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# DAIRY FARM BUSINESS SUMMARY

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## NEW YORK LARGE HERD FARMS, 300 COWS OR LARGER 1996



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**1996 DAIRY FARM BUSINESS SUMMARY**  
**LARGE HERD DAIRY FARMS**  
**300 Cows or Larger**

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# **1996 DAIRY FARM BUSINESS SUMMARY LARGE HERD DAIRY FARMS<sup>1</sup>**

## **INTRODUCTION**

Dairy farmers throughout New York State have been participating in Cornell Cooperative Extension Farm Business Summary and Analysis Programs 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 with herds of 300 cows and larger in New York State for 1996.

### **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 dairy farm through appropriate use of historical farm data and the application of modern farm business analysis techniques. This information can also be used to track changes within the business, establish goals that will enable the business to better meet its objectives, compare the performance of the farm to other dairy producers, and establish a basis for financial projections of planned changes within the business.

### **Format**

This report is comprised of four sections. The first section charts the progress of the large herd farm businesses over two years. Thirty-one of the large herd farms participated in the summary the last two years. The average of selected business factors are presented for these farms and the changes that occurred from 1995 to 1996 are calculated.

The summary and analysis section lists the average data for the 32 large herd farms that participated in the 1996 DFBS program. The format follows that of the individual farm DFBS printout and contains a brief explanation of each table and chart.

The third section presents a condensed summary and selected business factors for farms with 300-500 cows and farms with more than 500 cows.

The fourth section contains the income and expense profiles for the 300 cow and larger farms on a per cow and per cwt. of milk basis.

The fifth section contains business charts for key measures of farm performance.

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<sup>1</sup>The large herd summary is comprised of farms with 300 or more cows. Cayuga, Chautauqua, Cortland, Erie, Genesee, Ontario, Saratoga, Schuyler, Washington, Wayne and Wyoming counties had farms of this size in 1996. This report was written by Jason Karszes, Cooperative Extension agent for Erie and Wyoming counties and Wayne A. Knoblauch, Professor, Farm Management. Linda Putnam was in charge of data preparation. Melody Clark prepared the publication.

## PROGRESS OF THE FARM BUSINESS

Comparing your business with average data from large DFBS dairy farms that participated in both of the last two years can be helpful in comparing performance and establishing goals for your business. 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. Please refer to the table on Page 3 for selected factors from 31 farms with over 300 cows that participated in this DFBS project each of the last two years.

From 1995 to 1996 the average large herd grew 9.4 percent by adding 53 cows. With this increase in herd size, farm capital per cow fell 0.8 percent to \$5,625 and debt per cow increased 2.1 percent to \$2,614. The increase in herd size contributed to a small gain in labor efficiency. The 9.4 percent increase in herd size led to a 7.6 percent increase in worker equivalent on the farms. Cows per worker equivalent increased by 1 percent to 47 cow per worker and milk sold per worker equivalent increased by 2 percent to 1,019,420 pounds.

Milk sold per cow increased 51 pounds a cow, or 0.2 percent. This small increase in milk production per cow coupled with the increase in herd size increased milk marketed from 1995 to 1996 by 9.7 percent to 13,456,339 pounds per farm.

A major change from 1995 to 1996 was in the cost to operate the farm. Total farm operating costs per cwt. increased 11.6 percent from \$11.80 per in 1995 to \$13.17 in 1996. Leading the increase was the change in feed costs. Grain & concentrate purchased per cwt. of milk sold went from \$3.50 per cwt. in 1995 to \$4.52 in 1996, a \$1.02 (29.1 percent) change. Dairy feed and crop expenses increased 25.1 percent to \$5.19 in 1996. This increase was due to the increase in feed costs. Crop expenses stayed flat on a cost per cwt. of milk sold basis. Labor costs also increased on these farms, with the labor cost per cwt. of milk sold increasing 4.3 percent to \$2.44 per cwt. of milk sold and a 6.4 percent in cost per worker equivalent. On the other hand, interest cost per cwt. of milk decreased 8.5 percent to \$0.86 per cwt. of milk sold and milk marketing costs decreased 18.6 percent to \$0.48 per cwt. of milk sold. The decrease in milk marketing cost reflects the repeal of the milk marketing assessment in 1996.

The average milk price received on these farms increased \$1.89 to \$14.87 per cwt. of milk sold, a 14.6 percent increase. This increase in milk price coupled with the decrease in milk marketing costs led to a \$2.00 increase in the net price received on the farm in 1996. This is a 16.1 percent increase over 1995. The decline in beef and calf prices continued into 1996. Accrual dairy cattle income fell 22.8 percent and calf sales decreased 44.4 percent per cow.

While there was a large increase in the cost to produce milk, efforts to minimize the increased allowed these farms to take advantage of the unusual increase in milk prices in 1996. Profit levels from 1995 to 1996 increased dramatically. Net farm income without appreciation increased 9.2 percent. Labor and management income per operator increased 55.3 percent to \$82,068. The rate of return on equity capital without appreciation rose 17.6 percent to 8.7 percent while the rate of return on all capital without appreciation increased 40.8 percent to 10 percent. Farm net worth increased 8.9 percent to \$1,949,753. Debt to asset ratio stayed flat at 0.46.

While 1996 was a challenging year in terms of rapid changes in different areas, the progress these 31 farms made from 1995 to 1996 showed that opportunity to make profits existed and yielded positive results.

**PROGRESS OF THE FARM BUSINESS**  
 Same 31 Large Herd Dairy Farms, 1995 & 1996

Selected Factors	Average of 31 Farms		Percent Change
	1995	1996	
<u>Size of Business</u>			
Average number of cows	564	617	9.4
Average number of heifers	417	454	8.9
Milk sold, lbs.	12,262,793	13,456,339	9.7
Worker equivalent	12.27	13.20	7.6
Total tillable acres	1,073	1,164	8.5
<u>Rates of Production</u>			
Milk sold per cow, lbs.	21,755	21,806	0.2
Hay DM per acre, tons	3.4	3.3	-2.9
Corn silage per acre, tons	17.8	17.3	-2.8
<u>Labor Efficiency &amp; Costs</u>			
Cows per worker	46	47	2.2
Milk sold/worker, lbs.	999,413	1,019,420	2.0
Hired labor cost/cwt.	\$2.34	\$2.44	4.3
Hired labor cost/worker	\$23,386	\$24,874	6.4
Hired labor cost as % of milk sales	18%	16%	-11.1
<u>Cost Control</u>			
Grain & conc. purchased as % of milk sales	27%	30%	11.1
Grain & conc. per cwt. milk	\$3.50	\$4.52	29.1
Dairy feed & crop expense per cwt. milk	\$4.15	\$5.19	25.1
Labor & mach. costs/cow	\$932	\$997	7.0
Total farm operating costs per cwt. sold	\$11.80	\$13.17	11.6
Interest costs per cwt. milk	0.94	0.86	-8.5
Milk marketing costs per cwt. milk sold	0.59	0.48	-18.6
Operating cost of producing cwt. of milk	\$10.29	\$12.02	16.8
<u>Capital Efficiency(average for the year)</u>			
Farm capital per cow	\$5,670	\$5,625	-0.8
Mach. & equip. per cow	\$870	\$867	-0.3
Asset turnover ratio	0.59	0.64	8.5
<u>Income Generation</u>			
Gross milk sales per cow	\$2,822	\$3,243	14.9
Gross milk sales per cwt.	\$12.98	\$14.87	14.6
Net milk sales per cwt.	\$12.39	\$14.39	16.1
Dairy cattle sales per cow	\$267	\$206	-22.8
Dairy calf sales per cow	\$27	\$15	-44.4
<u>Profitability</u>			
Net farm income w/o apprec.	\$197,911	\$262,883	32.8
Net farm income w/apprec.	\$267,654	\$292,317	9.2
Labor & mgt. income per oper./manager	\$52,861	\$82,068	55.3
Rate of return on equity capital w/o apprec.	7.1%	10.0%	40.8
Rate of return on all capital w/o apprec.	7.4%	8.7%	17.6
<u>Financial Summary</u>			
Farm net worth, end year	\$1,790,534	\$1,949,753	8.9
Debt to asset ratio	0.46	0.46	0.0
Farm debt per cow	\$2,559	\$2,614	2.1

## 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 each characteristic.

### **BUSINESS CHARACTERISTICS**

32 Large Herd Dairy Farms, 1996

Type of Farm	Number	Type of Barn	Number
Dairy	32	Stanchion/Tie-Stall	0
		Freestall	32
		Combination	0
Type of Ownership	Number	Milking System	Number
Owner	32	Pipeline	0
		Herringbone parlor	24
		Other parlor	8
Type of Business	Number	Milking Frequency	Number
Single proprietorship	13	2x/day	6
Partnership	9	3x/day	25
Corporation	10	Other	1
Business Record System	Number	Production Records	Number
Account Book	4	DHIC	26
Agrifax (mail-in only)	3	Owner-Sampler	2
On-Farm Computer	24	Other	4
Other	1	None	0
BST Usage	Number		
<25%	2		
25-75%	25		
>75%	1		
Stopped Use in 1996	2		
Not Used	2		

### **Income Statement**

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

Cash paid is the actual cash outlay during the year and does not necessarily represent the cost of goods and services actually used in 1996.

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**

32 Large Herd Dairy Farms, 1996

Expense Item	Cash Paid	- Change in Inventory or Prepaid Expense	+ Change in Accounts Payable	= Accrual Expenses
<b>Hired Labor</b>	\$ 328,590	\$ 1,280 <<	\$ 2,599	\$ 329,910
<b>Feed</b>				
Dairy grain & concentrate	640,335	29,193	-3,848	607,294
Dairy roughage	8,801	82	162	8,882
Nondairy	219	0	0	219
<b>Machinery</b>				
Mach. hire, rent/lease	39,681	-42 <<	527	40,250
Mach. rep. & farm veh. exp	84,450	903	-220	83,327
Fuel, oil & grease	32,267	816	-285	31,166
<b>Livestock</b>				
Replacement livestock	19,653	0 <<	0	19,653
Breeding	17,234	-150	-568	16,816
Vet & medicine	65,796	3,579	-758	61,459
Milk marketing	64,319	84 <<	-32	64,203
Bedding	31,048	2,206	-108	28,734
Milk supplies	45,328	2,497	115	42,947
Cattle lease/rent	6,219	0 <<	344	6,562
Custom boarding	16,152	0 <<	82	16,234
Other livestock expense	53,910	1,649	-107	52,157
<b>Crops</b>				
Fertilizer & lime	33,453	2,249	557	31,761
Seeds & plants	27,275	3,791	-53	23,431
Spray, other crop exp.	27,665	316	-227	27,122
<b>Real Estate</b>				
Land/bldg./fence repair	31,121	-95	-194	31,021
Taxes	21,125	74 <<	0	21,052
Rent & lease	34,305	-330 <<	-32	34,604
<b>Other</b>				
Insurance	16,673	373 <<	-6	16,294
Utilities (farm share)	41,261	3 <<	194	41,452
Interest paid	116,999	0 <<	-855	116,143
Miscellaneous	20,795	260	-1,030	19,506
<b>Total Operating Expenses</b>	<b>\$1,824,674</b>	<b>\$ 48,736</b>	<b>\$ -3,741</b>	<b>\$1,772,198</b>
Expansion livestock	\$ 34,895	\$ 0 <<	\$ 0	\$ 34,895
Machinery depreciation				\$ 67,225
Building depreciation				\$ 54,727
<b>Total Accrual Expenses</b>				<b>\$1,929,045</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. If 1996 funds used to prepay 1997 leases exceed the amount of 1996 leases prepaid in 1995, the amount of this excess is subtracted to exclude it from 1996 accrual lease expenses. The excess prepaid lease is charged against the future year's business operation. A decrease in prepaid lease 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 when calculating accrual expenses because these expenses were incurred (resources used) in 1996 but not paid for. A decrease is subtracted because the resource was used before 1996.

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

32 Large Herd Dairy Farms, 1996

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts
Milk sales	\$1,998,698				\$ 4,940		\$ 2,003,638
Dairy cattle	63,455		\$ 61,995		-67		125,383
Dairy calves	9,554				21		9,575
Other livestock	3,047		79		90		3,216
Crops	9,349		10,079		1,840		21,269
Government receipts	12,165		921 *		125		13,211
Custom machine work	1,363				17		1,379
Gas tax refund	529				79		608
Other	13,100				254		13,355
Less nonfarm noncash cap.**			(-) 0 **		(-) 0		(-) 0
Total Receipts	\$2,111,259		\$ 73,074		\$ 7,300		\$ 2,191,633

\*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 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 annual increase in advanced government receipts is subtracted from cash income because it represents income received in 1996 for the 1997 crop year in excess of funds earned for 1996. Likewise, a decrease is added to cash government receipts because it represents funds earned for 1996 but received in 1995.

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<sup>3</sup> 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.

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.

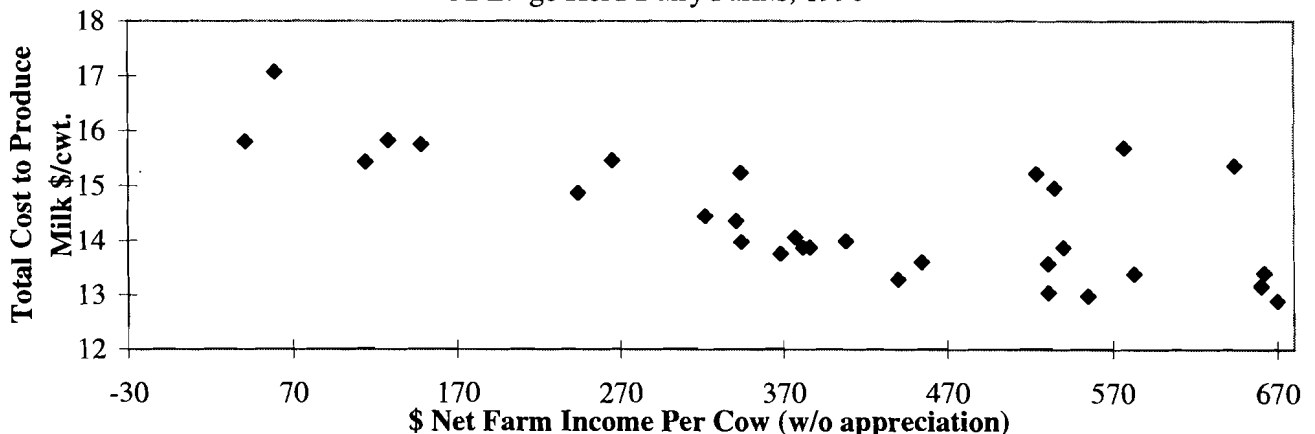
Net farm income is computed both with and without appreciation. Appreciation represents the change in values caused by annual changes in prices of livestock, machinery, real estate inventory, and stocks and certificates (other than Farm Credit). Appreciation is a major factor contributing to changes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

### NET FARM INCOME 32 Large Herd Dairy Farms, 1996

Item	Average		My Farm	
	Total	Per Cow	Total	Per Cow
Total accrual receipts	\$ 2,191,633		\$ _____	
Appreciation: Livestock	1,169		_____	
Machinery	3,718		_____	
Real Estate	19,430		_____	
Other Stock/Certificates	4,197		_____	
Total Including Appreciation	\$ 2,220,147		\$ _____	
Total accrual expenses	1,929,045		- _____	
Net Farm Income (with appreciation)	\$ 291,102	\$470	\$ _____	\$ _____
Net Farm Income (w/o appreciation)	\$ 262,588	\$424	\$ _____	\$ _____

### TOTAL COST TO PRODUCE MILK vs. NET FARM INCOME PER COW

32 Large Herd Dairy Farms, 1996



<sup>3</sup>Operators are the individuals who are integrally involved in the operation and management of the farm business. They are not limited to those who own the farm or are formal members of the partnership or corporation.

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 a charge for unpaid family labor and the opportunity cost of using 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.

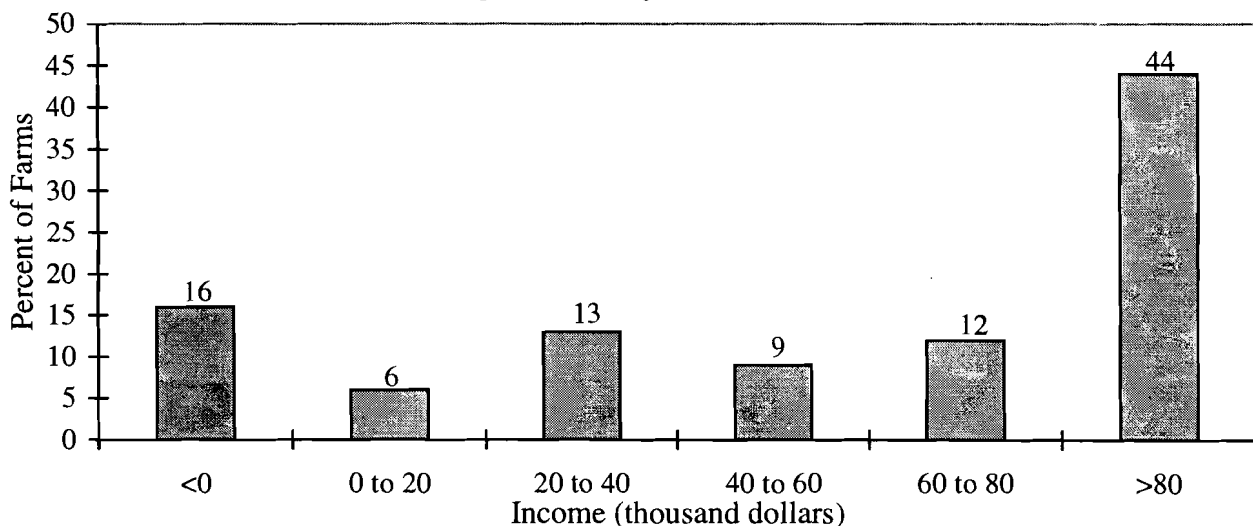
### LABOR AND MANAGEMENT INCOME 32 Large Herd Dairy Farms, 1996

Item	Average	My Farm
Net farm income without appreciation	\$ 262,588	\$ _____
Family labor unpaid @ \$1,500 per month	- 1,950	- _____
Interest on \$1,856,828 average equity capital @ 5% real rate	- 92,841	- _____
Labor & Management Income per Farm (2.02 operators/farm)	\$ 167,797	\$ _____
Labor & Management Income per Operator/Manager	\$ 83,068	\$ _____

Labor and management income per operator averaged \$83,068 on these 32 farms in 1996. Returns to labor and management were negative on 16 percent of the farms. Labor and management income per operator ranged from \$0 to \$40,000 on 19 percent of the farms while 44 percent showed labor and management incomes of \$80,000 or more per operator.

### DISTRIBUTION OF LABOR & MANAGEMENT INCOMES PER OPERATOR

32 Large Herd Dairy Farms, 1996



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

32 Large Herd Dairy Farms, 1996

Item	Average	My Farm
Net farm income with appreciation	\$ 291,102	\$ _____
Family labor unpaid @ \$1,500 per month	- 1,950	- _____
Value of operators' labor & management	- 73,301	- _____
Return on equity capital with appreciation	\$ 215,851	\$ _____
Interest paid	+ 116,143	+ _____
Return on total capital with appreciation	\$ 331,994	\$ _____
Return on equity capital without appreciation	\$ 187,337	\$ _____
Return on total capital without appreciation	\$ 303,480	\$ _____
Rate of return on average equity capital:		
with appreciation	11.62%	_____ %
without appreciation	10.09%	_____ %
Rate of return on average total capital:		
with appreciation	9.62%	_____ %
without appreciation	8.79%	_____ %

### 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 1996, leases were discounted by 8.75 percent.

Advanced government receipts are included as current liabilities. Government payments received in 1996 that are for participation in the 1995 program are the end year balance and payments received in 1995 for participation in the 1996 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.

**1996 FARM BUSINESS & NONFARM BALANCE SHEET**

32 Large Herd Dairy Farms, 1996

Farm Assets			Farm Liabilities & Net Worth		
	Jan. 1	Dec. 31		Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$ 13,120	\$ 13,924	Accounts payable	\$ 39,361	\$ 35,620
Accounts receivable	117,134	124,434	Operating debt	114,987	134,958
Prepaid expenses	6,055	7,497	Short Term	29,391	27,992
Feed & supplies	334,522	391,895	Advanced govt. receipts	921	0
			Current Portion:		
			Intermediate	91,144	96,255
			Long Term	41,432	52,599
Total Current	\$ 470,831	\$ 537,750	Total Current	\$ 317,237	\$ 347,424
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy cows:			Structured debt		
owned	\$ 587,952	\$ 614,034	1-10 years	\$ 504,373	\$ 511,546
leased	13,456	14,101	Financial lease		
Heifers	244,128	281,264	(cattle/machinery)	75,107	63,831
Bulls/other livestock	6,621	6,647	Farm Credit stock	18,436	19,509
Mach./equipment owned	452,316	506,561	Total Intermediate	\$ 597,916	\$ 594,886
Mach./equipment leased	61,651	49,730			
Farm Credit stock	18,436	19,509			
Other stock/certificate	62,209	77,690			
Total Intermediate	\$1,446,769	\$1,569,536			
<u>Long Term</u>			<u>Long Term</u>		
Land/buildings:			Structured debt		
owned	\$1,412,855	\$1,463,816	>10 years	\$ 638,100	\$ 692,338
leased	0	0	Financial lease		
Total Long Term	\$1,412,855	\$1,463,816	(structures)	0	0
			Total Long Term	\$ 638,100	\$ 692,338
Total Farm Assets	\$3,330,455	\$3,571,102	Total Farm Liab.	\$1,553,253	\$1,634,648
			FARM NET WORTH	\$1,777,202	\$1,936,454

## Nonfarm Assets, Liabilities &amp; Net Worth (Average of 12 farms reporting)

Assets			Liabilities & Net Worth		
	Jan. 1	Dec. 31		Jan. 1	Dec. 31
Personal cash, checking & savings	\$ 4,246	\$ 4,717	Nonfarm Liabilities	\$ 1,200	\$ 7,936
Cash value life insurance	17,535	20,857			
Nonfarm real estate	11,250	11,250			
Auto (personal share)	4,333	3,750			
Stocks & bonds	4,452	5,055			
Household furnishings	11,417	11,667			
All other nonfarm assets	2,417	15,558			
Total Nonfarm Assets	\$ 55,650	\$ 72,854	NONFARM NET WORTH	\$ 54,450	\$ 64,918

Farm & Nonfarm Assets, Liabilities, and Net Worth*			Jan. 1	Dec. 31
Total Assets			\$ 3,386,105	\$ 3,643,956
Total Liabilities			1,554,453	1,642,584
TOTAL FARM & NONFARM NET WORTH			\$ 1,831,652	\$2,001,372

\*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 and date on 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. However, they could be important.

### CONDENSED BALANCE SHEET INCLUDING DEFERRED TAXES

December 31, 1995

Average of 11 New York Dairy Farms Reporting Data, 1995

ASSETS		LIABILITIES & NET WORTH	
		Current debts & payables	\$ 95,207
		Current deferred taxes	<u>76,367</u>
Total Current Assets	\$ 128,267	Total Current Liabilities	\$171,574
		Intermediate debts & leases	\$132,835
		Intermediate deferred taxes	<u>124,500</u>
Total Intermediate Assets	\$ 470,523	Total Intermediate Liabilities	\$257,335
		Long term debts & leases	\$142,335
		Long term deferred taxes	<u>68,412</u>
Total Long Term Assets	\$ 427,795	Total Long Term Liabilities	\$210,804
TOTAL FARM ASSETS	\$1,026,585	TOTAL FARM LIABILITIES	\$639,713
		Farm Net Worth	\$386,872
		Percent Equity (Farm)	38%
		Nonfarm debts	\$ 55
		Nonfarm deferred taxes	<u>12,287</u>
Total Nonfarm Assets	\$ 49,423	Total Nonfarm Liabilities	\$ 12,842
TOTAL ASSETS	\$1,076,008	TOTAL LIABILITIES	\$652,555
		Total Net Worth	\$423,453
		Percent Equity (Total)	39%

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.

### BALANCE SHEET ANALYSIS

32 Large Herd Dairy Farms, 1996

Item	Average	My Farm
<u>Financial Ratios - Farm:</u>		
Percent equity	54%	_____ %
Debt/asset ratio: total	0.46	_____
long-term	0.47	_____
intermediate/current	0.45	_____
<u>Farm Debt Analysis:</u>		
Accounts payable as % of total debt	2%	_____ %
Long-term liabilities as a % of total debt	42%	_____ %
Current & intermediate liabilities as a % of total debt	58%	_____ %
<u>Farm Debt Levels:</u>		
	<u>Per Cow</u>	<u>Per Tillable Acre Owned</u>
Total farm debt	\$ 2,591	\$2,586
Long-term debt	1,097	1,095
Long-term & intermediate	2,040	2,037
Intermediate & current debt	1,493	1,491

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

32 Large Herd Dairy Farms, 1996

Item	Average of 32 Farms	
	<u>Real Estate</u>	<u>Machinery &amp; Equipment</u>
Value beginning of year	\$ 1,412,855	\$ 452,316
Purchases	\$ 139,476 *	\$ 126,565
Gift/inheritance	+ 0	+ 0
Lost capital	- 45,642	
Sales	- 7,576	- 8,812
Depreciation	- 54,727	- 67,225
Net investment	= 31,531	= 50,527
Appreciation	+ 19,430	+ 3,718
Value end of year	\$ 1,463,816	\$ 506,561

\*\$22,344 land and \$117,132 buildings and/or depreciable improvements.



## Statement of Owner Equity

The Statement of Owner Equity has two purposes. It allows (1) verification that the accrual income statement and market value balance sheet are interrelated and 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) and (3) increases or decreases in the value (price) of assets owned by the business (called change in valuation equity).

Retained earnings is an excellent indicator of farm generated financial progress.

### STATEMENT OF OWNER EQUITY (RECONCILIATION)

32 Large Herd Dairy Farms, 1996

Item	Average	My Farm
Beginning of year farm net worth	\$ 1,777,202	\$ _____
Net farm income w/o appreciation	\$ 262,588	\$ _____
+ Nonfarm cash income	+ 7,999	+ _____
- Personal withdrawals & family expenditures excluding nonfarm borrowings	- 94,064	- _____
Retained Earnings	+ 176,523	+ _____
Nonfarm noncash transfers to farm	\$ 0	\$ _____
+ Cash used in business from nonfarm capital	+ 3,547	+ _____
- Note/mortgage from farm real estate sold (nonfarm)	- 1,563	- _____
Contributed/Withdrawn Capital	+ 1,984	+ _____
Appreciation	\$ 28,514	\$ _____
- Lost capital	- 45,642	- _____
Change in Valuation Equity	+ -17,128	+ _____
Imbalance/Error	- 2,127	- _____
End of year farm net worth*	=\$ 1,936,454	=\$ _____
Change in net worth w/apprec.	\$ 159,252	\$ _____
<u>Change in Net Worth</u>		
Without appreciation	\$ 130,738	\$ _____
With appreciation	\$ 159,252	\$ _____

\*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

32 Large Herd Dairy Farms, 1996

Item		Average	
<u>Cash Flow from Operating Activities</u>			
Cash farm receipts	\$ 2,111,259		
- Cash farm expenses	<u>1,824,674</u>		
= Net cash farm income		\$ 286,585	
Personal withdrawals/family expenses including nonfarm debt payments	\$ 96,783		
- Nonfarm income	<u>7,999</u>		
- Net cash withdrawals from the farm		\$ 88,784	
= Net Provided by Operating Activities			\$ 197,801
<u>Cash Flow From Investing Activities</u>			
Sale of Assets: Machinery	\$ 8,812		
+ real estate	6,013		
+ other stock/cert.	<u>1,519</u>		
= Total asset sales		\$ 16,344	
Capital purchases: expansion livestock	\$ 34,895		
+ machinery	126,565		
+ real estate	139,476		
+ other stock/cert.	<u>12,803</u>		
- Total invested in farm assets		\$ 313,739	
= Net Provided by Investment Activities			\$ -297,365
<u>Cash Flow From Financing Activities</u>			
Money borrowed (inter. & long term)	\$ 224,715		
+ Money borrowed (short-term)	12,994		
+ Increase in operating debt	19,970		
+ Cash from nonfarm cap. used in business	3,547		
+ Money borrowed - nonfarm	<u>2,719</u>		
= Cash inflow from financing		\$ 263,945	
Principal payments (inter. & long-term)	\$ 147,025		
+ Principal payments (short-term)	14,393		
+ Decrease in operating debt	<u>0</u>		
- Cash outflow for financing		\$ 161,418	
= Net Provided by Financing Activities			\$ 102,527
<u>Cash Flow From Business</u>			
Beginning farm cash, checking & savings		\$ 13,120	
- Ending farm cash, checking & savings		<u>13,924</u>	
= Net Provided from Reserves			\$ -804
<u>Imbalance (error)</u>			\$ 2,129

## 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 (inter. & long term)	\$ _____		
+ Money borrowed (short-term)	_____		
+ Increase in operating debt	_____		
+ Cash from nonfarm cap. used in business	_____		
+ Money borrowed - nonfarm	_____		
= Cash inflow from financing		\$ _____	
Principal payments (inter. & long-term)	\$ _____		
+ Principal payments (short-term)	_____		
+ Decrease in operating debt	_____		
- Cash outflow for financing		\$ _____	
= Net Provided by Financing Activities			\$ _____
<u>Cash Flow From Business</u>			
Beginning farm cash, checking & savings		\$ _____	
- Ending farm cash, checking & savings		_____	
= Net Provided from Reserves			\$ _____
<u>Imbalance (error)</u>			\$ _____

## Repayment Analysis

A valuable use of cash flow analysis is to compare the debt payments planned for the last year with the amount actually paid. The measures listed below provide a number of different perspectives on the repayment performance of the business. However, the critical question to many farmers and lenders is whether planned payments can be made in 1997. The cash flow projection worksheet on the next page can be used to estimate repayment ability, which can then be compared to planned 1997 debt payments shown below.

### FARM DEBT PAYMENTS PLANNED

Same 31 Large Herd Dairy Farms, 1995 & 1996

Debt Payments	Average			My Farm		
	1996 Payments		Planned 1997	1996 Payments		Planned 1997
	Planned	Made		Planned	Made	
Long-term	\$ 90,596	\$ 111,445	\$ 118,304	\$ _____	\$ _____	\$ _____
Intermediate-term	199,494	146,825	177,248	_____	_____	_____
Short-term	16,380	15,197	3,579	_____	_____	_____
Operating (net reduction)	0	0	2,787	_____	_____	_____
Accounts payable (net reduction)	0	4,345	3,439	_____	_____	_____
Total	\$ 306,470	\$ 277,812	\$ 305,357	\$ _____	\$ _____	\$ _____
Per cow	\$ 497	\$ 450		\$ _____	\$ _____	
Per cwt. 1996 milk	\$ 2.28	\$ 2.06		\$ _____	\$ _____	
Percent of total 1996 receipts	14%	13%		_____	_____	
Percent of 1996 milk receipts	15%	14%		_____	_____	

The cash flow coverage ratio measures the ability of the farm business to meet its planned debt payments schedule. The ratio shows the percentage of payments planned for 1996 (as of December 31, 1995) that could have been made with the amount available for debt service in 1996. Farmers who did not participate in DFBS in 1995 have their 1996 cash flow coverage ratio based on planned debt payments for 1997.

### CASH FLOW COVERAGE RATIO

Same 31 Large Herd Dairy Farms, 1995 & 1996

Item	Average	My Farm
Cash farm receipts	\$ 2,108,772	\$ _____
- Cash farm expenses	1,826,245	_____
+ Interest paid	116,389	_____
- Net personal withdrawals from farm**	88,040	_____
(A) = Amount Available for Debt Service	\$ 310,876	\$ _____
(B) = Debt Payments Planned for 1996 (as of 12/31/95)	\$ 306,470	\$ _____
(A÷B) = Cash Flow Coverage Ratio for 1996	1.01	_____

\*\*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

32 Large Herd Dairy Farms, 1996

Item	Regional Average		Total
	Per Cow	Per Cwt.	
Number cows and cwt. milk	619	134,737	
<u>Accrual Operating Receipts</u>			
Milk	\$ 3,237	\$14.87	\$ 2,003,638
Dairy cattle	203	0.93	125,383
Dairy calves	15	0.07	9,575
Other livestock	5	0.02	3,216
Crops	34	0.16	21,269
Misc. receipts	46	0.21	28,553
Total	\$ 3,541	\$16.27	\$ 2,191,633
<u>Accrual Operating Expenses</u>			
Hired labor	\$ 533	\$2.45	\$ 329,910
Dairy grain & concentrate	981	4.51	607,294
Dairy roughage	14	0.07	8,882
Nondairy feed	0	0.00	219
Mach. hire/rent/lease	65	0.30	40,250
Mach. repair & farm vehicle expense	135	0.62	83,327
Fuel, oil & grease	50	0.23	31,166
Replacement livestock	32	0.15	19,653
Breeding	27	0.12	16,816
Vet & medicine	99	0.46	61,459
Milk marketing	104	0.48	64,203
Bedding	46	0.21	28,734
Milking supplies	69	0.32	42,947
Cattle lease	11	0.05	6,562
Custom boarding	26	0.12	16,234
Other livestock expense	84	0.39	52,157
Fertilizer & lime	51	0.24	31,761
Seeds & plants	38	0.17	23,431
Spray/other crop expenses	44	0.20	27,122
Land, building, fence repair	50	0.23	31,021
Taxes	34	0.16	21,052
Real estate rent/lease	56	0.26	34,604
Insurance	26	0.12	16,294
Utilities	67	0.31	41,452
Miscellaneous	32	0.14	19,506
Total Less Interest Paid	\$ 2,675	\$12.29	\$ 1,656,055
<u>Net Accrual Operating Income</u>			
(without interest paid)	\$ 865	\$3.97	\$ 535,578
- Change in livestock/crop inventory*	118	0.54	73,074
- Change in accounts receivable	12	0.05	7,300
- Change in feed/supply inventory**	79	0.36	48,736
+ Change in accts. payable***	-5	-0.02	-2,886
NET CASH FLOW	\$ 652	\$3.00	\$ 403,582
- Net personal withdrawals from farm (see footnote on p. 16)	\$ 139	\$0.64	\$ 86,065
Available for Farm Debt Payments & Investments	\$ 513	\$2.36	\$ 317,517
- Farm debt payments	450	2.07	278,799
Available for Farm Investment	\$ 63	\$0.29	\$ 38,718
- Capital purchases: cattle, machinery & improvements	\$ 507	\$2.33	\$ 313,739

\*Includes change in advance government receipts.

\*\*Includes change in prepaid expenses.

\*\*\*Excludes change in interest account payable.

## ANNUAL CASH FLOW WORKSHEET

Item	My Farm		1997 Projection
	Per Cow or Per Cwt.	Expected Change	
No. cows or cwt. milk			
<u>Accrual Operating Receipts</u>			
Milk	\$	\$	\$
Dairy cattle			
Dairy calves			
Other livestock			
Crops			
Misc. receipts			
Total	\$	\$	\$
<u>Accrual Operating Expenses</u>			
Hired labor	\$	\$	\$
Dairy grain & concentrate			
Dairy roughage			
Nondairy feed			
Mach. hire/rent/lease			
Mach. repair & farm vehicle expense			
Fuel, oil & grease			
Replacement livestock			
Breeding			
Vet & medicine			
Milk marketing			
Bedding			
Milking supplies			
Cattle lease			
Custom boarding			
Other livestock expense			
Fertilizer & lime			
Seeds & plants			
Spray/other crop expenses			
Land, building, fence repair			
Taxes			
Real estate rent/lease			
Insurance			
Utilities			
Miscellaneous			
Total Less Interest Paid	\$	\$	\$
<u>Net Accrual Operating Income</u>			
(without interest paid)	\$	\$	\$
- Change in livestock/crop inventory*			
- Change in accounts receivable			
- Change in feed/supply inventory**			
+ Change in accounts payable***			
NET CASH FLOW	\$	\$	\$
- Net personal withdrawals from farm(see footnote p.16)	\$	\$	\$
Available for Farm Debt Payments & Investments	\$	\$	\$
- Farm debt payments			
Available for Farm Investment	\$	\$	\$
- Capital purchases: cattle, machinery & improvements	\$	\$	\$
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 productivity and profitability. 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**

32 Large Herd Dairy Farms, 1996

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	632	540	1,172	_____	_____	_____
Nontillable	56	4	60	_____	_____	_____
Other nontillable	206	10	216	_____	_____	_____
Total	895	553	1,448	_____	_____	_____
<u>Crop Yields</u>	<u>Farms</u>	<u>Acres*</u>	<u>Prod/Acre</u>	<u>Acres</u>	<u>Prod/Acre</u>	
Hay crop	32	448	3.22 tn DM	_____	_____ tn DM	
Corn silage	32	469	17.22 tn	_____	_____ tn	
Other forage	2	65	2.29 tn DM	_____	_____ tn DM	
Total forage	32	921	4.47 tn DM	_____	_____ tn DM	
Corn grain	17	240	112.44 bu	_____	_____ bu	
Oats	3	29	46.48 bu	_____	_____ bu	
Wheat	6	108	50.50 bu	_____	_____ bu	
Other crops	16	144		_____		
Tillable pasture	8	45		_____		
Idle	9	62		_____		
Total Tillable Acres	32	1,172		_____		

\*This column represents the average acreage for the farms producing that crop. Average acreages including those farms not producing were corn grain 128, oats 3, wheat 20, tillable pasture 11, and idle 17.

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**

32 Large Herd Dairy Farms, 1996

Item	Average	My Farm
Total tillable acres per cow	1.89	_____
Total forage acres per cow	1.49	_____
Harvested forage dry matter, tons per cow	6.65	_____

**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 not used on these farms.

**CROP RELATED ACCRUAL EXPENSES**

Large Herd Dairy Farms Reporting, 1996

Item	Total	All	Corn Silage	Corn Grain	Hay Crop	
	Per Till. Acre	Corn Per Acre	Per Ton DM	Per Dry Sh. Bu.	Per Acre	Per Ton DM
No. of farms reporting	32	9			9	
Ave. number of acres	1,172	574			433	
Fertilizer/lime	\$ 27.10	\$ 35.15	\$ 6.42	\$ 0.31	\$ 12.82	\$ 3.85
Seed/plants	19.99	28.34	5.17	0.25	11.72	3.52
Spray/other crop exp.	<u>23.14</u>	<u>47.82</u>	<u>8.73</u>	<u>0.43</u>	<u>3.52</u>	<u>1.06</u>
TOTAL	\$ 70.23	\$ 111.31	\$ 20.32	\$ 0.99	\$ 28.06	\$ 8.43
<b>My Farm:</b>						
Fertilizer/lime	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____
Seeds/plants	_____	_____	_____	_____	_____	_____
Spray/other crop exp.	_____	_____	_____	_____	_____	_____
TOTAL	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____

Most machinery costs are associated with crop production 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**

32 Large Herd Dairy Farms, 1996

Machinery Expense Item	Average		My Farm	
	Total Expenses	Per Till. Acre	Total Expenses	Per Till. Acre
Fuel, oil & grease	\$ 31,166	\$ 26.59	\$ _____	\$ _____
Mach. repairs & farm veh. exp.	83,327	71.10	_____	_____
Machine hire, rent & lease	40,250	34.34	_____	_____
Interest (5%)	26,756	22.83	_____	_____
Depreciation	<u>67,225</u>	<u>57.36</u>	_____	_____
Total	\$ 248,724	\$ 212.22	\$ _____	\$ _____



## 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 7 and 8.

### **DAIRY HERD INVENTORY** 32 Large Herd Dairy Farms, 1996

	Dairy Cows		Heifers					
			Bred		Open		Calves	
Item	No.	Value	No.	Value	No.	Value	No.	Value
Beginning year (owned)	589	\$ 587,952	165	\$ 139,514	147	\$ 72,322	115	\$ 32,292
+ Change w/o apprec.		25,345		23,921		9,742		2,987
+ Appreciation		737		19		306		161
End year (owned)	614	\$ 614,034	186	\$ 163,454	164	\$ 82,370	123	\$ 35,440
End including leased	631							
Average number	619		455 (all age groups)					
<b>My Farm:</b>								
Beginning 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** 32 Large Herd Dairy Farms, 1996

Item	Average	My Farm
Total milk sold, lbs.	13,473,657	_____
Milk sold per cow, lbs.	21,756	_____
Average milk plant test, percent butterfat	3.59	_____

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 AND COST OF PRODUCING MILK

32 Large Herd Dairy Farms, 1996

Item	Average			My Farm		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
<u>Accrual Costs of Producing Milk</u>						
Operating costs	\$ 1,619,098	\$ 2,616	\$12.02	\$ _____	\$ _____	\$ _____
Purchased inputs costs	\$ 1,741,050	\$ 2,813	\$12.92	\$ _____	\$ _____	\$ _____
Total Costs	\$ 1,909,142	\$ 3,084	\$14.17	\$ _____	\$ _____	\$ _____
<u>Accrual Receipts From Milk</u>						
	\$ 2,003,638	\$ 3,237	\$14.87	\$ _____	\$ _____	\$ _____
Net Farm Income w/o apprec.	\$ 262,588	\$ 424	\$1.95	\$ _____	\$ _____	\$ _____
Net Farm Income with apprec.	\$ 291,102	\$ 470	\$2.16	\$ _____	\$ _____	\$ _____

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

32 Large Herd Dairy Farms, 1996

Item	Average		My Farm	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & conc.	\$ 981	\$4.51	\$ _____	\$ _____
Purchased dairy roughage	14	0.07	_____	_____
Total Purchased Dairy Feed	\$ 995	\$4.57	\$ _____	\$ _____
Purchased grain & conc. as % of milk receipts		30%		____%
Purchased feed & crop exp.	\$1,128	\$5.18	\$ _____	\$ _____
Purchased feed & crop exp. as % of milk receipts		35%		____%
Breeding	\$ 27	\$0.12	\$ _____	\$ _____
Veterinary & medicine	99	0.46	_____	_____
Milk marketing	104	0.48	_____	_____
Bedding	46	0.21	_____	_____
Milking supplies	69	0.32	_____	_____
Cattle lease	11	0.05	_____	_____
Custom boarding	26	0.12	_____	_____
Other livestock expenses	84	0.39	_____	_____

## Cost of Producing Milk

The cost of producing milk has been compiled below using the whole farm method. The following steps are used in the calculations.

1. The cost of expansion livestock is added to total accrual operating expenses to offset any related inventory increase included in accrual receipts.
2. Accrual milk sales are deducted from total accrual receipts to get total accrual nonmilk receipts which are used to represent total nonmilk operating costs.
3. Total accrual nonmilk receipts are subtracted from total accrual operating expenses including expansion livestock to calculate the operating costs of producing milk.
4. Machinery depreciation and building depreciation are added to operating costs to determine the purchased inputs cost of producing milk.
5. The opportunity costs of equity capital, operator's labor and operator's management and the value of unpaid family labor are added to all other costs to obtain the total costs of producing milk. This cost includes all the operating, depreciation, and imputed costs of producing milk.

### **COST OF PRODUCING MILK WHOLE FARM METHOD CALCULATIONS**

32 Large Herd Dairy Farms, 1996

Item	Average 32 Farms	
Total Accrual Operating Expenses	\$	1,772,198
Expansion Livestock, Accrual	+	<u>34,895</u>
1. Total Accrual Operating Expenses, Including Expansion Livestock		\$ 1,807,093
Total Accrual Receipts	\$	2,191,633
Milk Sales, Accrual	-	<u>2,003,638</u>
2. Total Accrual Nonmilk Receipts		- <u>187,995</u>
3. Operating Costs of Producing Milk		\$ 1,619,098
Cwt. of Milk Sold	÷	134,736.6
Operating Costs/Cwt.	=	\$12.02
Machinery Depreciation		+ 67,225
Building Depreciation		+ <u>54,727</u>
4. Purchased Inputs Cost of Producing Milk		\$ 1,741,050
Cwt. of Milk Sold	÷	134,736.6
Purchased Inputs Cost/Cwt.	=	\$12.92
Family Labor Unpaid (\$1,500/month)		+ 1,950
Real Interest on Equity Cap.		+ 92,841
Value of Operating Labor & Management		+ <u>73,301</u>
5. Total Costs of Producing Milk		\$ 1,909,142
Cwt. Milk Sold	÷	134,736.6
Total Costs/Cwt.	=	\$14.17

## 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** 32 Large Herd Dairy Farms, 1996

Item	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
Farm capital	\$ 267,918	\$ 5,575	\$ 2,944	\$ 5,460
Real estate		2,324		2,276
Machinery & equipment	41,547	865	457	
Asset turnover ratio	0.64			
<u>My Farm:</u>				
Farm capital	\$ _____	\$ _____	\$ _____	\$ _____
Real estate		_____		_____
Machinery & equipment	_____	_____	_____	
Asset turnover ratio	_____			

### **LABOR FORCE INVENTORY AND ANALYSIS**

32 Large Herd Dairy Farms, 1996

Labor Force	Months	Age	Years of Education	Value of Labor & Mgmt.
Operator number 1	13.5	48	15	\$ 41,844
Operator number 2	6.7	43	14	17,838
Operator number 3	4.5	39	14	12,369
Operator number 4	0.7	25	14	1,250
Family paid	6.6			
Family unpaid	1.3			
Hired	<u>121.2</u>			
Total	154.5	/ 12 = 12.88 Worker Equivalent		
		2.02 Operator/Manager Equivalent		
<u>My Farm:</u> Total	_____	/ 12 = _____ Worker Equivalent		
Operator's	_____	/ 12 = _____ Operator/Manager Equivalent		
Labor Efficiency	Average		My Farm	
	Total	Per Worker	Total	Per Worker
Cows, average number	619	48	_____	_____
Milk sold, pounds	13,473,657	1,046,091	_____	_____
Tillable acres	1,172	91	_____	_____
Work units	6,028	468	_____	_____

Labor Costs	Average			My Farm		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Value of operator(s) labor (\$1,500/mo.)	\$ 38,100	\$ 62	\$0.28	\$ _____	\$ _____	\$ _____
Family unpaid (\$1,500/mo.)	1,950	3	0.01	_____	_____	_____
Hired	<u>329,910</u>	<u>533</u>	<u>2.45</u>	_____	_____	_____
Total Labor	\$ 369,960	\$ 598	\$2.75	\$ _____	\$ _____	\$ _____
Machinery Cost	<u>248,724</u>	<u>402</u>	<u>1.85</u>	_____	_____	_____
Total Labor & Mach.	\$ 618,684	\$ 999	\$4.59	\$ _____	\$ _____	\$ _____

# CONDENSED SUMMARY & SELECTED BUSINESS FACTORS

## CONDENSED FARM BUSINESS SUMMARY FOR TWO LARGE HERD GROUPS

32 Large Herd Dairy Farms, 1996

Item	16 Farms with 300-500 Cows		16 Farms with ≥500 Cows	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<b>ACCRUAL EXPENSES</b>				
Hired labor	\$484	\$2.31	\$553	\$2.50
Dairy grain & concentrate	951	4.53	993	4.50
Dairy roughage	23	0.11	11	0.05
Nondairy feed	1	0.01	0	0.00
Machine hire, rent & lease	31	0.15	80	0.36
Machine repairs & farm vehicle expense	158	0.75	125	0.56
Fuel, oil & grease	67	0.32	43	0.20
Replacement livestock	21	0.10	36	0.16
Breeding	35	0.17	24	0.11
Veterinary & medicine	91	0.43	103	0.47
Milk marketing	133	0.63	91	0.41
Bedding	35	0.17	51	0.23
Milking supplies	72	0.34	68	0.31
Cattle lease & rent	6	0.03	12	0.06
Custom boarding	20	0.10	29	0.13
Other livestock expense	90	0.43	82	0.37
Fertilizer & lime	61	0.29	47	0.21
Seeds & plants	50	0.24	33	0.15
Spray & other crop expense	55	0.26	39	0.18
Land, building & fence repair	40	0.19	54	0.25
Taxes & rent	86	0.41	92	0.41
Utilities	65	0.31	68	0.31
Interest paid	193	0.95	185	0.84
Misc. (including insurance)	54	0.26	60	0.27
Total Operating Expenses	\$2,822	\$13.46	\$2,877	\$13.03
Expansion livestock	72	0.34	50	0.22
Machinery depreciation	112	0.54	107	0.48
Building depreciation	91	0.43	87	0.40
Total Accrual Expenses	\$3,097	\$14.77	\$3,121	\$14.13
<b>ACCRUAL RECEIPTS</b>				
Milk sales	\$3,120	\$14.88	\$3,283	\$14.87
Dairy cattle	209	1.00	199	0.90
Dairy calves	13	0.06	17	0.08
Other livestock	13	0.06	2	0.01
Crops	68	0.33	20	0.09
Miscellaneous receipts	49	0.24	45	0.20
Total Accrual Receipts	\$3,473	\$16.56	\$3,565	\$16.15
<b>PROFITABILITY ANALYSIS (Total)</b>				
Net farm income (without appreciation)	\$138,466		\$386,711	
Net farm income (with appreciation)	\$169,798		\$412,409	
Labor & management income	\$73,039		\$262,705	
Number of operators	2.07		1.96	
Labor & management income/operator	\$35,285		\$134,033	
Rates of return on: Equity capital w/o apprec.	5.4%		12.5%	
Equity capital w/ apprec.	7.9%		13.5%	
All capital w/o apprec.	6.5%		9.8%	
All capital w/ apprec.	8.0%		10.4%	

**SELECTED BUSINESS FACTORS FOR TWO LARGE HERD GROUPS**

32 Large Herd Dairy Farms, 1996

Item	16 Farms with 300-500 Cows	16 Farms with ≥ 500 Cows
<u>Cropping Program Analysis</u>		
Total Tillable acres	869	1,475
Tillable acres rented*	414	666
Hay crop acres*	357	539
Corn silage acres*	297	641
Hay crop, tons DM/acre	3.0	3.4
Corn silage, tons/acre	16.2	17.7
Forage DM per cow, tons	7.2	6.4
Tillable acres/cow	2.4	1.7
Fertilizer & lime expense/tillable acre	\$25.95	\$27.78
Machinery cost/tillable acre	\$176	\$233
<u>Dairy Analysis</u>		
Number of cows	369	870
Number of heifers	280	629
Milk sold, lbs.	7,739,215	19,208,099
Milk sold/cow, lbs.	20,970	22,089
Operating cost of prod. milk/cwt.	\$12.12	\$11.98
Total cost of prod. milk/cwt.	\$14.81	\$13.91
Price/cwt. milk sold	\$14.88	\$14.87
Purchased dairy feed/cow	\$974	\$1,003
Purchased dairy feed/cwt. milk	\$4.64	\$4.54
Purchased grain & concentrate as % of milk receipts	30%	30%
Purchased feed & crop expense/cwt. milk	\$5.43	\$5.08
<u>Capital Efficiency</u>		
Farm capital/worker	\$234,904	\$286,012
Farm capital/cow	5,806	5,470
Real estate/cow	2,425	2,278
Machinery investment/cow	956	825
Asset turnover ratio	0.61	0.66
<u>Labor Efficiency</u>		
Worker equivalent	9.12	16.64
Operator/manager equivalent	2.07	1.96
Milk sold/worker, lbs.	848,598	1,154,333
Cows/worker	40	52
Labor cost/cow	\$599	\$596
<u>Financial Measures</u>		
Percent equity	59%	52%
Debt/asset ratio - long term	0.43	0.49
Debt/asset ratio - intermediate & current	0.40	0.47
Change in net worth with appreciation	\$79,854	\$238,647
Total farm debt per cow	\$2,425	\$2,658
Debt payments made per cow	\$447	\$454
Debt payments as % of milk sales	14%	14%
Amount available for debt service	\$177,273	\$453,385
Cash flow coverage ratio for 1996	1.07	1.17

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

## INCOME AND EXPENSE PROFILE

Use the following two tables to make an income and expense profile for your dairy farm business. The figures in the quintile columns represent the average of the top 20 percent to the bottom 20 percent for each receipt and expenditure category. Each line is computed independently. The farms that comprise the top 20 percent in milk sales do not necessarily make up the top 20 percent of any other category. On each line circle the income and cost measures closest to the one for your farm. Then draw a vertical line connecting your circles on each table. The strongest profile will be a relatively straight line on the left side of the table.

### RECEIPTS AND EXPENSES PER COW

32 Large Herd Dairy Farms, 1996

Item	QUINTILE				
	1	2	3	4	5
<b><u>Accrual Operating Receipts</u></b>					
Milk	\$3,609	\$3,333	\$3,251	\$3,106	\$2,826
Dairy cattle	482	252	197	141	69
Dairy calves	25	18	14	12	5
Other livestock	39	4	2	0	-6
Crops	206	71	28	0	-38
Misc. receipts	94	68	41	26	12
Total Operating Receipts	\$4,021	\$3,733	\$3,546	\$3,387	\$3,137
<b><u>Accrual Operating Expenses</u></b>					
Hired labor	\$324	\$454	\$525	\$596	\$688
Dairy grain & concentrate	746	919	1,010	1,081	1,191
Dairy roughage	0	0	8	22	62
Nondairy feed	0	0	0	0	3
Mach. hire/rent/lease	2	16	31	59	204
Mach. repair & farm veh. exp.	82	117	139	162	210
Fuel, oil & grease	32	47	58	66	85
Replacement livestock	0	0	4	32	124
Breeding	9	20	27	40	58
Vet & medicine	54	77	99	118	150
Milk marketing	70	102	113	122	176
Bedding	12	31	42	58	74
Milking supplies	39	55	69	80	110
Cattle lease	0	0	0	7	30
Custom boarding	0	0	0	14	144
Other livestock expense	21	68	93	113	165
Fertilizer & lime	22	39	59	76	91
Seeds & plants	24	35	41	49	63
Spray/other crop expenses	17	36	49	61	92
Land, building, fence repair	13	27	45	52	86
Taxes	17	26	32	39	64
Real estate rent/lease	19	35	47	64	112
Insurance	15	22	26	33	46
Utilities	43	58	68	81	100
Interest	104	171	204	232	265
Miscellaneous	12	21	28	42	54
Total Operating Expenses	\$2,508	\$2,772	\$2,890	\$3,001	\$3,231
Expansion Livestock	0	0	0	55	338
Machinery Depreciation	65	89	105	123	184
Building Depreciation	49	68	86	101	166
Net Farm Income w/o Apprec.	\$671	\$545	\$432	\$337	\$98

**RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD**

32 Large Herd Dairy Farms, 1996

Item	QUINTILE				
	1	2	3	4	5
<u>Accrual Operating Receipts</u>					
Milk	\$15.50	\$15.05	\$14.82	\$14.72	\$14.27
Dairy cattle	2.29	1.18	.88	.67	.32
Dairy calves	.11	.09	.07	.05	.03
Other livestock	.21	.02	.01	.00	-.03
Crops	.90	.32	.14	.00	-.18
Misc. receipts	.45	.32	.18	.12	.06
Total Operating Receipts	\$17.84	\$16.73	\$16.32	\$15.95	\$15.50
<u>Accrual Operating Expenses</u>					
Hired labor	\$1.50	\$2.12	\$2.50	\$2.71	\$3.14
Dairy grain & concentrate	3.62	4.17	4.63	4.96	5.52
Dairy roughage	.00	.00	.04	.10	.32
Nondairy feed	.00	.00	.00	.00	.02
Mach. hire/rent/lease	.01	.07	.14	.29	.91
Mach. repair & farm veh. exp.	.39	.52	.64	.77	.98
Fuel, oil & grease	.15	.21	.27	.32	.41
Replacement livestock	.00	.00	.02	.15	.58
Breeding	.04	.09	.12	.19	.28
Vet & medicine	.26	.35	.46	.56	.69
Milk marketing	.32	.46	.54	.59	.80
Bedding	.06	.14	.20	.26	.33
Milking supplies	.19	.26	.31	.37	.50
Cattle lease	.00	.00	.00	.04	.14
Custom boarding	.00	.00	.00	.07	.62
Other livestock expense	.10	.34	.42	.51	.73
Fertilizer & lime	.10	.18	.27	.35	.44
Seeds & plants	.11	.16	.19	.22	.31
Spray/other crop expenses	.08	.16	.23	.27	.40
Land, building, fence repair	.06	.13	.20	.25	.39
Taxes	.08	.12	.15	.19	.29
Real estate rent/lease	.09	.16	.22	.30	.52
Insurance	.07	.10	.13	.15	.21
Utilities	.20	.27	.30	.37	.46
Interest	.47	.76	.94	1.10	1.31
Miscellaneous	.06	.10	.13	.20	.24
Total Operating Expenses	\$12.21	\$12.90	\$13.28	\$13.76	\$14.45
Expansion Livestock	.00	.00	.00	.25	1.64
Machinery Depreciation	.31	.39	.50	.57	.85
Building Depreciation	.22	.32	.39	.51	.75
Net Farm Income w/o Apprec.	\$2.93	\$2.52	\$2.01	\$1.55	\$0.51



## 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 this summary. Each column of the chart is independent of the others. The farms which are in the top 20 percent for one factor would not necessarily be the same farms which make up the 20 percent for any other factor. Use this information to identify business areas where more challenging goals are needed.

### FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS

32 Large Herd Dairy Farms, 1996

Worker Equivalent	Size of Business		Rates of Production			Labor Efficiency	
	Number 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)
24.5	1,326	29,418,966	24,440	4.9	20	89	1,894,905
14.0	650	14,115,476	22,718	3.7	19	50	1,075,001
10.9	499	10,819,939	21,722	3.2	18	46	981,941
9.5	377	8,250,900	20,700	2.6	16	40	903,326
7.1	333	6,753,491	19,088	2.3	13	37	736,784

#### 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)
\$746	24%	\$266	\$789	\$943	\$4.49
919	28	376	932	1,077	4.90
1,010	31	409	1,002	1,139	5.40
1,081	34	462	1,064	1,249	5.74
1,191	37	573	1,290	1,351	6.18

Hired Labor Expense			Expenses Per Cwt.		
Per Cwt.	Per Hired Worker Equiv.	As % of Milk Sales	Milk Marketing	Veterinary & Medicine	Other Livestock
(11)	(CALC)	(CALC)	(10)	(10)	(10)
\$1.50	\$13,765	10%	\$0.32	\$0.26	\$0.10
2.12	20,243	14	0.46	0.35	0.34
2.50	23,939	17	0.54	0.46	0.42
2.71	26,556	19	0.59	0.56	0.51
3.14	49,027	21	0.80	0.69	0.73

\*() = page number of the participant's DFBS where factor is located.

CALC=Need to calculate for each farm; refer to the Glossary for definition.

Cost Control (con't)					
Machinery & Crop Expense		Operating Cost		Total Cost	
Per Tillable Acre (CALC)	Per Ton Dry Matter (CALC)	Per Cow (10)	Per Cwt. (10)	Per Cow (10)	Per Cwt. (10)
\$199	\$53	\$2,245	\$10.86	\$2,703	\$13.06
247	69	2,509	11.71	2,989	13.71
282	84	2,626	12.13	3,132	14.28
312	97	2,743	12.54	3,237	15.58
401	117	2,962	13.33	3,551	15.97

Expense Ratios		
Operating (CALC)	Depreciation (CALC)	Interest (CALC)
72.0%	3.7%	2.9%
76.1	4.5	4.6
78.1	5.4	6.0
79.6	6.7	6.5
83.3	9.0	8.0

Income Generation				
Milk Receipts Per Cwt. (10)	Net Milk Receipts Per Cwt. (CALC)	Milk Receipts Per Cow (10)	Dairy Cattle Sales Per Cow (10)	Dairy Calf Sales Per Cow (10)
\$14.27	\$14.81	\$3,609	\$482	\$25
14.72	14.57	3,333	252	18
14.82	14.37	3,251	197	14
15.05	14.19	3,106	141	12
15.50	13.75	2,826	69	5

Debt Management				
Farm Debt Per Cow		Cost of Borrowed Capital (CALC)	Planned Debt Payments	
Total (5)	Intermediate & Long Term (5)		Per Cow (8)	Per Cwt. (8)
\$1,418	\$970	5.7%	\$239	\$1.08
2,165	1,621	7.8	367	1.69
2,653	2,123	8.2	435	2.06
3,167	2,570	8.8	520	2.37
3,870	3,383	9.8	690	3.35

Cash Flow Analysis				
Amount Available for Family Living, Debt Service & Investment		Personal Withdrawals & Family Expenditures		Cash Flow Coverage Ratio
Per Cow	Per Cwt.	Per Cow	Per Cwt.	
(12)	(12)	(CALC)	(CALC)	(8)
\$747	\$3.54	\$336	\$1.54	1.84
581	2.70	180	0.84	1.56
498	2.34	136	0.63	1.17
425	2.00	108	0.51	0.93
323	1.41	26	0.12	0.63
Capital Efficiency				
Farm Capital Per Cow	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Labor Cost Per Worker Equivalent	Asset Turnover Ratio
(11)	(11)	(11)	(CALC)	(11)
\$4,244	\$1,314	\$586	\$19,278	0.88
5,047	1,896	788	24,863	0.70
5,667	2,307	919	27,462	0.66
6,183	2,650	1,039	29,247	0.60
7,191	3,581	1,262	51,356	0.51
Solvency				
Percent Equity	Leverage Ratio	Debt to Asset Ratios		
		Total	Current/Intermed.	Long Term
(5)	(CALC)	(5)	(5)	(5)
76%	0.25	0.26	0.22	0.11
61	0.41	0.42	0.35	0.35
54	0.48	0.48	0.45	0.49
47	0.54	0.54	0.56	0.61
36	0.65	0.65	0.70	0.93
Profitability				
Labor and Mgmt. Income Per Operator	Rate Return to Equity Capital		Rate Return to All Capital	
	Without Appreciation	With Appreciation	Without Appreciation	With Appreciation
(3)	(3)	(3)	(3)	(3)
\$409,825	21.8%	23.9%	14.4%	15.1%
141,898	14.2	17.0	10.9	12.2
76,000	9.3	10.7	8.5	9.7
41,936	5.8	6.8	6.5	7.1
-13,743	-2.3	0.6	3.1	4.3
Net Farm Income Without Appreciation				
Per Cow	Per Cwt.	Net Farm Income From Operations Ratio		Net Income Efficiency Ratio
(10)	(10)	(CALC)		(CALC)
\$671	\$2.93	17.6%		20.4%
545	2.52	14.6		14.1
432	2.01	11.1		9.5
337	1.55	8.9		6.7
98	0.51	2.4		4.2

## 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 proper 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 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 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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The Farm Business Charts on pages 29-31 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.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

## GLOSSARY AND LOCATION OF COMMON TERMS

Some of the following definitions include formulas for calculating the factor being described. Page references to the individual Dairy Farm Business Summary are provided in parentheses for ease of calculation for your farm.

**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 6)

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

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

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

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

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

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

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

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

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

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

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

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

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

**Cost of Borrowed Capital** - 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. This information is found on pages 8 & 9 of the data entry form.

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

**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.

**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** - The percentage of Total Accrual Receipts that is charged to depreciation expense. Machinery Depreciation (DFBS p. 2) plus Building Depreciation (p. 2) divided by Total Accrual Receipts (p. 3) times 100.

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

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

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

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

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

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

**Hired Labor Expense per Hired Worker Equivalent** - The total cost to the farm per hired worker equivalent. Divide accrual hired labor expense (p. 2) by number of hired plus family paid worker equivalent (p. 11).

**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 (p. 2) by accrual milk sales (p. 3).

**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** - The percentage of Total Accrual Receipts that is used for interest expense. Total Accrual Interest (p. 2) divided by Total Accrual Receipts (p. 3) times 100.

**Labor and Management Income** - (defined on page 8)

**Labor and Management Income Per Operator** - The return to the owner/manager's labor and management per full-time operator.

**Labor Efficiency** - Production capacity and output per worker.

**Leverage Ratio** - Dollars of debt per dollar of equity, computed by dividing total liabilities by total equity.

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

**Machinery & Crop Expenses per Tillable Acre** - A measure of the cost to produce crops on a tillable acre basis. Add total crop expenses (p. 9) and total machinery expenses (p. 9), then divide by number of tillable acres, owned & rented (p. 9).

**Machinery & Crop Expense per Ton Dry Matter** - A measure of the cost per ton of DM to produce a crop. It is not a measure of total costs to produce feed. Add total crop expenses (p. 9) and total machinery expenses (p. 9), then divide by total forage, production, tons DM (p. 9).

**Net Farm Income** - (defined on page 7).

**Net Farm Income from Operations Ratio** - The percentage of each gross dollar that is generated that is net farm income. Net Farm Income without Appreciation (p. 3) divided by Total Accrual Receipts (p. 3) times 100.

**Net Farm Income without Appreciation per Cwt.** - The amount of net farm income, without appreciation, per cwt., that the farm generated. Divide net farm income without appreciation (p. 3) by number of cwt. of milk sold, which is total milk sold (p. 10) divided by 100.

**Net Farm Income without Appreciation per Cow** - The amount of net farm income, without appreciation, per cow that the farm generated. Divide net farm income without appreciation (p. 3) by average number of cows for the year (p. 10).

**Net Income Efficiency Ratio** - A measure of how efficiently the business is in generating net income, taking into account the differences in number of operators, debt levels, and amount of unpaid family labor being used on a farm. Net farm income without appreciation minus unpaid family labor charge (p. 3), plus Accrual Interest Paid (p. 2), divided by number of operators (p. 3), divided by Total Accrual Receipts (p. 3) times 100.

**Net Milk Receipts per Cwt.** - The mail box price received by farmers before any farmer authorized assignments or deductions. Accrual Receipts from milk, per cwt. (p. 10) minus accrual milk marketing expense per cwt. (p. 10).

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

**Operating Costs of Producing Milk** - (defined on page 22).

**Operating Expense Ratio** - The percentage of Total Accrual Receipts that is used for operating expenses, excluding interest & depreciation. Total Accrual Expenses (p. 2) minus Machinery Depreciation (p. 2), minus Building Depreciation (p. 2), minus Accrual Interest Expense (p. 2), divided by Total Accrual Receipts (p. 3) times 100.



**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; bedding, DHIC, milk house and parlor supplies, livestock board, registration fees and transfers.

**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.

**Personal Withdrawals & Family Expenditures per Cwt.** - The amount of money on a per cwt. basis that the family uses for family living and personal expenses. This is the total amount, per cwt., used by the family, including farm and nonfarm income. Personal withdrawals/family expense, including nonfarm debt payments (p. 7) divided by pounds milk sold (p. 10) times 100.

**Personal Withdrawals & Family Expenditures per Cow** - The amount of money on a per cow basis that the family used for family living and personal expenses. This is the total amount, per cow, used by the family, including farm and nonfarm income. Personal withdrawals/family expense, including nonfarm debt payments (p. 7) divided by average number of cows (p. 10).

**Profitability** - The return or net income the owner/manager receives for using one or more of his or her resources in the farm business. True "economic profit" is what remains after deducting all the costs including the opportunity costs of the owner/manager's labor, management, and equity capital.

**Purchased Inputs Cost of Producing Milk** - (defined on page 22).

**Repayment Analysis** - an evaluation of the business' ability to make planned debt payments.

**Replacement Livestock** - Dairy cattle and other livestock purchased to replace those that were culled or sold from the herd during the year.

**Return on Equity Capital** - (defined on page 9).

**Return on Total Capital** - (defined on page 9).

**Solvency** - The extent or ability of assets to cover or pay liabilities. Debt/asset and leverage ratios are common measure of solvency.

**Total Costs of Producing Milk** - (defined on page 22).

**Total Labor Costs per Worker Equivalent, All Labor** - The average cost per worker equivalent when considering all labor (hired, paid family, family non-paid, and operators) used on the farm and total costs for this labor. Total Labor Cost (p. 11) divided by number of worker equivalents (p. 11).

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

<u>EB No</u>	<u>Title</u>	<u>Author(s)</u>
97-07	Dairy Farm Business Summary, Southeastern New York Region, 1996	Knoblauch, W.A., L.D. Putnam, S.E. Hadcock, L.R. Hulle, M. Kiraly, C.A. McKeon
97-06	Dairy Farm Business Summary, Western and Central Plateau Region, 1996	Knoblauch, W.A., L.D. Putnam, C.A. Crispell, J.S. Petzen, J.W. Grace, A.N. Dufresne and G. Albrecht
97-05	Dairy Farm Business Summary: Western and Central Plain Region, 1996	Knoblauch, W.A., L.D. Putnam, J. Karszes, M. Stratton, C. Mentis and George Allhusen
97-04	Fruit Farm Business Summary, Lake Ontario Region, New York, 1995	White, G.B., A. DeMarree and L.D. Putnam
97-03	Labor Productivities and Costs in 35 of the Best Fluid Milk Plants in the U.S.	Erba, E.M., R.D. Aplin and M.W. Stephenson
97-02	Micro DFBS: A Guide to Processing Dairy Farm Business Summaries in County and Regional Extension Offices for Micro DFBS Version 4.0	Putnam, L.D., W.A. Knoblauch and S.F. Smith
97-01	Changing Patterns of Fruit and Vegetable Production in New York State, 1970-94	Park, K., E.W. McLaughlin and C. Kreider
96-20	Supermarket Development in China	German, G., J. Wu and M.L. Chai
96-19	New York Economic Handbook: 1997 Agribusiness Economic Outlook Conference	A.R.M.E. Staff
96-18	Farm Income Tax Management and Reporting Reference Manual	Smith, S. and C. Cuykendall
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96-14	Trade Liberalization and the U.S. and Canadian Dairy Industries	Doyon, M.A. and A.M. Novakovic
96-13	Bibliography of Horticultural Product Marketing and Related Topic Papers Third Edition	Figuroa, E.E.