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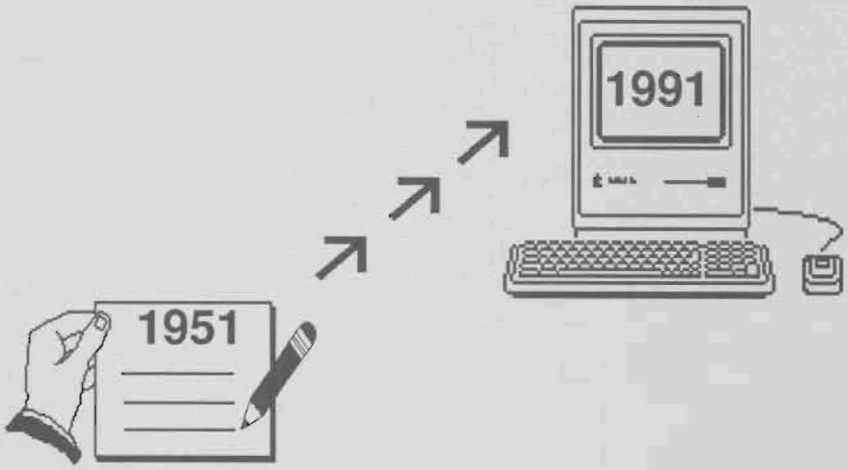
DAIRY FARM BUSINESS SUMMARY

MAY 1992 A.E. Ext. 92-6

WESTERN PLAIN REGION 1991



DFBS 40th Anniversary

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1991 DAIRY FARM BUSINESS SUMMARY
WESTERN PLAIN REGION

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1991 DAIRY FARM BUSINESS SUMMARY
WESTERN PLAIN REGION*

INTRODUCTION

Dairy farmers 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 the farm business. The information in this report represents an average of the data submitted from dairy farms in the Western Plain region.

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 farm data and the application of modern farm business analysis techniques. In short, DFBS identifies business and financial information farmers need and demonstrates how it should be used in identifying and evaluating strengths and weaknesses of the farm business.

Format Features

This regional report follows the same general format as in the 1991 DFBS printout received by all 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. 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 cash flow summary including debt repayment ability;
(4) an analysis of crop acreage, yields, and expenses;
(5) an analysis of dairy livestock numbers, production, and expenses; and
(6) a capital and labor efficiency analysis.

Micro DFBS, a computer program which enables Cooperative Extension agents and specialists to calculate and print individual farm business reports in their offices, is now being used by the dairy farm management field staff for nearly 100 percent of the farms cooperating. This innovative approach provides faster processing of farm record data and increased use of the DFBS in farm management programs.

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*The Western Plain Region of New York State, with the number of participating farms in parentheses, is comprised of Erie (5), Genesee (8), Livingston (9), Monroe (1), Niagara (2), Orleans (2), and Wyoming (21) counties. This report was written by Stuart F. Smith, Senior Extension Associate, Farm Management. Linda Putnam was in charge of data preparation. Cindy Farrell and Beverly Carcelli prepared the publication. Farm business data were collected by Cooperative Extension agents Jason Karszes, David Thorp and Regional Specialist George Allhusen.

SUMMARY AND ANALYSIS OF THE FARM BUSINESS

Business Characteristics

Planning the 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 these characteristics.

BUSINESS CHARACTERISTICS
48 Western Plain Region Dairy Farms, 1991

Type of Farm	Number
Dairy	46
Part-time dairy	0
Dairy cash-crop	2
Part-time cash-crop dairy	0

Type of Ownership	Number
Owner	44
Renter	4

Type of Business	Number
Single proprietorship	24
Partnership	12
Corporation	12

Business Record System	Number
ELFAC II	1
Account Book	13
Agrifax (mail-in only)	8
On-Farm Computer	22
Other	4

Type of Barn	Number
Stanchion/Tie-Stall	6
Freestall	33
Combination	9

Milking System	Number
Bucket & carry	0
Dumping station	0
Pipeline	15
Herringbone parlor	27
Other parlor	6

Milking Frequency	Number
2x/day	30
3x/day	14
Other	4

Production Records	Number
DHIC	39
Owner-Sampler	7
Other	2
None	0

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 1991.

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

CASH AND ACCRUAL FARM EXPENSES
48 Western Plain Region Dairy Farms, 1991

Expense Item	Cash Paid +	Change in Inventory or Prepaid Expense* +	Change in Accounts Payable =	Accrual Expenses
Hired Labor	$98,989	$-174 <<	$598	$99,413
Feed				
Dairy grain & conc.	153,628	6,309	1,754	161,691
Dairy roughage	5,736	354	66	6,156
Nondairy	308	0	0	308
Machinery				
Mach. hire, rent/lease	6,865	-243 <<	186	6,808
Machinery repairs/parts	28,408	-142	298	28,564
Auto exp. (farm share)	561	0 <<	0	561
Fuel, oil & grease	13,718	-238	178	13,658
Livestock				
Replacement livestock	6,755	0 <<	266	7,021
Breeding	6,543	-18	88	6,613
Vet & medicine	17,950	118	416	18,484
Milk marketing	20,381	12 <<	109	20,502
Cattle lease/rent	191	0 <<	0	191
Other livestock expense	30,444	250	357	31,051
Crops				
Fertilizer & lime	14,973	1,333	1,017	17,323
Seeds & plants	9,339	-77	310	9,572
Spray, other crop exp.	9,695	735	-15	10,415
Real Estate				
Land/bldg./fence repair	7,300	-28	179	7,451
Taxes	11,096	143 <<	185	11,424
Rent & lease	14,864	64 <<	77	15,005
Other				
Insurance	7,841	68 <<	-14	7,895
Telephone (farm share)	997	0 <<	-15	982
Electricity (farm share)	12,162	0 <<	160	12,322
Interest paid	47,928	0 <<	783	48,711
Miscellaneous	9,607	-45	59	9,621
Total Operating	$536,279	$8,421	$7,042	$551,742
Expansion livestock	20,578	0 <<	9	20,587
Machinery depreciation				30,696
Building depreciation				29,204
TOTAL ACCRUAL EXPENSES				$632,229

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, 1992 rent paid in 1991. If 1991 funds used to prepay 1992 rent exceeded the amount of 1991 rent prepaid in 1990, the amount of this excess is entered as a negative number to exclude it from 1991 accrual rental expenses. The excess prepaid rent should be charged against the future year's business operation. A decrease in prepaid rent is added to accrual expenses because it represents use of resources during this year that were paid for in past years.

Change in accounts payable: An increase in accounts payable from beginning to end of year is added and a decrease is subtracted when calculating accrual expenses.

Accrual expenses are the costs of inputs actually used in this year's production. They are the total of cash paid, as well as changes in inventory, prepaid expenses, and accounts payable.

CASH AND ACCRUAL FARM RECEIPTS
48 Western Plain Region Dairy Farms, 1991

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts
Milk sales	$570,518				$3,292		$573,810
Dairy cattle	44,731		$26,005		110		70,846
Dairy calves	12,426				6		12,432
Other livestock	955		71		0		1,026
Crops	6,751		4,435		89		11,275
Government receipts	7,048		-182*		-11		6,855
Custom machine work	887				0		887
Gas tax refund	258				112		370
Other	8,130				359		8,489
Less nonfarm noncash cap.**		(-)	94			(-)	94
Total Receipts	$651,704		$30,235		$3,957		$685,896

*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. Changes in advanced government receipts are calculated by subtracting the end year balance from the beginning year balance (balances are listed with the current liabilities on the Balance Sheet).

Changes in accounts receivable are calculated by subtracting beginning year balances from end year balances. The January milk check for this December's marketings compared with the previous January's check is included as a change in accounts receivable.

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 capital to their businesses and the combination of these resources selected determines income. 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.

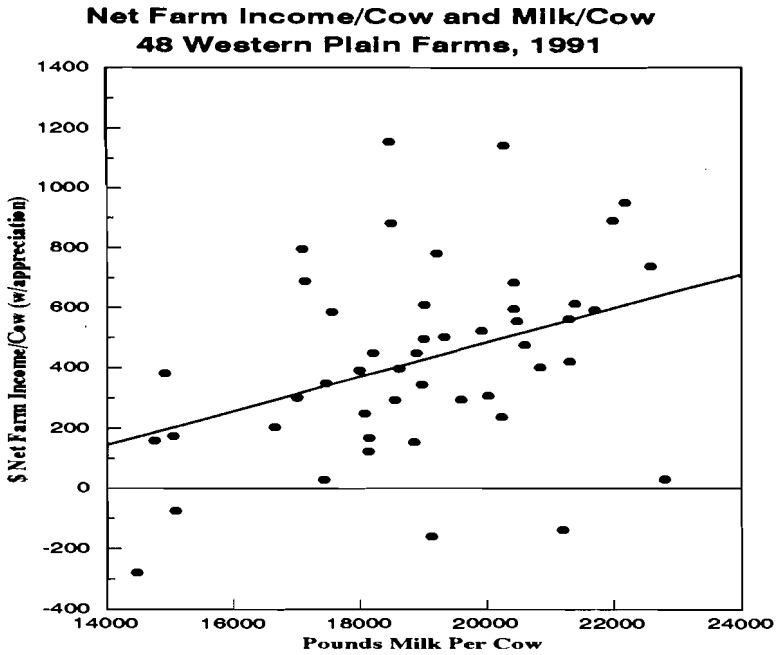
Net farm income is the return to the farm operators and other unpaid family members for their labor, management, and equity capital. It is the farm family's net annual return from working, managing, financing, and owning the farm business. This is not a measure of cash available from the year's business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

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

NET FARM INCOME
48 Western Plain Region Dairy Farms, 1991

Item	Average	My Farm
Total accrual receipts	$685,896	$_____
Appreciation: Livestock	4,548	_____
Machinery	1,239	_____
Real Estate	21,477	_____
Other Stock/Certificates	1,901	_____
Total Including Appreciation	$715,061	$_____
Total accrual expenses	- 632,229	-_____
Net Farm Income (with appreciation)	$82,832	$_____
Net Farm Income (without appreciation)	$53,667	$_____

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.



Return to operators' labor, management, and equity capital measures the total net farm income for the farm operator(s). It is calculated by deducting a charge for unpaid family labor from net farm income. Operators' labor is not included in unpaid family labor. Return to operators' labor, management, and equity capital has been calculated both with and without appreciation. Appreciation is an important part of the return to ownership of farm assets.

RETURN TO OPERATORS' LABOR, MANAGEMENT, AND EQUITY
48 Western Plain Region Dairy Farms, 1991

	Average		My Farm	
Item	With Apprec.	Without Apprec.	With Apprec.	Without Apprec.
Net farm income	$82,832	$53,667	$_____	$_____
Family labor unpaid @ $1,300 per month	- 2,080	- 2,080	-_____	-_____
Return to operators' labor, management, & equity	$80,752	$51,587	$_____	$_____

Labor and management income is the return which farm operators receive for their labor and management used in operating 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 the opportunity cost of using equity capital, at a real interest rate of five percent, from the return to operators' labor, management, and equity capital excluding appreciation. The interest charge of five percent reflects the long-term average rate of return above inflation that a farmer might expect to earn in comparable risk investments.

LABOR AND MANAGEMENT INCOME
48 Western Plain Region Dairy Farms, 1991

Item	Average	My Farm
Return to operators' labor, management, & equity without appreciation	$51,587	$_____
Real interest @ 5% on $845,810 average equity capital	- 42,291	-_____
Labor & Management Income	$9,296	$_____
Labor & Management Income per 1.66 Operator/Manager	$5,600	$_____

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. Return on total capital is calculated by adding interest paid to the return on equity capital and then dividing by average farm assets to calculate the rate of return on total capital.

RETURN ON EQUITY CAPITAL AND RETURN ON TOTAL CAPITAL
48 Western Plain Region Dairy Farms, 1991

Item	Average	My Farm
Return to operators' labor, management, & equity capital with appreciation	$80,752	$_____
Value of operators' labor & management	- 45,919	-_____
Return on equity capital with appreciation	$34,833	$_____
Interest paid	$48,710	$_____
Return on total capital with appreciation	$83,543	$_____
Return on equity capital without appreciation	$5,668	$_____
Return on total capital without appreciation	$54,378	$_____
Rate of return on average equity capital:		
with appreciation	4.12%	_____%
without appreciation	.67%	_____%
Rate of return on average total capital:		
with appreciation	5.79%	_____%
without appreciation	3.77%	_____%

Farm and Family Financial Status

The first step in evaluating the financial position of the farm is to construct a balance sheet which identifies 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 1991, leases were discounted by 10.0 percent.

Advanced government receipts are included as current liabilities. Government payments received in 1991 that are for participation in the 1992 program are the end year balance and payments received in 1990 for participation in the 1991 program are the beginning year balance.

1991 FARM BUSINESS & NONFARM BALANCE SHEET
48 Western Plain Region Dairy Farms, 1991

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
Current			Current		
Farm cash, checking & savings	$10,766	$13,650	Accounts payable	$13,746	$20,796
Accounts rec.	42,257	46,328	Operating debt	44,677	39,090
Prepaid exp.	2,537	2,666	Short-term	11,417	11,883
Feed & supplies	137,969	133,853	Advanced govt. rec.	0	182
Total	$193,529	$196,497	Total	$69,840	$71,951
Intermediate			Intermediate		
Dairy cows:			Structured debt		
owned	$218,069	$243,495	1-10 years	$226,147	$233,849
leased	244	130	Financial lease		
Heifers	100,550	105,780	(cattle/mach.)	3,422	940
Bulls/other lvstk.	2,119	2,087	Farm Credit stock	8,774	9,732
Mach./eq. owned	249,384	255,337			
Mach./eq. leased	3,178	810	Total	$238,343	$244,521
Farm Credit stock	8,774	9,732			
Other stock/cert.	34,843	37,314			
Total	$617,161	$654,685			
			Long Term		
Long-Term			Structured debt		
Land/buildings:			>10 yrs	$252,740	$317,101
owned	$593,559	$630,685	Financial lease		
leased	515	85	(structures)	515	85
Total	$594,074	$630,770	Total	$253,255	$317,186
Total Farm Assets	$1,404,764	$1,481,952	Total Farm Liab.	$561,438	$633,658
			FARM NET WORTH	$843,326	$848,294

Nonfarm Assets, Liabilities & Net Worth (Average of 26 farms reporting)

Assets	Jan. 1	Dec. 31	Liabilities & Net Worth	Jan. 1	Dec. 31
Personal cash, chkg. & savings	$8,534	$9,946	Nonfarm Liab.	$2,768	$3,052
Cash value life ins.	6,312	7,062			
Nonfarm real estate	9,215	9,215			
Auto (personal sh.)	3,995	4,755			
Stocks & bonds	5,004	7,380			
Household furn.	7,162	8,488			
All other	19,973	22,398			
Total Nonfarm	$60,194	$69,245	NONFARM NET WORTH	$57,426	$66,193

Farm & Nonfarm Assets, Liabilities, & Net Worth*	Jan. 1	Dec. 31
Total Assets	$1,464,958	$1,551,197
Total Liabilities	564,206	636,710
TOTAL FARM & NONFARM NET WORTH	$900,752	$914,487

*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. Debt levels per productive unit represent old standards that are still useful if used with measures of cash flow and repayment ability. The change in farm net worth without appreciation is an excellent indicator of farm generated financial progress.

BALANCE SHEET ANALYSIS
48 Western Plain Region Dairy Farms, 1991

Item	Average	My Farm
Financial Ratios - Farm:		
Percent equity	57%	_____%
Debt/asset ratio: total	.43	_____
long-term	.50	_____
intermediate/current	.37	_____
Change in Net Worth:		
Without appreciation	$-24,197	$_____
With appreciation	4,968	$_____
Farm Debt Analysis:		
Accounts payable as % of total debt	3%	_____%
Long-term liabilities as a % of total debt	50%	_____%
Current & inter. liab. as a % of total debt	50%	_____%

Farm Debt Levels:	Per Cow	Per Tillable Acre Owned	Per Cow	Per Tillable Acre Owned
Total farm debt	$2,535	$1,837	$_____	$_____
Long-term debt	1,269	919	_____	_____
Intermediate & current debt	1,266	917	_____	_____

Farm inventory balance is an accounting of the value of assets used on the balance sheet and the changes that occur from the beginning to end of year. Changes in the livestock inventory are included in the dairy analysis. Net investment indicates whether the capital stock is being expanded (positive) or depleted (negative).

FARM INVENTORY BALANCE
48 Western Plain Region Dairy Farms, 1991

Item	Average of Region's Farms			
	Real Estate		Machinery & Equipment	
Value beg. of year		$593,559		$249,384
Purchases	$78,950*		$37,384	
Gift/inheritance	+ 0		+ 0	
Lost capital	- 25,193		- --	
Sales	- 8,562		- 1,974	
Depreciation	- 29,204		- 30,696	
Net investment		= 15,991		= 4,714
Appreciation		+ 21,134**		+ 1,239
Value end of year		$630,685		$255,337

*$17,188 land and $61,762 buildings and/or depreciable improvements.
**Excludes $343 of appreciation on assets sold during the year.

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 compare all the cash inflows including beginning balances with all the cash outflows including ending balances for the year. By definition, total cash inflows must equal total cash outflows when beginning and ending balances are included. Any imbalance is, therefore, the error from incorrect accounting of cash inflows and cash outflows. Whenever an imbalance exists, all other financial measures may also be in error.

ANNUAL CASH FLOW STATEMENT
48 Western Plain Region Dairy Farms, 1991

Item	Average	My Farm
Cash Inflows		
Beginning farm cash, checking & savings	$ 10,766	$_____
Cash farm receipts	651,703	_____
Sale of assets: Machinery	1,974	_____
Real estate	7,906	_____
Other stock & certificate	1,636	_____
Money borrowed (intermediate & long-term)	169,920	_____
Money borrowed (short-term)	5,393	_____
Increase in operating debt	0	_____
Nonfarm income	5,340	_____
Cash from nonfarm capital used in the business	2,621	_____
Money borrowed - nonfarm	660	_____
Total	$857,919	$_____
Cash Outflows		
Cash farm expenses	$536,279	$_____
Capital purchases: Expansion livestock	20,578	_____
Machinery	37,384	_____
Real estate	78,950	_____
Other stock & certificate	2,206	_____
Principal payments (intermediate & long-term)	97,857	_____
Principal payments (short-term)	4,927	_____
Decrease in operating debt	5,587	_____
Personal withdrawals & family expenditures including nonfarm debt payments	60,483	_____
Ending farm cash, checking & savings	13,650	_____
Total	$857,899	$_____
Imbalance (error)	$ 20	$_____

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 1992. The cash flow projection worksheet on the next page can be used to estimate repayment ability, which can then be compared to planned 1992 debt payments shown below.

FARM DEBT PAYMENTS PLANNED
Same 40 Western Plain Region Dairy Farms, 1990 & 1991

	Average			My Farm		
	1991 Payments		Planned	1991 Payments		Planned
Debt Payments	Planned	Made	1992	Planned	Made	1992
Long-term	$35,207	$38,057	$32,792	$_____	$_____	$_____
Intermediate-term	54,115	86,987	61,283	_____	_____	_____
Short-term	9,311	6,113	7,965	_____	_____	_____
Operating (net reduction)	26,146	8,955	2,055	_____	_____	_____
Accounts payable (net reduction)	3,286	0	3,858	_____	_____	_____
Total	$128,065	$140,112	$107,953	$_____	$_____	$_____
Per cow	$557	$609		$_____	$_____	
Per cwt. 1991 milk	$2.97	$3.25		$_____	$_____	
Percent of total 1991 receipts	19%	21%		_____	_____	
Percent of 1991 milk receipts	23%	25%		_____	_____	

The cash flow coverage ratio measures the ability of the farm business to meet its planned debt payment schedule. The ratio shows the percentage of payments planned for 1991 (as of December 31, 1990) that could have been made with the amount available for debt service in 1991. Farmers who did not participate in DFBS in 1990 have their 1991 cash flow coverage ratio based on planned debt payments for 1992.

CASH FLOW COVERAGE RATIO
Same 40 Western Plain Region Dairy Farms, 1990 & 1991

Item	Average	My Farm
Cash farm receipts	$642,773	$_____
- Cash farm expenses	521,224	_____
+ Interest paid	43,496	_____
- Net personal withdrawals from farm**	57,020	_____
(A) = Amount Available for Debt Service	$108,025	$_____
(B) = Debt Payments Planned for 1991 (as of December 31, 1990)	$128,065	$_____
(A ÷ B) = Cash Flow Coverage Ratio for 1991	.84	_____

**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

Item	Regional Average (per cow)	My Farm Total	My Farm Per Cow	Expected Change	1992 Projection
Average number of cows	233.9				
Accrual Oper. Receipts					
Milk	$ 2,453.23	$	$		$
Dairy cattle	302.89				
Dairy calves	53.15				
Other livestock	4.39				
Crops	48.20				
Misc. receipts	70.97				
Total	$ 2,932.83	$	$		$
Accrual Oper. Expenses					
Hired labor	$ 425.03	$	$		$
Dairy grain & conc.	691.28				
Dairy roughage	26.32				
Nondairy feed	1.32				
Mach. hire/rent/lease	29.11				
Mach. rpr./parts & auto	124.52				
Fuel, oil & grease	58.39				
Replacement lvstk.	30.02				
Breeding	28.27				
Vet & medicine	79.03				
Milk marketing	87.65				
Cattle lease	.82				
Other livestock exp.	132.75				
Fertilizer & lime	74.06				
Seeds & plants	40.92				
Spray/other crop exp.	44.53				
Land, bldg.,fence repair	31.86				
Taxes	48.84				
Real estate rent/lease	64.15				
Insurance	33.75				
Utilities	56.88				
Miscellaneous	41.14				
Total Less Int. Paid	$ 2,150.64				$
Net Accrual Operating Income (without interest paid)	(total) $182,958	$			$
- Change in lvstk./crop inv.*	30,235				
- Change in accts. rec.	3,957				
+ Change in feed/supply inv.**	8,421				
+ Change in accts. payable***	6,259				
NET CASH FLOW	$163,446	$			$
- Net personal withdrawals from farm (see footnote on pg. 12)	54,483				
Available for Farm Debt Payments & Investments	$108,963	$			$
- Farm debt payments	153,044				
Available for Farm Investment	$-44,081	$			$
- Capital purchases: cattle, machinery & improvements	$139,118				
Additional Capital Needed		$			$

*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 management. A complete evaluation of what the available land resources are, how they are being used, how well crops are producing, and what it costs to produce them is important to evaluating alternative cropping and feed purchasing alternatives.

LAND RESOURCES AND CROP PRODUCTION
48 Western Plain Region Dairy Farms, 1991

Item	Average			My Farm		
Land	Owned	Rented	Total	Owned	Rented	Total
Tillable	345	266	611	_____	_____	_____
Nontillable	33	5	38	_____	_____	_____
Other nontillable	107	19	126	_____	_____	_____
Total	485	290	775	_____	_____	_____

Crop Yields	Farms	Acres*	Prod/Acre	Acres	Prod/Acre
Hay crop	48	216	2.67 tn DM	_____	_____ tn DM
Corn silage	47	210	13.39 tn	_____	_____ tn
			4.75 tn DM		_____ tn DM
Other forage	10	53	.98 tn DM	_____	_____ tn DM
Total forage	48	432	3.62 tn DM	_____	_____ tn DM
Corn grain	34	118	106.99 bu	_____	_____ bu
Oats	13	30	47.30 bu	_____	_____ bu
Wheat	15	42	54.48 bu	_____	_____ bu
Other crops	14	118		_____	
Tillable pasture	14	28		_____	
Idle	32	46		_____	
Total Tillable Acres	48	611		_____	

*This column represents the average acreage for the farms producing that crop. Average acreages including those farms not producing were hay crop 216, corn silage 205, corn grain 83, oats 8, tillable pasture 8, and idle 30.

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

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

CROP/DAIRY RATIOS
48 Western Plain Region Dairy Farms, 1991

Item	Average	My Farm
Total tillable acres per cow	2.61	_____
Total forage acres per cow	1.85	_____
Harvested forage dry matter, tons per cow	6.69	_____

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.

CROP RELATED ACCRUAL EXPENSES
Western Plain Region Dairy Farms Reporting, 1991

Item	Total Per Till. Acre	Hay Crop Per Acre	Hay Crop Per Ton DM	All Corn Per Acre	Corn Silage Per Ton DM	Corn Grain Per Dry Shell Bu.
Number of farms reporting	48	29		29		
Average number of acres	610	181		246		
Fertilizer & lime	$28.40	$23.08	$8.92	$31.56	$6.81	$.30
Seeds & plants	15.69	10.69	4.13	22.14	4.78	.21
Spray & other crop expense	17.07	9.31	3.60	27.28	5.88	.26
Total	$61.16	$43.08	$16.65	$80.98	$17.47	$.77
My Farm:						
Fertilizer & lime	$_____	$_____	$_____	$_____	$_____	$_____
Seeds & plants	_____	_____	_____	_____	_____	_____
Spray & other crop expense	_____	_____	_____	_____	_____	_____
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
48 Western Plain Region Dairy Farms, 1991

Machinery Expense Item	Average Total Expenses	Average Per Til. Acre	My Farm Total Expenses	My Farm Per Til. Acre
Fuel, oil & grease	$13,658	$22.39	$_____	$_____
Machinery repairs & parts	28,565	46.83	_____	_____
Machine hire, rent & lease	6,808	11.16	_____	_____
Auto expense (farm share)	561	.92	_____	_____
Interest (5%)	12,618	20.69	_____	_____
Depreciation	30,696	50.32	_____	_____
Total	$92,906	$152.30	$_____	$_____

Dairy Analysis

Analysis of the dairy enterprise can reveal a great deal about the 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
48 Western Plain Region Dairy Farms, 1991

	Dairy Cows		Heifers					
			Bred		Open		Calves	
Item	No.	Value	No.	Value	No.	Value	No.	Value
Beg. year (owned)	228	$218,069	88	$60,105	49	$25,718	53	$14,726
+ Change w/o apprec.		21,866		4,860		-659		-61
+ Appreciation		3,560		488		391		211
End year (owned)	249	$243,495	89	$65,453	49	$25,450	53	$14,876
End incl. leased	250							
Average number	234		193 (all age groups)					
My Farm:								
Beg. of year (owned)	___	$_____	___	$_____	___	$_____	___	$_____
+ Change w/o apprec.		_____		_____		_____		_____
+ Appreciation		_____		_____		_____		_____
End of 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. Farm managers on DHI should compare milk sold per cow with their rolling herd average on the test date nearest December 31 to see how close the DHI estimate of milk produced is to actual milk sales.

MILK PRODUCTION
48 Western Plain Region Dairy Farms, 1991

Item	Average	My Farm
Total milk sold, lbs.	4,404,512	_____
Milk sold per cow, lbs.	18,833	_____
Average milk plant test, percent butterfat	3.60	_____

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. 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. Total costs without operator's labor, management, and capital are the operating costs plus depreciation and unpaid family labor.

ACCRUAL RECEIPTS FROM DAIRY AND COST OF PRODUCING MILK
48 Western Plain Region Dairy Farms, 1991

	Average			My Farm		
Item	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Accrual Costs of Producing Milk						
Operating costs	$460,242	$1,968	$10.45	$_____	$_____	$_____
Total costs w/o opers' labor, mgmt. & capital	$522,222	$2,233	$11.86	$_____	$_____	$_____
Total Costs	$610,432	$2,610	$13.86	$_____	$_____	$_____
Accrual Receipts From Milk	$573,810	$2,453	$13.03	$_____	$_____	$_____

The accrual operating expenses most commonly associated with the dairy enterprise are listed in the table below. Evaluating these costs per unit of production enables an evaluation of the dairy enterprise.

DAIRY RELATED ACCRUAL EXPENSES
48 Western Plain Region Dairy Farms, 1991

	Average		My Farm	
Item	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrates	$691	$3.67	$_____	$_____
Purchased dairy roughage	26	.14	_____	_____
Total Purchased Dairy Feed	$718	$3.81	$_____	$_____
Purchased grain & conc. as % of milk receipts	28%		____%	
Purchased feed & crop exp.	$877	$4.66	$_____	$_____
Purchased feed & crop exp. as % of milk receipts	36%		____%	
Breeding	$28	$.15	$_____	$_____
Veterinary & medicine	79	.42	_____	_____
Milk marketing	88	.47	_____	_____
Cattle lease	1	0.00	_____	_____
Other livestock expense	133	.70	_____	_____

Capital and Labor Efficiency Analysis

Capital efficiency factors measure how intensively the capital is being used in the farm business. Measures of labor efficiency are key indicators of management's success in generating products per unit of labor input.

CAPITAL EFFICIENCY
48 Western Plain Region Dairy Farms, 1991

Item	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
Farm capital	$241,014	$6,171	$2,366	$4,184
Real estate		2,618		1,775
Machinery & equipment	42,473	1,087	417	
Capital turnover, years	2.02			
My Farm:				
Farm capital	$_____	$_____	$_____	$_____
Real estate	_____	_____	_____	_____
Machinery & equipment	_____	_____	_____	_____
Capital turnover, years	_____			

LABOR FORCE INVENTORY AND ANALYSIS
48 Western Plain Region Dairy Farms, 1991

Labor Force	Months	Age	Years of Educ.	Value of Labor & Mgmt.
Operator number 1	11.83	46	14	$29,551
Operator number 2	5.25	40	14	10,514
Operator number 3	2.81	33	13	5,854
Family paid	4.60			
Family unpaid	1.60			
Hired	45.77			
Total	71.88	÷ 12 = 5.99 Worker Equivalent		
		1.66 Operator/Manager Equiv.		
My Farm: Total	____	÷ 12 = _____ Worker Equivalent		
Operator's	____	÷ 12 = _____ Operator/Manager Equiv.		

Labor Efficiency	Average Total	Average Per Worker	My Farm Total	My Farm Per Worker
Cows, average number	234	39	_____	_____
Milk sold, pounds	4,404,512	735,473	_____	_____
Tillable acres	610	102	_____	_____
Work units	2,401	401	_____	_____

Labor Costs	Average Total	Average Per Cow	Average Per Til. Acre	My Farm Total	My Farm Per Cow	My Farm Per Til. Acre
Value of operator(s) labor ($1,300/mo.)	$25,857	$111	$42.39	$_____	$_____	$_____
Family unpaid ($1,300/mo.)	2,080	9	3.41	_____	_____	_____
Hired	99,414	425	162.97	_____	_____	_____
Total Labor	$127,351	$544	$208.77	$_____	$_____	$_____
Machinery Cost	$92,906	$397	$152.30	$_____	$_____	$_____
Total Labor & Mach.	$220,257	$942	$361.08	$_____	$_____	$_____

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 is one part of a business checkup. It is equally important for you to determine the progress your business has made over the past two or three years and to set targets or goals for the future.

PROGRESS OF THE FARM BUSINESS

Same 40 Western Plain Region Dairy Farms, 1990 & 1991

	Average of 40 Farms*		My Farm		
Selected Factors	1990	1991	1990	1991	Goal
Size of Business					
Average number of cows	215	230	_____	_____	_____
Average number of heifers	184	197	_____	_____	_____
Milk sold, lbs.	4,077,053	4,314,629	_____	_____	_____
Worker equivalent	5.72	5.96	_____	_____	_____
Total tillable acres	609	618	_____	_____	_____
Rates of Production					
Milk sold per cow, lbs.	18,928	18,737	_____	_____	_____
Hay DM per acre, tons	3.13	2.75	_____	_____	_____
Corn silage per acre, tons	14	14	_____	_____	_____
Labor Efficiency					
Cows per worker	38	39	_____	_____	_____
Milk sold/worker, lbs.	712,871	723,834	_____	_____	_____
Cost Control					
Grain & conc. purchased as % of milk sales	28%	28%	_____%	_____%	_____%
Dairy feed & crop exp. per cwt. milk	$5.25	$4.71	$_____	$_____	$_____
Labor & mach. costs/cow	$1,024	$958	$_____	$_____	$_____
Capital Efficiency**					
Farm capital per cow	$5,932	$6,170	$_____	$_____	$_____
Mach. & equip. per cow	$1,077	$1,136	$_____	$_____	$_____
Capital turnover, years	1.71	2.01	_____	_____	_____
Profitability					
Net farm inc. w/o apprec.	$110,003	$56,621	$_____	$_____	$_____
Net farm inc. w/apprec.	$133,591	$83,573	$_____	$_____	$_____
Labor & mgt. income per oper./manager	$37,420	$6,160	$_____	$_____	$_____
Rate of return on eq. capital w/apprec.	10%	4%	_____%	_____%	_____%
Rate of return on all capital w/apprec.	10%	6%	_____%	_____%	_____%
Financial Summary					
Farm net worth, end year	$865,519	$882,678	$_____	$_____	$_____
Debt to asset ratio	.37	.40	_____	_____	_____
Farm debt per cow	$2,273	$2,339	$_____	$_____	$_____

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

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.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS
48 Western Plain Region Farms, 1991

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
(10)*	(10)	(10)	(9)	(8)	(8)	(10)	(10)
13.5	595	11,296,975	21,731	4.0	15.2	49	918,308
6.5	246	4,426,119	20,133	3.0	14.2	40	774,545
4.4	144	2,828,028	18,878	2.3	13.3	36	685,648
2.9	92	1,754,753	17,940	2.0	12.0	30	593,932
1.9	62	1,123,622	15,796	1.4	10.1	25	440,287

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
(9)	(9)	(10)	(10)	(9)	(9)
$400	16%	$251	$ 717	$612	$3.29
547	23	378	855	741	3.95
631	26	425	949	827	4.47
719	30	483	1,077	944	5.00
917	36	685	1,308	1,147	5.87

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.
(9)	(9)	(9)	(3)	(3)	(3)	(5)
$2,784	$ 7.36	$12.01	$227,289	$171,310	$65,892	$105,462
2,586	9.07	13.35	102,445	76,922	13,460	33,266
2,450	10.29	14.00	53,968	31,564	4,487	12,754
2,328	10.90	14.76	27,701	14,904	-8,040	-9,070
2,025	12.35	16.74	-12,278	-39,567	-81,626	-132,771

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

New York State 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 figure at the top of each column is the average of the top 10 percent of the 395 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
395 New York Dairy Farms, 1990

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
(10)*	(10)	(10)	(9)	(8)	(8)	(10)	(10)
8.7	349	6,643,712	21,193	4.5	20	48	870,895
4.7	157	2,871,316	19,629	3.6	18	40	691,021
3.9	118	2,089,248	18,650	3.2	17	35	615,415
3.3	98	1,691,784	17,988	3.0	16	32	561,437
3.0	81	1,417,006	17,422	2.8	15	30	510,328
2.6	70	1,151,117	16,875	2.5	14	28	463,936
2.3	60	968,206	16,322	2.3	13	26	429,166
2.1	53	837,604	15,455	2.0	12	24	387,958
1.8	46	693,783	14,054	1.8	11	22	339,968
1.3	35	507,451	11,686	1.3	8	17	240,302

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
(9)	(9)	(10)	(10)	(9)	(9)
$ 366	15%	$265	$ 692	$ 517	$3.40
476	20	351	823	645	4.13
542	23	390	901	721	4.46
611	25	429	945	781	4.74
667	27	466	999	833	4.97
719	29	496	1,058	891	5.26
770	31	530	1,109	949	5.52
827	32	575	1,173	1,014	5.80
899	35	638	1,273	1,099	6.24
1,058	40	807	1,474	1,279	7.11

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

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS
395 New York Dairy Farms, 1990

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.
(9)	(9)	(9)	(9)	(9)	(9)
$3,201	$16.32	$1,112	$ 7.19	$1,997	$12.78
2,966	15.63	1,425	8.96	2,311	14.06
2,806	15.27	1,547	9.65	2,461	14.77
2,669	14.98	1,668	10.15	2,594	15.32
2,589	14.83	1,791	10.68	2,710	15.80
2,496	14.69	1,922	11.20	2,802	16.29
2,390	14.57	2,036	11.69	2,921	16.99
2,262	14.44	2,151	12.29	3,041	17.69
2,064	14.23	2,281	13.14	3,196	19.04
1,721	13.59	2,593	14.90	3,651	22.69

Profitability

Net Farm Income		Return to Operator's Labor, Management, & Equity Capital		Labor & Management Income	
With Appreciation	Without Appreciation	With Appreciation	Without Appreciation	Per Farm	Per Operator
(3)	(3)	(3)	(3)	(3)	(3)
$231,926	$190,057	$230,419	$188,587	$130,403	$96,579
91,230	81,401	89,849	79,191	47,621	31,927
66,354	56,580	61,893	52,316	29,650	21,508
50,670	44,618	47,120	40,525	20,689	15,542
42,626	34,580	38,335	31,926	14,330	10,878
33,267	28,118	29,721	24,485	7,592	6,034
25,805	20,654	21,927	16,616	1,361	1,060
19,089	13,852	14,945	10,124	-5,365	-4,331
11,588	6,798	6,513	1,732	-15,640	-13,572
-11,058	-9,971	-14,637	-14,241	-34,015	-30,508

Farm Business Charts for farms with freestall barns and 120 cows or less and more than 120 cows, and farms with conventional barns with 60 cows or less and more than 60 cows are shown on pages 25-28.

Financial Analysis Chart

The farm financial analysis chart on page 22 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, 9, 11, and 17 of this publication. References to DFBS output page numbers for participating dairy farmers are provided in the table headings.

FINANCIAL ANALYSIS CHART
395 New York Dairy Farms, 1990

Liquidity (repayment)				
Debt Payments Per Cow	Available for Debt Service Per Cow	Cash Flow Coverage Ratio	Debt Payments as Percent of Milk Sales	Debt Per Cow
(7)*	(11)	(7)	(7)	(5)
$ 59	$932	5.22	4%	$ 119
181	742	2.11	8	680
253	663	1.59	11	1,210
341	582	1.30	14	1,632
400	513	1.15	16	2,025
454	452	1.01	18	2,386
501	395	0.85	20	2,735
560	315	0.69	22	3,178
642	207	0.43	25	3,737
899	-196	-0.23	37	4,726

Solvency				Profitability	
		Debt/Asset Ratio		Percent Rate of Return with appreciation on:	
Leverage Ratio**	Percent Equity	Current & Intermediate	Long Term	Equity	Investment***
	(5)	(5)	(5)	(3)	(3)
0.02	98	0.01	0.00	21%	16%
0.11	90	0.06	0.00	11	10
0.21	82	0.12	0.07	8	8
0.33	75	0.19	0.18	5	6
0.43	69	0.25	0.27	3	5
0.55	64	0.31	0.39	1	4
0.72	58	0.37	0.50	-1	3
0.93	51	0.44	0.61	-3	1
1.22	45	0.53	0.74	-7	-2
2.40	32	0.73	1.00	-23	-7

Efficiency (Capital)				
Capital Turnover (years)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow	Change in Net Worth w/Appreciation
(10)	(10)	(10)	(10)	(5)
1.38	$1,390	$ 596	$ 4,264	$110,353
1.68	1,972	817	5,087	53,680
1.84	2,262	940	5,667	33,094
2.03	2,594	1,050	6,103	22,571
2.18	2,865	1,194	6,482	15,798
2.34	3,125	1,318	6,869	10,557
2.50	3,504	1,472	7,340	3,939
2.70	4,037	1,658	7,990	-3,080
3.08	4,705	1,946	8,937	-11,458
4.27	6,762	2,646	11,419	-47,167

*Page number of the participant's DFBS 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.

Comparisons 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 used has as many of the same physical characteristics as possible as the farm being analyzed. To assist in this endeavor, dairy farms in the 1990 State Summary* have been divided into those with freestall and those with conventional housing. Within each group is a further classification by size of the dairy herd.

The table on page 24 shows the average values for the resulting four groups of dairy farms. Within each housing type, the larger herd size has the highest crop yields and pounds of milk sold per cow. The total cost of producing milk was lower on the larger farms and labor efficiency greater. Profitability was also greater on the larger farms within each housing type.

Farm business charts have been computed for each of the four housing and herd size categories. References to DFBS output page numbers for participating dairy farmers are provided in the table headings. From these charts on pages 25-28, the range in size of business, rates of production, labor efficiency, value and cost of producing milk, and profitability can be observed. The range in every category of business performance is tremendous.

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. Farm managers should remember, however, that their competition is not limited to the other farms in their own barn type and herd size category. They should observe how their management performance compares with farms in other categories as well.

Herd Size Comparisons

A detailed comparison of profitability, financial situation, and business analysis factors across herd sizes is contained on pages 36-43 of the 1990 State Summary*. As herd size increases, the average profitability also increases (pages 36-37). Net farm income without appreciation was $227,064 per farm for the 300 or more herd size group and $10,520 per farm for those with less than 40 cows. 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 38-41), but percent equity and debt/asset ratios do not show a significant variation between size groups. Debt payments per cow were lowest for the moderate size herd groups and they demonstrated a strong ability to make debt payments.

Crop yields generally increased as herd size increased, but fertilizer and lime expenses, and machinery cost per tillable acre also increased (pages 42-43). Milk sold per cow increased as herd size increased, ranging from 15,372 pounds on the farms with less than 40 cows to 19,199 pounds on farms with 300 or more cows. Farm capital per worker generally increased, and farm capital per cow decreased as herd size increased. Milk sold per worker increased dramatically as herd size increased, ranging from 304,000 pounds at the lowest herd size category up to 872,000 pounds at the largest size cateogry.

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*Smith, Stuart F., Wayne A. Knoblauch, and Linda D. Putnam, Dairy Farm Management Business Summary, New York, 1990, Department of Agricultural Economics, Cornell University, A.E. Res. 91-5, August 1991.

SELECTED BUSINESS FACTORS BY TYPE OF BARN AND HERD SIZE

364 New York Dairy Farms, 1990

Farms with:	Conventional		Freestall	
Item	≤60 Cows	>60 Cows	≤120 Cows	>120 Cows
Number of farms	127	97	60	80
Cropping Program Analysis				
Total Tillable acres	162	287	287	647
Tillable acres rented*	50	105	115	249
Hay crop acres*	105	168	156	258
Corn silage acres*	28	57	65	213
Hay crop, tons DM/acre	2.3	2.6	2.5	2.9
Corn silage, tons/acre	13.2	14.2	15.3	14.5
Oats, bushels/acre	55.8	58.1	61.4	57.2
Forage DM per cow, tons	7.9	8.2	8.6	7.3
Tillable acres/cow	3.5	3.3	3.4	2.7
Fert. & lime exp./til. acre	$19.38	$27.87	$25.81	$33.56
Total machinery costs	$22,362	$42,595	$44,486	$113,711
Machinery cost/tillable acre	$138	$148	$155	$176
Dairy Analysis				
Number of cows	47	87	85	243
Number of heifers	37	73	69	196
Milk sold, lbs.	741,903	1,461,585	1,451,384	4,558,311
Milk sold/cow, lbs.	15,959	16,860	17,015	18,739
Operating cost of prod. milk/cwt.	$10.62	$11.12	$11.04	$11.22
Total cost of prod. milk/cwt.	$17.45	$16.12	$16.13	$14.56
Price/cwt. milk sold	$14.70	$14.90	$14.95	$15.00
Purchased dairy feed/cow	$693	$719	$695	$813
Purchased dairy feed/cwt. milk	$4.34	$4.27	$4.09	$4.34
Purc. grain & conc. as % milk rec.	28%	28%	26%	28%
Purc. feed & crop exp./cwt. milk	$5.13	$5.22	$5.08	$5.28
Capital Efficiency				
Farm capital/worker	$172,643	$199,664	$204,685	$234,105
Farm capital/cow	$7,444	$6,914	$6,834	$6,066
Farm capital/til. acre owned	$3,090	$3,294	$3,389	$3,706
Real estate/cow	$3,790	$3,195	$3,016	$2,660
Machinery investment/cow	$1,444	$1,346	$1,463	$1,053
Capital turnover, years	2.58	2.33	2.29	1.81
Labor Efficiency				
Worker equivalent	2.00	3.00	2.85	6.30
Operator/manager equivalent	1.21	1.38	1.37	1.63
Milk sold/worker, lbs.	370,048	486,820	509,605	723,398
Cows/worker	23	29	30	39
Work units/worker	248	309	321	400
Labor cost/cow	$589	$512	$510	$550
Labor cost/tillable acre	$169	$155	$152	$207
Profitability & Balance Sheet Analysis				
Net farm income (w/o apprec.)	$18,620	$35,416	$35,472	$115,054
Labor & mgmt. income/operator	$2,279	$8,017	$8,594	$39,642
Farm debt/cow	$2,426	$2,093	$2,194	$2,231
Percent equity	67%	70%	68%	64%

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

FARM BUSINESS CHART FOR SMALL CONVENTIONAL STALL DAIRY FARMS
127 Conventional Stall Dairy Farms with 60 or Less Cows, New York, 1990

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
(10)*	(10)	(10)	(9)	(8)	(8)	(10)	(10)
3.2	59	1,063,570	19,694	3.9	20	38	601,872
2.6	57	956,623	18,135	3.2	17	30	514,801
2.4	54	886,369	17,515	3.0	16	28	465,011
2.1	51	821,538	17,016	2.7	15	26	431,581
2.0	49	757,836	16,617	2.5	13	25	394,554
1.9	45	707,062	16,066	2.3	12	23	368,897
1.7	42	658,951	15,340	2.0	12	22	341,474
1.5	40	608,772	14,202	1.8	10	20	298,433
1.3	36	536,080	13,081	1.6	10	18	260,744
1.1	28	367,339	10,584	1.0	7	14	196,088

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
(9)	(9)	(10)	(10)	(9)	(9)
$ 360	16%	$221	$ 683	$ 475	$3.42
476	22	317	829	608	4.11
527	24	359	917	684	4.45
577	26	391	962	722	4.71
632	28	455	1,022	762	4.92
698	29	490	1,077	817	5.17
737	31	516	1,138	873	5.38
781	33	556	1,219	934	5.72
827	37	619	1,320	1,013	6.19
1,007	41	848	1,596	1,247	7.23

Value and Cost of Production			Profitability			
			Net Farm Income			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	With Apprec.	Without Apprec.	Labor &. Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
(9)	(9)	(9)	(3)	(3)	(3)	(5)
$2,982	$ 6.69	$13.63	$72,739	$48,969	$25,562	$42,873
2,729	8.42	14.78	44,695	35,933	17,760	22,785
2,604	9.10	15.38	36,555	29,744	13,303	16,110
2,490	9.60	16.04	29,556	25,100	8,783	12,312
2,408	10.10	16.81	25,909	19,976	4,369	6,962
2,337	10.77	17.50	21,881	15,365	339	3,309
2,224	11.45	18.18	17,294	10,762	-2,731	247
2,073	11.98	19.28	12,480	6,635	-7,250	-4,426
1,877	12.74	20.39	5,188	2,872	-16,427	-11,086
1,522	15.51	26.07	-14,724	-12,754	-32,617	-36,059

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

FARM BUSINESS CHART FOR LARGE CONVENTIONAL STALL DAIRY FARMS

97 Conventional Stall Dairy Farms with More Than 60 Cows, New York, 1990

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
(10)*	(10)	(10)	(9)	(8)	(8)	(10)	(10)
5.1	149	2,584,859	20,718	4.3	20	44	760,541
4.0	106	1,875,410	19,377	3.5	18	37	637,992
3.4	96	1,629,899	18,581	3.1	17	33	576,615
3.1	86	1,517,394	18,068	2.9	16	31	541,546
2.9	80	1,403,263	17,315	2.6	15	30	486,292
2.6	76	1,328,227	16,794	2.4	14	28	456,646
2.5	71	1,219,172	16,108	2.2	12	26	426,507
2.4	68	1,101,764	14,940	2.1	12	25	404,925
2.1	66	988,499	13,591	1.8	11	23	375,631
1.7	63	819,905	11,401	1.5	8	19	297,511

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
(9)	(9)	(10)	(10)	(9)	(9)
$ 373	16%	$298	$ 720	$ 493	$3.38
442	19	368	812	598	4.08
506	23	393	864	695	4.39
579	24	421	913	759	4.69
649	26	456	954	826	4.89
700	28	485	994	886	5.24
774	31	531	1,079	936	5.43
842	33	585	1,137	1,011	5.72
919	35	640	1,216	1,087	6.14
1,086	40	742	1,362	1,279	7.14

Value and Cost of Production			Profitability			
			Net Farm Income			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	With Apprec.	Without Apprec.	Labor &. Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
(9)	(9)	(9)	(3)	(3)	(3)	(5)
$3,162	$ 7.30	$13.04	$106,960	$91,167	$46,704	$77,975
2,902	9.22	14.11	72,165	61,082	27,104	39,645
2,744	9.91	14.94	54,447	49,457	19,419	29,725
2,651	10.20	15.55	48,672	43,537	13,118	23,556
2,576	10.59	15.93	43,293	34,340	9,424	17,338
2,478	11.13	16.38	36,204	27,752	4,553	12,420
2,362	11.69	16.82	25,594	21,420	380	5,334
2,205	12.34	17.30	18,611	14,713	-5,082	-2,665
2,025	13.24	18.04	12,273	9,758	-13,809	-11,179
1,730	14.19	20.13	-4,728	-5,646	-23,429	-47,564

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

FARM BUSINESS CHART FOR SMALL FREESTALL DAIRY FARMS

60 Freestall Barn Dairy Farms with 120 or Less Cows, New York, 1990

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
(10)*	(10)	(10)	(9)	(8)	(8)	(10)	(10)
4.3	116	2,158,034	20,788	4.6	21	48	828,578
3.8	109	1,944,413	19,249	3.6	19	40	676,371
3.5	103	1,846,013	18,571	3.3	17	36	605,256
3.1	97	1,696,622	17,923	3.0	16	33	578,887
2.9	90	1,536,651	17,237	2.8	15	31	547,092
2.7	80	1,343,093	16,615	2.5	15	29	501,972
2.5	77	1,213,815	16,147	2.1	14	27	456,111
2.2	67	1,049,918	15,476	1.9	14	25	410,748
1.9	56	881,600	13,672	1.6	13	23	354,502
1.4	46	632,120	12,126	1.0	9	18	253,915

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
(9)	(9)	(10)	(10)	(9)	(9)
$ 286	11%	$270	$ 653	$ 512	$3.01
426	18	331	802	620	3.77
520	21	393	885	665	4.40
606	25	440	933	767	4.76
666	27	464	970	838	5.12
704	28	496	1,046	921	5.52
764	31	567	1,092	969	5.65
840	33	614	1,153	1,041	5.85
906	34	686	1,267	1,091	6.34
1,006	39	877	1,481	1,219	7.12

Value and Cost of Production			Profitability			
			Net Farm Income			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	With Apprec.	Without Apprec.	Labor &. Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
(9)	(9)	(9)	(3)	(3)	(3)	(5)
$1,854	$ 7.95	$12.98	$101,819	$96,206	$44,877	$75,638
2,012	9.22	14.11	79,708	70,840	27,364	48,824
2,295	9.65	14.91	69,020	56,741	19,085	33,368
2,435	10.09	15.41	59,252	48,026	13,408	23,325
2,509	10.72	15.85	41,880	36,075	10,018	15,763
2,588	11.21	16.19	31,702	27,444	6,031	10,534
2,667	11.78	16.95	23,015	15,348	433	1,011
2,759	12.71	17.81	16,564	10,333	-9,174	-7,476
2,898	13.84	19.65	5,105	-2,985	-18,460	-19,705
3,100	15.22	22.15	-18,572	-12,043	-26,264	-77,443

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

FARM BUSINESS CHART FOR LARGE FREESTALL DAIRY FARMS

80 Freestall Barn Dairy Farms with More Than 120 Cows, New York, 1990

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
(10)*	(10)	(10)	(9)	(8)	(8)	(10)	(10)
14.7	665	12,936,108	21,844	4.7	19	57	1,002,686
7.9	338	6,399,112	20,930	4.0	18	44	866,986
7.0	257	4,683,440	20,025	3.5	17	42	793,600
6.0	205	3,760,735	19,243	3.2	16	40	734,560
5.5	181	3,413,110	18,723	3.0	16	38	694,646
5.1	169	3,070,859	18,168	2.8	15	36	659,232
4.5	156	2,884,946	17,731	2.6	14	34	627,685
4.0	142	2,714,383	17,106	2.3	13	32	587,006
3.8	130	2,432,639	16,404	2.1	12	30	530,645
3.1	122	1,908,456	14,467	1.5	9	25	428,608

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
(9)	(9)	(10)	(10)	(9)	(9)
$ 416	15%	$287	$ 670	$ 655	$3.48
550	19	368	839	785	4.17
632	23	405	919	829	4.50
689	25	441	975	888	4.84
738	26	480	1,025	941	5.10
783	29	506	1,054	979	5.44
826	30	535	1,089	1,019	5.64
857	32	555	1,162	1,085	6.01
926	34	609	1,217	1,160	6.32
1,078	40	748	1,354	1,293	7.01

Value and Cost of Production			Profitability			
			Net Farm Income			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	With Apprec.	Without Apprec.	Labor &. Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
(9)	(9)	(9)	(3)	(3)	(3)	(5)
$3,303	$ 6.85	$11.75	$420,314	$341,186	$207,822	$187,516
3,107	9.20	13.08	237,008	196,670	89,608	102,826
3,016	10.18	13.77	165,693	153,705	61,282	80,200
2,927	10.75	14.20	127,779	111,389	42,376	65,041
2,843	11.14	14.82	104,366	92,999	31,694	46,573
2,713	11.44	15.22	85,705	74,817	20,966	35,148
2,644	11.90	15.61	71,032	58,137	15,068	21,132
2,548	12.42	15.94	50,070	43,367	7,425	1,876
2,443	13.04	16.51	35,473	31,356	-5,216	-14,390
2,169	14.07	17.72	-1,111	9,388	-35,772	-58,492

*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 the 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 proper direction.

1. Goals should be specific.

2. Goals should be realistic and achievable.

3. The achievement of the goal should be verifiable.

4. You should designate a time when each goal will be achieved.

Goal setting on a dairy farm does not have to be a complex process. In many cases it provides 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 long and short range goals when looking at the future of your farm business.

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

a. Begin with a general philosophy statement which incorporates both business and family goals.

b. Identify 4-6 long range goals.

c. Identify specific short range goals for a given time period (i.e., one year).

Worksheet for Setting Goals

I. General Philosophy and Objectives

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Worksheet for Setting Goals (continued)

II. Long Range Goals (require two or more years to achieve)

_____

_____

_____

_____

_____

III. Short Range Goals (possible to achieve in one or two years)

What	How	When

NOTE: Once long and short range goals have been identified, it is helpful to rank them in order of priority.

Prepared by T.R. Maloney, Extension Associate, Cornell University

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Summarize Your Business Performance

The Farm Business and Financial Analysis Charts on pages 19-22 and 25-28 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:_____ Need Improvement:_____

_____ _____

_____ _____

_____ _____

GLOSSARY AND LOCATION OF COMMON TERMS

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

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

Accrual Expenses - (defined on page 3)

Accrual Receipts - (defined on page 4)

Annual Cash Flow Statement - (defined on page 10)

Appreciation - (defined on page 5)

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.

Capital Turnover, Years - The number of years required for total farm income to equal total farm assets, calculated by dividing average total farm assets by total accrual operating receipts plus appreciation.

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 11)

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)

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

Debt to Asset Ratios - (defined on page 9)

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.

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.

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.

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.

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 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 16)

Opportunity Cost - 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; bedding, DHIC, milk house and parlor supplies, livestock board, registration fees and transfers.

Part-Time Cash-Crop Dairy (farm) - Operating and managing this farm is not a full-time occupation, crop sales exceed 10 percent of accrual milk receipts and cropland is owned.

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 costs including the opportunity costs of the owner/manager's labor, management, and equity capital.

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)

Return to Operators' Labor, Management, and Equity Capital - (defined on page 6)

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 16)

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.

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