

# DAIRY FARM BUSINESS SUMMARY

JULY 2012

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## ***NEW YORK SMALL HERD FARMS, 120 COWS OR FEWER, 2011***



*You can't manage what you can't measure.  
But if you measure it, you can improve it!*

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**2011 DAIRY FARM BUSINESS SUMMARY**  
**Small Herd Dairy Farms**  
**120 Cows or Fewer**  
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## 2011 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 2011 with herds of 120 cows or fewer.

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 2011 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 register and 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. More information about the Dairy Farm Business Summary and Analysis Project may be found at <http://dfbs.dyson.cornell.edu/>.

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 120 or fewer cows. Many counties had farms that met this criteria in 2011. 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. Cathryn Dymond assisted with data and publication preparation.

## PROGRESS OF THE FARM BUSINESS

The year, 2011, was as close to a “normal” year for dairy farmers as they have had in several years except for the unusually wet weather that ended in a horrific hurricane season for Eastern and Southern New York farmers. Farmers across the region provided crops for those who lost crops to hurricane Irene and tropical storm Lee. Input costs increased but positive margins were experienced by most since milk prices also increased.

A reshuffling of farms in the DFBS in 2010 resulted in the small farm category being classified as dairy farms 120 cows or less. Average farm size was stable at 73 and heifer inventory increased from 59 to 61. Milk sold per cow decreased 1.6 percent likely due to lesser quality forage and expensive purchased feed. Worker equivalents rose 1.6 percent reflecting the need for more help and the ability to pay for it. Cows per worker decreased from 30 to 29 cows. With the decrease in both cows per worker and milk sold per cow, milk sold per worker dropped 3.6 percent.

Hired labor cost per hundredweight rose 9.3 percent. While cost per worker equivalent decreased 6.3 percent, a combination of decreased labor efficiency and increased reliance on hired labor led to increase in labor costs. Certainly, as milk prices rose, the hired labor cost as a percent of milk sales would fall — and it did by 9.6 percent.

Grain and concentrate purchased as a percent of milk sales fell 3.3 percent from 30 percent to 29 percent of milk sales. Grain and concentrate per hundredweight of milk increased from \$5.29 per hundredweight to \$6.25 per hundredweight. Total farm operating expenses per hundredweight sold increased 15.6 percent from \$16.01 to \$18.51. Interest costs were unchanged. Milk marketing costs fell slightly by 1.9 percent reflecting lower CWT deductions. The operating cost of producing milk per hundredweight rose 15.7 percent from \$13.29 to \$15.38 — mostly due to higher purchased feed costs, higher costs of supplies and parts, and high fuel and fertilizer costs.

Farm capital per cow rose 6.3 percent and machinery and equipment per cow was up 5.0 percent with some new investment for replacement of equipment. A 15.8 percent increase in the asset turnover ratio resulted from the increase in gross revenue on the farm.

Milk price per hundredweight rose from \$17.62 to \$21.37 per hundredweight, or 21.3 percent. Gross milk sales per cow rose 19.3 percent from \$3,516 per cow to \$4,196, with the increase being slightly less due to the loss in milk production per cow. At the same time, beef prices rose continually and that helped generate more cash flow. Dairy cattle sales per cow went from \$196 to \$227, an increase of 15.8 percent. Calf sales per cow declined from \$44 to \$32, a 27.3 percent decrease. There was no MILC payment in 2011 but an increase in government receipts from \$0.25 per hundredweight to \$0.61 per hundredweight may have resulted from more conservation program enrollments or from crop insurance programs.

Net farm income without appreciation rose from \$40,550 to \$58,360, a 43.9 percent increase and a welcome relief from negative returns in the past few years. Net farm income with appreciation was \$81,533. Labor and management income per operator rose from \$432 to \$11,933 as higher milk prices were mitigated by increasing input costs. A positive rate of return of 4.2 percent was an improvement over -1.1 percent of 2010. The rate of return on all capital without appreciation was 4.2 percent, on par with rates of return on long-term CDs. Farm net worth continues to rise (6.9 percent) due to an increase in land values and farm debt per cow rose to \$3,054 as farmers felt more confident in the economy and made some investments.

The year, 2011, was a time of continued recovery for most. While, on average, farms showed positive earnings in 2011, the changes on individual farms varied, with some farms actually showing decreased earnings from 2010, with changes to operating costs, forward contracting of milk, and challenging growing conditions offsetting the increase in milk prices.

The importance of trend analysis is to identify what areas changed, ask why they changed, and look at what you can do differently in the future to influence that change. Comparing your business' performance with average data from these DFBS dairy farms can help you establish goals for your business. It is equally important to determine the progress your business has made over the past two or three years, to compare this progress to your goals, and to set goals for the future.

**PROGRESS OF THE FARM BUSINESS**  
Same 47 Small Herd Dairy Farms, 2010 & 2011

Selected Factors	Average of 47 Farms		Percent Change
	2010	2011	
<u>Size of Business</u>			
Average number of cows	73	73	0.0
Average number of heifers	59	61	3.4
Milk sold, pounds	1,461,279	1,430,925	-2.1
Worker equivalent	2.48	2.52	1.6
Total tillable acres	230	238	3.5
<u>Rates of Production</u>			
Milk sold per cow, pounds	19,954	19,636	-1.6
Hay DM per acre, tons	2.3	2.2	-4.3
Corn silage per acre, tons	16.6	14.4	-13.3
<u>Labor Efficiency &amp; Costs</u>			
Cows per worker	30	29	-3.3
Milk sold per worker, pounds	589,226	567,827	-3.6
Hired labor cost per hundredweight	\$1.29	\$1.41	9.3
Hired labor cost per worker	\$29,535	\$27,679	-6.3
Hired labor cost as % of milk sales	7.3%	6.6%	-9.6
<u>Cost Control</u>			
Grain & concentrate purchased as % of milk sales	30%	29%	-3.3
Grain & concentrate per hundredweight milk	\$5.29	\$6.25	18.1
Dairy feed & crop expense per cwt. milk	\$6.70	\$7.99	19.3
Labor & machinery costs per cow	\$1,823	\$1,982	8.7
Total farm operating expenses per cwt. sold	\$16.01	\$18.51	15.6
Interest costs per hundredweight milk	\$0.67	\$0.67	0.0
Milk marketing costs per cwt. milk sold	\$1.07	\$1.05	-1.9
Operating cost of producing cwt. of milk	\$13.29	\$15.38	15.7
<u>Capital Efficiency (average for the year)</u>			
Farm capital per cow*	\$10,958	\$11,643	6.3
Machinery & equipment per cow	\$2,486	\$2,610	5.0
Asset turnover ratio*	0.38	0.44	15.8
<u>Income Generation</u>			
Gross milk sales per cow	\$3,516	\$4,196	19.3
Gross milk sales per hundredweight	\$17.62	\$21.37	21.3
Net milk sales per hundredweight	\$16.55	\$20.32	22.8
Dairy cattle sales per cow	\$196	\$227	15.8
Dairy calf sales per cow	\$44	\$32	-27.3
Government receipts per hundredweight	\$0.25	\$0.61	144.0
<u>Profitability</u>			
Net farm income without appreciation	\$40,550	\$58,360	43.9
Net farm income with appreciation	\$48,950	\$81,533	66.6
Labor & management income per oper./manager	\$432	\$11,933	2662.3
Rate of return on equity capital with appreciation	-1.1%	4.2%	481.8
Rate of return on all capital with appreciation	0.5%	4.2%	740.0
<u>Financial Summary</u>			
Farm net worth, end year	\$604,900	\$646,792	6.9
Debt to asset ratio	0.27	0.26	-3.7
Farm debt per cow	\$2,970	\$3,054	2.8

\*Rented farms are excluded from these factors.

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

### BUSINESS CHARACTERISTICS

54 Small Herd Dairy Farms, 2011

Type of Farm	Number	Milking System	Number
Dairy	54	Bucket & carry	0
Part-time dairy	0	Dumping station	2
Dairy cash-crop	0	Pipeline	33
Certified organic milk producer	0	Herringbone parlor	9
Rotational grazing farms	18	Other parlor	10
Type of Ownership	Number	Production Records	Number
Owner	47	Testing service	42
Renter	7	On-farm system	2
		Other	1
		None	9
Type of Business	Number	Business Record System	Number
Sole Proprietorship	49	Account Book	15
Partnership	4	Accounting Service	8
LLC	1	On-farm computer	31
		Other	0
Type of Barn	Number	Breed of Herd	Percent
Stanchion or Tie-Stall	33	Holstein	81
Freestall	21	Jersey	6
Combination	0	Other	13
Milking Frequency	Number		
2 times per day	50		
3 times per day	2		
Other	2		

### Income Statement

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

Cash paid is the actual cash outlay during the year and does not necessarily represent the cost of goods and services actually used in 2011.

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**

54 Small Herd Dairy Farms, 2011

Expense Item	Cash Paid	-	Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses
<u>Hired Labor</u>	\$ 18,443		\$ 83	<<	\$ -44		\$ 18,316
<u>Feed</u>							
Dairy grain & concentrate	90,681		-145		-3,073		87,753
Dairy roughage	8,868		348		-97		8,424
Nondairy	166		0		20		187
Professional nutritional services	38		0	<<	0		38
<u>Machinery</u>							
Machinery hire, rent & lease	6,292		0	<<	-394		5,898
Machinery repairs & farm vehicle exp.	19,509		121		-357		19,031
Fuel, oil & grease	14,704		-9		-263		14,449
<u>Livestock</u>							
Replacement livestock	2,241		0	<<	-214		2,027
Breeding	3,871		49		13		3,836
Veterinary & medicine	7,396		37		-9		7,351
Milk marketing	14,916		0	<<	17		14,934
Bedding	3,174		-55		55		3,284
Milking supplies	7,533		41		9		7,501
Cattle lease & rent	35		0	<<	-7		28
Custom boarding	2,129		0	<<	14		2,142
bST	448		-49		11		508
Livestock professional fees	1,546		4	<<	-18		1,524
Other livestock expense	3,516		22		10		3,504
<u>Crops</u>							
Fertilizer & lime	7,791		467		175		7,500
Seeds & plants	5,901		607		99		5,392
Spray, other crop expense	3,073		52		191		3,212
Crop professional fees	259		0	<<	1		260
<u>Real Estate</u>							
Land, building & fence repair	5,359		55		-30		5,274
Taxes	6,090		0	<<	20		6,111
Rent & lease	3,364		0	<<	6		3,370
<u>Other</u>							
Insurance	5,052		0	<<	38		5,090
Utilities (farm share)	9,285		0	<<	8		9,293
Interest paid	9,347		0	<<	-210		9,137
Other professional fees	1,167		0	<<	0		1,167
Miscellaneous	1,784		-31		-5		1,809
Total Operating	\$263,975		\$ 1,598		\$ -4,032		\$ 258,345
Expansion livestock	963		0	<<	0		963
Extraordinary expense	1,516		0	<<	0		1,516
Machinery depreciation							19,388
Building depreciation							6,255
<b>TOTAL ACCRUAL EXPENSES</b>							<b>\$ 286,467</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 2011 but not paid for. A decrease is subtracted because it represents payment for resources used before 2011.

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**

54 Small Herd Dairy Farms, 2011

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts
Milk sales	\$ 296,406				\$ 1,894		\$ 298,300
Dairy cattle	15,146		\$ 1,426		-116		16,455
Dairy calves	1,899		202		-2		2,099
Other livestock	909		233		-66		1,076
Crops	2,903		8,513		-664		10,752
Government receipts	7,476		78 *		679		8,233
Custom machine work	1,126				54		1,180
Gas tax refund	39				0		39
Other	<u>5,268</u>				<u>22</u>		5,290
Less nonfarm noncash capital**		(-)	<u>0</u> **			(-)	<u>0</u>
Total Receipts	\$ 331,173		\$ 10,452		\$ 1,801		\$ 343,425

\*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 2011 for the 2012 crop year in excess of funds earned for 2011. Likewise, a decrease is added to cash government receipts because it represents funds earned for 2011 but received in 2010.

Changes in accounts receivable are calculated by subtracting beginning year balances from end year balances. Payments in January 2012 for milk produced in December 2011 compared to January 2011 payments for milk produced in 2010 are included as a change in accounts receivable in determining accrual milk sales.

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

**Profitability Analysis**

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

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

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

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

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

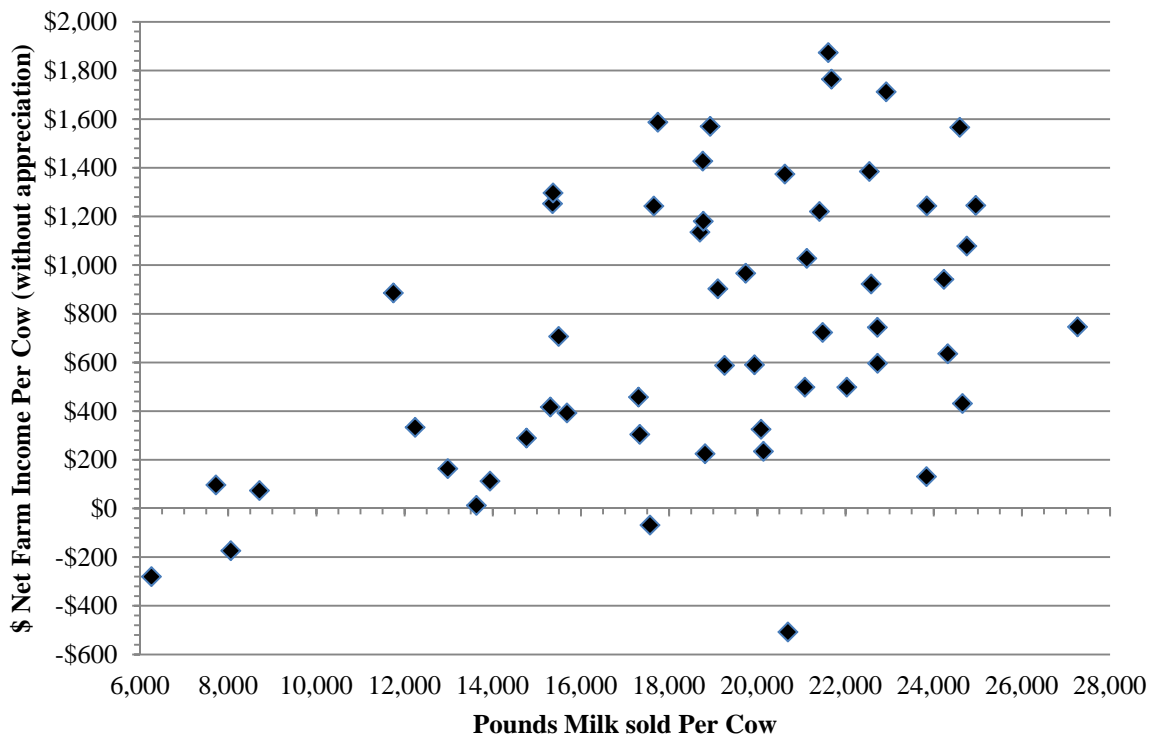
**NET FARM INCOME**  
54 Small Herd Dairy Farms, 2011

Item	Average 54 Farms		Top 25% Farms*	
	Total	Per Cow	Total	Per Cow
Total accrual receipts	\$ 343,425		\$ 448,571	
Appreciation: Livestock	1,254		391	
Machinery	4,216		1,760	
Real Estate	17,882		11,204	
Other Stock & Certificates	<u>-603</u>		<u>-349</u>	
Total Including Appreciation	\$ 366,175		\$ 461,577	
Total accrual expenses	<u>- 286,467</u>		<u>- 330,258</u>	
Net Farm Income (with appreciation)	\$ 79,708	\$ 1,117	\$ 131,319	\$1,567
Net Farm Income (without appreciation)	\$ 56,958	\$ 798	\$ 118,313	\$1,412

\*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**  
54 Small Herd Dairy Farms, 2011



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

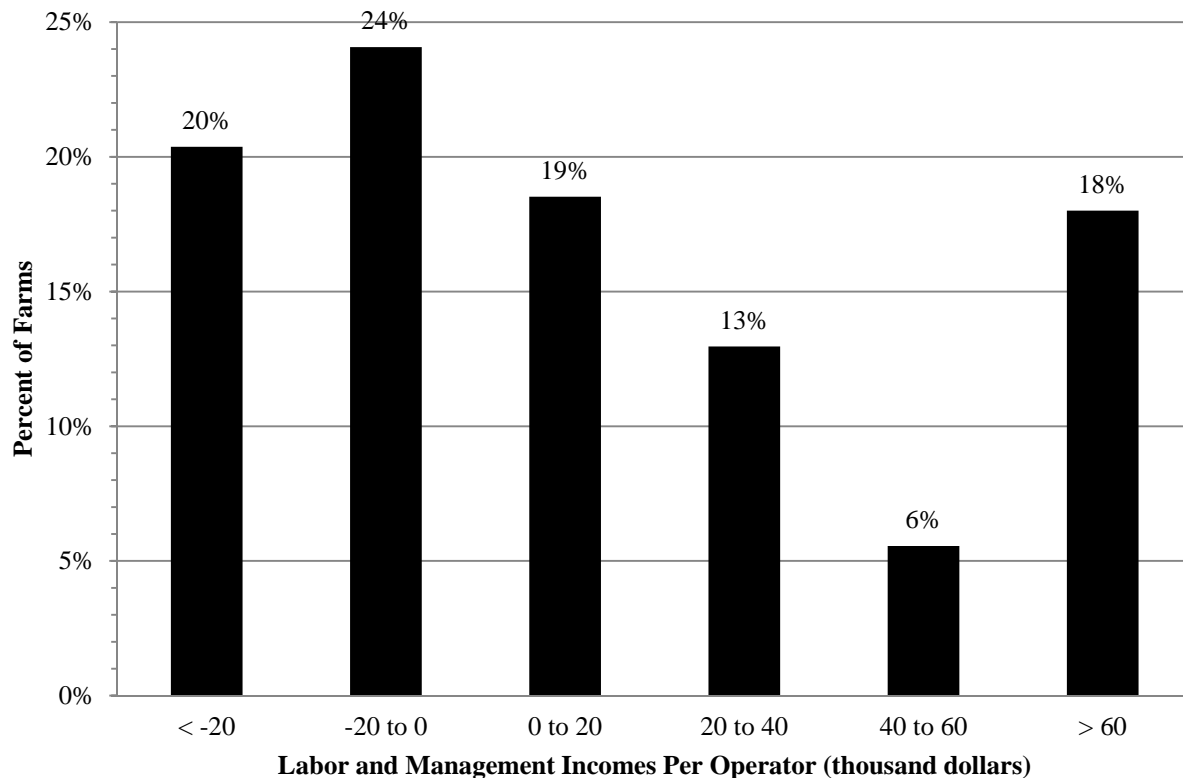
54 Small Herd Dairy Farms, 2011

Item	Average 54 Farms	Top 25% Farms
Net farm income without appreciation	\$ 56,958	\$ 118,313
Family labor unpaid @ \$2,550 per month	- 12,183	- 12,695
Interest on \$610,836 average equity capital @ 5% real rate (\$600,997 average equity capital for top 25% farms)	- <u>30,542</u>	- <u>30,050</u>
Labor & Management Income per farm (1.18 Operators/farm) (1.10 operators per farm for top 25% farms)	\$ 14,233	\$ 75,568
Labor & Management Income per Operator/Manager	\$ 12,062	\$ 68,698

Labor and management income per operator averaged \$12,062 on these 54 farms in 2011. The range in labor and management income per operator was from less than \$-88,600 to more than \$108,200. Returns to labor and management were less than \$0 on 44 percent of the farms. Labor and management incomes per operator were between \$0 and \$40,000 on 32 percent of the farms while 24 percent had labor and management incomes per operator greater than \$40,000.

### DISTRIBUTION OF LABOR & MANAGEMENT INCOMES PER OPERATOR

54 Small Herd Dairy Farms, 2011



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**  
54 Small Herd Dairy Farms, 2011

Item	Average 54 Farms	Top 25% Farms
Net farm income with appreciation	\$ 79,708	\$ 131,319
Family labor unpaid @ \$2,550 per month	- 12,183	- 12,695
Value of operators' labor & management	- <u>41,893</u>	- <u>39,143</u>
Return on equity capital with appreciation	\$ 25,632	\$ 79,481
Interest paid	+ <u>9,137</u>	+ <u>8,055</u>
Return on total capital with appreciation	\$ 34,769	\$ 87,536
Return on equity capital without appreciation	\$ 2,882	\$ 66,475
Return on total capital without appreciation	\$ 12,019	\$ 74,530
Rate of return on average equity capital:		
with appreciation	4.2%	13.2%
without appreciation	0.5%	11.1%
Rate of return on average total capital:		
with appreciation	4.2%	10.9%
without appreciation	1.5%	9.3%
Net farm income from operations ratio	0.17	0.26

**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 2011, lease payments were discounted by 7 percent to obtain their present value.

Advanced government receipts are included as current liabilities. Government payments received in 2011 that are for participation in the 2012 program are the end year balance and payments received in 2010 for participation in the 2011 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.

**2011 FARM BUSINESS & NONFARM BALANCE SHEET**

54 Small Herd Dairy Farms, 2011

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$ 8,710	\$ 9,788	Accounts payable	\$ 15,543	\$ 11,511
Accounts receivable	20,894	22,695	Operating debt	8,206	4,046
Prepaid expenses	20	107	Short Term	2,097	1,948
Feed & supplies	60,024	70,048	Advanced govt. receipts	372	295
			Current Portion:		
			Intermediate	17,260	21,532
			Long Term	<u>4,563</u>	<u>5,941</u>
Total Current	\$ 89,648	\$ 102,637	Total Current	\$ 48,041	\$ 45,273
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy cows:			Structured debt		
owned	\$ 102,014	\$ 103,884	1-10 years	\$ 100,369	\$ 97,531
leased	65	34	Financial lease		
Heifers	54,205	55,217	(cattle/machinery)	1,217	1,025
Bulls & other livestock	2,722	2,956	Farm Credit stock	<u>575</u>	<u>552</u>
Mach. & equip. owned	178,236	188,054	Total Intermediate	\$ 102,160	\$ 99,108
Mach. & equip. leased	1,151	991			
Farm Credit stock	575	552			
Other stock/certificate	<u>12,726</u>	<u>13,232</u>			
Total Intermediate	\$ 351,695	\$ 364,920			
<u>Long Term</u>			<u>Long Term</u>		
Land & buildings:			Structured debt		
owned	\$ 355,352	\$ 386,573	>10 years	\$ 59,143	\$ 75,427
leased	<u>0</u>	<u>0</u>	Financial lease		
Total Long Term	\$ 355,352	\$ 386,573	(structures)	<u>0</u>	<u>0</u>
			Total Long Term	\$ 59,143	\$ 75,427
Total Farm Assets	\$ 796,695	\$ 854,130	Total Farm Liabilities	\$ 209,344	\$ 219,808
			FARM NET WORTH	\$ 587,350	\$ 634,322

## Nonfarm Assets, Liabilities &amp; Net Worth (Average of 32 farms reporting)

Assets	Jan. 1	Dec. 31	Liabilities & Net Worth	Jan. 1	Dec. 31
Personal cash, checking & savings	\$ 13,855	\$ 15,569	Nonfarm Liabilities	\$ 5,398	\$ 6,135
Cash value life insurance	15,894	16,744			
Nonfarm real estate	10,969	10,969			
Auto (personal share)	5,506	8,459			
Stocks & bonds	29,486	33,575			
Household furnishings	9,969	10,313			
All other nonfarm assets	<u>6,176</u>	<u>6,350</u>			
Total Nonfarm Assets	\$91,854	\$101,980	NONFARM NET WORTH	\$86,456	\$95,846

Farm & Nonfarm Assets, Liabilities, and Net Worth*	Jan. 1	Dec. 31
Total Assets	\$ 888,549	\$956,110
Total Liabilities	<u>214,742</u>	<u>225,943</u>
TOTAL FARM & NONFARM NET WORTH	\$ 673,807	\$730,167

\*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**  
54 Small Herd Dairy Farms, 2011

Item	Average 54 Farms		Top 25% Farm	
<u>Financial Ratios - Farm:</u>				
Percent equity		74%		76%
Debt/asset ratio: total		0.26		0.24
long-term		0.20		0.14
intermediate/current		0.31		0.29
Leverage ratio		0.35		0.31
Current ratio		2.27		2.73
Working capital	\$57,364	As % of total Expenses:	\$80,428	24%
<u>Farm Debt Analysis:</u>				
Accounts payable as % of total debt		5%		7%
Long-term liabilities as a % of total debt		34%		20%
Current & intermediate liabilities as a % of total debt		66%		80%
Cost of term debt (weighted average)		4.5%		5.3%
<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	\$2,997	\$2,047	\$2,362	\$2,149
Long-term debt	1,028	702	482	438
Intermediate & long term	2,379	1,625	1,810	1,647
Intermediate & current debt	1,968	1,344	1,880	1,710

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**  
54 Small Herd Dairy Farms, 2011

Item	Average 54 Farms			
	Real Estate		Machinery & Equipment	
Value beginning of year	\$	355,352	\$	178,236
Purchases	\$	26,245*	\$	25,522
Gift & inheritance	+	0	+	296
Lost capital	-	6,631	-	829
Sales	-	20	-	19,388
Depreciation	-	6,255	-	19,388
Net investment		= 13,339		= 5,601
Appreciation		+ 17,882		+ 4,216
Value end of year	\$	386,573	\$	188,054

\*\$8,175 land and \$18,069 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)**  
54 Small Herd Dairy Farms, 2011

Item	Average 54 Farms	Top 25% Farms
Beginning of year farm net worth	\$587,350	\$559,694
Net farm income without appreciation	\$ 56,958	\$ 118,313
+Nonfarm cash income	+ 9,154	+ 3,096
-Personal withdrawals & family expenditures excluding nonfarm borrowings	<u>- 41,155</u>	<u>- 49,300</u>
RETAINED EARNINGS	+ \$ 24,957	+ \$ 72,109
Nonfarm noncash transfers to farm	\$ 296	\$ 0
+Cash used in business from nonfarm capital	+ 4,398	+ 2,437
-Note or mortgage from farm real estate sold (nonfarm)	<u>- 0</u>	<u>- 0</u>
CONTRIBUTED/WITHDRAWN CAPITAL	+ \$ 4,695	+ \$ 2,437
Appreciation	\$ 22,750	\$ 13,006
-Lost capital	<u>- 6,631</u>	<u>- 4,379</u>
CHANGE IN VALUATION EQUITY	+ \$ 16,119	+\$ 8,627
IMBALANCE/ERROR	<u>- \$ -1,201</u>	<u>- \$ 567</u>
End of year net worth*	= \$ 634,322	=\$ 642,300
<u>Change in Net Worth</u>		
Without appreciation	\$ 24,222	\$69,600
With appreciation	\$ 46,972	\$82,606

\*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**  
54 Small Herd Dairy Farms, 2011

Item	Average 54 Farms	
<b><u>Cash Flow from Operating Activities</u></b>		
Cash farm receipts	\$ 331,173	
- Cash farm expenses	263,975	
- Extraordinary expense	<u>1,516</u>	
= Net cash farm income		\$ 65,682
Personal withdrawals & family expenses including nonfarm debt payments	\$ 43,219	
- Nonfarm income	<u>9,154</u>	
- Net cash withdrawals from the farm		<u>\$ 34,065</u>
= Net Provided by Operating Activities		\$ 31,617
<b><u>Cash Flow From Investing Activities</u></b>		
Sale of assets: machinery	\$ 829	
+ real estate	20	
+ other stock & cert.	<u>125</u>	
= Total asset sales		\$ 973
Capital purchases: expansion livestock	\$ 963	
+ machinery	25,522	
+ real estate	26,245	
+ other stock & cert.	<u>1,233</u>	
- Total invested in farm assets		<u>\$ 53,963</u>
= Net Provided by Investment Activities		\$ -52,990
<b><u>Cash Flow From Financing Activities</u></b>		
Money borrowed (intermediate & long term)	\$ 46,949	
+ Money borrowed (short term)	2,427	
+ Increase in operating debt	0	
+ Cash from nonfarm capital used in business	4,398	
+ Money borrowed - nonfarm	<u>2,064</u>	
= Cash inflow from financing		\$ 55,838
Principal payments (intermediate & long term)	\$ 27,855	
+ Principal payments (short term)	2,576	
+ Decrease in operating debt	<u>4,159</u>	
- Cash outflow for financing		<u>\$ 34,591</u>
= Net Provided by Financing Activities		\$ 21,247
<b><u>Cash Flow From Reserves</u></b>		
Beginning farm cash, checking & savings		\$ 8,710
- Ending farm cash, checking & savings		<u>9,788</u>
= Net Provided from Reserves		\$ -1,078
Imbalance (error)		<u>\$ -1,204</u>



**ANNUAL CASH FLOW STATEMENT**  
Top 25% Small Herd Dairy Farms, 2011

Item	Top 25% Farms	
<u>Cash Flow from Operating Activities</u>		
Cash farm receipts	\$ 413,956	
- Cash farm expenses	319,059	
- Extraordinary expense	<u>0</u>	
= Net cash farm income		\$ 94,897
Personal withdrawals & family expenses including nonfarm debt payments	\$ 53,861	
- Nonfarm income	<u>3,096</u>	
- Net cash withdrawals from the farm		\$ <u>50,765</u>
= Net Provided by Operating Activities		\$ 44,132
<u>Cash Flow From Investing Activities</u>		
Sale of assets: machinery	\$ 269	
+ real estate	0	
+ other stock & cert.	<u>25</u>	
= Total asset sales		\$ 294
Capital purchases: expansion livestock	\$ 0	
+ machinery	32,280	
+ real estate	12,127	
+ other stock & cert.	<u>1,099</u>	
- Total invested in farm assets		\$ <u>45,506</u>
= Net Provided by Investment Activities		\$ -45,212
<u>Cash Flow From Financing Activities</u>		
Money borrowed (intermediate & long term)	\$ 40,093	
+ Money borrowed (short term)	1,023	
+ Increase in operating debt	0	
+ Cash from nonfarm capital used in business	2,437	
+ Money borrowed - nonfarm	<u>4,561</u>	
= Cash inflow from financing		\$ 48,113
Principal payments (intermediate & long term)	\$ 26,058	
+ Principal payments (short term)	3,425	
+ Decrease in operating debt	<u>14,032</u>	
- Cash outflow for financing		\$ <u>43,515</u>
= Net Provided by Financing Activities		\$ 4,598
<u>Cash Flow From Reserves</u>		
Beginning farm cash, checking & savings		\$ 8,990
- Ending farm cash, checking & savings		<u>11,941</u>
= Net Provided from Reserves		\$ -2,951
Imbalance (error)		\$ 567

## 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 2012. The cash flow projection worksheet on the next page can be used to estimate repayment ability, which can then be compared to planned 2012 debt payments shown below.

### FARM DEBT PAYMENTS PLANNED

Small Herd Dairy Farms, 2010 & 2011

Debt Payments	Same 47 Dairy Farms			Same 12 Top 25% Farms		
	2011 Payments		Planned 2012	2011 Payments		Planned 2012
	Planned	Made		Planned	Made	
Long-term	\$ 7,336	\$ 9,953	\$ 10,297	\$ 7,783	\$ 7,238	\$ 7,832
Intermediate-term	24,702	27,564	27,196	25,030	27,693	31,127
Short-term	1,618	2,876	1,484	2,392	3,833	1,435
Operating (net reduction)	161	5,403	181	0	16,412	458
Accounts payable (net reduction)	0	7,024	0	0	10,414	0
Total	\$ 33,816	\$ 52,821	\$ 39,158	\$ 35,205	\$ 65,589	\$ 40,853
Per cow	\$ 464	\$ 725		\$ 408	\$ 760	
Per cwt. 2011 milk	\$ 2.36	\$ 3.69		\$ 2.02	\$ 3.77	
Percent of total 2011 receipts	10%	15%		8%	14%	
Percent of 2011 milk receipts	11%	17%		9%	17%	

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 2011 (as of December 31, 2010) that could have been made with the amount available for debt service in 2011. Farmers who did not participate in DFBS in 2010 have their 2011 cash flow coverage ratio based on planned debt payments for 2012.

### COVERAGE RATIOS

Same 47 Small Herd Dairy Farms, 2010 & 2011

Item	Average	Item	Average
<u>Cash Flow Coverage Ratio</u>		<u>Debt Coverage Ratio</u>	
Cash farm receipts	\$338,789	Net farm income (without appreciation)	\$58,360
- Cash farm expenses	270,812	+ Depreciation	25,507
+ Interest paid (cash)	9,806	+ Interest paid (accrual)	9,565
- Net personal withdrawals from farm*	<u>32,773</u>	- Net personal withdrawals from farm*	<u>32,773</u>
(A) = Amount Available for Debt Service	\$ 45,010	(A') = Repayment Capacity	\$60,659
(B) = Debt Payments Planned for 2011 (as of December 31, 2010)	\$ 33,816	(B) = Debt Payments Planned for 2011 (as of December 31, 2010)	\$33,816
(A/B)= Cash Flow Coverage Ratio for 2011	1.33	(A'/B)= Debt Coverage Ratio for 2011	1.79
-----			
Same 12 Top 25% Dairy Farms, 2010 & 2011			
(A) = Amount Available for Debt Service	\$53,362	(A') = Repayment Capacity	\$101,287
(B) = Debt Payments Planned for 2011	\$35,205	(B) = Debt Payments Planned for 2011	\$35,205
(A/B)= Cash Flow Coverage Ratio for 2011	1.52	(A'/B)= Debt Coverage Ratio for 2011	2.88

\*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

54 Small Herd Dairy Farms, 2011

Item	Average 54 Farms		
	Per Cow	Per Cwt.	Total
Number cows and cwt. milk	71	13,932	
<u>Accrual Operating Receipts</u>			
Milk	\$4,181	\$21.41	\$298,300
Dairy cattle	231	1.18	16,455
Dairy calves	29	0.15	2,099
Other livestock	15	0.08	1,076
Crops	151	0.77	10,752
Miscellaneous receipts	<u>207</u>	<u>1.06</u>	<u>14,742</u>
Total	\$4,813	\$24.65	\$343,425
<u>Accrual Operating Expenses</u>			
Hired labor	\$ 257	\$ 1.31	\$ 18,316
Dairy grain & concentrate	1,230	6.30	87,753
Dairy roughage	118	0.60	8,424
Nondairy feed	3	0.01	187
Professional nutritional services	1	0.00	38
Machinery hire/rent/lease	83	0.42	5,898
Machinery repair & farm vehicle expense	267	1.37	19,031
Fuel, oil & grease	203	1.04	14,449
Replacement livestock	28	0.15	2,027
Breeding	54	0.28	3,836
Veterinary & medicine	103	0.53	7,351
Milk marketing	209	1.07	14,934
Bedding	46	0.24	3,284
Milking supplies	105	0.54	7,501
Cattle lease	0	0.00	28
Custom boarding	30	0.15	2,142
bST expense	7	0.04	508
Livestock professional fees	21	0.11	1,524
Other livestock expense	49	0.25	3,504
Fertilizer & lime	105	0.54	7,500
Seeds & plants	76	0.39	5,392
Spray & other crop expenses	45	0.23	3,212
Crop professional fees	4	0.02	260
Land, building, fence repair	74	0.38	5,274
Taxes	86	0.44	6,111
Real estate rent/lease	47	0.24	3,370
Insurance	71	0.37	5,090
Utilities	130	0.67	9,293
Other professional fees	16	0.08	1,167
Miscellaneous	<u>25</u>	<u>0.13</u>	<u>1,809</u>
Total Less Interest Paid	\$3,493	\$17.89	\$249,208
<u>Net Accrual Operating Income (without interest paid)</u>	\$1,320	\$ 6.76	\$ 94,217
- Change in livestock/crop inventory*	146	0.75	10,452
- Change in accounts receivable	25	0.13	1,801
- Change in feed/supply inventory**	22	0.11	1,598
+ Change in accts. payable***	<u>-54</u>	<u>-0.27</u>	<u>-3,822</u>
NET CASH FLOW	\$1,073	\$ 5.49	\$ 76,545
- Net personal withdrawals from farm (see footnote on p. 15)	<u>430</u>	<u>2.20</u>	<u>30,649</u>
Available for Farm Debt Payments & Investments	\$ 643	\$ 3.29	\$ 45,896
- Farm debt payments	<u>701</u>	<u>3.59</u>	<u>50,051</u>
Available for Farm Investment	\$ -58	\$-0.30	\$ -4,155
- Capital purchases: cattle, machinery & improvements	<u>756</u>	<u>3.87</u>	<u>53,963</u>
Additional Capital Needed	\$ 815	\$ 4.17	\$ 58,117

\*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, 2011

Item	Average Top 25% Farms		
	Per Cow	Per Cwt.	Total
Number of cows or cwt. milk	84	17,031	
<u>Accrual Operating Receipts</u>			
Milk	\$4,423	\$21.76	\$370,564
Dairy cattle	286	1.41	23,935
Dairy calves	37	0.18	3,128
Other livestock	11	0.06	952
Crops	357	1.76	29,912
Miscellaneous receipts	<u>240</u>	<u>1.18</u>	<u>20,080</u>
Total	\$5,354	\$26.34	\$448,571
<u>Accrual Operating Expenses</u>			
Hired labor	\$ 252	\$ 1.24	\$ 21,087
Dairy grain & concentrate	1,271	6.25	106,480
Dairy roughage	182	0.90	15,270
Nondairy feed	0	0.00	0
Professional nutritional services	2	0.01	146
Machinery hire/rent/lease	86	0.42	7,165
Machinery repair & farm vehicle expense	220	1.08	18,468
Fuel, oil & grease	221	1.09	18,553
Replacement livestock	34	0.17	2,813
Breeding	49	0.24	4,074
Veterinary & medicine	97	0.48	8,120
Milk marketing	251	1.24	21,070
Bedding	32	0.16	2,668
Milking supplies	104	0.51	8,676
Cattle lease	1	0.01	107
Custom boarding	50	0.24	4,155
bST expense	3	0.01	227
Livestock professional fees	22	0.11	1,802
Other livestock expense	51	0.25	4,278
Fertilizer & lime	103	0.50	8,589
Seeds & plants	70	0.35	5,891
Spray & other crop expenses	43	0.21	3,561
Crop professional fees	2	0.01	178
Land, building, fence repair	93	0.46	7,805
Taxes	70	0.34	5,865
Real estate rent/lease	62	0.30	5,172
Insurance	63	0.31	5,287
Utilities	107	0.53	8,999
Other professional fees	17	0.08	1,408
Miscellaneous	<u>18</u>	<u>0.09</u>	<u>1,533</u>
Total Less Interest Paid	\$3,574	\$17.58	\$299,448
<u>Net Accrual Operating Income (without interest paid)</u>	\$1,780	\$ 8.76	\$149,122
- Change in livestock/crop inventory*	376	1.85	31,468
- Change in accounts receivable	38	0.18	3,148
- Change in feed/supply inventory**	66	0.33	5,550
+ Change in accounts payable***	<u>-70</u>	<u>-0.35</u>	<u>-5,897</u>
NET CASH FLOW	\$1,230	\$ 6.05	\$103,060
- Net personal withdrawals from farm (see footnote p.15)	<u>551</u>	<u>2.71</u>	<u>46,152</u>
Available for Farm Debt Payments & Investments	\$ 679	\$ 3.34	\$ 56,908
- Farm debt payments	<u>703</u>	<u>3.46</u>	<u>58,885</u>
Available for Farm Investment	\$ -24	\$-0.12	\$ -1,977
- Capital purchases: cattle, machinery & improvements	<u>543</u>	<u>2.67</u>	<u>45,506</u>
Additional Capital Needed	\$ 567	\$ 2.79	\$ 47,483

\*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

54 Small Herd Dairy Farms, 2011

Item	Average 54 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	108	116	224	93	141	234
Nontillable	27	12	39	30	11	41
Other nontillable	70	8	78	90	0	90
Total	205	136	341	213	152	365
<u>Crop Yields</u>	<u>Farms</u>	<u>Acres*</u>	<u>Production/Acre</u>	<u>Farms</u>	<u>Acres</u>	<u>Production/Acre</u>
Hay crop	49	167	2.19 tn DM	12	193	2.59 tn DM
Corn silage	42	56	14.67 tn	11	56	15.69 tn
			5.21 tn DM			5.48 tn DM
Other forage	5	31	2.73 tn DM	2	43	3.27 tn DM
Total forage	51	209	2.87 tn DM	12	251	3.20 tn DM
Corn grain	14	33	98 bu	1	3	93 bu
Oats	3	19	20 bu	1	30	11 bu
Wheat	2	11	45 bu	0	0	0 bu
Other crops	9	27		1	21	
Tillable pasture	11	44		2	102	
Idle	7	19		1	6	
Total Tillable Acres	54	224		14	234	

\*This column represents the average acreage for the farms producing that crop. Average acreages including those farms not producing were hay crop 151, corn silage 44, corn grain 9, oats 1, tillable pasture 9, and idle 2.

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

51 Small Herd Dairy Farms, 2011\*\*

Item	Average 51 Farms	Top 25% Farm
Total tillable acres per cow	3.31	3.18
Total forage acres per cow	2.93	2.93
Harvested forage dry matter, tons per cow	8.40	9.39

\*\*Excludes farms that do not harvest forages.

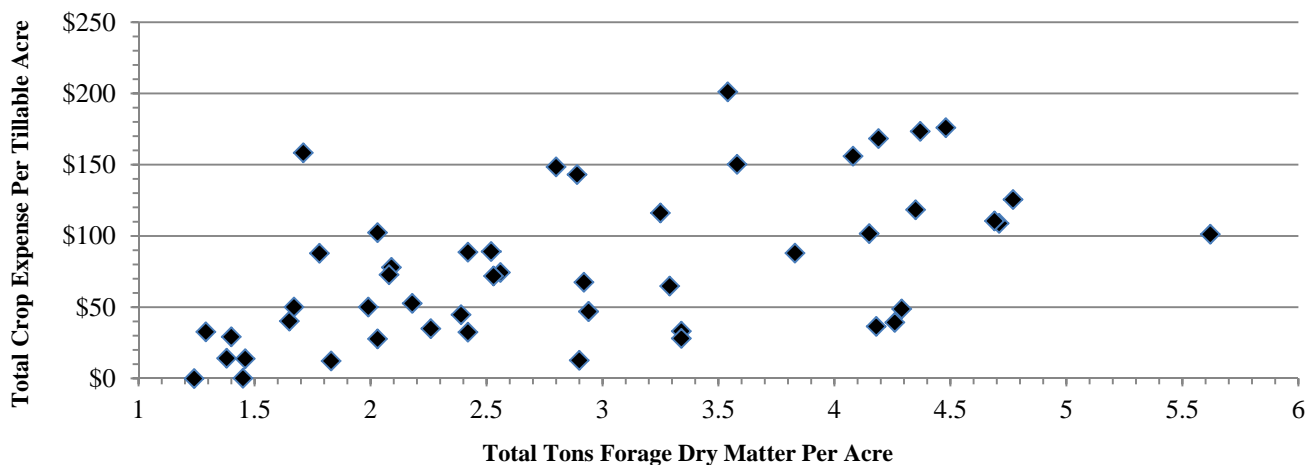
**Cropping Analysis** (continued)

Crop input costs per tillable acre are reported in the table below. The chart below shows the relationship between total forage dry matter per acre and total crop input costs. Intensive grazing was used on 18 farms, 6 of which are in the "top 25% farms" group.

**CROP RELATED ACCRUAL EXPENSES**  
Small Herd Dairy Farms Reporting Forage Production, 2011

Item	Average 51 farms		Top 25% Farms	
	Total Per Tillable Acre			
Number of farms reporting	51		12	
Average number of acres	237		272	
Fertilizer & lime expenses	\$	35.17	\$	43.64
Seeds & plants		26.05		30.00
Spray & other crop expenses		14.71		19.97
<b>TOTAL</b>	\$	<b>75.93</b>	\$	<b>93.61</b>

**CROP EXPENSE PER ACRE AND TOTAL FORAGE PRODUCTION PER ACRE**  
51 Small Herd Farms That Grow Forages, 2011



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**  
51 Small Herd Dairy Farms That Grow Forages, 2011

Machinery Expense	Average 51 Farms		Top 25% Farms	
	Total Expenses	Per Tillable Acre	Total Expenses	Per Tillable Acre
Fuel, oil & grease	\$ 14,919	\$ 63.06	\$ 20,701	\$ 75.99
Machinery repair & vehicle expense	19,675	83.17	20,217	74.21
Machine hire, rent & lease	5,758	24.34	7,405	27.18
Interest (5%)	9,614	40.64	10,686	39.23
Depreciation	19,928	84.24	18,327	67.28
<b>Total</b>	\$ 69,894	\$ 295.45	\$ 77,336	\$ 283.89

**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**  
54 Small Herd Dairy Farms, 2011

Item	Dairy Cows		Heifer					
	No.	Value	Bred		Open		Calves	
			No.	Value	No.	Value	No.	Value
<u>Average 54 Farms:</u>								
Beg. year (owned)	72	\$ 102,014	20	\$ 26,959	23	\$ 18,843	17	\$ 8,404
+ Change w/o apprec.		1,282		-1,266		1,409		202
+ Appreciation		<u>587</u>		<u>219</u>		<u>278</u>		<u>169</u>
End year (owned)	72	\$ 103,884	20	\$ 25,912	24	\$ 20,530	18	\$ 8,775
End including leased	73							
Average number	71		60	(all age groups)				
<u>Top 25% Farms:</u>								
Beg. year (owned)	82	\$120,907	26	\$ 35,376	23	\$ 19,446	22	\$ 11,996
+ Change w/o apprec.		2,886		-1,829		4,106		969
+ Appreciation		<u>0</u>		<u>124</u>		<u>121</u>		<u>146</u>
End year (owned)	84	\$ 123,793	25	\$ 33,671	27	\$ 23,674	23	\$ 13,111
End including leased	84							
Average number	84		70	(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**  
54 Small Herd Dairy Farms, 2011

Item	Average 54 Farms	Top 25% Farms
Total milk sold, lbs.	1,393,162	1,703,143
Milk sold per cow, lbs.	19,526	20,326
Average milk plant test, percent butterfat (average of farms reporting)	3.89	3.91

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**  
54 Small Herd Dairy Farms, 2011

Item	Average 54 Farms		Top 25% Farms	
	Number	Percent*	Number	Percent*
Cows sold for beef	17	23.6	21	24.6
Cows sold for dairy	2	2.1	1	0.9
Cows died	4	5.8	3	3.8
Culling rate**		29.0		28.0

\*Percent of average number of cows in the herd.

\*\*Cows sold for beef plus cows died.

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

**ACCRUAL RECEIPTS FROM DAIRY, COSTS OF PRODUCING MILK,  
AND PROFITABILITY**  
54 Small Herd Dairy Farms, 2011

Item	Average 54 Farms			Top 25% Farms		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
<u>Accrual Cost of Producing Milk</u>						
Operating costs	\$ 214,182	\$ 3,002	\$ 15.37	\$ 229,497	\$ 2,739	\$ 13.47
Purchased inputs costs	\$ 241,341	\$ 3,383	\$ 17.32	\$ 252,251	\$ 3,011	\$ 14.81
Total costs	\$ 325,959	\$ 4,568	\$ 23.40	\$ 334,139	\$ 3,988	\$ 19.62
<u>Accrual Receipts From Milk</u>						
Net Milk Receipts	\$ 298,300	\$ 4,181	\$ 21.41	\$ 370,564	\$ 4,423	\$ 21.76
Net Farm Income	\$ 283,366	\$ 3,971	\$ 20.34	\$ 349,494	\$ 4,171	\$ 20.52
without Appreciation	\$ 56,958	\$ 798	\$ 4.09	\$ 118,313	\$ 1,412	\$ 6.95
with Appreciation	\$ 79,708	\$ 1,117	\$ 5.72	\$ 131,319	\$ 1,567	\$ 7.71

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**  
54 Small Herd Dairy Farms, 2011

Item	Average 54 Farms		Top 25% Farms	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	\$ 1,230	\$ 6.30	\$ 1,271	\$ 6.25
Purchased dairy roughage	<u>118</u>	<u>0.60</u>	<u>182</u>	<u>0.90</u>
Total Purchased Dairy Feed	\$ 1,348	\$ 6.90	\$ 1,453	\$ 7.15
Purchased grain & conc. as % of milk receipts		29%		28%
Purchased feed & crop expense	\$ 1,577	\$ 8.08	\$ 1,670	\$ 8.22
Purchased feed & crop expense as % of milk receipts		37%		38%
Breeding	\$ 54	\$ 0.28	\$ 49	\$ 0.24
Veterinary & medicine	103	0.53	97	0.48
Milk marketing	209	1.07	251	1.24
Bedding	46	0.24	32	0.16
Milking supplies	105	0.54	104	0.51
Cattle lease	0	0.00	1	0.01
Custom boarding	30	0.15	50	0.24
bST	7	0.04	3	0.01
Livestock professional fees	21	0.11	22	0.11
Other livestock expense	49	0.25	51	0.25



**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**  
54 Small Herd Dairy Farms, 2011

Item	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
<u>Average 54 Farms:</u>				
Farm capital*	\$342,495	\$11,568	\$3,689	\$7,686
Real estate*		5,199		3,454
Machinery & equipment	76,438	2,582	823	
<u>Ratios</u>				
Asset turnover*	Operating Expense 0.44	Interest Expense 0.73	Depreciation Expense 0.03	0.07
<u>Top 25% Farms:</u>				
Farm capital*	\$326,946	\$ 9,599	\$3,438	\$8,695
Real estate*		3,485		3,157
Machinery & equipment	77,166	2,266	811	
<u>Ratios</u>				
Asset turnover*	Operating Expense 0.57	Interest Expense 0.67	Depreciation Expense 0.02	0.05

\*Excludes rented farms.

**LABOR FORCE INVENTORY AND ANALYSIS**  
54 Small Herd Dairy Farms, 2011

Labor Force	Months	Age	Years of Education	Value of Labor & Management
<u>Average 54 Farms:</u>				
Operator number 1	13.3	49	13	\$ 34,456
Operator number 2	2.5	46	14	6,974
Operator number 3	0.3	70	11	463
Family paid	2.8			
Family unpaid	4.8			
Hired	<u>5.2</u>			
Total	28.9	/ 12 = 2.41 Worker Equivalent 1.18 Operator/Manager Equivalent		
<u>Top 25% Farms:</u> Total	29.5	/ 12 = 2.46 Worker Equivalent 1.10 Operator/Manager Equivalent		
Operator's				

Labor Efficiency	Average 54 Farms		Top 25% Farms	
	Total	Per Worker	Total	Per Worker
Cows, average number	71	30	84	34
Milk sold, pounds	1,393,162	578,475	1,703,143	691,866
Tillable acres	224	93	234	95

Labor Costs	Average 54 Farms			Top 25% Farms		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Value of operator(s)						
labor (\$2,550/month)	\$41,081	\$ 576	\$ 2.95	\$38,429	\$ 459	\$ 2.26
Family unpaid (\$2,550/month)	12,189	171	0.87	12,699	152	0.75
Hired	<u>18,316</u>	<u>257</u>	<u>1.31</u>	<u>21,087</u>	<u>252</u>	<u>1.24</u>
Total Labor	\$71,585	\$ 1,003	\$ 5.14	\$72,215	\$ 862	\$ 4.24
Machinery Cost	<u>\$67,977</u>	<u>\$ 953</u>	<u>\$ 4.88</u>	<u>\$71,326</u>	<u>\$ 851</u>	<u>\$ 4.19</u>
Total Labor & Machinery	\$139,562	\$ 1,956	\$ 10.02	\$143,540	\$ 1,713	\$ 8.43
Hired labor expense per hired worker equivalent		\$27,439			\$26,664	
Hired labor expense as % of milk sales		6.1%			5.7%	

## 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 47 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 47 Small Herd Dairy Farms, 2010 & 2011

Selected Factors	Average of Same 47 Farms*		Average of Same 12 Top 25% Farms*	
	2010	2011	2010	2011
<u>Size of Business</u>				
Average number of cows	73	73	86	86
Average number of heifers	59	61	69	75
Milk sold, lbs.	1,461,279	1,430,925	1,721,495	1,739,144
Worker equivalent	2.48	2.52	2.56	2.66
Total tillable acres	230	238	223	244
<u>Rates of Production</u>				
Milk sold per cow, lbs.	19,954	19,636	20,076	20,164
Hay DM per acre, tons	2.3	2.2	2.4	2.5
Corn silage per acre, tons	16.6	14.4	15.3	15.9
<u>Labor Efficiency</u>				
Cows per worker	30	29	34	32
Milk sold/worker, lbs.	589,226	567,827	672,459	653,813
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	30%	29%	31%	29%
Dairy feed & crop expense per cwt. milk	\$ 6.70	\$ 7.99	\$ 6.92	\$ 8.34
Labor & machinery costs/cow	\$ 1,823	\$ 1,982	\$ 1,601	\$ 1,739
Operating cost of producing cwt. of milk	\$ 13.29	\$ 15.38	\$ 13.62	\$ 13.66
<u>Capital Efficiency**</u>				
Farm capital per cow***	\$ 10,958	\$ 11,643	\$ 8,948	\$ 9,482
Machinery & equipment per cow	\$ 2,486	\$ 2,610	\$ 2,178	\$ 2,265
Asset turnover ratio***	0.38	0.44	0.47	0.58
<u>Profitability</u>				
Net farm income w/o appreciation	\$ 40,550	\$ 58,360	\$ 48,829	\$ 118,551
Net farm income with appreciation	\$ 48,950	\$ 81,533	\$ 57,884	\$ 131,504
Labor & management income per operator/manager	\$ 432	\$ 11,933	\$ 9,481	\$ 67,428
Rate of return on equity capital with appreciation	-1.1%	4.2%	1.4%	13.3%
Rate of return on all capital with appreciation	0.5%	4.2%	2.3%	10.7%
<u>Financial Summary</u>				
Farm net worth, end year	\$604,900	\$646,792	\$ 547,894	\$ 630,137
Debt to asset ratio	0.27	0.26	0.29	0.26
Farm debt per cow	\$ 2,970	\$ 3,054	\$ 2,681	\$ 2,578

\*Farms participating both years. \*\*Average for the year. \*\*\*Excludes rented farms.

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

Same 47 Small Herd Dairy Farms, 2010 &amp; 2011

Item	2010		2011	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	73		73	
Cwt. of Milk Sold		14,613		14,309
<b><u>ACCRUAL OPERATING RECEIPTS</u></b>				
Milk	\$3,516	\$17.62	\$4,196	\$21.37
Dairy cattle	196	0.98	227	1.16
Dairy calves	44	0.22	32	0.16
Other livestock	2	0.01	14	0.07
Crops	162	0.81	146	0.75
Miscellaneous receipts	<u>141</u>	<u>0.71</u>	<u>209</u>	<u>1.06</u>
Total Receipts	\$4,059	\$20.34	\$4,824	\$24.57
<b><u>ACCRUAL OPERATING EXPENSES</u></b>				
Hired labor	\$ 258	\$ 1.29	\$ 277	\$ 1.41
Dairy grain & concentrate	1,055	5.29	1,227	6.25
Dairy roughage	88	0.44	95	0.48
Nondairy feed	2	0.01	3	0.01
Professional nutritional services	0	0.00	1	0.00
Machine hire/rent/lease	65	0.33	77	0.39
Mach. repair & vehicle exp.	223	1.12	270	1.38
Fuel, oil & grease	157	0.78	208	1.06
Replacement livestock	23	0.11	24	0.12
Breeding	55	0.27	54	0.27
Veterinary & medicine	90	0.45	103	0.53
Milk marketing	213	1.07	206	1.05
Bedding	34	0.17	44	0.23
Milking supplies	109	0.55	108	0.55
Cattle lease	0	0.00	0	0.00
Custom boarding	23	0.11	30	0.15
bST expense	9	0.05	7	0.04
Livestock professional fees	15	0.07	20	0.10
Other livestock expense	44	0.22	51	0.26
Fertilizer & lime	99	0.50	114	0.58
Seeds & plants	60	0.30	79	0.40
Spray/other crop expense	33	0.17	48	0.25
Crop professional fees	3	0.01	4	0.02
Land, building, fence repair	40	0.20	68	0.35
Taxes	84	0.42	89	0.45
Real estate rent/lease	50	0.25	47	0.24
Insurance	67	0.33	72	0.37
Utilities	132	0.66	131	0.67
Interest paid	133	0.67	131	0.67
Other professional fees	14	0.07	17	0.09
Miscellaneous	<u>17</u>	<u>0.09</u>	<u>27</u>	<u>0.14</u>
Total Operating Expenses	\$3,195	\$16.01	\$3,635	\$18.51
Expansion Livestock	0	0.00	14	0.07
Extraordinary Expense	0	0.00	24	0.12
Machinery Depreciation	241	1.21	268	1.37
Real Estate Depreciation	<u>70</u>	<u>0.35</u>	<u>82</u>	<u>0.42</u>
Total Expenses	\$3,506	\$17.57	\$4,023	\$20.49
Net Farm Income Without Appreciation	\$ 554	\$ 2.77	\$ 801	\$ 4.08

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

Same 12 Top 25% Small Herd Dairy Farms, 2010 &amp; 2011

Item	2010		2011	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	86		86	
Cwt. Of Milk Sold		17,215		17,391
<b><u>ACCRUAL OPERATING RECEIPTS</u></b>				
Milk	\$3,576	\$17.81	\$4,382	\$21.73
Dairy cattle	187	0.93	282	1.40
Dairy calves	65	0.32	40	0.20
Other livestock	-1	0.00	13	0.06
Crops	90	0.45	328	1.63
Miscellaneous receipts	<u>154</u>	<u>0.77</u>	<u>269</u>	<u>1.33</u>
Total Receipts	\$4,070	\$20.27	\$5,315	\$26.36
<b><u>ACCRUAL OPERATING EXPENSES</u></b>				
Hired labor	\$ 282	\$ 1.41	\$ 285	\$ 1.41
Dairy grain & concentrate	1,102	5.49	1,257	6.23
Dairy roughage	137	0.68	189	0.94
Nondairy feed	0	0.00	0	0.00
Professional nutritional services	2	0.01	2	0.01
Machine hire/rent/lease	36	0.18	65	0.32
Mach. repair & vehicle exp.	225	1.12	229	1.14
Fuel, oil & grease	167	0.83	228	1.13
Replacement livestock	14	0.07	13	0.07
Breeding	51	0.25	50	0.25
Veterinary & medicine	90	0.45	92	0.46
Milk marketing	242	1.20	250	1.24
Bedding	19	0.09	30	0.15
Milking supplies	93	0.46	106	0.52
Cattle lease	0	0.00	1	0.01
Custom boarding	47	0.23	51	0.25
bST expense	1	0.00	1	0.01
Livestock professional fees	12	0.06	23	0.11
Other livestock expense	45	0.23	54	0.27
Fertilizer & lime	98	0.49	113	0.56
Seeds & plants	27	0.14	73	0.36
Spray/other crop expense	22	0.11	47	0.23
Crop professional fees	3	0.02	2	0.01
Land, building, fence repair	50	0.25	78	0.39
Taxes	81	0.40	73	0.36
Real estate rent/lease	57	0.29	58	0.29
Insurance	61	0.30	64	0.32
Utilities	104	0.52	108	0.54
Interest paid	123	0.61	106	0.52
Other professional fees	13	0.06	18	0.09
Miscellaneous	<u>25</u>	<u>0.12</u>	<u>19</u>	<u>0.09</u>
Total Operating Expenses	\$3,229	\$16.08	\$3,687	\$18.29
Expansion Livestock	0	0.00	0	0.00
Extraordinary Expense	0	0.00	0	0.00
Machinery Depreciation	204	1.01	203	1.01
Real Estate Depreciation	<u>68</u>	<u>0.34</u>	<u>50</u>	<u>0.25</u>
Total Expenses	\$3,501	\$17.43	\$3,940	\$19.55
Net Farm Income Without Appreciation	\$ 569	\$ 2.84	\$ 1,374	\$ 6.82

## 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

54 Small Herd Dairy Farms, 2011

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
(14)*	(12)	(12)	(12)	(11)	(11)	(14)	(14)
3.76	110	2,411,604	24,536	3.8	22	46	1,052,820
2.83	91	1,832,960	21,906	2.7	18	36	675,918
2.31	70	1,317,491	19,644	2.1	15	29	578,696
1.87	51	992,758	16,996	1.7	12	24	471,549
1.41	39	503,580	11,395	1.1	8	19	259,620

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
(12)	(12)	(14)	(14)	(12)	(12)	(12)	(12)
\$ 643	18%	\$ 531	\$ 1,391	\$ 909	\$ 5.62	0.6%	8.9%
1,047	26	705	1,740	1,354	7.20	2.6	17.6
1,159	30	890	1,947	1,495	7.93	4.8	24.0
1,351	33	1,143	2,253	1,679	9.23	7.6	28.8
1,703	40	1,424	2,690	2,155	10.55	13.7	38.5

Value and Cost of Milk Production			Profitability			Change in Net Worth with Appreciation
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	
(12)	(12)	(12)	(4)	(4)	(4)	(8)
\$ 5,235	\$ 12.13	\$ 18.95	\$ 186,918	\$ 142,483	\$ 78,140	\$ 143,971
4,644	14.46	21.73	109,941	80,152	34,799	69,020
4,277	15.86	24.32	63,151	49,464	4,875	29,111
3,630	17.07	27.04	37,520	23,658	-13,711	12,559
2,444	19.81	35.80	10,757	-3,191	-37,274	-10,986

\*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** 30 New York Dairy Farms, 2011

<u>Animals Entering Herd</u>	<u>Average</u>
Number calving in 2011 for first time	284
Animals purchased, %*	9.8%
Animals raised by farm, %**	90.2%
<u>Current Heifer Inventory</u>	
Raised on dairy, %	81.1%
Raised by a custom grower, %	18.9%

\* 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, 284 animals calved for the first time in 2011. The breakdown on these animals for source was 9.8 percent purchased and 90.2 percent raised by the farm. Of the current heifer inventory, 81.1 percent were raised on the dairy and 18.9 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, 23 small herd dairy farms filled out a detailed form for all the different sources of income for milk sales and the milk marketing expenses on an accrual basis. This information is reported in the following two tables. The tables are divided into six different areas, each representing a different area of income or expenses.

The first section looks at the value of the milk components on a per 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**  
23 Small Herd Dairy Farms, 2011

	Pounds	Percent	Price/Pound	Total	\$/Cwt of Milk
<b>BASE FARM PRICE</b>					
Butterfat	54,848	3.89%	\$ 2.12	\$ 116,246	\$ 8.24
Protein	43,529	3.09%	\$ 2.96	\$ 128,727	\$ 9.12
Solids	80,475	5.70%	\$ 0.34	\$ 27,172	\$ 1.93
<b>Total Component Contribution</b>					<b>\$ 19.29</b>
<b>PPD</b>	1,410,836			\$ 20,721	<b>\$ 1.47</b>
<b>Base Farm Price</b>					<b>\$ 20.76</b>
<b>Premiums</b>					
Quality				\$ 2,318	\$ 0.17
Volume				\$ 1,130	\$ 0.08
Market Premiums				\$ 3,988	\$ 0.28
<b>Total Premiums</b>					<b>\$ 0.53</b>
<b>BASE FARM PRICE + PREMIUM</b>					<b>\$ 21.29</b>
<b>Deductions</b>					
Promo				\$ 2,234	\$ 0.16
Hauling + Stop Charges.				\$10,332	\$ 0.73
Market Fees & Coop Dues				\$ 882	\$ 0.06
<b>Total Deductions</b>					<b>\$ 0.95</b>
<b>BASE FARM PRICE + PREMIUMS - DEDUCTIONS</b>					<b>\$ 20.34</b>
<b>Marketing Programs</b>					
Futures Contracts, Forward Contracting, Etc.				\$ 107	\$ 0.01
<b>Total Marketing Income</b>					<b>\$ 0.01</b>
<b>Patronage Dividends</b>				\$ 3,260	<b>\$ 0.23</b>
<b>NET PRICE RECEIVED ON FARM, ALL SOURCES</b>					<b>\$ 20.58</b>
<b>PPD - Hauling, per cwt.</b>					\$ 0.74
<b>PPD - Hauling + Market Premiums, per cwt.</b>					\$ 1.02
<b>Net Marketing Value, per cwt. (PPD + Total Premiums – Total Deductions)</b>					\$ 1.05

\*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 23 farms is 71 cows.

**MILK PRICE INFORMATION BY QUARTILE\***  
(Each Category Sorted Independently)  
23 Small Herd Dairy Farms, 2011

	Lowest Quartile	←—————→	Highest Quartile	
Butterfat, %	3.70	3.83	3.95	4.34
Protein, %	2.91	3.05	3.12	3.45
Other Solids, %	5.52	5.64	5.70	5.95
Butterfat, \$ per Cwt.	7.91	8.12	8.42	9.10
Protein, \$ per Cwt.	8.65	9.00	9.27	9.94
Other solids, \$ per Cwt.	1.86	1.92	1.94	1.97
<b>Total Component Value per Cwt.</b>	<b>\$ 18.50</b>	<b>\$ 19.11</b>	<b>\$ 19.53</b>	<b>\$ 20.94</b>
PPD, \$ per Cwt.	1.16	1.41	1.56	1.92
<b>Base Farm Price per Cwt.</b>	<b>\$ 20.06</b>	<b>\$ 20.58</b>	<b>\$ 20.96</b>	<b>\$ 22.46</b>
Quality, \$ per Cwt.	-0.03	0.04	0.11	0.46
Volume, \$ per Cwt.	0.00	0.01	0.08	0.16
Market premium, \$ per Cwt.	0.03	0.15	0.32	0.81
Total Premium, \$ per Cwt.	<b>0.11</b>	<b>0.35</b>	<b>0.57</b>	<b>1.06</b>
<b>Base Farm Price + Premiums per Cwt.</b>	<b>\$ 20.69</b>	<b>\$ 21.02</b>	<b>\$ 21.39</b>	<b>\$ 22.95</b>
Promotion, \$ per Cwt.	0.15	0.15	0.15	0.15
Hauling, \$ per Cwt.	0.47	0.66	0.89	1.32
Market fees & coop dues per Cwt.	0.00	0.03	0.07	0.27
<b>Total Marketing Expenses per Cwt.</b>	<b>\$ 0.66</b>	<b>\$ 0.83</b>	<b>\$ 1.19</b>	<b>\$ 1.63</b>
<b>Base + Premiums – Deductions per Cwt.</b>	<b>\$ 19.53</b>	<b>\$ 20.10</b>	<b>\$ 20.53</b>	<b>\$ 21.63</b>
Futures contract, forward contracting, \$ per Cwt.	0.00	0.00	0.00	0.04
<b>Total Marketing Income, \$ per Cwt.</b>	<b>\$ 0.00</b>	<b>\$ 0.00</b>	<b>\$ 0.00</b>	<b>\$ 0.04</b>
<b>Patronage Dividends, \$ per Cwt.</b>	<b>\$ 0.00</b>	<b>\$ 0.00</b>	<b>\$ 0.07</b>	<b>\$ 0.82</b>
<b>Net Price Received From All Sources, \$ per Cwt.</b>	<b>\$ 19.61</b>	<b>\$ 20.18</b>	<b>\$ 20.85</b>	<b>\$ 22.00</b>
<b>PPD - hauling, \$ per Cwt.</b>	<b>0.34</b>	<b>0.63</b>	<b>0.79</b>	<b>1.04</b>
<b>PPD - hauling + mkt premiums, \$ per Cwt.</b>	<b>0.48</b>	<b>0.80</b>	<b>1.11</b>	<b>1.69</b>
<b>Net Marketing Value, \$ per Cwt. (PPD + Total Premiums – Total Deductions)</b>	<b>0.19</b>	<b>0.86</b>	<b>1.13</b>	<b>1.69</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 204 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

204 New York Dairy Farms, 2010

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)
34.6	1,715	44,507,767	28,024	5.9	27	65	1,496,743
21.9	992	25,065,046	26,486	4.4	23	51	1,239,084
16.5	722	18,382,622	25,611	4.0	22	48	1,131,389
12.4	548	12,786,314	24,763	3.7	20	44	1,052,995
8.3	385	8,896,608	23,569	3.4	19	42	991,796
-----							
5.7	233	5,098,220	22,603	3.1	18	38	888,445
4.3	150	2,980,442	21,295	2.7	18	36	749,166
3.2	105	1,958,629	19,859	2.2	17	32	656,722
2.4	70	1,322,994	17,279	1.9	15	29	530,202
1.7	46	824,194	13,227	1.3	11	21	361,659

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)
\$569	18%	\$427	\$1,019	\$800	\$4.47
846	23	561	1,292	1,114	5.53
967	26	623	1,394	1,251	5.86
1,079	27	671	1,478	1,363	6.10
1,169	29	717	1,531	1,452	6.33
-----					
1,234	30	755	1,603	1,518	6.53
1,288	31	803	1,661	1,595	6.79
1,357	33	872	1,796	1,677	7.14
1,436	35	954	1,951	1,782	7.76
1,575	41	1,164	2,354	2,007	9.55

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

**FARM BUSINESS CHART FOR  
FARM MANAGEMENT COOPERATORS**  
204 New York Dairy Farms, 2010

Milk Receipts Per Cow	Milk Receipts Per Cwt.	Operating Cost Milk Production Per Cow	Operating Cost Milk Production Per Cwt.	Total Cost Milk Production Per Cow	Total Cost Milk Production Per Cwt.
(12)	(12)	(12)	(12)	(12)	(12)
\$5,056	\$19.76	\$1,742	\$10.09	\$2,903	\$14.79
4,718	18.65	2,307	11.64	3,547	15.81
4,520	18.29	2,647	12.46	3,786	16.67
4,370	18.07	2,898	13.16	3,958	17.45
4,189	17.85	3,081	13.74	4,116	17.83
-----					
4,013	17.71	3,246	14.13	4,265	18.76
3,778	17.52	3,428	14.66	4,442	19.67
3,491	17.31	3,612	15.43	4,625	21.11
3,125	17.03	3,872	16.60	4,863	23.11
2,402	16.49	4,272	19.05	5,330	28.67

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)
\$1,585,864	\$1,366	0.29	\$1,900,618	\$1,938	\$1,164,968	\$608,745
662,211	1,070	0.23	829,592	1,295	422,477	233,448
437,842	874	0.19	601,181	1,098	263,930	126,152
300,908	754	0.16	387,604	936	140,197	71,428
183,729	653	0.14	248,959	798	79,500	42,780
-----						
114,646	542	0.12	154,252	695	41,512	25,059
68,027	409	0.09	89,447	556	8,766	6,299
41,582	278	0.06	49,752	391	-14,134	-9,501
11,394	97	0.02	17,122	137	-46,357	-35,267
-78,221	-466	-0.14	-60,960	-421	-166,013	-110,938

Farm Business Charts for farms with freestall barns and 200 cows or less, 200-400 cows, and more than 400 cows; and farms with conventional barns with less than 60 cows and 60 cows and more 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**  
204 New York Dairy Farms, 2010

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)
\$43	\$1,196	7.39	12.09	3%	\$ 161	65%	32.07
236	861	2.17	3.43	6	1,038	36	4.79
332	741	1.65	2.33	8	1,871	28	3.30
448	661	1.42	1.89	10	2,417	22	2.63
548	595	1.22	1.59	12	2,904	18	2.18
-----							
632	511	1.05	1.27	14	3,392	14	1.85
742	433	0.85	1.00	15	3,900	11	1.50
858	348	0.73	0.72	17	4,395	7	1.19
1,006	206	0.43	0.23	20	5,065	-2	0.85
1,601	-178	-0.59	-0.50	31	6,936	-19	0.35
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)	
0.01	99%	0.02	0.00	0.63	0.00	0.02	
0.12	90	0.10	0.00	0.68	0.01	0.04	
0.23	82	0.18	0.01	0.72	0.01	0.05	
0.30	78	0.25	0.10	0.75	0.02	0.05	
0.44	72	0.31	0.21	0.77	0.02	0.06	
-----							
0.61	63	0.37	0.33	0.79	0.03	0.07	
0.72	59	0.42	0.44	0.81	0.04	0.07	
0.87	54	0.50	0.53	0.84	0.04	0.09	
1.17	47	0.60	0.63	0.88	0.05	0.10	
3.03	33	0.79	0.95	1.01	0.09	0.15	
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)	
0.82	\$1,796	\$616	\$5,927	\$1,559,343	31%	19%	
0.68	2,600	996	7,238	647,486	17	12	
0.62	3,022	1,324	8,088	436,905	13	9	
0.55	3,332	1,528	8,673	271,545	10	8	
0.52	3,755	1,719	9,280	163,158	8	6	
-----							
0.48	4,207	1,892	9,915	77,763	5	5	
0.44	4,755	2,109	10,545	37,984	3	3	
0.39	5,643	2,282	11,585	16,650	0	1	
0.31	6,902	2,710	13,138	-4,658	-6	-2	
0.21	11,328	4,163	18,676	-136,008	-42	-10	

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

The table on page 34 includes the average values for the resulting five groups of dairy farms. The average size of farms in the five groups ranges from 47 cows on the small conventional farms to 952 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, as well as the highest returns to labor, management and capital.

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 2010 State Summary\*. In most years, as herd size increases, the net farm income increases (page 48)\*; and that was generally the case for 2010. Net farm income without appreciation averaged \$24,201 per farm for the less than 60 cow farms and \$1,030,251 per farm for those with more than 900 cows. Return to all capital without appreciation 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 2010. The largest herd size category experienced an increase in net worth of \$962,958. However, percent equity went down as assets increased. The largest herds had the lowest percent equity; while the smaller herds averaged 79 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 more than 900 cows averaged more milk sold per cow than any other size category (page 60). With 25,649 pounds of milk sold per cow, farms in the largest herd size group averaged 9.6 percent more milk output per cow than the average of all herds in the summary with less than 900 cows. Farm capital per cow generally decreased as herd size increased. Milk sold per worker increased dramatically as herd size increased, ranging from 462,320 pounds at the lowest herd size category up to 1,257,575 pounds at the largest size category.

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\*Wayne A. Knoblauch, Linda D. Putnam, Jason Karszes, Richard Overton, and Cathryn Dymond, Dairy Farm Management Business Summary, New York, 2010, Charles H. Dyson School of Applied Economics and Management, Cornell University, R.B. 2011-03, November 2011.

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

191 New York Dairy Farms, 2010

Item	Farms with:	Conventional		Freestall		
		<= 60 Cows	>60 Cows	<=200 Cows	200-400 Cows	≥400 Cows
Number of farms		21	20	40	24	86
<u>Cropping Program Analysis</u>						
Total Tillable acres		168	306	329	578	1,838
Tillable acres rented*		78	133	148	274	941
Hay crop acres*		119	206	196	302	815
Corn silage acres*		22	54	73	171	695
Hay crop, tons DM/acre		2.3	2.3	2.7	3.4	3.7
Corn silage, tons/acre		16.6	16.6	18.0	19.4	19.8
Oats, bushels/acre		59	72	38	66	61
Forage DM per cow, tons		8.5	8.5	8.5	8.0	8.4
Tillable acres/cow		3.6	3.4	2.9	2.1	2.0
Fertilizer & lime expense/tillable acre		\$31.42	\$32.28	\$42.13	\$51.52	\$45.28
Total machinery costs		\$37,544	\$76,399	\$106,885	\$202,067	\$677,234
Machinery cost/tillable acre		\$224	\$250	\$294	\$343	\$365
<u>Dairy Analysis</u>						
Number of cows		47	91	121	287	952
Number of heifers		37	80	103	240	814
Milk sold, lbs.		888,253	1,734,049	2,468,402	6,817,365	24,100,315
Milk sold/cow, lbs.		18,803	18,972	20,400	23,771	25,314
Operating cost of producing milk/cwt.		\$12.75	\$14.82	\$13.98	\$13.75	\$13.74
Total cost of producing milk/cwt.		\$22.22	\$22.25	\$20.58	\$17.20	\$16.73
Price/cwt. milk sold		\$17.43	\$17.78	\$17.93	\$17.61	\$17.81
Purchased dairy feed/cow		\$911	\$1,101	\$1,151	\$1,347	\$1,353
Purchased dairy feed/cwt. milk		\$4.85	\$5.80	\$5.64	\$5.67	\$5.34
Purchased grain & concentrate as % of milk receipts		27%	32%	31%	30%	28%
Purchased feed & crop expense/cwt milk		\$5.97	\$6.92	\$6.85	\$6.51	\$6.26
<u>Capital Efficiency</u>						
Farm capital/worker		\$307,030	\$390,183	\$413,623	\$376,921	\$414,620
Farm capital/cow		\$12,414	\$13,148	\$12,101	\$8,924	\$8,884
Farm capital/tillable acre owned		\$6,516	\$6,951	\$8,059	\$8,419	\$9,430
Real estate/cow		\$6,433	\$6,712	\$6,068	\$3,541	\$3,653
Machinery investment/cow		\$2,551	\$2,716	\$2,240	\$1,656	\$1,492
Asset turnover ratio		0.30	0.30	0.38	0.55	0.59
<u>Labor Efficiency</u>						
Worker equivalent		1.91	3.08	3.54	6.79	20.40
Operator/manager equivalent		1.15	1.49	1.68	1.81	2.20
Milk sold/worker, lbs.		465,054	563,155	697,946	1,004,277	1,181,629
Cows/worker		25	30	34	42	47
Labor cost/cow		\$1,169	\$990	\$853	\$764	\$765
Labor cost/tillable acre		\$329	\$296	\$313	\$379	\$396
<u>Profitability &amp; Balance Sheet Analysis</u>						
Net farm income (without appreciation)		\$30,230	\$23,315	\$56,065	\$193,822	\$660,267
Labor & management income/operator		\$-4,757	\$-20,590	\$-3,142	\$60,275	\$185,017
Rate return on all capital with appreciation		-2.7%	-0.7%	3.4%	7.6%	9.5%
Farm debt/cow		\$2,191	\$2,938	\$3,228	\$3,136	\$3,230
Percent equity		83%	78%	73%	66%	64%

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

**FARM BUSINESS CHART FOR SMALL CONVENTIONAL STALL DAIRY FARMS**  
21 Conventional Stall Dairy Farms with 60 or Less Cows, New York, 2010

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)
2.92	58	1,276,649	23,771	3.5	29	34	758,563
2.43	58	1,172,320	22,491	3.3	27	31	661,782
2.12	54	1,077,961	21,336	3.1	21	31	639,207
2.04	52	1,025,694	21,045	2.3	19	29	535,368
2.00	48	978,780	20,294	2.1	18	27	477,429
1.71	47	947,012	19,624	2.0	17	26	435,784
1.61	45	804,192	17,800	1.9	16	23	416,288
1.58	43	759,890	16,273	1.8	15	21	378,501
1.54	42	664,765	14,133	1.8	14	20	340,272
1.42	35	412,933	11,421	1.4	7	18	250,944

**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)
\$301	14%	\$472	\$1,342	\$474	\$3.57
756	20	557	1,658	861	4.80
815	24	642	1,777	1,032	5.42
838	27	734	1,841	1,091	5.98
866	28	781	1,984	1,122	6.09
908	30	821	2,072	1,167	6.29
989	30	859	2,131	1,237	6.35
1,087	31	949	2,194	1,314	6.45
1,135	32	1,036	2,402	1,400	6.62
1,271	38	1,322	2,746	1,544	7.97

**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
			Total	Per Cow		
(12)	(12)	(12)	(4)	(12)	(4)	(8)
\$4,269	\$9.56	\$16.90	\$71,165	\$1,443	\$44,228	\$506,688
3,982	10.00	19.12	64,502	1,278	30,390	39,894
3,699	11.72	20.35	58,785	1,045	19,179	30,817
3,564	12.53	20.45	40,083	842	11,493	25,658
3,472	12.81	21.25	36,154	768	5,000	18,301
3,349	13.30	23.35	33,634	715	-2,226	12,601
3,159	13.90	25.09	27,553	597	-12,694	9,584
3,000	14.74	26.25	7,004	169	-20,472	5,291
2,440	16.10	28.25	1,516	19	-33,448	4,230
1,932	17.93	37.23	-15,321	-330	-63,685	-26,137

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

**FARM BUSINESS CHART FOR LARGE CONVENTIONAL STALL DAIRY FARMS**  
20 Conventional Stall Dairy Farms with More Than 60 Cows, New York, 2010

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)
5.00	152	2,762,000	27,347	3.9	27	51	912,168
3.88	130	2,283,563	23,788	3.4	25	39	738,186
3.67	111	2,184,928	22,497	3.1	23	34	671,856
3.57	97	2,006,849	20,993	2.9	21	32	644,946
3.12	83	1,645,642	20,666	2.7	20	31	605,805
3.00	76	1,564,481	19,037	2.5	19	29	546,554
2.54	70	1,455,059	18,007	2.4	17	27	529,442
2.38	69	1,308,703	16,855	1.8	14	26	519,824
2.04	66	1,195,825	14,104	1.5	12	24	376,587
1.61	62	933,444	11,252	1.5	9	20	330,702

Cost Control						
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk	
(12)	(12)	(14)	(14)	(12)	(12)	
\$283	13%	\$432	\$1,083	\$406	\$3.52	
582	18	532	1,390	1,055	5.28	
955	26	599	1,606	1,226	6.18	
1,077	28	705	1,713	1,328	6.47	
1,186	30	824	1,823	1,358	6.68	
1,230	33	913	1,844	1,425	6.79	
1,232	36	946	1,936	1,513	7.02	
1,347	38	993	2,105	1,623	7.61	
1,419	43	1,004	2,372	1,675	9.17	
1,520	54	1,296	2,436	1,838	10.90	

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
			Total	Per Cow		
(12)	(12)	(12)	(4)	(12)	(4)	(8)
\$4,605	\$10.78	\$18.22	\$100,004	\$1,046	\$32,625	\$137,440
4,259	12.18	19.09	77,881	787	11,561	67,408
3,975	12.53	19.53	65,603	747	3,707	39,427
3,773	13.46	19.96	49,788	676	-2,385	22,879
3,566	13.79	20.80	39,815	575	-4,510	14,081
3,476	14.37	23.18	26,484	295	-10,470	5,223
3,282	15.73	23.93	13,953	197	-25,378	-4,773
3,063	16.23	25.55	-8,795	-57	-45,760	-24,297
2,561	19.62	26.83	-54,972	-432	-82,510	-48,332
2,034	22.03	28.62	-76,605	-936	-123,467	-91,995

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

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

40 Freestall Barn Dairy Farms with 200 or Less Cows, New York, 2010

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)
6.07	190	4,725,179	26,405	5.3	28	50	1,055,653
4.90	175	3,804,032	23,423	4.0	22	41	876,946
4.67	157	3,167,510	22,319	3.9	21	38	804,418
3.97	136	2,783,554	21,252	3.4	20	37	754,088
3.36	121	2,516,572	20,843	2.8	19	36	725,369
2.94	110	2,027,717	19,832	2.5	18	35	647,466
2.77	103	1,849,636	18,375	2.1	17	33	630,221
2.56	89	1,524,976	17,061	1.9	16	32	566,899
2.31	76	1,282,058	16,035	1.8	14	28	484,425
1.84	54	1,002,784	13,842	1.2	13	22	388,365

**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)
\$772	19%	\$445	\$1,144	\$967	\$5.16
809	23	572	1,332	1,087	5.76
852	26	640	1,410	1,170	5.87
923	29	693	1,498	1,243	6.16
1,026	31	755	1,574	1,306	6.51
1,113	32	806	1,636	1,416	7.17
1,196	34	851	1,840	1,492	7.69
1,244	36	901	1,935	1,578	8.33
1,370	38	1,095	2,018	1,819	9.35
1,560	43	1,267	2,416	2,214	10.72

**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
			Total	Per Cow		
(12)	(12)	(12)	(4)	(12)	(4)	(8)
\$4,560	\$9.59	\$15.66	\$209,917	\$1,316	\$76,728	\$379,149
4,191	10.78	17.38	133,589	965	35,870	153,977
4,068	12.15	19.05	107,287	822	18,172	79,789
3,885	13.06	20.34	73,133	612	9,357	55,325
3,660	13.59	21.20	51,504	480	-197	28,243
3,448	14.41	21.78	39,876	372	-13,907	15,246
3,305	15.81	22.42	25,633	233	-24,441	1,334
3,111	16.62	23.36	-1,505	-6	-36,815	-9,593
2,935	17.80	24.51	-15,693	-207	-52,884	-19,044
2,560	20.99	31.86	-63,084	-898	-132,540	-40,442

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



**FARM BUSINESS CHART FOR MEDIUM FREESTALL DAIRY FARMS**  
24 Freestall Barn Dairy Farms with 200-400 Cows, New York, 2010

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)
11.07	394	10,108,286	28,054	5.3	26	59	1,417,815
9.38	373	9,735,132	26,132	4.5	24	52	1,280,350
7.95	354	9,003,062	25,346	4.3	22	50	1,068,038
7.10	316	7,647,603	25,087	4.2	22	49	1,056,410
6.63	302	7,512,291	24,614	4.0	20	46	1,039,255
6.50	289	6,991,047	23,694	3.5	19	44	1,002,528
6.08	277	6,074,655	23,236	3.0	18	42	975,350
5.85	235	5,386,844	22,589	2.9	17	41	955,482
5.54	228	5,057,669	21,233	2.3	16	36	899,635
4.42	204	4,021,473	18,648	2.2	14	31	699,125

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)	
\$790	21%	\$409	\$1,007	\$1,041	\$4.60	
1,050	25	591	1,195	1,380	5.58	
1,157	27	647	1,362	1,444	5.95	
1,187	28	668	1,495	1,476	6.32	
1,254	30	728	1,523	1,516	6.65	
1,301	31	732	1,548	1,589	6.94	
1,333	34	780	1,640	1,687	7.04	
1,385	35	834	1,675	1,760	7.56	
1,490	35	896	1,707	1,812	8.25	
1,534	38	1,024	1,939	2,153	9.22	

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)
\$5,159	\$9.92	\$14.83	\$511,541	\$1,383	\$326,433	\$567,942
4,735	11.44	15.66	384,065	1,282	149,963	315,496
4,456	12.83	16.29	313,777	1,016	107,639	230,283
4,341	13.81	17.21	241,857	865	102,212	191,157
4,274	13.98	17.47	216,179	819	60,052	164,993
4,236	14.34	17.73	170,820	764	47,743	116,270
4,101	14.82	18.03	160,186	575	35,858	88,118
3,927	15.44	18.75	126,994	437	25,106	76,875
3,745	16.89	19.79	65,511	221	2,263	56,182
3,119	18.38	21.34	-27,605	-130	-70,032	-54,552

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

**FARM BUSINESS CHART FOR LARGE FREESTALL DAIRY FARMS**  
86 Freestall Barn Dairy Farms with 400 or More Cows, New York, 2010

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)
43.74	2,284	59,966,661	28,811	6.8	27	65	1,694,744
29.83	1,413	36,099,171	27,096	5.0	23	55	1,363,265
25.29	1,161	29,786,059	26,606	4.4	22	51	1,295,414
22.62	1,031	25,353,444	26,272	4.1	21	49	1,227,454
19.52	874	22,600,037	25,799	3.8	20	48	1,163,775
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17.31	757	19,211,437	25,199	3.6	19	45	1,136,260
15.73	681	17,442,545	24,636	3.4	18	43	1,074,506
13.61	599	14,392,855	23,800	3.1	18	41	1,033,424
11.73	513	12,150,541	22,780	2.7	17	38	972,226
9.01	439	10,089,736	20,339	1.8	14	34	790,652
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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)		
\$893	21%	\$509	\$1,158	\$1,161	\$4.91		
1,061	24	597	1,312	1,357	5.60		
1,150	26	641	1,387	1,452	5.92		
1,230	27	682	1,450	1,526	6.12		
1,275	29	708	1,499	1,579	6.31		
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1,320	29	740	1,536	1,632	6.48		
1,369	30	771	1,599	1,694	6.66		
1,426	32	811	1,625	1,748	6.89		
1,472	33	900	1,701	1,839	7.15		
1,604	36	1,000	1,834	1,945	7.66		
-----							
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)	
\$5,197	\$11.22	\$14.46	\$2,234,741	\$1,394	\$859,013	\$2,328,601	
4,890	12.11	15.38	1,201,729	1,164	458,433	1,140,254	
4,760	12.70	15.93	955,047	953	328,702	770,457	
4,673	13.28	16.53	664,495	815	208,706	624,084	
4,570	13.91	16.94	538,211	691	147,774	549,585	
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4,477	14.27	17.42	454,927	616	121,212	421,766	
4,376	14.73	17.66	375,934	505	81,022	334,082	
4,212	15.10	18.09	291,223	392	47,354	244,836	
4,023	15.85	18.91	191,318	275	24,018	115,061	
3,731	17.15	20.06	-36,631	-8	-109,008	-212,634	

\*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.

**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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## OTHER A.E.M. EXTENSION BULLETINS

EB No	Title	Fee (if applicable)	Author(s)
2012-03	Dairy Farm Business Summary, Western New York Region, 2011	(\$12.00)	Wayne A. Knoblauch, Linda D. Putnam, Jason Karszes, John Hanchar, James Grace, Virginia Carlberg, Joan Petzen, Richard Overton and Cathryn Dymond
2012-02	Dairy Farm Business Summary, New York Large Herd Farms, 300 Cows or Larger, 2011	(\$16.00)	Karszes, J., Knoblauch, W., and L. Putnam
2012-01	Dairy Farm Business Summary, New York Organic Dairy Farms, 2010	(\$16.00)	Knoblauch, W., Overton, R., Putnam, L. and C. Dymond
2011-10	Examining the Costs of Producing Processing Snap Beans and Green Peas in New York State		Ho, S., Rickard, B., Kikkert, J., Klotzbach, K., Reiners, S. and M. Smith
2011-09	Dairy Farm Business Summary, New York Dairy Farm Renters, 2010	(\$16.00)	Knoblauch, W., Putnam, D. and C. Dymon
2011-08	New York Economic Outlook, 2012		Extension Staff
2011-07	Dairy Farm Business Summary, Northern New York Region, 2010		Knoblauch, W., Putnam, L., Karszes, J., Murray, P., Vokey, F., Hayes, C., Deming, A., Balbian, D., Buxton, S., Manning, J., Collins, B., Overton, R. and C. Dymond
2011-06	Dairy Farm Business Summary, Intensive Grazing Farms, New York, 2010		Conneman, G., Karszes, J., Grace, J., Murray, P., Carlberg, V., Benson, A., Staehr, A., Glazier, N., Overton, R., Dymond, C. and L. Putnam
2011-05	Dairy Farm Business Summary, Hudson and Central NY Region, 2010	(\$12.00)	Knoblauch, W., Conneman, G., Putnam, L., Karszes, J., Buxton, S., Kiraly, M. Shoen, K., Westenbroek, P., Walsh, J., Overton, R. and C. Dymond
2011-04	Dairy Farm Business Summary, New York Small Herd Farms, 120 Cows or Fewer, 2010	(\$16.00)	Knoblauch, W., Putnam, L., Karszes, J., Kiraly, M. and C. Dymond
2011-03	Cost of Establishment and Production of Vinifera Grapes in the Finger Lakes Region of New York - 2010		White, G.
2011-02	Dairy Farm Business Summary, Western New York Region, 2010	(\$12.00)	Knoblauch, W., Putnam, L., Karszes, J., Hanchar, J., Grace, J., Carlberg, V., Petzen, J., Welch, D., Overton, R. and C. Dymond

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