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# DAIRY FARM BUSINESS SUMMARY

## *NEW YORK SMALL HERD FARMS, 70 COWS OR FEWER 2001*



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**2001 DAIRY FARM BUSINESS SUMMARY**  
**Small Herd Dairy Farms**  
**70 Cows or Fewer**  
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## 2001 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 2001 with herds of 70 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 2001 DFBS individual farm report received by participating dairy farmers. The analysis tables have a column that compares the average to the top 25% of the farms by rate of return on all capital without appreciation. This report may be used by any dairy farm manager who wants to compare his or her business with the average data of small farms. The individual farm data, the averages and other data can then be used to establish goals for the business. A DFBS Data Check-in Form can be used by non-DFBS participants to summarize their businesses.

This report features:

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

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\*The small herd summary is comprised of farms with 70 or fewer cows and that do not use a milking parlor. Many counties had farms that met this criteria in 2001. 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. Faye Butts prepared the publication.

## PROGRESS OF THE FARM BUSINESS

The average herd size of small dairies in the 2001 summary was down by 1 cow or 2 percent over 2000. Milk sold was down 3 percent, due to the lower quality of the corn silage crop in 2000 as a result of poor growing conditions. Dry weather also impacted the 2001 season, with a smaller hay crop in 2001, down 8.3 percent. While worker equivalents per farm remained constant, hired labor cost per worker and hired labor cost per hundredweight of milk increased by 18.8 percent. This is indicative of farmers competing with other types of employment for workers and raising wages and/or benefits in response to those pressures. Salaries need to be competitive in order to attract and retain quality workers.

Higher milk prices resulted in lower grain and concentrate purchased as a percentage of milk sales in 2001. Feed prices were fairly steady throughout 2001. However, the milk to feed ratio was one of the highest in recent years at 3.38. Farmers fed a little more feed per hundredweight of milk, to offset the poorer corn silage being fed while maintaining the same milk production.

Total farm operating costs rose 5.1 percent in 2001. This was the year to make improvements and repairs that had been postponed, and to replace aging equipment. Low interest rates resulted in an 11.5 percent reduction in interest costs per hundredweight of milk, even with an additional 4 percent debt per cow.

Consolidations in the dairy industry coupled with decreases in hauling costs from reduced fuel cost reduced milk marketing cost by 6.4 percent per hundredweight. Smaller, less efficient marketers are being absorbed by larger ones. Cost to the producer is usually less when mergers take place due to economies of scale in marketing milk.

Operating costs to produce a hundredweight of milk rose 17.1 percent. Farmers are not as vigilant in cost control when the milk price is high and tend not to scrutinize expenditures as closely. As prices move lower in 2002, farmers will be forced to cut corners, trim costs, and operate in a leaner fashion.

Farm capital per cow rose by 8.7 percent as a result of higher real estate values and higher livestock values. Those who placed high market values on their cows will invariably need to reduce them in 2002 as the market slows down. Machinery and equipment investment per cow was up 7.3 percent as a result of the replacement of aging equipment. With these increases in asset values being greater than the increases in debt levels, the debt to asset ratio dropped 4.3%.

The combined impact of gross milk sales per cow and price per hundredweight increasing over 18 percent and lower milk marketing expenses netted a 20.7 percent increase in net milk price received. Beef sales were weak, down 12.7 percent, as beef prices were not as high as in past years. Heifer calf prices were very high and in great demand, but small bulls brought very little money resulting in a lower income for calves.

Net farm income without appreciation saw nearly an 11 percent gain over 2000. Net farm income with appreciation saw nearly a 36 percent increase, the 25 percent difference being attributed to higher cow values and higher real estate prices. Predictably, labor and management income was up almost 24 percent, return on equity capital without appreciation was up almost 27 percent and there was a whopping increase of 50 percent in rate of return on all equity capital without appreciation.

2001 was a very good year for small farmers who were able to replace equipment, pay their employees more and enjoyed low interest rates. While milk prices fell towards the end of the year, many still paid substantial income taxes while others may have taken advantage of income averaging or Section 179 depreciation for newly purchased equipment. With the economy continuing to be soft, translating to a lower demand for dairy products and milk production recovering with the higher quality forages in 2001, excess supply and lower demand does not bode well for 2002 farm income.

**PROGRESS OF THE FARM BUSINESS**  
Same 39 Small Herd Dairy Farms, 2000 & 2001

Selected Factors	Average of 39 Farms		Percent Change
	2000	2001	
<u>Size of Business</u>			
Average number of cows	51	50	-2.0
Average number of heifers	38	38	0.0
Milk sold, lbs.	908,837	881,963	-3.0
Worker equivalent	2.04	2.04	0.0
Total tillable acres	172	172	0.0
<u>Rates of Production</u>			
Milk sold per cow, lbs.	17,901	17,505	-2.2
Hay DM per acre, tons	2.4	2.2	-8.3
Corn silage per acre, tons	12.0	15.1	25.8
<u>Labor Efficiency &amp; Costs</u>			
Cows per worker	25	25	0.0
Milk sold/worker, lbs.	445,508	432,335	-3.0
Hired labor cost/cwt.	\$0.64	\$0.76	18.8
Hired labor cost/worker	\$15,133	\$17,973	18.8
Hired labor cost as % of milk sales	4.7%	4.7%	0.0
<u>Cost Control</u>			
Grain & conc. purchased as % of milk sales	27%	24%	-11.1
Grain & conc. per cwt. milk	\$3.60	\$3.87	7.5
Dairy feed & crop expense per cwt. milk	\$4.57	\$4.84	5.9
Labor & mach. costs/cow	\$1,371	\$1,530	11.6
Total farm operating costs per cwt. sold	\$12.44	\$13.07	5.1
Interest costs per cwt. milk	\$0.78	\$0.69	-11.5
Milk marketing costs per cwt. milk sold	\$1.10	\$1.03	-6.4
Operating cost of producing cwt. of milk	\$9.54	\$11.17	17.1
<u>Capital Efficiency</u> (average for the year)			
Farm capital per cow	\$8,087	\$8,792	8.7
Mach. & equip. per cow	\$1,693	\$1,817	7.3
Asset turnover ratio	0.39	0.40	2.6
<u>Income Generation</u>			
Gross milk sales per cow	\$2,421	\$2,840	17.3
Gross milk sales per cwt.	\$13.59	\$16.10	18.5
Net milk sales per cwt.	\$12.49	\$15.07	20.7
Dairy cattle sales per cow	\$166	\$145	-12.7
Dairy calf sales per cow	\$47	\$45	-4.3
<u>Profitability</u>			
Net farm income w/o apprec.	\$27,114	\$30,049	10.8
Net farm income w/apprec.	\$36,212	\$49,211	35.9
Labor & mgt. income per oper./manager	\$3,248	\$4,021	23.8
Rate of return on equity capital w/o apprec.	-2.6%	-1.9%	26.9
Rate of return on all capital w/o apprec.	-0.2%	-0.1%	50.0
<u>Financial Summary</u>			
Farm net worth, end year	\$325,671	\$351,418	7.9
Debt to asset ratio	0.23	0.22	-4.3
Farm debt per cow	\$1,858	\$1,933	4.0



## 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 (70 or fewer cows) group of dairy farms.

### BUSINESS CHARACTERISTICS

48 Small Herd Dairy Farms, 2001

Type of Farm	Number	Milking System	Number
Dairy	48	Bucket & carry	0
Part-time dairy	0	Dumping station	3
Dairy cash-crop	0	Pipeline	45
Certified organic milk producer	0	Herringbone parlor	0
Rotational grazing farms	21	Other parlor	0
Type of Ownership	Number	Production Records	Number
Owner	48	Testing service	30
Renter	0	On-farm system	1
		Other	2
Type of Business	Number	None	15
Sole Proprietorship	39	bST Usage	Number
Partnership	7	Used on <25% of herd	0
Corporation	2	Used on 25-75% of herd	3
Type of Barn	Number	Used on >75% of herd	3
Stanchion or Tie-Stall	48	Stopped using in 2001	0
Freestall	0	Not used in 2001	42
Combination	0	Business Record System	Number
Milking Frequency	Number	Account Book	27
2 times per day	46	Accounting Service	8
3 times per day	2	On-farm computer	11
Other	0	Other	2

### 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 2001.

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**  
48 Small Herd Dairy Farms, 2001

Expense Item	Cash Paid	-	Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses
<u>Hired Labor</u>	\$ 7,005		\$ 0	<<	\$ 0		\$ 7,005
<u>Feed</u>							
Dairy grain & concentrate	35,124		717		-946		33,461
Dairy roughage	3,601		24		-340		3,237
Nondairy	0		0		0		0
<u>Machinery</u>							
Machinery hire, rent & lease	1,744		0	<<	15		1,759
Machinery repairs & farm vehicle exp.	10,030		-13		-112		9,931
Fuel, oil & grease	4,179		-9		-24		4,164
<u>Livestock</u>							
Replacement livestock	3,238		0	<<	104		3,342
Breeding	1,811		44		-40		1,727
Veterinary & medicine	3,711		44		17		3,684
Milk marketing	8,963		0	<<	-12		8,952
Bedding	1,016		-43		1		1,060
Milking supplies	3,953		13		-5		3,935
Cattle lease & rent	0		0	<<	0		0
Custom boarding	494		0	<<	0		494
bST	535		7		0		528
Other livestock expense	2,625		21		6		2,611
<u>Crops</u>							
Fertilizer & lime	3,395		403		177		3,169
Seeds & plants	1,373		46		0		1,327
Spray, other crop expense	1,413		-58		0		1,471
<u>Real Estate</u>							
Land, building & fence repair	2,689		7		29		2,711
Taxes	4,160		4	<<	-79		4,078
Rent & lease	2,164		0	<<	-10		2,153
<u>Other</u>							
Insurance	2,750		0	<<	-9		2,741
Utilities (farm share)	5,649		0	<<	-5		5,644
Interest paid	6,799		0	<<	0		6,799
Miscellaneous	1,930		15		-27		1,888
Total Operating	\$120,352		\$ 1,222		\$ -1,259		\$ 117,872
Expansion livestock	217		0	<<	0		217
Machinery depreciation							9,364
Building depreciation							3,760
<b>TOTAL ACCRUAL EXPENSES</b>							<b>\$ 131,213</b>

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

Change in accounts payable: An increase in accounts payable from beginning to end of year is added when calculating accrual expenses because these expenses were incurred (resources used) in 2001 but not paid for. A decrease is subtracted because it represents payment for resources used before 2001.

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**  
48 Small Herd Dairy Farms, 2001

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts
Milk sales	\$ 140,185				\$ 484		\$ 140,669
Dairy cattle	7,621		\$ 408		0		8,028
Dairy calves	2,577				0		2,577
Other livestock	1,436		121		-20		1,536
Crops	782		122		16		920
Government receipts	3,813		10 *		-320		3,504
Custom machine work	659				0		659
Gas tax refund	166				0		166
Other	<u>2,129</u>				<u>0</u>		2,129
Less nonfarm noncash capital**		(-)	<u>0**</u>			(-)	<u>0</u>
Total Receipts	\$ 159,368		\$ 661		\$ 159		\$ 160,188

\*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 2001 for the 2002 crop year in excess of funds earned for 2001. Likewise, a decrease is added to cash government receipts because it represents funds earned for 2001 but received in 2000.

Changes in accounts receivable are calculated by subtracting beginning year balances from end year balances. Payments in January 2002 for milk produced in December 2001 compared to January 2001 payments for milk produced in 2000 are included as a change in accounts receivable in determining accrual milk sales.

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

### **Profitability Analysis**

Farm operators\* contribute labor, management, and equity capital to their businesses and the combination of these resources, and the other resources used in the business, determines profitability. Farm profitability can be measured as the return to all family resources or as the return to one or more individual resources such as labor and management.

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

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

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

Net farm income is computed both with and without appreciation. Appreciation represents the change in values caused by annual changes in prices of livestock, machinery, real estate inventory, and stocks and certificates (other than Farm Credit). Appreciation is a major factor contributing to changes in farm net worth and must be included for a complete profitability analysis.

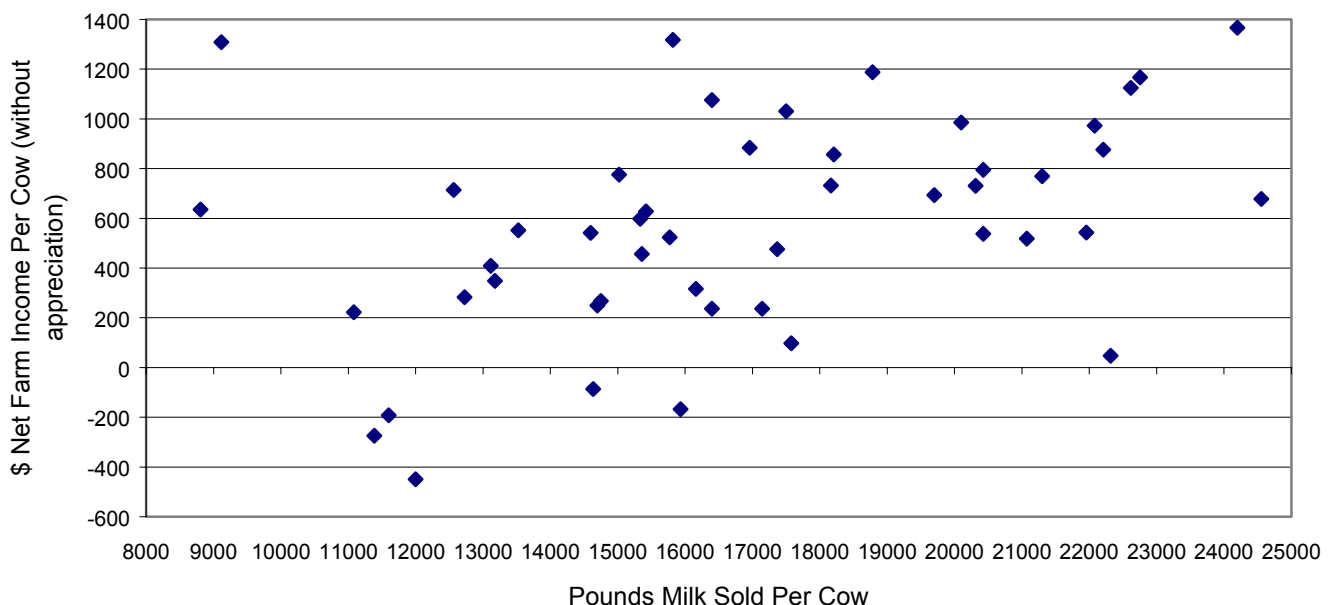
**NET FARM INCOME**  
48 Small Herd Dairy Farms, 2001

Item	Average 48 Farms		Top 25% Farms*	
	Total	Per Cow	Total	Per Cow
Total accrual receipts	\$ 160,188		\$ 168,397	
Appreciation: Livestock	9,645		9,980	
Machinery	2,190		5,532	
Real Estate	6,211		6,455	
Other Stock & Certificates	<u>282</u>		<u>155</u>	
Total Including Appreciation	\$ 178,516		\$ 190,519	
Total accrual expenses	- 131,213		- 118,906	
Net Farm Income (with appreciation)	\$ 47,303	\$ 928	\$ 71,613	\$ 1,432
Net Farm Income (without appreciation)	\$ 28,975	\$ 568	\$ 49,491	\$ 990

\*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**  
48 Small Herd Dairy Farms, 2001



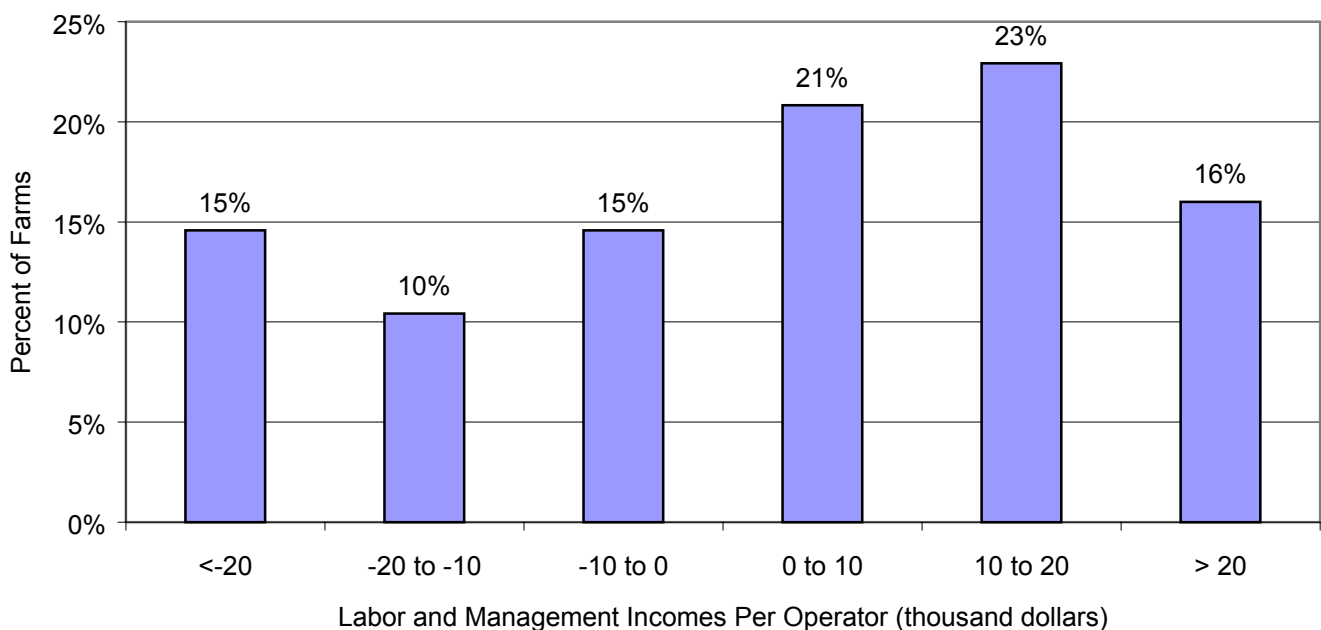
Labor and management income is the return which farm operators receive for their labor and management used in the farm business. Appreciation is not included as part of the return to labor and management because it results from ownership of assets rather than management of the farm business. Labor and 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**  
48 Small Herd Dairy Farms, 2001

Item	Average 48 Farms	Top 25% Farms
Net farm income without appreciation	\$ 28,975	\$ 49,491
Family labor unpaid @ \$2,000 per month	- 7,800	- 2,800
Interest on \$336,611 average equity capital @ 5% real rate (\$265,697 average equity capital for top 25% farms)	<u>- 16,831</u>	<u>- 13,285</u>
Labor & Management Income per farm (1.26 Operators/farm) (1.36 operators per farm for top 25% farms)	\$ 4,344	\$ 33,406
Labor & Management Income per Operator/Manager	\$ 3,448	\$ 24,563

Labor and management income per operator averaged \$3,448 on these 48 farms in 2001. The range in labor and management income per operator was from about -\$75,000 to more than \$46,000. Returns to labor and management were negative on 40% of the farms. Labor and management income per operator was between \$0 and \$20,000 on 44% of the farms while 16% showed labor and management incomes of \$20,000 or more per operator.

**DISTRIBUTION OF LABOR & MANAGEMENT INCOMES PER OPERATOR**  
48 Small Herd Dairy Farms, 2001



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**  
48 Small Herd Dairy Farms, 2001

Item	Average 48 Farms	Top 25% Farms
Net farm income with appreciation	\$ 47,303	\$ 71,613
Family labor unpaid @\$2,000 per month	- 7,800	- 2,800
Value of operators' labor & management	- <u>27,759</u>	- <u>27,208</u>
Return on equity capital with appreciation	\$ 11,744	\$ 41,605
Interest paid	+ <u>6,799</u>	+ <u>5,985</u>
Return on total capital with appreciation	\$ 18,543	\$ 47,590
Return on equity capital without appreciation	\$ -6,584	\$ 19,483
Return on total capital without appreciation	\$ 215	\$ 25,468
Rate of return on average equity capital:		
with appreciation	3.5%	15.7%
without appreciation	-2.0%	7.3%
Rate of return on average total capital:		
with appreciation	4.1%	12.8%
without appreciation	0.1%	6.9%
Net farm income from operations ratio	0.18	0.29

**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 2001, lease payments were discounted by 7.75 percent to obtain their present value.

Advanced government receipts are included as current liabilities. Government payments received in 2001 that are for participation in the 2002 program are the end year balance and payments received in 2000 for participation in the 2001 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.

**2001 FARM BUSINESS & NONFARM BALANCE SHEET**

48 Small Herd Dairy Farms, 2001

Farm Assets			Farm Liabilities & Net Worth		
	Jan. 1	Dec. 31		Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$ 6,760	\$ 4,569	Accounts payable	\$ 6,341	\$ 5,082
Accounts receivable	9,509	9,668	Operating debt	3,765	3,562
Prepaid expenses	66	70	Short Term	130	160
Feed & supplies	25,634	26,974	Advanced govt. receipts	10	0
			Current Portion:		
			Intermediate	8,580	10,885
			Long Term	<u>3,271</u>	<u>3,672</u>
Total Current	\$ 41,969	\$ 41,281	Total Current	\$ 22,097	\$ 23,362
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy cows:			Structured debt		
owned	\$ 61,657	\$ 67,172	1-10 years	\$ 37,709	\$ 37,931
leased	0	0	Financial lease		
Heifers	27,473	31,974	(cattle/machinery)	1,217	947
Bulls & other livestock	2,008	2,165	Farm Credit stock	<u>721</u>	<u>715</u>
Mach. & equip. owned	85,047	91,829	Total Intermediate	\$ 39,647	\$ 39,593
Mach. & equip. leased	1,217	947			
Farm Credit stock	721	715			
Other stock/certificate	<u>1,597</u>	<u>2,215</u>			
Total Intermediate	\$ 179,720	\$ 197,017			
<u>Long Term</u>			<u>Long Term</u>		
Land & buildings:			Structured debt		
owned	\$ 216,665	\$ 221,747	>10 years	\$ 51,209	\$ 49,269
leased	<u>0</u>	<u>0</u>	Financial lease		
Total Long Term	\$ 216,665	\$ 221,747	(structures)	<u>0</u>	<u>0</u>
			Total Long Term	\$ 51,209	\$ 49,269
Total Farm Assets	\$ 438,354	\$ 460,045	Total Farm Liab.	\$ 112,953	\$ 112,224
			FARM NET WORTH	\$ 325,401	\$ 347,821

## Nonfarm Assets, Liabilities &amp; Net Worth (Average of 33 farms reporting)

Assets			Liabilities & Net Worth		
	Jan. 1	Dec. 31		Jan. 1	Dec. 31
Personal cash, checking & savings	\$ 3,363	\$ 4,970	Nonfarm Liabilities	\$ 8,543	\$ 7,589
Cash value life insurance	8,609	8,864			
Nonfarm real estate	7,540	7,393			
Auto (personal share)	5,011	6,608			
Stocks & bonds	12,894	13,000			
Household furnishings	10,476	10,642			
All other nonfarm assets	<u>1,915</u>	<u>2,355</u>			
Total Nonfarm Assets	\$ 49,808	\$ 53,832	NONFARM NET WORTH	\$ 41,265	\$ 46,243

Farm & Nonfarm Assets, Liabilities, and Net Worth*			Jan. 1	Dec. 31
Total Assets			\$ 488,162	\$ 513,877
Total Liabilities			<u>121,496</u>	<u>119,813</u>
TOTAL FARM & NONFARM NET WORTH			\$ 366,666	\$ 394,064

\*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 73 percent on these 45 farms by including deferred taxes.

Deferred taxes on these farms totaled an average of \$405,168, roughly one-third of the pretax net worth. Percent equity for the farm decreased from 68 percent to 44 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, 2001

45 New York Dairy Farms, 2001

Assets		Liabilities & Net Worth	
		Current debts & payables	\$ 152,000
		Current deferred taxes	<u>83,270</u>
Total Current Assets	\$ 247,932	Total Current Liabilities	\$ 235,270
		Intermediate debts & leases	\$ 211,699
		Intermediate deferred taxes	<u>204,994</u>
Total Inter. Assets	\$ 814,774	Total Intermediate Liabilities	\$ 416,693
		Long term debts & leases	\$ 190,036
		Long term deferred taxes	<u>116,904</u>
Total Long Term Assets	<u>\$ 643,507</u>	Total Long Term Liabilities	\$ 306,940
TOTAL FARM ASSETS	\$ 1,706,213	TOTAL FARM LIABILITIES	\$ 958,903
		Farm Net Worth	\$ 747,310
		Percent Equity (Farm)	44%
		Nonfarm debts	\$ 4,521
		Nonfarm deferred taxes	<u>9,553</u>
Total Nonfarm Assets	\$ 67,537	Total Nonfarm Liabilities	\$ 14,074
TOTAL ASSETS	\$ 1,773,750	TOTAL LIABILITIES	\$ 972,977
		Total Net Worth	\$ 800,773
		Percent Equity (Total)	45%



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**  
48 Small Herd Dairy Farms, 2001

Item	Average 48 Farms		Top 25% Farm	
<u>Financial Ratios - Farm:</u>				
Percent equity		76%		73%
Debt/asset ratio: total		0.24		0.27
long-term		0.22		0.23
intermediate/current		0.26		0.30
Leverage ratio		0.32		0.37
Current ratio		1.77		1.29
Working capital	\$17,919	As % of total Expenses:	\$8,576	7%
<u>Farm Debt Analysis:</u>				
Accounts payable as % of total debt		5%		2%
Long-term liabilities as a % of total debt		44%		38%
Current & inter. liabilities as a % of total debt		56%		62%
Cost of term debt (weighted average)		5.8%		5.7%
<u>Farm Debt Levels:</u>				
	<u>Per Cow</u>	<u>Per Tillable Acre Owned</u>	<u>Per Cow</u>	<u>Per Tillable Acre Owned</u>
Total farm debt	\$2,200	\$1,134	\$2,001	\$921
Long-term debt	966	498	767	353
Intermediate & long term	1,742	898	1,425	656
Intermediate & current debt	1,234	636	1,234	568

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**  
48 Small Herd Dairy Farms, 2001

Item	Average 48 Farms			
	Real Estate		Machinery & Equipment	
Value beginning of year	\$	216,665	\$	85,047
Purchases	\$	4,143*	\$	14,215
Gift & inheritance	+	527	+	169
Lost capital	-	1,900	-	428
Sales	-	138	-	9,364
Depreciation	-	3,760	-	9,364
Net investment		= -1,129		= 4,592
Appreciation		+ 6,211		+ 2,190
Value end of year	\$	221,747	\$	91,829

\*\$363 land and \$3,780 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)**  
48 Small Herd Dairy Farms, 2001

Item	Average 48 Farms	Top 25% Farms
Beginning of year farm net worth	\$ 325,401	\$ 247,671
Net farm income w/o appreciation	\$ 28,975	\$ 49,491
+Nonfarm cash income	+ 4,483	+ 6,208
-Personal withdrawals & family expenditures excluding nonfarm borrowings	<u>- 30,690</u>	<u>- 41,428</u>
RETAINED EARNINGS	+ \$ 2,768	+\$ 14,271
Nonfarm noncash transfers to farm	\$ 696	\$ 0
+Cash used in business from nonfarm capital	+ 2,312	+ 1,311
-Note or mortgage from farm real estate sold (nonfarm)	<u>- 0</u>	<u>- 0</u>
CONTRIBUTED/WITHDRAWN CAPITAL	+ \$ 3,008	+\$ 1,311
Appreciation	\$ 18,328	\$ 22,122
-Lost capital	<u>- 1,900</u>	<u>- 2,256</u>
CHANGE IN VALUATION EQUITY	+ \$ 16,428	+\$ 19,866
IMBALANCE/ERROR	<u>- \$ -216</u>	<u>- \$ -603</u>
End of year net worth*	= \$ 347,821	=\$ 283,722
<u>Change in Net Worth</u>		
Without appreciation	\$ 4,092	\$13,929
With appreciation	\$22,420	\$36,051

\*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**  
48 Small Herd Dairy Farms, 2001

Item	Average 48 Farms	
<b><u>Cash Flow from Operating Activities</u></b>		
Cash farm receipts	\$ 159,368	
- Cash farm expenses	<u>120,352</u>	
= Net cash farm income		\$ 39,016
Personal withdrawals & family expenses including nonfarm debt payments	\$ 30,838	
- Nonfarm income	<u>4,483</u>	
- Net cash withdrawals from the farm		\$ <u>26,355</u>
= Net Provided by Operating Activities		\$ 12,661
<b><u>Cash Flow From Investing Activities</u></b>		
Sale of assets: machinery	\$ 428	
+ real estate	138	
+ other stock & cert.	<u>67</u>	
= Total asset sales		\$ 633
Capital purchases: expansion livestock	\$ 217	
+ machinery	14,215	
+ real estate	4,143	
+ other stock & cert.	<u>403</u>	
- Total invested in farm assets		\$ <u>18,978</u>
= Net Provided by Investment Activities		\$ -18,345
<b><u>Cash Flow From Financing Activities</u></b>		
Money borrowed (intermediate & long term)	\$ 15,517	
+ Money borrowed (short term)	490	
+ Increase in operating debt	0	
+ Cash from nonfarm capital used in business	2,312	
+ Money borrowed - nonfarm	<u>148</u>	
= Cash inflow from financing		\$ 18,467
Principal payments (intermediate & long term)	\$ 14,529	
+ Principal payments (short term)	459	
+ Decrease in operating debt	<u>203</u>	
- Cash outflow for financing		\$ <u>15,191</u>
= Net Provided by Financing Activities		\$ 3,276
<b><u>Cash Flow From Reserves</u></b>		
Beginning farm cash, checking & savings		\$ 6,760
- Ending farm cash, checking & savings		<u>4,569</u>
= Net Provided from Reserves		\$ 2,191
Imbalance (error)		\$ -217

**ANNUAL CASH FLOW STATEMENT**  
Top 25% Small Herd Dairy Farms, 2000

Item	Top 25% Farms	
<u>Cash Flow from Operating Activities</u>		
Cash farm receipts	\$ 160,584	
- Cash farm expenses	<u>109,057</u>	
= Net cash farm income		\$ 51,527
Personal withdrawals & family expenses including nonfarm debt payments	\$ 42,020	
- Nonfarm income	<u>6,208</u>	
- Net cash withdrawals from the farm		<u>\$ 35,812</u>
= Net Provided by Operating Activities		\$ 15,715
<u>Cash Flow From Investing Activities</u>		
Sale of assets: machinery	\$ 106	
+ real estate	0	
+ other stock & cert.	<u>0</u>	
= Total asset sales		\$ 106
Capital purchases: expansion livestock	\$ 669	
+ machinery	11,813	
+ real estate	5,550	
+ other stock & cert.	<u>398</u>	
- Total invested in farm assets		<u>\$ 18,430</u>
= Net Provided by Investment Activities		\$ -18,324
<u>Cash Flow From Financing Activities</u>		
Money borrowed (intermediate & long term)	\$ 16,296	
+ Money borrowed (short term)	1,071	
+ Increase in operating debt	0	
+ Cash from nonfarm capital used in business	1,311	
+ Money borrowed - nonfarm	<u>592</u>	
= Cash inflow from financing		\$ 19,270
Principal payments (intermediate & long term)	\$ 15,336	
+ Principal payments (short term)	1,098	
+ Decrease in operating debt	<u>2,786</u>	
- Cash outflow for financing		<u>\$ 19,220</u>
= Net Provided by Financing Activities		\$ 50
<u>Cash Flow From Reserves</u>		
Beginning farm cash, checking & savings		\$ 3,848
- Ending farm cash, checking & savings		<u>1,890</u>
= Net Provided from Reserves		\$ 1,958
Imbalance (error)		<u>\$ -601</u>

## 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 2002. The cash flow projection worksheet on the next page can be used to estimate repayment ability, which can then be compared to planned 2002 debt payments shown below.

### FARM DEBT PAYMENTS PLANNED

Small Herd Dairy Farms, 2000 & 2001

Debt Payments	Same 39 Dairy Farms			Same 8 Top 25% Farms		
	2001 Payments		Planned 2002	2001 Payments		Planned 2002
	Planned	Made		Planned	Made	
Long-term	\$ 6,764	\$ 8,124	\$ 6,461	\$ 5,379	\$ 5,390	\$ 5,250
Intermediate-term	11,658	12,108	12,837	9,635	11,752	11,274
Short-term	42	445	110	196	931	285
Operating (net reduction)	10	0	154	0	2,178	375
Accounts payable (net reduction)	108	2,046	0	500	0	0
Total	\$ 18,582	\$ 22,723	\$ 19,562	\$ 15,710	\$ 20,251	\$ 17,184
Per cow	\$ 372	\$ 454		\$ 296	\$ 382	
Per cwt. 2001 milk	\$ 2.11	\$ 2.58		\$ 1.57	\$ 2.02	
Percent of total 2001 receipts	12%	14%		8%	11%	
Percent of 2001 milk receipts	13%	16%		10%	12%	

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 2001 (as of December 31, 2000) that could have been made with the amount available for debt service in 2001. Farmers who did not participate in DFBS in 2000 have their 2001 cash flow coverage ratio based on planned debt payments for 2002.

### COVERAGE RATIOS

Same 39 Small Herd Dairy Farms, 2000 & 2001

Item	Average	Item	Average
<u>Cash Flow Coverage Ratio</u>		<u>Debt Coverage Ratio</u>	
Cash farm receipts	\$159,727	Net farm income (w/o apprec.)	\$30,049
- Cash farm expenses	118,572	+ Depreciation	13,424
+ Interest paid (cash)	6,070	+ Interest paid (accrual)	6,070
- Net personal withdrawals from farm <sup>9</sup>	28,775	- Net personal withdrawals from farm*	28,775
(A) = Amount Available for Debt Service	\$ 18,450	(A') = Repayment Capacity	\$20,768
(B) = Debt Payments Planned for 2001 (as of December 31, 2000)	\$ 18,582	(B) = Debt Payments Planned for 2001 (as of December 31, 2000)	\$18,582
(A/B)= Cash Flow Coverage Ratio for 2001	0.99	(A'/B)= Debt Coverage Ratio for 2001	1.12
-----			
Same 8 Top 25% Dairy Farms, 2000 & 2001			
(A) = Amount Available for Debt Service	\$ 22,649	(A') = Repayment Capacity	\$ 23,266
(B) = Debt Payments Planned for 2001	15,710	(B) = Debt Payments Planned for 2001	15,710
(A/B)= Cash Flow Coverage Ratio for 2001	1.44	(A'/B)= Debt Coverage Ratio for 2001	1.48

\*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**  
48 Small Herd Dairy Farms, 2001

Item	Average 48 Farms		
	Per Cow	Per Cwt.	Total
Number cows and cwt. milk	51	8,723	
<u>Accrual Operating Receipts</u>			
Milk	\$ 2,758	\$ 16.13	\$ 140,669
Dairy cattle	157	0.92	8,028
Dairy calves	51	0.30	2,577
Other livestock	30	0.18	1,536
Crops	18	0.11	920
Misc. receipts	127	0.74	6,458
Total	\$ 3,141	\$ 18.36	\$ 160,188
<u>Accrual Operating Expenses</u>			
Hired labor	\$ 137	\$ 0.80	\$ 7,005
Dairy grain & concentrate	656	3.84	33,461
Dairy roughage	63	0.37	3,237
Nondairy feed	0	0.00	0
Mach. hire/rent/lease	34	0.20	1,759
Mach. repair & farm vehicle expense	195	1.14	9,931
Fuel, oil & grease	82	0.48	4,164
Replacement livestock	66	0.38	3,342
Breeding	34	0.20	1,727
Vet & medicine	72	0.42	3,684
Milk marketing	176	1.03	8,952
Bedding	21	0.12	1,060
Milking supplies	77	0.45	3,935
Cattle lease	0	0.00	0
Custom boarding	10	0.06	494
bST expense	10	0.06	528
Other livestock expense	51	0.30	2,611
Fertilizer & lime	62	0.36	3,169
Seeds & plants	26	0.15	1,327
Spray/other crop expenses	29	0.17	1,471
Land, building, fence repair	53	0.31	2,711
Taxes	80	0.47	4,078
Real estate rent/lease	42	0.25	2,153
Insurance	54	0.31	2,741
Utilities	111	0.65	5,644
Miscellaneous	37	0.22	1,888
Total Less Interest Paid	\$ 2,178	\$ 12.73	\$ 111,073
<u>Net Accrual Operating Income</u>			
(without interest paid)	\$ 963	\$ 5.63	\$ 49,115
- Change in livestock/crop inventory*	13	0.08	661
- Change in accounts receivable	3	0.02	159
- Change in feed/supply inventory**	24	0.14	1,222
+ Change in accts. payable***	-25	-0.14	-1,259
NET CASH FLOW	\$ 898	\$ 5.25	\$ 45,815
- Net personal withdrawals from farm (see footnote on p. 16)	\$ 514	\$ 3.00	\$ 26,207
Available for Farm Debt Payments & Investments	\$ 384	\$ 2.25	\$ 19,608
- Farm debt payments	452	2.64	23,029
Available for Farm Investment	\$ -67	\$ -0.39	\$ -3,421
- Capital purchases: cattle, machinery & improvements	\$ 372	\$ 2.18	\$ 18,978

\*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, 2001

Item	Average Top 25% Farms		
	Per Cow	Per Cwt.	Total
No. cows or cwt. milk	50	8,718	
<u>Accrual Operating Receipts</u>			
Milk	\$ 2,833	\$ 16.25	\$ 141,637
Dairy cattle	267	1.53	13,327
Dairy calves	54	0.31	2,712
Other livestock	16	0.09	784
Crops	46	0.26	2,295
Misc. receipts	153	0.88	7,641
Total	\$ 3,368	\$ 19.32	\$ 168,397
<u>Accrual Operating Expenses</u>			
Hired labor	\$ 173	\$ 0.99	\$ 8,645
Dairy grain & concentrate	573	3.29	28,648
Dairy roughage	47	0.27	2,373
Nondairy feed	0	0.00	0
Mach. hire/rent/lease	28	0.16	1,412
Mach. repair & farm vehicle expense	164	0.94	8,224
Fuel, oil & grease	91	0.52	4,534
Replacement livestock	29	0.17	1,448
Breeding	45	0.26	2,244
Vet & medicine	66	0.38	3,275
Milk marketing	149	0.85	7,426
Bedding	27	0.15	1,340
Milking supplies	79	0.45	3,963
Cattle lease	0	0.00	0
Custom boarding	2	0.01	87
bST expense	14	0.08	702
Other livestock expense	30	0.17	1,488
Fertilizer & lime	63	0.36	3,126
Seeds & plants	24	0.14	1,184
Spray/other crop expenses	30	0.17	1,515
Land, building, fence repair	49	0.28	2,442
Taxes	94	0.54	4,678
Real estate rent/lease	45	0.26	2,247
Insurance	40	0.23	1,998
Utilities	107	0.62	5,367
Miscellaneous	50	0.29	2,514
Total Less Interest Paid	\$ 2,018	\$ 11.57	\$ 100,877
<u>Net Accrual Operating Income</u>			
(without interest paid)	\$ 1,350	\$ 7.74	\$ 67,520
- Change in livestock/crop inventory*	158	0.91	7,894
- Change in accounts receivable	-2	-0.01	-82
- Change in feed/supply inventory**	18	0.10	903
+ Change in accounts payable***	-26	-0.15	-1,292
NET CASH FLOW	\$ 1,150	\$ 6.60	\$ 57,512
- Net personal withdrawals from farm (see footnote p.16)	\$ 704	\$ 4.04	\$ 35,220
Available for Farm Debt Payments & Investments	\$ 446	\$ 2.56	\$ 22,292
- Farm debt payments	522	2.99	26,106
Available for Farm Investment	\$ -76	\$ -0.44	\$ -3,814
- Capital purchases: cattle, machinery & improvements	\$ 369	\$ 2.11	\$ 18,430

\*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 48 Small Herd Dairy Farms, 2001

Item	Average 48 Farms			Top 25% Farm		
<u>Land</u>	<u>Owned</u>	<u>Rented</u>	<u>Total</u>	<u>Owned</u>	<u>Rented</u>	<u>Total</u>
Tillable	99	90	189	112	64	176
Nontillable	50	13	63	51	3	54
Other nontillable	<u>77</u>	<u>7</u>	<u>84</u>	<u>90</u>	<u>0</u>	<u>90</u>
Total	226	110	336	253	67	320
<u>Crop Yields</u>	<u>Farms</u>	<u>Acres*</u>	<u>Prod/Acre</u>	<u>Farms</u>	<u>Acres</u>	<u>Prod/Acre</u>
Hay crop	46	130	1.94 tn DM	12	111	2.37 tn DM
Corn silage	31	38	13.89 tn	7	36	14.47 tn
			4.74 tn DM			4.81 tn DM
Other forage	3	24	2.83 tn DM	1	32	4.69 tn DM
Total forage	46	157	2.41 tn DM	12	134	2.81 tn DM
Corn grain	12	26	109 bu	4	28	102 bu
Oats	6	20	59 bu	3	16	59 bu
Wheat	1	32	47 bu	0	0	0 bu
Other crops	4	44		2	24	
Tillable pasture	19	50		5	46	
Idle	8	36		1	70	
Total Tillable Acres	48	189		12	176	

\*This column represents the average acreage for the farms producing that crop. Average acreages including those farms not producing were hay crop 124, corn silage 24, corn grain 6, oats 3, tillable pasture 20, and idle 6.

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 48 Small Herd Dairy Farms, 2001

Item	Average 48 Farms	Top 25% Farm
Total tillable acres per cow	3.71	3.52
Total forage acres per cow	2.94	2.70
Harvested forage dry matter, tons per cow	7.10	7.54



**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 21 farms, 7 of which are in the "top 25% farms" group.

**CROP RELATED ACCRUAL EXPENSES**

Small Herd Dairy Farms Reporting, 2001

Item	Total Per Till. Acre	All Corn Per Acre	Corn Silage Per Ton DM	Corn Grain Per Dry Sh. Bu.	Hay Crop		Pasture	
					Per Acre	Per Ton DM	Per Till Acre	Per Total Acre
No. of farms reporting	48	5			5		4	
Ave. number of acres	189	39			101		33	76
Fert. & lime	\$ 16.77	\$ 47.65	\$ 11.07	\$ 0.47	\$ 10.97	\$ 4.58	\$ 11.15	\$ 4.84
Seeds & plants	7.02	30.30	7.04	0.30	3.94	1.64	4.91	2.13
Spray & other crop exp.	<u>7.78</u>	<u>29.95</u>	<u>6.96</u>	<u>0.30</u>	<u>1.03</u>	<u>0.43</u>	<u>0.00</u>	<u>0.00</u>
TOTAL	\$ 31.57	\$ 107.90	\$ 25.07	\$ 1.07	\$ 15.94	\$ 6.65	\$ 16.06	\$ 6.97
<u>Top 25% Farms</u>								
No. of farms reporting	12	2			3		3	
Ave. number of acres	176	24			98		14	58
Fert. & lime	\$ 17.76	\$ 36.63	\$ 6.92	\$ 0.00	\$ 9.64	\$ 3.59	\$ 35.00	\$ 8.45
Seeds & plants	6.73	34.21	6.46	0.00	1.27	0.47	11.07	2.67
Spray & other crop exp.	<u>8.61</u>	<u>47.83</u>	<u>9.04</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
TOTAL	\$ 33.10	\$ 118.67	\$ 22.42	\$ 0.00	\$ 10.91	\$ 4.06	\$ 46.07	\$ 11.12

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**

48 Small Herd Dairy Farms, 2001

Machinery Expense	Average 48 Farms		Top 25% Farms	
	Total Expenses	Per Till. Acre	Total Expenses	Per Till. Acre
Fuel, oil & grease	\$ 4,164	\$ 22.03	\$ 4,534	\$ 25.76
Mach. repair & vehicle exp.	9,931	52.54	8,224	46.73
Machine hire, rent & lease	1,759	9.31	1,412	8.02
Interest (5%)	4,576	23.68	3,474	19.74
Depreciation	<u>9,364</u>	<u>49.54</u>	<u>7,374</u>	<u>41.90</u>
Total	\$ 29,694	\$ 157.11	\$ 25,018	\$ 142.15

**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**  
48 Small Herd Dairy Farms, 2001

Item	Dairy Cows		Bred		Heifer		Calves	
	No.	Value	No.	Value	No.	Value	No.	Value
<u>Average 48 Farms:</u>								
Beg. year (owned)	52	\$ 61,657	13	\$ 14,150	14	\$ 9,573	10	\$ 3,751
+ Change w/o apprec.		-642		472		-249		826
+ Appreciation		<u>6,157</u>		<u>1,651</u>		<u>1,039</u>		<u>762</u>
End year (owned)	51	\$ 67,172	13	\$ 16,273	13	\$ 10,363	12	\$ 5,339
End including leased	51							
Average number	51		36	(all age groups)				
<u>Top 25% Farms:</u>								
Beg. year (owned)	49	\$ 57,229	11	\$ 11,408	13	\$ 8,196	10	\$ 3,358
+ Change w/o apprec.		4,117		2,213		-246		1,350
+ Appreciation		<u>6,159</u>		<u>2,062</u>		<u>900</u>		<u>825</u>
End year (owned)	52	\$ 67,505	12	\$ 15,683	11	\$ 8,850	13	\$ 5,533
End including leased	52							
Average number	50		32	(all age groups)				

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

**MILK PRODUCTION**  
48 Small Herd Dairy Farms, 2001

Item	Average 48 Farms	Top 25% Farms
Total milk sold, lbs.	872,250	871,830
Milk sold per cow, lbs.	17,145	17,495
Average milk plant test, percent butterfat	3.72	3.77

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**  
48 Small Herd Dairy Farms, 2001

Item	Average 48 Farms		Top 25% Farms	
	Number	Percent*	Number	Percent*
Cows sold for beef	11	21.6	11	22.0
Cows sold for dairy	1	2.0	1	2.0
Cows died	2	3.9	1	2.0
Culling rate**		25.5		24.0

\*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**  
48 Small Herd Dairy Farms, 2001

Item	Average 48 Farms			Top 25% Farms		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
<u>Accrual Cost of Producing Milk</u>						
Operating costs	\$ 98,570	\$ 1,933	\$ 11.30	\$ 80,771	\$ 1,615	\$ 9.26
Purchased inputs costs	\$ 111,694	\$ 2,190	\$ 12.80	\$ 92,146	\$ 1,843	\$ 10.57
Total Costs	\$ 164,084	\$ 3,217	\$ 18.81	\$ 135,439	\$ 2,709	\$ 15.54
<u>Accrual Receipts From Milk</u>						
Net Milk Receipts	\$ 140,669	\$ 2,758	\$ 16.13	\$ 141,637	\$ 2,833	\$ 16.25
Net Farm Income without Apprec.	\$ 131,717	\$ 2,583	\$ 15.10	\$ 134,211	\$ 2,684	\$ 15.39
Net Farm Income with Apprec.	\$ 28,975	\$ 568	\$ 3.32	\$ 49,491	\$ 990	\$ 5.68
Net Farm Income with Apprec.	\$ 47,303	\$ 928	\$ 5.42	\$ 71,613	\$ 1,432	\$ 8.21

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**  
48 Small Herd Dairy Farms, 2001

Item	Average 48 Farms		Top 25% Farms	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	\$ 656	\$ 3.84	\$ 573	\$ 3.29
Purchased dairy roughage	63	0.37	47	0.27
Total Purchased Dairy Feed	\$ 720	\$ 4.21	\$ 620	\$ 3.56
Purchased grain & conc. as % of milk receipts		24%		20%
Purchased feed & crop exp.	\$ 837	\$ 4.89	\$ 737	\$ 4.23
Purchased feed & crop exp. as % of milk receipts		30%		26%
Breeding	\$ 34	\$ 0.20	\$ 45	\$ 0.26
Veterinary & medicine	72	0.42	66	0.38
Milk marketing	176	1.03	149	0.85
Bedding	21	0.12	27	0.15
Milking supplies	77	0.45	79	0.45
Cattle lease	0	0.00	0	0.00
Custom boarding	10	0.06	2	0.01
bST	10	0.06	14	0.08
Other livestock expense	51	0.30	30	0.17

**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**

48 Small Herd Dairy Farms, 2001

Item	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
<u>Average 48 Farms:</u>				
Farm capital	\$217,005	\$8,808	\$2,377	\$4,537
Real estate		4,298		2,214
Machinery & equipment	43,246	1,755	474	
<u>Ratios</u>				
Asset turnover	Operating Expense	Interest Expense	Depreciation Expense	
0.40	0.69	0.04	0.08	
<u>Top 25% Farms:</u>				
Farm capital	\$181,988	\$7,425	\$2,109	\$3,285
Real estate		3,421		1,514
Machinery & equipment	34,061	1,390	395	
<u>Ratios</u>				
Asset turnover	Operating Expense	Interest Expense	Depreciation Expense	
0.51	0.60	0.04	0.07	

**LABOR FORCE INVENTORY AND ANALYSIS**

48 Small Herd Dairy Farms, 2001

Labor Force	Months	Age	Years of Educ.	Value of Labor & Mgmt.		
<u>Average 48 Farms:</u>						
Operator number 1	13.0	48	13	\$ 22,593		
Operator number 2	3.1	49	13	5,166		
Family paid	2.6					
Family unpaid	3.9					
Hired	2.3					
Total	24.9	/ 12 = 2.07 Worker Equivalent 1.26 Operator/Manager Equivalent				
<u>Top 25% Farms: Total</u>						
Operator's	24.4	/ 12 = 2.04 Worker Equivalent 1.36 Operator/Manager Equivalent				
<u>Labor Efficiency</u>						
	Average 48 Farms		Top 25% Farms			
	Total	Per Worker	Total	Per Worker		
Cows, average number	51	25	50	25		
Milk sold, pounds	872,250	421,377	871,830	427,368		
Tillable acres	189	91	176	86		
Work units	535	258	510	250		
<u>Labor Costs</u>						
	Average 48 Farms		Top 25% Farms			
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Value of operator(s) labor (\$2,000/mo.)	\$ 32,200	\$ 631	\$ 3.69	\$33,400	\$ 668	\$ 3.83
Family unpaid (\$2,000/mo.)	7,800	153	0.89	2,800	56	0.32
Hired	7,005	137	0.80	8,645	173	0.99
Total Labor	\$ 47,005	\$ 922	\$ 5.39	\$44,845	\$ 897	\$ 5.14
Machinery Cost	\$ 29,694	\$ 582	\$ 3.40	\$25,018	\$ 500	\$ 2.87
Total Labor & Mach.	\$ 76,699	\$ 1,504	\$ 8.79	\$69,863	\$ 1,397	\$ 8.01
Hired labor expense per hired worker equivalent		\$17,155			\$15,960	
Hired labor expense as % of milk sales		5.0%			6.1%	

## 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 39 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 39 Small Herd Dairy Farms, 2000 & 2001

Selected Factors	Average of Same 39 Farms*		Average of Same 8 Top 25% Farms*	
	2000	2001	2000	2001
<u>Size of Business</u>				
Average number of cows	51	50	52	53
Average number of heifers	38	38	42	41
Milk sold, lbs.	908,837	881,963	1,014,432	1,000,272
Worker equivalent	2.04	2.04	2.06	2.07
Total tillable acres	172	172	198	197
<u>Rates of Production</u>				
Milk sold per cow, lbs.	17,901	17,505	19,508	18,829
Hay DM per acre, tons	2.4	2.2	2.5	2.5
Corn silage per acre, tons	12.0	15.1	11.2	16.4
<u>Labor Efficiency</u>				
Cows per worker	25	25	25	26
Milk sold/worker, lbs.	445,508	432,335	492,443	483,223
<u>Cost Control</u>				
Grain & conc. purchased as % of milk sales	27%	24%	25%	22%
Dairy feed & crop exp. per cwt. milk	\$ 4.57	\$ 4.84	\$ 4.34	\$ 4.40
Labor & mach. costs/cow	\$ 1,371	\$ 1,530	\$ 1,288	\$ 1,440
Operating cost of producing cwt. of milk	\$ 9.54	\$ 11.17	\$ 9.17	\$ 9.94
<u>Capital Efficiency**</u>				
Farm capital per cow	\$ 8,087	\$ 8,792	\$ 7,882	\$ 8,104
Mach. & equip. per cow	\$ 1,693	\$ 1,817	\$ 1,687	\$ 1,746
Asset turnover ratio	0.39	0.40	0.42	0.49
<u>Profitability</u>				
Net farm income w/o apprec.	\$ 27,114	\$ 30,049	\$ 36,248	\$ 50,683
Net farm income w/apprec.	\$ 36,212	\$ 49,211	\$ 39,888	\$ 77,729
Labor & mgt. income per operator/manager	\$ 3,248	\$ 4,021	\$ 12,960	\$ 21,934
Rate of return on equity capital w/appreciation	0.3%	3.8%	2.0%	13.1%
Rate of return on all capital w/appreciation	2.0%	4.3%	3.0%	11.8%
<u>Financial Summary</u>				
Farm net worth, end year	\$ 325,671	\$ 351,418	\$ 332,896	\$ 365,996
Debt to asset ratio	0.23	0.22	0.19	0.18
Farm debt per cow	\$ 1,858	\$ 1,933	\$ 1,513	\$ 1,472

\*Farms participating both years.

\*\*Average for the year.

**RECEIPTS AND EXPENSES PER COW AND PER CWT.**

Same 39 Small Herd Dairy Farms, 2000 &amp; 2001

Item	2000		2001	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	51		50	
Cwt. Of Milk Sold		9,088		8,820
<b><u>ACCRUAL OPERATING RECEIPTS</u></b>				
Milk	\$ 2,421	\$ 13.59	\$ 2,840	\$ 16.10
Dairy cattle	166	0.93	145	0.82
Dairy calves	47	0.27	45	0.26
Other livestock	5	0.03	12	0.07
Crops	45	0.25	14	0.08
Miscellaneous receipts	<u>253</u>	<u>1.42</u>	<u>122</u>	<u>0.69</u>
Total Receipts	\$ 2,938	\$ 16.49	\$ 3,178	\$ 18.01
<b><u>ACCRUAL OPERATING EXPENSES</u></b>				
Hired labor	\$ 114	\$ 0.64	\$ 135	\$ 0.76
Dairy grain & concentrate	642	3.60	682	3.87
Dairy roughage	58	0.32	60	0.34
Nondairy feed	2	0.01	0	0.00
Machine hire/rent/lease	41	0.23	28	0.16
Mach. repair & vehicle exp.	171	0.96	195	1.11
Fuel, oil & grease	81	0.46	82	0.47
Replacement livestock	60	0.33	49	0.28
Breeding	37	0.21	36	0.20
Veterinary & medicine	60	0.34	71	0.40
Milk marketing	195	1.10	182	1.03
Bedding	16	0.09	18	0.10
Milking supplies	76	0.43	76	0.43
Cattle lease	1	0.00	0	0.00
Custom boarding	9	0.05	12	0.07
bST expense	6	0.03	9	0.05
Other livestock expense	48	0.27	54	0.30
Fertilizer & lime	68	0.38	59	0.33
Seeds & plants	23	0.13	27	0.15
Spray/other crop expense	24	0.14	27	0.15
Land, building, fence repair	38	0.21	58	0.33
Taxes	82	0.46	85	0.48
Real estate rent/lease	34	0.19	36	0.20
Insurance	55	0.31	55	0.31
Utilities	100	0.56	114	0.65
Interest paid	139	0.78	121	0.69
Miscellaneous	<u>37</u>	<u>0.21</u>	<u>35</u>	<u>0.20</u>
Total Operating Expenses	\$ 2,217	\$ 12.44	\$ 2,306	\$ 13.07
Expansion Livestock	0	0.00	2	0.01
Machinery Depreciation	138	0.78	195	1.11
Real Estate Depreciation	<u>52</u>	<u>0.29</u>	<u>73</u>	<u>0.41</u>
Total Expenses	\$ 2,407	\$ 13.51	\$ 2,577	\$ 14.61
Net Farm Income Without Appreciation	\$ 532	\$ 2.98	\$ 601	\$ 3.41

**RECEIPTS AND EXPENSES PER COW AND PER CWT.**

Same 8 Top 25% Small Herd Dairy Farms, 2000 &amp; 2001

Item	2000		2001	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	52		53	
Cwt. Of Milk Sold		10,144		10,003
<b><u>ACCRUAL OPERATING RECEIPTS</u></b>				
Milk	\$ 2,654	\$ 13.60	\$ 3,065	\$ 16.24
Dairy cattle	176	0.90	157	0.83
Dairy calves	46	0.23	45	0.24
Other livestock	2	0.01	19	0.10
Crops	29	0.15	39	0.20
Miscellaneous receipts	<u>297</u>	<u>1.52</u>	<u>164</u>	<u>0.87</u>
Total Receipts	\$ 3,205	\$ 16.43	\$ 3,488	\$ 18.48
<b><u>ACCRUAL OPERATING EXPENSES</u></b>				
Hired labor	\$ 171	\$ 0.88	\$ 193	\$ 1.02
Dairy grain & concentrate	665	3.41	663	3.51
Dairy roughage	39	0.20	35	0.18
Nondairy feed	0	0.00	0	0.00
Machine hire/rent/lease	19	0.10	23	0.12
Mach. repair & vehicle exp.	140	0.72	183	0.97
Fuel, oil & grease	85	0.43	94	0.50
Replacement livestock	51	0.26	12	0.06
Breeding	51	0.26	54	0.29
Veterinary & medicine	69	0.35	73	0.39
Milk marketing	194	0.99	168	0.89
Bedding	11	0.06	15	0.08
Milking supplies	105	0.54	81	0.43
Cattle lease	0	0.00	0	0.00
Custom boarding	3	0.02	2	0.01
bST expense	0	0.00	20	0.11
Other livestock expense	25	0.13	30	0.16
Fertilizer & lime	96	0.49	87	0.46
Seeds & plants	29	0.15	32	0.17
Spray/other crop expense	17	0.09	13	0.07
Land, building, fence repair	61	0.31	42	0.22
Taxes	116	0.60	108	0.57
Real estate rent/lease	66	0.34	52	0.28
Insurance	55	0.28	46	0.25
Utilities	106	0.54	117	0.62
Interest paid	106	0.54	91	0.48
Miscellaneous	<u>60</u>	<u>0.31</u>	<u>57</u>	<u>0.30</u>
Total Operating Expenses	\$ 2,340	\$ 12.00	\$ 2,291	\$ 12.14
Expansion Livestock	0	0.00	9	0.05
Machinery Depreciation	116	0.60	157	0.83
Real Estate Depreciation	51	0.26	75	0.40
Total Expenses	\$ 2,508	\$ 12.85	\$ 2,532	\$ 13.41
Net Farm Income Without Appreciation	\$ 697	\$ 3.57	\$ 956	\$ 5.07

### 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 48 Small Herd Dairy Farms, 2001

Size of Business			Rate of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
3.08	68	1,318,883	22,664	4.0	20	39	718,518
2.37	59	1,083,396	19,687	2.5	18	30	491,449
2.08	52	874,910	16,725	2.0	15	24	410,648
1.69	44	688,215	14,910	1.6	12	22	357,897
1.27	34	461,624	11,558	1.1	9	17	255,500

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)		
\$ 339	13%	\$ 324	\$ 1,035	\$ 410	\$ 2.79	0.0%	9.7%
513	21	467	1,322	669	4.29	0.8	16.4
637	24	564	1,550	865	4.82	3.3	21.0
782	27	687	1,716	1,010	5.59	6.3	26.7
1,014	34	918	2,091	1,254	7.05	12.8	36.6

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income w/Apprec.	Net Farm Inc. w/o Apprec.	Labor & Mgt. Inc. Per Oper.	Change in Net Worth w/Apprec.
(10)	(10)	(10)	(3)	(3)	(3)	(6)
\$ 3,722	\$ 7.65	\$ 14.69	\$ 93,637	\$ 62,596	\$ 30,077	\$ 58,243
3,092	9.89	17.03	63,347	41,117	14,390	37,924
2,709	11.16	18.45	44,451	30,486	7,240	22,671
2,435	12.47	21.32	30,047	17,844	-4,701	8,060
1,821	15.29	25.14	11,261	-2,592	-33,142	-9,658

\*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** 81 New York Dairy Farms, 2001

<u>Animals Entering Herd</u>	Average
Number calving in 2001 for first time	132
Animals purchased, % <sup>1</sup>	18%
Animals raised by farm, % <sup>2</sup>	82%
 <u>Current Heifer Inventory</u>	
Raised on dairy, %	81%
Raised by a custom grower, %	19%

<sup>1</sup> Animals purchased are animals purchased from a different farm and were not the farms genetics.

<sup>2</sup> 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, 132 animals calved for the first time in 2001. The breakdown on these animals for source was 18% purchased and 82% raised by the farm. Of the current heifer inventory, 81% were raised on the dairy and 19% 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 1<sup>st</sup>, 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, 13 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**  
13 Small Herd Dairy Farms, 2001

	Pounds	Percent	Price/Pound	Total	\$/Cwt of Milk
<b>BASE FARM PRICE</b>					
Butterfat	33,612.00	3.69%	\$ 1.8514	\$ 62,004.08	\$ 6.83
Protein	27,420.46	3.02%	\$ 1.9716	\$ 54,095.62	\$ 5.94
Solids	51,498.08	5.64%	\$ 0.1348	\$ 6,964.15	\$ 0.76
<b>Total Component Contribution</b>					<b>\$13.53</b>
<b>PPD</b>	911,934.46		\$ 1.8350	\$ 17,223.15	<b>\$ 1.84</b>
<b>Base Farm Price</b>					<b>\$ 15.37</b>
<b>Premiums</b>					
Quality				\$ 1,597.46	\$ 0.17
Volume				\$ 491.54	\$ 0.05
Market Premiums				\$ 1,900.69	\$ 0.22
<b>Total Premiums</b>					<b>\$ 0.44</b>
<b>BASE FARM PRICE + PREMIUM</b>					<b>\$ 15.81</b>
<b>Deductions</b>					
Promo				\$ 1,365.69	\$ 0.15
Hauling + Stop Charges.				\$ 6,002.08	\$ 0.65
Market Fees & Coop Dues				\$ 478.08	\$ 0.06
Futures/Contract Fees				\$ 0.00	\$ 0.00
<b>Total Deductions</b>					<b>\$ 0.86</b>
<b>BASE FARM PRICE + PREMIUMS - DEDUCTIONS</b>					<b>\$ 14.95</b>
<b>Marketing Programs</b>					
Compact				\$ 193.92	\$ 0.01
Futures Contracts, Forward Contracting, Etc.				\$ 0.00	\$ 0.00
<b>Total Marketing Income</b>					<b>\$ 0.01</b>
<b>Patronage Dividends</b>				\$ 569.31	<b>\$ 0.05</b>
<b>NET PRICE RECEIVED ON FARM, ALL SOURCES</b>					<b>\$ 15.01</b>
<b>PPD - Hauling, per cwt.</b>					\$ 1.19
<b>PPD - Hauling + Market Premiums, per cwt.</b>					\$ 1.41

\*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)  
 13 Small Herd Dairy Farms, 2001

	Lowest Third	Middle Third	Highest Third
Butterfat, %	3.44	3.69	3.94
Protein, %	2.85	3.04	3.16
Other Solids, %	5.54	5.65	5.74
Butterfat, \$ per Cwt.	6.39	6.75	7.36
Protein, \$ per Cwt.	5.49	5.96	6.36
Other solids, \$ per Cwt.	0.70	0.77	0.81
<b>Total Component Value per Cwt.</b>	<b>\$ 12.98</b>	<b>\$ 13.41</b>	<b>\$ 14.23</b>
PPD, \$ per Cwt.	1.43	1.69	2.42
<b>Base Farm Price per Cwt.</b>	<b>\$ 14.68</b>	<b>\$ 15.39</b>	<b>\$ 16.02</b>
Quality, \$ per Cwt.	.05	.15	.31
Volume, \$ per Cwt.	.00	.01	.17
Market premium, \$ per Cwt.	.01	.16	.50
Total Premium, \$ per Cwt.	<b>.19</b>	<b>.45</b>	<b>.68</b>
<b>Base Farm Price + Premiums per Cwt.</b>	<b>\$ 15.17</b>	<b>\$ 15.73</b>	<b>\$ 16.53</b>
Promotion, \$ per Cwt.	.15	.15	.15
Hauling, \$ per Cwt.	.36	.62	.98
Market fees & coop dues per Cwt.	.00	.04	.14
Futures/contract fees, \$ per Cwt.	.00	.00	.00
<b>Total Marketing Expenses per Cwt.</b>	<b>\$ .57</b>	<b>\$ .81</b>	<b>\$ 1.20</b>
<b>Base + Premiums – Deductions per Cwt.</b>	<b>\$ 14.28</b>	<b>\$ 14.87</b>	<b>\$ 15.71</b>
Compact, \$ per Cwt.	.00	.00	.04
Futures contract, forward contracting, \$ per Cwt.	.00	.00	.00
<b>Total Marketing Income, \$ per Cwt.</b>	<b>\$ .00</b>	<b>\$ .00</b>	<b>\$ .04</b>
<b>Patronage Dividends, \$ per Cwt.</b>	<b>\$ .00</b>	<b>\$ .00</b>	<b>\$ .17</b>
<b>Net Price Received From All Sources, \$ per Cwt.</b>	<b>\$ 14.34</b>	<b>\$ 14.99</b>	<b>\$ 15.72</b>
<b>PPD - hauling, \$ per Cwt.</b>	<b>0.77</b>	<b>1.18</b>	<b>1.61</b>
<b>PPD - hauling + mkt premiums, \$ per Cwt.</b>	<b>1.06</b>	<b>1.43</b>	<b>1.72</b>

\*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 294 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

294 New York Dairy Farms, 2000

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
20.6	957	22,198,446	25,404	5.5	22	59	1,256,953
11.1	471	10,590,578	23,680	4.2	18	49	1,032,913
7.3	307	6,481,814	22,820	3.6	17	44	907,871
5.5	215	4,364,487	21,770	3.3	16	40	815,510
4.4	155	3,100,320	20,774	3.1	15	37	747,605
-----							
3.6	119	2,222,882	19,591	2.8	14	34	673,029
3.1	91	1,682,014	18,314	2.5	13	31	584,433
2.6	71	1,270,526	16,853	2.2	11	28	489,958
2.1	56	999,849	15,288	1.9	10	24	407,682
1.4	39	534,983	11,742	1.3	6	18	284,367

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)	
\$326	15%	\$263	\$792	\$503	\$3.24	
502	22	372	969	680	3.85	
588	24	420	1,057	765	4.17	
639	25	463	1,121	831	4.41	
705	27	502	1,186	895	4.57	
-----						
753	28	534	1,248	949	4.70	
797	29	575	1,321	1,013	4.91	
847	31	620	1,421	1,070	5.17	
913	33	688	1,540	1,140	5.56	
1,049	39	934	1,894	1,301	6.49	

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

**FARM BUSINESS CHART FOR  
FARM MANAGEMENT COOPERATORS**  
294 New York Dairy Farms, 2000

Milk Receipts Per Cow	Milk Receipts Per Cwt.	Oper. Cost Milk Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cow	Total Cost Production Per Cwt.	
(10)	(10)	(10)	(10)	(10)	(10)	
\$3,458	\$15.53	\$1,115	\$7.42	\$1,992	\$12.02	
3,148	14.16	1,510	8.81	2,421	13.14	
3,014	13.85	1,723	9.38	2,655	13.68	
2,908	13.60	1,903	9.84	2,809	14.18	
2,775	13.37	2,055	10.32	2,955	14.65	
-----						
2,616	13.17	2,189	10.86	3,058	15.09	
2,465	13.00	2,349	11.57	3,207	15.77	
2,285	12.79	2,475	12.03	3,333	16.66	
2,017	12.57	2,693	12.85	3,531	18.34	
1,569	12.10	3,046	15.10	3,925	23.20	
-----						
Profitability						
Net Farm Income Without Appreciation			Net Farm Income With Appreciation		Labor & Management Income	
Total	Per Cow	As % of Total Accrual Receipts	Total	Per Cow	Per Farm	Per Operator
(3)	(10)	(3)	(3)	(10)	(3)	(3)
\$295,646	\$939	0.28	\$394,582	\$1,204	\$182,415	\$101,405
123,950	643	0.21	177,673	835	61,791	36,385
77,197	523	0.17	114,922	707	30,556	21,128
55,750	424	0.13	85,577	602	19,433	12,413
43,028	343	0.11	65,516	508	8,094	5,760
-----						
29,681	254	0.08	51,646	431	-3,700	-2,958
18,501	161	0.05	39,963	332	-13,870	-10,917
5,293	56	0.02	22,976	211	-28,414	-21,054
-17,461	-125	-0.04	9,708	55	-54,924	-41,251
-153,963	-436	-0.20	-99,776	-278	-242,811	-171,152

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 23 of this publication. References to DFBS output page numbers for participating dairy farmers are provided in the table headings.

**FINANCIAL ANALYSIS CHART**  
294 New York Dairy Farms, 2000

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)
\$107	\$862	6.61	6.60	4%	\$373	47%	14.02
234	693	1.76	1.91	9	1,046	29	3.89
319	610	1.40	1.57	12	1,545	23	2.80
378	550	1.24	1.31	14	2,035	19	2.22
447	491	1.10	1.07	17	2,452	15	1.85
-----							
495	432	0.96	0.89	19	2,742	11	1.56
549	377	0.83	0.75	20	3,010	7	1.29
607	319	0.72	0.54	23	3,365	1	0.99
693	215	0.57	0.28	27	3,921	-5	0.78
935	-2	-0.72	-1.59	41	5,296	-23	0.38

Solvency				Profitability	
Leverage Ratio*	Percent Equity	Debt/Asset Ratio		Percent Rate of Return with appreciation on:	
		Current & Intermediate	Long Term	Equity	Investment**
(5)	(5)	(5)	(5)	(3)	(3)
-0.13	96%	0.05	0.00	23%	15%
0.16	86	0.13	0.00	11	9
0.27	79	0.19	0.07	8	7
0.38	73	0.27	0.20	5	6
0.51	66	0.34	0.30	3	5
-----					
0.68	60	0.41	0.39	2	3
0.89	53	0.47	0.45	-1	2
1.15	47	0.53	0.55	-4	0
1.52	40	0.63	0.72	-10	-3
4.32	21	0.95	1.14	-39	-8

Efficiency (Capital)						
Asset Turnover (ratio)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow	Change in Net Worth w/Appreciation	Farm Net Worth, End Year	
(11)	(11)	(11)	(11)	(6)	(4)	
.78	\$1,228	\$551	\$4,388	\$243,497	\$3,289,413	
.65	1,828	837	5,275	109,676	1,630,823	
.59	2,139	975	5,899	53,346	1,171,081	
.54	2,385	1,114	6,250	37,622	909,405	
.49	2,638	1,264	6,653	26,228	730,445	
-----						
.46	2,921	1,416	7,062	14,324	616,811	
.43	3,299	1,601	7,604	5,269	466,827	
.38	3,861	1,810	8,370	-9,057	359,003	
.32	4,621	2,210	9,416	-32,304	244,172	
.24	6,800	3,108	11,955	-223,967	101,057	

\*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 45 cows on the small conventional farms to 634 cows on the largest freestall farms.

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

Farm business charts have been computed for each of the five housing and herd size categories and are on pages 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 2000 State Summary\*. As herd size increases, the average profitability generally increases (page 48)\*. Net farm income without appreciation averaged \$13,624 per farm for the less than 50 cow farms and \$110,976 per farm for those with 400-599 cows. The farms with 600 and more cows, however, averaged \$57,262 net farm income. 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 except the group with more than 600 cows saw an increase in net worth during 2000. The second largest herd size category experienced an increase in net worth of over \$78,000. However, percent equity went down as herd size increased. The largest herds had 49% equity; while the smaller herds averaged 73%.

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 40 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 17,920 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 372,445 pounds at the lowest herd size category up to 1,099,279 pounds at the largest size category.

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\*Wayne A. Knoblauch, Linda D. Putnam, and Jason Karszes, Dairy Farm Management Business Summary, New York, 2000, Department of Applied Economics and Management, Cornell University, R.B. 2001-06, October 2001.

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

271 New York Dairy Farms, 2000

Item	Farms with:	Conventional		Freestall		
		<= 60 Cows	>60 Cows	<=150 Cows	151-300 Cows	≥300 Cows
Number of farms		47	49	52	50	73
<u>Cropping Program Analysis</u>						
Total Tillable acres		153	301	312	566	1,231
Tillable acres rented*		63	144	136	258	585
Hay crop acres*		91	188	160	267	545
Corn silage acres*		22	55	77	162	521
Hay crop, tons DM/acre		2.4	2.4	2.7	2.9	3.9
Corn silage, tons/acre		10.7	12.1	13.4	14.2	15.9
Oats, bushels/acre		36	62	43	0	53
Forage DM per cow, tons		6.6	8.1	7.5	7.1	7.6
Tillable acres/cow		3.4	3.6	2.9	2.6	1.9
Fert. & lime exp./tillable acre		\$15.62	\$20.06	\$24.46	\$27.98	\$30.14
Total machinery costs		\$24,372	\$43,631	\$59,105	\$116,659	\$315,691
Machinery cost/tillable acre		\$159	\$145	\$189	\$206	\$256
<u>Dairy Analysis</u>						
Number of cows		45	84	106	215	634
Number of heifers		31	68	76	164	479
Milk sold, lbs.		757,129	1,516,293	2,031,299	4,512,934	14,336,614
Milk sold/cow, lbs.		16,754	18,153	19,090	21,012	22,611
Operating cost of prod. milk/cwt.		\$10.13	\$10.09	\$10.70	\$10.79	\$11.65
Total cost of prod. milk/cwt.		\$17.37	\$15.45	\$15.53	\$14.54	\$14.14
Price/cwt. milk sold		\$13.50	\$13.41	\$13.42	\$13.41	\$13.37
Purchased dairy feed/cow		\$706	\$663	\$793	\$793	\$887
Purchased dairy feed/cwt. milk		\$4.20	\$3.67	\$4.14	\$3.78	\$3.92
Purchased grain & conc. as % milk rec.		26%	26%	29%	27%	28%
Purchased feed & crop exp./cwt. milk		\$4.83	\$4.48	\$4.93	\$4.58	\$4.59
<u>Capital Efficiency</u>						
Farm capital/worker		\$192,833	\$210,236	\$250,597	\$277,139	\$278,490
Farm capital/cow		\$8,099	\$7,684	\$7,447	\$7,090	\$6,110
Farm capital/tillable acre owned		\$4,050	\$4,085	\$4,485	\$4,933	\$5,987
Real estate/cow		\$3,943	\$3,326	\$3,242	\$2,951	\$2,332
Machinery investment/cow		\$1,724	\$1,734	\$1,574	\$1,422	\$1,055
Asset turnover ratio		0.36	0.39	0.44	0.50	0.60
<u>Labor Efficiency</u>						
Worker equivalent		1.89	3.07	3.15	5.50	13.91
Operator/manager equivalent		1.27	1.60	1.51	1.90	2.20
Milk sold/worker, lbs.		400,597	493,907	644,857	820,533	1,030,670
Cows/worker		24	27	34	39	46
Labor cost/cow		\$877	\$768	\$658	\$625	\$672
Labor cost/tillable acre		\$258	\$214	\$223	\$237	\$346
<u>Profitability &amp; Balance Sheet Analysis</u>						
Net farm income (without appreciation)		\$15,281	\$33,027	\$29,093	\$60,619	\$80,355
Labor & management income/operator		\$-3,409	\$1,396	\$-2,074	\$3,914	\$-10,427
Rate Return on all capital with appreciation		-0.2%	2.8%	2.6%	5.4%	5.6%
Farm debt/cow		\$2,131	\$2,220	\$2,494	\$2,490	\$2,936
Percent equity		74%	72%	66%	65%	51%

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



**FARM BUSINESS CHART FOR SMALL CONVENTIONAL STALL DAIRY FARMS**  
47 Conventional Stall Dairy Farms with 60 or Less Cows, New York, 2000

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
2.85	59	1,184,090	24,298	4.4	19	41	737,749
2.58	56	1,129,999	22,172	3.4	16	36	638,835
2.44	54	1,013,578	20,570	3.1	14	32	540,866
2.19	52	947,897	19,045	2.9	14	28	463,474
2.02	50	862,961	16,800	2.6	12	25	426,694
-----							
1.85	47	738,483	15,587	2.3	12	23	392,797
1.56	44	630,214	15,220	2.2	10	22	351,696
1.45	39	507,907	13,898	2.0	8	20	325,782
1.28	33	439,973	11,838	1.7	6	18	253,783
1.11	26	327,449	9,330	1.3	4	14	176,722
-----							
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)		
\$194	13%	\$187	\$940	\$363	\$3.13		
345	19	331	1,059	519	3.62		
446	22	404	1,112	601	3.93		
498	24	448	1,244	652	4.44		
569	25	500	1,380	732	4.63		
-----							
635	27	541	1,483	819	4.85		
707	28	588	1,628	936	5.14		
778	32	630	1,740	1,035	5.48		
863	37	808	1,971	1,129	6.26		
1,041	46	1,159	2,251	1,390	7.37		
-----							
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.	
(10)	(10)	(10)	Total	Per Cow	(3)	(6)	
\$3,312	\$6.11	\$13.29	\$49,608	\$1,119	\$26,607	\$70,500	
3,064	7.97	14.00	40,256	907	14,401	26,167	
2,768	8.59	15.03	31,138	717	9,832	19,588	
2,498	9.04	15.60	25,323	571	6,635	15,848	
2,360	9.28	16.27	20,095	464	463	12,055	
-----							
2,162	10.00	17.56	15,942	347	-3,894	6,954	
1,986	10.57	18.98	10,371	241	-7,861	2,656	
1,865	11.52	21.06	5,388	120	-11,933	-439	
1,596	12.98	23.26	-3,923	-86	-16,670	-8,611	
1,182	19.49	33.14	-26,348	-598	-52,874	-25,066	

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

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

49 Conventional Stall Dairy Farms with More Than 60 Cows, New York, 2000

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)
5.03	150	2,699,009	25,553	4.8	22	43	814,235
4.29	104	1,889,767	22,227	3.6	19	36	714,931
3.83	92	1,761,822	20,732	3.2	17	34	635,982
3.31	82	1,630,902	19,683	2.9	15	31	599,481
3.09	77	1,503,161	18,607	2.6	14	30	548,510
-----							
2.78	74	1,379,333	18,081	2.4	13	29	511,015
2.59	72	1,315,225	17,317	2.1	11	26	455,048
2.29	69	1,213,663	16,035	1.9	10	23	397,645
2.11	66	1,115,117	14,730	1.6	8	20	341,077
1.72	62	891,474	11,591	1.1	5	17	269,302
-----							
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)		
\$324	13%	\$250	\$856	\$483	\$2.74		
449	20	349	1,026	583	3.56		
512	22	379	1,104	683	3.93		
566	24	434	1,157	741	4.17		
601	26	476	1,231	801	4.36		
-----							
671	28	510	1,297	841	4.49		
725	29	541	1,400	902	4.76		
766	32	606	1,482	982	5.42		
868	35	736	1,726	1,048	5.75		
990	43	1,057	1,970	1,155	6.54		
-----							
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.	
(10)	(10)	(10)	Total	Per Cow	(3)	(6)	
\$3,401	\$7.44	\$12.22	\$92,439	\$968	\$31,719	\$60,742	
2,954	8.45	13.16	60,120	743	25,789	45,881	
2,753	8.87	13.79	53,878	660	18,118	40,451	
2,611	9.52	14.48	47,879	573	11,781	34,324	
2,501	9.82	15.03	38,743	485	6,497	24,829	
-----							
2,417	10.12	15.68	30,916	391	354	15,733	
2,318	10.74	16.23	23,300	312	-3,288	9,618	
2,161	11.55	17.54	14,388	172	-10,586	4,258	
1,997	12.44	19.60	6,646	82	-23,099	-7,357	
1,523	14.22	21.31	-26,157	-343	-52,804	-35,406	

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

**FARM BUSINESS CHART FOR SMALL FREESTALL DAIRY FARMS**

52 Freestall Barn Dairy Farms with 150 or Less Cows, New York, 2000

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds of Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
4.87	148	3,199,560	24,120	4.8	23	56	1,048,182
4.09	139	2,860,086	22,597	4.1	19	45	924,780
3.57	130	2,581,768	21,365	3.5	17	41	803,527
3.41	121	2,380,865	20,613	3.2	16	38	727,653
3.25	115	2,201,860	19,844	2.8	15	36	695,165
-----							
3.10	108	1,994,872	18,738	2.6	14	33	642,385
2.92	101	1,736,932	17,864	2.5	13	31	548,991
2.74	88	1,558,048	16,574	2.1	12	29	500,428
2.26	77	1,223,280	15,549	1.9	10	26	451,212
1.71	53	952,982	13,671	1.5	7	22	370,448

## 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)
\$455	21%	\$302	\$832	\$628	\$3.74
581	24	403	954	760	4.02
612	25	451	1,043	802	4.46
636	27	509	1,119	889	4.76
705	28	539	1,224	909	5.04
-----					
742	30	569	1,285	928	5.17
790	31	616	1,328	981	5.26
835	33	669	1,464	1,071	5.40
962	35	712	1,533	1,186	5.77
1,082	38	982	1,780	1,333	6.69

## Value and Cost of Production

## Profitability

Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
(10)	(10)	(10)	Total	Per Cow	(3)	(6)
\$3,258	\$7.64	\$12.45	\$121,180	\$994	\$40,616	\$95,041
3,995	8.72	14.01	70,925	562	20,630	54,117
2,876	9.40	14.43	50,256	463	14,436	41,453
2,783	10.03	14.79	41,929	404	8,550	32,570
2,633	10.94	15.19	33,701	307	4,039	24,799
-----						
2,513	11.41	15.80	23,141	222	-7,147	13,443
2,390	11.74	17.04	12,930	121	-13,498	3,469
2,246	12.22	17.86	3,838	48	-22,369	-10,682
2,044	12.85	19.21	-10,805	-100	-31,458	-23,446
1,831	13.64	20.06	-35,309	-363	-57,305	-55,607

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

**FARM BUSINESS CHART FOR MEDIUM FREESTALL DAIRY FARMS**  
50 Freestall Barn Dairy Farms with 151-300 Cows, New York, 2000

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
8.30	288	6,434,236	25,883	5.4	22	59	1,215,382
6.79	269	5,908,975	24,463	4.2	18	52	1,019,102
6.22	245	5,454,487	23,468	3.6	17	45	915,984
5.90	230	4,956,696	22,455	3.2	16	41	879,804
5.60	223	4,613,474	21,319	2.9	15	40	832,647
-----							
5.33	211	4,248,120	20,389	2.8	14	39	806,335
4.96	193	3,923,770	19,524	2.6	12	36	768,070
4.48	173	3,653,608	18,926	2.5	12	33	717,699
4.06	160	3,281,138	17,872	2.2	10	32	654,454
3.39	154	2,654,833	15,256	1.9	8	28	552,702

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)
\$467	17%	\$339	\$733	\$687	\$3.27
591	21	396	886	773	3.95
626	24	431	971	820	4.36
690	25	472	1,071	872	4.43
732	26	514	1,134	916	4.54
-----					
773	27	566	1,215	953	4.65
805	29	598	1,322	1,008	4.79
828	30	668	1,424	1,070	4.88
897	32	722	1,505	1,135	5.03
1,046	35	828	1,621	1,301	5.89

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec.		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
(10)	(10)	(10)	Total	Per Cow	(3)	(6)
\$3,557	\$8.28	\$11.49	\$184,598	\$826	\$81,249	\$197,613
3,302	9.28	13.02	141,381	633	40,842	125,579
3,081	9.47	13.73	107,117	534	25,853	89,833
2,975	9.81	13.96	79,992	408	15,387	56,930
3,851	10.39	14.15	68,720	335	6,705	39,479
-----						
2,721	10.93	14.58	53,728	258	-2,193	28,073
2,603	11.65	15.03	38,476	168	-9,002	12,598
2,533	11.91	15.61	18,432	83	-18,474	-1,691
2,420	12.60	16.64	-14,207	-69	-32,159	-30,565
2,071	14.36	19.38	-72,061	-382	-93,564	-61,382

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

**FARM BUSINESS CHART FOR LARGE FREESTALL DAIRY FARMS**

73 Freestall Barn Dairy Farms with 300 or More Cows, New York, 2000

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds of Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
30.94	1,544	35,553,590	26,050	6.7	21	64	1,415,863
20.87	954	22,116,437	24,421	5.1	19	55	1,266,772
16.62	738	17,499,215	23,932	4.4	18	52	1,183,234
14.94	643	14,775,220	23,419	3.9	17	49	1,093,607
13.12	581	13,251,145	23,127	3.7	17	47	1,038,650
-----							
11.76	503	11,314,507	22,733	3.5	16	45	991,470
10.84	431	9,740,391	22,313	3.4	15	43	939,611
8.95	395	8,834,767	21,672	3.2	14	41	872,484
7.71	353	7,544,666	20,198	2.9	14	38	800,252
6.10	318	5,722,977	16,228	1.8	12	32	697,692
-----							
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)		
\$480	35%	\$299	\$825	\$666	\$3.54		
670	32	395	997	840	4.08		
755	30	439	1,065	932	4.23		
794	28	479	1,130	995	4.41		
818	28	501	1,160	1,041	4.54		
-----							
856	27	525	1,215	1,070	4.62		
884	26	557	1,244	1,093	4.69		
912	25	588	1,269	1,144	4.89		
965	24	634	1,349	1,188	5.27		
1,078	19	759	1,499	1,339	5.77		
-----							
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.	
(10)	(10)	(10)	Total	Per Cow	(3)	(6)	
			(3)	(10)	(3)		
\$3,599	\$8.93	\$11.78	\$504,555	\$779	\$175,082	\$376,879	
3,288	9.98	12.71	282,055	481	91,076	238,708	
3,173	10.28	13.21	216,765	398	62,942	177,214	
3,081	10.66	13.54	168,346	317	39,725	142,491	
3,030	11.10	13.76	107,365	260	22,753	89,279	
-----							
3,000	11.64	14.25	80,340	162	2,641	33,443	
2,945	12.04	14.60	45,580	100	-20,137	-18,618	
2,869	12.62	14.95	-9,145	-19	-58,155	-82,100	
2,729	13.26	15.73	-80,428	-154	-103,378	-156,148	
2,222	14.25	17.08	-406,566	-406	-393,270	-542,304	

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

## IDENTIFY AND SET GOALS

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

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

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

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

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

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

### Worksheet for Setting Goals

#### I. Mission and Objectives

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Worksheet for Setting Goals (Continued)

II. Goals What	How	When	Who is Responsible
_____	_____	_____	_____
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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: \_\_\_\_\_

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Needs improvement: \_\_\_\_\_

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## GLOSSARY AND LOCATION OF COMMON TERMS

**Accounts Payable** - Open accounts or bills owed to feed and supply firms, cattle dealers, veterinarians and other providers of farm services and supplies.

**Accounts Receivable** - Outstanding receipts from items sold or sales proceeds not yet received, such as the payment for December milk sales received in January.

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

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

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

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

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

**Balance Sheet** - A "snapshot" of the business financial position at a given point in time, usually December 31. The balance sheet equates the value of assets to liabilities plus net worth.

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

**Capital Efficiency** - The amount of capital invested per production unit. Relatively high investments per worker with low to moderate investments per cow imply efficient use of capital.

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

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

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

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

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

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

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

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

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

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

**Dairy (farm)** - A farm business where dairy farming is the primary enterprise, operating and managing this farm is a full-time occupation for one or more people and cropland is owned.

**Dairy Cash-Crop (farm)** - Operating and managing this farm is the full-time occupation of one or more people, cropland is owned but crop sales exceed 10 percent of accrual milk receipts.



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

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

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

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

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

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

**Dry Matter** - The amount or proportion of dry material that remains after all water is removed. Commonly used to measure dry matter percent and tons of dry matter in feed.

**Equity Capital** - The farm operator/manager's owned capital or farm net worth.

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

**Farm Debt Payments as Percent of Milk Sales** - Amount of milk income committed to debt repayment, calculated by dividing planned debt payments by total milk receipts. A reliable measure of repayment ability, see page 16.

**Farm Debt Payments Per Cow** - Planned or scheduled debt payments per cow represent the repayment plan scheduled at the beginning of the year divided by the average number of cows for the year. This measure of repayment ability is used in the Financial Analysis Chart.

**Financial Lease** - A long-term non-cancellable contract giving the lessee use of an asset in exchange for a series of lease payments. The term of a financial lease usually covers a major portion of the economic life of the asset. The lease is a substitute for purchase. The lessor retains ownership of the asset.

**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.

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