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PRO-DAIRY

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# DAIRY FARM BUSINESS SUMMARY

## *NEW YORK SMALL HERD FARMS, 80 COWS OR FEWER 2006*



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**2006 DAIRY FARM BUSINESS SUMMARY**  
**Small Herd Dairy Farms**  
**80 Cows or Fewer**  
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## 2006 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 2006 with herds of 80 cows or fewer and no milking parlors.

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

#### **Program Objective**

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

#### **Format Features**

This report follows the same general format as the 2006 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. Non-DFBS participants can download a DFBS Data Check-in Form at <http://dfbs.cornell.edu>. After collecting the data on the form, it can be entered in the U. S. Top Dairies business summary program at the same web site to obtain a summary of their business.

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 80 or fewer cows and that do not use a milking parlor. Many counties had farms that met this criteria in 2006. 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. Loree McOwen assisted in preparing the publication.

## PROGRESS OF THE FARM BUSINESS

The dairy industry reeled from another downturn on the roller coaster of milk prices in 2006 that became one of the worst years in memory for the dairy industry. Other factors such as the high costs of fuel and fertilizer, a rising minimum wage, poor weather and crops, and milk labeling issues all contributed to poor rates of return and more dissatisfaction with dairy policy.

The average number of cows per farm was 51, unchanged from the same group in 2005 (see the table on page 3). Heifer inventory also was unchanged. Milk sold was down by 0.5 percent and the labeling issues surrounding rBST may have affected this number as some producers agreed not to use the product in hopes of a premium from processors. Worker equivalents went down almost 3 percent and could be attributed to higher labor costs and more use of labor saving technology. Also, there was no money for "extra" help and families worked harder themselves to make up the difference. Although hay DM remained unchanged, the wet June and subsequent flooding ruined many acres of corn resulting in a yield decrease of 14 percent from 16.4 to 14.1 tons per acre.

Cows per worker increased by 4 percent due to more efficiency and less labor as described earlier and milk sold per worker also increased. Less labor overall was a contributing factor in the decrease in hired labor cost per hundredweight of 14.9 percent; there just was no money for any additional labor to help the farm family. The cost of hired labor rose 3.2 percent due to the rising wage structure.

Purchased feed as a percent of milk sales rose due to lower milk prices and stable feed prices for most of the year. Farmers probably fed less grain with lower returns resulting in a 4.4 percent decrease in purchased grain per hundredweight of milk. Dairy feed and crop expenses dropped by 6.1 percent as less feed was fed. Total farm operating expenses were lower by just -1.1 percent to \$13.87 per hundredweight because there were few places that farmers could cut. Interest costs were higher by 3.8 percent as farmers did not extend themselves any more than necessary and just continued to make payments as needed. Fuel costs affected the price paid by farmers to transport the milk to the creameries and milk marketing costs rose by 10.3 percent in the form of transportation differentials. However, the operating cost of producing a hundredweight of milk dropped by 2.3 percent due to the sheer need to trim all costs at a very disappointing average milk price of \$13.73.

Farm capital per cow continues to rise as a result of competing interests in farmland. It was up 2.2 percent in 2006. Machinery, even used, holds its value as metal and manufacturing costs rise. Machinery & equipment per cow rose 1.9 percent. Assets such as machinery did not turn over because farmers could not afford any unnecessary investment and fixed up equipment. Asset turnover ratio fell 15.8 percent as a result.

Gross milk sales per cow fell 14 percent due to poor forage and less grain feeding, along with gross milk sales per hundredweight (-13 percent) and net milk sales per hundredweight (-14.5 percent). In an effort to milk as many cows as possible, farmers held on to cows that normally may have been culled and dairy cattle sales per cow decreased by 36.1 percent. The prices of cull cows stayed fairly stable throughout the year. Calf sales increased (+18 percent) as forages were in tight supply and the need was for cows, not youngstock, to feed at that time. Prices for youngstock remained good for most of the year.

Farmers did not have high net farm incomes, with or without appreciation. A net farm income of \$17,335 is hardly enough to sustain a family and very few paid any income taxes in 2006. Farm families put off personal purchases, did not take vacations, and did not make any improvements unless they were unavoidable. The stress on the businesses was intense and some farms sold out to pursue other interests. Rate of return on equity was -4.8 percent without appreciation and -3.0 percent return on all capital without appreciation. All in all, it is amazing that so many farms survived the year. Most had to borrow on their lines of credit as farm debt per cow increased by 15.7 percent. Farm net worth decreased due to more debt. Those that managed through this worst price per cost squeeze were rewarded later with higher prices.

**PROGRESS OF THE FARM BUSINESS**  
Same 31 Small Herd Dairy Farms, 2005 & 2006

Selected Factors	Average of 31 Farms		Percent Change
	2005	2006	
<u>Size of Business</u>			
Average number of cows	51	51	0.0
Average number of heifers	39	39	0.0
Milk sold, lbs.	973,270	968,735	-0.5
Worker equivalent	2.12	2.06	-2.8
Total tillable acres	179	177	-1.1
<u>Rates of Production</u>			
Milk sold per cow, lbs.	19,241	18,947	-1.5
Hay DM per acre, tons	2.1	2.2	4.8
Corn silage per acre, tons	16.4	14.1	-14.0
<u>Labor Efficiency &amp; Costs</u>			
Cows per worker	24	25	4.2
Milk sold/worker, lbs.	459,090	470,260	2.4
Hired labor cost/cwt.	\$1.01	\$0.86	-14.9
Hired labor cost/worker	\$18,040	\$18,619	3.2
Hired labor cost as % of milk sales	6.4%	6.2%	-3.1
<u>Cost Control</u>			
Grain & concentrate purchased as % of milk sales	26%	29%	11.5
Grain & concentrate per cwt. milk	\$4.13	\$3.95	-4.4
Dairy feed & crop expense per cwt. milk	\$5.26	\$4.94	-6.1
Labor & machinery costs/cow	\$1,698	\$1,699	-0.0
Total farm operating expenses per cwt. sold	\$14.03	\$13.87	-1.1
Interest costs per cwt. milk	\$0.53	\$0.55	3.8
Milk marketing costs per cwt. milk sold	\$0.97	\$1.07	10.3
Operating cost of producing cwt. of milk	\$10.89	\$10.64	-2.3
<u>Capital Efficiency</u> (average for the year)			
Farm capital per cow	\$10,417	\$10,642	2.2
Machinery & equipment per cow	\$2,006	\$2,044	1.9
Asset turnover ratio	0.38	0.32	-15.8
<u>Income Generation</u>			
Gross milk sales per cow	\$3,037	\$2,602	-14.3
Gross milk sales per cwt.	\$15.78	\$13.73	-13.0
Net milk sales per cwt.	\$14.82	\$12.67	-14.5
Dairy cattle sales per cow	\$269	\$172	-36.1
Dairy calf sales per cow	\$78	\$92	18.0
Government receipts per cwt.	\$0.49	\$1.01	106.1
<u>Profitability</u>			
Net farm income without appreciation	\$34,888	\$17,335	-50.3
Net farm income with appreciation	\$49,972	\$27,512	-45.0
Labor & management income per oper./manager	\$5,867	\$-12,040	-305.2
Rate of return on equity capital without apprec.	-0.4%	-4.8%	-1100.0
Rate of return on all capital without appreciation	0.7%	-3.0%	-528.6
<u>Financial Summary</u>			
Farm net worth, end year	\$456,469	\$455,478	-0.2
Debt to asset ratio	0.15	0.18	20.0
Farm debt per cow	\$1,639	\$1,897	15.7

## SUMMARY AND ANALYSIS OF THE FARM BUSINESS

### Business Characteristics

Planning optimal management strategies is a crucial component of operating a successful farm. Various combinations of farm resources, enterprises, business arrangements, and management techniques are used by the dairy farmers. The following table shows important farm business characteristics and the number of farms with each characteristic. Farms with a parlor milking system were eliminated from the small herd (80 or fewer cows) group of dairy farms.

### BUSINESS CHARACTERISTICS

47 Small Herd Dairy Farms, 2006

<u>Type of Farm</u>		<u>Milking System</u>	
Dairy	47	Bucket & carry	0
Part-time dairy	0	Dumping station	1
Dairy cash-crop	0	Pipeline	46
Certified organic milk producer	0	Herringbone parlor	0
Rotational grazing farms	20	Other parlor	0
<u>Type of Ownership</u>		<u>Production Records</u>	
Owner	47	Testing service	38
Renter	0	On-farm system	1
<u>Type of Business</u>		Other	0
Sole Proprietorship	40	None	8
Partnership	5	<u>bST Usage</u>	
Corporation	2	Used consistently	7
<u>Type of Barn</u>		Used inconsistently	0
Stanchion or Tie-Stall	44	Started usage in 2006	0
Freestall	1	Stopped usage in 2006	2
Combination	2	Not used in 2006	38
<u>Milking Frequency</u>		Average percent usage, if used	59%
2 times per day	45	<u>Business Record System</u>	
3 times per day	1	Account Book	19
Other	1	Accounting Service	7
<u>Breed of Herd</u>		On-farm computer	20
Holstein	83	Other	1
Jersey	10	<u>Income Statement</u>	
Other	7	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).	

### 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 2006.

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.

Change in prepaid expenses (noted 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.



**CASH AND ACCRUAL FARM EXPENSES**

47 Small Herd Dairy Farms, 2006

Expense Item	Cash Paid	-	Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses
<u>Hired Labor</u>	\$ 9,195		\$ -35	<<	\$ 41		\$ 9,270
<u>Feed</u>							
Dairy grain & concentrate	38,818		-302		1,212		40,332
Dairy roughage	3,620		156		-160		3,305
Nondairy	25		0		0		25
Professional nutritional services	0		0	<<	0		0
<u>Machinery</u>							
Machinery hire, rent & lease	2,559		0	<<	101		2,660
Machinery repairs & farm vehicle exp.	11,192		-32		207		11,432
Fuel, oil & grease	7,451		-23		84		7,558
<u>Livestock</u>							
Replacement livestock	698		0	<<	-21		676
Breeding	2,514		-116		18		2,648
Veterinary & medicine	4,624		-5		234		4,863
Milk marketing	10,308		0	<<	6		10,314
Bedding	1,843		3		96		1,936
Milking supplies	4,723		10		16		4,729
Cattle lease & rent	0		0	<<	0		0
Custom boarding	596		-13	<<	-6		603
bST	769		-17		-2		785
Livestock professional fees	806		-47	<<	6		860
Other livestock expense	2,176		-36		-38		2,173
<u>Crops</u>							
Fertilizer & lime	3,707		118		-3		3,586
Seeds & plants	1,728		-236		109		2,072
Spray, other crop expense	1,584		14		100		1,671
Crop professional fees	51		0	<<	0		51
<u>Real Estate</u>							
Land, building & fence repair	2,805		46		49		2,810
Taxes	5,694		-22	<<	-258		5,457
Rent & lease	1,582		0	<<	29		1,611
<u>Other</u>							
Insurance	3,950		0	<<	52		4,002
Utilities (farm share)	7,018		-3	<<	-64		6,957
Interest paid	8,073		0	<<	-123		7,951
Other professional fees	844		-26	<<	0		870
Miscellaneous	1,454		5		42		1,491
Total Operating	\$ 140,410		\$ -560		\$ 1,727		\$ 142,697
Expansion livestock	2,364		0	<<	0		2,364
Extraordinary expense	545		0	<<	0		545
Machinery depreciation							9,635
Building depreciation							4,441
<b>TOTAL ACCRUAL EXPENSES</b>							<b>\$ 159,682</b>

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 2006 but not paid for. A decrease is subtracted because it represents payment for resources used before 2006.

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**  
47 Small Herd Dairy Farms, 2006

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts
Milk sales	\$ 137,145				\$ -41		\$ 137,104
Dairy cattle	9,678		\$ 4,434		-514		13,597
Dairy calves	3,429		443		0		3,871
Other livestock	1,595		133		-165		1,563
Crops	1,088		717		-2		1,804
Government receipts	9,312		0 *		160		9,471
Custom machine work	112				0		112
Gas tax refund	46				0		46
Other	<u>4,632</u>				<u>80</u>		4,712
Less nonfarm noncash capital**		(-)	<u>0 **</u>			(-)	<u>0</u>
Total Receipts	\$ 167,037		\$ 5,727		\$ -484		\$ 172,280

\*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 2006 for the 2007 crop year in excess of funds earned for 2006. Likewise, a decrease is added to cash government receipts because it represents funds earned for 2006 but received in 2005.

Changes in accounts receivable are calculated by subtracting beginning year balances from end year balances. Payments in January 2007 for milk produced in December 2006 compared to January 2006 payments for milk produced in 2005 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.

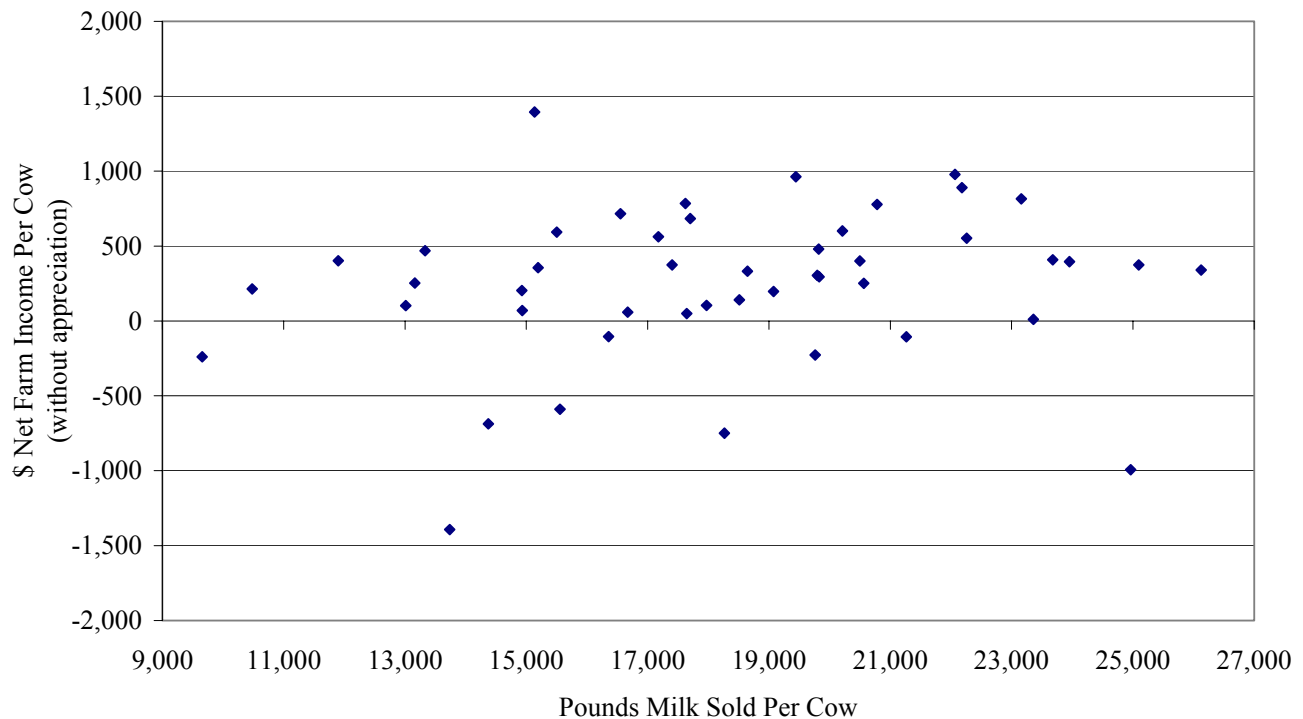
**NET FARM INCOME**  
47 Small Herd Dairy Farms, 2006

Item	Average 47 Farms		Top 25% Farms*	
	Total	Per Cow	Total	Per Cow
Total accrual receipts	\$ 172,280		\$ 198,707	
Appreciation: Livestock	404		-3,342	
Machinery	2,784		2,516	
Real Estate	10,889		6,229	
Other Stock & Certificates	<u>-701</u>		<u>-191</u>	
Total Including Appreciation	\$ 185,655		\$ 203,919	
Total accrual expenses	<u>- 159,682</u>		<u>- 161,744</u>	
Net Farm Income (with appreciation)	\$ 25,973	\$ 480	\$ 42,175	\$ 737
Net Farm Income (without appreciation)	\$ 12,597	\$ 233	\$ 36,962	\$ 646

\*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. Higher net farm incomes can be achieved across a range of production levels as a result of different management systems, such as grazing, being utilized by the participating dairies.

**NET FARM INCOME PER COW AND MILK PER COW**  
47 Small Herd Dairy Farms, 2006



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

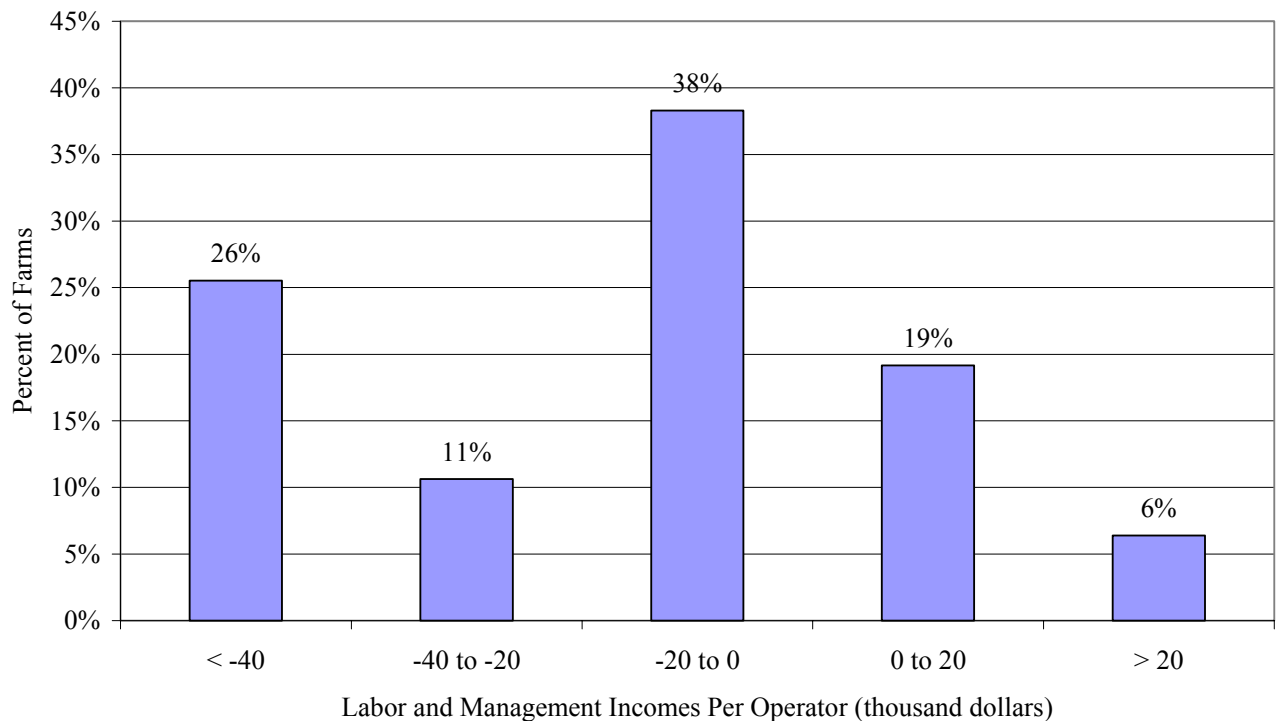
47 Small Herd Dairy Farms, 2006

Item	Average 47 Farms	Top 25% Farms
Net farm income without appreciation	\$ 12,597	\$ 36,962
Family labor unpaid @ \$2,300 per month	- 9,934	- 4,658
Interest on \$440,056 average equity capital @ 5% real rate (\$481,672 average equity capital for top 25% farms)	- <u>21,790</u>	- <u>24,084</u>
Labor & Management Income per farm (1.21 Operators/farm) (1.17 operators per farm for top 25% farms)	\$ -19,127	\$ 8,221
Labor & Management Income per Operator/Manager	\$ -15,807	\$ 7,027

Labor and management income per operator averaged \$-15,807 on these 47 farms in 2006. The range in labor and management income per operator was from less than \$-77,200 to more than \$62,600. Returns to labor and management were less than \$-20,000 on 37 percent of the farms. Labor and management incomes per operator were between \$-20,000 and \$0 on 38 percent of the farms while 25 percent showed labor and management incomes per operator greater than zero.

### DISTRIBUTION OF LABOR & MANAGEMENT INCOMES PER OPERATOR

47 Small Herd Dairy Farms, 2006



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**  
47 Small Herd Dairy Farms, 2006

Item	Average 47 Farms	Top 25% Farms
Net farm income with appreciation	\$ 25,973	\$ 42,175
Family labor unpaid @ \$2,300 per month	- 9,934	- 4,658
Value of operators' labor & management	- <u>34,404</u>	- <u>32,917</u>
Return on equity capital with appreciation	\$ -18,365	\$ 4,601
Interest paid	+ <u>7,951</u>	+ <u>7,860</u>
Return on total capital with appreciation	\$ -10,415	\$ 12,460
Return on equity capital without appreciation	\$ -31,741	\$ -612
Return on total capital without appreciation	\$ -23,791	\$ 7,248
Rate of return on average equity capital:		
with appreciation	-4.2%	1.0%
without appreciation	-7.2%	-0.1%
Rate of return on average total capital:		
with appreciation	-1.8%	2.1%
without appreciation	-4.1%	1.2%
Net farm income from operations ratio	0.07	0.19

**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 2006, lease payments were discounted by 8.15 percent to obtain their present value.

Advanced government receipts are included as current liabilities. Government payments received in 2006 that are for participation in the 2007 program are the end year balance and payments received in 2005 for participation in the 2006 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.

**2006 FARM BUSINESS & NONFARM BALANCE SHEET**

47 Small Herd Dairy Farms, 2006

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$ 5,954	\$ 4,778	Accounts payable	\$ 5,804	\$ 7,531
Accounts receivable	12,068	11,584	Operating debt	4,341	5,845
Prepaid expenses	229	85	Short Term	34	9
Feed & supplies	36,118	36,421	Advanced govt. receipts	0	0
			Current Portion:		
			Intermediate	5,562	7,062
			Long Term	<u>3,791</u>	<u>4,172</u>
Total Current	\$ 54,370	\$ 52,867	Total Current	\$ 19,531	\$ 24,619
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy cows:			Structured debt		
owned	\$ 77,954	\$ 81,495	1-10 years	\$ 42,860	\$ 45,517
leased	0	0	Financial lease		
Heifers	42,897	44,654	(cattle/machinery)	562	969
Bulls & other livestock	1,644	1,760	Farm Credit stock	<u>611</u>	<u>643</u>
Mach. & equip. owned	108,874	111,035	Total Intermediate	\$ 44,033	\$ 47,129
Mach. & equip. leased	562	969			
Farm Credit stock	611	643			
Other stock/certificate	<u>2,404</u>	<u>2,551</u>			
Total Intermediate	\$ 234,946	\$ 243,107			
<u>Long Term</u>			<u>Long Term</u>		
Land & buildings:			Structured debt		
owned	\$ 276,329	\$ 288,359	>10 years	\$ 63,839	\$ 70,715
leased	<u>0</u>	<u>476</u>	Financial lease		
Total Long Term	\$ 276,329	\$ 288,835	(structures)	<u>0</u>	<u>476</u>
			Total Long Term	\$ 63,839	\$ 71,191
Total Farm Assets	\$ 565,645	\$ 584,809	Total Farm Liabilities	\$ 127,403	\$ 142,939
			FARM NET WORTH	\$ 438,242	\$ 441,870

## Nonfarm Assets, Liabilities &amp; Net Worth (Average of 29 farms reporting)

Assets	Jan. 1	Dec. 31	Liabilities & Net Worth	Jan. 1	Dec. 31
Personal cash, checking & savings	\$ 6,718	\$ 7,914	Nonfarm Liabilities	\$ 2,749	\$ 1,836
Cash value life insurance	12,702	13,917			
Nonfarm real estate	13,403	15,621			
Auto (personal share)	10,972	9,675			
Stocks & bonds	29,339	33,833			
Household furnishings	11,234	11,241			
All other nonfarm assets	<u>1,906</u>	<u>1,879</u>			
Total Nonfarm Assets	\$ 86,276	\$ 94,080	NONFARM NET WORTH	\$ 83,527	\$ 92,244

Farm & Nonfarm Assets, Liabilities, and Net Worth*	Jan. 1	Dec. 31
Total Assets	\$ 651,921	\$ 678,889
Total Liabilities	<u>130,152</u>	<u>144,775</u>
TOTAL FARM & NONFARM NET WORTH	\$ 521,769	\$ 534,114

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

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

47 Small Herd Dairy Farms, 2006

Item	Average 47 Farms		Top 25% Farm	
<u>Financial Ratios - Farm:</u>				
Percent equity		76%		80%
Debt/asset ratio: total		0.24		0.20
long-term		0.23		0.21
intermediate/current		0.26		0.20
Leverage ratio		0.32		0.26
Current ratio		1.94		2.27
Working capital	\$25,557	As % of total Expenses: 16%	\$31,247	19%
<u>Farm Debt Analysis:</u>				
Accounts payable as % of total debt		5%		3%
Long-term liabilities as a % of total debt		47%		49%
Current & intermediate liabilities as a % of total debt		53%		51%
Cost of term debt (weighted average)		5.6%		6.4%
<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	\$2,571	\$1,284	\$2,072	\$1,034
Long-term debt	1,207	603	1,021	510
Intermediate & long term	2,080	1,039	1,657	827
Intermediate & current debt	1,364	681	1,051	525

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

47 Small Herd Dairy Farms, 2006

Item	Average 47 Farms	
	Real Estate	Machinery & Equipment
Value beginning of year	\$ 276,329	\$ 108,874
Purchases	\$ 10,827*	\$ 9,712
Gift & inheritance	+ 0	+ 0
Lost capital	- 1,256	
Sales	- 3,989	- 700
Depreciation	- 4,441	- 9,635
Net investment	= 1,141	= -623
Appreciation	+ 10,889	+ 2,784
Value end of year	\$ 288,359	\$ 111,035

\*\$4,480 land and \$6,347 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)**

47 Small Herd Dairy Farms, 2006

Item	Average 47 Farms	Top 25% Farms
Beginning of year farm net worth	\$ 438,242	\$ 484,010
Net farm income without appreciation	\$ 12,597	\$ 36,963
+Nonfarm cash income	+ 8,548	+ 3,474
-Personal withdrawals & family expenditures excluding nonfarm borrowings	- 33,192	- 47,018
RETAINED EARNINGS	+ \$ -12,047	+\$ -6,582
Nonfarm noncash transfers to farm	\$ 0	\$ 0
+Cash used in business from nonfarm capital	+ 2,398	+ 573
-Note or mortgage from farm real estate sold (nonfarm)	- 0	- 0
CONTRIBUTED/WITHDRAWN CAPITAL	+ \$ 2,398	+\$ 573
Appreciation	\$ 13,376	\$ 5,212
-Lost capital	- 1,256	- 2,802
CHANGE IN VALUATION EQUITY	+ \$ 12,119	+\$ 2,410
IMBALANCE/ERROR	- \$ -1,158	- \$ 1,078
End of year net worth*	= \$ 441,870	=\$ 479,333
<u>Change in Net Worth</u>		
Without appreciation	\$ -9,748	\$-9,889
With appreciation	\$ 3,628	\$-4,677

\*May not add to total 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**  
47 Small Herd Dairy Farms, 2006

Item	Average 47 Farms	
<b><u>Cash Flow from Operating Activities</u></b>		
Cash farm receipts	\$ 167,037	
- Cash farm expenses	140,410	
- Extraordinary expense	<u>545</u>	
= Net cash farm income		\$ 26,082
Personal withdrawals & family expenses including nonfarm debt payments	\$ 33,625	
- Nonfarm income	<u>8,548</u>	
- Net cash withdrawals from the farm		<u>\$ 25,077</u>
= Net Provided by Operating Activities		\$ 1,004
<b><u>Cash Flow From Investing Activities</u></b>		
Sale of assets: machinery	\$ 700	
+ real estate	3,989	
+ other stock & cert.	<u>0</u>	
= Total asset sales		\$ 4,689
Capital purchases: expansion livestock	\$ 2,364	
+ machinery	9,712	
+ real estate	10,827	
+ other stock & cert.	<u>849</u>	
- Total invested in farm assets		<u>\$ 23,752</u>
= Net Provided by Investment Activities		\$ -19,063
<b><u>Cash Flow From Financing Activities</u></b>		
Money borrowed (intermediate & long term)	\$ 34,654	
+ Money borrowed (short term)	78	
+ Increase in operating debt	1,505	
+ Cash from nonfarm capital used in business	2,398	
+ Money borrowed - nonfarm	<u>433</u>	
= Cash inflow from financing		\$ 39,067
Principal payments (intermediate & long term)	\$ 23,239	
+ Principal payments (short term)	103	
+ Decrease in operating debt	<u>0</u>	
- Cash outflow for financing		<u>\$ 23,342</u>
= Net Provided by Financing Activities		\$ 15,725
<b><u>Cash Flow From Reserves</u></b>		
Beginning farm cash, checking & savings		\$ 5,954
- Ending farm cash, checking & savings		<u>4,778</u>
= Net Provided from Reserves		\$ 1,176
Imbalance (error)		<u>\$ -1,158</u>

**ANNUAL CASH FLOW STATEMENT**  
Top 25% Small Herd Dairy Farms, 2006

Item	Top 25% Farms	
<u>Cash Flow from Operating Activities</u>		
Cash farm receipts	\$ 185,778	
- Cash farm expenses	145,354	
- Extraordinary expense	<u>124</u>	
= Net cash farm income		\$ 40,300
Personal withdrawals & family expenses including nonfarm debt payments	\$ 47,018	
- Nonfarm income	<u>3,474</u>	
- Net cash withdrawals from the farm		\$ <u>43,545</u>
= Net Provided by Operating Activities		\$ -3,245
<u>Cash Flow From Investing Activities</u>		
Sale of assets: machinery	\$ 1,084	
+ real estate	12,500	
+ other stock & cert.	<u>0</u>	
= Total asset sales		\$ 13,584
Capital purchases: expansion livestock	\$ 927	
+ machinery	8,670	
+ real estate	7,086	
+ other stock & cert.	<u>446</u>	
- Total invested in farm assets		\$ <u>17,129</u>
= Net Provided by Investment Activities		\$ -3,545
<u>Cash Flow From Financing Activities</u>		
Money borrowed (intermediate & long term)	\$ 35,226	
+ Money borrowed (short term)	0	
+ Increase in operating debt	911	
+ Cash from nonfarm capital used in business	573	
+ Money borrowed - nonfarm	<u>0</u>	
= Cash inflow from financing		\$ 36,710
Principal payments (intermediate & long term)	\$ 28,729	
+ Principal payments (short term)	133	
+ Decrease in operating debt	<u>0</u>	
- Cash outflow for financing		\$ <u>28,862</u>
= Net Provided by Financing Activities		\$ 7,848
<u>Cash Flow From Reserves</u>		
Beginning farm cash, checking & savings		\$ 4,552
- Ending farm cash, checking & savings		<u>4,532</u>
= Net Provided from Reserves		\$ 19
Imbalance (error)		\$ 1,078

## 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 2007. The cash flow projection worksheet on the next page can be used to estimate repayment ability, which can then be compared to planned 2007 debt payments shown below.

### FARM DEBT PAYMENTS PLANNED

Small Herd Dairy Farms, 2005 & 2006

Debt Payments	Same 31 Dairy Farms			Same 10 Top 25% Farms		
	2006 Payments		Planned 2007	2006 Payments		Planned 2007
	Planned	Made		Planned	Made	
Long-term	\$ 5,204	\$ 8,878	\$ 6,011	\$ 5,201	\$ 15,531	\$ 5,374
Intermediate-term	11,469	13,430	11,605	13,540	18,243	12,374
Short-term	52	156	13	160	160	0
Operating (net reduction)	972	127	731	1,375	388	600
Accounts payable (net reduction)	65	926	0	0	79	0
Total	\$ 17,762	\$ 23,516	\$ 18,360	\$ 20,276	\$ 34,400	\$ 18,348
Per cow	\$ 347	\$ 460		\$ 361	\$ 612	
Per cwt. 2006 milk	\$ 1.83	\$ 2.43		\$ 1.85	\$ 3.14	
Percent of total 2006 receipts	11%	14%		11%	18%	
Percent of 2006 milk receipts	13%	18%		14%	23%	

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 2006 (as of December 31, 2005) that could have been made with the amount available for debt service in 2006. Farmers who did not participate in DFBS in 2005 have their 2006 cash flow coverage ratio based on planned debt payments for 2007.

### COVERAGE RATIOS

Same 31 Small Herd Dairy Farms, 2005 & 2006

Item	Average	Item	Average
<u>Cash Flow Coverage Ratio</u>		<u>Debt Coverage Ratio</u>	
Cash farm receipts	\$163,532	Net farm income (without appreciation)	\$17,335
- Cash farm expenses	132,565	+ Depreciation	11,863
+ Interest paid (cash)	5,523	+ Interest paid (accrual)	5,337
- Net personal withdrawals from farm*	24,475	- Net personal withdrawals from farm*	24,475
(A) = Amount Available for Debt Service	\$ 12,015	(A') = Repayment Capacity	\$10,060
(B) = Debt Payments Planned for 2006 (as of December 31, 2005)	\$ 17,762	(B) = Debt Payments Planned for 2006 (as of December 31, 2005)	\$17,762
(A/B)= Cash Flow Coverage Ratio for 2006	0.68	(A'/B)= Debt Coverage Ratio for 2006	0.57
-----			
Same 10 Top 25% Dairy Farms, 2005 & 2006			
(A) = Amount Available for Debt Service	\$ 16,237	(A') = Repayment Capacity	\$ 18,332
(B) = Debt Payments Planned for 2006	20,276	(B) = Debt Payments Planned for 2006	20,276
(A/B)= Cash Flow Coverage Ratio for 2006	0.80	(A'/B)= Debt Coverage Ratio for 2006	0.90

\*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

47 Small Herd Dairy Farms, 2006

Item	Average 47 Farms		
	Per Cow	Per Cwt.	Total
Number cows and cwt. milk	54	10,020	
<u>Accrual Operating Receipts</u>			
Milk	\$2,532	\$13.68	\$137,104
Dairy cattle	251	1.36	13,597
Dairy calves	71	0.39	3,871
Other livestock	29	0.16	1,563
Crops	33	0.18	1,804
Miscellaneous receipts	<u>265</u>	<u>1.43</u>	<u>14,341</u>
Total	\$3,182	\$17.19	\$172,280
<u>Accrual Operating Expenses</u>			
Hired labor	\$ 171	\$ 0.93	\$ 9,270
Dairy grain & concentrate	745	4.03	40,332
Dairy roughage	61	0.33	3,305
Nondairy feed	0	0.00	25
Professional nutritional services	0	0.00	0
Machinery hire/rent/lease	49	0.27	2,660
Machinery repair & farm vehicle expense	211	1.14	11,432
Fuel, oil & grease	140	0.75	7,558
Replacement livestock	12	0.07	676
Breeding	49	0.26	2,648
Veterinary & medicine	90	0.49	4,863
Milk marketing	190	1.03	10,315
Bedding	36	0.19	1,936
Milking supplies	87	0.47	4,729
Cattle lease	0	0.00	0
Custom boarding	11	0.06	603
bST expense	14	0.08	785
Livestock professional fees	16	0.09	860
Other livestock expense	40	0.22	2,173
Fertilizer & lime	66	0.36	3,586
Seeds & plants	38	0.21	2,072
Spray & other crop expenses	31	0.17	1,671
Crop professional fees	1	0.01	51
Land, building, fence repair	52	0.28	2,810
Taxes	101	0.54	5,457
Real estate rent/lease	30	0.16	1,611
Insurance	74	0.40	4,003
Utilities	128	0.69	6,957
Miscellaneous	<u>44</u>	<u>0.24</u>	<u>2,361</u>
Total Less Interest Paid	\$2,488	\$13.45	\$134,747
<u>Net Accrual Operating Income (without interest paid)</u>	693	3.75	37,533
- Change in livestock/crop inventory*	106	0.57	5,727
- Change in accounts receivable	-9	-0.05	-484
- Change in feed/supply inventory**	-10	-0.06	-560
+ Change in accts. payable***	<u>34</u>	<u>0.18</u>	<u>1,850</u>
NET CASH FLOW	\$ 641	\$ 3.46	\$ 34,699
- Net personal withdrawals from farm (see footnote on p. 16)	<u>439</u>	<u>2.37</u>	<u>23,796</u>
Available for Farm Debt Payments & Investments	\$ 201	\$ 1.09	\$ 10,904
- Farm debt payments	<u>612</u>	<u>3.31</u>	<u>33,149</u>
Available for Farm Investment	\$ -411	-2.22	-22,245
- Capital purchases: cattle, machinery & improvements	<u>439</u>	<u>2.37</u>	<u>23,752</u>
Additional Capital Needed	\$ 850	\$ 4.59	\$ 45,997

\*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, 2006

Item	Average Top 25% Farms		
	Per Cow	Per Cwt.	Total
Number of cows or cwt. milk	57	11,385	
<u>Accrual Operating Receipts</u>			
Milk	\$2,702	\$13.59	\$154,676
Dairy cattle	389	1.95	22,248
Dairy calves	62	0.31	3,535
Other livestock	7	0.03	394
Crops	38	0.19	2,156
Miscellaneous receipts	<u>274</u>	<u>1.38</u>	<u>15,699</u>
Total	\$3,471	\$17.45	\$198,707
<u>Accrual Operating Expenses</u>			
Hired labor	\$ 177	\$ 0.89	\$ 10,117
Dairy grain & concentrate	719	3.62	41,168
Dairy roughage	63	0.31	3,583
Nondairy feed	0	0.00	0
Professional nutritional services	0	0.00	0
Machinery hire/rent/lease	79	0.40	4,540
Machinery repair & farm vehicle expense	194	0.97	11,093
Fuel, oil & grease	121	0.61	6,947
Replacement livestock	11	0.06	638
Breeding	66	0.33	3,765
Veterinary & medicine	97	0.49	5,552
Milk marketing	165	0.83	9,469
Bedding	31	0.16	1,770
Milking supplies	91	0.46	5,196
Cattle lease	0	0.00	0
Custom boarding	15	0.08	863
bST expense	13	0.07	750
Livestock professional fees	18	0.09	1,032
Other livestock expense	30	0.15	1,737
Fertilizer & lime	93	0.47	5,303
Seeds & plants	44	0.22	2,493
Spray & other crop expenses	31	0.16	1,803
Crop professional fees	3	0.02	200
Land, building, fence repair	90	0.45	5,139
Taxes	78	0.39	4,478
Real estate rent/lease	23	0.12	1,334
Insurance	73	0.37	4,187
Utilities	127	0.64	7,257
Miscellaneous	<u>26</u>	<u>0.13</u>	<u>1,463</u>
Total Less Interest Paid	\$2,478	\$12.46	\$141,875
<u>Net Accrual Operating Income</u>			
(without interest paid)	\$ 993	\$ 4.99	\$ 56,832
- Change in livestock/crop inventory*	209	1.05	11,976
- Change in accounts receivable	17	0.08	953
- Change in feed/supply inventory**	-49	-0.25	-2,808
+ Change in accounts payable***	<u>27</u>	<u>0.13</u>	<u>1,523</u>
NET CASH FLOW	\$ 843	\$ 4.24	\$ 48,234
- Net personal withdrawals from farm (see footnote p.16)	<u>760</u>	<u>3.82</u>	<u>43,528</u>
Available for Farm Debt Payments & Investments	\$ 82	\$ 0.41	\$ 4,706
- Farm debt payments	<u>644</u>	<u>3.24</u>	<u>36,883</u>
Available for Farm Investment	\$ -562	\$ -2.83	\$ -32,177
- Capital purchases: cattle, machinery & improvements	<u>299</u>	<u>1.50</u>	<u>17,129</u>
Additional Capital Needed	\$ 861	\$ 4.33	\$ 49,305

\*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 47 Small Herd Dairy Farms, 2006

Item	Average 47 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	111	76	187	119	61	180
Nontillable	47	13	60	42	7	49
Other nontillable	<u>85</u>	<u>7</u>	<u>92</u>	<u>84</u>	<u>0</u>	<u>84</u>
Total	243	96	339	245	68	313
<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	151	2.62 tn DM	11	122	2.36 tn DM
Corn silage	33	35	14.79 tn	8	29	15.51 tn
			5.16 tn DM			5.50 tn DM
Other forage	5	18	2.06 tn DM	0	0	0.00 tn DM
Total forage	46	151	2.62 tn DM	11	143	2.82 tn DM
Corn grain	13	43	114 bu	5	43	116 bu
Oats	5	30	30 bu	0	0	0 bu
Wheat	0	0	0 bu	0	0	0 bu
Other crops	4	53		2	68	
Tillable pasture	17	38		5	44	
Idle	5	54		1	12	
Total Tillable Acres	47	187		12	180	

\*This column represents the average acreage for the farms producing that crop. Average acreages including those farms not producing were hay crop 121, corn silage 25, corn grain 12, oats 3, tillable pasture 14, and idle 6.

Average crop acres and yields 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 47 Small Herd Dairy Farms, 2006

Item	Average 47 Farms	Top 25% Farm
Total tillable acres per cow	3.49	3.22
Total forage acres per cow	2.78	2.45
Harvested forage dry matter, tons per cow	7.28	6.90

**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. Intensive grazing was used on 20 farms, 6 of which are in the "top 25% farms" group.

**CROP RELATED ACCRUAL EXPENSES**

Small Herd Dairy Farms Reporting, 2006

Item	Total Per Tillable 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 Tillable Acre	Per Total Pasture Acre
No. of farms reporting	47	9			10		6	
Ave. number of acres	188	51			126		13	99
Fert. & lime	\$ 19.22	\$ 61.23	\$ 16.22	\$ 0.30	\$ 24.80	\$ 14.25	\$ 16.30	\$ 13.49
Seeds & plants	11.07	44.27	10.06	0.23	5.80	2.48	3.81	4.40
Spray & other crop expense	<u>8.89</u>	<u>35.46</u>	<u>8.45</u>	<u>0.22</u>	<u>1.73</u>	<u>1.05</u>	<u>0.00</u>	<u>0.00</u>
TOTAL	\$ 39.18	\$ 140.96	\$ 34.73	\$ 0.75	\$ 32.33	\$ 17.78	\$ 20.11	\$ 17.89
<b>Top 25% Farms</b>								
No. of farms reporting	12	4			6		5	
Ave. number of acres	180	40			94		16	104
Fert. & lime	\$ 31.39	\$ 69.40	\$ 21.96	\$ 0.20	\$ 33.31	\$ 14.67	\$ 19.56	\$ 15.18
Seeds & plants	15.24	35.76	9.15	0.08	6.17	2.62	4.57	5.28
Spray & other crop exp.	<u>9.69</u>	<u>50.02</u>	<u>12.77</u>	<u>0.20</u>	<u>1.54</u>	<u>0.73</u>	<u>0.00</u>	<u>0.00</u>
TOTAL	\$ 56.32	\$ 155.18	\$ 43.88	\$ 0.48	\$ 41.02	\$ 18.02	\$ 24.13	\$ 20.46

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**

47 Small Herd Dairy Farms That Grow Forages, 2006

Machinery Expense	Average 47 Farms		Top 25% Farms	
	Total Expenses	Per Tillable Acre	Total Expenses	Per Tillable Acre
Fuel, oil & grease	\$ 7,583	\$ 39.96	\$ 6,996	\$ 37.12
Machinery repair & vehicle expense	11,423	60.19	11,024	58.50
Machine hire, rent & lease	2,718	14.32	4,952	26.28
Interest (5%)	5,606	29.54	5,908	31.35
Depreciation	<u>9,759</u>	<u>51.42</u>	<u>7,414</u>	<u>39.34</u>
Total	\$ 37,088	\$ 195.43	\$ 36,294	\$ 192.59

**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**  
47 Small Herd Dairy Farms, 2006

Item	Dairy Cows		Heifer					
	No.	Value	Bred		Open		Calves	
			No.	Value	No.	Value	No.	Value
<u>Average 47 Farms:</u>								
Beg. year (owned)	53	\$ 77,954	14	\$ 19,794	16	\$ 15,759	13	\$ 7,345
+ Change w/o apprec.		3,663		-110		1,881		443
+ Appreciation		<u>-122</u>		<u>196</u>		<u>312</u>		<u>36</u>
End year (owned)	56	\$ 81,495	14	\$ 19,880	17	\$ 16,951	14	\$ 7,823
End including leased	56							
Average number	54		43	(all age groups)				
<u>Top 25% Farms:</u>								
Beg. year (owned)	55	\$ 77,183	16	\$ 23,900	15	\$ 14,796	18	\$ 12,792
+ Change w/o apprec.		9,579		-1,208		2,817		-583
+ Appreciation		<u>-1,075</u>		<u>-800</u>		<u>-942</u>		<u>-458</u>
End year (owned)	59	\$ 85,688	14	\$ 21,892	18	\$ 16,671	17	\$ 11,750
End including leased	59							
Average number	57		45	(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**  
47 Small Herd Dairy Farms, 2006

Item	Average 47 Farms	Top 25% Farms
Total milk sold, lbs.	1,001,989	1,138,456
Milk sold per cow, lbs.	18,504	19,886
Average milk plant test, percent butterfat	3.77	3.80

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**  
47 Small Herd Dairy Farms, 2006

Item	Average 47 Farms		Top 25% Farms	
	Number	Percent*	Number	Percent*
Cows sold for beef	11	20.6	13	22.3
Cows sold for dairy	1	2.7	1	2.5
Cows died	2	4.6	2	3.8
Culling rate**		25.2		26.1

\*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**  
47 Small Herd Dairy Farms, 2006

Item	Average 47 Farms			Top 25% Farms		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
<u>Accrual Cost of Producing Milk</u>						
Operating costs	\$ 109,886	\$ 2,029	\$ 10.97	\$ 106,631	\$ 1,863	\$ 9.37
Purchased inputs costs	\$ 124,507	\$ 2,299	\$ 12.43	\$ 117,713	\$ 2,056	\$ 10.34
Total costs	\$ 190,635	\$ 3,521	\$ 19.03	\$ 179,371	\$ 3,133	\$ 15.76
<u>Accrual Receipts From Milk</u>						
Net Milk Receipts	\$ 137,104	\$ 2,532	\$ 13.68	\$ 154,676	\$ 2,702	\$ 13.59
Net Farm Income without Appreciation	\$ 126,789	\$ 2,313	\$ 12.65	\$ 145,207	\$ 2,534	\$ 12.75
Net Farm Income with Appreciation	\$ 12,597	\$ 233	\$ 1.26	\$ 36,963	\$ 646	\$ 3.25
Net Farm Income with Appreciation	\$ 25,973	\$ 480	\$ 2.59	\$ 42,1775	\$ 737	\$ 3.70

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**  
47 Small Herd Dairy Farms, 2006

Item	Average 47 Farms		Top 25% Farms	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	\$ 745	\$ 4.03	\$ 719	\$ 3.62
Purchased dairy roughage	61	0.33	63	0.31
Total Purchased Dairy Feed	\$ 806	\$ 4.35	\$ 782	\$ 3.93
Purchased grain & conc. as % of milk receipts		30%		27%
Purchased feed & crop expense as % of milk receipts	\$ 942	\$ 5.09	\$ 953	\$ 4.79
Purchased feed & crop expense as % of milk receipts		37%		36%
Breeding	\$ 49	\$ 0.26	\$ 66	\$ 0.33
Veterinary & medicine	90	0.49	97	0.49
Milk marketing	190	1.03	165	0.83
Bedding	36	0.19	31	0.16
Milking supplies	87	0.47	91	0.46
Cattle lease	0	0.00	0	0.00
Custom boarding	11	0.06	15	0.08
bST	14	0.08	13	0.07
Livestock professional fees	16	0.09	18	0.09
Other livestock expense	40	0.22	30	0.15

**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**

47 Small Herd Dairy Farms, 2006

Item	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
<u>Average 47 Farms:</u>				
Farm capital	\$265,082	\$10,623	\$3,065	\$5,166
Real estate		5,219		2,538
Machinery & equipment	51,023	2,045	590	
<u>Ratios</u>				
Asset turnover	Operating Expense	Interest Expense	Depreciation Expense	
0.32	0.80	0.05	0.08	
<u>Top 25% Farms:</u>				
Farm capital	\$319,137	\$10,480	\$3,329	\$5,056
Real estate		5,150		2,484
Machinery & equipment	59,181	1,943	617	
<u>Ratios</u>				
Asset turnover	Operating Expense	Interest Expense	Depreciation Expense	
0.34	0.72	0.04	0.06	

**LABOR FORCE INVENTORY AND ANALYSIS**

47 Small Herd Dairy Farms, 2006

Labor Force	Months	Age	Years of Education	Value of Labor & Management
<u>Average 47 Farms:</u>				
Operator number 1	13.5	48	14	\$ 28,277
Operator number 2	3.0	52	13	6,128
Family paid	2.6			
Family unpaid	4.3			
Hired	<u>2.6</u>			
Total	26.0	/ 12 = 2.17 Worker Equivalent 1.21 Operator/Manager Equivalent		
<u>Top 25% Farms:</u>				
Total Operator's	22.6	/ 12 = 1.88 Worker Equivalent 1.17 Operator/Manager Equivalent		

Labor Efficiency	Average 47 Farms		Top 25% Farms	
	Total	Per Worker	Total	Per Worker
Cows, average number	54	25	57	30
Milk sold, pounds	1,001,989	461,746	1,138,456	605,293
Tillable acres	188	86	180	96

Labor Costs	Average 47 Farms			Top 25% Farms		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Value of operator(s)						
labor (\$2,300/month)	\$ 37,052	\$ 684	\$ 3.70	\$36,915	\$ 645	\$ 3.24
Family unpaid (\$2,300/month)	9,725	180	0.97	4,669	81	0.41
Hired	<u>9,270</u>	<u>171</u>	<u>0.93</u>	<u>10,117</u>	<u>177</u>	<u>0.89</u>
Total Labor	\$ 56,047	\$ 1,035	\$ 5.59	\$51,701	\$ 903	\$ 4.54
Machinery Cost	<u>\$ 36,809</u>	<u>\$ 680</u>	<u>\$ 3.67</u>	<u>\$35,266</u>	<u>\$ 616</u>	<u>\$ 3.10</u>
Total Labor & Machinery	\$ 92,856	\$ 1,715	\$ 9.27	\$86,967	\$ 1,519	\$ 7.64
Hired labor expense per hired worker equivalent		\$21,149			\$27,040	
Hired labor expense as % of milk sales		6.8%			6.5%	

## 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 31 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 31 Small Herd Dairy Farms, 2005 & 2006

Selected Factors	Average of Same 31 Farms*		Average of Same 10 Top 25% Farms*	
	2005	2006	2005	2006
<u>Size of Business</u>				
Average number of cows	51	51	55	56
Average number of heifers	39	39	45	45
Milk sold, lbs.	973,270	968,735	1,113,447	1,096,719
Worker equivalent	2.12	2.06	1.93	1.80
Total tillable acres	179	177	187	186
<u>Rates of Production</u>				
Milk sold per cow, lbs.	19,242	18,947	20,356	19,515
Hay DM per acre, tons	2.1	2.2	2.6	2.4
Corn silage per acre, tons	16.4	14.1	18.2	16.6
<u>Labor Efficiency</u>				
Cows per worker	24	25	28	31
Milk sold/worker, lbs.	459,090	470,260	576,916	609,288
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	26%	29%	23%	26%
Dairy feed & crop expense per cwt. milk	\$ 5.26	\$ 4.94	\$ 5.00	\$ 4.77
Labor & machinery costs/cow	\$ 1,698	\$ 1,699	\$ 1,563	\$ 1,497
Operating cost of producing cwt. of milk	\$ 10.89	\$ 10.64	\$ 10.35	\$ 9.37
<u>Capital Efficiency**</u>				
Farm capital per cow	\$ 10,417	\$ 10,642	\$ 10,070	\$ 10,268
Machinery & equipment per cow	\$ 2,006	\$ 2,044	\$ 1,993	\$ 2,018
Asset turnover ratio	0.38	0.32	0.39	0.33
<u>Profitability</u>				
Net farm income w/o appreciation	\$ 34,888	\$ 17,335	\$ 45,347	\$ 34,623
Net farm income with appreciation	\$ 49,972	\$ 27,512	\$ 60,205	\$ 40,227
Labor & management income per operator/manager	\$ 5,867	\$ -12,040	\$ 15,299	\$ 3,964
Rate of return on equity capital with appreciation	3.0%	-2.6%	5.4%	1.0%
Rate of return on all capital with appreciation	3.6%	-1.2%	5.5%	1.8%
<u>Financial Summary</u>				
Farm net worth, end year	\$ 456,469	\$ 455,478	\$ 478,535	\$ 494,437
Debt to asset ratio	0.15	0.18	0.15	0.15
Farm debt per cow	\$ 1,639	\$ 1,897	\$ 1,490	\$ 1,508

\*Farms participating both years.

\*\*Average for the year.

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

Same 31 Small Herd Dairy Farms, 2005 &amp; 2006

Item	2005		2006	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	51		51	
Cwt. Of Milk Sold		9,733		9,687
<b><u>ACCRUAL OPERATING RECEIPTS</u></b>				
Milk	\$3,037	\$15.78	\$2,602	\$13.73
Dairy cattle	269	1.40	172	0.91
Dairy calves	78	0.40	92	0.48
Other livestock	41	0.21	40	0.21
Crops	84	0.44	32	0.17
Miscellaneous receipts	<u>181</u>	<u>0.94</u>	<u>282</u>	<u>1.49</u>
Total Receipts	\$3,689	\$19.17	\$3,221	\$17.00
<b><u>ACCRUAL OPERATING EXPENSES</u></b>				
Hired labor	\$ 194	\$ 1.01	\$ 162	\$ 0.86
Dairy grain & concentrate	794	4.13	749	3.95
Dairy roughage	53	0.27	53	0.28
Nondairy feed	1	0.00	0	0.00
Professional nutritional services	1	0.01	0	0.00
Machine hire/rent/lease	66	0.34	55	0.29
Mach. repair & vehicle exp.	199	1.03	214	1.13
Fuel, oil & grease	126	0.66	150	0.79
Replacement livestock	9	0.05	15	0.08
Breeding	58	0.30	54	0.29
Veterinary & medicine	95	0.49	98	0.51
Milk marketing	186	0.97	202	1.07
Bedding	32	0.17	35	0.18
Milking supplies	77	0.40	87	0.46
Cattle lease	0	0.00	0	0.00
Custom boarding	15	0.08	14	0.07
bST expense	15	0.08	13	0.07
Livestock professional fees	17	0.09	16	0.08
Other livestock expense	63	0.33	41	0.22
Fertilizer & lime	89	0.46	65	0.34
Seeds & plants	46	0.24	39	0.20
Spray/other crop expense	29	0.15	30	0.16
Crop professional fees	1	0.00	1	0.00
Land, building, fence repair	64	0.33	60	0.32
Taxes	103	0.54	107	0.57
Real estate rent/lease	27	0.14	23	0.12
Insurance	79	0.41	67	0.35
Utilities	122	0.63	130	0.68
Interest paid	102	0.53	104	0.55
Other professional fees	13	0.07	12	0.06
Miscellaneous	<u>24</u>	<u>0.12</u>	<u>32</u>	<u>0.17</u>
Total Operating Expenses	\$2,700	\$14.03	\$2,628	\$13.87
Expansion Livestock	48	0.25	7	0.03
Extraordinary Expense	6	0.03	15	0.08
Machinery Depreciation	191	0.99	162	0.86
Real Estate Depreciation	<u>55</u>	<u>0.28</u>	<u>70</u>	<u>0.37</u>
Total Expenses	\$3,000	\$15.58	\$2,882	\$15.21
Net Farm Income Without Appreciation	\$ 690	\$ 3.58	\$ 339	\$ 1.79

**RECEIPTS AND EXPENSES PER COW AND PER CWT.**  
Same 10 Top 25% Small Herd Dairy Farms, 2005 & 2006

Item	2005		2006	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	55		56	
Cwt. Of Milk Sold		11,134		10,967
<u>ACCRUAL OPERATING RECEIPTS</u>				
Milk	\$3,200	\$15.72	\$2,657	\$13.61
Dairy cattle	266	1.30	283	1.45
Dairy calves	80	0.39	64	0.33
Other livestock	11	0.06	8	0.04
Crops	23	0.11	31	0.16
Miscellaneous receipts	<u>115</u>	<u>0.56</u>	<u>273</u>	<u>1.40</u>
Total Receipts	\$3,694	\$18.15	\$3,316	\$16.99
<u>ACCRUAL OPERATING EXPENSES</u>				
Hired labor	\$ 185	\$ 0.91	\$ 147	\$ 0.75
Dairy grain & concentrate	746	3.67	701	3.59
Dairy roughage	78	0.38	73	0.37
Nondairy feed	0	0.00	0	0.00
Professional nutritional services	0	0.00	0	0.00
Machine hire/rent/lease	61	0.30	68	0.35
Mach. repair & vehicle exp.	201	0.99	192	0.98
Fuel, oil & grease	113	0.56	123	0.63
Replacement livestock	6	0.03	14	0.07
Breeding	69	0.34	69	0.35
Veterinary & medicine	116	0.57	97	0.50
Milk marketing	150	0.74	159	0.82
Bedding	20	0.10	22	0.11
Milking supplies	74	0.36	88	0.45
Cattle lease	0	0.00	0	0.00
Custom boarding	25	0.12	18	0.09
bST expense	14	0.07	11	0.06
Livestock professional fees	12	0.06	14	0.07
Other livestock expense	48	0.23	30	0.16
Fertilizer & lime	125	0.61	88	0.45
Seeds & plants	44	0.22	35	0.18
Spray/other crop expense	22	0.11	31	0.16
Crop professional fees	3	0.01	3	0.01
Land, building, fence repair	78	0.38	100	0.51
Taxes	86	0.42	79	0.40
Real estate rent/lease	28	0.14	24	0.12
Insurance	76	0.37	66	0.34
Utilities	99	0.49	107	0.55
Interest paid	93	0.45	104	0.53
Other professional fees	12	0.06	13	0.07
Miscellaneous	<u>18</u>	<u>0.09</u>	<u>12</u>	<u>0.06</u>
Total Operating Expenses	\$2,602	\$12.78	\$2,488	\$12.75
Expansion Livestock	0	0.00	0	0.00
Extraordinary Expense	6	0.03	3	0.01
Machinery Depreciation	191	0.94	138	0.71
Real Estate Depreciation	<u>67</u>	<u>0.33</u>	<u>72</u>	<u>0.37</u>
Total Expenses	\$2,866	\$14.08	\$2,701	\$13.84
Net Farm Income Without Appreciation	\$ 829	\$ 4.07	\$ 616	\$ 3.16

### 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 47 Small Herd Dairy Farms, 2006

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)
3.53	76	1,597,920	23,865	3.5	22	41	786,871
2.50	64	1,169,815	20,536	2.5	16	31	584,885
2.01	54	967,100	18,559	2.1	14	25	466,939
1.64	45	809,026	16,317	1.9	12	22	374,029
1.32	35	538,971	12,951	1.4	9	17	281,420

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)		
\$ 408	18%	\$ 395	\$ 1,183	\$ 544	\$ 3.32	0.0%	7.1%
652	26	574	1,463	816	4.53	2.0	14.9
736	30	672	1,722	931	4.99	4.6	20.6
850	34	763	1,968	1,069	5.70	5.9	26.9
1,100	42	1,031	2,468	1,371	7.60	11.3	36.4

Value and Cost of Milk Production			Profitability			
Milk Receipts Per Cow	Operating Cost Production Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income with Appreciation	Net Farm Income w/o Appreciation	Labor & Mgmt. Income Per Operator	Change in Net Worth with Appreciation
(10)	(10)	(10)	(3)	(3)	(3)	(6)
\$ 3,214	\$ 8.10	\$ 14.87	\$ 70,370	\$ 45,965	\$ 18,186	\$ 45,872
2,819	9.79	17.58	39,764	26,484	-323	13,667
2,558	10.51	19.01	25,814	17,003	-9,586	4,139
2,286	12.08	20.95	12,864	6,369	-27,129	-3,729
1,773	15.30	27.05	-13,144	-27,668	-61,377	-36,531

\*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. One area that was examined this year was the source of dairy replacements.

#### **SOURCE OF DAIRY REPLACEMENTS**

56 New York Dairy Farms, 2006

<u>Animals Entering Herd</u>	Average
Number calving in 2006 for first time	146
Animals purchased, %*	5%
Animals raised by farm, %**	95%
<u>Current Heifer Inventory</u>	
Raised on dairy, %	86%
Raised by a custom grower, %	14%

\* Animals purchased are animals purchased from a different farm and were not the farms genetics.

\*\*Animals raised by farm are animals that were born on the farm and entered the herd, which includes animals raised by the farm or custom grower.

On the average farm, 146 animals calved for the first time in 2006. The breakdown on these animals for source was 5 percent purchased and 95 percent raised by the farm. Of the current heifer inventory, 86 percent were raised on the dairy and 14 percent were being raised by a custom grower. There is increased interest in evaluating the dairy replacement enterprise.

### **Milk Income and Marketing Expense Breakdown**

Starting January 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, 20 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 hundredweight 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. Expenses associated with utilizing forward contracting or hedging programs to market milk, such as commission or broker fees, are included in market fees and cooperative dues. The fifth area is income 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 12 of your farm's DFBS report.

The table on page 28 reports the averages for these different areas. The table on page 29 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 quartile. Numbers for the different areas will not add to the totals for that quartile 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**  
20 Small Herd Dairy Farms, 2006

	Pounds	Percent	Price/Pound	Total	\$/Cwt of Milk
<b>BASE FARM PRICE</b>					
Butterfat	36,128.40	3.77%	\$ 1.35	\$ 48,640.00	\$ 5.08
Protein	29,223.90	3.05%	\$ 2.11	\$ 61,736.70	\$ 6.44
Solids	53,983.05	5.64%	\$ 0.18	\$ 9,553.85	\$ 1.00
<b>Total Component Contribution</b>					<b>\$12.52</b>
<b>PPD</b>	957,971.85			\$ 8,177.75	<b>\$ 0.85</b>
<b>Base Farm Price</b>					<b>\$ 13.37</b>
<b>Premiums</b>					
Quality				\$ 1,662.15	\$ 0.17
Volume				\$ 269.05	\$ 0.03
Market Premiums				\$ 1,388.55	\$ 0.14
<b>Total Premiums</b>					<b>\$ 0.35</b>
<b>BASE FARM PRICE + PREMIUM</b>					<b>\$ 13.72</b>
<b>Deductions</b>					
Promo				\$ 1,649.40	\$ 0.17
Hauling + Stop Charges.				\$ 7,226.15	\$ 0.75
Market Fees & Coop Dues				\$ 1,267.00	\$ 0.13
<b>Total Deductions</b>					<b>\$ 1.06</b>
<b>BASE FARM PRICE + PREMIUMS - DEDUCTIONS</b>					<b>\$ 12.66</b>
<b>Marketing Programs</b>					
Futures Contracts, Forward Contracting, Etc.				\$ 0.00	\$ 0.00
<b>Total Marketing Income</b>					<b>\$ 0.00</b>
<b>Patronage Dividends</b>				\$ 212.60	<b>\$ 0.02</b>
<b>NET PRICE RECEIVED ON FARM, ALL SOURCES</b>					<b>\$ 12.68</b>
<b>PPD - Hauling, per cwt.</b>					\$ 0.10
<b>PPD - Hauling + Market Premiums, per cwt.</b>					\$ 0.24
<b>Net Marketing Value, per cwt. (PPD + Total Preimums – Total Deductions)</b>					\$ 0.14

\*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. The average herd size of these 20 farms is 53 cows.



**MILK PRICE INFORMATION BY QUARTILE\***  
(Each Category Sorted Independently)  
20 Small Herd Dairy Farms, 2006

	Lowest Quartile	←—————→	Highest Quartile	
Butterfat, %	3.57	3.71	3.79	4.15
Protein, %	2.92	3.00	3.08	3.31
Other Solids, %	5.43	5.63	5.70	5.78
Butterfat, \$ per Cwt.	4.77	4.96	5.11	5.63
Protein, \$ per Cwt.	6.03	6.28	6.47	7.22
Other solids, \$ per Cwt.	0.93	0.97	1.01	1.14
<b>Total Component Value per Cwt.</b>	<b>\$ 11.84</b>	<b>\$ 12.18</b>	<b>\$ 12.57</b>	<b>\$ 13.94</b>
PPD, \$ per Cwt.	0.52	0.78	0.93	1.18
<b>Base Farm Price per Cwt.</b>	<b>\$ 12.69</b>	<b>\$ 13.08</b>	<b>\$ 13.45</b>	<b>\$ 14.72</b>
Quality, \$ per Cwt.	0.02	0.12	0.19	0.44
Volume, \$ per Cwt.	0.00	0.00	0.03	0.07
Market premium, \$ per Cwt.	0.00	0.10	0.15	0.28
Total Premium, \$ per Cwt.	<b>0.13</b>	<b>0.20</b>	<b>0.37</b>	<b>0.70</b>
<b>Base Farm Price + Premiums per Cwt.</b>	<b>\$ 12.87</b>	<b>\$ 13.45</b>	<b>\$ 13.79</b>	<b>\$ 15.22</b>
Promotion, \$ per Cwt.	0.13	0.15	0.15	0.24
Hauling, \$ per Cwt.	0.49	0.66	0.80	1.07
Market fees & coop dues per Cwt.	0.04	0.08	0.16	0.27
<b>Total Marketing Expenses per Cwt.</b>	<b>\$ 0.75</b>	<b>\$ 0.93</b>	<b>\$ 1.14</b>	<b>\$ 1.41</b>
<b>Base + Premiums – Deductions per Cwt.</b>	<b>\$ 11.81</b>	<b>\$ 12.38</b>	<b>\$ 12.70</b>	<b>\$ 14.20</b>
Futures contract, forward contracting, \$ per Cwt.	0.00	0.00	0.00	0.00
<b>Total Marketing Income, \$ per Cwt.</b>	<b>\$ 0.00</b>	<b>\$ 0.00</b>	<b>\$ 0.00</b>	<b>\$ 0.00</b>
<b>Patronage Dividends, \$ per Cwt.</b>	<b>\$ 0.00</b>	<b>\$ 0.00</b>	<b>\$ 0.00</b>	<b>\$ 0.08</b>
<b>Net Price Received From All Sources, \$ per Cwt.</b>	<b>\$ 11.84</b>	<b>\$ 12.38</b>	<b>\$ 12.70</b>	<b>\$ 14.26</b>
PPD - hauling, \$ per Cwt.	-0.22	0.07	0.20	0.35
PPD - hauling + mkt premiums, \$ per Cwt.	-0.13	0.17	0.33	0.55
<b>Net Marketing Value, \$ per Cwt. (PPD + Total Premiums – Total Deductions)</b>	<b>-0.29</b>	<b>0.01</b>	<b>0.21</b>	<b>0.63</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 225 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

225 New York Dairy Farms, 2005

Worker Equivalent (14)*	Size of Business		Rates of Production			Labor Efficiency	
	No. of Cows (12)	Pounds Milk Sold (12)	Pounds Milk Sold Per Cow (12)	Tons Hay Crop DM/Acre (11)	Tons Corn Silage Per Acre (11)	Cows Per Worker (14)	Pounds Milk Sold Per Worker (14)
27.7	1,307	32,162,089	26,498	5.5	25	58	1,302,355
15.8	665	15,991,194	24,611	4.3	22	50	1,109,493
11.6	472	10,679,945	23,635	3.7	20	44	1,024,936
8.2	339	7,462,166	22,761	3.4	20	42	914,742
5.7	231	4,952,606	22,049	2.9	18	38	806,982
4.3	147	2,981,822	21,086	2.6	18	35	721,745
3.4	115	2,169,047	19,706	2.2	17	33	654,421
2.7	82	1,457,785	18,465	2.0	16	30	571,531
2.2	61	1,101,729	16,584	1.6	14	26	478,273
1.5	40	688,227	13,540	1.1	11	20	336,661

#### Cost Control

Grain Bought Per Cow (12)	% Grain is of Milk Receipts (12)	Machinery Costs Per Cow (14)	Labor & Machinery Costs Per Cow (14)	Feed & Crop Expenses Per Cow (12)	Feed & Crop Expenses Per Cwt. Milk (12)
\$470	16%	\$354	\$977	\$651	\$3.62
650	21	467	1,183	841	4.26
742	23	535	1,275	933	4.57
821	25	582	1,355	1,017	4.86
862	25	628	1,418	1,080	5.08
908	27	667	1,480	1,153	5.32
956	28	715	1,552	1,200	5.61
1,013	29	769	1,677	1,262	5.95
1,082	31	869	1,836	1,334	6.47
1,207	37	1,135	2,186	1,495	7.51

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

**FARM BUSINESS CHART FOR  
FARM MANAGEMENT COOPERATORS**  
225 New York Dairy Farms, 2005

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.	
(12)	(12)	(12)	(12)	(12)	(12)	
\$4,288	\$17.86	\$1,434	\$8.05	\$2,566	\$13.38	
3,888	16.86	1,894	10.02	2,929	14.29	
3,745	16.45	2,104	10.97	3,111	14.91	
3,614	16.20	2,291	11.39	3,277	15.53	
3,502	16.01	2,440	11.77	3,457	16.02	
-----						
3,358	15.87	2,603	12.14	3,561	16.85	
3,194	15.73	2,738	12.65	3,689	17.57	
2,969	15.56	2,916	13.19	3,816	18.40	
2,679	15.31	3,043	13.90	3,986	20.05	
2,210	14.80	3,430	15.78	4,438	23.73	
-----						
Profitability						
Net Farm Income Without Appreciation			Net Farm Income With Appreciation		Labor & Management Income	
Total	Per Cow	Operations Ratio	Total	Per Cow	Per Farm	Per Operator
(4)	(12)	(4)	(4)	(12)	(4)	(4)
\$838,892	\$1,268	0.31	\$1,268,115	\$1,874	\$606,471	\$345,493
381,327	971	0.24	553,456	1,341	270,698	160,827
249,077	778	0.20	374,997	1,148	152,164	82,609
163,709	676	0.17	275,301	974	77,807	53,794
110,789	613	0.15	179,610	872	45,585	33,460
-----						
76,210	509	0.13	118,216	774	27,514	19,911
55,068	423	0.11	84,479	703	13,051	9,317
37,574	334	0.09	56,394	577	-2,015	-1,455
20,160	193	0.05	35,877	428	-23,513	-15,712
-23,283	-132	-0.04	3,630	96	-104,244	-82,838

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 35-39.

**Financial Analysis Chart**

The farm financial analysis chart on page 32 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, 11, 15 and 22 of this publication. References to DFBS output page numbers for participating dairy farmers are provided in the table headings.

**FINANCIAL ANALYSIS CHART**  
225 New York Dairy Farms, 2005

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
(10)*	(16)	(10)	(10)	(10)	(7)	(7)	(7)
\$122	\$1,083	5.55	6.67	3%	\$257	48%	39.30
233	888	2.54	3.09	7	1,048	32	5.67
303	775	2.01	2.51	10	1,677	25	3.64
360	697	1.66	2.14	12	2,241	21	2.97
410	619	1.38	1.73	14	2,521	17	2.36
459	558	1.23	1.44	17	2,864	13	1.81
518	500	1.06	1.20	19	3,189	9	1.49
571	408	0.91	0.92	21	3,444	4	1.18
678	294	0.67	0.58	25	3,932	-1	0.92
833	-236	-0.79	-0.84	38	5,052	-15	0.45
Solvency				Operational Ratios			
Leverage Ratio**	Percent Equity	Debt/Asset Ratio		Operating Expense Ratio	Interest Expense Ratio	Depreciation Expense Ratio	
		Current & Intermediate	Long Term				
(7)	(7)	(7)	(7)	(14)	(14)	(14)	
0.03	98%	0.02	0.00	0.58	0.00	0.02	
0.13	90	0.09	0.00	0.66	0.01	0.04	
0.22	83	0.15	0.01	0.70	0.02	0.05	
0.34	76	0.24	0.11	0.72	0.03	0.06	
0.44	71	0.29	0.22	0.74	0.03	0.06	
0.56	65	0.34	0.31	0.76	0.04	0.07	
0.69	60	0.39	0.40	0.78	0.04	0.08	
0.85	55	0.47	0.51	0.80	0.05	0.09	
1.06	49	0.57	0.67	0.84	0.06	0.11	
2.14	35	0.76	0.94	0.92	0.08	0.17	
Efficiency (Capital)					Profitability		
Asset Turnover (ratio)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow	Change in Net Worth With Appreciation	Percent Rate of Return with Appreciation on:		
					Equity	Investment***	
(14)	(14)	(14)	(14)	(8)	(4)	(4)	
.85	\$1,399	\$598	\$5,171	\$1,005,552	35%	19%	
.71	2,081	878	6,188	429,195	22	15	
.64	2,402	1,076	6,785	269,436	18	13	
.60	2,700	1,278	7,210	173,811	14	11	
.55	3,009	1,438	7,749	107,874	11	9	
.52	3,452	1,619	8,318	63,949	8	7	
.47	3,940	1,798	9,171	40,317	6	6	
.41	4,536	2,039	10,012	23,884	2	3	
.35	5,506	2,432	11,077	9,786	-1	1	
.25	9,560	3,667	15,969	-54,455	-10	-4	

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

\*\*Dollars of debt per dollar of equity, computed by dividing total liabilities by total equity.

\*\*\*Return on all farm capital (no deduction for interest paid) divided by total farm assets.

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

When analyzing a dairy farm business by comparing it to a group of farms, it is important that the group of farms have 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 34 includes the average values for the resulting five groups of dairy farms. The average size in the five groups ranges from 44 cows on the small conventional farms to 712 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. Labor and management income per operator was also the highest for the large freestall farms.

Farm business charts have been computed for each of the five housing and herd size categories and are on pages 35-39. 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 48-60 of the 2005 State Summary\*. As herd size increases, the net farm income profitability increases (page 48)\*. Net farm income without appreciation averaged \$23,042 per farm for the less than 50 cow farms and \$566,457 per farm for those with more than 600 cows. Return to all capital without appreciation and labor and management income per operator generally increased as herd size increased.

Assets, liabilities and financial measures are presented on pages 55-58\*. All herd size categories saw an increase in net worth during 2005. The largest herd size category experienced an increase in net worth of over \$715,000. However, percent equity went down as assets increased. The largest herds had the lowest percent equity; while the smaller herds averaged 78 percent.

Crop yields showed little relationship to herd size, but fertilizer and lime expenses, and machinery cost per tillable acre generally increased as herd size increased (pages 59-60)\*. The farms with 600 and more cows per farm averaged 35 percent more milk sold per cow than the smallest farms. All of the groups with 200 or more cows averaged above 20,000 pounds of milk sold per cow while the farms smaller than 200 cows averaged 18,663 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 384,002 pounds at the lowest herd size category up to 1,135,991 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, 2005, Department of Applied Economics and Management, Cornell University, R.B. 2006-06, October 2006. This publication is available from Linda Putnam, Cornell University, 305 Warren Hall, Ithaca, NY 14853-7801; e-mail [ldp2@cornell.edu](mailto:ldp2@cornell.edu); phone 607-255-8429; or visit <http://aem.cornell.edu/order/index.htm> for an order form.

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

212 New York Dairy Farms, 2005

Item	Farms with:	Conventional		Freestall		
		<= 60 Cows	>60 Cows	<=150 Cows	151-300 Cows	≥300 Cows
Number of farms		31	31	38	28	84
<u>Cropping Program Analysis</u>						
Total Tillable acres		154	318	299	570	1,373
Tillable acres rented*		57	133	123	290	713
Hay crop acres*		102	217	181	289	631
Corn silage acres*		15	49	75	172	527
Hay crop, tons DM/acre		1.9	2.2	2.3	2.9	3.6
Corn silage, tons/acre		15.8	16.8	17.3	18.5	19.0
Oats, bushels/acre		40	44	65	54	60
Forage DM per cow, tons		7.1	8.7	8.2	8.9	8.2
Tillable acres/cow		3.8	3.7	2.8	2.6	2.0
Fertilizer & lime expense/tillable acre		\$22.09	\$25.63	\$34.03	\$32.66	\$40.00
Total machinery costs		\$30,193	\$64,228	\$73,459	\$162,980	\$432,988
Machinery cost/tillable acre		\$184	\$202	\$233	\$280	\$308
<u>Dairy Analysis</u>						
Number of cows		44	87	110	225	712
Number of heifers		33	71	89	170	566
Milk sold, lbs.		809,313	1,578,164	2,093,965	4,946,138	16,964,544
Milk sold/cow, lbs.		18,448	18,119	19,078	21,979	23,840
Operating cost of producing milk/cwt.		\$10.62	\$11.41	\$12.37	\$12.05	\$12.33
Total cost of producing milk/cwt.		\$18.51	\$18.09	\$18.24	\$15.93	\$15.06
Price/cwt. milk sold		\$15.77	\$15.93	\$16.25	\$15.99	\$15.96
Purchased dairy feed/cow		\$896	\$744	\$912	\$970	\$1,038
Purchased dairy feed/cwt. milk		\$4.86	\$4.10	\$4.78	\$4.41	\$4.35
Purchased grain & concentrate as % of milk receipts		28%	26%	28%	26%	26%
Purchased feed & crop expense/cwt milk		\$5.49	\$5.08	\$5.78	\$5.22	\$5.08
<u>Capital Efficiency</u>						
Farm capital/worker		\$232,663	\$314,528	\$328,364	\$328,280	\$313,237
Farm capital/cow		\$9,705	\$10,219	\$10,052	\$7,965	\$7,096
Farm capital/tillable acre owned		\$4,398	\$4,816	\$6,264	\$6,415	\$7,643
Real estate/cow		\$4,773	\$4,721	\$4,818	\$3,316	\$2,663
Machinery investment/cow		\$1,931	\$2,243	\$1,980	\$1,414	\$1,184
Asset turnover ratio		0.39	0.37	0.39	0.56	0.66
<u>Labor Efficiency</u>						
Worker equivalent		1.83	2.83	3.36	5.46	16.12
Operator/manager equivalent		1.22	1.37	1.35	1.68	1.91
Milk sold/worker, lbs.		442,852	557,820	623,668	906,024	1,052,609
Cows/worker		24	31	33	41	44
Labor cost/cow		\$1,031	\$804	\$830	\$703	\$759
Labor cost/tillable acre		\$294	\$220	\$305	\$277	\$394
<u>Profitability &amp; Balance Sheet Analysis</u>						
Net farm income (without appreciation)		\$30,415	\$44,400	\$50,620	\$125,390	\$395,349
Labor & management income/operator		\$6,747	\$1,248	\$-587	\$37,627	\$128,918
Rate return on all capital with appreciation		2.8%	5.0%	4.8%	9.6%	12.2%
Farm debt/cow		\$2,483	\$1,948	\$2,112	\$2,691	\$2,935
Percent equity		75%	81%	79%	67%	60%

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

**FARM BUSINESS CHART FOR SMALL CONVENTIONAL STALL DAIRY FARMS**  
31 Conventional Stall Dairy Farms with 60 or Less Cows, New York, 2005

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
(14)*	(12)	(12)	(12)	(11)	(11)	(14)	(14)
2.86	57	1,189,123	23,541	5.0	30	41	825,592
2.32	53	1,047,638	22,342	3.1	22	35	649,589
2.13	52	973,127	21,443	2.8	20	32	575,736
2.00	50	953,644	20,147	2.5	20	27	519,129
1.95	47	904,447	19,124	2.2	19	25	481,939
-----							
1.69	44	816,332	18,076	2.0	18	24	452,263
1.55	42	742,056	16,569	1.8	16	22	385,997
1.51	38	657,436	15,809	1.5	14	19	314,544
1.40	33	529,320	14,672	1.4	12	19	289,541
1.11	28	412,331	13,233	0.8	8	16	253,934

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	
(12)	(12)	(14)	(14)	(12)	(12)	
\$408	15%	\$274	\$1,132	\$601	\$3.55	
617	22	402	1,337	770	4.16	
670	24	482	1,442	854	4.62	
722	25	584	1,562	885	4.91	
803	26	638	1,674	981	5.10	
-----						
850	28	688	1,757	1,028	5.49	
879	29	753	1,832	1,067	5.96	
916	30	838	1,966	1,176	6.54	
949	37	949	2,156	1,299	7.39	
1,145	45	1,049	2,580	1,499	8.52	

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Operating Cost Producing Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Income Per Operator	Change in Net Worth w/Appreciation
(12)	(12)	(12)	Total	Per Cow	(4)	(8)
\$3,825	\$7.42	\$14.10	\$70,780	\$1,506	\$47,558	\$78,381
3,526	8.23	15.63	58,315	1,313	26,450	54,391
3,323	8.68	17.08	50,743	1,131	21,256	38,532
3,152	9.49	17.76	43,324	987	14,808	30,394
2,983	10.68	18.50	33,447	790	9,422	23,040
-----						
2,853	11.09	19.40	28,470	646	5,535	18,524
2,705	11.57	20.30	21,432	531	605	15,749
2,439	12.06	21.10	15,970	371	-5,416	14,107
2,326	13.62	21.60	6,936	182	-10,121	7,061
1,969	15.42	25.63	-10,045	-240	-26,286	-6,421

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

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

31 Conventional Stall Dairy Farms with More Than 60 Cows, New York, 2005

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
(14)*	(12)	(12)	(12)	(11)	(11)	(14)	(14)
4.41	136	2,390,973	24,287	4.6	22	49	866,514
2.62	116	2,123,063	22,502	3.6	20	40	760,803
3.20	100	1,928,511	20,509	3.2	20	36	709,057
3.07	90	1,687,204	19,980	2.6	19	35	632,081
2.82	82	1,572,642	18,616	2.1	18	33	608,502
2.65	78	1,421,559	17,917	2.1	17	30	589,163
2.50	74	1,353,972	17,261	1.9	16	29	527,105
2.33	71	1,242,032	16,133	1.5	15	27	461,767
2.24	67	1,171,181	14,654	1.4	14	24	408,359
1.79	64	1,062,421	13,193	1.0	11	21	331,299

**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
(12)	(12)	(14)	(14)	(12)	(12)
\$378	13%	\$422	\$1,043	\$554	\$3.42
572	19	519	1,205	743	3.96
637	21	550	1,329	809	4.23
682	24	583	1,441	890	4.44
721	25	622	1,489	943	4.73
785	27	663	1,505	967	5.21
829	28	718	1,661	1,001	5.59
885	30	777	1,776	1,091	6.42
926	34	966	1,948	1,157	7.03
1,090	39	1,480	2,229	1,317	7.48

**Value and Cost of Production****Profitability**

Milk Receipts Per Cow	Operating Cost Producing Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Income Per Operator	Change in Net Worth w/Appreciation
(12)	(12)	(12)	Total	Per Cow	(4)	(8)
\$3,634	\$7.01	\$14.46	\$114,410	\$1,251	\$44,313	\$225,399
3,453	9.61	15.68	84,829	987	30,595	85,675
3,280	10.27	16.41	70,801	839	26,317	66,579
3,218	10.89	17.13	55,882	700	12,374	56,433
2,998	11.50	17.67	48,356	582	4,634	47,074
2,905	12.23	18.44	37,967	435	-2,666	31,419
2,763	12.90	18.86	25,112	295	-7,127	24,657
2,597	13.38	20.46	22,232	222	-14,810	13,014
2,357	14.07	21.65	15,161	181	-23,356	-1,256
2,187	16.16	25.18	-11,962	-175	-57,765	-26,428

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



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

38 Freestall Barn Dairy Farms with 150 or Less Cows, New York, 2005

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
(14)*	(12)	(12)	(12)	(11)	(11)	(14)	(14)
4.99	148	3,218,784	23,231	4.8	25	55	915,575
4.61	143	2,912,681	22,322	3.8	22	43	844,734
4.25	137	2,744,959	21,874	3.5	21	39	750,618
4.02	131	2,487,384	20,421	3.1	20	35	701,876
3.69	121	2,274,861	19,645	2.7	20	34	670,136
3.16	111	2,169,733	19,059	2.3	18	32	603,698
2.87	101	1,889,125	18,321	2.0	17	31	555,069
2.59	86	1,515,347	17,755	1.7	15	30	526,547
2.26	80	1,286,965	15,437	1.5	13	28	484,138
1.85	58	925,696	12,531	1.1	11	21	370,640

**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
(12)	(12)	(14)	(14)	(12)	(12)
\$459	17%	\$341	\$881	\$622	\$3.66
644	22	428	1,241	845	4.60
735	25	495	1,281	913	4.99
800	26	541	1,337	999	5.41
822	27	592	1,408	1,109	5.80
867	29	658	1,477	1,189	6.15
969	31	738	1,627	1,228	6.47
1,049	33	817	1,808	1,295	6.82
1,110	36	953	1,980	1,327	7.22
1,201	38	1,120	2,299	1,498	7.63

**Value and Cost of Production****Profitability**

Milk Receipts Per Cow	Operating Cost Producing Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Income Per Operator	Change in Net Worth w/Appreciation
(12)	(12)	(12)	Total	Per Cow	(4)	(8)
\$3,716	\$7.99	\$14.38	\$162,851	\$1,249	\$50,475	\$271,925
3,573	10.01	15.50	89,832	931	33,588	117,660
3,495	11.36	16.84	76,800	721	22,607	83,820
3,350	11.75	17.38	66,156	609	14,453	61,204
3,225	12.26	17.64	58,368	507	9,314	49,843
3,094	12.77	18.04	44,409	438	3,942	39,642
2,936	13.49	19.03	38,622	403	-4,105	35,853
2,780	14.12	21.13	28,392	223	-13,484	25,027
2,473	14.95	23.34	2,690	53	-39,197	17,207
2,162	17.08	27.47	-24,063	-199	-106,723	-6,368

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

**FARM BUSINESS CHART FOR MEDIUM FREESTALL DAIRY FARMS**  
28 Freestall Barn Dairy Farms with 151-300 Cows, New York, 2005

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
(14)*	(12)	(12)	(12)	(11)	(11)	(14)	(14)
7.04	296	6,813,634	25,180	6.4	28	57	1,296,070
6.95	292	6,568,786	24,341	4.4	25	52	1,136,361
6.66	280	6,188,089	23,836	3.9	23	50	1,087,434
6.30	259	5,659,883	23,354	3.7	23	47	1,013,032
6.03	234	5,327,820	22,744	3.5	20	42	994,149
5.74	214	4,882,803	22,204	3.0	18	42	941,052
4.83	199	4,484,966	21,761	2.5	17	41	877,311
4.52	189	3,890,557	20,569	2.0	16	37	778,070
3.95	175	3,673,181	19,341	1.8	14	34	703,457
3.59	158	3,135,039	17,574	1.4	10	28	594,609

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	
(12)	(12)	(14)	(14)	(12)	(12)	
\$599	18%	\$491	\$1,127	\$809	\$3.93	
710	21	574	1,212	882	4.18	
842	23	647	1,275	990	4.55	
860	26	672	1,341	1,069	5.03	
946	27	708	1,370	1,151	5.24	
1,008	28	772	1,413	1,196	5.40	
1,014	29	818	1,559	1,263	5.58	
1,052	30	884	1,684	1,326	5.94	
1,119	31	993	1,875	1,360	6.10	
1,204	34	1,051	2,003	1,545	7.04	

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Operating Cost Producing Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Income Per Operator	Change in Net Worth w/Appreciation
(12)	(12)	(12)	Total	Per Cow	(4)	(8)
\$3,933	\$9.54	\$12.58	\$274,958	\$1,254	\$221,039	\$305,412
3,857	10.47	14.09	232,699	1,047	186,550	235,896
3,783	11.27	15.04	189,270	726	72,887	220,859
3,716	11.64	15.78	154,484	654	56,724	179,970
3,620	11.91	16.16	123,053	618	38,662	148,534
3,607	12.32	16.56	110,625	492	29,235	125,600
3,503	12.80	17.32	103,461	413	22,830	96,896
3,334	13.49	17.88	89,762	383	14,243	67,367
3,179	14.15	18.14	67,569	331	2,708	31,944
2,770	16.44	20.92	-6,360	-59	-76,410	-55,414

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

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

84 Freestall Barn Dairy Farms with 300 or More Cows, New York, 2005

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
(14)*	(12)	(12)	(12)	(11)	(11)	(14)	(14)
36.36	1,804	44,487,471	27,672	6.2	26	63	1,427,011
24.34	1,103	27,109,378	26,077	4.9	23	53	1,237,728
20.35	901	21,889,641	25,371	4.4	21	51	1,165,112
17.07	727	17,415,908	24,623	3.9	20	47	1,106,904
14.44	604	14,927,028	23,948	3.6	19	45	1,080,233
13.48	548	12,737,762	23,516	3.4	18	43	1,037,931
11.63	477	11,045,969	22,928	2.9	18	41	977,179
10.40	421	9,129,451	22,218	2.7	17	37	870,012
9.30	366	8,102,366	21,579	2.5	16	34	775,500
7.06	322	6,887,120	17,809	2.0	14	30	659,263

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	
(12)	(12)	(14)	(14)	(12)	(12)	
\$675	20%	\$401	\$993	\$900	\$4.09	
819	22	495	1,152	1,031	4.49	
864	23	551	1,247	1,078	4.70	
904	24	589	1,330	1,138	4.84	
945	25	620	1,398	1,182	4.98	
972	26	649	1,435	1,224	5.14	
1,017	28	676	1,479	1,259	5.44	
1,074	28	714	1,540	1,318	5.63	
1,120	29	772	1,615	1,408	5.81	
1,241	31	933	1,786	1,534	6.57	

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Operating Cost Producing Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Income Per Operator	Change in Net Worth w/Appreciation
(12)	(12)	(12)	Total	Per Cow	(4)	(8)
\$4,553	\$10.23	\$13.29	\$1,232,916	\$1,144	\$478,623	\$1,453,451
4,216	11.01	13.91	655,212	885	303,565	861,305
4,016	11.32	14.24	544,342	771	213,810	584,421
3,906	11.70	14.58	409,888	679	165,416	482,612
3,801	12.04	14.91	352,173	634	128,894	382,219
3,737	12.28	15.31	304,993	555	93,745	307,674
3,635	12.76	15.70	240,293	479	78,121	241,438
3,520	13.19	15.99	191,083	388	53,187	174,808
3,387	13.64	16.45	145,440	265	16,143	110,578
2,997	14.98	18.75	2,422	-8	-94,333	-93,007

\*Page number of the participant's DFBS report 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 26 and 30-32 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 13)

**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 15)

**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 15)

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

**Debt to Asset Ratios** - (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 15.

**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 11)

**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 21)

**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 21)

**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 21)

**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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