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# DAIRY FARM BUSINESS SUMMARY

## NEW YORK SMALL HERD FARMS, 70 COWS OR FEWER 2000



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**2000 DAIRY FARM BUSINESS SUMMARY**  
**Small Herd Dairy Farms**  
**70 Cows or Fewer**  
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## 2000 DAIRY FARM BUSINESS SUMMARY SMALL HERD DAIRY FARMS\*

### INTRODUCTION

Dairy farm managers throughout New York State have been participating in Cornell Cooperative Extension's farm business summary and analysis program since the early 1950's. Managers of each participating farm business receive a comprehensive summary and analysis of their farm business. The information in this report represents averages of the data submitted from dairy farms in New York for 2000 with herds of 70 cows or fewer and no milking parlors.

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

#### **Program Objective**

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

#### **Format Features**

This report follows the same general format as the 2000 DFBS individual farm report received by participating dairy farmers. The analysis tables have a column that compares the average to the top 25% of the farms by rate of return on all capital without appreciation. This report may be used by any dairy farm manager who wants to compare his or her business with the average data of small farms. The individual farm data, the averages and other data can then be used to establish goals for the business. A DFBS Data Check-in Form can be used by non-DFBS participants to summarize their businesses.

This report features:

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

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\*The small herd summary is comprised of farms with 70 or fewer cows and that do not use a milking parlor. Many counties had farms that met this criteria in 2000. This report was written by Wayne A. Knoblauch, Professor, Farm Management; Mariane Kiraly, Cooperative Extension Educator in Delaware County; and Jason Karszes, Senior Extension Associate, Pro-Dairy. Linda Putnam was in charge of data preparation. Faye Butts prepared the publication.

## PROGRESS OF THE FARM BUSINESS

The year 2000 marked wet weather issues, large volumes of low quality hay, record low milk prices, favorable grain prices, and increased fuel costs. Small dairy herds were able to adjust to these outside influences and reduced operating costs by 6.4 percent to \$9.85 per cwt of milk sold. Herd size and pounds of milk sold per cow did not change significantly from 1999.

Grain as a percent of milk sales increased mainly due to lower prices for milk. Favorable feed prices made it possible to limit this ratio to 27%, which was 12.5% higher than 1999. Farmers were able to feed their cows properly even with low quality hay, made use of cow comfort improvements, and gained 300 pounds of milk per cow. Some of this gain could also be attributed to better genetics as rbST supplementation remained constant.

The 32% increase in milk marketing expense is attributed in part to increases in milk haulers' fuel costs. Fuel surcharges were instituted to make up for higher costs. The majority of the increase is attributed to farm point pricing that greatly increased milk hauling for most producers.

Net milk sales per cwt were \$1.73 lower than in 1999. This represents a 12% decrease and contributed to a profit squeeze. Interestingly enough, some of this decrease was made up by record high prices for cull cows, calves and young stock. Those who had extra animals to market benefited from these higher prices. The inventory value of all dairy livestock increased, including over \$5,000 in appreciation.

Net farm income without appreciation decreased by 22.7%. This decrease would have been larger had it not been for the Dairy Market Loss Assistance Program payments. Government payments increased 104% from 1999. Income taxes were less of an issue on most 2000 income tax returns.

Many farmers were feeling blue in the first quarter of 2001 when their off-farm investments in the stock market lost value. Most are hanging tough and will ride out this economic downturn. Off-farm investments are becoming more important to dairy farmers as they plan for retirement.

Farm debt per cow increased to \$2,148, in part due to increased use of lines of credit. However, higher milk prices in 2001 should help correct that situation and we look forward to a better year in 2001.

**PROGRESS OF THE FARM BUSINESS**  
Same 48 Small Herd Dairy Farms, 1999 & 2000

Selected Factors	Average of 48 Farms		Percent Change
	1999	2000	
<u>Size of Business</u>			
Average number of cows	51	50	-2.0
Average number of heifers	36	36	0.0
Milk sold, lbs.	904,624	906,002	0.2
Worker equivalent	1.92	1.89	-1.6
Total tillable acres	163	166	1.8
<u>Rates of Production</u>			
Milk sold per cow, lbs.	17,810	18,112	1.7
Hay DM per acre, tons	1.9	2.3	21.1
Corn silage per acre, tons	13.5	11.6	-1.9
<u>Labor Efficiency &amp; Costs</u>			
Cows per worker	27	26	-3.7
Milk sold/worker, lbs.	471,158	479,366	1.7
Hired labor cost/cwt.	\$0.57	\$0.55	-3.5
Hired labor cost/worker	\$15,220	\$14,223	-6.6
Hired labor cost as % of milk sales	3.9%	4.1%	5.1
<u>Cost Control</u>			
Grain & conc. purchased as % of milk sales	24%	27%	12.5
Grain & conc. per cwt. milk	\$3.61	\$3.55	-1.7
Dairy feed & crop expense per cwt. milk	\$4.83	\$4.73	-2.1
Labor & mach. costs/cow	\$1,304	\$1,339	2.7
Total farm operating costs per cwt. sold	\$12.60	\$12.50	-0.8
Interest costs per cwt. milk	\$0.88	\$0.89	1.1
Milk marketing costs per cwt. milk sold	\$0.75	\$0.99	32.0
Operating cost of producing cwt. of milk	\$10.52	\$9.85	-6.4
<u>Capital Efficiency</u> (average for the year)			
Farm capital per cow	\$7,555	\$8,030	6.3
Mach. & equip. per cow	\$1,538	\$1,686	9.6
Asset turnover ratio	0.42	0.39	-7.1
<u>Income Generation</u>			
Gross milk sales per cow	\$2,635	\$2,421	-8.1
Gross milk sales per cwt.	\$14.86	\$13.36	-10.1
Net milk sales per cwt.	\$14.11	\$12.38	-12.3
Dairy cattle sales per cow	\$157	\$152	-3.2
Dairy calf sales per cow	\$28	\$43	53.6
<u>Profitability</u>			
Net farm income w/o apprec.	\$26,921	\$20,812	-22.7
Net farm income w/apprec.	\$35,145	\$34,242	-2.6
Labor & mgt. income per oper./manager	\$6,406	\$212	-96.7
Rate of return on equity capital w/o apprec.	-1.07%	-3.77%	-252.3
Rate of return on all capital w/o apprec.	1.29%	-0.73%	-156.6
<u>Financial Summary</u>			
Farm net worth, end year	\$286,792	\$301,048	5.0
Debt to asset ratio	0.27	0.27	0.0
Farm debt per cow	\$2,032	\$2,148	5.7

## SUMMARY AND ANALYSIS OF THE FARM BUSINESS

### Business Characteristics

Planning optimal management strategies is a crucial component of operating a successful farm. Various combinations of farm resources, enterprises, business arrangements, and management techniques are used by the dairy farmers. The following table shows important farm business characteristics and the number of farms with each characteristic. Farms with a parlor milking system were eliminated from the small herd (70 or fewer cows) group of dairy farms.

### BUSINESS CHARACTERISTICS 63 Small Herd Dairy Farms, 2000

Type of Farm	Number	Milking System	Number
Dairy	63	Bucket & carry	1
Part-time dairy	0	Dumping station	3
Dairy cash-crop	0	Pipeline	59
Certified organic milk producer	3	Herringbone parlor	0
Rotational grazing farms	26	Other parlor	0
Type of Ownership	Number	Production Records	Number
Owner	63	Testing service	40
Renter	0	On-farm system	4
		Other	2
Type of Business	Number	None	17
Sole Proprietorship	52	bST Usage	Number
Partnership	9	Used on <25% of herd	5
Corporation	2	Used on 25-75% of herd	9
		Used on >75% of herd	1
Type of Barn	Number	Stopped using in 2000	0
Stanchion or Tie-Stall	59	Not used in 2000	48
Freestall	1	Business Record System	Number
Combination	3	Account Book	32
Milking Frequency	Number	Accounting Service	7
2 times per day	61	On-farm computer	20
3 times per day	2	Other	4
Other	0		

### 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 2000.

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**  
63 Small Herd Dairy Farms, 2000

Expense Item	Cash Paid	-	Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses
<u>Hired Labor</u>	\$ 4,679		\$ 0	<<	\$ 0		\$ 4,679
<u>Feed</u>							
Dairy grain & concentrate	30,769		-58		299		31,125
Dairy roughage	3,862		-168		470		4,500
Nondairy	60		0		0		60
<u>Machinery</u>							
Machinery hire, rent & lease	1,918		0	<<	-30		1,888
Machinery repairs & farm vehicle exp.	8,454		81		254		8,627
Fuel, oil & grease	3,829		13		-41		3,775
<u>Livestock</u>							
Replacement livestock	2,837		0	<<	127		2,964
Breeding	1,664		-19		-5		1,679
Veterinary & medicine	3,094		-10		-24		3,080
Milk marketing	8,130		0	<<	4		8,134
Bedding	783		-9		0		792
Milking supplies	3,883		8		14		3,889
Cattle lease & rent	29		0	<<	0		29
Custom boarding	293		0	<<	0		293
bST	550		4		0		546
Other livestock expense	2,619		3		-19		2,598
<u>Crops</u>							
Fertilizer & lime	2,684		-260		-1		2,943
Seeds & plants	1,383		-36		152		1,571
Spray, other crop expense	1,238		18		-29		1,192
<u>Real Estate</u>							
Land, building & fence repair	2,028		30		161		2,158
Taxes	4,030		-3	<<	189		4,223
Rent & lease	1,448		-25	<<	71		1,543
<u>Other</u>							
Insurance	2,679		0	<<	33		2,713
Utilities (farm share)	5,189		0	<<	38		5,226
Interest paid	7,902		0	<<	0		7,902
Miscellaneous	2,088		-20		62		2,171
Total Operating	\$108,122		\$ -452		\$ 1,726		\$ 110,300
Expansion livestock	0		0	<<	0		0
Machinery depreciation							7,965
Building depreciation							2,938
<b>TOTAL ACCRUAL EXPENSES</b>							<b>\$ 121,203</b>

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

Change in accounts payable: An increase in accounts payable from beginning to end of year is added when calculating accrual expenses because these expenses were incurred (resources used) in 2000 but not paid for. A decrease is subtracted because it represents payment for resources used before 2000.

Accrual expenses are an estimate of the costs of inputs, except operator/family labor and equity capital, actually used in this year's production. They are the cash paid, less changes in inventory and prepaid expenses, plus accounts payable.

**CASH AND ACCRUAL FARM RECEIPTS**  
63 Small Herd Dairy Farms, 2000

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts
Milk sales	\$ 116,940				\$ 207		\$ 117,147
Dairy cattle	6,699		\$ 405		-32		7,073
Dairy calves	2,067				-4		2,063
Other livestock	116		134		20		270
Crops	493		907		4		1,404
Government receipts	8,206		65 *		390		8,660
Custom machine work	624				-13		611
Gas tax refund	162				-1		162
Other	<u>2,381</u>				<u>-13</u>		2,368
Less nonfarm noncash capital**		(-)	<u>0**</u>			(-)	<u>0</u>
Total Receipts	\$ 137,689		\$ 1,511		\$ 557		\$ 139,756

\*Change in advanced government receipts.

\*\*Gifts or inheritances of cattle or crops included in inventory.

Cash receipts include the gross value of milk checks received during the year plus all other payments received from the sale of farm products, services, and government programs. Nonfarm income is not included in calculating farm profitability.

Changes in inventory of assets produced by the business are calculated by subtracting beginning of year values from end of year values excluding appreciation. Increases in livestock inventory caused by herd growth and/or quality are added, and decreases caused by herd reduction and/or quality are subtracted. Changes in inventories of crops grown are also included. An increase in advanced government receipts is subtracted from cash income because it represents income received in 2000 for the 2001 crop year in excess of funds earned for 2000. Likewise, a decrease is added to cash government receipts because it represents funds earned for 2000 but received in 1999.

Changes in accounts receivable are calculated by subtracting beginning year balances from end year balances. Payments in January 2001 for milk produced in December 2000 compared to January 2000 payments for milk produced in 1999 are included as a change in accounts receivable in determining accrual milk sales.

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

### **Profitability Analysis**

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

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

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

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

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

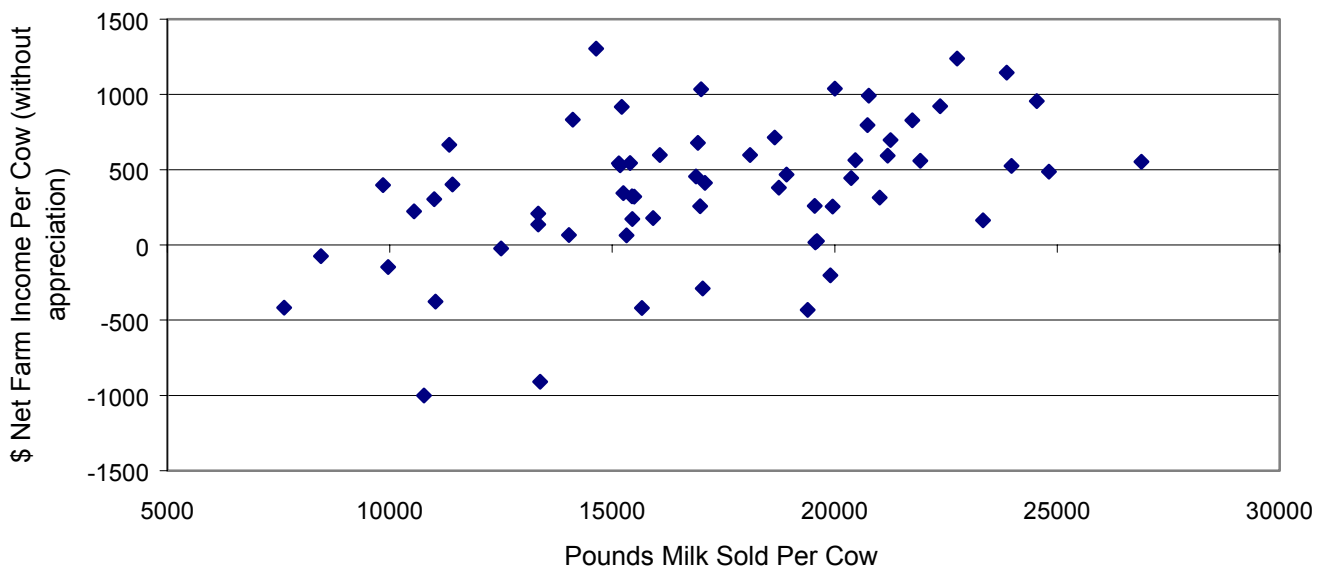
**NET FARM INCOME**  
63 Small Herd Dairy Farms, 2000

Item	Average 63 Farms		Top 25% Farms*	
	Total	Per Cow	Total	Per Cow
Total accrual receipts	\$ 139,756		\$ 159,929	
Appreciation: Livestock	4,446		6,477	
Machinery	2,592		1,601	
Real Estate	4,537		3,984	
Other Stock & Certificates	<u>-91</u>		<u>80</u>	
Total Including Appreciation	\$ 151,240		\$ 172,071	
Total accrual expenses	<u>- 121,203</u>		<u>- 118,267</u>	
Net Farm Income (with appreciation)	\$ 30,037	\$ 601	\$ 53,804	\$ 1,015
Net Farm Income (without appreciation)	\$ 18,553	\$ 371	\$ 41,662	\$ 786

\*Top 25% of small herd farms by rate of return on all assets without appreciation.

The chart below shows the relationship between net farm income per cow (without appreciation) and pounds of milk sold per cow. Generally, farms with a higher production per cow have higher profitability per cow.

**NET FARM INCOME PER COW AND MILK PER COW**  
63 Small Herd Dairy Farms, 2000



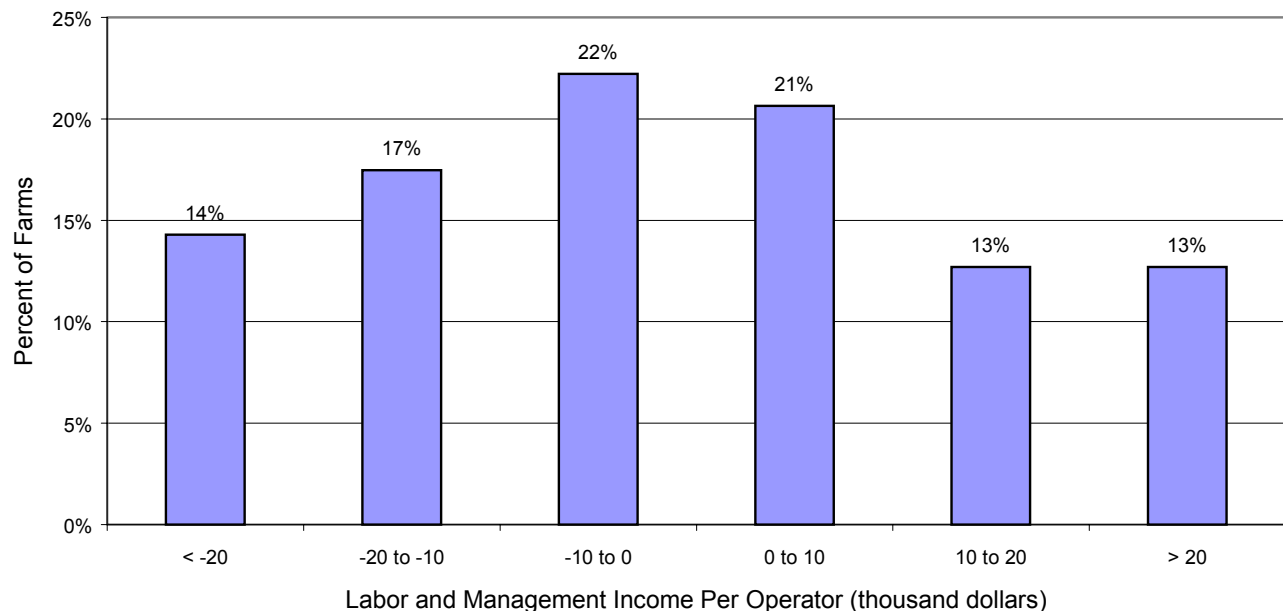
Labor and management income is the return which farm operators receive for their labor and management used in the farm business. Appreciation is not included as part of the return to labor and management because it results from ownership of assets rather than management of the farm business. Labor and management income is calculated by deducting a charge for unpaid family labor and the opportunity cost of equity capital, at a real interest rate of five percent, from net farm income excluding appreciation. The interest charge of five percent reflects the long-term average rate of return above inflation that a farmer might expect to earn in comparable risk investments.

**LABOR AND MANAGEMENT INCOME**  
63 Small Herd Dairy Farms, 2000

Item	Average 63 Farms	Top 25% Farms
Net farm income without appreciation	\$ 18,553	\$ 41,662
Family labor unpaid @ \$1,900 per month	- 6,080	- 2,280
Interest on \$297,057 average equity capital @ 5% real rate (\$279,645 average equity capital for top 25% farms)	<u>- 14,853</u>	<u>- 13,982</u>
Labor & Management Income per farm (1.28 Operators/farm) (1.29 operators per farm for top 25% farms)	\$ -2,380	\$ 25,400
Labor & Management Income per Operator/Manager	\$ -1,859	\$ 19,690

Labor and management income per operator averaged \$-1,859 on these 63 farms in 2000. The range in labor and management income per operator was from about \$-95,000 to more than \$37,000. Returns to labor and management were negative on 53% of the farms. Labor and management income per operator was between \$0 and \$20,000 on 34% of the farms while 13% showed labor and management incomes of \$20,000 or more per operator.

**DISTRIBUTION OF LABOR & MANAGEMENT INCOME PER OPERATOR**  
63 Small Herd Dairy Farms, 2000



Return on equity capital measures the net return remaining for the farmer's equity or owned capital after a charge has been made for the owner-operator's labor and management. The earnings or amount of net farm income allocated to labor and management is the opportunity cost of operators' labor and management estimated by the cooperators. Return on equity capital is calculated with and without appreciation. The rate of return on equity capital is determined by dividing the amount returned by the average farm net worth or equity capital. Rate of return on total capital is calculated by adding interest paid to the return on equity capital and then dividing by average farm assets. Net farm income from operations ratio is net farm income (without appreciation) divided by total accrual receipts.

**RETURN ON EQUITY CAPITAL AND RETURN ON TOTAL CAPITAL**  
63 Small Herd Dairy Farms, 2000

Item	Average 63 Farms	Top 25% Farms
Net farm income with appreciation	\$ 30,037	\$ 53,804
Family labor unpaid @\$1,900 per month	- 6,080	- 2,280
Value of operators' labor & management	<u>- 26,165</u>	<u>- 26,000</u>
Return on equity capital with appreciation	\$ -2,208	\$ 25,524
Interest paid	<u>+ 7,902</u>	<u>+ 7,406</u>
Return on total capital with appreciation	\$ 5,694	\$ 32,930
Return on equity capital without appreciation	\$ -13,692	\$ 13,382
Return on total capital without appreciation	\$ -5,790	\$ 20,788
Rate of return on average equity capital:		
with appreciation	-0.7%	9.1%
without appreciation	-4.6%	4.8%
Rate of return on average total capital:		
with appreciation	1.4%	8.8%
without appreciation	-1.4%	5.5%
Net farm income from operations ratio	0.13	0.26

**Farm and Family Financial Status**

The first step in evaluating the financial position of the farm is to construct a balance sheet which identifies and values all the assets and liabilities of the business. The second step is to evaluate the relationship between assets, liabilities, and net worth and changes that occurred during the year.

Financial lease obligations are included in the balance sheet. The present value of all future payments is listed as a liability since the farmer is committed to make the payments by signing the lease. The present value is also listed as an asset, representing the future value the item has to the business. For 2000, lease payments were discounted by 9.75 percent to obtain their present value.

Advanced government receipts are included as current liabilities. Government payments received in 2000 that are for participation in the 2001 program are the end year balance and payments received in 1999 for participation in the 2000 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.

**2000 FARM BUSINESS & NONFARM BALANCE SHEET**  
63 Small Herd Dairy Farms, 2000

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$ 4,929	\$ 5,057	Accounts payable	\$ 4,016	\$ 5,742
Accounts receivable	8,697	9,254	Operating debt	4,199	4,585
Prepaid expenses	78	51	Short Term	504	975
Feed & supplies	24,515	24,998	Advanced govt. receipts	73	8
			Current Portion:		
			Intermediate	7,655	9,053
			Long Term	<u>3,361</u>	<u>3,783</u>
Total Current	\$ 38,219	\$ 39,360	Total Current	\$ 19,808	\$ 24,146
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy cows:			Structured debt		
owned	\$ 55,342	\$ 57,570	1-10 years	\$ 35,598	\$ 33,227
leased	27	0	Financial lease		
Heifers	23,818	26,441	(cattle/machinery)	985	987
Bulls & other livestock	728	862	Farm Credit stock	<u>857</u>	<u>730</u>
Mach. & equip. owned	80,756	85,101	Total Intermediate	\$ 37,440	\$ 34,944
Mach. & equip. leased	958	987			
Farm Credit stock	857	730			
Other stock/certificate	<u>2,010</u>	<u>2,091</u>			
Total Intermediate	\$ 164,496	\$ 173,782			
<u>Long Term</u>			<u>Long Term</u>		
Land & buildings:			Structured debt		
owned	\$ 197,660	\$ 204,073	>10 years	\$ 52,705	\$ 54,434
leased	<u>0</u>	<u>0</u>	Financial lease		
Total Long Term	\$ 197,660	\$ 204,073	(structures)	<u>0</u>	<u>0</u>
			Total Long Term	\$ 52,705	\$ 54,434
Total Farm Assets	\$ 400,375	\$ 417,215	Total Farm Liab.	\$ 109,953	\$ 113,524
			FARM NET WORTH	\$ 290,422	\$ 303,691

Nonfarm Assets, Liabilities & Net Worth (Average of 44 farms reporting)

Assets	Jan. 1	Dec. 31	Liabilities & Net Worth	Jan. 1	Dec. 31
Personal cash, checking & savings	\$ 2,813	\$ 3,249	Nonfarm Liabilities	\$ 8,709	\$ 7,176
Cash value life insurance	8,908	9,391			
Nonfarm real estate	6,116	6,382			
Auto (personal share)	5,222	5,429			
Stocks & bonds	14,670	13,281			
Household furnishings	9,905	10,070			
All other nonfarm assets	<u>2,327</u>	<u>2,141</u>			
Total Nonfarm Assets	\$ 49,961	\$ 49,943	NONFARM NET WORTH	\$ 41,252	\$ 42,767

Farm & Nonfarm Assets, Liabilities, and Net Worth*	Jan. 1	Dec. 31
Total Assets	\$ 450,336	\$ 467,158
Total Liabilities	<u>118,662</u>	<u>120,700</u>
TOTAL FARM & NONFARM NET WORTH	\$ 331,674	\$ 346,458

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

The following condensed balance sheet, including deferred taxes, contains average data from only those farmers who elected to provide the additional information required to compute deferred taxes. Deferred taxes represent an estimate of the taxes that would be paid if the farm were sold at year end fair market values on the date of the balance sheet. Accuracy is dependent on the accuracy of the market values and the tax basis data provided. Any tax liability for assets other than livestock, machinery, land, buildings and nonfarm assets is excluded. It is assumed that all gain on purchased livestock and machinery is ordinary gain and that listed market values are net of selling costs. The effects of investment tax credit carryover and recapture, carryover of operating losses, alternative minimum taxes and other than average exemptions and deductions are excluded because they have only minor influence on the taxes of most farms. The dramatic impact of including deferred taxes is clear. Total liabilities were increased 58 percent on these 5 farms by including deferred taxes.

Deferred taxes on these farms totaled an average of \$214,846, roughly one-third of the pretax net worth. Percent equity decreased from 63 percent to 41 percent when deferred taxes are included on these farms. When examining net worth, especially as a source of cash for retirement or other purposes, deferred taxes become an important consideration. Deferred taxes in this calculation specify that all assets were sold during one tax year. Therefore, tax management strategies such as making sales in more than one year or installment sales warrant careful consideration to reduce income tax liabilities.

**CONDENSED BALANCE SHEET INCLUDING DEFERRED TAXES**

December 31, 2000

5 New York Dairy Farms, 2000

Assets		Liabilities & Net Worth	
		Current debts & payables	\$ 76,572
		Current deferred taxes	<u>43,331</u>
Total Current Assets	\$ 143,265	Total Current Liabilities	\$ 119,903
		Intermediate debts & leases	\$ 215,235
		Intermediate deferred taxes	<u>120,386</u>
Total Inter. Assets	\$ 516,692	Total Intermediate Liabilities	\$ 335,621
		Long term debts & leases	\$ 78,304
		Long term deferred taxes	<u>46,312</u>
Total Long Term Assets	<u>\$ 329,731</u>	Total Long Term Liabilities	\$ 124,616
TOTAL FARM ASSETS	\$ 989,687	TOTAL FARM LIABILITIES	\$ 580,140
		Farm Net Worth	\$ 409,547
		Percent Equity (Farm)	41%
		Nonfarm debts	\$ 0
		Nonfarm deferred taxes	<u>4,817</u>
Total Nonfarm Assets	\$ 95,363	Total Nonfarm Liabilities	\$ 4,817
TOTAL ASSETS	\$ 1,085,050	TOTAL LIABILITIES	\$ 584,957
		Total Net Worth	\$ 500,093
		Percent Equity (Total)	46%

Balance sheet analysis involves examination of relative asset and debt levels for the business. Percent equity is calculated by dividing end of year net worth by end of year assets and multiplying by 100. The debt to asset ratio is compiled by dividing liabilities by assets. Low debt to asset ratios reflect business solvency and the potential capacity to borrow. The leverage ratio is the dollar of debt per dollar of equity, computed by dividing total farm liabilities by farm net worth. Debt levels per productive unit represent old standards that are still useful if used with measures of cash flow and repayment ability. A current ratio of less than 1.5 or that has been falling warrants additional evaluation. The amount of working capital that is adequate must be related to the size of the farm business.

**BALANCE SHEET ANALYSIS**  
63 Small Herd Dairy Farms, 2000

Item	Average 63 Farms		Top 25% Farm	
<u>Financial Ratios - Farm:</u>				
Percent equity		73%		75%
Debt/asset ratio: total		0.27		0.25
long-term		0.27		0.28
intermediate/current		0.28		0.22
Leverage ratio		0.37		0.33
Current ratio		1.63		2.52
Working capital	\$15,214	As % of total Expenses:	\$26,414	22%
<u>Farm Debt Analysis:</u>				
Accounts payable as % of total debt		5%		2%
Long-term liabilities as a % of total debt		48%		52%
Current & inter. liabilities as a % of total debt		52%		48%
Cost of term debt (weighted average)		7.4%		7.5%
<u>Farm Debt Levels:</u>				
	<u>Per Cow</u>	<u>Per Tillable Acre Owned</u>	<u>Per Cow</u>	<u>Per Tillable Acre Owned</u>
Total farm debt	\$2,226	\$1,135	\$1,763	\$1,147
Long-term debt	1,067	544	911	593
Intermediate & long term	1,753	894	1,442	938
Intermediate & current debt	1,159	591	852	555

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**  
63 Small Herd Dairy Farms, 2000

Item	Average 63 Farms			
	Real Estate		Machinery & Equipment	
Value beginning of year	\$	197,660	\$	80,756
Purchases	\$	6,725*	\$	9,840
Gift & inheritance	+	2,959	+	197
Lost capital	-	2,118		
Sales	-	2,752	-	317
Depreciation	-	2,938	-	7,965
Net investment		= 1,876		= 1,753
Appreciation		+ 4,537		+ 2,592
Value end of year	\$	204,073	\$	85,101

\*\$1,270 land and \$5,455 buildings and/or depreciable improvements.

The Statement of Owner Equity has two purposes. It allows (1) verification that the accrual income statement and market value balance sheet are consistent (in accountants terms, they reconcile) and (2) identification of the causes of change in equity that occurred on the farm during the year. The Statement of Owner Equity allows you to determine to what degree the change in equity was caused by (1) earnings from the business, and nonfarm income, in excess of withdrawals being retained in the business (called retained earnings), (2) outside capital being invested in the business or farm capital being removed from the business (called contributed/withdrawn capital), (3) increases or decreases in the value (price) of assets owned by the business (called change in valuation equity), and (4) the error in the business cash flow accounting.

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

**STATEMENT OF OWNER EQUITY (RECONCILIATION)**

63 Small Herd Dairy Farms, 2000

Item	Average 63 Farms	Top 25% Farms
Beginning of year farm net worth	\$ 290,422	\$ 268,104
Net farm income w/o appreciation	\$ 18,553	\$ 41,662
+Nonfarm cash income	+ 7,709	+ 3,730
-Personal withdrawals & family expenditures excluding nonfarm borrowings	<u>- 26,479</u>	<u>- 35,886</u>
RETAINED EARNINGS	+ \$ -217	+\$ 9,506
Nonfarm noncash transfers to farm	\$ 3,156	\$ 1,762
+Cash used in business from nonfarm capital	+ 940	+ 1,133
-Note or mortgage from farm real estate sold (nonfarm)	<u>- 0</u>	<u>- 0</u>
CONTRIBUTED/WITHDRAWN CAPITAL	+ \$ 4,096	+\$ 2,895
Appreciation	\$ 11,484	\$ 12,142
-Lost capital	<u>- 2,118</u>	<u>- 1,367</u>
CHANGE IN VALUATION EQUITY	+ \$ 9,366	+\$ 10,775
IMBALANCE/ERROR	<u>- \$ -24</u>	<u>- \$ 95</u>
End of year net worth*	= \$ 303,691	=\$ 291,185
<u>Change in Net Worth</u>		
Without appreciation	\$ 1,785	\$10,939
With appreciation	\$13,269	\$23,081

\*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**  
63 Small Herd Dairy Farms, 2000

Item	Average 63 Farms	
<b><u>Cash Flow from Operating Activities</u></b>		
Cash farm receipts	\$ 137,689	
- Cash farm expenses	<u>108,122</u>	
= Net cash farm income		\$ 29,567
Personal withdrawals & family expenses including nonfarm debt payments	\$ 26,614	
- Nonfarm income	<u>7,709</u>	
- Net cash withdrawals from the farm		\$ <u>18,905</u>
= Net Provided by Operating Activities		\$ 10,662
<b><u>Cash Flow From Investing Activities</u></b>		
Sale of assets: machinery	\$ 317	
+ real estate	2,752	
+ other stock & cert.	<u>24</u>	
= Total asset sales		\$ 3,093
Capital purchases: expansion livestock	\$ 0	
+ machinery	9,840	
+ real estate	6,725	
+ other stock & cert.	<u>196</u>	
- Total invested in farm assets		\$ <u>16,761</u>
= Net Provided by Investment Activities		\$ -13,668
<b><u>Cash Flow From Financing Activities</u></b>		
Money borrowed (intermediate & long term)	\$ 15,843	
+ Money borrowed (short term)	898	
+ Increase in operating debt	386	
+ Cash from nonfarm capital used in business	940	
+ Money borrowed - nonfarm	<u>135</u>	
= Cash inflow from financing		\$ 18,202
Principal payments (intermediate & long term)	\$ 14,664	
+ Principal payments (short term)	428	
+ Decrease in operating debt	<u>0</u>	
- Cash outflow for financing		\$ <u>15,092</u>
= Net Provided by Financing Activities		\$ 3,110
<b><u>Cash Flow From Reserves</u></b>		
Beginning farm cash, checking & savings		\$ 4,929
- Ending farm cash, checking & savings		<u>5,057</u>
= Net Provided from Reserves		\$ -128
Imbalance (error)		\$ -24

**ANNUAL CASH FLOW STATEMENT**  
Top 25% Small Herd Dairy Farms, 2000

Item	Top 25% Farms	
<u>Cash Flow from Operating Activities</u>		
Cash farm receipts	\$ 152,992	
- Cash farm expenses	<u>109,397</u>	
= Net cash farm income		\$ 43,595
Personal withdrawals & family expenses including nonfarm debt payments	\$ 35,886	
- Nonfarm income	<u>3,730</u>	
- Net cash withdrawals from the farm		\$ <u>32,156</u>
= Net Provided by Operating Activities		\$ 11,439
<u>Cash Flow From Investing Activities</u>		
Sale of assets: machinery	\$ 1,024	
+ real estate	0	
+ other stock & cert.	<u>92</u>	
= Total asset sales		\$ 1,116
Capital purchases: expansion livestock	\$ 0	
+ machinery	9,198	
+ real estate	1,486	
+ other stock & cert.	<u>226</u>	
- Total invested in farm assets		\$ <u>10,910</u>
= Net Provided by Investment Activities		\$ -9,794
<u>Cash Flow From Financing Activities</u>		
Money borrowed (intermediate & long term)	\$ 17,087	
+ Money borrowed (short term)	467	
+ Increase in operating debt	0	
+ Cash from nonfarm capital used in business	1,133	
+ Money borrowed - nonfarm	<u>0</u>	
= Cash inflow from financing		\$ 18,687
Principal payments (intermediate & long term)	\$ 15,429	
+ Principal payments (short term)	713	
+ Decrease in operating debt	<u>4,588</u>	
- Cash outflow for financing		\$ <u>20,730</u>
= Net Provided by Financing Activities		\$ -2,043
<u>Cash Flow From Reserves</u>		
Beginning farm cash, checking & savings		\$ 7,475
- Ending farm cash, checking & savings		<u>6,981</u>
= Net Provided from Reserves		\$ 494
Imbalance (error)		\$ 96

## 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 2001. The cash flow projection worksheet on the next page can be used to estimate repayment ability, which can then be compared to planned 2001 debt payments shown below.

### FARM DEBT PAYMENTS PLANNED

Small Herd Dairy Farms, 1999 & 2000

Debt Payments	Same 48 Dairy Farms			Same 13 Top 25% Farms		
	2000 Payments		Planned 2001	2000 Payments		Planned 2001
	Planned	Made		Planned	Made	
Long-term	\$ 7,469	\$ 8,432	\$ 8,048	\$ 8,275	\$ 7,793	\$ 8,450
Intermediate-term	11,962	15,533	12,699	10,512	12,273	11,858
Short-term	430	608	393	1,080	175	0
Operating (net reduction)	707	0	388	1,929	1,188	168
Accounts payable (net reduction)	<u>0</u>	<u>0</u>	<u>87</u>	<u>0</u>	<u>322</u>	<u>0</u>
Total	\$ 20,568	\$ 24,573	\$ 21,615	\$ 21,796	\$ 21,751	\$ 20,476
Per cow	\$ 411	\$ 491		\$ 427	\$ 426	
Per cwt. 2000 milk	\$ 2.27	\$ 2.71		\$ 2.33	\$ 2.33	
Percent of total 2000 receipts	14%	17%		14%	14%	
Percent of 2000 milk receipts	17%	20%		17%	17%	

The cash flow coverage ratio and debt coverage ratio measure the ability of the farm business to meet its planned debt payments schedule. The ratios show the percentage of payments planned for 2000 (as of December 31, 1999) that could have been made with the amount available for debt service in 2000. Farmers who did not participate in DFBS in 1999 have their 2000 cash flow coverage ratio based on planned debt payments for 2001.

### COVERAGE RATIOS

Same 48 Small Herd Dairy Farms, 1999 & 2000

Item	Average	Item	Average
<u>Cash Flow Coverage Ratio</u>		<u>Debt Coverage Ratio</u>	
Cash farm receipts	\$143,379	Net farm income (w/o apprec.)	\$20,812
- Cash farm expenses	111,169	+ Depreciation	11,008
+ Interest paid (cash)	8,103	+ Interest paid (accrual)	8,103
- Net personal withdrawals from farm <sup>9</sup>	<u>21,178</u>	- Net personal withdrawals from farm*	<u>21,178</u>
(A) = Amount Available for Debt Service	\$ 19,135	(A') = Repayment Capacity	\$18,745
(B) = Debt Payments Planned for 2000 (as of December 31, 1999)	\$ 20,568	(B) = Debt Payments Planned for 2000 (as of December 31, 1999)	\$20,568
(A/B)= Cash Flow Coverage Ratio for 2000	0.93	(A'/B)= Debt Coverage Ratio for 2000	0.91
-----			
Same 13 Top 25% Dairy Farms, 1999 & 2000			
(A) = Amount Available for Debt Service	\$ 19,420	(A') = Repayment Capacity	\$ 24,489
(B) = Debt Payments Planned for 2000	21,796	(B) = Debt Payments Planned for 2000	21,796
(A/B)= Cash Flow Coverage Ratio for 2000	0.89	(A'/B)= Debt Coverage Ratio for 2000	1.12

\*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**  
63 Small Herd Dairy Farms, 2000

Item	Average 63 Farms		
	Per Cow	Per Cwt.	Total
Number cows and cwt. milk	50	8,733	
<u>Accrual Operating Receipts</u>			
Milk	\$ 2,343	\$ 13.41	\$ 117,147
Dairy cattle	141	0.81	7,073
Dairy calves	41	0.24	2,063
Other livestock	5	0.03	270
Crops	28	0.16	1,404
Misc. receipts	236	1.35	11,801
Total	\$ 2,795	\$ 16.00	\$ 139,756
<u>Accrual Operating Expenses</u>			
Hired labor	\$ 94	\$ 0.54	\$ 4,679
Dairy grain & concentrate	623	3.56	31,125
Dairy roughage	90	0.52	4,500
Nondairy feed	1	0.01	60
Mach. hire/rent/lease	38	0.22	1,888
Mach. repair & farm vehicle expense	173	0.99	8,627
Fuel, oil & grease	76	0.43	3,775
Replacement livestock	59	0.34	2,964
Breeding	34	0.19	1,679
Vet & medicine	62	0.35	3,080
Milk marketing	163	0.93	8,134
Bedding	16	0.09	792
Milking supplies	78	0.45	3,889
Cattle lease	1	0.00	29
Custom boarding	6	0.03	293
bST expense	11	0.06	546
Other livestock expense	52	0.30	2,598
Fertilizer & lime	59	0.34	2,943
Seeds & plants	31	0.18	1,571
Spray/other crop expenses	24	0.14	1,192
Land, building, fence repair	43	0.25	2,158
Taxes	84	0.48	4,223
Real estate rent/lease	31	0.18	1,543
Insurance	54	0.31	2,713
Utilities	105	0.60	5,226
Miscellaneous	43	0.25	2,171
Total Less Interest Paid	\$ 2,048	\$ 11.73	\$ 102,398
<u>Net Accrual Operating Income</u>			
(without interest paid)	\$ 747	\$ 4.28	\$ 37,358
- Change in livestock/crop inventory*	30	0.17	1,511
- Change in accounts receivable	11	0.06	557
- Change in feed/supply inventory**	-9	-0.05	-452
+ Change in accts. payable***	35	0.20	1,726
NET CASH FLOW	\$ 749	\$ 4.29	\$ 37,469
- Net personal withdrawals from farm (see footnote on p. 16)	\$ 375	\$ 2.15	\$ 18,770
Available for Farm Debt Payments & Investments	\$ 374	\$ 2.14	\$ 18,699
- Farm debt payments	450	2.58	22,491
Available for Farm Investment	\$ -76	\$ -0.43	\$ -3,792
- Capital purchases: cattle, machinery & improvements	\$ 335	\$ 1.92	\$ 16,761

\*Includes change in advance government receipts.

\*\*Includes change in prepaid expenses.

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

**ANNUAL CASH FLOW WORKSHEET**  
Top 25% Small Herd Dairy Farms, 2000

Item	Average Top 25% Farms		
	Per Cow	Per Cwt.	Total
No. cows or cwt. milk	53	9,601	
<u>Accrual Operating Receipts</u>			
Milk	\$ 2,447	\$ 13.51	\$ 129,672
Dairy cattle	193	1.07	10,242
Dairy calves	49	0.27	2,615
Other livestock	6	0.04	342
Crops	77	0.42	4,067
Misc. receipts	245	1.35	12,992
Total	\$ 3,018	\$ 16.66	\$ 159,929
<u>Accrual Operating Expenses</u>			
Hired labor	\$ 108	\$ 0.60	\$ 5,713
Dairy grain & concentrate	629	3.47	33,338
Dairy roughage	69	0.38	3,660
Nondairy feed	2	0.01	105
Mach. hire/rent/lease	26	0.14	1,361
Mach. repair & farm vehicle expense	129	0.71	6,850
Fuel, oil & grease	77	0.42	4,057
Replacement livestock	73	0.40	3,882
Breeding	34	0.19	1,796
Vet & medicine	59	0.32	3,104
Milk marketing	159	0.88	8,441
Bedding	6	0.03	325
Milking supplies	73	0.40	3,848
Cattle lease	0	0.00	0
Custom boarding	7	0.04	346
bST expense	6	0.03	313
Other livestock expense	37	0.20	1,953
Fertilizer & lime	59	0.32	3,106
Seeds & plants	21	0.12	1,119
Spray/other crop expenses	13	0.07	696
Land, building, fence repair	50	0.28	2,648
Taxes	81	0.45	4,275
Real estate rent/lease	35	0.19	1,847
Insurance	57	0.31	3,008
Utilities	86	0.48	4,573
Miscellaneous	53	0.29	2,808
Total Less Interest Paid	\$ 1,947	\$ 10.75	\$ 103,172
<u>Net Accrual Operating Income</u>			
(without interest paid)	\$ 1,071	\$ 5.91	\$ 56,757
- Change in livestock/crop inventory*	131	0.72	6,957
- Change in accounts receivable	0	0.00	-20
- Change in feed/supply inventory**	-13	-0.07	-664
+ Change in accounts payable***	10	0.05	516
NET CASH FLOW	\$ 962	\$ 5.31	\$ 51,001
- Net personal withdrawals from farm(see footnote p.16)	\$ 607	\$ 3.35	\$ 32,156
Available for Farm Debt Payments & Investments	\$ 356	\$ 1.96	\$ 18,845
- Farm debt payments	525	2.90	27,826
Available for Farm Investment	\$ -169	\$ -0.94	\$ -8,981
- Capital purchases: cattle, machinery & improvements	\$ 206	\$ 1.14	\$ 10,910

\*Includes change in advance government receipts.

\*\*Includes change in prepaid expenses.

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

### Cropping Analysis

The cropping program is an important part of the dairy farm business and often represents opportunities for improved productivity and profitability. A complete evaluation of what the available land resources are, how they are being used, the level of crop yields, and what it costs to produce crops is important in evaluating alternative cropping and feed purchasing alternatives.

#### LAND RESOURCES AND CROP PRODUCTION 63 Small Herd Dairy Farms, 2000

Item	Average 63 Farms			Top 25% Farm		
	Owned	Rented	Total	Owned	Rented	Total
<u>Land</u>						
Tillable	100	71	171	83	80	162
Nontillable	41	13	54	38	16	54
Other nontillable	83	6	88	81	1	82
Total	224	89	313	201	97	298
<u>Crop Yields</u>	<u>Farms</u>	<u>Acres*</u>	<u>Prod/Acre</u>	<u>Farms</u>	<u>Acres</u>	<u>Prod/Acre</u>
Hay crop	58	112	2.38 tn DM	13	104	2.76 tn DM
Corn silage	43	39	11.18 tn 3.69 tn DM	11	36	12.67 tn 4.08 tn DM
Other forage	6	14	1.57 tn DM	1	22	1.27 tn DM
Total forage	58	142	2.64 tn DM	13	136	3.04 tn DM
Corn grain	6	29	102 bu	1	5	120 bu
Oats	3	29	58 bu	1	14	68 bu
Wheat	0	0	0 bu	0	0	0 bu
Other crops	10	31		3	52	
Tillable pasture	27	51		6	47	
Idle	17	34		7	29	
Total Tillable Acres	63	171		15	162	

\*This column represents the average acreage for the farms producing that crop. Average acreages including those farms not producing were hay crop 103, corn silage 27, corn grain 3, oats 1, tillable pasture 22, and idle 9.

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 63 Small Herd Dairy Farms, 2000

Item	Average 63 Farms	Top 25% Farm
Total tillable acres per cow	3.42	3.06
Total forage acres per cow	2.62	2.21
Harvested forage dry matter, tons per cow	6.90	6.75

**Cropping Analysis** (continued)

A number of cooperators have allocated crop expenses among the hay crop, corn, and other crops produced. Fertilizer and lime, seeds and plants, and spray and other crop expenses have been computed per acre and per production unit for hay and corn. Additional expense items such as fuels, labor, and machinery repairs are not included. Rotational grazing was used on 26 farms, 7 of which are in the "top 25% farms" group.

**CROP RELATED ACCRUAL EXPENSES**

Small Herd Dairy Farms Reporting, 2000

Item	Total Per Till. Acre	All Corn Per Acre	Corn Silage Per Ton DM	Corn Grain Per Dry Sh. Bu.	Hay Crop		Pasture	
					Per Acre	Per Ton DM	Per Till. Acre	Per Total Acre
No. of farms reporting	63	8			6		2	
Ave. number of acres	171	44			102		50	113
Fert. & lime	\$ 17.21	\$ 53.48	\$ 14.38	\$ 0.48	\$ 5.19	\$ 2.16	\$ 5.74	\$ 2.54
Seeds & plants	9.19	29.32	7.88	0.27	8.00	3.33	18.26	8.08
Spray & other crop exp.	<u>6.97</u>	<u>30.05</u>	<u>8.08</u>	<u>0.27</u>	<u>1.65</u>	<u>0.69</u>	<u>0.00</u>	<u>0.00</u>
TOTAL	\$ 33.37	\$ 112.85	\$ 30.34	\$ 1.02	\$ 14.84	\$ 6.18	\$ 24.00	\$ 10.62
<u>Top 25% Farms</u>								
No. of farms reporting	15	1			2		1	
Ave. number of acres	162	18			69		0	27
Fert. & lime	\$ 19.17	\$ 55.28	\$ 11.31	\$ 0.00	\$ 3.77	\$ 1.05	\$ 0.00	\$ 2.74
Seeds & plants	6.91	39.67	8.11	0.00	0.00	0.00	0.00	0.00
Spray & other crop exp.	<u>4.30</u>	<u>12.89</u>	<u>2.64</u>	<u>0.00</u>	<u>0.36</u>	<u>0.10</u>	<u>0.00</u>	<u>0.00</u>
TOTAL	\$ 30.38	\$ 107.84	\$ 22.06	\$ 0.00	\$ 4.13	\$ 1.15	\$ 0.00	\$ 2.74

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**

63 Small Herd Dairy Farms, 2000

Machinery Expense	Average 63 Farms		Top 25% Farms	
	Total Expenses	Per Till. Acre	Total Expenses	Per Till. Acre
Fuel, oil & grease	\$ 3,775	\$ 22.08	\$ 4,057	\$ 25.04
Mach. repair & vehicle exp.	8,627	50.45	6,850	42.28
Machine hire, rent & lease	1,888	11.04	1,361	8.40
Interest (5%)	4,195	24.53	3,823	23.60
Depreciation	<u>7,965</u>	<u>46.58</u>	<u>5,179</u>	<u>31.97</u>
Total	\$ 26,450	\$ 154.68	\$ 21,270	\$ 131.30

**Dairy Analysis**

Analysis of the dairy enterprise can reveal strengths and weaknesses of the dairy farm business. Information on this page should be used in conjunction with DHI and other dairy production information. Changes in dairy herd size and market values that occur during the year are identified in the table below. The change in inventory value without appreciation is attributed to physical changes in herd size and quality. Any change in inventory is included as an accrual farm receipt when calculating all of the profitability measures on pages 8 and 9.

**DAIRY HERD INVENTORY**  
63 Small Herd Dairy Farms, 2000

Item	Dairy Cows		Bred		Heifer		Calves	
	No.	Value	No.	Value	No.	Value	No.	Value
<u>Average 63 Farms:</u>								
Beg. year (owned)	51	\$ 55,342	12	\$ 11,574	14	\$ 8,435	12	\$ 3,808
+ Change w/o apprec.		86		335		252		-267
+ Appreciation		<u>2,142</u>		<u>1,212</u>		<u>733</u>		<u>359</u>
End year (owned)	51	\$ 57,570	12	\$ 13,121	14	\$ 9,420	11	\$ 3,900
End including leased	51							
Average number	50		37	(all age groups)				
<u>Top 25% Farms:</u>								
Beg. year (owned)	52	\$ 50,557	12	\$ 10,213	16	\$ 8,300	11	\$ 3,061
+ Change w/o apprec.		2,208		1,940		-1,273		-28
+ Appreciation		<u>2,682</u>		<u>1,874</u>		<u>1,506</u>		<u>415</u>
End year (owned)	54	\$ 55,447	14	\$ 14,027	14	\$ 8,533	11	\$ 3,448
End including leased	54							
Average number	53		38	(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**  
63 Small Herd Dairy Farms, 2000

Item	Average 63 Farms	Top 25% Farms
Total milk sold, lbs.	873,327	960,061
Milk sold per cow, lbs.	17,472	18,275
Average milk plant test, percent butterfat	3.70	3.73

Monitoring and evaluating culling practices and experiences on an annual basis are important herd management tools. Culling rate can have an affect on both milk per cow and profitability.

**ANIMALS LEAVING THE HERD**  
63 Small Herd Dairy Farms, 2000

Item	Average 63 Farms		Top 25% Farms	
	Number	Percent*	Number	Percent*
Cows sold for beef	12	24.0	13	24.5
Cows sold for dairy	1	2.0	0	0.0
Cows died	2	4.0	2	3.8
Culling rate**		28.0		28.3

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

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

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

**ACCRUAL RECEIPTS FROM DAIRY, COSTS OF PRODUCING MILK,  
AND PROFITABILITY**  
63 Small Herd Dairy Farms, 2000

Item	Average 63 Farms			Top 25% Farms		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
<u>Accrual Cost of Producing Milk</u>						
Operating costs	\$ 87,691	\$ 1,754	\$ 10.04	\$ 80,321	\$ 1,515	\$ 8.37
Purchased inputs costs	\$ 98,594	\$ 1,972	\$ 11.29	\$ 88,010	\$ 1,661	\$ 9.17
Total Costs	\$ 145,692	\$ 2,914	\$ 16.68	\$ 130,272	\$ 2,458	\$ 13.57
<u>Accrual Receipts From Milk</u>						
Net Milk Receipts	\$ 117,147	\$ 2,343	\$ 13.41	\$ 129,672	\$ 2,447	\$ 13.51
Net Farm Income without Apprec.	\$ 109,013	\$ 2,180	\$ 12.48	\$ 121,231	\$ 2,287	\$ 12.63
Net Farm Income with Apprec.	\$ 18,553	\$ 371	\$ 2.12	\$ 41,662	\$ 786	\$ 4.34
Net Farm Income with Apprec.	\$ 30,037	\$ 601	\$ 3.44	\$ 53,804	\$ 1,015	\$ 5.60

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

**DAIRY RELATED ACCRUAL EXPENSES**  
63 Small Herd Dairy Farms, 2000

Item	Average 63 Farms		Top 25% Farms	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	\$ 623	\$ 3.56	\$ 629	\$ 3.47
Purchased dairy roughage	90	0.52	69	0.38
Total Purchased Dairy Feed	\$ 713	\$ 4.08	\$ 698	\$ 3.85
Purchased grain & conc. as % of milk receipts		27%		26%
Purchased feed & crop exp.	\$ 827	\$ 4.73	\$ 791	\$ 4.37
Purchased feed & crop exp. as % of milk receipts		35%		32%
Breeding	\$ 34	\$ 0.19	\$ 34	\$ 0.19
Veterinary & medicine	62	0.35	59	0.32
Milk marketing	163	0.93	159	0.88
Bedding	16	0.09	6	0.03
Milking supplies	78	0.45	73	0.40
Cattle lease	1	0.00	0	0.00
Custom boarding	6	0.03	7	0.04
bST	11	0.06	6	0.03
Other livestock expense	52	0.30	37	0.20

**Capital and Labor Efficiency Analysis**

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

**CAPITAL EFFICIENCY**  
63 Small Herd Dairy Farms, 2000

Item	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
<u>Average 63 Farms:</u>				
Farm capital	\$211,811	\$8,176	\$2,391	\$4,088
Real estate		4,017		2,009
Machinery & equipment	43,472	1,678	491	
<u>Ratios</u>				
Asset turnover	Operating Expense 0.37	Interest Expense 0.73	Depreciation Expense 0.06	0.08
<u>Top 25% Farms:</u>				
Farm capital	\$215,098	\$7,102	\$2,324	\$4,535
Real estate		3,301		2,108
Machinery & equipment	43,694	1,443	472	
<u>Ratios</u>				
Asset turnover	Operating Expense 0.46	Interest Expense 0.65	Depreciation Expense 0.05	0.05

**LABOR FORCE INVENTORY AND ANALYSIS**  
63 Small Herd Dairy Farms, 2000

Labor Force	Months	Age	Years of Educ.	Value of Labor & Mgmt.		
<u>Average 63 Farms:</u>						
Operator number 1	12.9	47	13	\$ 22,331		
Operator number 2	2.6	49	13	3,834		
Family paid	2.4					
Family unpaid	3.2					
Hired	<u>2.1</u>					
Total	23.2	/ 12 = 1.93 Worker Equivalent 1.28 Operator/Manager Equivalent				
<u>Top 25% Farms: Total</u>						
Operator's	21.0	/ 12 = 1.75 Worker Equivalent 1.29 Operator/Manager Equivalent				
<u>Labor Efficiency</u>						
	Average 63 Farms		Top 25% Farms			
	Total	Per Worker	Total	Per Worker		
Cows, average number	50	26	53	30		
Milk sold, pounds	873,327	452,501	960,061	548,606		
Tillable acres	171	89	162	93		
Work units	512	265	528	302		
<u>Labor Costs</u>						
	Average 63 Farms		Top 25% Farms			
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Value of operator(s)						
labor (\$1,900/mo.)	\$ 29,450	\$ 589	\$ 3.37	\$30,020	\$ 566	\$ 3.13
Family unpaid (\$1,900/mo.)	6,080	122	0.70	2,280	43	0.24
Hired	<u>4,679</u>	<u>94</u>	<u>0.54</u>	<u>5,713</u>	<u>108</u>	<u>0.60</u>
Total Labor	\$ 40,209	\$ 804	\$ 4.60	\$38,013	\$ 717	\$ 3.96
Machinery Cost	<u>\$ 26,450</u>	<u>\$ 529</u>	<u>\$ 3.03</u>	<u>\$21,270</u>	<u>\$ 401</u>	<u>\$ 2.22</u>
Total Labor & Mach.	\$ 66,659	\$ 1,333	\$ 7.63	\$59,283	\$ 1,119	\$ 6.17
Hired labor expense per hired worker equivalent		\$12,477			\$17,139	
Hired labor expense as % of milk sales		4.0%			4.4%	

## COMPARATIVE ANALYSIS OF THE FARM BUSINESS

### Comparison to Top 25 Percent

Comparing your business with average data from DFBS cooperators that participated in both of the last two years can be helpful in establishing your goals for these parameters. Both the average of the same 48 farms and the top 25% of farms based on rate of return of all assets without appreciation are presented below. It is equally important for you to determine the progress your business has made over the past two or three years, to compare this progress to your goals, and to set goals for the future.

### PROGRESS OF THE FARM BUSINESS Same Small Herd Dairy Farms, 1999 & 2000

Selected Factors	Average of Same 48 Farms*		Average of Same 13 Top 25% Farms*	
	1999	2000	1999	2000
<u>Size of Business</u>				
Average number of cows	51	50	51	51
Average number of heifers	36	36	38	37
Milk sold, lbs.	904,624	906,002	929,600	934,360
Worker equivalent	1.92	1.89	1.87	1.74
Total tillable acres	163	166	154	157
<u>Rates of Production</u>				
Milk sold per cow, lbs.	17,810	18,112	18,394	18,488
Hay DM per acre, tons	1.9	2.3	2.0	2.5
Corn silage per acre, tons	13.5	11.6	13.6	12.9
<u>Labor Efficiency</u>				
Cows per worker	27	26	27	29
Milk sold/worker, lbs.	471,158	479,366	497,112	536,989
<u>Cost Control</u>				
Grain & conc. purchased as % of milk sales	24%	27%	22%	26%
Dairy feed & crop exp. per cwt. milk	\$ 4.83	\$ 4.73	\$ 4.60	\$ 4.33
Labor & mach. costs/cow	\$ 1,304	\$ 1,339	\$ 1,221	\$ 1,158
Operating cost of producing cwt. of milk	\$ 10.52	\$ 9.85	\$ 10.21	\$ 8.45
<u>Capital Efficiency**</u>				
Farm capital per cow	\$ 7,555	\$ 8,030	\$ 6,918	\$ 7,210
Mach. & equip. per cow	\$ 1,538	\$ 1,686	\$ 1,417	\$ 1,500
Asset turnover ratio	0.42	0.39	0.46	0.46
<u>Profitability</u>				
Net farm income w/o apprec.	\$ 26,921	\$ 20,812	\$ 36,917	\$ 39,707
Net farm income w/apprec.	\$ 35,145	\$ 34,242	\$ 43,780	\$ 52,841
Labor & mgt. income per operator/manager	\$ 6,406	\$ 212	\$ 17,087	\$ 18,299
Rate of return on equity capital w/appreciation	1.9%	0.8%	6.9%	9.1%
Rate of return on all capital w/appreciation	3.4%	2.6%	7.0%	8.9%
<u>Financial Summary</u>				
Farm net worth, end year	\$ 286,792	\$ 301,048	\$ 268,531	\$ 291,996
Debt to asset ratio	0.27	0.27	0.25	0.23
Farm debt per cow	\$ 2,032	\$ 2,148	\$ 1,750	\$ 1,644

\*Farms participating both years.

\*\*Average for the year.

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

Same 48 Small Herd Dairy Farms, 1999 &amp; 2000

Item	1999		2000	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	51		50	
Cwt. Of Milk Sold		9,046		9,060
<b><u>ACCRUAL OPERATING RECEIPTS</u></b>				
Milk	\$ 2,635	\$ 14.86	\$ 2,421	\$ 13.36
Dairy cattle	157	0.89	152	0.84
Dairy calves	28	0.16	43	0.24
Other livestock	9	0.05	6	0.03
Crops	2	0.01	25	0.14
Miscellaneous receipts	<u>177</u>	<u>1.00</u>	<u>255</u>	<u>1.40</u>
Total Receipts	\$ 3,008	\$ 16.96	\$ 2,902	\$ 16.02
<b><u>ACCRUAL OPERATING EXPENSES</u></b>				
Hired labor	\$ 102	\$ 0.57	\$ 100	\$ 0.55
Dairy grain & concentrate	641	3.61	644	3.55
Dairy roughage	86	0.49	100	0.55
Nondairy feed	0	0.00	2	0.01
Machine hire/rent/lease	40	0.22	36	0.20
Mach. repair & vehicle exp.	176	0.99	175	0.97
Fuel, oil & grease	59	0.33	81	0.45
Replacement livestock	86	0.48	67	0.37
Breeding	33	0.19	37	0.20
Veterinary & medicine	61	0.34	60	0.33
Milk marketing	132	0.75	179	0.99
Bedding	12	0.07	16	0.09
Milking supplies	86	0.49	82	0.45
Cattle lease	1	0.00	1	0.00
Custom boarding	9	0.05	7	0.04
bST expense	11	0.06	10	0.05
Other livestock expense	54	0.31	47	0.26
Fertilizer & lime	67	0.38	61	0.33
Seeds & plants	35	0.20	26	0.14
Spray/other crop expense	27	0.15	26	0.14
Land, building, fence repair	64	0.36	42	0.23
Taxes	78	0.44	84	0.46
Real estate rent/lease	41	0.23	34	0.18
Insurance	49	0.28	53	0.29
Utilities	96	0.54	101	0.56
Interest paid	156	0.88	162	0.89
Miscellaneous	<u>33</u>	<u>0.19</u>	<u>37</u>	<u>0.20</u>
Total Operating Expenses	\$ 2,236	\$ 12.60	\$ 2,266	\$ 12.50
Expansion Livestock	3	0.02	0	0.00
Machinery Depreciation	184	1.04	161	0.89
Real Estate Depreciation	<u>58</u>	<u>0.33</u>	<u>60</u>	<u>0.33</u>
Total Expenses	\$ 2,480	\$ 13.98	\$ 2,486	\$ 13.72
Net Farm Income Without Appreciation	\$ 528	\$ 2.98	\$ 416	\$ 2.30

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

Same 13 Top 25% Small Herd Dairy Farms, 1999 &amp; 2000

Item	1999		2000	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	51		51	
Cwt. Of Milk Sold		9,296		9,344
<b><u>ACCRUAL OPERATING RECEIPTS</u></b>				
Milk	\$ 2,758	\$ 15.13	\$ 2,473	\$ 13.50
Dairy cattle	132	0.73	211	1.15
Dairy calves	36	0.20	52	0.28
Other livestock	0	0.00	7	0.04
Crops	-8	-0.04	44	0.24
Miscellaneous receipts	149	0.82	251	1.37
Total Receipts	\$ 3,068	\$ 16.83	\$ 3,038	\$ 16.58
<b><u>ACCRUAL OPERATING EXPENSES</u></b>				
Hired labor	\$ 149	\$ 0.82	\$ 121	\$ 0.66
Dairy grain & concentrate	610	3.35	632	3.45
Dairy roughage	104	0.57	83	0.45
Nondairy feed	0	0.00	2	0.01
Machine hire/rent/lease	62	0.34	28	0.15
Mach. repair & vehicle exp.	142	0.78	128	0.70
Fuel, oil & grease	62	0.34	77	0.42
Replacement livestock	63	0.35	88	0.48
Breeding	32	0.18	35	0.19
Veterinary & medicine	56	0.31	60	0.33
Milk marketing	132	0.72	159	0.87
Bedding	5	0.03	7	0.04
Milking supplies	92	0.51	76	0.41
Cattle lease	0	0.00	0	0.00
Custom boarding	8	0.04	8	0.04
bST expense	9	0.05	7	0.04
Other livestock expense	36	0.20	41	0.22
Fertilizer & lime	64	0.35	46	0.25
Seeds & plants	41	0.22	20	0.11
Spray/other crop expense	18	0.10	12	0.07
Land, building, fence repair	47	0.26	30	0.16
Taxes	78	0.43	78	0.43
Real estate rent/lease	42	0.23	37	0.20
Insurance	51	0.28	61	0.33
Utilities	89	0.49	88	0.48
Interest paid	135	0.74	138	0.75
Miscellaneous	35	0.19	49	0.27
Total Operating Expenses	\$ 2,162	\$ 11.86	\$ 2,112	\$ 11.53
Expansion Livestock	10	0.06	0	0.00
Machinery Depreciation	129	0.71	99	0.54
Real Estate Depreciation	43	0.24	48	0.26
Total Expenses	\$ 2,344	\$ 12.86	\$ 2,259	\$ 12.33
Net Farm Income Without Appreciation	\$ 724	\$ 3.97	\$ 779	\$ 4.25

### Regional Farm Business Chart

The Farm Business Chart is a tool which can be used in analyzing your business. Compare your business by drawing a line through or near the figure in each column which represents your current level of performance. The five figures in each column represent the average of each 20 percent or quintile of farms included in the regional summary. Use this information to identify business areas where more challenging goals are needed.

#### FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS 63 Small Herd Dairy Farms, 2000

Size of Business			Rate of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
2.78	66	1,322,078	23,219	4.0	18	41	731,059
2.27	58	1,120,069	20,109	3.0	14	31	560,188
1.98	52	925,370	17,228	2.4	12	26	449,564
1.53	45	652,604	14,926	2.0	10	22	372,552
1.20	31	400,014	10,856	1.4	6	17	242,983

Cost Control						Culling Rates	
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk	Death Rate	Sell Rate
(10)	(10)	(11)	(11)	(10)	(10)		
\$ 299	17%	\$ 267	\$ 943	\$ 468	\$ 3.48	0.0%	7.8%
494	24	416	1,124	647	4.24	1.6	18.3
613	26	499	1,312	797	4.66	3.6	22.9
745	30	591	1,539	971	5.10	5.9	28.9
925	37	921	2,008	1,209	6.27	14.6	42.2

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income w/Apprec.	Net Farm Inc. w/o Apprec.	Labor & Mgt. Inc. Per Oper.	Change in Net Worth w/Apprec.
(10)	(10)	(10)	(3)	(3)	(3)	(6)
\$ 3,154	\$ 7.24	\$ 13.25	\$ 68,120	\$ 50,653	\$ 23,808	\$ 52,045
2,655	8.81	14.80	44,503	31,471	8,797	23,782
2,367	9.61	16.31	30,616	20,707	-750	12,755
1,990	10.80	18.86	19,009	9,122	-9,831	2,156
1,427	15.04	25.83	-8,016	-15,722	-33,766	-20,602

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

### **Supplementary Information**

Each year DFBS cooperators volunteer to complete supplementary data collection forms looking at selected management aspects of the business or specific research areas being studied. This is in addition to the normal DFBS data collection form. Two areas that were examined this year were the source of dairy replacements and the breakdown of the milk income and marketing expenses. Following is a summary of this information.

#### **SOURCE OF DAIRY REPLACEMENTS** 91 New York Dairy Farms, 2000

<u>Animals Entering Herd</u>	Average
Number calving in 2000 for first time	118
Animals purchased, % <sup>1</sup>	17.2
Animals raised by farm, % <sup>2</sup>	82.8
 <u>Current Heifer Inventory</u>	
Raised on dairy, %	81
Raised by a custom grower, %	19

<sup>1</sup> Animals purchased are animals purchased from a different farm and were not the farms genetics.

<sup>2</sup> Animals raised by farm are animals that were born on the farm and entered the herd, which includes animals raised by the farm or custom grower.

On the average farm, 118 animals calved for the first time in 2000. The breakdown on these animals for source was 17.2% purchased and 82.8% raised by the farm. Of the current heifer inventory, 81% were raised on the dairy and 19% were being raised by a custom grower. There is increased interest in evaluating the dairy replacement enterprise.

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

Starting January 1<sup>st</sup>, 2001, the northeast switched to multiple components pricing, which changed the format of the milk check and how farmers received payment for their milk. To examine the breakdown of the gross milk income and the marketing expenses, 74 farms filled out a detailed form for all the different sources of income for milk sales and the milk marketing expenses on an accrual basis. This information is reported in the following two tables. The tables are divided into six different areas, each representing a different area of income or expenses.

The first section looks at the value of the milk components on a per cwt. basis. The second area looks at the Producer Price Differential. The third area looks at the premiums a farm receives. Any premiums not specifically noted as quality or volume related are included in market premiums. The fourth area looks at the expenses associated with marketing milk. A new line item in this section is the expenses associated with utilizing forward contracting or hedging programs to market milk, such as commission or broker fees. The fifth area is income from the compact program or from forward contracting or hedging programs. The sixth area is the patronage dividends or refunds from the milk cooperatives. Equity purchased in the milk cooperative utilizing a monthly deduction from the milk check or a percent of the patronage dividend is treated as a capital purchase and is not a milk marketing expense. The cumulative total for these six areas is the net price received on farms. Your net farm price can be found on page 10 of your farm's DFBS report.

The table on page 26 reports the averages for these different areas. The table on page 27 contains the range for each of the individual lines of the report. This table is in farm business chart format with each item sorted independently and ranked by fifths. Numbers for the different areas will not add to the totals for that quintile or to the net price received because the highest farms for each item were averaged, not the same farms throughout the six areas. This table shows the range of income and expenses received by farms for all the different areas.

For your individual farm, compare your accrual numbers following this same format to look at how you compare to other farms in your region and to identify possible areas to generate additional revenue.

**AVERAGE MILK INCOME AND MARKETING REPORT**  
74 New York Dairy Farms, 2000

	Pounds	Percent	Price/Pound	Total	\$/Cwt of Milk
<b>BASE FARM PRICE</b>					
Butterfat	317,577.00	3.71%	\$ 1.2634	\$ 398,523.66	\$ 4.68
Protein	261,077.90	3.03%	\$ 1.6813	\$ 433,854.43	\$ 5.06
Solids	489,113.09	5.63%	\$ 0.0525	\$ 25,680.42	\$ 0.30
<b>Total Component Contribution</b>					<b>\$10.04</b>
<b>PPD</b>	8,617,559.41		\$ 2.5458	\$ 213,842.50	<b>\$ 2.55</b>
<b>Base Farm Price</b>					<b>\$ 12.59</b>
<b>Premiums</b>					
Quality				\$ 12,344.17	\$ 0.13
Volume				\$ 21,946.03	\$ 0.16
Market Premiums				\$ 28,483.59	\$ 0.26
<b>Total Premiums</b>					<b>\$ 0.55</b>
<b>BASE FARM PRICE + PREMIUM</b>					<b>\$ 13.13</b>
<b>Deductions</b>					
Promo				\$ 13,049.68	\$ 0.15
Hauling + Stop Charges.				\$ 40,008.64	\$ 0.52
Market Fees & Coop Dues				\$ 5,638.69	\$ 0.07
Futures/Contract Fees				\$ 3.40	\$ 0.00
<b>Total Deductions</b>					<b>\$ 0.74</b>
<b>BASE FARM PRICE + PREMIUMS - DEDUCTIONS</b>					<b>\$ 12.40</b>
<b>Marketing Programs</b>					
Compact				\$ 8,158.92	\$ 0.14
Futures Contracts, Forward Contracting, Etc.				\$ 7,197.64	\$ 0.05
<b>Total Marketing Income</b>					<b>\$ 0.20</b>
<b>Patronage Dividends</b>				\$ 13,846.23	<b>\$ 0.23</b>
<b>NET PRICE RECEIVED ON FARM, ALL SOURCES</b>					<b>\$ 12.82</b>
<b>PPD - Hauling, per cwt.</b>					\$ 2.02
<b>PPD - Hauling + Market Premiums, per cwt.</b>					\$ 2.28

**MILK PRICE INFORMATION BY QUINTILE**  
(Each Category Sorted Independently)  
74 New York Dairy Farms, 2000

	←	←	←	←	→
	Lowest Quintile				Highest Quintile
Butterfat, %	3.49	3.63	3.68	3.78	4.00
Protein, %	2.84	2.93	2.97	3.03	3.41
Other Solids, %	5.18	5.63	5.70	5.75	5.90
Butterfat, \$ per Cwt.	4.37	4.52	4.61	4.73	5.22
Protein, \$ per Cwt.	4.76	4.93	5.03	5.12	5.50
Other solids, \$ per Cwt.	0.28	0.29	0.29	0.29	0.34
<b>Total Component Value per Cwt.</b>	<b>\$ 9.50</b>	<b>\$ 9.77</b>	<b>\$ 9.91</b>	<b>\$ 10.11</b>	<b>\$ 10.98</b>
PPD, \$ per Cwt.	2.24	2.31	2.42	2.68	3.12
<b>Base Farm Price per Cwt.</b>	<b>\$ 11.87</b>	<b>\$ 12.16</b>	<b>\$ 12.38</b>	<b>\$ 12.72</b>	<b>\$ 13.90</b>
Quality, \$ per Cwt.	.01	.08	.13	.20	.27
Volume, \$ per Cwt.	.00	.00	.07	.24	.50
Market premium, \$ per Cwt.	.00	.01	.19	.28	.84
Total Premium, \$ per Cwt.	<b>.07</b>	<b>.35</b>	<b>.47</b>	<b>.70</b>	<b>1.19</b>
<b>Base Farm Price + Premiums per Cwt.</b>	<b>\$ 12.29</b>	<b>\$ 12.67</b>	<b>\$ 12.86</b>	<b>\$ 13.32</b>	<b>\$ 14.62</b>
Promotion, \$ per Cwt.	.13	.15	.15	.15	.17
Hauling, \$ per Cwt.	.28	.40	.50	.57	.90
Market fees & coop dues per Cwt.	.00	.03	.06	.07	.17
Futures/contract fees, \$ per Cwt.	.00	.00	.00	.00	.00
<b>Total Marketing Expenses per Cwt.</b>	<b>\$ .47</b>	<b>\$ .60</b>	<b>\$ .68</b>	<b>\$ .79</b>	<b>\$ 1.18</b>
<b>Base + Premiums – Deductions per Cwt.</b>	<b>\$ 11.59</b>	<b>\$ 11.98</b>	<b>\$ 12.19</b>	<b>\$ 12.51</b>	<b>\$ 13.80</b>
Compact, \$ per Cwt.	.00	.00	.00	.00	.76
Futures contract, forward contracting, \$ per Cwt.	.00	.00	.00	.00	.28
<b>Total Marketing Income, \$ per Cwt.</b>	<b>\$ .00</b>	<b>\$ .00</b>	<b>\$ .00</b>	<b>\$ .16</b>	<b>\$ .87</b>
<b>Patronage Dividends, \$ per Cwt.</b>	<b>\$ .00</b>	<b>\$ .00</b>	<b>\$ .00</b>	<b>\$ .12</b>	<b>\$ 1.07</b>
<b>Net Price Received From All Sources, \$ per Cwt.</b>	<b>\$ 11.86</b>	<b>\$ 12.36</b>	<b>\$ 12.66</b>	<b>\$ 13.09</b>	<b>\$ 14.24</b>
PPD - hauling, \$ per Cwt.	1.73	1.88	1.97	2.11	2.44
PPD - hauling + mkt premiums, \$ per Cwt.	1.85	2.01	2.13	2.38	3.07

### New York State Farm Business Charts

The Farm Business Chart is a tool which can be used in analyzing a business by drawing a line through the figure in each column which represents the current level of management performance. The figure at the top of each column is the average of the top 10 percent of the 314 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

314 New York Dairy Farms, 1999

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
18.6	851	19,987,607	25,069	5.3	23	55	1,213,661
9.9	418	9,126,584	23,355	4.0	20	47	1,009,282
7.0	279	5,925,301	22,344	3.4	19	44	888,653
5.3	198	3,903,863	21,492	3.0	17	40	798,241
4.2	145	2,857,909	20,435	2.6	16	37	731,684
-----							
3.5	111	2,145,630	19,413	2.3	15	34	660,719
3.0	87	1,605,859	18,334	2.0	14	31	597,681
2.5	71	1,261,635	17,209	1.7	12	28	493,858
2.0	56	1,003,180	15,764	1.5	10	24	390,912
1.4	40	588,644	12,475	1.0	8	18	281,530

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)	
\$365	15%	\$278	\$778	\$506	\$3.25	
519	20	381	933	703	3.81	
590	22	427	1,028	805	4.25	
653	23	463	1,111	866	4.48	
700	24	504	1,164	921	4.67	
-----						
743	25	541	1,223	971	4.88	
793	27	582	1,299	1,021	5.05	
852	28	624	1,398	1,089	5.29	
916	30	701	1,540	1,163	5.71	
1,036	37	845	1,847	1,300	6.78	

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

**FARM BUSINESS CHART FOR  
FARM MANAGEMENT COOPERATORS**  
314 New York Dairy Farms, 1999

Milk Receipts Per Cow	Milk Receipts Per Cwt.	Oper. Cost Milk Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cow	Total Cost Production Per Cwt.
(10)	(10)	(10)	(10)	(10)	(10)
\$3,817	\$16.50	\$1,200	\$7.89	\$2,176	\$12.45
3,461	15.56	1,635	9.24	2,532	13.42
3,293	15.27	1,832	9.90	2,752	13.97
3,160	15.05	1,998	10.35	2,864	14.48
3,046	14.86	2,137	10.78	2,987	14.98
-----					
2,908	14.73	2,262	11.20	3,101	15.43
2,743	14.58	2,367	11.66	3,211	16.16
2,529	14.39	2,479	12.10	3,306	16.79
2,320	14.12	2,636	12.76	3,459	17.98
1,838	13.61	2,955	14.43	3,867	22.84

Profitability						
Net Farm Income Without Appreciation			Net Farm Income With Appreciation		Labor & Management Income	
Total	Per Cow	Operations Ratio	Total	Per Cow	Per Farm	Per Operator
(3)	(10)	(3)	(3)	(10)	(3)	(3)
\$578,366	\$1,174	0.33	\$668,929	\$1,351	\$454,170	\$318,071
222,031	863	0.25	270,325	1,035	150,302	88,408
136,405	763	0.22	180,888	922	82,986	54,378
96,263	663	0.19	124,395	824	54,339	39,122
74,615	550	0.17	91,554	697	38,704	26,018
-----						
56,349	464	0.14	69,234	615	25,330	15,699
39,420	376	0.11	53,026	520	13,406	9,369
26,824	290	0.09	38,225	405	1,342	876
15,421	173	0.06	26,086	282	-11,196	-10,038
-10,114	-114	-0.06	4,679	12	-42,427	-38,149

Farm Business Charts for farms with freestall barns and 150 cows or less, 151-300 cows, and more than 300 cows; and farms with conventional barns with 60 cows or less and more than 60 cows are shown on pages 36-40.

**Financial Analysis Chart**

The farm financial analysis chart on page 33 is designed just like the Farm Business Chart and may be used to assess the financial health of the farm business. Most of the financial measures used in the chart are defined on pages 8, 12, 16 and 23 of this publication. References to DFBS output page numbers for participating dairy farmers are provided in the table headings.

**FINANCIAL ANALYSIS CHART**  
314 New York Dairy Farms, 1999

Liquidity (repayment)							
Planned Debt Payments Per Cow	Available for Debt Service Per Cow	Cash Flow Coverage Ratio	Debt Coverage Ratio	Debt Payments as Percent of Milk Sales	Debt Per Cow	Working Capital as % of Total Expenses	Current Ratio
(8)*	(12)	(8)	(8)	(8)	(5)	(5)	(5)
\$128	\$1,177	5.71	7.13	4%	\$217	57%	30.96
247	868	2.38	2.84	8	929	34	5.03
333	757	1.88	2.19	11	1,464	27	3.54
383	675	1.61	1.75	13	1,862	22	2.73
430	599	1.38	1.52	14	2,343	18	2.10
-----							
476	546	1.17	1.28	16	2,758	13	1.71
521	486	1.04	1.10	18	3,067	9	1.45
581	406	0.89	0.94	21	3,426	5	1.20
710	300	0.70	0.73	24	3,882	-2	0.91
922	69	0.29	0.31	37	5,125	-17	0.55
Solvency				Profitability			
Leverage Ratio**	Percent Equity	Debt/Asset Ratio		Percent Rate of Return with appreciation on:			
		Current & Intermediate	Long Term	Equity	Investment***		
(5)	(5)	(5)	(5)	(3)	(3)		
0.06	98%	0.03	0.00	36%	19%		
0.17	88	0.11	0.00	19	14		
0.29	80	0.19	0.04	14	11		
0.40	73	0.26	0.18	11	9		
0.56	66	0.33	0.29	8	8		
-----							
0.70	60	0.39	0.38	6	6		
0.90	54	0.47	0.46	3	4		
1.13	48	0.55	0.56	0	3		
1.50	40	0.64	0.73	-3	0		
3.91	23	0.88	1.19	-31	-5		
Efficiency (Capital)							
Asset Turnover (ratio)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow	Change in Net Worth w/Appreciation	Farm Net Worth, End Year		
(11)	(11)	(11)	(11)	(6)	(4)		
.85	\$1,210	\$527	\$4,275	\$449,790	\$3,107,799		
.72	1,808	775	5,134	169,937	1,452,198		
.64	2,109	944	5,668	93,388	1,021,329		
.59	2,336	1,082	6,126	59,438	804,166		
.54	2,628	1,204	6,555	42,597	644,876		
-----							
.50	2,935	1,348	6,999	29,284	547,645		
.46	3,307	1,493	7,497	20,531	429,658		
.41	3,836	1,738	8,214	12,457	347,748		
.35	4,552	2,103	9,192	838	251,306		
.25	6,622	2,899	11,691	-47,361	124,028		

\*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.

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

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

The table on page 35 includes the average values for the resulting five groups of dairy farms. The average size of farms in the five groups ranges from 47 cows on the small conventional farms to 601 cows on the largest freestall farms.

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

Farm business charts have been computed for each of the five housing and herd size categories and are on pages 36-40. By comparing the farm's performance on the most appropriate business chart, a farm manager will be better able to evaluate his or her business performance.

### **Herd Size Comparisons**

A detailed comparison of profitability, financial situation and business analysis factors across herd sizes is contained on pages 46-55 of the 1999 State Summary\*. As herd size increases, the average profitability generally increases (page 46)\*. Net farm income without appreciation averaged \$21,114 per farm for the less than 50 cow farms and \$639,672 per farm for those with 600 cows and over. This relationship generally holds for all measures of profitability including rate of return on capital.

Farm net worth increases rapidly as herd size increases (pages 50-53)\*, even though percent equity was higher on the smaller farms. The group with more than 600 cows demonstrated the strongest ability to make debt payments.

Crop yields showed little relationship to herd size, but fertilizer and lime expenses, and machinery cost per tillable acre generally increased as herd size increased (pages 54-55)\*. The farms with 600 and more cows per farm averaged 42 percent more milk sold per cow than the smallest farms. All of the groups with 75 or more cows averaged above 18,000 pounds of milk sold per cow while the farms smaller than 75 cows averaged 17,125 pounds of milk sold per cow. Farm capital per worker increased, and farm capital per cow decreased as herd size increased. Milk sold per worker increased dramatically as herd size increased, ranging from 363,719 pounds at the lowest herd size category up to 1,118,658 pounds at the largest size category.

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\*Wayne A. Knoblauch, Linda D. Putnam and Jason Karszes, Dairy Farm Management Business Summary, New York, 1999, Department of Agricultural, Resource, and Managerial Economics, Cornell University, R.B. 2000-03, October 2000.

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

292 New York Dairy Farms, 1999

Item	Farms with:	Conventional		Freestall		
		<= 60 Cows	>60 Cows	<=150 Cows	151-300 Cows	≥300 Cows
Number of farms		53	52	63	55	69
<u>Cropping Program Analysis</u>						
Total Tillable acres		163	296	308	557	1,149
Tillable acres rented*		60	124	141	261	531
Hay crop acres*		104	177	164	266	486
Corn silage acres*		27	61	85	196	515
Hay crop, tons DM/acre		1.9	2.2	2.4	2.7	3.6
Corn silage, tons/acre		11.8	14.7	14.1	15.2	17.3
Oats, bushels/acre		38	63	45	61	36
Forage DM per cow, tons		6.6	8.2	7.7	7.9	7.9
Tillable acres/cow		3.5	3.4	2.9	2.5	1.9
Fert. & lime exp./tillable acre		\$19.93	\$22.70	\$26.23	\$33.97	\$36.28
Total machinery costs		\$25,558	\$47,622	\$56,876	\$119,638	\$285,367
Machinery cost/tillable acre		\$157	\$161	\$185	\$215	\$248
<u>Dairy Analysis</u>						
Number of cows		47	87	105	219	601
Number of heifers		34	70	74	165	436
Milk sold, lbs.		794,585	1,572,844	2,019,084	4,572,742	13,630,992
Milk sold/cow, lbs.		16,920	18,027	19,267	20,833	22,694
Operating cost of prod. milk/cwt.		\$10.15	\$10.40	\$11.34	\$11.27	\$11.34
Total cost of prod. milk/cwt.		\$17.63	\$15.88	\$15.85	\$14.65	\$13.70
Price/cwt. milk sold		\$14.86	\$14.85	\$14.85	\$14.98	\$14.89
Purchased dairy feed/cow		\$694	\$648	\$787	\$790	\$911
Purchased dairy feed/cwt. milk		\$4.11	\$3.58	\$4.09	\$3.78	\$4.02
Purchased grain & conc. as % milk rec.		25%	23%	25%	24%	25%
Purchased feed & crop exp./cwt. milk		\$4.82	\$4.55	\$5.01	\$4.67	\$4.75
<u>Capital Efficiency</u>						
Farm capital/worker		\$195,392	\$210,516	\$252,922	\$249,401	\$266,995
Farm capital/cow		\$8,315	\$7,453	\$7,347	\$6,514	\$5,931
Farm capital/tillable acre owned		\$3,794	\$3,770	\$4,619	\$4,820	\$5,768
Real estate/cow		\$4,222	\$3,298	\$3,330	\$2,561	\$2,269
Machinery investment/cow		\$1,734	\$1,565	\$1,423	\$1,239	\$1,004
Asset turnover ratio		0.37	0.43	0.46	0.58	0.67
<u>Labor Efficiency</u>						
Worker equivalent		2.00	3.08	3.05	5.72	13.35
Operator/manager equivalent		1.33	1.59	1.46	1.79	2.13
Milk sold/worker, lbs.		397,293	510,664	661,995	799,430	1,021,048
Cows/worker		24	28	34	38	45
Labor cost/cow		\$872	\$709	\$614	\$617	\$653
Labor cost/tillable acre		\$251	\$208	\$209	\$243	\$342
<u>Profitability &amp; Balance Sheet Analysis</u>						
Net farm income (without appreciation)		\$25,834	\$50,194	\$45,437	\$115,430	\$337,256
Labor & management income/operator		\$3,537	\$12,243	\$10,141	\$38,510	\$113,628
Rate Return on all capital with appreciation		2.0%	4.8%	4.5%	9.5%	12.3%
Farm debt/cow		\$1,967	\$1,965	\$2,633	\$2,607	\$2,901
Percent equity		76%	74%	64%	61%	52%

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

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

53 Conventional Stall Dairy Farms with 60 or Less Cows, New York, 1999

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- Alient	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
3.36	60	1,249,557	23,442	4.1	24	42	866,834
2.82	57	1,097,188	21,649	3.2	20	34	623,722
2.49	54	997,166	19,974	2.7	17	31	511,506
2.16	52	951,687	18,273	2.3	15	27	431,444
1.98	51	842,501	17,468	2.0	14	26	405,806
-----							
1.83	47	771,571	16,658	1.8	11	25	382,448
1.71	46	700,887	15,691	1.6	10	23	352,446
1.52	42	636,598	14,698	1.4	10	20	326,229
1.39	37	553,671	13,054	1.2	8	18	266,346
1.12	30	319,766	8,782	0.9	6	15	193,003
-----							
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)		
\$291	15%	\$284	\$892	\$398	\$3.31		
435	19	370	1,109	509	3.52		
495	21	430	1,222	630	3.81		
537	22	482	1,301	697	4.14		
558	22	540	1,361	745	4.56		
-----							
601	24	580	1,453	784	4.87		
670	27	614	1,585	898	5.13		
735	30	670	1,707	1,036	5.65		
818	33	742	1,847	1,154	6.58		
1,066	43	857	2,090	1,343	7.58		
-----							
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec.		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.	
(10)	(10)	(10)	Total	Per Cow	(3)	(6)	
\$3,495	\$6.88	\$13.66	\$67,606	\$1,399	\$37,900	\$56,577	
3,255	8.35	14.90	51,727	1,028	24,910	41,828	
3,049	8.67	15.48	39,496	861	15,940	25,057	
2,849	9.12	16.35	34,679	735	12,211	22,037	
2,554	9.98	16.91	29,487	652	8,205	18,746	
-----							
2,423	10.53	17.89	23,104	532	2,786	15,378	
2,294	11.17	19.10	19,484	418	22	12,474	
2,169	11.68	20.80	14,070	264	-6,642	9,145	
1,960	12.74	23.78	4,661	104	-14,728	2,663	
1,208	15.67	29.51	-11,863	-369	-37,507	-11,715	

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

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

52 Conventional Stall Dairy Farms with More Than 60 Cows, New York, 1999

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
4.87	154	2,730,517	24,029	4.4	24	42	770,362
4.07	106	1,955,695	20,762	3.2	20	38	701,390
3.63	98	1,847,727	19,622	2.8	19	35	659,484
3.24	89	1,657,243	18,787	2.5	18	32	602,209
3.17	81	1,504,242	18,451	2.1	16	30	568,430
-----							
2.93	77	1,441,765	17,688	2.0	15	29	524,998
2.72	74	1,362,999	17,211	1.9	14	27	461,326
2.52	70	1,232,960	16,396	1.7	12	25	405,822
2.26	67	1,168,162	15,643	1.4	9	22	371,817
1.80	64	1,018,863	14,002	1.0	7	19	315,077
-----							
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)		
\$320	12%	\$283	\$887	\$514	\$3.03		
464	18	422	988	635	3.48		
538	20	466	1,072	710	3.77		
568	21	515	1,164	774	4.07		
608	22	562	1,237	824	4.39		
-----							
646	24	591	1,307	857	4.64		
687	26	629	1,414	881	4.95		
723	28	650	1,496	919	5.28		
769	30	700	1,644	970	5.68		
902	35	837	1,799	1,140	6.74		
-----							
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec.		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.	
(10)	(10)	(10)	Total	Per Cow	(3)	(6)	
(10)	(10)	(10)	(3)	(10)	(3)	(6)	
\$3,471	\$7.60	\$13.02	\$118,857	\$1,145	\$54,023	\$81,736	
3,082	8.82	14.10	83,539	916	37,675	47,776	
2,928	9.47	14.49	70,691	847	29,425	36,423	
2,810	9.74	15.22	62,069	689	21,755	31,469	
2,728	10.20	15.87	51,419	574	17,112	26,330	
-----							
2,661	10.76	16.40	42,228	489	12,169	21,569	
2,553	11.12	16.86	33,666	449	7,566	17,147	
2,436	11.51	17.41	29,170	371	1,784	13,183	
2,280	12.03	18.26	21,667	294	-9,900	2,177	
2,051	13.97	20.60	3,657	64	-34,295	-20,718	

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

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

63 Freestall Barn Dairy Farms with 150 or Less Cows, New York, 1999

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
4.88	147	3,202,363	23,465	5.7	21	59	1,099,774
4.15	141	2,826,420	22,587	3.4	19	46	932,011
3.76	132	2,591,385	21,572	3.0	17	43	819,869
3.40	121	2,430,389	20,668	2.6	17	39	741,613
3.22	115	2,225,447	19,876	2.3	16	38	686,560
-----							
2.90	108	2,035,131	19,182	2.1	14	34	640,699
2.59	95	1,724,716	18,501	1.9	13	32	602,729
2.37	85	1,479,864	17,675	1.6	11	29	572,122
2.11	74	1,250,141	15,995	1.4	10	28	497,571
1.62	49	839,593	12,201	1.1	7	19	324,190
-----							
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)		(10)
\$398	16%	\$278	\$755	\$504	\$3.37		
532	20	394	907	757	4.15		
612	22	422	1,002	872	4.48		
648	24	455	1,073	911	4.76		
680	25	520	1,125	935	4.95		
-----							
739	26	542	1,182	981	5.10		
775	27	595	1,236	1,033	5.31		
833	29	682	1,400	1,093	5.55		
929	31	776	1,552	1,176	6.08		
1,063	37	908	1,859	1,348	6.82		
-----							
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec.		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.	
(10)	(10)	(10)	Total	Per Cow	(3)	(6)	
\$3,499	\$8.40	\$13.54	\$105,781	\$892	\$59,306	\$132,279	
3,279	9.73	14.11	90,022	792	42,957	61,621	
3,117	10.28	14.75	77,375	686	35,110	49,786	
3,056	10.85	15.38	67,071	571	17,345	41,699	
2,995	11.16	15.91	54,109	521	12,461	34,045	
-----							
2,883	11.46	16.41	36,762	419	7,745	26,599	
2,748	11.83	16.66	25,170	293	-692	18,504	
2,557	12.33	17.19	16,133	199	-7,054	10,198	
2,352	13.43	18.04	8,502	92	-13,987	1,712	
1,871	14.47	21.75	-6,797	-60	-32,477	-11,848	

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

**FARM BUSINESS CHART FOR MEDIUM FREESTALL DAIRY FARMS**  
55 Freestall Barn Dairy Farms with 151-300 Cows, New York, 1999

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
8.90	297	6,965,476	25,959	4.8	23	55	1,180,513
7.39	280	6,123,854	24,416	3.8	20	50	994,280
6.60	258	5,579,962	23,228	3.3	18	47	882,331
6.10	238	5,288,803	22,273	3.1	18	42	846,958
5.83	228	4,804,482	21,486	2.9	17	41	812,892
-----							
5.57	214	4,348,085	20,629	2.6	16	38	784,754
4.96	198	3,939,776	19,499	2.4	15	36	750,910
4.61	185	3,565,149	18,557	2.2	14	34	701,611
4.29	173	3,283,627	17,405	1.8	11	31	660,157
3.96	156	2,811,352	15,725	1.2	9	28	583,431

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)	
\$448	14%	\$349	\$803	\$700	\$3.36	
637	21	417	896	819	4.11	
680	22	455	968	864	4.33	
723	23	501	1,054	936	4.46	
749	25	537	1,141	962	4.59	
-----						
782	26	564	1,214	987	4.89	
819	27	591	1,305	1,015	4.97	
870	28	622	1,380	1,059	5.15	
909	30	703	1,478	1,151	5.64	
1,038	36	812	1,617	1,296	6.40	

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec.		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
(10)	(10)	(10)	Total	Per Cow	(3)	(6)
\$4,048	\$9.11	\$12.57	\$307,993	\$1,287	\$155,954	\$302,351
3,626	9.86	13.22	217,554	861	110,405	188,506
3,430	10.34	13.79	163,915	757	68,703	146,148
3,298	10.51	14.20	136,148	690	56,765	125,984
3,204	10.89	14.76	128,773	589	45,661	99,684
-----						
3,078	11.73	15.08	107,451	484	34,085	73,593
2,918	12.16	15.39	86,609	410	22,418	58,794
2,776	12.72	16.08	64,416	321	11,250	40,024
2,593	13.22	16.68	30,768	158	-3,441	11,494
2,329	14.40	17.78	-26,452	-123	-47,671	-67,566

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

**FARM BUSINESS CHART FOR LARGE FREESTALL DAIRY FARMS**  
69 Freestall Barn Dairy Farms with 300 or More Cows, New York, 1999

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- Alient	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(11)*	(11)	(11)	(10)	(9)	(9)	(11)	(11)
30.13	1,492	35,463,663	25,925	6.1	24	59	1,398,957
19.38	916	21,330,989	24,421	5.0	21	53	1,234,591
15.37	677	15,899,554	23,720	4.4	20	49	1,126,537
14.46	589	13,831,992	23,381	4.0	19	47	1,064,267
12.13	530	11,689,937	22,842	3.8	19	46	1,009,216
10.93	445	9,793,417	22,157	3.6	17	45	966,074
9.84	406	9,089,815	21,648	3.4	16	43	929,661
8.92	389	8,628,060	21,040	2.9	15	40	872,738
8.13	367	7,712,372	20,420	2.1	14	38	802,159
6.61	322	5,989,077	17,594	1.4	11	33	669,307
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)		
\$617	32%	\$246	\$731	\$841	\$3.97		
691	28	368	899	922	4.35		
756	27	409	1,022	978	4.44		
809	27	442	1,088	1,014	4.59		
839	26	471	1,130	1,055	4.70		
871	25	494	1,164	1,101	4.82		
901	24	515	1,191	1,134	5.00		
928	23	548	1,231	1,161	5.13		
973	22	605	1,312	1,214	5.38		
1,042	20	725	1,441	1,312	6.05		
Value and Cost of Production			Profitability				
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec.		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.	
(10)	(10)	(10)	Total	Per Cow	(3)	(6)	
\$3,948	\$9.10	\$11.71	\$1,117,509	\$1,035	\$737,887	\$797,943	
3,654	10.15	12.53	679,305	841	331,566	520,123	
3,550	10.70	12.97	426,163	752	209,766	338,284	
3,455	11.13	13.54	305,873	638	140,966	242,994	
3,369	11.51	14.02	258,146	534	98,432	182,176	
3,265	11.81	14.33	225,101	437	73,125	149,863	
3,197	12.11	14.70	182,181	369	57,971	100,949	
3,107	12.37	14.99	143,273	312	39,379	65,273	
2,988	12.85	15.22	101,868	250	21,884	15,739	
2,681	13.34	16.13	44,602	103	-20,310	-89,510	

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

## IDENTIFY AND SET GOALS

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

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

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

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

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

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

### Worksheet for Setting Goals

#### I. Mission and Objectives

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Worksheet for Setting Goals (Continued)

II. Goals What	How	When	Who is Responsible
_____	_____	_____	_____
_____	_____	_____	_____
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Summarize Your Business Performance

The Farm Business and Financial Analysis Charts on pages 27 and 31-33 can be used to help identify strengths and weaknesses of your farm business. Identify three major strengths and three areas of your farm business that need improvement.

Strengths: \_\_\_\_\_  
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Needs improvement: \_\_\_\_\_  
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## GLOSSARY AND LOCATION OF COMMON TERMS

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

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

**Accrual Expenses** - (defined on page 5)

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

**Annual Cash Flow Statement** - (defined on page 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.

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

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

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

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

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

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

**Change in Accounts Payable** - (defined on page 5)

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

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

**Culling Rate** - Culling rate is calculated by dividing the number of animals that left the herd for culling purposes and that died, by the average number of milking and dry cows for the year.

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

**Current Ratio** - Measures the extent to which current farm assets, if liquidated, would cover current farm liabilities. Calculated as current farm assets at end year divided by current farm liabilities at end year.

**Dairy (farm)** - A farm business where dairy farming is the primary enterprise, operating and managing this farm is a full-time occupation for one or more people and cropland is owned.

**Dairy Cash-Crop (farm)** - Operating and managing this farm is the full-time occupation of one or more people, cropland is owned but crop sales exceed 10 percent of accrual milk receipts.

**Death Rate** – The number of animals that died divided by the average number of milking and dry cows for the year.

**Debt Coverage Ratio** – (defined on page 16)

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

**Debt to Asset Ratios** - (defined on page 12)

**Deferred Taxes** - (defined on page 11)

**Depreciation Expense Ratio** – Machinery and building depreciation divided by total accrual receipts.

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

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

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

**Farm Debt Payments as Percent of Milk Sales** - Amount of milk income committed to debt repayment, calculated by dividing planned debt payments by total milk receipts. A reliable measure of repayment ability, see page 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 as % of Milk Sales** - The percentage of the gross milk receipts that is used for labor expense. Divide accrual hired labor expense by accrual milk sales.

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

**Income Statement** - A complete and accurate account of farm business receipts and expenses used to measure profitability over a period of time such as one year or one month.

**Interest Expense Ratio** – Accrual interest expense divided by total accrual receipts.

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

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

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

**Leverage Ratio** - (defined on page 12)

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

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

**Net Farm Income from Operations Ratio** - (defined on page 9)

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

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

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

**Operating Expense Ratio** - Total accrual expenses less interest and machinery and building depreciation, divided by total accrual receipts.

**Opportunity Costs** - The cost or charge made for using a resource based on its value in its most likely alternative use. The opportunity cost of a farmer's labor and management is the value he/she would receive if employed in his/her most qualified alternative position.

**Other Livestock Expenses** - All other dairy herd and livestock expenses not included in more specific categories. Other livestock expenses include; bST, DHIC, registration fees and transfers.

**Part-Time Dairy (farm)** - Dairy farming is the primary enterprise, cropland is owned but operating and managing this farm is not a full-time occupation for one or more people.

**Personal Withdrawals and Family Expenditures Including Nonfarm Debt Payments** - All the money removed from the farm business for personal or nonfarm use including family living expenses, health and life insurance, income taxes, nonfarm debt payments, and investments.

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

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

**Renter** - Farm business owner/operator owns no tillable land and commonly rents all other farm real estate.

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

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

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

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

**Sell Rate** - The number of animals that were sold for culling purposes divided by the average number of milking and dry cows for the year.

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

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

**Whole Farm Method** - A procedure used to calculate costs of producing milk on dairy farms without using enterprise cost accounts. All non-milk receipts are assigned a cost equal to their sale value and deducted from total farm expenses to determine the costs of producing milk.

**Working Capital** - A theoretical measure of the amount of funds available to purchase inputs and inventory items after the sale of current farm assets and payment of all current farm liabilities. Calculated as current farm assets at end year less current farm liabilities at end year.

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

<b>EB No</b>	<b>Title</b>	<b>Fee (if applicable)</b>	<b>Author(s)</b>
2001-09	Southeastern New York Region 2000 Dairy Farm Business Summary	(\$8 ea.)	Knoblauch, W. A., L. D. Putnam, S. E. Hadcock, L. R. Hulle, M. Kiraly, and J. J. Walsh
2001-08	Northern New York Region 2000 Dairy Farm Business Summary	(\$8 ea.)	Knoblauch, W. A., L. D. Putnam, W. Van Loo, P. Murray, A. Deming, C. Nobles, M. Ames, and J. Karszes
2001-07	Western And Central Plateau Region 2000 Dairy Farm Business Summary	(\$8 ea.)	Knoblauch, W. A., L. D. Putnam, J. Karszes, J. W. Grace, J. S. Petzen, and S. T. Richards
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