stay profitable.

Another interesting factor in 2002 was lower interest rates that helped reduce costs. Interest costs per hundredweight fell 21 percent.

Purchased grain costs rose as a percent of milk sales by 20.8 percent due to higher prices for feed and lower prices for milk. Farmers were not able to substitute larger amounts of forage in place of grain due to the smaller quantities of quality forage produced. Grain feeding was probably reduced to cheaper inputs or reduced in quantity in order to maintain cash flow. Purchased grain and concentrates per hundredweight decreased 16 cents, or 4.1 percent.

Looking at all the expenses for the farm, total farm operating costs fell 3.9 percent in 2002. This needed to happen for farmers to stay ahead of expenses with less revenue to go around. Milk marketing costs rose in part due to fuel surcharges and increases in the cost of marketing milk by cooperatives and independents.

The see-saw effect of fluctuating milk prices was evident in 2002 as gross milk sales per hundredweight fell from $16.09 in 2001 to $12.84 in 2002, resulting in over 20 percent less in revenues. These low prices were the result of a sluggish economy after 9/11, an excess of milk and dairy products, and an ever-increasing supply of milk. This trend continued into 2003 to create a cost/price squeeze for dairy farmers. The highs and lows of the late 1990s did not compare to this very long period of low prices. One result was a new government program (MILC) to help alleviate the financial stress by 2003. However, the assistance was targeted to smaller farms and did not significantly help larger herds. For the small farms, government receipts increased $1.18 per hundredweight to $1.54 per hundredweight.

A bright spot was higher beef prices for growers of bull calves and cull cows. Dairy cattle sales per cow were up over 18 percent and every little bit helps when farmers are facing financial stress.

Net farm income without appreciation was down 47.7 percent from 2001. Net farm income with appreciation saw a 63.2 percent decrease, there was a negative return to labor and management income, a huge change in the negative return (-1,000%) to equity capital without appreciation, and a negative 269 percent decline in the rate of return to all capital. Total farm net worth decreased 1.5 percent, reflecting the decreased earnings and the increased borrowings.

Accounts payable rose and mid-term debt has been substituted for short-term liabilities in some cases. The year 2002 was not a good year for dairy farmers, but most held on and increased lines of credit with attractive low interest rates and hoped for better prices in 2003. The MILC Program played a significant role in the profitability of these farms in 2002.

The major factor that keeps smaller dairies going in 2003 will end up being the MILC payments, as prices will not improve until the last quarter of 2003.

PROGRESS OF THE FARM BUSINESS
Same 38 Small Herd Dairy Farms, 2001 & 2002

Selected Factors	Average of 38 Farms 2001	Average of 38 Farms 2002	Percent Change
Size of Business			
Average number of cows	58	59	1.7
Average number of heifers	45	45	0.0
Milk sold, lbs.	1,079,010	1,101,748	2.1
Worker equivalent	2.32	2.43	4.7
Total tillable acres	199	200	0.5
Rates of Production			
Milk sold per cow, lbs.	18,503	18,616	0.6
Hay DM per acre, tons	1.9	2.0	5.3
Corn silage per acre, tons	15.0	13.1	-12.7
Labor Efficiency & Costs			
Cows per worker	25	24	-4.0
Milk sold/worker, lbs.	465,091	453,394	-2.5
Hired labor cost/cwt.	$1.16	$1.20	3.5
Hired labor cost/worker	$20,040	$18,661	-6.9
Hired labor cost as % of milk sales	7.2%	9.3%	29.2
Cost Control			
Grain & conc. purchased as % of milk sales	24%	29%	20.8
Grain & conc. per cwt. milk	$3.89	$3.73	-4.1
Dairy feed & crop expense per cwt. milk	$4.89	$4.69	-4.1
Labor & mach. costs/cow	$1,500	$1,513	0.9
Total farm operating expenses per cwt. sold	$13.58	$13.05	-3.9
Interest costs per cwt. milk	$0.75	$0.59	-21.3
Milk marketing costs per cwt. milk sold	$0.97	$1.01	4.1
Operating cost of producing cwt. of milk	$11.68	$9.94	-14.9
Capital Efficiency(average for the year)			
Farm capital per cow	$8,968	$9,124	1.7
Mach. & equip. per cow	$1,712	$1,760	2.8
Asset turnover ratio	0.41	0.33	-19.5
Income Generation			
Gross milk sales per cow	$2,993	$2,398	-19.9
Gross milk sales per cwt.	$16.09	$12.84	-20.2
Net milk sales per cwt.	$15.12	$11.84	-21.7
Dairy cattle sales per cow	$143	$169	18.2
Dairy calf sales per cow	$51	$46	-9.8
Government receipts per cwt.	$0.36	$1.54	327.7
Profitability			
Net farm income w/o apprec.	$33,927	$17,761	-47.7
Net farm income w/apprec.	$51,133	$18,827	-63.2
Labor & mgt. income per oper./manager	$4,256	$-7,803	-283.3
Rate of return on equity capital w/o apprec.	-0.4%	-4.4%	-1000.0
Rate of return on all capital w/o apprec.	1.3%	-2.2%	-269.2
Financial Summary			
Farm net worth, end year	$418,608	$412,299	-1.5
Debt to asset ratio	0.22	0.24	9.1
Farm debt per cow	$1,995	$2,101	5.3

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 (80 or fewer cows) group of dairy farms.

BUSINESS CHARACTERISTICS
46 Small Herd Dairy Farms, 2002

Type of Farm	Number
Dairy	46
Part-time dairy	0
Dairy cash-crop	0
Certified organic milk producer	0
Rotational grazing farms	13

Type of Ownership	Number
Owner	46
Renter	0

Type of Business	Number
Sole Proprietorship	37
Partnership	8
Corporation	1

Type of Barn	Number
Stanchion or Tie-Stall	45
Freestall	0
Combination	1

Milking Frequency	Number
2 times per day	44
3 times per day	1
Other	1

Milking System	Number
Bucket & carry	0
Dumping station	3
Pipeline	43
Herringbone parlor	0
Other parlor	0

Production Records	Number
Testing service	33
On-farm system	2
Other	0
None	11

bST Usage	Number
Used on <25% of herd	1
Used on 25-75% of herd	3
Used on >75% of herd	5
Stopped using in 2002	1
Not used in 2002	36

Business Record System	Number
Account Book	16
Accounting Service	10
On-farm computer	16
Other	4

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 2002.

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
46 Small Herd Dairy Farms, 2002

Expense Item	Cash Paid	-	Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses
Hired Labor	$ 11,732		$ 87	<<	$ 0		$ 11,645
Feed							
Dairy grain & concentrate	39,161		-250		-126		39,285
Dairy roughage	2,533		-251		185		2,969
Nondairy	65		0		0		65
Machinery							
Machinery hire, rent & lease	2,704		0	<<	42		2,745
Machinery repairs & farm vehicle exp.	10,037		39		266		10,263
Fuel, oil & grease	3,680		-19		43		3,742
Livestock							
Replacement livestock	1,598		0	<<	176		1,774
Breeding	3,015		-63		5		3,083
Veterinary & medicine	4,642		-89		52		4,784
Milk marketing	10,296		0	<<	4		10,300
Bedding	1,166		5		24		1,186
Milking supplies	4,669		-28		20		4,718
Cattle lease & rent	58		0	<<	0		58
Custom boarding	966		0	<<	1		966
bST	1,043		5		-3		1,036
Other livestock expense	2,769		-1		6		2,775
Crops							
Fertilizer & lime	3,250		-339		-117		3,472
Seeds & plants	1,797		-284		13		2,094
Spray, other crop expense	1,544		-99		-20		1,623
Real Estate							
Land, building & fence repair	2,350		-74		197		2,622
Taxes	4,649		-28	<<	132		4,809
Rent & lease	1,722		0	<<	17		1,740
Other							
Insurance	3,366		2	<<	0		3,364
Utilities (farm share)	6,385		0	<<	-8		6,376
Interest paid	6,593		0	<<	0		6,593
Miscellaneous	2,569		12		-40		2,516
Total Operating	$134,358		$ -1,378		$ 867		$ 136,603
Expansion livestock	1,172		0	<<	0		1,172
Machinery depreciation							10,216
Building depreciation							3,614
TOTAL ACCRUAL EXPENSES							$ 151,605

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 2002 but not paid for. A decrease is subtracted because it represents payment for resources used before 2002.

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
46 Small Herd Dairy Farms, 2002

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts
Milk sales	$ 134,999				$ -1,435		$ 133,564
Dairy cattle	7,760		$ 1,166		30		8,956
Dairy calves	2,636				34		2,671
Other livestock	126		878		0		1,004
Crops	488		1,260		-77		1,671
Government receipts	15,582		0 *		873		16,456
Custom machine work	175				-3		172
Gas tax refund	168				0		168
Other	2,574				147		2,721
Less nonfarm noncash capital**		(-)	0**			(-)	0
Total Receipts	$ 164,507		$ 3,304		$ -430		$ 167,381

*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 2002 for the 2003 crop year in excess of funds earned for 2002. Likewise, a decrease is added to cash government receipts because it represents funds earned for 2002 but received in 2001.

Changes in accounts receivable are calculated by subtracting beginning year balances from end year balances. Payments in January 2003 for milk produced in December 2002 compared to January 2002 payments for milk produced in 2001 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.

* 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.

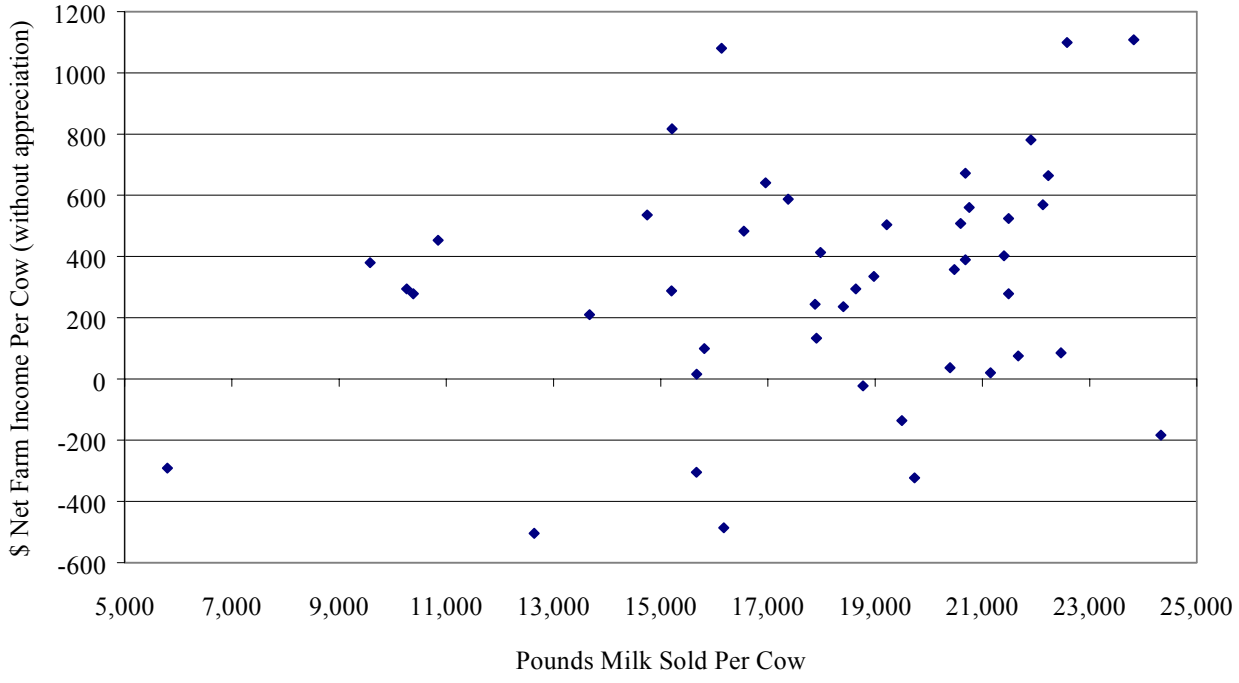
NET FARM INCOME
46 Small Herd Dairy Farms, 2002

Item	Average 46 Farms Total	Average 46 Farms Per Cow	Top 25% Farms* Total	Top 25% Farms* Per Cow
Total accrual receipts	$ 167,381		$ 211,985	
Appreciation: Livestock	-4,089		-6,886	
Machinery	1,340		467	
Real Estate	5,156		13,331	
Other Stock & Certificates	292		137	
Total Including Appreciation	$ 170,080		$ 219,034	
Total accrual expenses	- 151,605		- 175,158	
Net Farm Income (with appreciation)	$ 18,475	$ 324	$ 43,876	$ 744
Net Farm Income (without appreciation)	$ 15,776	$ 277	$ 36,827	$ 624

*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 (without appreciation) and pounds of milk sold per cow. Generally, farms with a higher production per cow have higher profitability per cow.

NET FARM INCOME PER COW AND MILK PER COW
46 Small Herd Dairy Farms, 2002



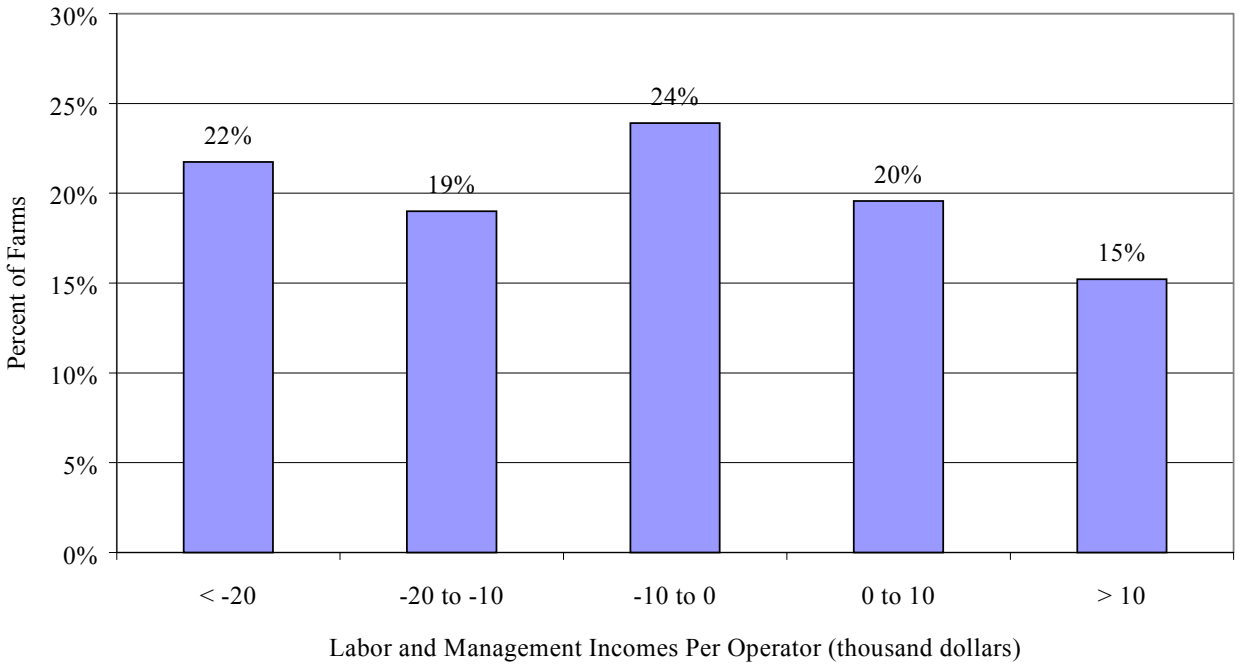
Labor and management income is the return which farm operators receive for their labor and management used in the farm business. Appreciation is not included as part of the return to labor and management because it results from ownership of assets rather than management of the farm business. Labor and 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
46 Small Herd Dairy Farms, 2002

Item	Average 46 Farms	Top 25% Farms
Net farm income without appreciation	$ 15,776	$ 36,827
Family labor unpaid @ $2,100 per month	- 7,560	- 7,140
Interest on $383,555 average equity capital @ 5% real rate	- 19,178	- 22,994
($459,873 average equity capital for top 25% farms)		
Labor & Management Income per farm (1.36 Operators/farm)	$ -10,962	$ 6,693
(1.09 operators per farm for top 25% farms)		
Labor & Management Income per Operator/Manager	$ -8,060	$ 6,140

Labor and management income per operator averaged $-8,060 on these 46 farms in 2002. The range in labor and management income per operator was from about $-89,000 to more than $28,000. Returns to labor and management were negative on 65 percent of the farms. Labor and management income per operator was between $0 and $10,000 on 20 percent of the farms while 15 percent showed labor and management incomes of $10,000 or more per operator.

DISTRIBUTION OF LABOR & MANAGEMENT INCOMES PER OPERATOR
46 Small Herd Dairy Farms, 2002



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. Net farm income from operations ratio is net farm income (without appreciation) divided by total accrual receipts.

RETURN ON EQUITY CAPITAL AND RETURN ON TOTAL CAPITAL
46 Small Herd Dairy Farms, 2002

Item	Average 46 Farms	Top 25% Farms
Net farm income with appreciation	$ 18,475	$ 43,876
Family labor unpaid @$2,100 per month	- 7,560	- 7,140
Value of operators' labor & management	- 27,973	- 24,182
Return on equity capital with appreciation	$ -17,058	$ 12,554
Interest paid	+ 6,593	+ 8,072
Return on total capital with appreciation	$ -10,465	$ 20,626
Return on equity capital without appreciation	$ -19,757	$ 5,505
Return on total capital without appreciation	$ -13,164	$ 13,577
Rate of return on average equity capital:		
with appreciation	-4.5%	2.7%
without appreciation	-5.2%	1.2%
Rate of return on average total capital:		
with appreciation	-2.0%	3.5%
without appreciation	-2.5%	2.3%
Net farm income from operations ratio	0.09	0.17

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 2002, lease payments were discounted by 5.75 percent to obtain their present value.

Advanced government receipts are included as current liabilities. Government payments received in 2002 that are for participation in the 2003 program are the end year balance and payments received in 2001 for participation in the 2002 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.

2002 FARM BUSINESS & NONFARM BALANCE SHEET
46 Small Herd Dairy Farms, 2002

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
Current			Current		
Farm cash, checking & savings	$ 4,062	$ 2,224	Accounts payable	$ 3,853	$ 4,719
Accounts receivable	11,021	10,590	Operating debt	3,527	5,539
Prepaid expenses	76	136	Short Term	434	140
Feed & supplies	33,594	33,416	Advanced govt. receipts	0	0
			Current Portion:		
			Intermediate	9,576	12,721
			Long Term	3,828	4,365
Total Current	$ 48,753	$ 46,366	Total Current	$ 21,217	$ 27,484
Intermediate			Intermediate		
Dairy cows:			Structured debt		
owned	$ 71,468	$ 69,948	1-10 years	$ 58,210	$ 60,102
leased	0	57	Financial lease		
Heifers	35,785	34,320	(cattle/machinery)	543	442
Bulls & other livestock	1,170	2,110	Farm Credit stock	878	904
Mach. & equip. owned	99,368	103,296	Total Intermediate	$ 59,631	$ 61,448
Mach. & equip. leased	543	385			
Farm Credit stock	878	904			
Other stock/certificate	3,351	3,575			
Total Intermediate	$ 212,563	$ 214,595			
			Long Term		
Long Term			Structured debt		
Land & buildings:			>10 years	$ 51,112	$ 48,818
owned	$ 254,192	$ 260,351	Financial lease		
leased	0	0	(structures)	0	0
Total Long Term	$ 254,192	$ 260,351	Total Long Term	$ 51,112	$ 48,818
			Total Farm Liab.	$ 131,960	$ 137,750
Total Farm Assets	$ 515,508	$ 521,312	FARM NET WORTH	$ 383,548	$ 383,562

Nonfarm Assets, Liabilities & Net Worth (Average of 35 farms reporting)

Assets	Jan. 1	Dec. 31	Liabilities & Net Worth	Jan. 1	Dec. 31
Personal cash, checking & savings	$ 6,230	$ 5,244	Nonfarm Liabilities	$ 2,859	$ 1,760
Cash value life insurance	12,911	13,284			
Nonfarm real estate	14,595	14,881			
Auto (personal share)	6,501	5,897			
Stocks & bonds	13,406	13,193			
Household furnishings	10,671	10,243			
All other nonfarm assets	5,308	5,258			
Total Nonfarm Assets	$ 69,622	$ 68,000	NONFARM NET WORTH	$ 66,763	$ 66,240

Farm & Nonfarm Assets, Liabilities, and Net Worth*	Jan. 1	Dec. 31
Total Assets	$ 585,130	$ 589,312
Total Liabilities	134,819	139,510
TOTAL FARM & NONFARM NET WORTH	$ 450,311	$ 449,802

*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 carryover and recapture, carryover of operating losses, alternative minimum taxes and other than average exemptions and deductions are excluded because they have only minor influence on the taxes of most farms. The dramatic impact of including deferred taxes is clear. Total liabilities were increased 57 percent on these 72 farms by including deferred taxes.

Deferred taxes on these farms totaled an average of $308,606, roughly one-third of the pretax net worth. Percent equity for the farm decreased from 66 percent to 45 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, 2002
72 New York Dairy Farms, 2002

Assets		Liabilities & Net Worth	
		Current debts & payables	$ 123,947
		Current deferred taxes	53,203
Total Current Assets	$ 187,984	Total Current Liabilities	$ 177,150
		Intermediate debts & leases	$ 210,000
		Intermediate deferred taxes	160,834
Total Inter. Assets	$ 690,977	Total Intermediate Liabilities	$ 370,834
		Long term debts & leases	$ 173,315
		Long term deferred taxes	94,569
Total Long Term Assets	$ 591,305	Total Long Term Liabilities	$ 267,884
TOTAL FARM ASSETS	$ 1,470,267	TOTAL FARM LIABILITIES	$ 815,868
		Farm Net Worth	$ 654,399
		Percent Equity (Farm)	45%
		Nonfarm debts	$ 2,640
		Nonfarm deferred taxes	10,223
Total Nonfarm Assets	$ 68,817	Total Nonfarm Liabilities	$ 12,863
TOTAL ASSETS	$ 1,539,084	TOTAL LIABILITIES	$ 828,731
		Total Net Worth	$ 710,353
		Percent Equity (Total)	46%

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. The leverage ratio is the dollar of debt per dollar of equity, computed by dividing total farm liabilities by farm net worth. 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
46 Small Herd Dairy Farms, 2002

Item			Average 46 Farms		Top 25% Farm
Financial Ratios - Farm:					
Percent equity			74%		77%
Debt/asset ratio: total			0.26		0.23
long-term			0.19		0.15
intermediate/current			0.34		0.31
Leverage ratio			0.36		0.30
Current ratio			1.69		1.37
Working capital	$18,882	As % of total Expenses:	12%	$13,923	8%
Farm Debt Analysis:					
Accounts payable as % of total debt			3%		4%
Long-term liabilities as a % of total debt			35%		33%
Current & inter. liabilities as a % of total debt			65%		67%
Cost of term debt (weighted average)			4.6%		6.1%
Farm Debt Levels:		Per Cow	Per Tillable Acre Owned	Per Cow	Per Tillable Acre Owned
Total farm debt		$2,375	$1,052	$2,236	$943
Long-term debt		842	373	739	312
Intermediate & long term		1,901	842	1,637	690
Intermediate & current debt		1,533	679	1,497	631

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
46 Small Herd Dairy Farms, 2002

Item	Average 46 Farms			
	Real Estate		Machinery & Equipment	
Value beginning of year		$ 254,192		$ 99,368
Purchases	$ 6,147*		$ 13,424	
Gift & inheritance	+ 0		+ 0	
Lost capital	- 1,530			
Sales	- 0		- 621	
Depreciation	- 3,614		- 10,216	
Net investment		= 1,003		= 2,588
Appreciation		+ 5,156		+ 1,340
Value end of year		$ 260,351		$ 103,296

*$824 land and $5,323 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)
46 Small Herd Dairy Farms, 2002

Item	Average 46 Farms		Top 25% Farms	
Beginning of year farm net worth		$ 383,548		$ 451,705
Net farm income w/o appreciation	$ 15,776		$ 36,827	
+Nonfarm cash income	+ 7,496		+ 2,973	
-Personal withdrawals & family expenditures excluding nonfarm borrowings	- 26,869		- 29,059	
RETAINED EARNINGS		+ $ -3,597		+$ 10,741
Nonfarm noncash transfers to farm	$ 0		$ 0	
+Cash used in business from nonfarm capital	+ 2,031		+ 123	
-Note or mortgage from farm real estate sold (nonfarm)	- 0		- 0	
CONTRIBUTED/WITHDRAWN CAPITAL		+ $ 2,031		+$ 123
Appreciation	$ 2,699		$ 7,049	
-Lost capital	- 1,530		- 458	
CHANGE IN VALUATION EQUITY		+ $ 1,169		+$ 6,591
IMBALANCE/ERROR		- $ -411		- $ 1,120
End of year net worth*		= $ 383,562		=$ 468,040
Change in Net Worth				
Without appreciation		$ -2,685		$ 9,286
With appreciation		$ 14		$16,335

*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
46 Small Herd Dairy Farms, 2002

Item			Average 46 Farms	
Cash Flow from Operating Activities				
	Cash farm receipts	$ 164,507		
-	Cash farm expenses	134,358		
=	Net cash farm income		$ 30,149	
	Personal withdrawals & family expenses			
	including nonfarm debt payments	$ 27,034		
-	Nonfarm income	7,496		
-	Net cash withdrawals from the farm		$ 19,538	
=	Net Provided by Operating Activities			$ 10,611
Cash Flow From Investing Activities				
	Sale of assets: machinery	$ 621		
	+ real estate	0		
	+ other stock & cert.	133		
=	Total asset sales		$ 754	
	Capital purchases: expansion livestock	$ 1,172		
	+ machinery	13,424		
	+ real estate	6,147		
	+ other stock & cert.	65		
-	Total invested in farm assets		$ 20,808	
=	Net Provided by Investment Activities			$ -20,054
Cash Flow From Financing Activities				
	Money borrowed (intermediate & long term)	$ 19,460		
+	Money borrowed (short term)	-86		
+	Increase in operating debt	2,012		
+	Cash from nonfarm capital used in business	2,031		
+	Money borrowed - nonfarm	165		
=	Cash inflow from financing		$ 23,582	
	Principal payments (intermediate & long term)	$ 16,180		
+	Principal payments (short term)	208		
+	Decrease in operating debt	0		
-	Cash outflow for financing		$ 16,388	
=	Net Provided by Financing Activities			$ 7,194
Cash Flow From Reserves				
	Beginning farm cash, checking & savings		$ 4,062	
-	Ending farm cash, checking & savings		2,224	
=	Net Provided from Reserves			$ 1,838
Imbalance (error)				$ -411

ANNUAL CASH FLOW STATEMENT
Top 25% Small Herd Dairy Farms, 2002

Item			Top 25% Farms	
Cash Flow from Operating Activities				
	Cash farm receipts	$ 199,566		
-	Cash farm expenses	148,151		
=	Net cash farm income		$ 51,415	
	Personal withdrawals & family expenses including nonfarm debt payments	$ 29,185		
-	Nonfarm income	2,973		
-	Net cash withdrawals from the farm		$ 26,212	
=	Net Provided by Operating Activities			$ 25,203
Cash Flow From Investing Activities				
	Sale of assets: machinery	$ 1,387		
	+ real estate	0		
	+ other stock & cert.	0		
=	Total asset sales		$ 1,387	
	Capital purchases: expansion livestock	$ 4,750		
	+ machinery	24,293		
	+ real estate	11,081		
	+ other stock & cert.	0		
-	Total invested in farm assets		$ 40,124	
=	Net Provided by Investment Activities			$ -38,737
Cash Flow From Financing Activities				
	Money borrowed (intermediate & long term)	$ 34,067		
+	Money borrowed (short term)	0		
+	Increase in operating debt	2,341		
+	Cash from nonfarm capital used in business	123		
+	Money borrowed - nonfarm	126		
=	Cash inflow from financing		$ 36,657	
	Principal payments (intermediate & long term)	$ 23,556		
+	Principal payments (short term)	0		
+	Decrease in operating debt	0		
-	Cash outflow for financing		$ 23,556	
=	Net Provided by Financing Activities			$ 13,101
Cash Flow From Reserves				
	Beginning farm cash, checking & savings		$ 3,719	
-	Ending farm cash, checking & savings		2,169	
=	Net Provided from Reserves			$ 1,550
Imbalance (error)				$ 1,117

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 2003. The cash flow projection worksheet on the next page can be used to estimate repayment ability, which can then be compared to planned 2003 debt payments shown below.

FARM DEBT PAYMENTS PLANNED
Small Herd Dairy Farms, 2001 & 2002

	Same 38 Dairy Farms			Same 11 Top 25% Farms		
	2002 Payments		Planned	2002 Payments		Planned
Debt Payments	Planned	Made	2003	Planned	Made	2003
Long-term	$ 7,422	$ 6,811	$ 7,364	$ 9,694	$ 5,957	$ 9,070
Intermediate-term	15,020	16,782	16,824	17,687	25,288	23,702
Short-term	282	303	129	0	0	0
Operating (net reduction)	221	0	634	91	0	0
Accounts payable (net reduction)	2	0	248	0	0	399
Total	$ 22,947	$ 23,896	$ 25,199	$ 27,472	$ 31,245	$ 33,171
Per cow	$ 389	$ 405		$ 466	$ 530	
Per cwt. 2002 milk	$ 2.08	$ 2.17		$ 2.30	$ 2.61	
Percent of total 2002 receipts	13%	13%		13%	15%	
Percent of 2002 milk receipts	16%	17%		18%	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 2002 (as of December 31, 2001) that could have been made with the amount available for debt service in 2002. Farmers who did not participate in DFBS in 2001 have their 2002 cash flow coverage ratio based on planned debt payments for 2003.

COVERAGE RATIOS
Same 38 Small Herd Dairy Farms, 2001 & 2002

Item	Average	Item	Average
Cash Flow Coverage Ratio		Debt Coverage Ratio	
Cash farm receipts	$173,919	Net farm income (w/o apprec.)	$17,761
- Cash farm expenses	141,212	+ Depreciation	14,258
+ Interest paid (cash)	6,486	+ Interest paid (accrual)	6,486
- Net personal withdrawals from farm*	22,137	- Net personal withdrawals from farm*	22,137
(A) = Amount Available for Debt Service	$ 17,056	(A') = Repayment Capacity	$16,368
(B) = Debt Payments Planned for 2002 (as of December 31, 2001)	$ 22,947	(B) = Debt Payments Planned for 2002 (as of December 31, 2001)	$22,947
(A/ B)= Cash Flow Coverage Ratio for 2002	0.74	(A'/B)= Debt Coverage Ratio for 2002	0.71

Same 11 Top 25% Dairy Farms, 2001 & 2002

(A) = Amount Available for Debt Service	$ 33,401	(A') = Repayment Capacity	$ 37,163
(B) = Debt Payments Planned for 2002	27,472	(B) = Debt Payments Planned for 2002	27,472
(A/ B)= Cash Flow Coverage Ratio for 2002	1.22	(A'/B)= Debt Coverage Ratio for 2002	1.35

*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

46 Small Herd Dairy Farms, 2002

Item	Average 46 Farms Per Cow	Per Cwt.	Total
Number cows and cwt. milk	57	10,472	
Accrual Operating Receipts			
Milk	$ 2,343	$ 12.75	$ 133,564
Dairy cattle	157	0.86	8,956
Dairy calves	47	0.26	2,671
Other livestock	18	0.10	1,004
Crops	29	0.16	1,671
Misc. receipts	342	1.86	19,517
Total	$ 2,937	$ 15.98	$ 167,381
Accrual Operating Expenses			
Hired labor	$ 204	$ 1.11	$ 11,645
Dairy grain & concentrate	689	3.75	39,285
Dairy roughage	52	0.28	2,969
Nondairy feed	1	0.01	65
Mach. hire/rent/lease	48	0.26	2,745
Mach. repair & farm vehicle expense	180	0.98	10,263
Fuel, oil & grease	66	0.36	3,742
Replacement livestock	31	0.17	1,774
Breeding	54	0.29	3,083
Vet & medicine	84	0.46	4,784
Milk marketing	181	0.98	10,300
Bedding	21	0.11	1,186
Milking supplies	83	0.45	4,718
Cattle lease	1	0.01	58
Custom boarding	17	0.09	966
bST expense	18	0.10	1,036
Other livestock expense	49	0.26	2,775
Fertilizer & lime	61	0.33	3,472
Seeds & plants	37	0.20	2,094
Spray/other crop expenses	28	0.15	1,623
Land, building, fence repair	46	0.25	2,622
Taxes	84	0.46	4,809
Real estate rent/lease	31	0.17	1,740
Insurance	59	0.32	3,364
Utilities	112	0.61	6,376
Miscellaneous	44	0.24	2,516
Total Less Interest Paid	$ 2,281	$ 12.42	$ 130,010
Net Accrual Operating Income (without interest paid)	$ 656	$ 3.57	$ 37,371
- Change in livestock/crop inventory*	58	0.32	3,304
- Change in accounts receivable	-8	-0.04	-430
- Change in feed/supply inventory**	-24	-0.13	-1,378
+ Change in accts. payable***	15	0.08	867
NET CASH FLOW	$ 645	$ 3.51	$ 36,742
- Net personal withdrawals from farm (see footnote on p. 16)	$ 340	$ 1.85	$ 19,373
Available for Farm Debt Payments & Investments	$ 305	$ 1.66	$ 17,369
- Farm debt payments	395	2.15	22,541
Available for Farm Investment	$ -91	$ -0.49	$ -5,172
- Capital purchases: cattle, machinery & improvements	$ 365	$ 1.99	$ 20,808

*Includes change in advance government receipts.

**Includes change in prepaid expenses.

***Excludes change in interest account payable.

ANNUAL CASH FLOW WORKSHEET

Top 25% Small Herd Dairy Farms, 2002

Item	Average Top 25% Farms Per Cow	Per Cwt.	Total
No. cows or cwt. milk	59	11,966	
Accrual Operating Receipts			
Milk	$ 2,639	$ 13.01	$ 155,729
Dairy cattle	389	1.92	22,934
Dairy calves	66	0.33	3,903
Other livestock	44	0.22	2,604
Crops	10	0.05	580
Misc. receipts	445	2.19	26,236
Total	$ 3,593	$ 17.72	$ 211,985
Accrual Operating Expenses			
Hired labor	$ 261	$ 1.29	$ 15,426
Dairy grain & concentrate	718	3.54	42,385
Dairy roughage	16	0.08	953
Nondairy feed	4	0.02	231
Mach. hire/rent/lease	49	0.24	2,893
Mach. repair & farm vehicle expense	183	0.90	10,824
Fuel, oil & grease	72	0.35	4,224
Replacement livestock	6	0.03	334
Breeding	61	0.30	3,597
Vet & medicine	84	0.42	4,980
Milk marketing	218	1.08	12,871
Bedding	15	0.07	877
Milking supplies	112	0.55	6,595
Cattle lease	2	0.01	137
Custom boarding	11	0.05	635
bST expense	22	0.11	1,318
Other livestock expense	55	0.27	3,225
Fertilizer & lime	44	0.22	2,613
Seeds & plants	52	0.25	3,045
Spray/other crop expenses	35	0.17	2,057
Land, building, fence repair	57	0.28	3,388
Taxes	84	0.41	4,952
Real estate rent/lease	37	0.18	2,202
Insurance	75	0.37	4,414
Utilities	122	0.60	7,177
Miscellaneous	45	0.22	2,636
Total Less Interest Paid	$ 2,440	$ 12.03	$ 143,986
Net Accrual Operating Income (without interest paid)	$ 1,153	$ 5.68	$ 67,999
- Change in livestock/crop inventory*	213	1.05	12,584
- Change in accounts receivable	-3	-0.01	-165
- Change in feed/supply inventory**	-42	-0.21	-2,500
+ Change in accounts payable***	24	0.12	1,407
NET CASH FLOW	$ 1,008	$ 4.97	$ 59,487
- Net personal withdrawals from farm (see footnote p.16)	$ 442	$ 2.18	$ 26,086
Available for Farm Debt Payments & Investments	$ 566	$ 2.79	$ 33,401
- Farm debt payments	530	2.61	31,244
Available for Farm Investment	$ 37	$ 0.18	$ 2,157
- Capital purchases: cattle, machinery & improvements	$ 680	$ 3.35	$ 40,124

*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
46 Small Herd Dairy Farms, 2002

Item	Average 46 Farms			Top 25% Farm		
Land	Owned	Rented	Total	Owned	Rented	Total
Tillable	131	67	198	147	71	217
Nontillable	56	11	67	66	15	81
Other nontillable	97	12	109	97	28	125
Total	284	91	374	309	114	423
Crop Yields	Farms	Acres*	Prod/Acre	Farms	Acres	Prod/Acre
Hay crop	44	139	1.99 tn DM	11	156	2.15 tn DM
Corn silage	35	41	13.10 tn	8	46	13.15 tn
			4.39 tn DM			4.52 tn DM
Other forage	5	17	1.41 tn DM	1	30	1.50 tn DM
Total forage	44	174	2.44 tn DM	11	193	2.54 tn DM
Corn grain	8	36	92 bu	2	42	116 bu
Oats	1	24	30 bu	0	0	0 bu
Wheat	3	28	47 bu	0	0	0 bu
Other crops	7	19		3	20	
Tillable pasture	16	39		4	23	
Idle	14	24		3	10	
Total Tillable Acres	46	198		11	217	

*This column represents the average acreage for the farms producing that crop. Average acreages including those farms not producing were hay crop 133, corn silage 31, corn grain 6, oats 1, tillable pasture 14, and idle 7.

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
46 Small Herd Dairy Farms, 2002

Item	Average 46 Farms	Top 25% Farm
Total tillable acres per cow	3.47	3.68
Total forage acres per cow	2.91	3.27
Harvested forage dry matter, tons per cow	7.11	8.31

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 13 farms, 5 of which are in the "top 25% farms" group.

CROP RELATED ACCRUAL EXPENSES
Small Herd Dairy Farms Reporting, 2002

Item	Total Per Till. Acre	All Corn Per Acre	Corn Silage Per Ton DM	Corn Grain Per Dry Sh. Bu.	Hay Crop Per Acre	Hay Crop Per Ton DM	Pasture Per Till Acre	Pasture Per Total Acre
No. of farms reporting	46	5			6		2	
Ave. number of acres	198	61			159		15	164
Fert. & lime	$ 17.54	$ 40.13	$ 8.68	$ 0.38	$ 7.46	$ 4.46	$ 58.93	$ 5.39
Seeds & plants	10.58	30.28	6.55	0.29	10.77	6.44	17.53	1.60
Spray & other crop exp.	8.20	39.41	8.53	0.37	1.19	0.71	0.00	0.00
TOTAL	$ 36.32	$ 109.82	$ 23.76	$ 1.04	$ 19.42	$ 11.61	$ 76.46	$ 6.99
Top 25% Farms								
No. of farms reporting	11	4			5		2	
Ave. number of acres	217	61			176		15	164
Fert. & lime	$ 12.04	$ 36.54	$ 7.77	$ 0.31	$ 6.46	$ 3.39	$ 58.93	$ 5.39
Seeds & plants	14.03	32.30	6.87	0.28	10.75	5.65	17.53	1.60
Spray & other crop exp.	9.48	39.46	8.40	0.34	0.83	0.44	0.00	0.00
TOTAL	$ 35.55	$ 108.30	$ 23.04	$ 0.93	$ 18.04	$ 9.48	$ 76.46	$ 6.99

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
46 Small Herd Dairy Farms, 2002

Machinery Expense	Average 46 Farms Total Expenses	Average 46 Farms Per Till. Acre	Top 25% Farms Total Expenses	Top 25% Farms Per Till. Acre
Fuel, oil & grease	$ 3,742	$ 18.90	$ 4,224	$ 19.47
Mach. repair & vehicle exp.	10,263	51.83	10,824	49.88
Machine hire, rent & lease	2,745	13.86	2,893	13.33
Interest (5%)	5,090	25.71	5,996	27.63
Depreciation	10,216	51.60	13,940	64.24
Total	$ 32,056	$ 161.90	$ 37,877	$ 174.55

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
46 Small Herd Dairy Farms, 2002

	Dairy Cows		Heifer					
			Bred		Open		Calves	
Item	No.	Value	No.	Value	No.	Value	No.	Value
Average 48 Farms:								
Beg. year (owned)	57	$ 71,468	15	$ 18,240	15	$ 11,826	13	$ 5,719
+ Change w/o apprec.		1,305		-697		683		-124
+ Appreciation		-2,825		-982		-287		-58
End year (owned)	58	$ 69,948	14	$ 16,561	16	$ 12,222	13	$ 5,537
End including leased	58							
Average number	57		44	(all age groups)				
Top 25% Farms:								
Beg. year (owned)	60	$ 76,723	15	$ 19,172	18	$ 14,773	12	$ 5,182
+ Change w/o apprec.		3,813		6,148		-9		73
+ Appreciation		-4,563		-2,619		-255		163
End year (owned)	61	$ 75,973	20	$ 22,701	18	$ 14,509	12	$ 5,418
End including leased	62							
Average number	59		49	(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
46 Small Herd Dairy Farms, 2002

Item	Average 46 Farms	Top 25% Farms
Total milk sold, lbs.	1,047,173	1,196,565
Milk sold per cow, lbs.	18,281	20,157
Average milk plant test, percent butterfat	3.77	3.85

Monitoring and evaluating culling practices and experiences on an annual basis are important herd management tools. Culling rate can have an affect on both milk per cow and profitability.

ANIMALS LEAVING THE HERD
46 Small Herd Dairy Farms, 2002

	Average 46 Farms		Top 25% Farms	
Item	Number	Percent*	Number	Percent*
Cows sold for beef	14	24.6	13	22.0
Cows sold for dairy	1	1.8	1	1.7
Cows died	3	5.3	4	6.8
Culling rate**		29.8		28.8

*Percent of average number of cows in the herd.
**Cows sold for beef plus cows died.

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
46 Small Herd Dairy Farms, 2002

Item	Average 46 Farms			Top 25% Farms		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Accrual Cost of Producing Milk						
Operating costs	$ 103,958	$ 1,824	$ 9.93	$ 100,552	$ 1,704	$ 8.40
Purchased inputs costs	$ 117,788	$ 2,066	$ 11.25	$ 118,902	$ 2,015	$ 9.94
Total Costs	$ 172,499	$ 3,026	$ 16.47	$ 173,218	$ 2,936	$ 14.48
Accrual Receipts From Milk	$ 133,564	$ 2,343	$ 12.75	$ 155,729	$ 2,639	$ 13.01
Net Milk Receipts	$ 123,264	$ 2,163	$ 11.77	$ 142,858	$ 2,421	$ 11.94
Net Farm Income without Apprec.	$ 15,776	$ 277	$ 1.51	$ 36,827	$ 624	$ 3.08
Net Farm Income with Apprec.	$ 18,475	$ 324	$ 1.76	$ 43,876	$ 744	$ 3.67

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
46 Small Herd Dairy Farms, 2002

Item	Average 46 Farms		Top 25% Farms	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	$ 689	$ 3.75	$ 718	$ 3.54
Purchased dairy roughage	52	0.28	16	0.08
Total Purchased Dairy Feed	$ 741	$ 4.03	$ 735	$ 3.62
Purchased grain & conc. as % of milk receipts	29%		27%	
Purchased feed & crop exp.	$ 867	$ 4.72	$ 865	$ 4.27
Purchased feed & crop exp. as % of milk receipts	37%		33%	
Breeding	$ 54	$ 0.29	$ 61	$ 0.30
Veterinary & medicine	84	0.46	84	0.42
Milk marketing	181	0.98	218	1.08
Bedding	21	0.11	15	0.07
Milking supplies	83	0.45	112	0.55
Cattle lease	1	0.01	2	0.01
Custom boarding	17	0.09	11	0.05
bST	18	0.10	22	0.11
Other livestock expense	49	0.26	55	0.27

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
46 Small Herd Dairy Farms, 2002

Item	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
Average 46 Farms:				
Farm capital	$220,600	$9,095	$2,618	$3,957
Real estate		4,514		1,964
Machinery & equipment	43,317	1,786	514	
Ratios				
Asset turnover	Operating Expense	Interest Expense	Depreciation Expense	
0.33	0.78	0.04	0.08	
Top 25% Farms:				
Farm capital	$258,306	$10,026	$2,726	$4,024
Real estate		5,019		2,015
Machinery & equipment	52,370	2,033	553	
Ratios				
Asset turnover	Operating Expense	Interest Expense	Depreciation Expense	
0.37	0.70	0.04	0.09	

LABOR FORCE INVENTORY AND ANALYSIS
46 Small Herd Dairy Farms, 2002

Labor Force	Months	Age	Years of Educ.	Value of Labor & Mgmt.
Average 46 Farms:				
Operator number 1	13.1	49	13	$ 22,451
Operator number 2	3.8	43	13	5,522
Family paid	2.8			
Family unpaid	3.6			
Hired	4.9			
Total	28.2	/ 12 = 2.35 Worker Equivalent		
		1.36 Operator/Manager Equivalent		
Top 25% Farms: Total	27.4	/ 12 = 2.29 Worker Equivalent		
Operator's		1.09 Operator/Manager Equivalent		

Labor Efficiency	Average 46 Farms Total	Average 46 Farms Per Worker	Top 25% Farms Total	Top 25% Farms Per Worker
Cows, average number	57	24	59	26
Milk sold, pounds	1,047,173	445,606	1,196,565	522,517
Tillable acres	198	84	217	95
Work units	619	263	647	283

Labor Costs	Average 46 Farms Total	Average 46 Farms Per Cow	Average 46 Farms Per Cwt.	Top 25% Farms Total	Top 25% Farms Per Cow	Top 25% Farms Per Cwt.
Value of operator(s) labor ($2,100/mo.)	$ 35,490	$ 623	$ 3.39	$31,500	$ 534	$ 2.63
Family unpaid ($2,100/mo.)	7,560	133	0.72	7,140	121	0.60
Hired	11,645	204	1.11	15,426	261	1.29
Total Labor	$ 54,695	$ 960	$ 5.22	$54,066	$ 916	$ 4.52
Machinery Cost	$ 32,056	$ 562	$ 3.06	$37,877	$ 642	$ 3.17
Total Labor & Mach.	$ 86,751	$ 1,522	$ 8.28	$91,943	$ 1,558	$ 7.68
Hired labor expense per hired worker equivalent		$18,148			$20,342	
Hired labor expense as % of milk sales		8.7%			9.9%	

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 38 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 38 Small Herd Dairy Farms, 2001 & 2002

	Average of Same 38 Farms*		Average of Same 11 Top 25% Farms*	
Selected Factors	2001	2002	2001	2002
Size of Business				
Average number of cows	58	59	58	59
Average number of heifers	45	45	48	49
Milk sold, lbs.	1,079,010	1,101,748	1,173,868	1,196,565
Worker equivalent	2.32	2.43	2.07	2.29
Total tillable acres	199	222	208	217
Rates of Production				
Milk sold per cow, lbs.	18,503	18,616	20,303	20,157
Hay DM per acre, tons	1.9	2.0	1.9	2.2
Corn silage per acre, tons	15.0	13.1	13.9	12.9
Labor Efficiency				
Cows per worker	25	24	28	26
Milk sold/worker, lbs.	465,091	453,394	567,086	522,517
Cost Control				
Grain & concentrate purchased as % of milk sales	24%	29%	24%	27 %
Dairy feed & crop expense per cwt. milk	$ 4.89	$ 4.69	$ 4.72	$ 4.27
Labor & mach. costs/cow	$ 1,500	$ 1,513	$ 1,498	$ 1,558
Operating cost of producing cwt. of milk	$ 11.68	$ 9.94	$ 11.38	$ 8.40
Capital Efficiency**				
Farm capital per cow	$ 8,968	$ 9,124	$ 9,794	$ 10,026
Mach. & equip. per cow	$ 1,712	$ 1,760	$ 1,987	$ 2,033
Asset turnover ratio	0.41	0.33	0.40	0.37
Profitability				
Net farm income without apprec.	$ 33,927	$ 17,761	$ 40,609	$ 36,827
Net farm income with apprec.	$ 51,133	$ 18,827	$ 54,826	$ 43,876
Labor & management income per operator/manager	$ 4,256	$ -7,803	$ 9,467	$ 6,140
Rate of return on equity capital with appreciation	3.9%	-4.1%	5.4%	2.7%
Rate of return on all capital with appreciation	4.6%	-2.0%	5.9%	3.5%
Financial Summary				
Farm net worth, end year	$ 418,608	$ 412,299	$ 455,476	$ 468,040
Debt to asset ratio	0.22	0.24	0.21	0.23
Farm debt per cow	$ 1,995	$ 2,101	$ 2,076	$ 2,236

*Farms participating both years.
**Average for the year.

RECEIPTS AND EXPENSES PER COW AND PER CWT.
Same 38 Small Herd Dairy Farms, 2001 & 2002

	2001		2002	
Item	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	58		59	
Cwt. Of Milk Sold		10,790		11,017
ACCRUAL OPERATING RECEIPTS				
Milk	$ 2,993	$ 16.09	$ 2,398	$ 12.84
Dairy cattle	143	0.77	169	0.90
Dairy calves	51	0.27	46	0.25
Other livestock	9	0.05	21	0.11
Crops	25	0.13	25	0.13
Miscellaneous receipts	126	0.67	345	1.85
Total Receipts	$ 3,346	$ 17.99	$ 3,004	$ 16.09
ACCRUAL OPERATING EXPENSES				
Hired labor	$ 216	$ 1.16	$ 224	$ 1.20
Dairy grain & concentrate	724	3.89	696	3.73
Dairy roughage	54	0.29	55	0.29
Nondairy feed	0	0.00	1	0.01
Machine hire/rent/lease	57	0.31	48	0.25
Mach. repair & vehicle exp.	196	1.05	179	0.96
Fuel, oil & grease	74	0.40	63	0.34
Replacement livestock	39	0.21	27	0.14
Breeding	48	0.26	57	0.31
Veterinary & medicine	86	0.46	87	0.46
Milk marketing	180	0.97	188	1.01
Bedding	21	0.11	21	0.11
Milking supplies	78	0.42	84	0.45
Cattle lease	0	0.00	1	0.01
Custom boarding	18	0.10	20	0.11
bST expense	18	0.10	18	0.10
Other livestock expense	52	0.28	48	0.25
Fertilizer & lime	75	0.40	62	0.33
Seeds & plants	28	0.15	34	0.18
Spray/other crop expense	28	0.15	28	0.15
Land, building, fence repair	72	0.39	48	0.26
Taxes	87	0.47	85	0.46
Real estate rent/lease	35	0.19	31	0.17
Insurance	52	0.28	64	0.34
Utilities	115	0.62	114	0.61
Interest paid	139	0.75	110	0.59
Miscellaneous	34	0.18	45	0.24
Total Operating Expenses	$ 2,526	$ 13.58	$ 2,437	$ 13.05
Expansion Livestock	0	0.00	24	0.13
Machinery Depreciation	169	0.91	178	0.95
Real Estate Depreciation	66	0.36	64	0.34
Total Expenses	$ 2,761	$ 14.84	$ 2,703	$ 14.48
Net Farm Income Without Appreciation	$ 585	$ 3.14	$ 301	$ 1.61

RECEIPTS AND EXPENSES PER COW AND PER CWT.
Same 11 Top 25% Small Herd Dairy Farms, 2001 & 2002

	2001		2002	
Item	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	58		59	
Cwt. Of Milk Sold		11,739		11,966
ACCRUAL OPERATING RECEIPTS				
Milk	$ 3,282	$ 16.21	$ 2,639	$ 13.01
Dairy cattle	153	0.75	389	1.92
Dairy calves	52	0.26	66	0.33
Other livestock	30	0.15	44	0.22
Crops	4	0.02	10	0.05
Miscellaneous receipts	130	0.64	445	2.19
Total Receipts	$ 3,650	$ 18.04	$ 3,593	$ 17.72
ACCRUAL OPERATING EXPENSES				
Hired labor	$ 242	$ 1.20	$ 261	$ 1.29
Dairy grain & concentrate	790	3.90	718	3.54
Dairy roughage	21	0.10	16	0.08
Nondairy feed	0	0.00	4	0.02
Machine hire/rent/lease	96	0.47	49	0.24
Mach. repair & vehicle exp.	174	0.86	183	0.90
Fuel, oil & grease	80	0.39	72	0.35
Replacement livestock	13	0.07	6	0.03
Breeding	57	0.28	61	0.30
Veterinary & medicine	85	0.42	84	0.42
Milk marketing	216	1.07	218	1.08
Bedding	16	0.08	15	0.07
Milking supplies	89	0.44	112	0.55
Cattle lease	0	0.00	2	0.01
Custom boarding	12	0.06	11	0.05
bST expense	24	0.12	22	0.11
Other livestock expense	38	0.19	55	0.27
Fertilizer & lime	73	0.36	44	0.22
Seeds & plants	27	0.13	52	0.25
Spray/other crop expense	44	0.22	35	0.17
Land, building, fence repair	65	0.32	57	0.28
Taxes	78	0.38	84	0.41
Real estate rent/lease	51	0.25	37	0.18
Insurance	54	0.27	75	0.37
Utilities	121	0.60	122	0.60
Interest paid	172	0.85	137	0.67
Miscellaneous	36	0.18	45	0.22
Total Operating Expenses	$ 2,673	$ 13.20	$ 2,577	$ 12.71
Expansion Livestock	0	0.00	81	0.40
Machinery Depreciation	204	1.01	236	1.16
Real Estate Depreciation	74	0.37	75	0.37
Total Expenses	$ 2,950	$ 14.58	$ 2,969	$ 14.64
Net Farm Income Without Appreciation	$ 700	$ 3.46	$ 624	$ 3.08

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
46 Small Herd Dairy Farms, 2002

Size of Business			Rate 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)
3.53	77	1,622,536	22,514	3.3	19	40	740,687
2.84	69	1,242,987	20,847	2.3	16	29	542,074
2.27	59	1,055,062	18,792	2.1	13	25	455,026
1.82	47	862,004	16,470	1.9	10	21	355,978
1.38	36	512,667	11,834	1.1	7	17	262,239

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)		
$ 384	20%	$ 307	$ 1,042	$ 491	$ 3.58	0.0%	11.0%
554	25	481	1,323	730	4.04	1.8	18.1
659	29	549	1,523	860	4.45	3.8	22.4
778	33	669	1,782	982	5.18	6.0	27.0
975	40	835	2,151	1,181	6.33	13.7	42.5

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)
$ 2,965	$ 7.04	$ 13.71	$ 62,164	$ 41,241	$ 13,337	$ 39,282
2,590	8.33	15.21	31,152	28,804	2,714	10,158
2,391	9.33	16.39	14,887	17,936	-6,281	972
2,139	10.64	17.60	5,431	8,034	-14,096	-11,501
1,459	13.80	22.96	-17,281	-13,843	-46,170	-34,945

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

Supplementary Information

Each year DFBS cooperators volunteer to complete supplementary data collection forms looking at selected management aspects of the business or specific research areas being studied. This is in addition to the normal DFBS data collection form. Two areas that were examined this year were the source of dairy replacements and the breakdown of the milk income and marketing expenses. Following is a summary of this information.

SOURCE OF DAIRY REPLACEMENTS
51 New York Dairy Farms, 2002

Animals Entering Herd	Average
Number calving in 2002 for first time	144
Animals purchased, %*	14%
Animals raised by farm, %**	86%
Current Heifer Inventory	
Raised on dairy, %	78%
Raised by a custom grower, %	22%

* Animals purchased are animals purchased from a different farm and were not the farms genetics.
**Animals raised by farm are animals that were born on the farm and entered the herd, which includes animals raised by the farm or custom grower.

On the average farm, 144 animals calved for the first time in 2002. The breakdown on these animals for source was 14 percent purchased and 86 percent raised by the farm. Of the current heifer inventory, 78 percent were raised on the dairy and 22 percent were being raised by a custom grower. There is increased interest in evaluating the dairy replacement enterprise.

Milk Income and Marketing Expense Breakdown

Starting January 1st, 2000, the northeast switched to multiple components pricing, which changed the format of the milk check and how farmers received payment for their milk. To examine the breakdown of the gross milk income and the marketing expenses, 23 small herd dairy farms filled out a detailed form for all the different sources of income for milk sales and the milk marketing expenses on an accrual basis. This information is reported in the following two tables. The tables are divided into six different areas, each representing a different area of income or expenses.

The first section looks at the value of the milk components on a per cwt. basis. The second area looks at the Producer Price Differential. The third area looks at the premiums a farm receives. Any premiums not specifically noted as quality or volume related are included in market premiums. The fourth area looks at the expenses associated with marketing milk. A new line item in this section is the expenses associated with utilizing forward contracting or hedging programs to market milk, such as commission or broker fees. The fifth area is income from the compact program or from forward contracting or hedging programs. The sixth area is the patronage dividends or refunds from the milk cooperatives. Equity purchased in the milk cooperative utilizing a monthly deduction from the milk check or a percent of the patronage dividend is treated as a capital purchase and is not a milk marketing expense. The cumulative total for these six areas is the net price received on farms. Your net farm price can be found on page 10 of your farm's DFBS report.

The table on page 26 reports the averages for these different areas. The table on page 27 contains the range for each of the individual lines of the report. This table is in farm business chart format with each item sorted independently and ranked by thirds. Numbers for the different areas will not add to the totals for that third or to the net price received because the highest farms for each item were averaged, not the same farms throughout the six areas. This table shows the range of income and expenses received by farms for all the different areas.

For your individual farm, compare your accrual numbers following this same format to look at how you compare to other farms in your region and to identify possible areas to generate additional revenue.

AVERAGE* MILK INCOME AND MARKETING REPORT
23 Small Herd Dairy Farms, 2002

	Pounds	Percent	Price/Pound	Total	$/Cwt of Milk
BASE FARM PRICE					
Butterfat	42,565.26	3.87%	$ 1.183	$ 50,467.91	$ 4.58
Protein	34,709.13	3.19%	$ 1.902	$ 65,637.65	$ 5.93
Solids	60,765.57	5.44%	$ 0.118	$ 3,910.48	$ 0.36
Total Component Contribution					$10.87
PPD	1,107,037.48		$ 1.6511	$ 18,175.43	$ 1.65
Base Farm Price					$ 12.52
Premiums					
Quality				$ 1,207.22	$ 0.12
Volume				$ 770.39	$ 0.06
Market Premiums				$ 2,446.48	$ 0.19
Total Premiums					$ 0.37
BASE FARM PRICE + PREMIUM					$ 12.89
Deductions					
Promo				$ 1,865.57	$ 0.17
Hauling + Stop Charges.				$ 8,831.91	$ 0.81
Market Fees & Coop Dues				$ 433.35	$ 0.04
Futures/Contract Fees				$ 0.00	$ 0.00
Total Deductions					$ 1.02
BASE FARM PRICE + PREMIUMS - DEDUCTIONS					$ 11.87
Marketing Programs					
Compact				$ 0.00	$ 0.00
Futures Contracts, Forward Contracting, Etc.				$ 937.39	$ 0.06
Total Marketing Income					$ 0.06
Patronage Dividends				$ 603.48	$ 0.07
NET PRICE RECEIVED ON FARM, ALL SOURCES					**$ 12.00**
PPD - Hauling, per cwt.					$ 0.84
PPD - Hauling + Market Premiums, per cwt.					$ 1.03

*Each calculation of an average is independent of the others. Therefore, math operations on the detail will not result in the totals. However, detail in the "$/Cwt of Milk" column will result in the totals.

MILK PRICE INFORMATION BY QUINTILE*
(Each Category Sorted Independently)
23 Small Herd Dairy Farms, 2002

	Lowest Quintile ←				→ Highest Quintile
Butterfat, %	3.59	3.77	3.86	3.95	4.29
Protein, %	2.87	2.99	3.05	3.11	4.07
Other Solids, %	4.28	5.62	5.70	5.76	6.05
Butterfat, $ per Cwt.	4.24	4.44	4.54	4.70	5.10
Protein, $ per Cwt.	5.52	5.75	5.93	6.12	6.48
Other solids, $ per Cwt.	0.31	0.33	0.35	0.37	0.48
Total Component Value per Cwt.	**$ 10.26**	**$ 10.53**	**$ 10.80**	**$ 11.16**	**$ 11.86**
PPD, $ per Cwt.	1.28	1.47	1.69	1.82	2.12
Base Farm Price per Cwt.	**$ 11.79**	**$ 12.18**	**$ 12.45**	**$ 12.83**	**$ 13.64**
Quality, $ per Cwt.	.00	.03	.12	.21	.28
Volume, $ per Cwt.	.00	.00	.01	.09	.26
Market premium, $ per Cwt.	.00	.06	.17	.26	.54
Total Premium, $ per Cwt.	**.08**	**.25**	**.39**	**.44**	**.77**
Base Farm Price + Premiums per Cwt.	**$ 12.26**	**$ 12.54**	**$ 12.86**	**$ 13.10**	**$ 13.94**
Promotion, $ per Cwt.	.13	.15	.15	.16	.25
Hauling, $ per Cwt.	.49	.65	.78	.97	1.30
Market fees & coop dues per Cwt.	.00	.00	.03	.07	.13
Futures/contract fees, $ per Cwt.	.00	.00	.00	.00	.00
Total Marketing Expenses per Cwt.	**$ .69**	**$ .84**	**$ .98**	**$ 1.15**	**$ 1.56**
Base + Premiums – Deductions per Cwt.	**$ 11.15**	**$ 11.58**	**$ 11.77**	**$ 12.13**	**$ 13.01**
Compact, $ per Cwt.	.00	.00	.00	.00	.00
Futures contract, forward contracting, $ per Cwt.	.00	.00	.00	.00	.32
Total Marketing Income, $ per Cwt.	**$ .00**	**$ .00**	**$ .00**	**$ .00**	**$ .32**
Patronage Dividends, $ per Cwt.	**$ .00**	**$ .00**	**$ .00**	**$ .03**	**$ .37**
Net Price Received From All Sources, $ per Cwt.	**$ 11.21**	**$ 11.62**	**$ 11.89**	**$ 12.42**	**$ 13.16**
PPD - hauling, $ per Cwt.	**0.62**	**0.79**	**0.84**	**0.91**	**1.11**
PPD - hauling + mkt premiums, $ per Cwt.	**0.71**	**0.90**	**1.01**	**1.20**	**1.44**

*Each calculation of an average is independent of all others. Therefore, math operations on the detail will not result in the totals.

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 228 farms for that factor. The other figures in each column are the average for the second 10 percent, third 10 percent, etc. Each column of the chart is independent of the others. The farms which are in the top 10 percent for one factor would not necessarily be the same farms which make up the 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
228 New York Dairy Farms, 2001

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
22.2	1,102	25,438,687	25,729	5.2	23	62	1,283,348
12.3	541	12,563,997	24,026	3.9	19	50	1,083,667
9.0	359	7,834,392	23,041	3.4	18	45	962,132
6.5	256	5,274,683	22,088	3.0	18	40	833,763
4.7	171	3,340,082	21,175	2.7	17	37	753,431
3.9	125	2,344,530	20,106	2.3	16	33	672,647
3.2	92	1,719,337	18,467	2.0	15	31	555,322
2.7	74	1,301,430	16,707	1.8	13	26	474,968
2.1	58	1,003,069	15,187	1.5	12	23	398,143
1.5	40	597,458	12,002	1.0	9	19	296,530

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
(10)	(10)	(11)	(11)	(10)	(10)
$379	14%	$308	$848	$513	$3.18
547	20	415	1,061	741	4.22
647	22	465	1,151	865	4.55
716	23	511	1,242	943	4.76
787	24	564	1,311	1,003	4.90
833	25	603	1,379	1,043	5.08
875	27	643	1,461	1,103	5.40
941	28	698	1,580	1,165	5.74
1,012	31	766	1,676	1,246	6.09
1,155	36	1,026	2,051	1,445	7.28

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

FARM BUSINESS CHART FOR
FARM MANAGEMENT COOPERATORS
228 New York Dairy Farms, 2001

Milk Receipts Per Cow	Milk Receipts Per Cwt.	Oper. Cost Milk Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cow	Total Cost Production Per Cwt.
(10)	(10)	(10)	(10)	(10)	(10)
$4,157	$18.09	$1,252	$8.04	$2,161	$13.06
3,791	16.78	1,736	9.81	2,747	14.22
3,632	16.49	1,970	10.63	2,940	14.92
3,512	16.24	2,182	11.11	3,110	15.48
3,362	16.03	2,320	11.58	3,251	15.99
3,193	15.90	2,462	12.22	3,392	16.53
3,005	15.77	2,608	12.85	3,517	17.32
2,755	15.61	2,800	13.37	3,676	18.27
2,470	15.36	3,012	14.16	3,872	19.95
1,953	14.77	3,314	16.33	4,261	24.40

Profitability

Net Farm Income Without Appreciation			Net Farm Income With Appreciation		Labor & Management Income	
Total	Per Cow	Operations Ratio	Total	Per Cow	Per Farm	Per Operator
(3)	(10)	(3)	(3)	(10)	(3)	(3)
$693,355	$1,291	0.34	$1,097,490	$1,848	$534,835	$317,764
298.284	955	0.25	456,774	1,386	203,177	117,915
192,627	796	0.22	301,923	1,190	127,620	65,914
118,119	694	0.18	200,348	1,021	68,113	42,908
84,504	595	0.16	142,381	895	38,822	29,023
61,836	507	0.14	97,721	785	25,205	18,332
43,582	397	0.11	70,737	662	12,709	8,845
31,429	274	0.08	49,884	558	-2,066	-1,574
13,639	135	0.04	35,789	394	-23,226	-19,328
-16,775	-150	-0.07	5,443	48	-77,610	-67,313

Farm Business Charts for farms with freestall barns and 150 cows or less, 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 36-40.

Financial Analysis Chart

The farm financial analysis chart on page 33 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 23of this publication. References to DFBS output page numbers for participating dairy farmers are provided in the table headings.

FINANCIAL ANALYSIS CHART

228 New York Dairy Farms, 2001

Liquidity (repayment)							
Planned Debt Payments Per Cow	Available for Debt Service Per Cow	Cash Flow Coverage Ratio	Debt Coverage Ratio	Debt Payments as Percent of Milk Sales	Debt Per Cow	Working Capital as % of Total Expenses	Current Ratio
(8)*	(12)	(8)	(8)	(8)	(5)	(5)	(5)
$103	$1,168	9.20	13.72	3%	$287	47%	27.49
233	819	2.21	2.67	7	963	28	3.78
324	730	1.69	2.21	10	1,551	22	2.80
401	663	1.40	1.79	12	1,889	17	2.14
448	586	1.22	1.53	14	2,255	13	1.72
510	524	1.09	1.27	16	2,670	10	1.52
572	455	0.92	1.05	17	3,126	7	1.31
610	387	0.77	0.84	19	3,528	2	1.08
680	267	0.51	0.60	23	3,968	-4	0.83
876	-95	-0.81	-0.27	32	5,122	-16	0.39

Solvency				Profitability	
		Debt/Asset Ratio		Percent Rate of Return with appreciation on:	
Leverage Ratio*	Percent Equity	Current & Intermediate	Long Term	Equity	Investment**
(5)	(5)	(5)	(5)	(3)	(3)
0.03	97%	0.03	0.00	43%	23%
0.13	89	0.11	0.00	28	18
0.25	80	0.17	0.05	21	15
0.35	75	0.25	0.16	15	12
0.46	69	0.32	0.27	12	10
0.62	63	0.38	0.34	9	8
0.81	56	0.43	0.42	6	6
1.01	50	0.50	0.53	3	4
1.30	44	0.59	0.70	-1	1
3.28	30	0.88	1.04	-14	-4

Efficiency (Capital)					
Asset Turnover (ratio)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow	Change in Net Worth w/Appreciation	Farm Net Worth, End Year
(11)	(11)	(11)	(11)	(6)	(4)
.89	$1,350	$548	$4,671	$819,759	$4,289,891
.75	1,960	830	5,616	318,049	2,064,561
.67	2,261	961	6,105	187,919	1,439,486
.62	2,486	1,102	6,448	125,567	1,131,698
.58	2,722	1,288	6,855	95,246	885,892
.53	2,985	1,422	7,359	65,194	701,899
.48	3,552	1,624	8,045	43,718	581,273
.43	3,057	1,916	8,808	28,624	433,461
.36	4,748	2,325	9,966	12,411	302,901
.27	7,714	3,251	13,321	-45,542	153,069

*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 35 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 663 cows on the largest freestall farms.

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

Farm business charts have been computed for each of the five housing and herd size categories and are on pages 36-40. 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 48-57 of the 2001 State Summary*. As herd size increases, the average profitability generally increases (page 48)*. Net farm income without appreciation averaged $21,652 per farm for the less than 50 cow farms and $515,889 per farm for those with more than 600 cows. This relationship generally holds for all measures of profitability including rate of return on capital.

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

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 56-57)*. The farms with 600 and more cows per farm averaged 39 percent more milk sold per cow than the smallest farms. All of the groups with 150 or more cows averaged above 20,000 pounds of milk sold per cow while the farms smaller than 150 cows averaged 17,940 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 366,333 pounds at the lowest herd size category up to 1,147,193 pounds at the largest size category.

*Wayne A. Knoblauch, Linda D. Putnam, and Jason Karszes, Dairy Farm Management Business Summary, New York, 2001, Department of Applied Economics and Management, Cornell University, R.B. 2002-11, November 2002.

SELECTED BUSINESS FACTORS BY TYPE OF BARN AND HERD SIZE

212 New York Dairy Farms, 2001

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

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

FARM BUSINESS CHART FOR SMALL CONVENTIONAL STALL DAIRY FARMS

35 Conventional Stall Dairy Farms with 60 or Less Cows, New York, 2001

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
3.03	60	1,245,680	23,789	5.0	22	45	827,791
2.67	56	1,114,154	21,861	3.2	18	36	573,917
2.33	54	1,011,693	20,602	2.9	17	32	502,902
2.17	53	911,947	19,527	2.5	15	26	462,086
2.08	50	807,019	17,338	2.2	14	25	421,719
2.02	48	752,098	16,216	2.0	13	23	397,822
1.78	43	673,389	15,102	1.8	11	22	359,863
1.54	40	577,962	13,984	1.5	10	21	330,986
1.35	35	533,036	12,852	1.3	8	19	293,167
1.10	31	404,087	10,797	0.9	7	15	207,406

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
(10)	(10)	(11)	(11)	(10)	(10)
$253	9%	$235	$963	$313	$2.12
452	17	374	1,114	538	3.55
482	20	454	1,342	616	4.18
528	22	482	1,519	709	4.34
587	24	559	1,632	821	4.72
663	25	639	1,686	892	5.01
722	27	702	1,719	957	5.60
770	30	753	1,827	1,018	5.95
846	33	819	1,986	1,057	6.33
1,196	41	1,060	2,347	1,463	7.57

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation Total	Net Farm Income Without Appreciation Per Cow	Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
(10)	(10)	(10)	(3)	(10)	(3)	(6)
$3,886	$6.23	$13.22	$65,087	$1,330	$40,773	$68,987
3,481	8.59	15.56	52,642	1,114	20,880	48,071
3,161	9.35	15.88	41,747	948	16,972	43,917
2,987	9.92	17.50	37,922	816	12,592	38,392
2,801	10.70	18.11	33,433	744	10,095	29,731
2,597	11.12	18.87	29,002	671	7,909	24,177
2,456	11.40	21.38	22,857	522	2,894	18,291
2,264	11.90	22.75	17,034	393	-9,310	9,076
1,933	13.52	23.99	10,451	248	-18,177	870
1,709	15.37	27.08	-8,317	-180	-39,146	-9,674

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

FARM BUSINESS CHART FOR LARGE CONVENTIONAL STALL DAIRY FARMS

41 Conventional Stall Dairy Farms with More Than 60 Cows, New York, 2001

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
5.93	160	3,012,877	23,731	4.2	24	45	808,670
4.11	107	1,960,563	22,373	3.4	20	37	748,856
3.78	96	1,792,785	20,947	2.9	19	33	677,622
3.40	89	1,700,932	19,247	2.5	18	32	603,240
3.15	81	1,576,875	18,410	2.2	16	29	512,111
2.89	76	1,454,477	17,459	2.0	15	28	485,483
2.61	74	1,297,603	16,522	1.9	14	27	432,325
2.44	71	1,219,837	16,034	1.7	13	25	403,315
2.18	69	1,140,095	15,213	1.3	12	23	364,184
1.76	65	968,499	12,615	0.8	10	19	320,460

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
(10)	(10)	(11)	(11)	(10)	(10)
$463	16%	$347	$1,010	$616	$3.53
579	21	419	1,137	727	4.33
615	23	474	1,243	810	4.57
664	24	527	1,314	883	4.73
724	24	558	1,414	941	4.89
773	26	589	1,477	969	5.10
828	27	660	1,556	1,047	5.52
860	29	721	1,598	1,086	5.98
909	31	822	1,685	1,141	6.66
1,071	38	1,277	2,129	1,214	7.90

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
			Total	Per Cow		
(10)	(10)	(10)	(3)	(10)	(3)	(6)
$3,784	$8.86	$14.29	$153,466	$1,226	$59,155	$190,468
3,615	9.61	15.08	85,246	1,035	39,571	107,429
3,350	10.41	15.96	64,686	848	30,194	82,211
3,117	10.66	16.38	57,634	727	23,697	60,509
2,970	11.15	16.81	48,402	619	19,165	44,293
2,846	12.20	17.50	41,736	537	8.984	36,885
2,707	12.88	18.95	37,701	466	1,811	31,218
2,590	13.38	19.68	26,773	264	-8,159	21,903
2,455	14.27	20.66	11,713	155	-23,515	12,476
2,091	16.51	23.14	-6,281	-89	-49,622	-11,054

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

FARM BUSINESS CHART FOR SMALL FREESTALL DAIRY FARMS

36 Freestall Barn Dairy Farms with 150 or Less Cows, New York, 2001

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-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)
5.71	147	3,125,999	25,923	4.1	22	52	972,992
4.33	138	2,805,027	22,303	3.3	19	47	838,821
4.08	134	2,598,943	21,628	3.1	19	39	750,939
3.85	128	2,378,198	21,061	2.8	18	36	677,019
3.61	121	2,199,576	20,054	2.5	17	34	637,439
3.39	111	1,922,201	18,868	2.3	17	33	530,462
3.04	96	1,702,079	17,351	1.9	15	30	502,684
2.73	85	1,421,135	15,864	1.8	13	26	487,951
2.24	71	1,216,851	14,431	1.4	11	23	438,031
1.61	51	796,487	11,195	0.9	5	20	345,091

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
(10)	(10)	(11)	(11)	(10)	(10)
$395	16%	$373	$843	$569	$3.80
540	22	451	1,163	748	4.72
635	24	507	1,279	851	5.00
685	25	583	1,307	926	5.26
791	26	610	1,348	1,021	5.53
830	27	642	1,431	1,070	5.78
948	28	697	1,553	1,174	5.95
1,015	30	740	1,631	1,233	6.29
1,071	32	832	1,803	1,339	6.56
1,282	36	1,116	2,259	1,543	7.58

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
			Total	Per Cow		
(10)	(10)	(10)	(3)	(10)	(3)	(6)
$4,090	$8.58	$14.01	$151,837	$1,325	$75,610	$169,291
3,697	10.10	15.62	95,986	863	45,382	127,063
3,485	11.57	16.85	81,934	798	31,267	109,818
3,401	12.08	17.51	67,579	699	22,582	94,812
3,277	13.03	17.92	56,983	496	11,485	69,980
3,072	13.37	18.46	38,071	361	342	55,082
2,905	14.03	19.78	18,038	237	-11,976	37,412
2,618	14.92	20.49	6,509	71	-19,996	22,873
2,364	16.14	21.74	-2,877	-21	-32,505	5,401
1,903	20.27	31.09	-42,456	-423	-89,582	-103,806

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

FARM BUSINESS CHART FOR MEDIUM FREESTALL DAIRY FARMS

33 Freestall Barn Dairy Farms with 151-300 Cows, New York, 2001

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-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)
10.22	289	7,255,336	26,610	4.9	22	63	1,166,961
7.65	279	6,558,208	24,402	4.1	19	50	1,002,135
7.24	258	6,068,019	24,010	3.7	18	45	934,842
6.39	244	5,425,361	23,241	3.0	17	42	883,666
6.08	237	4,874,783	22,217	2.7	17	39	828,288
5.71	229	4,548,429	21,488	2.5	16	38	797,911
5.21	220	4,143,400	20,649	2.4	15	37	782,355
4.86	203	3,806,040	19,634	2.1	14	35	743,254
4.41	168	3,513,009	18,225	1.7	13	32	695,570
3.57	156	2,982,254	15,576	1.4	11	25	565,423

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
(10)	(10)	(11)	(11)	(10)	(10)
$544	16%	$328	$800	$771	$3.48
688	18	425	1,021	908	4.16
764	21	540	1,184	978	4.56
788	24	605	1,318	1,016	4.87
819	26	651	1,394	1,051	5.11
856	28	693	1,435	1,100	5.65
922	29	713	1,505	1,153	5.71
996	31	767	1,582	1,249	5.86
1,022	31	846	1,641	1,352	6.46
1,140	34	965	1,769	1,590	7.66

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec. Total	Net Farm Income Without Apprec. Per Cow	Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
(10)	(10)	(10)	(3)	(10)	(3)	(6)
$4,346	$8.73	$12.69	$325,074	$1,389	$133,577	$218,584
3,877	10.53	14.32	254,431	1,069	83,691	198,816
3,746	10.98	15.09	189,385	817	68,669	158,386
3,666	11.37	15.66	172,176	756	57,389	133,301
3,571	12.14	15.87	142,906	618	49,017	111,145
3,368	12.60	16.45	125,827	533	38,343	101,431
3,262	13.01	16.66	104,666	459	25,932	93,982
3,158	13.35	17.06	76,465	388	12,611	70,998
2,950	14.22	17.77	43,192	206	-243	46,897
2,554	15.38	19.07	-15,762	-57	-52,845	-10,901

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

FARM BUSINESS CHART FOR LARGE FREESTALL DAIRY FARMS

67 Freestall Barn Dairy Farms with 300 or More Cows, New York, 2001

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
31.70	1,710	39,350,324	26,320	6.0	22	70	1,478,169
22.13	1,076	24,363,043	24,767	4.4	20	56	1,251,515
17.60	808	18,881,814	24,192	4.0	19	54	1,185,411
14.61	660	15,605,295	23,822	3.7	18	50	1,125,973
12.93	588	13,741,854	23,199	3.4	17	47	1,097,178
11.99	512	11,901,392	22,697	3.1	17	45	1,058,473
10.57	440	10,081,298	22,150	2.9	16	43	1,000,299
9.38	395	8,489,732	21,429	2.5	15	41	925,209
7.65	353	7,436,917	20,578	2.0	14	37	816,506
6.21	317	5,940,943	16,525	1.5	12	32	658,499

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
(10)	(10)	(11)	(11)	(10)	(10)
$604	19%	$341	$850	$812	$4.01
781	22	428	1,034	980	4.59
830	23	459	1,117	1,025	4.74
853	24	502	1,157	1,050	4.83
881	25	559	1,199	1,105	4.91
916	26	584	1,255	1,144	5.00
953	26	611	1,303	1,186	5.14
991	27	633	1,359	1,228	5.30
1,054	28	678	1,420	1,299	5.54
1,139	31	748	1,577	1,390	5.86

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation Total	Net Farm Income Without Appreciation Per Cow	Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
(10)	(10)	(10)	(3)	(10)	(3)	(6)
$4,272	$9.77	$12.78	$1,165,364	$1,207	$569,366	$1,471,396
4,045	10.82	13.68	658,291	843	275,764	679,052
3,845	11.24	14.14	455,885	754	208,088	536,609
3,706	11.64	14.53	383,865	656	159,542	453,655
3,600	12.16	14.92	303,367	603	127,864	363,764
3,561	12.59	15.19	256,914	543	93,391	283,618
3,495	12.93	15.83	215,483	437	60,322	223,933
3,373	13.51	16.16	152,016	317	36,580	175,029
3,238	13.93	16.62	104,375	192	16,373	132,745
2,838	14.61	18.13	26,708	45	-79,706	-3,491

*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 **S**pecific.

2. Goals should be **M**easurable.

3. Goals should be **A**chievable but challenging.

4. Goals should be **R**ewarding.

5. Goals should be **T**imed 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

_____

_____

_____

_____

_____

_____

_____

_____

Worksheet for Setting Goals (Continued)

II. Goals

What	How	When	Who is Responsible

Summarize Your Business Performance

The Farm Business and Financial Analysis Charts on pages 27 and 31-33 can be used to help identify strengths and weaknesses of your farm business. Identify three major strengths and three areas of your farm business that need improvement.

Strengths:	Needs improvement:

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.

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

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

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

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.

Leverage Ratio - (defined on page 12)

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 Farm Income from Operations Ratio - (defined on page 9)

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

OTHER A.E.M. EXTENSION BULLETINS

EB No	Title	Fee (if applicable)	Author(s)
2003-17	Dairy Farm Business Summary, Intensive Grazing Farms, New York, 2002		Conneman, G., Grace, J, Karszes, J., Benson, A., Putnam, L., Staehr, E., Degni, J. and Barry, J.
2003-16	Income Tax Management and Reporting For Small Businesses and Farms	($15.00)	Cuykendall, C. and Bouchard, G.
2003-15	Leasing of Natural Gas Drilling Rights on Public and Private Land in New York		Ziegenfuss, K. and Chapman, D.
2003-14	Dairy Farm Business Summary, Northern New York Region, 2002	($10.00)	Knoblauch, W., Putnam, L., Van Loo, W., Murray, P., Vokey, F., Deming, A., Nobles, C., Ames, M. and Karszes, J.
2003-13	Cornell University, Cooperative Extension Landscape Business Planning Guide		Stark, J.
2003-12	New York Greenhouse Business Summary and Financial Analysis, Derived from 2001 Business Records	($10.00)	Uva, W., and Richards, S.
2003-11	Dairy Farm Business Summary, Southeastern New York Region, 2002	($10.00)	Knoblauch, W., Putnam, L., Hadcock, S., Hulle, L., Kiraly, M., and Walsh, J.
2003-10	Dairy Farm Business Summary, Central Valleys Region, 2002	($10.00)	LaDue, E., Hilts, J., Staehr, A., Kurdieh, Z., Radick, C., Karszes, J., and Putnam, L.
2003-09	Dairy Farm Business Summary, Northern Hudson Region, 2002	($10.00)	Conneman, G., Putnam, L., Wickswat, C., Buxton, S., Siira, J., and J. Karszes
2003-08	DFBS New York Large Herd Farms, 300 Cows or Larger 2002		Karszes, J., Knoblauch, W., and Putnam, L.
2003-07	Community Supported Agriculture Pricing and Promotion Strategies: Lessons from Two Ithaca NY Area Farms		Conner, D.

Paper copies are being replaced by electronic Portable Document Files (PDFs). To request PDFs of AEM publications, write to (be sure to include your e-mail address): Publications, Department of Applied Economics and Management, Warren Hall, Cornell University, Ithaca, NY 14853-7801. If a fee is indicated, please include a check or money order made payable to Cornell University for the amount of your purchase. Visit our Web site (*http://aem.cornell.edu/outreach/materials.htm)* for a more complete list of recent bulletins.