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*DAIRY FARM  
BUSINESS SUMMARY*

*WESTERN AND  
CENTRAL PLATEAU  
REGION  
1999*

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**1999 DAIRY FARM BUSINESS SUMMARY**  
**Western and Central Plateau Region**  
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# 1999 DAIRY FARM BUSINESS SUMMARY WESTERN AND CENTRAL PLATEAU REGION\*

## 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 the Western and Central Plateau Region for 1999.

### **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 regional report follows the same general format as the 1999 DFBS individual farm report received by participating dairy farmers. The analysis tables have an open column or section labeled My Farm. It may be used by any dairy farm manager who wants to compare his or her business with the average data of this region. The individual farm data, the regional averages and other data can then be used to establish goals for the business. A DFBS Data Check-in Form can be used by non-DFBS participants to summarize their businesses.

This report features:

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

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\*This summary was prepared by Wayne A. Knoblauch, Department of Agricultural, Resource, and Managerial Economics, College of Agriculture and Life Sciences, Cornell University, in cooperation with Cooperative Extension Educators Sheila Marshman, Joan Petzen, Jim Grace, Andrew Dufresne, and Janet Allard. The Western and Central Plateau Region, with the number of participating farms in parentheses, is comprised of Allegany (11), Cattaraugus (3), Chautauqua (10), Steuben (13), Chemung (3), Schuyler (7), Tioga (5), Tompkins (6), Cortland (8) and Broome (2) Counties. Linda Putnam was in charge of data analysis. Faye Butts prepared the publication.

## 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 in this region. The following table shows important farm business characteristics and the number of farms with each characteristic.

**BUSINESS CHARACTERISTICS**  
68 Western and Central Plateau Region Dairy Farms, 1999

Type of Farm	Number	Milking System	Number
Dairy	68	Bucket & carry	0
Part-time dairy	0	Dumping station	4
Dairy cash-crop	0	Pipeline	29
Certified organic milk producer	1	Herringbone conventional exit	22
Rotational grazing farm	26	Herringbone rapid exit	0
		Parallel	11
		Parabone	0
		Rotary	0
		Other	2
Type of Ownership	Number	Production Records	Number
Owner	60	Testing Service	55
Renter	8	On Farm System	2
		Other	4
		None	7
Type of Business	Number	bST Usage	Number
Sole Proprietorship	43	Used on <25% of herd	6
Partnership	16	Used on 25-75% of herd	17
Limited Liability Corporation	5	Used on >75% of herd	5
Subchapter S Corporation	3	Stopped using in 1999	2
Subchapter C Corporation	1	Not used in 1999	38
Type of Barn	Number	Business Record System	Number
Stanchion or Tie-Stall	29	Account Book	22
Freestall	35	Accounting Service	14
Combination	4	On-farm computer	30
		Other	2
Milking Frequency	Number		
2 times per day	52		
3 times per day	12		
Other	4		

The averages used in this report were compiled using data from all the participating dairy farms in this region unless noted otherwise. There are full-time dairy farms, part-time farms, dairy cash-crop farms, farm renters, partnerships, and corporations included in the average. Average data for these specific types of farms are presented in the State Business Summary.

### 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 1999.

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

**CASH AND ACCRUAL FARM EXPENSES**  
68 Western and Central Plateau Region Dairy Farms, 1999

Expense Item	Cash Paid	-	Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses
<u>Hired Labor</u>	\$ 55,269		\$ -112	<<	\$ 251		\$ 55,631
<u>Feed</u>							
Dairy grain & concentrate	116,683		3162		1,044		114,565
Dairy roughage	6,926		504		85		6,507
Nondairy	122		4		0		118
<u>Machinery</u>							
Machinery hire, rent & lease	10,810		22	<<	13		10,801
Machinery repairs & farm vehicle exp.	23,401		24		-10		23,367
Fuel, oil & grease	8,216		-43		-27		8,231
<u>Livestock</u>							
Replacement livestock	2,252		0	<<	35		2,287
Breeding	5,444		187		10		5,267
Veterinary & medicine	11,618		273		-197		11,147
Milk marketing	12,115		0	<<	5		12,120
Bedding	4,549		50		25		4,525
Milking supplies	10,099		101		-92		9,906
Cattle lease & rent	2,430		0	<<	0		2,430
Custom boarding	1,872		3	<<	23		1,892
bST	5,999		105		56		5,950
Other livestock expense	6,315		93		-53		6,169
<u>Crops</u>							
Fertilizer & lime	10,268		792		589		10,066
Seeds & plants	7,012		524		-30		6,458
Spray, other crop expense	7,640		373		-82		7,186
<u>Real Estate</u>							
Land, building & fence repair	10,476		72		-43		10,362
Taxes	8,336		3	<<	-384		7,948
Rent & lease	10,965		0	<<	0		10,965
<u>Other</u>							
Insurance	6,818		0	<<	0		6,818
Utilities (farm share)	10,507		0	<<	-21		10,486
Interest paid	21,103		-15	<<	0		21,118
Miscellaneous	6,427		63		44		6,408
Total Operating	\$ 383,674		\$ 6,185		\$ 1,241		\$ 378,730
Expansion livestock	8,847		0	<<	0		8,847
Machinery depreciation							26,684
Building depreciation							16,823
<b>TOTAL ACCRUAL EXPENSES</b>							<b>\$ 431,084</b>

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

Change in accounts payable: An increase in accounts payable from beginning to end of year is added when calculating accrual expenses because these expenses were incurred (resources used) in 1999 but not paid for. A decrease is subtracted because it represents payment for resources used before 1999.

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**  
68 Western and Central Plateau Region Dairy Farms, 1999

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts
Milk sales	\$ 453,283				\$ -6,815		\$ 446,468
Dairy cattle	18,050		\$ 13,963		244		32,257
Dairy calves	3,919				-2		3,917
Other livestock	1,076		-314		17		778
Crops	2,407		504		343		3,254
Government receipts	12,573		-2 *		60		12,630
Custom machine work	562				223		785
Gas tax refund	343				-60		282
Other	<u>6,196</u>				<u>-671</u>		5,525
Less nonfarm noncash capital**		(-)	<u>0</u> **			(-)	<u>0</u>
Total Receipts	\$ 498,409		\$ 14,151		\$ -6,662		\$ 505,897

\*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 1999 for the 2000 crop year in excess of funds earned for 1999. Likewise, a decrease is added to cash government receipts because it represents funds earned for 1999 but received in 1998.

Changes in accounts receivable are calculated by subtracting beginning year balances from end year balances. Payments in January 2000 for milk produced in December 1999 compared to January 1999 payments for milk produced in 1998 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.

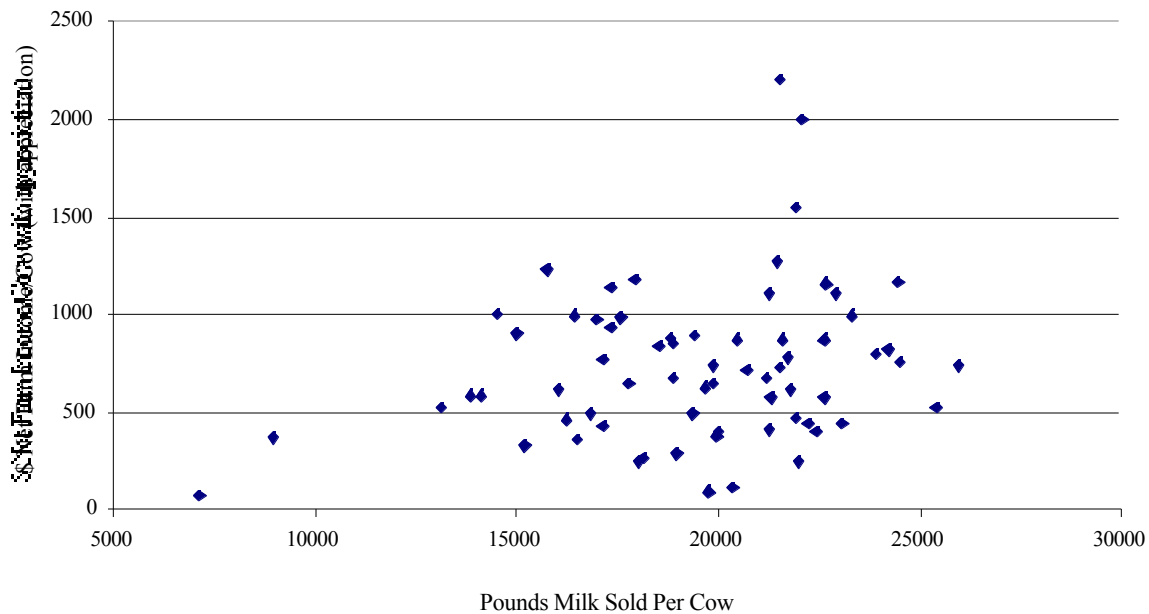
Net farm income is computed both with and without appreciation. Appreciation represents the change in values caused by annual changes in prices of livestock, machinery, real estate inventory, and stocks and certificates (other than Farm Credit). Appreciation is a major factor contributing to changes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

**NET FARM INCOME**  
68 Western and Central Plateau Region Dairy Farms, 1999

Item	Average		My Farm	
	Total	Per Cow	Total	Per Cow
Total accrual receipts	\$ 505,897		\$ _____	
Appreciation: Livestock	5,362		_____	
Machinery	5,071		_____	
Real Estate	12,387		_____	
Other Stock & Certificates	-154		_____	
Total Including Appreciation	\$ 528,563		\$ _____	
Total accrual expenses	- 431,084		- _____	
Net Farm Income (with appreciation)	\$ 97,479	\$ 650	\$ _____	\$ _____
Net Farm Income (without appreciation)	\$ 74,813	\$ 499	\$ _____	\$ _____

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

**NET FARM INCOME/COW AND MILK/COW**  
68 Western and Central Plateau Region Dairy Farms, 1999



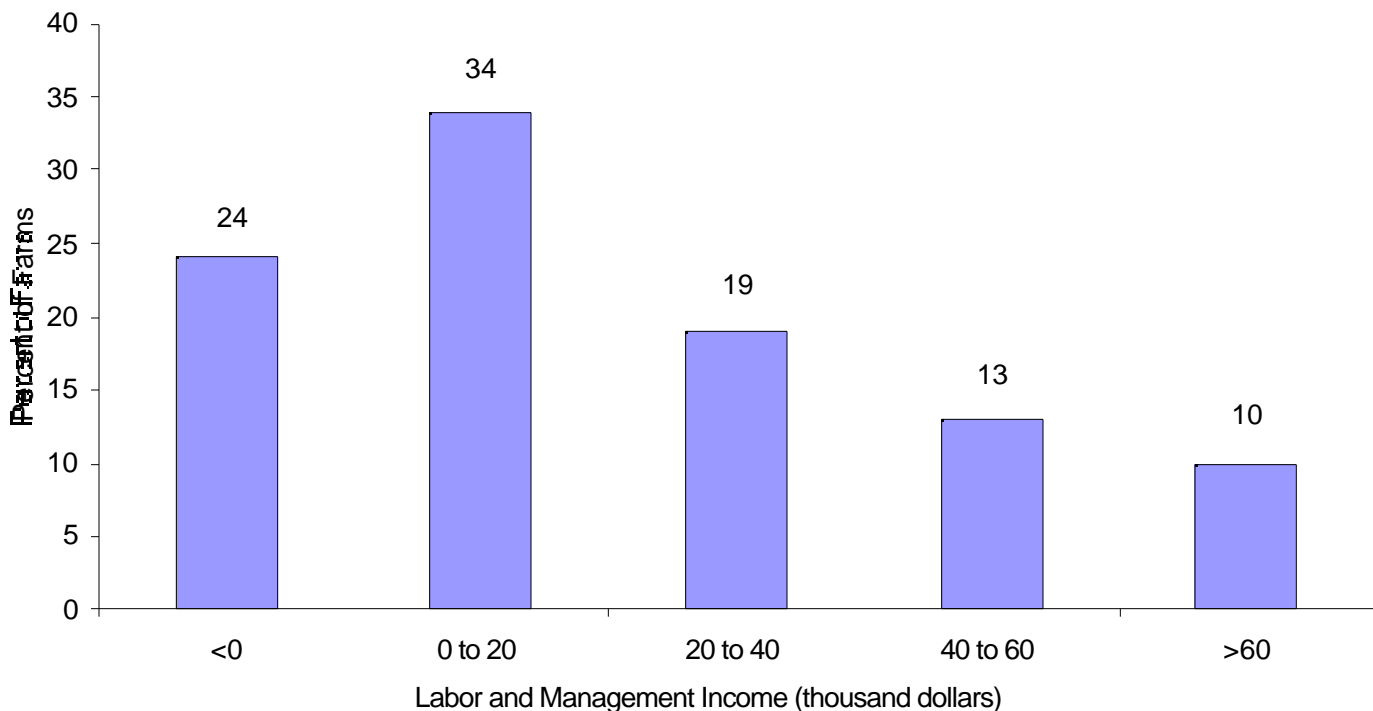
Labor and management income is the return which farm operators receive for their labor and management used in the farm business. Appreciation is not included as part of the return to labor and management because it results from ownership of assets rather than management of the farm business. Labor and 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**  
68 Western and Central Plateau Region Dairy Farms, 1999

Item	Average	My Farm
Net farm income without appreciation	\$ 74,813	\$ _____
Family labor unpaid @ \$1,800 per month	- 5,040	- _____
Interest on \$618,710 average equity capital @ 5% real rate	- 30,936	- _____
Labor & Management Income per farm (1.46 Operators/farm)	\$ 38,837	\$ _____
Labor & Management Income per Operator/Manager	\$ 26,601	\$ _____

Labor and management income per operator averaged \$26,601 on these 68 farms in 1999. The range in labor and management income per operator was from about \$-25,000 to more than \$300,000. Returns to labor and management were negative on 24% of the farms. Labor and management income per operator was between \$0 and \$40,000 on 53% of the farms while 23% showed labor and management incomes of \$40,000 or more per operator.

**DISTRIBUTION OF LABOR AND MANAGEMENT INCOMES PER OPERATOR**  
68 Western and Central Plateau Region Dairy Farms, 1999



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**  
68 Western and Central Plateau Region Dairy Farms, 1999

Item	Average	My Farm
Net farm income with appreciation	\$ 97,479	\$ _____
Family labor unpaid @\$1,800 per month	- 5,040	- _____
Value of operators' labor & management	- <u>39,615</u>	- _____
Return on equity capital with appreciation	\$ 52,824	\$ _____
Interest paid	+ <u>21,118</u>	+ _____
Return on total capital with appreciation	\$ 73,942	\$ _____
Return on equity capital without appreciation	\$ 30,158	\$ _____
Return on total capital without appreciation	\$ 51,276	\$ _____
Rate of return on average equity capital:		
with appreciation	8.5%	_____ %
without appreciation	4.9%	_____ %
Rate of return on average total capital:		
with appreciation	7.9%	_____ %
without appreciation	5.5%	_____ %
Net Farm Income from Operations Ratio	0.15	_____

**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 1999, lease payments were discounted by 8.5 percent to obtain their present value.

Advanced government receipts are included as current liabilities. Government payments received in 1999 that are for participation in the 2000 program are the end year balance and payments received in 1998 for participation in the 1999 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.

**1999 FARM BUSINESS & NONFARM BALANCE SHEET**  
68 Western and Central Plateau Region Dairy Farms, 1999

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$ 11,513	\$ 14,981	Accounts payable	\$ 9,510	\$ 10,751
Accounts receivable	32,662	26,000	Operating debt	9,070	9,751
Prepaid expenses	791	693	Short Term	3,959	1,768
Feed & supplies	79,702	86,489	Advanced govt. receipts	44	46
			Current Portion:		
			Intermediate	25,067	28,392
			Long Term	6,741	7,934
Total Current	\$ 124,668	\$ 128,163	Total Current	\$ 54,391	\$ 58,642
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy cows:			Structured debt		
owned	\$ 149,897	\$ 162,473	1-10 years	\$ 127,237	\$ 129,585
leased	387	3,571	Financial lease		
Heifers	64,409	71,135	(cattle/machinery)	6,798	9,364
Bulls & other livestock	1,258	967	Farm Credit stock	2,483	2,933
Mach. & equip. owned	172,356	190,788	Total Intermediate	\$ 136,518	\$ 141,882
Mach. & equip. leased	6,411	5,793			
Farm Credit stock	2,483	2,933			
Other stock/certificate	5,923	5,606			
Total Intermediate	\$ 403,124	\$ 443,266			
<u>Long Term</u>			<u>Long Term</u>		
Land & buildings:			Structured debt		
owned	\$ 366,320	\$ 397,435	>10 years	\$ 109,440	\$ 124,683
leased	2,590	1,889	Financial lease		
Total Long Term	\$ 368,910	\$ 399,324	(structures)	2,590	1,889
			Total Long Term	\$ 112,030	\$ 126,572
Total Farm Assets	\$ 896,702	\$ 970,753	Total Farm Liab.	\$ 302,939	\$ 327,096
			FARM NET WORTH	\$ 593,763	\$ 643,657

Nonfarm Assets, Liabilities & Net Worth (Average of 38 farms reporting)

Assets	Jan. 1	Dec. 31	Liabilities & Net Worth	Jan. 1	Dec. 31
Personal cash, checking & savings	\$ 5,823	\$ 5,876	Nonfarm Liabilities	\$ 10,169	\$ 8,826
Cash value life insurance	12,018	12,857			
Nonfarm real estate	15,820	16,263			
Auto (personal share)	4,653	4,891			
Stocks & bonds	25,406	34,179			
Household furnishings	10,516	11,574			
All other nonfarm assets	14,436	16,083			
Total Nonfarm Assets	\$ 88,672	\$ 101,723	NONFARM NET WORTH	\$ 78,503	\$ 92,897

Farm & Nonfarm Assets, Liabilities, and Net Worth*	Jan. 1	Dec. 31
Total Assets	\$ 985,374	\$1,072,476
Total Liabilities	313,108	335,922
<b>TOTAL FARM &amp; NONFARM NET WORTH</b>	<b>\$ 672,266</b>	<b>\$ 736,554</b>

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

The following condensed balance sheet, including deferred taxes, contains average data from only those farmers who elected to provide the additional information required to compute deferred taxes. Deferred taxes represent an estimate of the taxes that would be paid if the farm were sold at year end fair market values on the date of the balance sheet. Accuracy is dependent on the accuracy of the market values and the tax basis data provided. Any tax liability for assets other than livestock, machinery, land, buildings and nonfarm assets is excluded. It is assumed that all gain on purchased livestock and machinery is ordinary gain and that listed market values are net of selling costs. The effects of investment tax credit carryover and recapture, carryover of operating losses, alternative minimum taxes and other than average exemptions and deductions are excluded because they have only minor influence on the taxes of most farms. The dramatic impact of including deferred taxes is clear. Total liabilities were increased 65 percent on these 7 farms by including deferred taxes.

Deferred taxes on these seven farms totaled an average of \$326,603, roughly one-third of the pretax net worth. Percent equity decreased from 69 percent to 49 percent when deferred taxes are included on these farms. When examining net worth, especially as a source of cash for retirement or other purposes, deferred taxes become an important consideration. Deferred taxes in this calculation specify that all assets were sold during one tax year. Therefore, tax management strategies such as making sales in more than one year or installment sales warrant careful consideration to reduce income tax liabilities.

**CONDENSED BALANCE SHEET INCLUDING DEFERRED TAXES**

December 31, 1999

7 New York Dairy Farms, 1999

Assets		Liabilities & Net Worth	
		Current debts & payables	\$ 104,636
		Current deferred taxes	<u>70,588</u>
Total Current Assets	\$ 224,367	Total Current Liabilities	\$ 175,224
		Intermediate debts & leases	\$ 199,528
		Intermediate deferred taxes	<u>176,934</u>
Total Inter. Assets	\$ 780,678	Total Intermediate Liabilities	\$ 376,762
		Long term debts & leases	\$ 195,758
		Long term deferred taxes	<u>75,434</u>
Total Long Term Assets	\$ <u>619,939</u>	Total Long Term Liabilities	\$ 271,192
TOTAL FARM ASSETS	\$ 1,624,984	TOTAL FARM LIABILITIES	\$ 822,878
		Farm Net Worth	\$ 802,106
		Percent Equity (Farm)	49%
		Nonfarm debts	\$ 0
		Nonfarm deferred taxes	<u>3,647</u>
Total Nonfarm Assets	\$ 107,096	Total Nonfarm Liabilities	\$ 3,647
TOTAL ASSETS	\$ 1,732,080	TOTAL LIABILITIES	\$ 826,525
		Total Net Worth	\$ 905,555
		Percent Equity (Total)	52%

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 dollars 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**  
68 Western and Central Plateau Region Dairy Farms, 1999

Item	Average	My Farm		
<u>Financial Ratios - Farm:</u>				
Percent equity	66%	_____ %		
Debt/asset ratio: total	0.34	_____		
long-term	0.32	_____		
intermediate/current	0.35	_____		
Leverage Ratio:	0.51	_____		
Current Ratio:	2.19	_____		
Working capital \$69,521	As % of total expenses: 16%	_____		
<u>Farm Debt Analysis:</u>				
Accounts payable as % of total debt	3%	_____ %		
Long-term liabilities as a % of total debt	39%	_____ %		
Current & inter. liabilities as a % of total debt	61%	_____ %		
Cost of term debt (weighted average)	7.1%	_____ %		
<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	\$ 2,110	\$ 1,374	\$ _____	\$ _____
Long-term debt	817	532	_____	_____
Intermediate & long term	1,732	1,128	_____	_____
Intermediate & current debt	1,294	843	_____	_____

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**  
68 Western and Central Plateau Region Dairy Farms, 1999

Item	Average of Region's Farms	
	Real Estate	Machinery & Equipment
Value beginning of year	\$ 366,320	\$ 172,356
Purchases	\$ 48,912*	\$ 40,823
Gift & inheritance	+ 118	+ 279
Lost capital	- 12,670	_____
Sales	- 808	- 1,058
Depreciation	- 16,823	- 26,684
Net investment	= 18,728	= 13,361
Appreciation	+ 12,387	+ 5,071
Value end of year	\$ 397,435	\$ 190,788

\*\$7859 land and \$41,053 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)**  
68 Western and Central Plateau Region Dairy Farms, 1999

Item	Average	My Farm
Beginning of year farm net worth	\$ 593,763	\$ _____
Net farm income w/o appreciation	\$ 74,813	\$ _____
+Nonfarm cash income	+ 10,897	+ _____
-Personal withdrawals & family expenditures excluding nonfarm borrowings	<u>- 47,034</u>	- _____
RETAINED EARNINGS	+ \$ 38,676	+ \$ _____
Nonfarm noncash transfers to farm	\$ 397	\$ _____
+Cash used in business from nonfarm capital	+ 2,822	+ _____
-Note or mortgage from farm real estate sold (nonfarm)	<u>- 12</u>	- _____
CONTRIBUTED/WITHDRAWN CAPITAL	+ \$ 3,207	+ \$ _____
Appreciation	\$ 22,666	\$ _____
-Lost capital	<u>- 12,670</u>	- _____
CHANGE IN VALUATION EQUITY	+ \$ 9,996	+ \$ _____
IMBALANCE/ERROR	<u>- 1,985</u>	- \$ _____
End of year net worth*	= \$ 643,657	= \$ _____
<hr/>		
<u>Change in Net Worth</u>		
Without appreciation	\$ 27,228	\$ _____
With appreciation	\$ 49,894	\$ _____

\*May not add due to rounding.

**Cash Flow Statement**

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

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

**ANNUAL CASH FLOW STATEMENT**  
68 Western and Central Plateau Region Dairy Farms, 1999

Item	Average	
<u>Cash Flow from Operating Activities</u>		
Cash farm receipts	\$ 498,409	
- Cash farm expenses	<u>383,674</u>	
= Net cash farm income		\$ 114,735
Personal withdrawals & family expenses including nonfarm debt payments	\$ 47,295	
- Nonfarm income	<u>10,897</u>	
- Net cash withdrawals from the farm		<u>\$ 36,398</u>
= Net Provided by Operating Activities		\$ 78,337
<u>Cash Flow From Investing Activities</u>		
Sale of assets: machinery	\$ 1,058	
+ real estate	797	
+ other stock & cert.	<u>1,126</u>	
= Total asset sales		\$ 2,981
Capital purchases: expansion livestock	\$ 8,847	
+ machinery	40,823	
+ real estate	48,912	
+ other stock& cert.	<u>963</u>	
- Total invested in farm assets		<u>\$ 99,545</u>
= Net Provided by Investment Activities		\$ -96,564
<u>Cash Flow From Financing Activities</u>		
Money borrowed (intermediate & long term)	\$ 67,957	
+ Money borrowed (short term)	1,048	
+ Increase in operating debt	681	
+ Cash from nonfarm capital used in business	2,822	
+ Money borrowed - nonfarm	<u>261</u>	
= Cash inflow from financing		\$ 72,769
Principal payments (intermediate & long term)	\$ 45,848	
+ Principal payments (short term)	3,239	
+ Decrease in operating debt	<u>0</u>	
- Cash outflow for financing		<u>\$ 49,087</u>
= Net Provided by Financing Activities		\$ 23,682
<u>Cash Flow From Reserves</u>		
Beginning farm cash, checking & savings		\$ 11,513
- Ending farm cash, checking & savings		<u>14,981</u>
= Net Provided from Reserves		\$ -3,468
Imbalance (error)		<u>\$ 1,987</u>

## ANNUAL CASH FLOW STATEMENT

Item	My Farm		
<u>Cash Flow from Operating Activities</u>			
Cash farm receipts	\$ _____		
- Cash farm expenses	_____		
= Net cash farm income		\$ _____	
Personal withdrawals & family expenses including nonfarm debt payments	\$ _____		
- Nonfarm income	_____		
- Net cash withdrawals from the farm		\$ _____	
= Net Provided by Operating Activities			\$ _____
<u>Cash Flow From Investing Activities</u>			
Sale of assets:      machinery	\$ _____		
+ real estate	_____		
+ other stock & cert.	_____		
= Total asset sales		\$ _____	
Capital purchases:    expansion livestock	\$ _____		
+ machinery	_____		
+ real estate	_____		
+ other stock & cert.	_____		
- Total invested in farm assets		\$ _____	
= Net Provided by Investment Activities			\$ _____
<u>Cash Flow From Financing Activities</u>			
Money borrowed (intermediate & long term)	\$ _____		
+ Money borrowed (short term)	_____		
+ Increase in operating debt	_____		
+ Cash from nonfarm capital used in business	_____		
+ Money borrowed - nonfarm	_____		
= Cash inflow from financing		\$ _____	
Principal payments (intermediate & long term)	\$ _____		
+ Principal payments (short term)	_____		
+ Decrease in operating debt	_____		
- Cash outflow for financing		\$ _____	
= Net Provided by Financing Activities			\$ _____
<u>Cash Flow From Reserves</u>			
Beginning farm cash, checking & savings		\$ _____	
- Ending farm cash, checking & savings		_____	
= Net Provided from Reserves			\$ _____
Imbalance (error)			\$ _____

### 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 2000. The cash flow projection worksheet on the next page can be used to estimate repayment ability, which can then be compared to planned 2000 debt payments shown below.

#### FARM DEBT PAYMENTS PLANNED

Same 52 Western and Central Plateau Region Dairy Farms, 1998 & 1999

Debt Payments	Average			My Farm		
	1999 Payments		Planned 2000	1999 Payments		Planned 2000
	Planned	Made		Planned	Made	
Long term	\$ 16,770	\$ 20,795	\$ 14,763	\$ _____	\$ _____	\$ _____
Intermediate term	39,940	44,664	40,629	_____	_____	_____
Short term	2,958	4,303	1,959	_____	_____	_____
Operating (net reduction)	2,691	82	2,908	_____	_____	_____
Accounts payable (net reduction)	1,514	0	636	_____	_____	_____
Total	\$ 63,873	\$ 69,844	\$ 60,895	\$ _____	\$ _____	\$ _____
Per cow	\$ 473	\$ 517		\$ _____	\$ _____	
Per cwt. 1999 milk	\$ 2.33	\$ 2.55		\$ _____	\$ _____	
Percent of total 1999 farm receipts	14%	15%		_____	_____	
Percent of 1999 milk receipts	16%	17%		_____	_____	

The cash flow coverage ratio and debt coverage ratio measure the ability of the farm business to meet its planned debt payment schedule. The ratios show the percentage of payments planned for 1999 (as of December 31, 1998) that could have been made with the amount available for debt service in 1999. Farmers who did not participate in DFBS in 1998 have their 1999 ratios based on planned debt payments for 2000.

#### COVERAGE RATIOS

Same 52 Western and Central Plateau Region Dairy Farms, 1998 & 1999

Item	Average	Item	Average
<u>Cash Flow Coverage Ratio</u>		<u>Debt Coverage Ratio</u>	
Cash farm receipts	\$ 455,929	Net farm income (w/o apprec.)	\$ 60,609
- Cash farm expenses	353,828	+ Depreciation	40,539
+ Interest paid (cash)	19,829	+ Interest paid (accrual)	19,848
- Net personal withdrawals from farm*	30,748	- Net personal withdrawals from farm*	30,748
(A) = Amount Available for Debt Service	\$ 91,182	(A') = Repayment Capacity	\$ 90,248
(B) = Debt Payments Planned for 1999 (as of December 31, 1998)	\$ 63,873	(B) = Debt Payments Planned for 1999 (as of December 31, 1998)	\$ 63,873
(A/B) = Cash Flow Coverage Ratio for 1999	1.43	(A'/B) = Debt Coverage Ratio for 1999	1.41

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

## ANNUAL CASH FLOW WORKSHEET

Item	Regional Average		My Farm	Expected Change	2000 Projection
	Per Cow	Per Cwt.	Per Cow/ Per Cwt.		
Average no. of cows	150				
Total cwt. of milk sold		30,358			
<u>Accrual Operating Receipts</u>					
Milk	\$ 2,976	\$ 14.71	\$ _____	_____	\$ _____
Dairy cattle	215	1.06	_____	_____	_____
Dairy calves	26	0.13	_____	_____	_____
Other livestock	5	0.03	_____	_____	_____
Crops	22	0.11	_____	_____	_____
Misc. Receipts	<u>128</u>	<u>0.63</u>	_____	_____	_____
Total	\$ 3,373	\$ 16.66	\$ _____	_____	\$ _____
<u>Accrual Operating Expenses</u>					
Hired labor	\$ 371	\$ 1.83	\$ _____	_____	\$ _____
Dairy grain & concentrate	764	3.77	_____	_____	_____
Dairy roughage	43	0.21	_____	_____	_____
Nondairy feed	1	0.00	_____	_____	_____
Mach. hire, rent & lease	72	0.36	_____	_____	_____
Mach. repair & vehicle exp.	156	0.77	_____	_____	_____
Fuel, oil & grease	55	0.27	_____	_____	_____
Replacement livestock	15	0.08	_____	_____	_____
Breeding	35	0.17	_____	_____	_____
Vet & medicine	74	0.37	_____	_____	_____
Milk marketing	81	0.40	_____	_____	_____
Bedding	30	0.15	_____	_____	_____
Milking supplies	66	0.33	_____	_____	_____
Cattle lease	16	0.08	_____	_____	_____
Custom boarding	13	0.06	_____	_____	_____
bST	40	0.20	_____	_____	_____
Other livestock exp.	41	0.20	_____	_____	_____
Fertilizer & lime	67	0.33	_____	_____	_____
Seeds & plants	43	0.21	_____	_____	_____
Spray & other crop exp.	48	0.24	_____	_____	_____
Land, bldg., fence repair	69	0.34	_____	_____	_____
Taxes	53	0.26	_____	_____	_____
Real estate rent & lease	73	0.36	_____	_____	_____
Insurance	45	0.22	_____	_____	_____
Utilities	70	0.35	_____	_____	_____
Miscellaneous	<u>43</u>	<u>0.21</u>	_____	_____	_____
Total Less Interest Paid	\$ 2,384	\$ 11.78	\$ _____	_____	\$ _____
<u>Net Accrual Operating Income</u>					
(without interest paid)		<u>Total</u>			
	\$ 148,285		\$ _____		\$ _____
- Change in livestock & crop invent.*	14,151		_____	_____	_____
- Change in accounts receivable	-6,662		_____	_____	_____
- Change in feed & supply inventory**	6185		_____	_____	_____
+ Change in accounts payable***	<u>1241</u>		_____	_____	_____
NET CASH FLOW	\$ 135,838		\$ _____	_____	\$ _____
- Net family withdrawals	<u>\$ 36,137</u>		_____	_____	_____
Available for Farm	\$ 99,701		\$ _____	_____	_____
- Farm debt payments	<u>68,782</u>		_____	_____	_____
Available for Farm Investment	\$ 30,919		\$ _____	_____	\$ _____
- Capital purchases	<u>99,545</u>		_____	_____	_____
Additional Capital Needed	\$ 68,626		\$ _____	_____	\$ _____

\*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** 68 Western and Central Plateau Region Dairy Farms, 1999

Item	Average			My Farm		
<u>Land</u>	<u>Owned</u>	<u>Rented</u>	<u>Total</u>	<u>Owned</u>	<u>Rented</u>	<u>Total</u>
Tillable	238	152	390	_____	_____	_____
Nontillable	46	12	58	_____	_____	_____
Other nontillable	122	13	135	_____	_____	_____
Total	406	177	583	_____	_____	_____
<u>Crop Yields</u>	<u>Farms</u>	<u>Acres*</u>	<u>Prod/Acre</u>	<u>Acres</u>	<u>Prod/Acre</u>	
Hay crop	64	213	464 tn DM	_____	_____	tn DM
Corn silage	59		2.18 tn	_____	_____	tn
			13.78 tn DM	_____	_____	tn DM
Other forage	9	64	1.52 tn DM	_____	_____	tn DM
Total forage	65	355	3.04 tn DM	_____	_____	tn DM
Corn grain	19	69	99 bu	_____	_____	bu
Oats	12	24	49 bu	_____	_____	bu
Wheat	1	50	50 bu	_____	_____	bu
Other crops	9	35		_____	_____	
Tillable pasture	23	48		_____	_____	
Idle	12	33		_____	_____	
Total Tillable Acres	68	390		_____	_____	

\*This column represents the average acreage for the farms producing that crop. Average acreages including those farms not producing were hay crop 200, corn silage 130, corn grain 19, oats 4, tillable pasture 16, and idle 6.

Average crop acres and yields compiled for the region are for the farms reporting each crop. Yields of forage crops have been converted to tons of dry matter using dry matter coefficients reported by the farmers. Grain production has been converted to bushels of dry grain equivalent based on dry matter information provided.

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

#### **CROP/DAIRY RATIOS** 68 Western and Central Plateau Region Dairy Farms, 1999

Item	Average	My Farm
Total tillable acres per cow	2.60	_____
Total forage acres per cow	2.26	_____
Harvested forage dry matter, tons per cow	6.87	_____

**Cropping Analysis** (continued)

A number of cooperators have allocated crop expenses among the hay crop, corn, and other crops produced. Fertilizer and lime, seeds and plants, and spray and other crop expenses have been computed per acre and per production unit for hay and corn. Additional expense items such as fuels, labor, and machinery repairs are not included. Rotational grazing was used on 26 farms in the region.

**CROP RELATED ACCRUAL EXPENSES**

Western and Central Plateau Region Dairy Farms Reporting, 1999

Item	Total Per Till. Acre	All Corn Per Acre	Corn Silage Per Ton DM	Corn Grain Per Dry Sh. Bu.	Hay Crop		Pasture	
					Per Acre	Per Ton DM	Per Till Acre	Per Total Acre
No. of farms reporting	68	8			8		6	
Ave. number of acres	390	99			216		12	62
Fert. & lime	\$ 25.81	\$ 33.82	\$ 7.18	\$ 0.40	\$ 23.41	\$ 11.57	\$ 31.17	\$ 6.03
Seeds & plants	16.56	28.49	6.05	0.33	9.34	4.62	13.92	2.69
Spray & other crop exp.	18.43	43.80	9.29	0.51	5.68	2.81	3.00	0.58
TOTAL	\$ 60.80	\$ 106.11	\$ 22.52	\$ 1.24	\$ 38.43	\$ 19.00	\$ 48.09	\$ 9.30

My Farm

Fert. & lime	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____
Seeds & plants	_____	_____	_____	_____	_____	_____	_____	_____
Spray & other crop exp.	_____	_____	_____	_____	_____	_____	_____	_____
TOTAL	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____

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**

68 Western and Central Plateau Region Dairy Farms, 1999

Machinery Expense	Average		My Farm	
	Total Expenses	Per Till. Acre	Total Expenses	Per Till. Acre
Fuel, oil & grease	\$ 8,231	\$ 21.11	\$ _____	\$ _____
Mach. repair & vehicle exp.	23,367	59.92	_____	_____
Machine hire, rent & lease	10,801	27.69	_____	_____
Interest (5%)	9,384	24.06	_____	_____
Depreciation	26,684	68.42	_____	_____
Total	\$ 78,467	\$ 201.20	\$ _____	\$ _____

**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 6 and 7.

**DAIRY HERD INVENTORY**

68 Western and Central Plateau Region Dairy Farms, 1999

Item	Dairy Cows		Heifer					
	No.	Value	Bred		Open		Calves	
	No.	Value	No.	Value	No.	Value	No.	Value
Beg. year (owned)	140	\$149,897	39	\$ 35,216	36	\$ 20,234	34	\$ 8,959
+ Change w/o apprec.		9,415		3,055		1,098		395
+ Appreciation		<u>3,161</u>		<u>1,150</u>		<u>501</u>		<u>527</u>
End year (owned)	147	\$162,473	42	\$ 39,421	37	\$ 21,833	36	\$ 9,881
End including leased	155							
Average number	150		113	(all age groups)				

**My Farm:**

Beg. year (owned)	_____	\$ _____	_____	\$ _____	_____	\$ _____	_____	\$ _____
+ Change w/o apprec.		_____		_____		_____		_____
+ Appreciation		_____		_____		_____		_____
End year (owned)	_____	\$ _____	_____	\$ _____	_____	\$ _____	_____	\$ _____
End including leased	_____							
Average number	_____		_____	(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.

**MILK PRODUCTION**

68 Western and Central Plateau Region Dairy Farms, 1999

Item	Average	My Farm
Total milk sold, lbs.	3,035,818 lbs.	_____
Milk sold per cow, lbs.	20,302 lbs.	_____
Average milk plant test, percent butterfat	3.69%	_____

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**

68 Western and Central Plateau Region Dairy Farms, 1999

Item	Average		My Farm	
	Number	Percent*	Number	Percent*
Cows sold for beef	34	22.7	_____	_____
Cows sold for dairy	3	2.0	_____	_____
Cows died	6	4.0	_____	_____
Culling rate**		26.7		_____

\*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**  
68 Western and Central Plateau Region Dairy Farms, 1999

Item	Average			My Farm		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
<u>Accrual Cost of Producing Milk</u>						
Operating costs	\$ 328,148	\$ 2,188	\$ 10.81	\$ _____	\$ _____	\$ _____
Purchased inputs costs	\$ 371,655	\$ 2,478	\$ 12.24	\$ _____	\$ _____	\$ _____
Total Costs	\$ 447,246	\$ 2,982	\$ 14.73	\$ _____	\$ _____	\$ _____
<u>Accrual Receipts</u>						
<u>From Milk</u>	\$ 446,468	\$ 2,976	\$ 14.71	\$ _____	\$ _____	\$ _____
Net Milk Receipts	\$ 434,348	\$ 2,896	\$ 14.31	\$ _____	\$ _____	\$ _____
Net Farm Income without Apprec.	\$ 74,813	\$ 499	\$ 2.46	\$ _____	\$ _____	\$ _____
Net Farm Income with Apprec.	\$ 97,479	\$ 650	\$ 3.21	\$ _____	\$ _____	\$ _____

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

**DAIRY RELATED ACCRUAL EXPENSES**  
68 Western and Central Plateau Region Dairy Farms, 1999

Item	Average		My Farm	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	\$ 764	\$ 3.77	\$ _____	\$ _____
Purchased dairy roughage	43	0.21	_____	_____
Total Purchased Dairy Feed	\$ 807	\$ 3.99	\$ _____	\$ _____
Purchased grain & conc. as % of milk receipts		26%	_____	%
Purchased feed & crop exp.	\$ 965	\$ 4.77	\$ _____	\$ _____
Purchased feed & crop exp. as % of milk receipts		32%	_____	%
Breeding	\$ 35	\$ 0.17	\$ _____	\$ _____
Veterinary & medicine	74	0.37	_____	_____
Milk marketing	81	0.40	_____	_____
Bedding	30	0.15	_____	_____
Milking supplies	66	0.33	_____	_____
Cattle lease	16	0.08	_____	_____
Custom boarding	13	0.06	_____	_____
bST	40	0.20	_____	_____
Other livestock expense	41	0.20	_____	_____

**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. When evaluating a business, the relationship between capital efficiency and labor efficiency should be explored. For example, if capital efficiency shows high capital investment per worker or per cow, labor efficiency should be high reflecting use of capital to make labor more effective. However, if capital investment is high per worker or per cow, and labor efficiency is low, a problem may exist on that farm.

**CAPITAL EFFICIENCY**  
68 Western and Central Plateau Region Dairy Farms, 1999

Item	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
Farm capital	\$ 220,219	\$ 6,225	\$ 2,394	\$ 3,923
Real estate		2,561		1,614
Machinery & equipment	44,263	1,251	481	
<u>Ratios</u>				
Asset turnover	Operating Expense	Interest Expense	Depreciation Expense	
0.57	0.72	0.04	0.09	
<u>My Farm</u>				
Farm capital	\$ _____	\$ _____	\$ _____	\$ _____
Real estate	_____	_____	_____	_____
Machinery & equipment	_____	_____	_____	_____
<u>Ratios</u>				
Asset turnover	Operating Expense	Interest Expense	Depreciation Expense	
_____	_____	_____	_____	

**LABOR FORCE INVENTORY**  
68 Western and Central Plateau Region Dairy Farms, 1999

Labor Force	Months	Age	Years of Educ.	Value of Labor & Mgmt.
Operator number 1	14.1	46	14	\$ 28,379
Operator number 2	4.5	45	13	9,324
Operator number 3	0.7	35	15	1,912
Family paid	4.7			
Family unpaid	2.8			
Hired	24.2			
Total	50.9	/ 12 = 4.24 Worker Equivalent 1.46 Operator/Manager Equivalent		
<u>My Farm: Total</u>				
Operator's	_____	/ 12 = _____ Worker Equivalent Operator/Manager Equivalent		

Small conventional stall operations of 60 or less cows should strive for labor efficiency of 600,000 or more pounds of milk sold per worker. Large conventional stall operations should strive for 850,000 or more pounds of milk sold per worker. Small free stall operations of less than 300 cows should strive for 1,000,000 pounds of milk sold per worker and large free stall operations with more than 300 cows should strive for over 1,200,000 pounds of milk sold per worker.

Labor costs and machinery costs should also be evaluated both individually and jointly. The more machinery or technology at a worker's disposal, the less time, and therefore cost, that should be required to get work accomplished. Striving for labor and machinery costs per cow of less than \$1,000 on small conventional stall barns, less than \$900 on large conventional stall barns, less than \$850 on small free stall barns and below \$750 on large free stall barns should be a goal.

### LABOR EFFICIENCY

68 Western and Central Plateau Region Dairy Farms, 1999

Labor Efficiency	Average		My Farm	
	Total	Per Worker	Total	Per Worker
Cows, average number	150	35	_____	_____
Milk sold, pounds	3,035,818	715,995	_____	_____
Tillable acres	390	92	_____	_____
Work units	1,526	360	_____	_____

### LABOR AND MACHINERY COSTS

68 Western and Central Plateau Region Dairy Farms, 1999

Labor Costs	Average			My Farm		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Value of operator(s) labor (\$1,800/mo.)	\$ 34,740	\$ 232	\$ 1.14	\$ _____	\$ _____	\$ _____
Family unpaid (\$1,800/mo.)	5,040	34	0.17	_____	_____	_____
Hired	<u>55,631</u>	<u>371</u>	<u>1.83</u>	_____	_____	_____
Total Labor	\$ 95,411	\$ 636	\$ 3.14	\$ _____	\$ _____	\$ _____
Machinery Cost	\$ 78,467	\$ 523	\$ 2.58	\$ _____	\$ _____	\$ _____
Total Labor & Mach.	\$ 173,878	\$ 1,159	\$ 5.73	\$ _____	\$ _____	\$ _____
Hired labor expense per hired worker equivalent		\$ 23,099		\$ _____		
Hired labor expense as % of milk sales		12.5%		_____%		

## COMPARATIVE ANALYSIS OF THE FARM BUSINESS

### Progress of the Farm Business

Comparing your business with average data from regional DFBS cooperators that participated in both of the last two years can be helpful to establishing your goals for these parameters. 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 52 Western and Central Plateau Region Dairy Farms, 1998 & 1999

Selected Factors	Average of 52 Farms*		My Farm		
	1998	1999	1998	1999	Goal
<u>Size of Business</u>					
Average number of cows	132	135	_____	_____	_____
Average number of heifers	106	107	_____	_____	_____
Milk sold, lbs.	2,597,569	2,743,988	_____	_____	_____
Worker equivalent	3.81	3.91	_____	_____	_____
Total tillable acres	358	357	_____	_____	_____
<u>Rates of Production</u>					
Milk sold per cow, lbs.	19,610	20,277	_____	_____	_____
Hay DM per acre, tons	2.6	2.2	_____	_____	_____
Corn silage per acre, tons	16.8	14.7	_____	_____	_____
<u>Labor Efficiency</u>					
Cows per worker	35	35	_____	_____	_____
Milk sold/worker, lbs.	681,777	701,787	_____	_____	_____
<u>Cost Control</u>					
Grain & conc. purchased as % of milk sales	25%	25%	_____%	_____%	_____%
Dairy feed & crop exp. per cwt. milk	\$ 4.77	\$ 4.61	\$ _____	\$ _____	\$ _____
Labor & mach. costs/cow	\$ 1,106	\$ 1,224	\$ _____	\$ _____	\$ _____
Operating cost of producing cwt. of milk	\$ 11.42	\$ 11.08	\$ _____	\$ _____	\$ _____
<u>Capital Efficiency**</u>					
Farm capital per cow	\$ 6,620	\$ 6,544	\$ _____	\$ _____	\$ _____
Mach. & equip. per cow	\$ 1,268	\$ 1,304	\$ _____	\$ _____	\$ _____
Asset turnover ratio	0.52	0.54	_____	_____	_____
<u>Profitability</u>					
Net farm income w/o apprec.	\$ 69,066	\$ 60,609	\$ _____	\$ _____	\$ _____
Net farm income w/apprec.	\$ 91,391	\$ 84,960	\$ _____	\$ _____	\$ _____
Labor & mgt. income per operator/manager	\$ 26,215	\$ 19,679	\$ _____	\$ _____	\$ _____
Rate of return on equity capital w/appreciation	8.8%	7.5%	_____%	_____%	_____%
Rate of return on all capital w/appreciation	8.6%	7.2%	_____%	_____%	_____%
<u>Financial Summary</u>					
Farm net worth, end year	\$ 601,286	\$ 612,627	\$ _____	\$ _____	\$ _____
Debt to asset ratio	0.33	0.32	_____	_____	_____
Farm debt per cow	\$ 2,191	\$ 2,110	\$ _____	\$ _____	\$ _____

\*Farms participating both years.

\*\*Average for the year.

**RECEIPTS AND EXPENSES PER COW AND PER CWT.**  
Same 52 Western and Central Plateau Region Dairy Farms, 1998 & 1999

Item	1998		1999	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	132		135	
Cwt. Of Milk Sold		25,976		27,440
<u>ACCRUAL OPERATING RECEIPTS</u>				
Milk	\$ 3,043	\$ 15.46	\$ 3,002	\$ 14.77
Dairy cattle	105	0.53	181	0.89
Dairy calves	21	0.11	26	0.13
Other livestock	1	0.01	6	0.03
Crops	50	0.25	18	0.09
Miscellaneous receipts	85	0.43	146	0.72
Total Receipts	\$ 3,305	\$ 16.80	\$ 3,378	\$ 16.62
<u>ACCRUAL OPERATING EXPENSES</u>				
Hired labor	\$ 358	\$ 1.82	\$ 388	\$ 1.91
Dairy grain & concentrate	761	3.86	752	3.70
Dairy roughage	24	0.12	27	0.13
Nondairy feed	3	0.02	1	0.01
Machine hire/rent/lease	54	0.27	79	0.39
Mach. repair & vehicle exp.	163	0.83	182	0.89
Fuel, oil & grease	54	0.27	50	0.24
Replacement livestock	20	0.10	20	0.10
Breeding	37	0.19	37	0.18
Veterinary & medicine	80	0.41	82	0.40
Milk marketing	89	0.45	90	0.44
Bedding	22	0.11	27	0.13
Milking supplies	71	0.36	70	0.35
Cattle lease	4	0.02	11	0.06
Custom boarding	13	0.06	17	0.08
bST expense	26	0.13	34	0.17
Other livestock expense	34	0.17	43	0.21
Fertilizer & lime	68	0.35	65	0.32
Seeds & plants	44	0.23	47	0.23
Spray/other crop expense	42	0.21	47	0.23
Land, building, fence repair	52	0.26	66	0.33
Taxes	65	0.33	55	0.27
Real estate rent/lease	67	0.34	79	0.39
Insurance	44	0.22	44	0.22
Utilities	78	0.40	74	0.36
Interest paid	183	0.93	147	0.72
Miscellaneous	38	0.19	37	0.18
Total Operating Expenses	\$ 2,494	\$ 12.67	\$ 2,572	\$ 12.65
Expansion Livestock	15	0.08	57	0.28
Machinery Depreciation	168	0.86	190	0.94
Real Estate Depreciation	104	0.53	110	0.54
Total Expenses	\$ 2,782	\$ 14.14	\$ 2,929	\$ 14.41
Net Farm Income Without Appreciation	\$ 523	\$ 2.66	\$ 449	\$ 2.21

### 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

68 Western and Central Plateau Region Dairy Farms, 1999

Size of Business			Rate of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
9.27	382	8,163,515	23,701	4.0	20	48	955,791
4.82	180	3,544,503	21,707	2.5	16	38	798,888
3.41	101	1,965,922	20,052	2.1	14	32	658,011
2.43	62	1,257,344	17,889	1.7	12	27	492,988
1.68	41	650,405	14,262	1.2	8	18	304,844

Cost Control						
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk	
(10)	(10)	(11)	(11)	(10)	(10)	
\$485	17%	\$281	\$860	\$648	\$3.54	
635	23	441	1,119	837	4.29	
729	26	572	1,254	944	4.70	
821	29	654	1,465	1,029	5.18	
951	37	808	1,757	1,194	6.82	

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income w/Apprec.	Net Farm Inc. w/o Apprec.	Labor & Mgt. Inc. Per Oper.	Change in Net Worth w/Apprec.
(10)	(10)	(10)	(3)	(3)	(3)	(6)
\$3,541	\$8.17	\$12.91	\$249,157	\$203,197	\$96,504	\$165,300
3,163	9.83	14.47	118,430	86,085	34,301	57,194
2,947	10.68	15.18	67,586	49,827	16,466	26,675
2,611	11.41	16.28	41,107	31,471	4,890	12,085
2,048	12.34	19.93	23,447	13,457	-11,549	-3,018

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

### 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 305 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

305 New York Dairy Farms, 1998

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds of Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
17.7	818	18,659,239	24,782	5.6	25	60	1,213,375
9.0	365	7,984,872	22,729	4.0	20	49	982,534
6.3	249	5,091,408	21,731	3.5	19	43	873,970
4.9	186	3,588,651	20,901	3.2	18	39	794,942
4.1	141	2,697,927	20,005	2.9	17	36	723,687
3.4	114	2,120,238	18,963	2.6	15	33	634,010
2.9	87	1,569,921	18,013	2.4	15	31	571,211
2.4	70	1,208,198	16,811	2.0	13	28	497,995
2.0	55	945,508	15,346	1.7	12	24	406,116
1.5	41	605,365	12,354	1.2	9	19	286,759
Cost Control							
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk		
(10)	(10)	(11)	(11)	(10)	(10)		
\$372	15%	\$240	\$677	\$527	\$3.31		
531	19	333	854	709	4.15		
602	21	391	946	821	4.49		
667	23	430	1,015	902	4.75		
736	24	461	1,084	963	4.92		
786	26	489	1,139	1,021	5.14		
858	27	538	1,216	1,069	5.35		
910	29	589	1,280	1,117	5.67		
965	30	650	1,396	1,189	6.06		
1,086	36	814	1,636	1,345	6.95		

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

**FARM BUSINESS CHART FOR  
FARM MANAGEMENT COOPERATORS**  
305 New York Dairy Farms, 1998

Milk Receipts Per Cow	Milk Receipts Per Cwt.	Oper. Cost Milk Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cow	Total Cost Production Per Cwt.
(10)	(10)	(10)	(10)	(10)	(10)
\$3,923	\$17.67	\$1,145	\$7.54	\$1,989	\$12.16
3,542	16.44	1,620	9.21	2,433	13.53
3,375	16.14	1,840	10.11	2,648	14.03
3,262	15.91	2,007	10.78	2,837	14.48
3,118	15.68	2,152	11.21	2,953	15.01
-----					
2,989	15.49	2,266	11.58	3,063	15.58
2,834	15.33	2,357	11.94	3,158	16.16
2,642	15.15	2,483	12.36	3,292	16.92
2,403	14.94	2,638	13.10	3,468	18.02
1,955	14.46	2,970	14.67	3,804	21.84

Profitability						
Net Farm Income Without Appreciation			Net Farm Income With Appreciation		Labor & Management Income	
Total	Per Cow	As % of Total Accrual Receipts	Total	Per Cow	Per Farm	Per Operator
(3)	(10)	(3)	(3)	(10)	(3)	(3)
\$558,217	\$1,400	36.2%	\$637,385	\$1,600	\$445,672	\$279,033
239,284	1,008	28.8	286,419	1,163	183,141	123,641
163,816	847	24.3	192,008	1,011	117,794	81,298
120,708	736	21.4	138,655	886	78,588	53,310
89,022	664	19.6	111,202	778	52,535	37,531
-----						
65,933	587	17.2	81,693	695	36,739	25,362
48,395	503	14.8	60,860	616	22,436	18,606
35,925	417	12.6	45,218	519	13,801	10,644
24,337	288	8.9	32,533	408	613	585
-2,216	-29	-2.3	9,630	81	-31,139	-25,856

Farm Business Charts for farms with freestall barns and 150 cows or less, 151-300 cows, and more than 300 cows; and farms with conventional barns with 60 cows or less and more than 60 cows are shown on pages 30-34.

**Financial Analysis Chart**

The farm financial analysis chart on page 27 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 6, 10, 14 and 20 of this publication. References to DFBS output page numbers for participating dairy farmers are provided in the table headings.

**FINANCIAL ANALYSIS CHART**  
305 New York Dairy Farms, 1998

Liquidity (repayment)							
Planned Debt Payments Per Cow	Available for Debt Service Per Cow	Cash Flow Coverage Ratio	Debt Coverage Ratio	Debt Payments as Percent of Milk Sales	Debt Per Cow	Working Capital as % of Total Expenses	Current Ratio
(8)*	(12)	(8)	(8)	(8)	(5)	(5)	(5)
\$153	\$1,029	4.05	5.71	5%	\$ 245	57%	21.41
257	786	2.17	3.34	8	996	35	4.68
332	699	1.64	2.58	10	1,455	28	3.33
376	620	1.33	2.05	12	1,878	23	2.55
428	551	1.17	1.74	14	2,234	18	2.20
466	501	1.05	1.54	16	2,552	15	1.83
521	434	0.93	1.37	17	2,846	11	1.53
592	363	0.82	1.18	20	3,232	7	1.23
672	286	0.65	0.96	24	3,720	-1	0.89
916	121	0.31	0.45	34	4,872	-19	0.37
Solvency				Profitability			
Leverage Ratio*	Percent Equity	Debt/Asset Ratio		Percent Rate of Return with appreciation on:			
		Current & Intermediate	Long Term	Equity	Investment**		
(5)	(5)	(5)	(5)	(3)	(3)		
0.03	97%	0.03	0.00	66%	22%		
0.15	88	0.12	0.00	25	16		
0.26	80	0.21	0.05	19	14		
0.39	73	0.27	0.20	15	12		
0.50	67	0.34	0.31	12	10		
0.66	60	0.39	0.40	8	8		
0.86	54	0.44	0.50	6	6		
1.05	49	0.52	0.59	4	5		
1.46	40	0.64	0.74	0	2		
5.11	22	0.89	1.06	-11	-3		
Efficiency (Capital)							
Asset Turnover (ratio)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow	Change in Net Worth w/Appreciation	Farm Net Worth, End Year		
(11)	(11)	(11)	(11)	(6)	(4)		
.88	\$1,168	\$468	\$4,082	\$478,029	\$2,785,709		
.73	1,799	735	4,883	219,066	1,321,601		
.67	2,046	920	5,485	141,745	976,350		
.61	2,338	1,053	5,884	96,333	778,003		
.57	2,552	1,166	6,276	69,352	603,968		
.52	2,883	1,284	6,684	51,363	495,813		
.47	3,368	1,451	7,292	34,092	419,736		
.42	3,719	1,668	7,893	21,295	333,496		
.38	4,437	1,972	8,959	12,506	239,027		
.28	6,703	2,685	11,552	-7,015	109,101		

\*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 29 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 591 cows on the largest freestall farms.

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

Farm business charts have been computed for each of the five housing and herd size categories and are on pages 30-34. 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 46-55 of the 1998 State Summary\*. As herd size increases, the average profitability generally increases (page 46)\*. Net farm income without appreciation averaged \$ 27,041 per farm for the less than 50 cow farms and \$511,797 per farm for those with 500 cows and over. This relationship generally holds for all measures of profitability including rate of return on capital.

Farm net worth increases rapidly as herd size increases (pages 50-53)\*, even though percent equity was higher on the smaller farms. The group with 150 to 199 cows demonstrated the strongest ability to make debt payments.

Crop yields showed little relationship to herd size, but fertilizer and lime expenses, and machinery cost per tillable acre generally increased as herd size increased (pages 54-55)\*. The farms with 500 and more cows per farm averaged 39 percent more milk sold per cow than the smallest farms. All of the groups with 100 or more cows averaged above 18,000 pounds of milk sold per cow while the farms smaller than 100 cows averaged 17,294 pounds of milk sold per cow. Farm capital per worker increased, and farm capital per cow decreased as herd size increased. Milk sold per worker increased dramatically as herd size increased, ranging from 357,838 pounds at the lowest herd size category up to 1,077,310 pounds at the largest size category.

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\*Wayne A. Knoblauch, Linda D. Putnam, and Jason Karszes, Dairy Farm Management Business Summary, New York, 1998, Department of Agricultural, Resource, and Managerial Economics, Cornell University, R.B. 99-11, October 1999.

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

274 New York Dairy Farms, 1998

Item	Farms with:	Conventional		Freestall		
		<= 60 Cows	>60 Cows	<=150 Cows	151-300 Cows	≥300 Cows
Number of farms		53	39	66	56	60
<u>Cropping Program Analysis</u>						
Total Tillable acres		165	263	326	543	1,146
Tillable acres rented*		69	100	138	271	555
Hay crop acres*		112	160	172	270	465
Corn silage acres*		24	63	89	180	505
Hay crop, tons DM/acre		2.0	2.3	2.5	3.0	3.8
Corn silage, tons/acre		13.3	14.9	16.1	16.3	19.8
Oats, bushels/acre		75	56	52	47	66
Forage DM per cow, tons		7.2	8.1	8.6	8.3	8.5
Tillable acres/cow		3.5	3.1	3.1	2.6	1.9
Fert. & lime exp./tillable acre		\$17.95	\$26.24	\$28.43	\$32.29	\$34.34
Total machinery costs		\$22,864	\$41,223	\$55,148	\$103,065	\$264,568
Machinery cost/tillable acre		\$139	\$157	\$169	\$190	\$231
<u>Dairy Analysis</u>						
Number of cows		47	84	105	213	591
Number of heifers		37	66	79	147	441
Milk sold, lbs.		791,111	1,477,898	1,965,704	4,296,849	13,224,652
Milk sold/cow, lbs.		16,705	17,514	18,794	20,166	22,361
Operating cost of prod. milk/cwt.		\$10.68	\$10.97	\$11.38	\$11.32	\$11.73
Total cost of prod. milk/cwt.		\$17.71	\$15.59	\$15.87	\$14.49	\$14.03
Price/cwt. milk sold		\$15.65	\$15.69	\$15.72	\$15.66	\$15.52
Purchased dairy feed/cow		\$762	\$686	\$748	\$848	\$948
Purchased dairy feed/cwt. milk		\$4.53	\$3.90	\$3.99	\$4.21	\$4.24
Purchased grain & conc. as % milk rec.		26%	24%	24%	25%	26%
Purchased feed & crop exp./cwt. milk		\$5.25	\$4.81	\$5.07	\$5.10	\$4.97
<u>Capital Efficiency</u>						
Farm capital/worker		\$191,199	\$195,535	\$242,573	\$245,829	\$255,970
Farm capital/cow		\$8,217	\$6,774	\$7,277	\$6,117	\$5,708
Farm capital/tillable acre owned		\$3,982	\$3,491	\$4,064	\$4,790	\$5,708
Real estate/cow		\$4,190	\$3,171	\$3,363	\$2,407	\$2,228
Machinery investment/cow		\$1,657	\$1,231	\$1,483	\$1,122	\$966
Asset turnover ratio		0.38	0.48	0.47	0.60	0.70
<u>Labor Efficiency</u>						
Worker equivalent		2.02	2.91	3.15	5.30	13.18
Operator/manager equivalent		1.28	1.41	1.48	1.83	2.11
Milk sold/worker, lbs.		391,639	507,869	624,033	810,726	1,003,388
Cows/worker		23	29	33	40	45
Labor cost/cow		\$806	\$621	\$586	\$525	\$628
Labor cost/tillable acre		\$230	\$198	\$189	\$206	\$324
<u>Profitability &amp; Balance Sheet Analysis</u>						
Net farm income (without appreciation)		\$30,102	\$54,203	\$62,018	\$138,638	\$364,377
Labor & management income/operator		\$6,741	\$20,304	\$21,661	\$54,175	\$129,894
Rate Return on all capital with appreciation		3.4%	7.5%	7.2%	11.0%	14.2%
Farm debt/cow		\$2,082	\$2,048	\$2,495	\$2,590	\$2,672
Percent equity		75%	70%	66%	58%	54%

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

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

53 Conventional Stall Dairy Farms with 60 or Less Cows, New York, 1998

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
3.47	60	1,213,974	22,414	3.6	20	43	804,775
2.59	56	1,115,950	20,984	3.0	17	33	584,622
2.30	53	969,147	19,704	2.7	17	31	526,572
2.18	52	910,457	18,688	2.5	15	28	480,534
2.00	50	841,239	17,718	2.2	14	25	422,827
-----							
1.93	47	734,546	16,635	1.9	13	23	383,398
1.77	44	691,731	15,499	1.7	12	22	330,871
1.64	43	615,265	14,244	1.5	11	21	313,102
1.49	40	551,769	13,010	1.3	10	19	271,059
1.15	34	423,579	9,678	1.0	7	15	208,163
-----							
Cost Control							
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk		
(10)	(10)	(11)	(11)	(10)	(10)		
\$330	15%	\$198	\$768	\$459	\$3.38		
455	20	279	984	628	4.10		
554	21	366	1,133	717	4.45		
591	23	412	1,218	772	4.78		
627	24	442	1,251	813	4.99		
-----							
675	26	475	1,341	866	5.30		
729	27	546	1,416	986	5.78		
813	31	620	1,483	1,070	6.37		
913	36	692	1,557	1,207	6.96		
1,146	41	889	1,902	1,423	7.96		
-----							
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.	
(10)	(10)	(10)	Total (3)	Per Cow (10)	(3)	(6)	
\$3,463	\$6.99	\$13.73	\$72,327	\$1,545	\$46,972	\$118,868	
3,283	8.72	14.95	55,042	1,076	26,726	41,671	
3,033	9.36	15.79	46,872	929	19,210	31,493	
2,857	9.89	16.25	38,282	812	16,632	25,222	
2,737	10.30	16.70	34,460	712	13,361	20,378	
-----							
2,604	11.08	17.88	30,197	654	9,532	17,774	
2,497	11.45	18.88	25,617	542	6,832	15,511	
2,285	12.20	20.55	17,308	382	-2,126	10,875	
2,057	13.60	23.87	8,173	203	-18,059	5,850	
1,583	16.68	27.05	-11,910	-297	-37,361	-15,976	

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

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

39 Conventional Stall Dairy Farms with More Than 60 Cows, New York, 1998

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds of Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
5.24	161	2,763,364	22,863	3.8	21	53	1,009,752
4.07	110	2,105,279	21,758	3.5	20	40	722,044
3.45	96	1,798,060	19,506	2.9	17	35	621,670
3.28	80	1,590,816	18,464	2.7	17	33	598,191
3.02	77	1,443,208	17,877	2.5	15	31	534,641
2.63	75	1,253,686	17,241	2.3	15	29	495,293
2.41	70	1,225,162	16,557	2.2	14	28	448,695
2.21	67	1,133,080	15,475	1.7	13	25	384,068
1.89	65	1,011,210	14,142	1.4	12	22	360,156
1.51	63	776,485	11,787	0.7	8	19	308,412
Cost Control							
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk		
(10)	(10)	(11)	(11)	(10)	(10)		
\$285	11%	\$250	\$791	\$429	\$2.65		
476	18	322	886	599	3.67		
500	21	387	958	654	4.09		
564	21	442	990	678	4.38		
609	24	464	1,054	818	4.70		
671	26	508	1,160	918	4.87		
722	27	571	1,226	981	5.12		
855	29	616	1,294	1,025	5.53		
928	31	642	1,376	1,100	6.11		
1,009	36	703	1,550	1,172	7.00		
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.	
(10)	(10)	(10)	Total	Per Cow	(3)	(6)	
\$3,480	\$6.64	\$12.63	\$122,059	\$1,342	\$68,860	\$108,358	
3,232	8.60	13.75	86,039	1,069	46,336	80,096	
3,049	9.26	14.58	74,714	844	33,436	58,341	
2,934	10.34	15.04	66,359	749	27,831	50,994	
2,870	10.89	15.48	53,196	685	24,685	40,508	
2,806	11.26	15.84	46,370	570	21,464	26,551	
2,581	11.92	16.40	39,278	481	16,204	20,234	
2,441	12.48	16.98	33,241	425	9,226	13,951	
2,185	13.08	17.45	27,708	368	4,516	9,220	
1,867	14.25	19.76	10,031	133	-8,879	-21,168	

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

**FARM BUSINESS CHART FOR SMALL FREESTALL DAIRY FARMS**  
66 Freestall Barn Dairy Farms with 150 or Less Cows, New York, 1998

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
5.10	148	3,022,008	24,375	4.6	23	54	922,566
4.39	139	2,755,435	21,643	3.6	20	44	840,692
3.84	130	2,480,659	20,587	3.3	19	40	774,720
3.55	122	2,320,572	20,054	3.0	18	38	732,078
3.28	115	2,194,493	19,527	2.8	16	36	669,259
3.03	105	2,034,812	18,885	2.5	15	34	620,044
2.74	95	1,721,770	17,977	2.4	14	31	590,586
2.44	81	1,373,931	16,704	2.1	13	30	542,373
2.16	75	1,205,972	15,924	1.7	12	27	479,718
1.55	54	935,370	13,103	1.3	10	20	355,838
Cost Control							
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk		
(10)	(10)	(11)	(11)	(10)	(10)		
\$375	15%	\$282	\$736	\$523	\$3.29		
530	19	382	856	732	4.16		
588	21	413	964	839	4.61		
625	23	433	1,023	913	4.84		
695	24	470	1,093	954	5.02		
762	26	520	1,126	992	5.26		
820	28	592	1,200	1,054	5.50		
866	28	662	1,280	1,116	5.80		
925	29	751	1,435	1,192	6.24		
1,057	33	908	1,717	1,318	6.76		
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.	
(10)	(10)	(10)	Total	Per Cow	(3)	(6)	
\$3,811	\$8.14	\$13.21	\$143,267	\$1,185	\$82,638	\$143,114	
3,418	9.66	13.89	113,680	984	57,567	98,824	
3,264	10.41	14.72	99,513	864	46,121	74,390	
3,140	10.98	15.29	81,271	717	34,808	64,537	
3,049	11.28	15.66	69,185	660	26,152	57,695	
2,976	11.72	16.33	53,071	604	20,091	46,031	
2,837	12.17	17.16	44,009	504	12,757	30,054	
2,611	12.79	17.90	29,792	354	2,361	20,709	
2,470	13.57	18.89	20,840	225	-3,570	11,752	
2,097	15.07	20.45	-7,376	-47	-26,169	-6,400	

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

### FARM BUSINESS CHART FOR MEDIUM FREESTALL DAIRY FARMS

56 Freestall Barn Dairy Farms with 151-300 Cows, New York, 1998

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- alent (11)*	No. of Cows (11)	Pounds Milk Sold (11)	Pounds Milk Sold Per Cow (10)	Tons Hay Crop DM/Acre (9)	Tons Corn Silage Per Acre (9)	Cows Per Worker (11)	Pounds Milk Sold Per Worker (11)
8.13	292	6,532,483	25,653	5.6	23	65	1,213,985
6.88	271	5,598,579	23,617	4.2	20	55	1,018,820
6.32	248	5,044,177	22,423	3.8	19	51	951,638
6.00	225	4,688,017	21,700	3.6	18	47	893,710
5.45	217	4,439,303	21,118	3.2	17	42	845,898
5.12	206	4,142,588	20,198	2.8	16	39	808,481
4.77	197	3,755,631	18,687	2.6	15	38	767,984
4.30	181	3,568,861	18,048	2.3	14	36	718,579
3.94	167	3,314,841	16,766	1.9	13	32	667,619
3.12	156	2,663,320	15,299	1.5	9	28	566,753

Cost Control						
Grain Bought Per Cow (10)	% Grain is of Milk Receipts (10)	Machinery Costs Per Cow (11)	Labor & Machinery Costs Per Cow (11)	Feed & Crop Expenses Per Cow (10)	Feed & Crop Expenses Per Cwt. Milk (10)	
\$490	15%	\$272	\$578	\$757	\$3.66	
653	20	357	751	865	4.39	
736	23	407	843	915	4.70	
763	24	451	908	977	4.89	
785	25	484	1,006	1,026	5.14	
838	27	507	1,071	1,061	5.27	
893	28	545	1,131	1,126	5.42	
941	31	588	1,226	1,161	5.87	
977	34	622	1,354	1,205	6.26	
1,042	37	691	1,432	1,296	6.70	

Value and Cost of Production			Profitability			
Milk Receipts Per Cow (10)	Oper. Cost Milk Per Cwt. (10)	Total Cost Production Per Cwt. (10)	Net Farm Income Without Apprec. Total Per Cow (3) (10)		Labor & Mgmt. Inc. Per Oper. (3)	Change in Net Worth w/Apprec. (6)
\$4,149	\$7.32	\$11.15	\$341,347	\$1,666	\$209,684	\$246,469
3,736	9.92	12.86	203,583	1,034	132,108	182,123
3,527	10.63	13.65	179,668	904	111,231	163,131
3,380	10.95	14.05	162,268	790	94,399	129,695
3,270	11.42	14.34	145,676	697	77,556	106,461
3,163	11.75	14.78	136,060	633	59,579	91,000
2,998	12.05	15.44	110,936	511	45,628	69,755
2,758	12.74	16.08	91,080	417	27,444	51,204
2,619	13.18	16.45	56,316	265	13,856	35,700
2,340	13.85	17.89	14,837	66	-18,420	-2,513

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

**FARM BUSINESS CHART FOR LARGE FREESTALL DAIRY FARMS**  
60 Freestall Barn Dairy Farms with 300 or More Cows, New York, 1998

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
29.83	1,452	33,395,024	25,269	6.3	37	63	1,390,233
18.93	910	20,754,019	24,284	5.2	21	53	1,193,569
15.19	672	15,445,196	23,549	4.4	20	51	1,137,150
13.19	559	12,815,034	22,890	4.0	20	48	1,058,409
11.36	499	10,886,923	22,272	3.7	19	45	988,292
10.52	427	9,430,184	21,858	3.5	18	43	929,229
9.77	372	8,374,441	21,558	3.2	17	42	898,178
8.95	363	7,732,838	21,003	3.0	16	39	836,297
7.82	343	7,280,279	20,341	2.6	15	35	760,260
6.26	317	6,132,583	17,706	2.1	12	31	671,227
Cost Control							
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk		
(10)	(10)	(11)	(11)	(10)	(10)		
\$609	31%	\$258	\$720	\$851	\$4.06		
711	30	329	891	946	4.39		
785	29	377	963	1,003	4.67		
864	28	427	1,008	1,050	4.81		
899	27	451	1,064	1,074	4.93		
924	27	468	1,101	1,098	5.04		
958	25	494	1,140	1,133	5.23		
983	23	528	1,200	1,193	5.40		
1,036	22	559	1,252	1,272	5.60		
1,156	19	681	1,373	1,420	5.91		
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Appreciation		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.	
(10)	(10)	(10)	Total	Per Cow	(3)	(6)	
\$4,035	\$9.41	\$11.73	991,282	\$1,196	\$500,690	\$818,582	
3,774	10.29	12.84	614,522	959	275,008	538,782	
3,635	10.77	13.56	449,374	820	204,745	402,371	
3,547	11.32	13.73	360,540	722	167,503	317,488	
3,473	11.78	13.95	298,190	614	146,306	283,695	
3,393	11.93	14.25	270,575	555	120,610	248,214	
3,316	12.22	14.38	229,656	488	99,758	216,459	
3,269	12.44	14.75	197,331	431	80,329	187,837	
3,123	13.04	15.39	174,167	347	43,633	137,199	
2,871	13.92	17.06	58,138	157	-4,106	50,173	

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

**IDENTIFY AND SET GOALS**

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

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

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

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

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

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

Worksheet for Setting Goals

I. Mission and Objectives

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## GLOSSARY AND LOCATION OF COMMON TERMS

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

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

**Accrual Expenses** - (defined on page 3)

**Accrual Receipts** - (defined on page 4)

**Annual Cash Flow Statement** - (defined on page 12)

**Appreciation** - (defined on page 5)

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

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

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

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

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

**Cash Flow Coverage Ratio** - (defined on page 14)

**Cash Paid** - (defined on page 2)

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

**Change in Accounts Payable** - (defined on page 3)

**Change in Accounts Receivable** - (defined on page 4)

**Change in Inventory** - (defined on page 2)

**Cost of Term Debt** - A weighted average of the cost of borrowed capital to the farm. Calculate by multiplying end of year principal of each loan that is borrowed by the interest rate for each loan at that time. Add up each amount that is calculated for each loan and then divide by total amount of borrowed funds. Do not include accounts payable, operating debt or advanced government receipts. This information is found on pages 8 & 9 of the data entry form.

**Culling Rate** - (defined on page 18)

**Current Portion** - (defined on page 7)

**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.

**Debt Coverage Ratio** – (defined on page 14)

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

**Debt to Asset Ratios** - (defined on page 10)

**Deferred Taxes** - (defined on page 9)

**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 14.

**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 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.

**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.

**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 6)

**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 10)

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

**Net Farm Income** - (defined on page 5)

**Net Farm Income from Operations Ratio** - (defined on page 7)

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

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

**Operating Costs of Producing Milk** - (defined on page 19)

**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 19)

**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 7)

**Return on Total Capital** - (defined on page 7)

**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 19)

**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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