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PRO-DAIRY

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***NEW YORK  
LARGE HERD  
FARMS,  
300 COWS  
OR LARGER  
2006***

***DAIRY FARM  
BUSINESS SUMMARY***



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**2006 DAIRY FARM BUSINESS SUMMARY**  
**LARGE HERD DAIRY FARMS**  
**300 Cows or Larger**

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## 2006 DAIRY FARM BUSINESS SUMMARY LARGE HERD DAIRY FARMS

### INTRODUCTION

Dairy farmers throughout New York state have been participating in Cornell Cooperative Extension Farm Business Summary and Analysis Programs since the early 1950's. Managers of each participating farm business receive a comprehensive summary and analysis of the farm business.

Larger farms employ different technologies and management systems, and thus, achieve different efficiencies than smaller farms. This makes comparisons of a large farm's performance to the average of farms of all sizes not as meaningful as comparing to the average of similar sized farms. This report contains a summary and analysis of dairy farms with 300 or more cows. In addition, farms are sorted into three categories for many comparisons, 300 to 500 cows, 501 to 699 cows, and 700 and more cows per farm.

Farm managers should determine their business performance and then compare it with that of other similar farms. In this manner, strengths and areas for improvement can be identified. A goal that many managers set is to strive to be in the top 20 percent of farms for many of the production and financial benchmarks. Each manager should select and then revise annually the goals which their business strives to achieve.

#### **Program Objective**

The primary objective of the Dairy Farm Business Summary and Analysis Project, DFBS, is to help farm managers improve the business and financial management of their dairy farm through appropriate use of historical farm data and the application of modern farm business analysis techniques. This information can also be used to track changes within the business, establish goals that will enable the business to better meet its objectives, compare the performance of the farm to other dairy producers, and establish a basis for financial projection of planned changes within the business.

#### **Format**

This report is comprised of six sections. The first section charts the progress of the large herd farm business over two years. Seventy-nine of the large herd farms participated in the summary the last two years. The averages of selected business factors are presented for these farms and the changes that occurred from 2005 to 2006 are calculated.

The second section contains charts for additional analysis of large herd farms. The top 20 percent large farms (by rate of return on assets without appreciation) are compared to the average for all 82 large herd farms that participated in the 2006 DFBS program. Also presented is information concerning dairy enterprise efficiency, and milking parlor efficiency.

The summary and analysis section lists the average data for the 82 large herd farms that participated in the 2006 DFBS program. The format follows that of the individual farm DFBS printout and contains a brief explanation of each table and chart with comparisons to the top 20 percent large farms.

The fourth section presents a condensed summary and selected business factors for farms with 300-500 cows, 501-699 cows, and farms with 700 and more cows.

The fifth section contains the income and expense profiles for the 300-500 cow farms, 501-699 cow farms, and 700 and more cow farms on a per cow and per hundredweight of milk basis.

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

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<sup>1</sup>The large herd summary is comprised of farms with 300 or more cows. Albany, Allegany, Cayuga, Chautaugua, Chenango, Clinton, Cortland, Erie, Genesee, Jefferson, Lewis, Livingston, Madison, Montgomery, Oneida, Onondaga, Ontario, Orleans, Rensselaer, Saratoga, Schuyler, St. Lawrence, Tompkins, Washington, Wayne, Wyoming, and Yates counties had farms of this size participating in 2006. This report was written by Jason Karszes, Senior Extension Associate, Pro-Dairy and Wayne A. Knoblauch, Professor, Farm Management. Linda Putnam was in charge of data preparation. Loree McOwen prepared the publication. Data were collected by Cornell Cooperative Extension educators across the state. We also acknowledge the cooperation of Western New York and First Pioneer Farm Credit Associations and Dehm Associates, for their assistance in data collection.

## PROGRESS OF THE FARM BUSINESS

The 2006 business year for the New York State dairy industry was a challenging one, with a significant decrease in milk price after relatively higher prices for 2004 and 2005. Growing conditions were variable across the state, with close to record yields in some areas, while other areas experienced extremely wet conditions and loss of yield in both corn and hay. In spite of the challenges associated with crop production, there appeared to be no significant change in forage quality, with many farms maintaining milk per cow production levels the same as last year. With the decrease in milk prices, more effort was focused by farms to lower costs; however, costs associated with energy, milk marketing, inputs, and interest rates all increased over the year, resulting in a small increase in costs. The combination of these factors led to a year that was not profitable for the average farm participating in this project.

For both 2005 and 2006, 79 farms that averaged more than 300 cows in New York participated in the Dairy Farm Business Summary and Analysis Program (DFBS), administered by Cornell Cooperative Extension and Cornell University. The tables on the following two pages show selected factors and receipts and expenses per cow and per hundredweight from the 79 farms that participated in the DFBS project each of the last two years.

Comparing your business' performance with average data from these DFBS dairy farms can help you establish goals for your business. It is equally important to determine the progress your business has made over the past two or three years, to compare this progress to your goals, and to set goals for the future.

**Milk Income.** Gross milk prices decreased 13.3 percent to \$13.81, or a decrease of \$2.12 per hundredweight. Milk marketing expenses increased 5 cents to \$0.77 per hundredweight. These two changes led to a decrease of 14.3 percent in net milk price received on farm, averaging \$13.04 per hundredweight. With the variable growing conditions around the state, forage quality, on average, stayed consistent with previous years, with small decreases in yields impacting both hay and corn production. With no improvement in forage quality, milk production per cow was flat, with no change from the previous year. While milk production per cow didn't change, farms increased averaged herd size by 5.5 percent, which resulted in a 5.5 percent increase in the total pounds of milk shipped off the farm during the year. While total pounds marketed did increase, the significant decrease in milk price more than offset the increase in cow numbers and milk produced, with gross sales of milk for the farms decreasing by 8.5%.

**Cost control.** With the increase in herd size, worker equivalents increased by 4.4 percent. With the addition of worker equivalents due to the increased herd size, labor efficiency did not change significantly. Cows per worker stayed the same at 45, and milk sold per worker increased slightly to 1,091,725 pounds per worker. Hired labor costs per worker equivalent decreased 0.5 percent; and in conjunction with the small change in milk sold per worker, labor costs per hundredweight fell 1.5 percent to \$2.78 per hundredweight.

The year 2006 was relatively stable when considering feed costs. While there were changes in forage quality and purchased feed costs, there was no major change from 2005, which is reflected in the feed cost changes. Purchased grain and concentrates decreased 1.7% to \$4.02 per hundredweight.

While the two major variable operating expenses showed small decreases on a per hundredweight basis, 8 other expense categories showed increases ranging from 1 cent a hundredweight to 15 cents per hundredweight for interest costs. With all costs considered, farm operating costs increased 10 cents to \$14.54 per hundredweight of milk shipped.

**Decrease in Earnings.** With farms staying relatively the same in the areas of milk production per cow, labor efficiency, and costs control, there was little change on the farm to offset the large decrease in milk prices that occurred in 2006. This led to a large decrease of 83.2 percent in farm profitability from 2005. Net farm income without appreciation decreased to \$68,605. Net farm income with appreciation decreased 61.3 percent to \$242,600. Increasing cattle prices and land values contributed to appreciation in 2006.

- Labor and management income per operator/manager decreased over 100 percent, falling to a negative \$53,025.
- Rate of return to all capital without appreciation decreased 75.6 percent to 2.0 percent. Rate of return on equity capital without appreciation decreased to -1.1 percent.
- Farm net worth increased by 2.4 percent from the previous year, primarily through appreciation.
- Debt to asset ratio increased 5.0 percent to 0.42, reflecting the increased debt during the year.

Overall, 2006 was a poor year for the 300 cow and larger farms and is a significant change from the 2004-2005 period of higher returns. While, on average, profits did decrease from 2005, the changes on individual farms varied, with some farms actually doing better in 2006 than they did in 2005. The importance of trend analysis is to identify what areas changed, ask why they changed, and look at what you can do differently in the future to influence that change. If you would like help in developing and looking at the trends in your business, contact your local extension office and become involved in a financial management education program.

**PROGRESS OF THE FARM BUSINESS**  
Same 79 Large Herd Dairy Farms, 2005 & 2006

Selected Factors	Average of 79 Farms		Percent Change
	2005	2006	
<u>Size of Business</u>			
Average number of cows	726	766	5.5
Average number of heifers	581	619	6.5
Milk sold, lbs.	17,428,487	18,384,649	5.5
Worker equivalent	16.13	16.84	4.4
Total tillable acres	1,380	1,427	3.4
<u>Rates of Production</u>			
Milk sold per cow, lbs.	23,996	24,001	0.0
Butterfat per cow, lbs. <sup>2</sup>	867	876	1.0
Protein per cow, lbs. <sup>2</sup>	719	720	0.1
Hay DM per acre, tons	3.7	3.5	-5.4
Corn silage per acre, tons	19.1	18.9	-1.1
<u>Labor Efficiency &amp; Costs</u>			
Cows per worker	45	45	0.0
Milk sold per worker, lbs.	1,080,501	1,091,725	1.0
Hired labor cost per cwt.	\$2.82	\$2.78	-1.4
Hired labor cost per worker	\$35,292	\$35,110	-0.5
Hired labor cost as % of milk sales	17.7%	20.2%	14.1
<u>Cost Control</u>			
Grain & concentrate purchased as % of milk sales	26%	29%	11.5
Grain & concentrate per cwt. milk	\$4.09	\$4.02	-1.7
Dairy feed & crop expense per cwt. milk	\$5.09	\$4.98	-2.2
Labor & machinery costs per cow	\$1,354	\$1,345	-0.7
Total farm operating costs per cwt. sold	\$14.45	\$14.54	0.6
Interest costs per cwt. milk	\$0.63	\$0.78	23.8
Operating cost of producing cwt. of milk	\$12.29	\$12.21	-0.7
<u>Capital Efficiency</u> (average for the year)			
Farm capital per cow	\$7,099	\$7,331	3.3
Machinery & equipment per cow	\$1,195	\$1,228	2.8
Asset turnover ratio	0.66	0.57	-13.6
<u>Income Generation</u>			
Gross milk sales per cow	\$3,822	\$3,315	-13.3
Gross milk sales per cwt.	\$15.93	\$13.81	-13.3
Net milk sales per cwt.	\$15.21	\$13.04	-14.3
Dairy cattle sales per cow	\$265	\$271	2.3
Dairy calf sales per cow	\$69	\$71	2.9
<u>Profitability</u>			
Net farm income without appreciation	\$408,261	\$68,605	-83.2
Net farm income with appreciation	\$626,201	\$242,600	-61.3
Labor & mgt. income per operator/manager	\$136,524	\$-53,025	-138.9
Rate of return on equity capital w/o appreciation	10.2%	-1.1%	-110.8
Rate of return on all capital without appreciation	8.2%	2.0%	-75.6
<u>Financial Summary</u>			
Farm net worth, end year	\$3,267,727	\$3,347,390	2.4
Debt to asset ratio	0.40	0.42	5.0
Farm debt per cow	\$2,887	\$3,079	6.7

<sup>2</sup>Average of 74 large herd dairy farms that provided this data.

**RECEIPTS AND EXPENSES PER COW AND PER HUNDREDWEIGHT**  
Same 79 Large Herd Dairy Farms, 2005 & 2006

Item	2005		2006	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average number of cows	726		766	
Cwt. of milk sold		174,285		183,846
<b><u>ACCRUAL OPERATING RECEIPTS</u></b>				
Milk	\$3,822	\$15.93	\$3,315	\$13.81
Dairy cattle	265	1.10	271	1.13
Dairy calves	69	0.29	71	0.30
Other livestock	7	0.03	8	0.04
Crops	60	0.25	88	0.37
Miscellaneous receipts	<u>159</u>	<u>0.66</u>	<u>173</u>	<u>0.72</u>
Total Receipts	\$4,382	\$18.26	\$3,926	\$16.36
<b><u>ACCRUAL OPERATING EXPENSES</u></b>				
Hired labor	\$ 677	\$ 2.82	\$ 668	\$ 2.78
Dairy grain & concentrate	981	4.09	965	4.02
Dairy roughage	69	0.29	71	0.29
Nondairy feed	0	0.00	0	0.00
Professional nutritional services	1	0.00	1	0.00
Machine hire, rent & lease	57	0.24	64	0.27
Machine repair & vehicle expense	174	0.73	171	0.71
Fuel, oil & grease	119	0.50	129	0.54
Replacement livestock	26	0.11	15	0.06
Breeding	54	0.22	54	0.22
Veterinary & medicine	154	0.64	164	0.68
Milk marketing	174	0.72	185	0.77
Bedding	78	0.33	79	0.33
Milking supplies	80	0.33	80	0.33
Cattle lease	5	0.02	5	0.02
Custom boarding	74	0.31	77	0.32
bST expense	56	0.23	56	0.23
Livestock professional fees	11	0.04	13	0.05
Other livestock expense	20	0.08	17	0.07
Fertilizer & lime	74	0.31	63	0.26
Seeds & plants	51	0.21	52	0.22
Spray & other crop expense	41	0.17	40	0.17
Crop professional fees	6	0.02	5	0.02
Land, building, fence repair	61	0.25	55	0.23
Taxes	46	0.19	42	0.18
Real estate rent/lease	65	0.27	64	0.27
Insurance	33	0.14	36	0.15
Utilities	86	0.36	89	0.37
Interest paid	151	0.63	188	0.78
Other professional fees	20	0.08	22	0.09
Miscellaneous	<u>23</u>	<u>0.10</u>	<u>22</u>	<u>0.09</u>
Total Operating Expenses	\$3,469	\$14.45	\$3,489	\$14.54
Expansion livestock	40	0.16	53	0.22
Extraordinary expense	2	0.01	0	0.00
Machinery depreciation	188	0.78	169	0.70
Real estate depreciation	<u>122</u>	<u>0.51</u>	<u>125</u>	<u>0.52</u>
Total Expenses	\$3,821	\$15.91	\$3,836	\$15.98
Net Farm Income Without Appreciation	\$ 562	\$ 2.34	\$ 90	\$ 0.37

**TOP 20 PERCENT COMPARISON TO AVERAGE AND FACTORS CONCERNING  
DAIRY ENTERPRISE AND PARLOR EFFICIENCY**

In 2006, 22 of the 82 farms with over 300 cows filled out a supplementary data collection form in order to gain information on additional performance factors for dairy farms. Reported below are the averages and business charts for these factors. Each category is sorted independently, therefore farms that are the highest or lowest in one column may not necessarily be the highest or lowest in the next column. Please note that this is only descriptive data from 22 farms and only represents these 22 farms. See the Glossary beginning on page 51 for definitions of the factors in the table below.

On the following page selected factors for the top 20 percent of large herd farms as sorted by rate of return on all assets without appreciation are compared to the same factors for the average of all 82 farms over 300 cows that participated in the DFBS project in 2006. It is useful to see what factors are different between the average and the top 20% and to ask questions about where your own business fits into these factors.

The sixteen farms that were in the top 20 percent in 2006 were also in the summary in 2005. The table on page 7 shows income and expenses for these farms for both 2005 and 2006. Identifying the changes that occurred on these farms provides insight into what happened on the most profitable farms. How your farm changed in comparison should provide valuable management information.

**SUPPLEMENTAL FARM BUSINESS CHART**  
22 Large Herd Farms, 2006

Milking System Only			
Quintile	Pounds of Milk Harvested Per Hour of Milking Labor	Total Cows Milked Per Hour of Milking Labor Per Day	Pounds of Milk Harvested per Machine Per Year
Average of Highest Quintile	2,958	52	983,641
	1,941	30	630,754
	1,540	25	506,763
	1,347	22	387,815
Average of Lowest Quintile	1,052	17	279,373
Overall Average	1,789	29.5	564,382
Dairy Enterprise Only			
Quintile	Worker Equivalents	Cows per Worker Equivalent	Pounds Sold per Worker Equivalent
Average of Highest Quintile	12.05	239	4,353,829
	5.88	130	3,056,346
	4.43	116	2,840,207
	3.27	110	2,554,255
Average of Lowest Quintile	2.26	88	2,062,271
Overall Average	5.72	140	2,994,715

**TOP 20 PERCENT VS. AVERAGE**  
82 Large Herd Dairy Farms, 2006

Selected Factors	Average 82 Farms	Average Top 20% Farms	Percent Difference
<u>Size of Business</u>			
Average number of cows	755	757	0.3
Average number of heifers	609	602	-1.2
Milk sold, lbs.	18,143,792	17,492,905	-3.6
Worker equivalent	16.63	15.54	-6.6
Total tillable acres	1,413	1,468	3.9
<u>Rates of Production</u>			
Milk sold per cow, lbs.	24,023	23,105	-3.8
Butterfat per cow, lbs. <sup>3</sup>	874	832	-4.8
Protein per cow, lbs. <sup>3</sup>	718	671	-6.6
Hay DM per acre, tons	3.53	3.58	1.4
Corn silage per acre, tons	18.85	21.06	11.7
<u>Labor Efficiency &amp; Costs</u>			
Cows per worker	45	49	8.9
Milk sold/worker, lbs.	1,090,973	1,125,971	3.2
Hired labor cost/cwt.	\$2.78	\$2.91	4.7
Hired labor cost/hired worker	\$35,037	\$37,491	7.0
Hired labor cost as % of milk sales	20.1%	20.9%	4.0
<u>Cost Control</u>			
Grain & conconcentrate purchased as % of milk sales	29%	26%	-10.3
Grain & conconcentrate per cwt. milk	\$4.01	\$3.69	-8.0
Dairy feed & crop expense per cwt. milk	\$4.98	\$4.59	-7.8
Labor & machinery costs/cow	\$1,347	\$1,309	-2.8
Total farm operating costs per cwt. sold	\$14.55	\$13.83	-5.0
Interest costs per cwt. milk	\$0.78	\$0.83	6.4
Milk marketing costs per cwt. milk sold	\$0.77	\$0.71	-7.8
Operating cost of producing cwt. of milk	\$12.21	\$10.87	-11.0
Net milk income over purchased feed costs per cow	\$2,065	\$2,075	0.5
<u>Capital Efficiency</u> (average for the year)			
Farm capital per cow	\$7,351	\$7,448	1.3
Machinery & equipment per cow	\$1,233	\$1,274	3.3
Asset turnover ratio	0.57	0.55	-3.5
<u>Income Generation</u>			
Gross milk sales per cow	\$3,318	\$3,216	-3.1
Gross milk sales per cwt.	\$13.81	\$13.92	0.8
Net milk sales per cwt.	\$13.04	\$13.21	1.3
Dairy cattle sales per cow	\$272	\$334	22.8
Dairy calf sales per cow	\$71	\$66	-7.0
<u>Profitability</u>			
Net farm income without appreciation	\$68,667	\$331,360	382.6
Net farm income with appreciation	\$240,302	\$428,433	78.3
Labor & management income per operator/manager	\$-52,848	\$98,035	285.5
Rate of return on equity capital without appreciation	-1.0%	7.2%	820.0
Rate of return on all capital without appreciation	2.0%	6.9%	245.0
<u>Financial Summary</u>			
Farm net worth, end of year	\$3,315,209	\$3,472,636	4.8
Debt to asset ratio	0.42	0.41	-2.4
Farm debt per cow	\$3,086	\$3,060	-0.8

<sup>3</sup>Average of large herd dairy farms that provided this data.

**RECEIPTS AND EXPENSES PER COW AND PER HUNDREDWEIGHT**  
Same 16 Top 20% Large Herd Dairy Farms, 2005 & 2006

Item	2005		2006	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	715		757	
Cwt. of Milk Sold		164,843		174,929
<u>Accrual Operating Receipts</u>				
Milk	\$3,685	\$15.97	\$3,216	\$13.92
Dairy cattle	258	1.12	334	1.44
Dairy calves	70	0.30	66	0.29
Other livestock	2	0.01	8	0.03
Crops	54	0.24	174	0.75
Miscellaneous receipts	<u>150</u>	<u>0.65</u>	<u>187</u>	<u>0.81</u>
Total	\$4,220	\$18.29	\$3,985	\$17.25
<u>Accrual Operating Expenses</u>				
Hired labor	\$ 666	\$ 2.89	\$ 673	\$ 2.91
Dairy grain & concentrate	909	3.94	853	3.69
Dairy roughage	49	0.21	43	0.19
Nondairy feed	0	0.00	0	0.00
Professional nutritional services	2	0.01	0	0.00
Machine hire, rent & lease	46	0.20	56	0.24
Machine repair & vehicle expense	156	0.68	158	0.68
Fuel, oil & grease	105	0.45	120	0.52
Replacement livestock	37	0.16	18	0.08
Breeding	52	0.22	51	0.22
Veterinary & medicine	136	0.59	140	0.61
Milk marketing	163	0.71	165	0.71
Bedding	54	0.24	58	0.25
Milking supplies	71	0.31	69	0.30
Cattle lease	16	0.07	12	0.05
Custom boarding	35	0.15	39	0.17
bST expense	45	0.19	50	0.21
Livestock professional fees	8	0.04	8	0.03
Other livestock expense	18	0.08	17	0.07
Fertilizer & lime	76	0.33	64	0.28
Seeds & plants	51	0.22	50	0.22
Spray & other crop expense	38	0.17	43	0.19
Crop professional fees	8	0.03	7	0.03
Land, building & fence repair	56	0.24	48	0.21
Taxes	41	0.18	38	0.17
Real estate rent/lease	78	0.34	74	0.32
Insurance	30	0.13	29	0.13
Utilities	78	0.34	79	0.34
Interest paid	153	0.66	191	0.83
Other professional fees	23	0.10	16	0.07
Miscellaneous	19	0.08	27	0.12
Total Operating Expenses	\$3,220	\$13.96	\$3,196	\$13.83
Expansion livestock	11	0.05	83	0.36
Extraordinary Expense	1	0.01	1	0.00
Machinery depreciation	200	0.87	168	0.73
Real Estate depreciation	102	0.44	99	0.43
Total Expenses	\$3,534	\$15.33	\$3,547	\$15.35
Net Farm Income without appreciation	\$ 685	\$ 2.97	\$ 438	\$ 1.89

### **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** 24 Large Herd Dairy Farms, 2006

<u>Animals Entering Herd</u>	Average
Number calving in 2006 for first time	255
Animals purchased, % <sup>4</sup>	2.5
Animals raised by farm, % <sup>5</sup>	97.5
 <u>Current Heifer Inventory</u>	
Raised on dairy, %	89.5
Raised by a custom grower, %	10.5

<sup>4</sup>Animals purchased are animals purchased from a different farm and were not the farm's genetics.

<sup>5</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, 255 animals calved for the first time in 2006. The breakdown on the source of these animals was 2.5 percent purchased and 97.5 percent raised by the farm. Of the current heifer inventory, 89.5 percent were raised on the dairy and 10.5 percent were being raised by a custom grower. There is increased interest in evaluating the dairy replacement enterprise.

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

Starting January 1<sup>st</sup>, 2000, the northeast switched to multiple components pricing, which changed the format of the milk check and how farmers received payment for their milk. To examine the breakdown of the gross milk income and the marketing expenses, 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. For participating farms, the net farm price can be found on page 13 of the DFBS report.

The table on page 9 reports the averages for these different areas. The table on page 10 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<sup>6</sup> MILK INCOME AND MARKETING REPORT**  
74 Large Herd Dairy Farms, 2006

	Pounds	Percent	Price/Pound	Total	\$/Cwt of Milk
<b>BASE FARM PRICE</b>					
Butterfat	665,219.49	3.64%	\$ 1.33	\$ 881,971.66	\$ 4.83
Protein	546,528.81	2.99%	\$ 2.09	\$ 1,143,184.46	\$ 6.26
Solids	1,044,796.84	5.72%	\$ 0.17	\$ 181,223.46	\$ 0.99
<b>Total Component Contribution</b>					<b>\$ 12.08</b>
<b>PPD</b>	18,264,135.46			\$ 141,676.19	<b>\$ 0.78</b>
<b>Base Farm Price</b>					<b>\$ 12.86</b>
<b>Premiums</b>					
Quality				\$ 36,646.20	\$ 0.20
Volume				\$ 51,111.23	\$ 0.28
Market Premiums				\$ 69,400.76	\$ 0.38
<b>Total Premiums</b>					<b>\$ 0.86</b>
<b>BASE FARM PRICE + PREMIUM</b>					<b>\$ 13.72</b>
<b>Deductions</b>					
Promo				\$ 27,009.61	\$ 0.15
Hauling + Stop Charges.				\$ 94,171.86	\$ 0.52
Market Fees & Coop Dues				\$ 21,162.62	\$ 0.11
<b>Total Deductions</b>					<b>\$ 0.78</b>
<b>BASE FARM PRICE + PREMIUMS - DEDUCTIONS</b>					<b>\$ 12.94</b>
<b>Marketing Programs</b>					
Futures Contracts, Forward Contracting, Etc.				\$ 4,919.39	\$ 0.03
<b>Total Marketing Income</b>					<b>\$ 0.03</b>
<b>Patronage Dividends</b>				\$ 11,052.04	<b>\$ 0.06</b>
<b>NET PRICE RECEIVED ON FARM, ALL SOURCES</b>					<b>\$ 13.02</b>
<b>PPD - Hauling, per cwt., \$ per cwt.</b>					\$ 0.26
<b>PPD - Hauling + Market Premiums, per cwt., \$ per cwt.</b>					\$ 0.64
<b>Net Marketing Value (PPD + Total Premiums – Total Deductions), \$ per cwt.</b>					\$ 0.86

<sup>6</sup>Each calculation of an average is independent of all others. Therefore, math operations on the detail will not result in the totals. However, detail in the “\$/Cwt of Milk” column will result in the totals.

**MILK PRICE INFORMATION BY QUINTILE<sup>7</sup>**  
 (Each Category Sorted Independently)  
 74 Large Herd Dairy Farms, 2006

	Lowest Quintile	←	→	Highest Quintile	
Butterfat, %	3.52	3.62	3.67	3.71	3.91
Protein, %	2.91	2.97	3.01	3.05	3.16
Other Solids, %	5.64	5.72	5.74	5.77	5.84
Butterfat, \$ per Cwt.	4.66	4.80	4.87	4.93	5.18
Protein, \$ per Cwt.	6.09	6.22	6.31	6.38	6.58
Other solids, \$ per Cwt.	0.96	0.99	1.00	1.01	1.02
<b>Total Component Value per Cwt.</b>	<b>\$ 11.79</b>	<b>\$ 12.05</b>	<b>\$ 12.17</b>	<b>\$ 12.29</b>	<b>\$ 12.68</b>
PPD, \$ per Cwt.	0.57	0.62	0.70	0.86	1.22
<b>Base Farm Price per Cwt.</b>	<b>\$ 12.44</b>	<b>\$ 12.69</b>	<b>\$ 12.92</b>	<b>\$ 13.17</b>	<b>\$ 13.71</b>
Quality, \$ per Cwt.	0.03	0.13	0.19	0.25	0.39
Volume, \$ per Cwt.	0.00	0.17	0.29	0.40	0.68
Market premium, \$ per Cwt.	0.01	0.07	0.20	0.44	0.80
<b>Total Premium, \$ per Cwt.</b>	<b>0.42</b>	<b>0.65</b>	<b>0.80</b>	<b>0.95</b>	<b>1.17</b>
<b>Base Farm Price + Premiums per Cwt.</b>	<b>\$ 13.06</b>	<b>\$ 13.42</b>	<b>\$ 13.64</b>	<b>\$ 14.02</b>	<b>\$ 14.75</b>
Promotion, \$ per Cwt.	0.14	0.15	0.15	0.15	0.15
Hauling, \$ per Cwt.	0.32	0.40	0.46	0.58	0.94
Market fees & coop dues per Cwt.	0.03	0.06	0.10	0.14	0.24
<b>Total Marketing Expenses per Cwt.</b>	<b>\$ 0.54</b>	<b>\$ 0.65</b>	<b>\$ 0.73</b>	<b>\$ 0.84</b>	<b>\$ 1.23</b>
<b>Base + Premiums – Deductions per Cwt.</b>	<b>\$ 12.39</b>	<b>\$ 12.71</b>	<b>\$ 12.90</b>	<b>\$ 13.14</b>	<b>\$ 13.77</b>
Futures contract, forward contracting, \$ per Cwt.	0.00	0.00	0.00	0.00	0.23
<b>Total Marketing Income, \$ per Cwt.</b>	<b>\$ 0.00</b>	<b>\$ 0.00</b>	<b>\$ 0.00</b>	<b>\$ 0.00</b>	<b>\$ 0.23</b>
<b>Patronage Dividends, \$ per Cwt.</b>	<b>\$ 0.00</b>	<b>\$ 0.00</b>	<b>\$ 0.00</b>	<b>\$ 0.05</b>	<b>\$ 0.31</b>
<b>Net Price Received From All Sources, \$ per Cwt.</b>	<b>\$ 12.53</b>	<b>\$ 12.85</b>	<b>\$ 13.00</b>	<b>\$ 13.29</b>	<b>\$ 13.82</b>
<b>PPD – Hauling, \$ per cwt.</b>	<b>\$ 0.06</b>	<b>\$ 0.18</b>	<b>\$ 0.25</b>	<b>\$ 0.35</b>	<b>\$ 0.46</b>
<b>PPD – Hauling + Market Premiums, \$ per cwt.</b>	<b>\$ 0.14</b>	<b>\$ 0.27</b>	<b>\$ 0.50</b>	<b>\$ 0.76</b>	<b>\$ 1.13</b>
<b>Net Marketing Value (PPD + Total Premiums – Total Deductions), \$ per cwt.</b>	<b>\$ 0.36</b>	<b>\$ 0.64</b>	<b>\$ 0.79</b>	<b>\$ 0.96</b>	<b>\$ 1.23</b>

<sup>7</sup>Each calculation of an average is independent of all others. Therefore, math operations on the detail will not result in the totals.

## SUMMARY AND ANALYSIS OF THE FARM BUSINESS

### Business Characteristics

Planning the optimal management strategies is a crucial component of operating a successful farm. Various combinations of farm resources, enterprises, business arrangements, and management techniques are used by the dairy farmers in this region. The following table shows important farm business characteristics and the number of farms with each characteristic.

#### BUSINESS CHARACTERISTICS 82 Large Herd Dairy Farms, 2006

Type of Farm	Number	Type of Barn	Number
Dairy	82	Stanchion/Tie-Stall	0
Dairy – cash crop	0	Freestall	80
		Combination	2
Type of Ownership	Number	Milking System	Number
Owner	81	Pipeline	0
Renter	1	Herringbone Conventional	23
		Herringbone Rapid Exit	16
Type of Business	Number	Parallel	37
Single proprietorship	21	Parabone	1
Partnership	18	Rotary	1
Limited Liability Corporation	29	Other	4
Subchapter S Corporation	13		
Subchapter C Corporation	1		
Business Record System	Number	Milking Frequency	Number
Account Book	1	2x/day	20
Accounting Service	8	3x/day	58
On-Farm Computer	73	Other	4
Other	0		
BST Usage	Number	Production Records	Number
Used consistently	58	Testing Service	62
Used inconsistently	7	On-Farm System	17
Started Use in 2006	0	Other	0
Stopped Use in 2006	1	None	3
Not Used	16		
Average % bst usage of those reporting	41%	Breed	Percent
		Holstein	96
		Jersey	2
		Other	2

### Income Statement

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

Cash paid is the actual cash outlay during the year and does not necessarily represent the cost of goods and services actually used in 2006.

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**  
82 Large Herd Dairy Farms, 2006

Expense Item	Cash Paid	-      +	Change in Inventory or Prepaid Expense	+      -	Change in Accounts Payable	=	Accrual Expenses
<u>Hired Labor</u>	\$502,264		\$ -924		\$ 667		503,855
<u>Feed</u>							
Dairy grain & concentrate	655,308		-49,214		23,373		727,894
Dairy roughage	49,989		496		1,686		52,171
Nondairy	52		0		0		52
Professional nutritional services	405		4		3		405
<u>Machinery</u>							
Mach. hire, rent/lease	48,897		-117		2,060		51,075
Mach. rep. & farm veh. exp	124,191		-1,777		3,762		129,731
Fuel, oil & grease	95,777		-96		870		96,743
<u>Livestock</u>							
Replacement livestock	12,697		0		0		12,697
Breeding	40,291		109		369		40,551
Vet & medicine	119,853		-2,061		1,289		123,203
Milk marketing	139,915		0		84		139,999
Bedding	59,367		379		396		59,384
Milk supplies	58,046		-1,286		1,100		60,342
Cattle lease/rent	3,332		0		0		3,332
Custom boarding	59,276		-239		1,311		60,826
bST expense	42,905		271		-168		42,466
Livestock professional fees	8,901		-308		63		9,272
Other livestock expense	12,296		28		14		12,338
<u>Crops</u>							
Fertilizer & lime	43,214		-4,552		1,930		49,696
Seeds & plants	34,110		-5,528		-427		39,212
Spray, other crop exp.	26,358		-2,469		632		29,459
Crop professional fees	3,602		-385		256		4,243
<u>Real Estate</u>							
Land/bldg./fence repair	41,618		185		-60		41,373
Taxes	32,365		446		-181		31,738
Rent & lease	46,450		-700		825		47,974
<u>Other</u>							
Insurance	26,255		-511		117		26,883
Utilities (farm share)	66,982		-18		519		67,520
Interest paid	141,288		-239		484		142,010
Other professional fees	15,948		-13		268		16,229
Miscellaneous	<u>16,702</u>		<u>-110</u>		<u>-217</u>		<u>17,029</u>
Total Operating Expenses	\$ 2,528,652		\$ -69,679		\$ 41,460		\$2,639,791
Expansion livestock	\$ 40,164		\$ 0		\$ 98		\$ 40,262
Extraordinary expense	\$ 163		\$ 0		\$ 0		\$ 163
Machinery depreciation							\$ 127,304
Building depreciation							<u>\$ 94,043</u>
Total Accrual Expenses							<u>\$2,901,563</u>

Change in prepaid expenses (noted above by <<) is a net change in non-inventory expenses that have been paid in advance of their use. If 2006 funds used to prepay 2007 leases exceed the amount of 2006 leases prepaid in 2005, the amount of this excess is subtracted to exclude it from 2006 accrual lease expenses. The excess prepaid lease is charged against the future year's business operation. A decrease in prepaid lease is added to accrual expenses because it represents use of resources during this year that were paid for in past years.

Change in accounts payable: An increase in accounts payable from beginning to end of year is added when calculating accrual expenses because these expenses were incurred (resources used) in 2006 but not paid for. A decrease is subtracted because the resource was used before 2006.

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

**CASH AND ACCRUAL FARM RECEIPTS**  
82 Large Herd Dairy Farms, 2006

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts
Milk sales	\$2,513,198				\$-7,576		\$2,505,621
Dairy cattle	129,119		\$ 77,469		-801		205,788
Dairy calves	45,319		8,413		-73		53,659
Other livestock	5,221		979		49		6,248
Crops	24,567		45,617		-1,809		68,375
Government receipts	80,321		0 <sup>8</sup>		-707		79,613
Custom machine work	6,266				161		6,427
Gas tax refund	361				0		361
Other	<u>43,214</u>				<u>1,533</u>		44,747
Less nonfarm noncash cap.			<u>610<sup>9</sup></u>				<u>610</u>
Total Receipts	\$2,847,586		\$131,868		\$ -9,224		\$2,970,230

<sup>8</sup> Change in advanced government receipts.

<sup>9</sup> Gifts or inheritances of cattle or crops included in inventory

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

Changes in inventory of assets produced by the business are calculated by subtracting beginning of year values from end of year excluding appreciation. Increases in livestock inventory caused by herd growth and/or quality are added, and decreases caused by herd reduction and/or quality are subtracted. Changes in inventories of crops grown are also included. An annual increase in advanced government receipts is subtracted from cash income because it represents income received in 2006 for the 2007 crop year in excess of funds earned for 2006. Likewise, a decrease is added to cash government receipts because it represents funds earned for 2006 but received in 2005.

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

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

### Profitability Analysis

Farm operators<sup>10</sup> contribute labor, management, and equity capital to their businesses and the combination of these resources, and the other resources used in the business, determines profitability. Farm profitability can be measured as the return to all family resources or as the return to one or more individual resources such as labor and management.

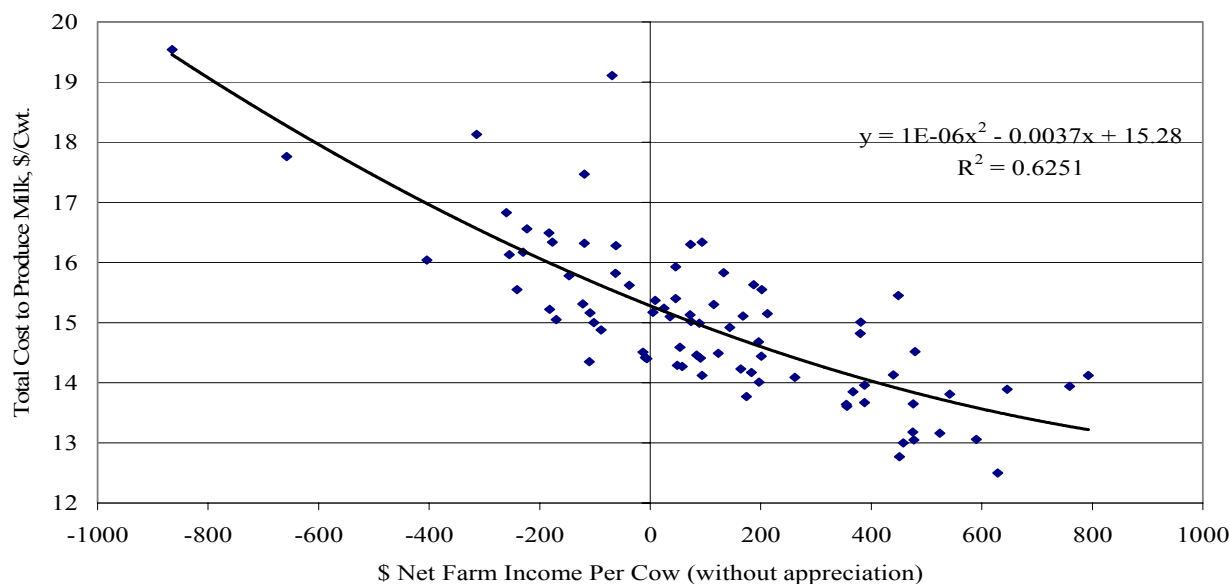
Net farm income is the return to the farm operators and other unpaid family members for their labor, management, and equity capital. It is the farm family's net annual return from working, managing, financing, and owning the farm business. This is not a measure of cash available from the year's business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

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

#### NET FARM INCOME 82 Large Herd Dairy Farms, 2006

Item	Average 82 Farms		Average Top 20% <sup>11</sup> Farms	
	Total	Per Cow	Total	Per Cow
Total accrual receipts	\$ 2,970,230		\$ 3,016,769	
Appreciation: Livestock	28,616		-13,823	
Machinery	32,031		44,902	
Real Estate	108,886		60,201	
Other Stock/Certificates	<u>2,102</u>		<u>5,794</u>	
Total Including Appreciation	\$ 3,141,865		\$ 3,113,842	
Total accrual expenses	<u>2,901,563</u>		<u>2,685,409</u>	
Net Farm Income (with appreciation)	\$ 240,302	\$318	\$ 428,433	\$566
Net Farm Income (w/o appreciation)	\$ 68,667	91	\$ 331,360	\$438

#### TOTAL COST TO PRODUCE MILK VS. NET FARM INCOME PER COW 82 Large Herd Dairy Farms, 2006



<sup>10</sup>Operators are the individuals who are integrally involved in the operation and management of the farm business. They are not limited to those who own the farm or are formal members of the partnership or corporation.

<sup>11</sup>Top 20% of large herd farms by rate of return on all assets without appreciation.

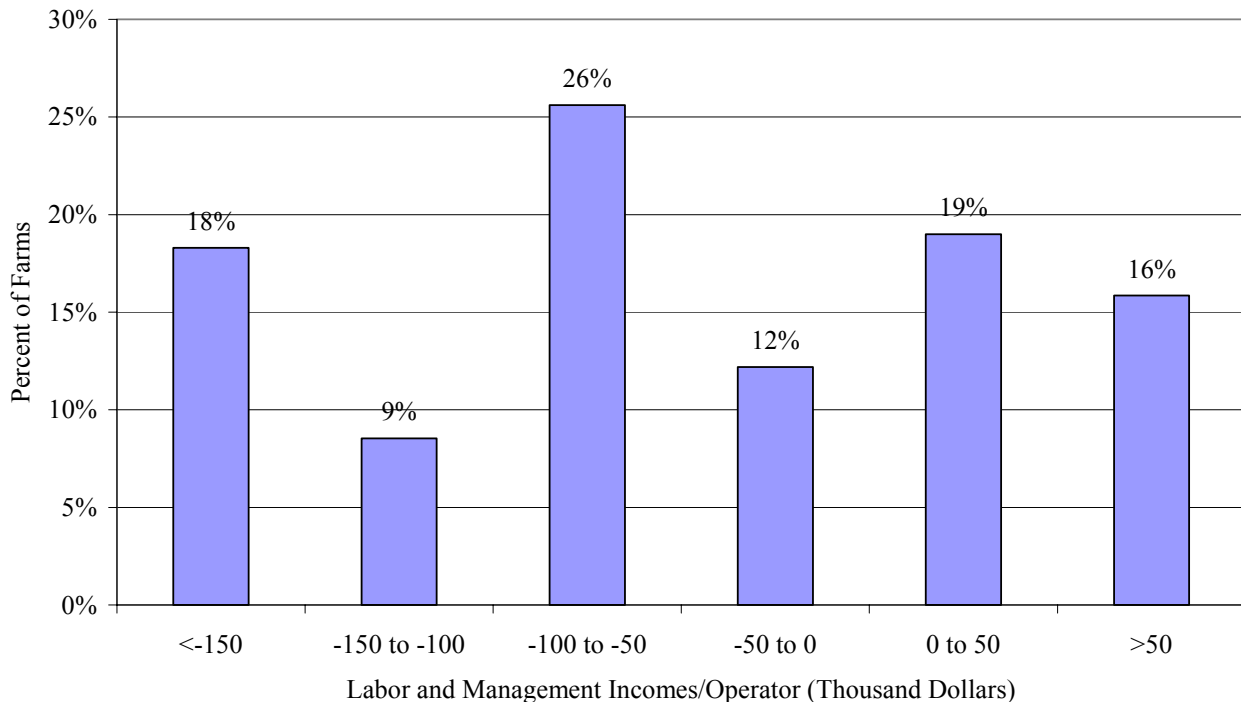
Labor and management income is the return which farm operators receive for their labor and management used in operating the farm business. Appreciation is not included as part of the return to labor and management because it results from ownership of assets rather than management of the farm business.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

**LABOR AND MANAGEMENT INCOME**  
82 Large Herd Dairy Farms, 2006

Item	Average 82 Farms	Average Top 20% Farms
Net farm income without appreciation	\$ 68,667	\$ 331,360
Family labor unpaid @ \$2,300 per month	- 3,400	- 3,464
Interest on \$3,292,444 (\$3,361,956 for top 20%) average equity capital @ 5% real rate	- 164,622	- 168,098
Labor & Management Income per Farm (1.88 operators/farm; 1.63 operators for top 20%)	\$ -99,355	\$ 159,798
Labor & Management Income per Operator/Manager	\$ -52,848	\$ 98,035

Labor and management income per operator averaged \$-52,848 on these 82 farms in 2006. Returns to labor and management were less than \$-100,000 on 27 percent of the farms. Labor and management income per operator ranged from \$-100,000 to \$0 on 38 percent of the farms while 35 percent showed labor and management incomes per operator greater than 0.

**DISTRIBUTION OF LABOR & MANAGEMENT INCOMES PER OPERATOR**  
82 Large Herd Dairy Farms, 2006



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

**RETURN ON EQUITY CAPITAL AND RETURN ON TOTAL CAPITAL**  
82 Large Herd Dairy Farms, 2006

Item	Average 82 Farms	Average Top 20% Farms
Net farm income with appreciation	\$ 240,302	\$ 428,433
Family labor unpaid @ \$2,300 per month	- 3,400	- 3,464
Value of operators' labor & management	- 99,241	- 86,350
Return on equity capital with appreciation	\$ 137,661	\$ 338,619
Interest paid	+ 142,010	+ 144,976
Return on total capital with appreciation	\$ 279,671	\$ 483,595
Return on equity capital without appreciation	\$ -33,974	\$ 241,545
Return on total capital without appreciation	\$ 108,036	\$ 386,522
Rate of return on average equity capital:		
with appreciation	4.2%	10.1 %
without appreciation	-1.0%	7.2 %
Rate of return on average total capital:		
with appreciation	5.0%	8.6 %
without appreciation	2.0%	6.9 %
Net farm income from operations ratio	0.02	0.11

**Farm and Family Financial Status**

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

Financial lease obligations are included in the balance sheet. The present value of all future payments is listed as a liability since the farmer is committed to make the payments by signing the lease. The present value is also listed as an asset, representing the future value the item has to the business. For 2006, leases were discounted by 8.15 percent.

Advanced government receipts are included as current liabilities. Government payments received in 2006 that are for participation in the 2007 program are the end year balance and payments received in 2005 for participation in the 2006 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.

**2006 FARM BUSINESS & NONFARM BALANCE SHEET**

82 Large Herd Dairy Farms, 2006

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$ 36,975	\$ 37,652	Accounts payable	\$ 76,198	\$ 117,755
Accounts receivable	184,255	175,031	Operating debt	119,341	146,489
Prepaid expenses	8,196	5,191	Short Term	2,817	9,890
Feed & supplies	568,471	547,414	Advanced govt. receipts	0	0
			Current Portion:		
			Intermediate	162,044	188,814
			Long Term	<u>43,616</u>	<u>49,000</u>
Total Current	\$ 797,897	\$ 765,288	Total Current	\$ 404,017	\$ 511,948
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy cows:			Structured debt		
owned	\$ 954,956	\$1,039,400	1-10 years	\$ 923,167	\$ 1,014,203
leased	2,590	1,915	Financial lease		
Heifers	563,980	593,963	(cattle/machinery)	4,948	5,009
Bulls/other livestock	5,463	6,514	Farm Credit stock	<u>15,290</u>	<u>8,394</u>
Mach./equipment owned	894,540	962,312	Total Intermediate	\$ 943,404	\$ 1,027,606
Mach./equipment leased	2,358	3,094			
Farm Credit stock	15,290	8,394			
Other stock/certificate	<u>142,317</u>	<u>153,412</u>			
Total Intermediate	\$2,581,494	\$2,769,004			
<u>Long Term</u>			<u>Long Term</u>		
Land/buildings:			Structured debt		
owned	\$1,987,532	\$2,182,366	>10 years	\$ 767,114	\$ 879,186
leased	<u>10,670</u>	<u>10,277</u>	Financial lease		
Total Long Term	\$1,998,202	\$2,192,643	(structures)	<u>10,670</u>	<u>10,277</u>
			Total Long Term	\$ 777,784	\$ 889,463
			Total Farm Liab.	\$2,125,205	\$ 2,429,018
Total Farm Assets	\$5,377,594	\$5,726,935	FARM NET WORTH	\$3,252,389	\$ 3,297,917

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

Assets	Jan. 1	Dec. 31	Liabilities & Net Worth	Jan. 1	Dec. 31
Personal cash, checking & savings	\$ 3,940	\$ 4,444	Nonfarm Liabilities	\$ 3242	\$ 2,704
Cash value life insurance	40,940	44,549			
Nonfarm real estate	233,866	246,991			
Auto (personal share)	6,709	6,941			
Stocks & bonds	83,096	97,892			
Household furnishings	6,016	6,078			
All other nonfarm assets	<u>6,471</u>	<u>56,953</u>			
Total Nonfarm Assets	\$ 381,037	\$ 463,848	NONFARM NET WORTH	\$ 377,795	\$ 461,144

Farm & Nonfarm Assets, Liabilities, and Net Worth<sup>12</sup>

	Jan. 1	Dec. 31
Total Assets	\$ 5,758,631	\$ 6,190,783
Total Liabilities	<u>2,128,447</u>	<u>2,431,722</u>
TOTAL FARM & NONFARM NET WORTH	\$ 3,630,184	\$ 3,759,061

<sup>12</sup>Assumes that average nonfarm assets and liabilities for the nonreporting farms were the same as for those reporting.

Balance sheet analysis involves examination of relative asset and debt levels for the business. Percent equity is calculated by dividing end of year net worth by end of year assets and multiplying by 100. The debt to asset ratio is compiled by dividing liabilities by assets. Low debt to asset ratios reflect business solvency and the potential capacity to borrow. Debt levels per productive unit represent old standards that are still useful if used with measures of cash flow and repayment ability.

**BALANCE SHEET ANALYSIS**  
82 Large Herd Dairy Farms, 2006

Item	Average 82 Farms	Average Top 20% Farms		
<u>Financial Ratios - Farm:</u>				
Percent equity	58%	59%		
Debt/asset ratio: total	0.42	0.41		
long-term	0.41	0.40		
intermediate/current	0.43	0.41		
Leverage Ratio	0.73	0.69		
Current Ratio	1.55	1.75		
Working Capital: \$270,632	as % of Total Expenses: 9%	\$344,667 13%		
<u>Farm Debt Analysis:</u>				
Accounts payable as % of total debt	5%	4%		
Long-term liabilities as a % of total debt	37%	38%		
Current & intermediate liabilities as a % of total debt	63%	62%		
Cost of term debt (weighted average)	6.7%	6.7%		
	<u>Average 82 Farms</u>	<u>Average Top 20% Farms</u>		
<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	\$ 3,086	\$ 3,572	\$ 3,060	\$ 3,256
Long-term debt	1,138	1,317	1,152	1,226
Long-term & intermediate	2,453	2,840	2,470	2,628
Intermediate & current debt	1,948	2,255	1,908	2,030

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**  
82 Large Herd Dairy Farms, 2006

Item	Average of 82 Farms	
	<u>Real Estate</u>	<u>Machinery &amp; Equipment</u>
Value beginning of year	\$ 1,987,532	\$ 894,540
Purchases	\$ 278,419 <sup>13</sup>	\$ 175,835
Gift/inheritance	+ 0	+ 0
Lost capital	- 94,280	
Sales	- 4,148	- 12,790
Depreciation	- 94,043	- 127,304
Net investment	= 85,947	= 35,741
Appreciation	+ 108,886	+ 32,031
Value end of year	\$ 2,182,366	\$ 962,312

<sup>13</sup> \$47,333 land and \$231,086 buildings and/or depreciable improvements.

**Statement of Owner Equity**

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

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

**STATEMENT OF OWNER EQUITY (RECONCILIATION)**  
82 Large Herd Dairy Farms, 2006

Item	Average 82 Farms		Average Top 20% Farms	
Beginning of year farm net worth		\$ 3,252,389		\$3,251,276
Net farm income w/o appreciation	\$ 68,667		\$ 331,360	
+ Nonfarm cash income	+ 6,948		+ 15,320	
- Personal withdrawals & family expenditures excluding nonfarm borrowings	- 126,538		- \$ 109,251	
Retained Earnings		+\$ -50,923		+ \$ 237,429
Nonfarm noncash transfers to farm	\$ 610		\$ 3,125	
+ Cash used in business from nonfarm capital	+ 22,455		+ 32,250	
- Note/mortgage from farm real estate sold (nonfarm)	- 0		- 0	
Contributed/Withdrawn Capital	=	+\$ 23,065	=	+ \$ 35,375
Appreciation	\$ 171,635		\$ 97,073	
- Lost capital	- 94,280		- 146,547	
Change in Valuation Equity		+\$ 77,355		+ \$ -49,474
Imbalance/Error		- 3,968		- 1,969
End of year farm net worth <sup>14</sup>		=\$ 3,297,918		=\$3,472,363
Change in net worth w/apprec.		\$ 45,529		\$ 221,361
<hr/>				
<u>Change in Net Worth</u>				
Without appreciation		\$ -126,106		\$ 124,288
With appreciation		\$ 45,529		\$ 221,361

<sup>14</sup>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**

82 Large Herd Dairy Farms, 2006

Item	Average 82 Farms	
<b><u>Cash Flow from Operating Activities</u></b>		
Cash farm receipts	\$ 2,847,586	
- Cash farm expenses	2,528,652	
- Extraordinary expense	163	
= Net cash farm income		\$ 318,771
Personal withdrawals/family expenses including nonfarm debt payments	\$ 127,502	
- Nonfarm income	6,948	
- Net cash withdrawals from the farm		\$ 120,554
= Net Provided by Operating Activities		\$ 198,217
<b><u>Cash Flow From Investing Activities</u></b>		
Sale of Assets: Machinery	\$ 12,790	
+ real estate	4,148	
+ other stock/cert.	4,495	
= Total asset sales		\$ 21,432
Capital purchases: expansion livestock	\$ 40,164	
+ machinery	175,835	
+ real estate	278,419	
+ other stock/cert.	13,487	
- Total invested in farm assets		\$ 507,905
= Net Provided by Investment Activities		\$ -486,473
<b><u>Cash Flow From Financing Activities</u></b>		
Money borrowed (inter. & long term)	\$ 450,705	
+ Money borrowed (short-term)	12,611	
+ Increase in operating debt	27,147	
+ Cash from nonfarm cap. used in business	22,455	
+ Money borrowed - nonfarm	963	
= Cash inflow from financing		\$ 513,882
Principal payments (inter. & long-term)	\$ 215,443	
+ Principal payments (short-term)	5,538	
+ Decrease in operating debt	0	
- Cash outflow for financing		\$ 220,981
= Net Provided by Financing Activities		\$ 292,900
<b><u>Cash Flow From Business</u></b>		
Beginning farm cash, checking & savings		\$ 36,975
- Ending farm cash, checking & savings		37,652
= Net Provided from Reserves		\$ -677
<b><u>Imbalance (error)</u></b>		<b>\$ 3,968</b>

**ANNUAL CASH FLOW STATEMENT**  
16 Top 20% Large Herd Dairy Farms, 2006

Item	Average Top 20% Farms	
<u>Cash Flow from Operating Activities</u>		
Cash farm receipts	\$2,770,456	
- Cash farm expenses	2,319,955	
- Extraordinary expense	<u>750</u>	
= Net cash farm income		\$ 449,751
Personal withdrawals/family expenses including nonfarm debt payments	\$ 109,251	
- Nonfarm income	<u>15,320</u>	
- Net cash withdrawals from the farm		<u>\$ 93,931</u>
= Net Provided by Operating Activities		\$ 355,820
<u>Cash Flow From Investing Activities</u>		
Sale of Assets: Machinery	\$ 3,339	
+ real estate	14,279	
+ other stock/cert.	<u>2,273</u>	
= Total asset sales		\$ 19,892
Capital purchases: expansion livestock	\$ 62,911	
+ machinery	147,499	
+ real estate	366,883	
+ other stock/cert.	<u>17,330</u>	
- Total invested in farm assets		<u>\$ 594,623</u>
= Net Provided by Investment Activities		\$ -574,731
<u>Cash Flow From Financing Activities</u>		
Money borrowed (inter. & long term)	\$ 503,292	
+ Money borrowed (short-term)	33,958	
+ Increase in operating debt	0	
+ Cash from nonfarm cap. used in business	32,250	
+ Money borrowed - nonfarm	<u>0</u>	
= Cash inflow from financing		\$ 569,499
Principal payments (inter. & long-term)	\$ 312,912	
+ Principal payments (short-term)	9,720	
+ Decrease in operating debt	<u>12,175</u>	
- Cash outflow for financing		<u>\$ 334,808</u>
= Net Provided by Financing Activities		\$ 234,692
<u>Cash Flow From Business</u>		
Beginning farm cash, checking & savings	\$ 24,367	
- Ending farm cash, checking & savings	<u>38,178</u>	
= Net Provided from Reserves		\$ -13,812
<u>Imbalance (error)</u>		\$ 1,969

## 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 2007. The cash flow projection worksheet on the next page can be used to estimate repayment ability, which can then be compared to planned 2007 debt payments shown below.

### FARM DEBT PAYMENTS PLANNED

Large Herd Dairy Farms, 2005 & 2006

Debt Payments	Same 79 Dairy Farms			Same 16 Top 20% Farms		
	2006 Payments		Planned 2007	2006 Payments		Planned 2007
	Planned	Made		Planned	Made	
Long-term	\$ 105,895	\$ 115,889	\$ 115,700	\$ 112,945	\$ 165,744	\$ 128,186
Intermediate-term	243,462	240,652	252,863	236,499	284,184	269,605
Short-term	4,408	5,906	6,400	5,822	10,183	21,376
Operating (net reduction)	12,579	19,260	14,777	26,191	38,082	21,217
Accounts payable (net reduction)	<u>0</u>	<u>1,498</u>	<u>1,090</u>	<u>0</u>	<u>0</u>	<u>625</u>
Total	\$ 366,344	\$ 383,206	\$ 390,830	\$ 381,457	\$ 498,192	\$ 441,010
Per cow	\$ 478	\$ 500		\$ 504	\$ 658	
Per cwt. 2006 milk	\$ 2	\$ 2		\$ 2	\$ 3	
Percent of total 2006 receipts	13%	13%		14%	17%	
Percent of 2006 milk receipts	14%	15%		16%	20%	

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 2006 (as of December 31, 2005) that could have been made with the amount available for debt service in 2006. Farmers who did not participate in DFBS in 2005 have their 2006 cash flow coverage ratio based on planned debt payments for 2007.

### COVERAGE RATIOS

Same 79 Large Herd Dairy Farms, 2005 & 2006

Item	Average	Item	Average
<u>Cash Flow Coverage Ratio</u>		<u>Debt Coverage Ratio</u>	
Cash farm receipts	\$ 2,886,151	Net farm income (w/o apprec.)	\$ 68,605
- Cash farm expenses	2,558,458	+ Depreciation	225,297
+ Interest paid (cash)	142,879	+ Interest paid (accrual)	143,629
- Net personal withdrawals from farm <sup>15</sup>	<u>121,075</u>	- Net personal withdrawals from farm <sup>15</sup>	<u>121,075</u>
(A) = Amount Available for Debt Service	\$ 349,498	(A') = Repayment Capacity	\$ 316,455
(B) = Debt Payments Planned for 2006 (as of December 31, 2005)	\$ 366,344	(B) = Debt Payments Planned for 2006 (as of December 31, 2005)	\$ 366,344
(A/B) = Cash Flow Coverage Ratio for 2006	.95	(A'/B) = Debt Coverage Ratio for 2006	.86

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Same 16 Top 20% Dairy Farms, 2005 & 2006

(A) = Amount Available for Debt Service	\$ 499,535	(A') = Repayment Capacity	\$ 584,258
(B) = Debt Payments Planned for 2006	381,457	(B) = Debt Payments Planned for 2006	381,457
(A/B) = Cash Flow Coverage Ratio for 2006	1.31	(A'/B) = Debt Coverage Ratio for 2006	1.53

<sup>15</sup>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**  
82 Large Herd Dairy Farms, 2006

Item	Average 82 Farms		Total
	Per Cow	Per Cwt.	
Number cows and cwt. Milk	755	181,438	
<u>Accrual Operating Receipts</u>			
Milk	\$3,318	\$13.81	\$2,505,621
Dairy cattle	272	1.13	205,788
Dairy calves	71	0.30	53,659
Other livestock	8	0.03	6,248
Crops	91	0.38	68,375
Misc. receipts	<u>173</u>	<u>0.72</u>	<u>130,539</u>
Total	\$3,933	\$16.37	\$2,970,230
<u>Accrual Operating Expenses</u>			
Hired labor	\$ 667	\$ 2.78	\$ 503,855
Dairy grain & concentrate	964	4.01	727,894
Dairy roughage	69	0.29	52,171
Nondairy feed	0	0.00	52
Professional nutritional services	1	0.00	405
Machinery hire/rent/lease	68	0.28	51,075
Machinery repair & farm vehicle expense	172	0.72	129,731
Fuel, oil & grease	128	0.53	96,743
Replacement livestock	17	0.07	12,697
Breeding	54	0.22	40,551
Veterinary & medicine	163	0.68	123,203
Milk marketing	185	0.77	139,999
Bedding	79	0.33	59,384
Milking supplies	80	0.33	60,432
Cattle lease	4	0.02	3,332
Custom boarding	81	0.34	60,826
bST expense	56	0.23	42,466
Livestock professional fees	12	0.05	9,272
Other livestock expense	16	0.07	12,338
Fertilizer & lime	66	0.27	49,696
Seeds & plants	52	0.22	39,212
Spray/other crop expenses	39	0.16	29,459
Crop professional fees	6	0.02	4,243
Land, building, fence repair	55	0.23	41,373
Taxes	42	0.17	31,738
Real estate rent/lease	64	0.26	47,974
Insurance	36	0.15	26,883
Utilities	89	0.37	67,520
Other professional fees	21	0.09	16,229
Miscellaneous	<u>23</u>	<u>0.09</u>	<u>17,029</u>
Total Less Interest Paid	\$3,307	\$13.77	\$2,497,781
<u>Net Accrual Operating Income</u>			
(without interest paid)	\$ 626	\$ 2.60	\$ 472,449
- Change in livestock/crop inventory <sup>16</sup>	175	0.73	131,868
- Change in accounts receivable	-12	-0.05	-9,224
- Change in feed/supply inventory <sup>17</sup>	-92	-0.38	-69,679
+ Change in accounts payable <sup>18</sup>	<u>54</u>	<u>0.23</u>	<u>40,976</u>
NET CASH FLOW	\$ 610	\$ 2.54	\$ 460,461
- Net personal withdrawals from farm (see footnote on p. 22)	<u>157</u>	<u>0.66</u>	<u>118,845</u>
Available for Farm Debt Payments & Investments	\$ 452	\$ 1.88	\$ 341,616
- Farm debt payments	<u>503</u>	<u>2.09</u>	<u>379,910</u>
Available for Farm Investment	\$ -51	\$ -0.21	\$ -38,294
- Capital purchases: cattle, machinery & improvements	<u>672</u>	<u>2.80</u>	<u>507,905</u>
Additional Capital Needed	\$ 723	\$ 3.01	\$ 546,199

<sup>16</sup>Includes change in advance government receipts.

<sup>17</sup>Includes change in prepaid expenses.

<sup>18</sup>Excludes change in interest account payable.

**ANNUAL CASH FLOW WORKSHEET**  
16 Top 20% Large Herd Dairy Farms, 2006

Item	Average Top 20% Farms		
	Per Cow	Per Cwt.	Total
No. cows or cwt. milk	757	174,929	
<u>Accrual Operating Receipts</u>			
Milk	\$3,216	\$13.92	\$2,435,215
Dairy cattle	334	1.44	252,591
Dairy calves	66	0.29	50,108
Other livestock	8	0.03	5,780
Crops	174	0.75	131,822
Misc. receipts	<u>187</u>	<u>0.81</u>	<u>141,253</u>
Total	\$3,985	\$17.25	\$3,016,769
<u>Accrual Operating Expenses</u>			
Hired labor	\$ 673	\$ 2.91	\$ 509,478
Dairy grain & concentrate	853	3.69	646,040
Dairy roughage	43	0.19	32,614
Nondairy feed	0	0.00	185
Professional nutritional services	0	0.00	251
Mach. hire/rent/lease	56	0.24	42,375
Mach. repair & farm vehicle expense	158	0.68	119,387
Fuel, oil & grease	120	0.52	90,761
Replacement livestock	18	0.08	13,886
Breeding	51	0.22	38,465
Vet & medicine	140	0.61	106,145
Milk marketing	165	0.71	125,045
Bedding	58	0.25	43,985
Milking supplies	69	0.30	52,159
Cattle lease	12	0.05	9,142
Custom boarding	39	0.17	29,242
bST expense	50	0.21	37,492
Livestock professional fees	8	0.03	5,713
Other livestock expense	17	0.07	12,539
Fertilizer & lime	64	0.28	48,255
Seeds & plants	50	0.22	37,951
Spray/other crop expenses	43	0.19	32,650
Crop professional fees	7	0.03	5,534
Land, building, fence repair	48	0.21	36,380
Taxes	38	0.17	29,086
Real estate rent/lease	74	0.32	55,695
Insurance	29	0.13	21,946
Utilities	79	0.34	59,966
Other professional fees	16	0.07	11,913
Miscellaneous	<u>27</u>	<u>0.12</u>	<u>20,665</u>
Total Less Interest Paid	\$3,005	\$13.00	\$2,274,944
<u>Net Accrual Operating Income</u>			
(without interest paid)	\$ 980	\$ 4.24	\$ 741,825
- Change in livestock/crop inventory <sup>19</sup>	325	1.41	245,925
- Change in accounts receivable	1	0.00	388
- Change in feed/supply inventory <sup>20</sup>	-72	-0.31	-54,732
+ Change in accounts payable <sup>21</sup>	<u>57</u>	<u>0.25</u>	<u>43,196</u>
NET CASH FLOW	\$ 784	\$ 3.39	\$ 593,441
- Net personal withdrawals from farm(see footnote p.22)	<u>124</u>	<u>0.54</u>	<u>93,906</u>
Available for Farm Debt Payments & Investments	\$ 660	\$ 2.86	\$ 499,535
- Farm debt payments	<u>658</u>	<u>2.85</u>	<u>498,193</u>
Available for Farm Investment	\$ 2	\$ 0.01	\$ 1,343
- Capital purchases: cattle, machinery & improvements	<u>785</u>	<u>3.40</u>	<u>594,623</u>
Additional Capital Needed	\$ 783	\$ 3.39	\$ 593,280

<sup>19</sup>Includes change in advance government receipts.

<sup>20</sup>Includes change in prepaid expenses.

<sup>21</sup>Excludes change in interest account payable.

**Cropping Analysis**

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

**LAND RESOURCES AND CROP PRODUCTION**

82 Large Herd Dairy Farms, 2006

Item	Average 82 Farms			Average Top 20% Farms		
	Owned	Rented	Total	Owned	Rented	Total
Land						
Tillable	675	738	1,413	736	733	1,468
Nontillable	35	14	49	35	36	72
Other nontillable	216	7	223	216	0	216
Total	926	759	1,685	987	769	1,756
<b>Crop Yields</b>	<b>Farms</b>	<b>Acres<sup>22</sup></b>	<b>Prod/Acre</b>	<b>Farms</b>	<b>Acres</b>	<b>Prod/Acre</b>
Hay crop	80	692	3.53 tn DM	16	677	3.58 tn DM
Corn silage	77	577	18.85 tn	15	470	21.06 tn
Other forage	6	134	1.24 tn DM	2	282	1.08 tn DM
Total forage	80	1,258	4.78 tn DM	16	1,153	4.92 tn DM
Corn grain	41	222	144 bu	14	251	140 bu
Oats	5	57	71 bu	3	52	69 bu
Wheat	10	72	71 bu	4	54	63 bu
Other crops	30	104		8	137	
Tillable pasture	5	57		0	0	
Idle tillable	22	96		3	24	
Total Tillable Acres	82	1,413		16	1,468	

<sup>22</sup>This column represents the average acreage for the farms producing that crop. Average acreages including those farms not producing were corn grain 111, oats 3, wheat 9, tillable pasture 3 and idle 26.

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**80 Large Herd Dairy Farms, 2006 <sup>23</sup>

Item	Average 80 Farms	Average Top 20% Farms
Total tillable acres per cow	1.91	1.94
Total forage acres per cow	1.66	1.52
Harvested forage dry matter, tons per cow	7.94	7.49

<sup>23</sup> Excludes farms that do not harvest forages.

**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 one farm.

**CROP RELATED ACCRUAL EXPENSES**

Large Herd Dairy Farms Reporting, 2006

Item	Total	All	Corn Silage	Corn Grain	Hay Crop	
	Per Till. Acre	Corn Per Acre	Per Ton DM	Per Dry Sh. Bu.	Per Acre	Per Ton DM
No. of farms reporting	80 <sup>24</sup>	12			12	
Ave. number of acres	1,444	592			623	
Fertilizer/lime	\$ 36.26	\$ 41.55	\$ 6.85	\$ 0.18	\$ 21.19	\$ 7.35
Seed/plants	26.63	45.50	7.40	0.20	14.67	5.21
Spray/other crop exp.	20.06	46.70	8.02	0.17	4.18	1.23
TOTAL	\$ 82.95	\$ 133.75	\$ 22.27	\$ 0.55	\$ 40.04	\$ 13.79

Average Top 20% Farms:

No. of farms reporting	16 <sup>24</sup>
Ave. number of acres	1,468
Fertilizer/lime	\$ 37.69
Seeds/plants	25.05
Spray/other crop exp.	21.15
TOTAL	\$ 83.89

<sup>24</sup> Excludes farms that do not harvest forages.

Most machinery costs are associated with crop production with crop production and should be analyzed with the crop enterprise. Total machinery expenses include the major fixed costs (interest and depreciation), as well as the accrual operating costs. Although machinery costs have not been allocated to individual crops, they are shown below per total tillable acre.

**ACCRUAL MACHINERY EXPENSES**<sup>25</sup>

80 Large Herd Dairy Farms, 2006

Machinery Expense Item	Average 80 Farms		Average Top 20% Farms	
	Total Expenses	Per Till. Acre	Total Expenses	Per Till. Acre
Fuel, oil & grease	\$ 98,041	\$ 67.89	\$ 90,761	\$ 61.81
Mach. repairs & farm veh. exp.	130,927	90.66	119,387	81.31
Machine hire, rent & lease	50,087	34.68	42,375	28.86
Interest (5%)	47,068	32.59	48,236	32.85
Depreciation	128,382	88.90	127,042	86.52
Total	\$ 454,505	\$ 314.72	\$ 427,802	\$ 291.35

<sup>25</sup> Excludes farms that do not harvest forages.

**Dairy Analysis**

Analysis of the dairy enterprise can reveal a great deal about the strengths and weaknesses of the dairy farm business. Information on the following pages 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 14 through 16.

**Dairy Analysis** (continued)

**DAIRY HERD INVENTORY**  
82 Large Herd Dairy Farms, 2006

Item	Dairy Cows				Heifers		Calves	
	No.	Value	No.	Bred Value	No.	Open Value	No.	Value
<u>Average 82 Farms:</u>								
Beginning year (owned)	722	\$ 954,956	223	\$ 299,978	194	\$169,069	177	\$ 94,933
+ Change w/o apprec.		66,223		1,135		10,111		8,413
+ Appreciation		<u>18,221</u>		<u>5,150</u>		<u>3,197</u>		<u>1,976</u>
End year (owned)	770	\$1,039,400	223	\$ 306,264	206	\$182,377	190	\$105,322
End including leased	782							
Average number	755		609 (all age groups)					
<u>Average Top 20% Farms:</u>								
Beginning year (owned)	700	\$ 932,728	218	\$ 301,248	162	\$144,237	202	\$116,460
+ Change w/o apprec.		96,736		19,461		20,433		5,839
+ Appreciation		<u>-2,025</u>		<u>-2,044</u>		<u>-6,291</u>		<u>-3,548</u>
End of year (owned)	764	\$1,027,439	230	\$ 318,666	180	\$158,379	210	\$118,751
End including leased	782							
Average number	757		602 (all age groups)					

Total milk sold and milk sold per cow along with components produced 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**  
82 Large Herd Dairy Farms, 2006

Item	Average 82 Farms	Average Top 20% Farms
Total milk sold, lbs.	18,143,792	17,492,905
Milk sold per cow, lbs.	24,023	23,105
Butterfat per cow, lbs.	874 <sup>26</sup>	832
Protein per cow, lbs.	718 <sup>26</sup>	671
Other solids per cow, lbs.	1,373 <sup>26</sup>	1,287
Total components per cow, lbs.	2,965 <sup>26</sup>	2,790

<sup>26</sup> This data is an average for the 74 farms that provided the data.

**ANIMALS LEAVING THE HERD**  
82 Large Herd Dairy Farms, 2006

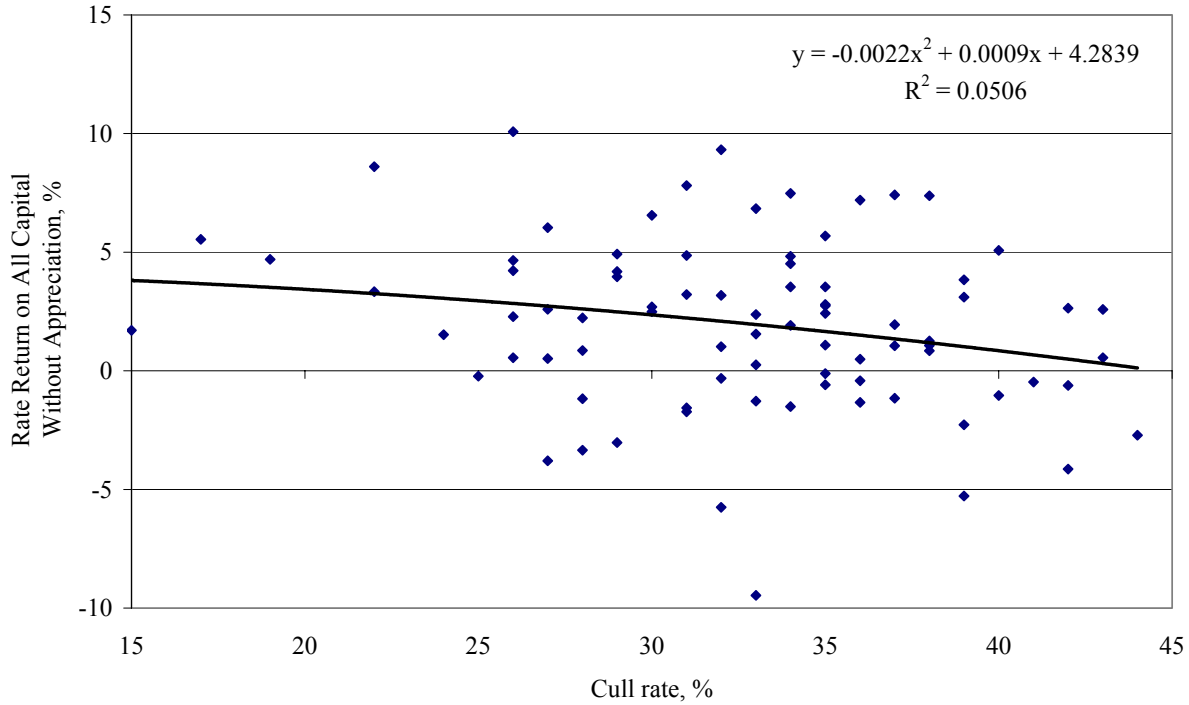
Item	Average 82 Farms		Average Top 20% Farms	
	Number	Percent <sup>27</sup>	Number	Percent <sup>27</sup>
Cows sold for beef	198	26.2	186	24.5
Cows sold for dairy	4	0.5	0	0.0
Cows died	49	6.5	52	6.9
Culling rate <sup>28</sup>	---	32.7	---	31.5

<sup>27</sup>Percent of average number of cows in the herd.

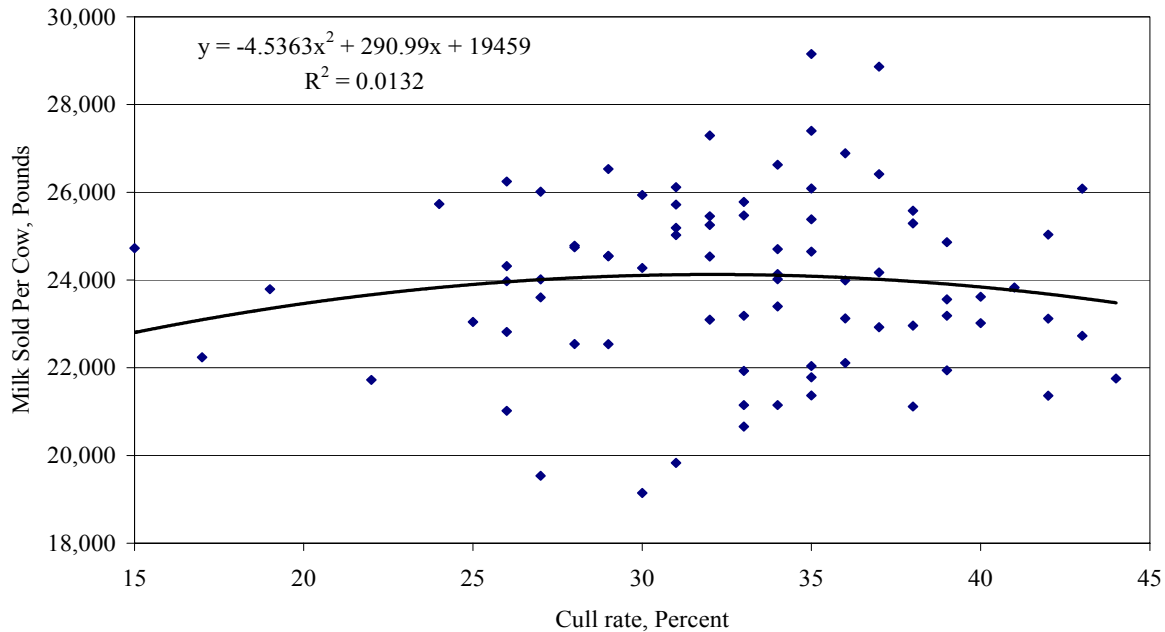
<sup>28</sup>Cows sold for beef plus cows died.

Cull rate measures the turnover of cows within the dairy herd and is comprised of both animals that die on the farm and animals that are sold as beef. Cull rates are impacted by the herd management skills of the farm owners and where the business is in terms of growth cycles and cow life cycles. The following two charts look at the relationship between percent cull rates, milk production and profit levels. There is no significant relationship between cull rate and these two measures for 2006. A curvilinear relationship has existed in prior years.

**RETURN TO ALL CAPITAL WITHOUT APPRECIATION VERSUS CULL RATE**  
82 Large Herd Dairy Farms, 2006



**MILK SOLD PER COW VERSUS CULL RATE**  
82 Large Herd Dairy Farms, 2006



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

### ACCRUAL RECEIPTS FROM DAIRY AND COST OF PRODUCING MILK

82 Large Herd Dairy Farms, 2006

Item	Average 82 Farms			Average Top 20% Farms		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
<u>Accrual Costs of Producing Milk</u>						
Operating costs	\$ 2,215,444	\$ 2,933	\$12.21	\$ 1,901,278	\$ 2,511	\$ 10.87
Purchased inputs costs	\$ 2,436,954	\$ 3,227	\$13.43	\$ 2,103,855	\$ 2,779	\$ 12.03
Total Costs	\$ 2,704,218	\$ 3,581	\$14.90	\$ 2,361,767	\$ 3,119	\$ 13.50
<u>Accrual Receipts From Milk</u>						
Net Milk Receipts	\$ 2,505,621	\$ 3,318	\$13.81	\$ 3,435,215	\$ 3,216	\$ 13.92
Net Farm Income w/o appreciation	\$ 2,365,622	\$ 3,098	\$13.04	\$ 2,310,170	\$ 2,971	\$ 13.21
Net Farm Income with appreciation	\$ 68,667	\$ 91	\$0.38	\$ 331,360	\$ 438	\$ 1.89
	\$ 240,302	\$ 318	\$1.32	\$ 428,433	\$ 566	\$ 2.45

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

### DAIRY RELATED ACCRUAL EXPENSES

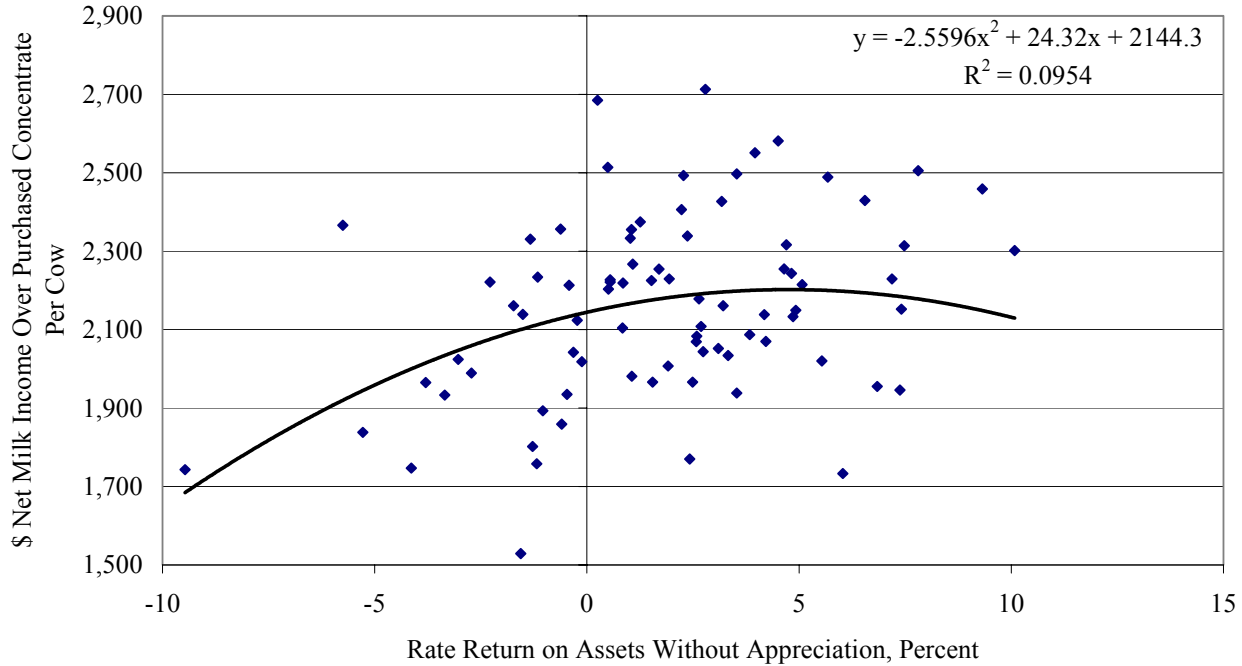
82 Large Herd Dairy Farms, 2006

Item	Average 82 Farms		Average Top 20% Farms	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	\$ 964	\$4.01	\$ 853	\$ 3.69
Purchased dairy roughage	69	0.29	43	0.19
Total Purchased Dairy Feed	\$ 1,033	\$4.30	\$ 896	\$ 3.88
Purchased grain & concentrate as % of milk receipts		29%		26 %
Purchased feed & crop expense	\$ 1,195	\$4.98	\$ 1,061	\$ 4.59
Purchased feed & crop expense as % of milk receipts		36%		34 %
Breeding	\$ 54	\$0.22	\$ 51	\$ 0.22
Veterinary & medicine	163	0.68	140	0.61
Milk marketing	185	0.77	165	0.71
Bedding	79	0.33	58	0.25
Milking supplies	80	0.33	69	0.30
Cattle lease	4	0.02	12	0.05
Custom boarding	81	0.34	39	0.17
bST expense	56	0.23	50	0.21
Livestock professional fees	12	0.05	8	0.03
Other livestock expenses	16	0.07	17	0.07

Net milk income over purchased concentrates per cow is a measure that incorporates the cost of purchased feed along with the milk produced per cow and the price received for the component production. It is one of the key measures used to evaluate the effectiveness of the feeding program. Below is the relationship between net milk income over purchased concentrates and return on assets without appreciation.

**NET MILK INCOME OVER PURCHASED CONCENTRATE PER COW VERSUS  
RETURN ON ASSETS**

82 Large Herd Dairy Farms, 2006



With the change to component milk pricing in 2000, component production has become a focus point for dairy managers. The table below examines the relationship between net milk income over feed cost and cost, price, and milk composition characteristics. The table and charts on page 32 and 33 present costs of producing milk and profitability on the basis of butterfat and protein produced.

**COMPONENT PRODUCTION AND COSTS PER CWT BY NET MILK  
INCOME OVER PURCHASED GRAIN AND CONCENTRATE PER COW**

82 Large Herd Dairy Farms, 2006

Net Milk Income Over Purchased Grain & Concentrate Per Cow	Milk Production Per Cow	Butterfat pounds Per Cow	Protein Pounds Per Cow	Purchased Feed Costs Per Cwt.	Operating Cost of Producing Milk	Net Milk Price Per Cwt.
\$ 2,559	26,577	989	\$ 819	\$ 4.16	\$ 12.15	\$ 13.42
2,390	25,341	907	751	4.04	12.18	12.90
2,297	24,544	908	739	4.04	11.76	13.02
2,229	25,127	919	751	4.16	11.73	12.98
2,188	24,347	894	736	4.19	11.98	13.11
2,123	24,123	880	717	4.37	12.04	12.92
2,052	22,638	836	684	4.21	12.25	13.16
1,989	22,335	805	669	4.11	12.20	12.91
1,912	22,517	824	672	4.60	12.47	12.91
1,672	19,217	731	588	4.88	12.41	13.33

**Cost of Producing Milk**

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

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

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

Item	82 Large Herd Dairy Farms, 2006		Average Top 20% Farms	
	Average 82 Farms		Average Top 20% Farms	
Total Accrual Operating Expenses	\$	2,639,791	\$	2,419,920
Expansion Livestock, Accrual	+	<u>40,262</u>	+	<u>62,912</u>
1. Total Accrual Operating Expenses, Including Expansion Livestock		\$ 2,680,053		\$ 2,482,832
Total Accrual Receipts	\$	2,970,230	\$	3,016,769
Milk Sales, Accrual	-	<u>2,505,621</u>	-	<u>2,435,215</u>
2. Total Accrual Nonmilk Receipts		- 464,609		- 581,554
3. Operating Costs of Producing Milk		\$ 2,215,444		\$ 1,901,278
Cwt. of Milk Sold	÷	181,438	÷	174,929
Operating Costs/Cwt.	=	\$12.21	=	\$10.87
Machinery Depreciation	+	127,304	+	127,042
Building Depreciation	+	94,043	+	74,785
Extraordinary Expenses	+	<u>163</u>	+	<u>750</u>
4. Purchased Inputs Cost of Producing Milk		\$ 2,436,954		\$ 2,103,855
Cwt. of Milk Sold	÷	181,438	÷	174,929
Purchased Inputs Cost/Cwt.	=	\$13.43	=	\$12.03
Family Labor Unpaid (\$2,300/month)	+	3,400	+	3,464
Real Interest on Equity Capital	+	164,622	+	168,098
Value of Operators' Labor & Management	+	<u>99,242</u>	+	<u>86,350</u>
5. Total Costs of Producing Milk		\$ 2,704,218		\$ 2,361,767
Cwt. Milk Sold	÷	181,438	÷	174,929
Total Costs/Cwt.	=	\$14.90	=	\$13.50

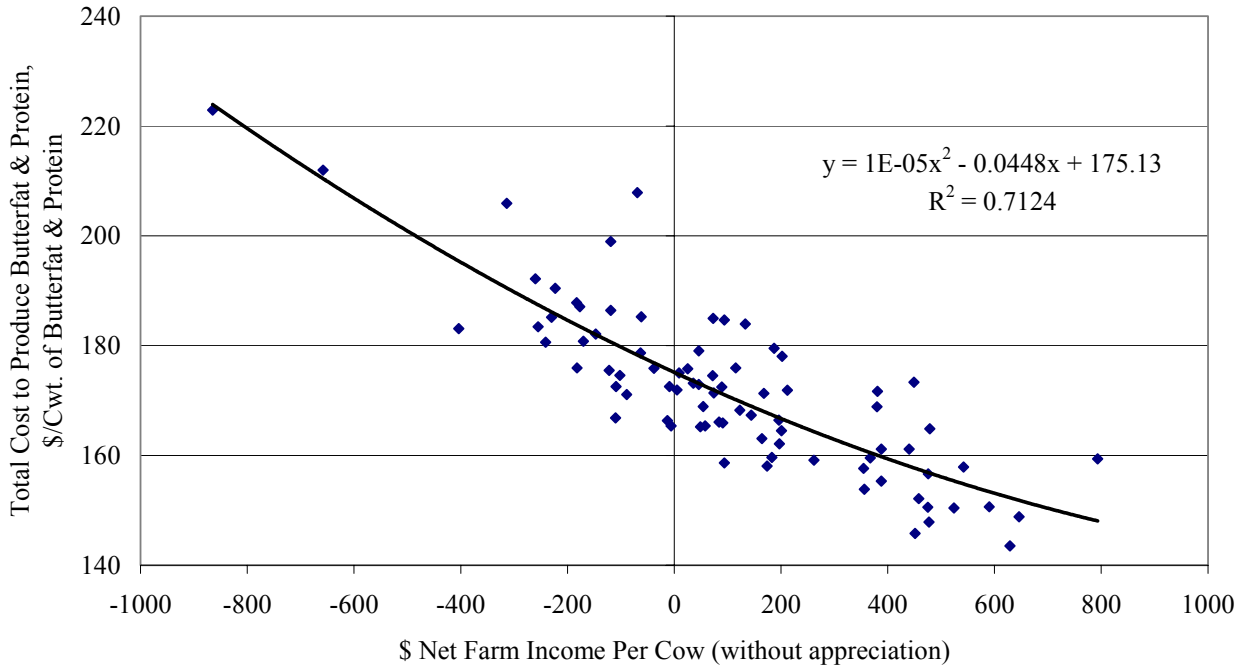
**RECEIPTS AND EXPENSES PER HUNDREDWEIGHT OF BUTTERFAT AND PROTEIN<sup>29</sup>**

Same 69 Large Herd Dairy Farms, 2005 &amp; 2006

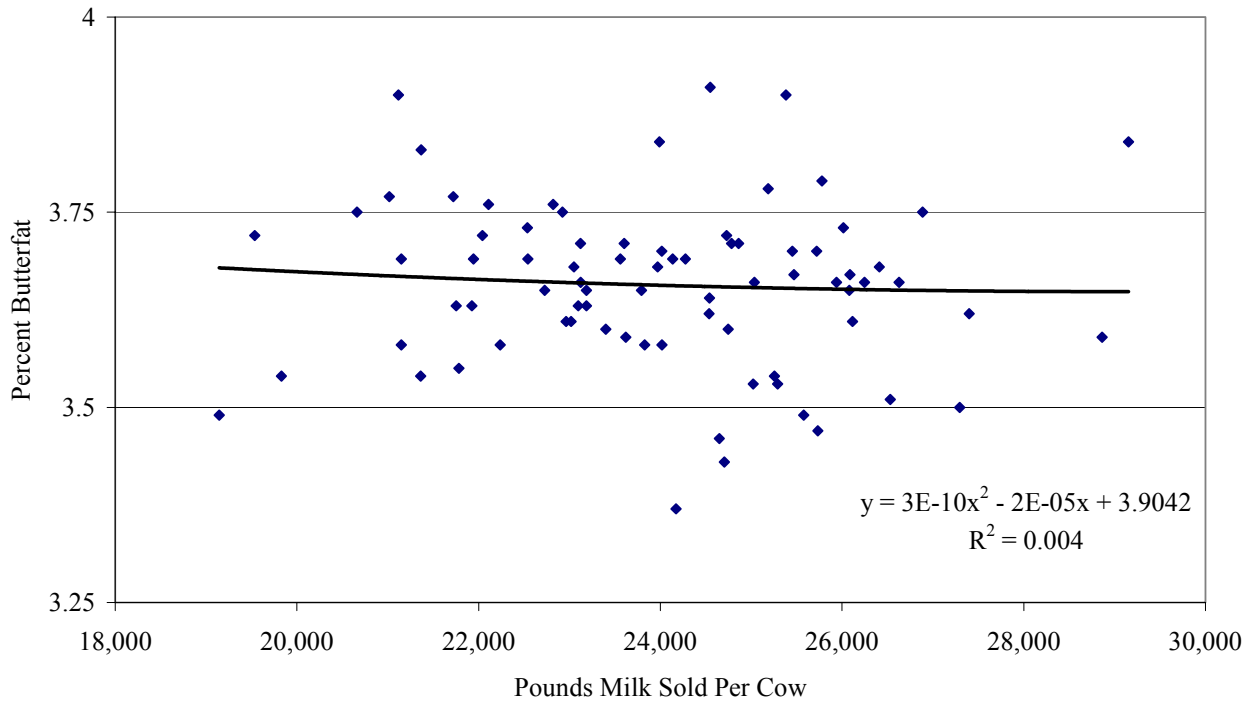
Item	Average Same 69 Large Herd Dairy Farms		Average Top 20% Farms	
	2005	2006	2005	2006
Cwt. of butterfat and protein sold	10,425.44	11,082.28	8,001.62	8,500.88
<u>Accrual Operating Receipts</u>				
Milk	\$241.85	\$207.84	\$238.01	\$206.71
Dairy cattle	17.21	17.73	18.73	23.63
Dairy calves	4.47	4.71	5.50	5.87
Other livestock	0.52	0.62	0.24	0.84
Crops	3.51	5.08	6.62	13.49
Miscellaneous receipts	11.01	11.43	12.49	15.83
Total Operating Receipts	\$278.57	\$247.41	\$281.59	\$266.37
<u>Accrual Operating Expenses</u>				
Hired labor	\$41.71	\$41.22	\$41.20	\$41.18
Dairy grain & concentrate	62.90	60.89	59.34	53.15
Dairy roughage	3.97	4.56	1.40	2.75
Nondairy feed	0.00	0.01	0.01	0.03
Professional nutritional services	0.07	0.04	0.17	0.04
Machine hire, rent & lease	3.79	4.02	3.39	4.13
Machine repair & vehicle expense	10.87	10.46	10.34	9.81
Fuel, oil & grease	7.67	8.29	7.47	8.11
Replacement livestock	2.00	1.15	3.28	1.73
Breeding	3.44	3.39	3.56	3.40
Veterinary & medicine	9.59	10.13	8.15	8.68
Milk marketing	11.34	11.98	11.72	11.83
Bedding	4.83	5.04	3.14	3.98
Milking supplies	5.16	5.09	4.54	4.14
Cattle lease	0.18	0.22	0.35	0.39
Custom boarding	4.07	4.58	3.74	4.22
bST expense	3.45	3.69	2.00	2.12
Livestock professional fees	0.63	0.78	0.44	0.51
Other livestock expense	1.44	1.19	1.58	1.48
Fertilizer & lime	5.03	4.28	6.32	5.78
Seeds & plants	3.27	3.23	4.00	3.51
Spray & other crop expense	2.73	2.46	2.91	2.46
Crop professional fees	0.41	0.33	0.84	0.57
Land, building & fence repair	3.78	3.46	3.59	3.14
Taxes	2.75	2.72	2.92	2.84
Real estate rent/lease	4.04	3.96	4.10	3.97
Insurance	2.17	2.20	2.38	2.30
Utilities	5.50	5.72	5.55	6.01
Interest paid	9.44	11.56	10.54	12.03
Other professional fees	1.04	1.15	1.49	1.22
Miscellaneous	1.54	1.41	1.44	1.82
Total Operating Expenses	\$218.81	\$219.22	\$211.88	\$207.28
Expansion livestock	2.91	3.67	1.20	5.69
Extraordinary Expense	0.11	0.02	0.15	0.11
Machinery depreciation	12.46	10.81	16.16	12.36
Real Estate depreciation	8.47	8.29	8.83	7.72
Total Expenses	\$242.76	\$242.01	\$238.22	\$233.16
Net Farm Income without appreciation	\$35.81	\$5.40	\$43.37	\$33.21

<sup>29</sup>Average data for farms that provided complete milk component data for 2005 – 2006.

**TOTAL COST TO PRODUCE BUTTERFAT & PROTEIN VERSUS  
NET FARM INCOME PER COW**  
82 Large Herd Dairy Farms, 2006



**POUNDS MILK SOLD PER COW VERSUS PERCENT BUTTERFAT**  
82 Large Herd Dairy Farms, 2006



**Capital and Labor Efficiency Analysis**

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

**CAPITAL EFFICIENCY**  
82 Large Herd Dairy Farms, 2006

Item	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
<u>Average 82 Farms:</u>				
Farm capital	\$ 333,870	\$ 7,351	\$ 3,930	\$ 8,224
Real estate		2,774		3,104
Machinery & equipment	55,992	1,233	659	
<u>Ratios</u>				
Asset turnover ratio	Operating Expense 0.57	Interest Expense 0.85	Depreciation Expense 0.05	0.07
<u>Average Top 20% Farms:</u>				
Farm capital	\$ 362,871	\$ 7,448	\$ 3,840	\$ 7,667
Real estate		2,832		2,915
Machinery & equipment	62,080	1,274	657	
<u>Ratios</u>				
Asset turnover ratio	Operating Expense 0.55	Interest Expense 0.78	Depreciation Expense 0.05	0.07

**LABOR FORCE INVENTORY AND ANALYSIS**

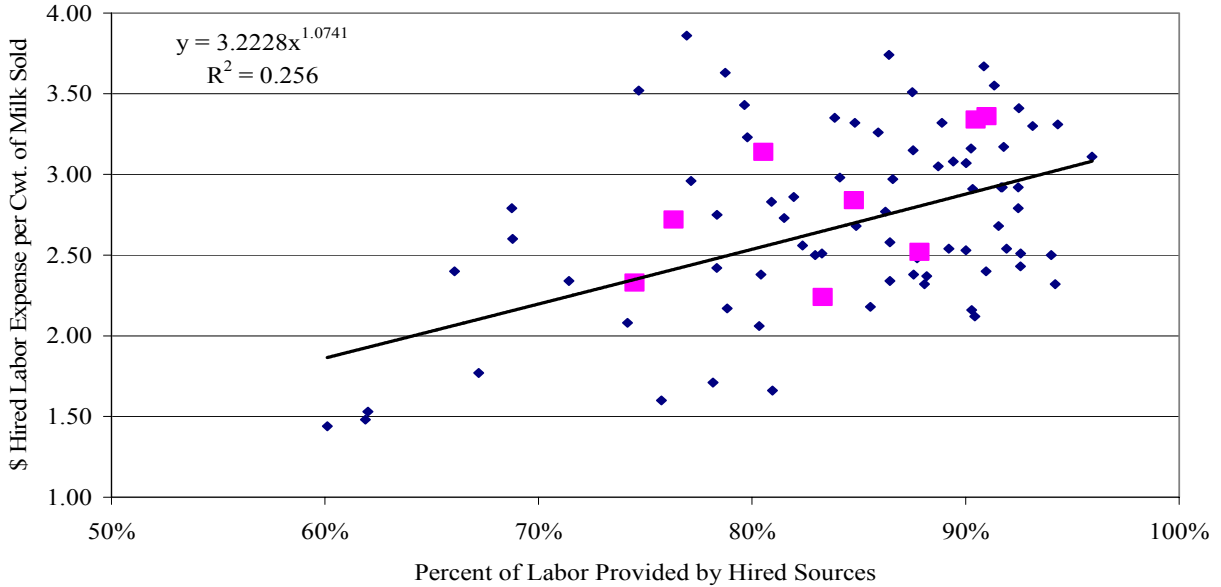
82 Large Herd Dairy Farms, 2006

Labor Force	Months	Age	Years of Education	Value of Labor & Mgmt.		
Operator number 1	13.44	49	14	\$ 53,365		
Operator number 2	8.29	44	13	32,557		
Operator number 3	2.79	40	12	10,095		
Operator number 4	1.00	45	15	3,225		
Family paid	4.48					
Family unpaid	1.48					
Hired	<u>168.09</u>					
Total	199.57 /	12 = 16.63 Worker Equivalent 1.88 Operator/Manager Equivalent				
<u>Average Top 20% Farms:</u>						
Total	186.43 /	12 = 15.54 Worker Equivalent 1.63 Operator/Manager Equivalent				
<u>Operator's</u>						
Labor Efficiency	Average 82 Farms		Average Top 20% Farms			
	Total	Per Worker	Total	Per Worker		
Cows, average number	755	45	757	49		
Milk sold, pounds	18,143,792	1,090,973	17,492,905	1,125,971		
Tillable acres	1,413	85	1,468	95		
<u>Labor Costs</u>						
	Average 82 Farms			Average Top 20% Farms		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Value of operator(s) labor (\$2,300/month)	\$ 58,696	\$ 78	\$0.32	\$ 50,255	\$ 66	\$ 0.29
Family unpaid (\$2,300/month)	3,404	5	0.02	3,473	5	0.02
Hired	<u>503,855</u>	<u>667</u>	<u>2.78</u>	<u>509,478</u>	<u>673</u>	<u>2.91</u>
Total Labor	\$ 565,955	\$ 750	\$3.12	\$ 563,206	\$ 744	\$ 3.22
Machinery Cost	<u>451,410</u>	<u>598</u>	<u>2.49</u>	<u>427,802</u>	<u>565</u>	<u>2.45</u>
Total Labor & Machinery	\$1,017,365	\$ 1,348	\$5.61	\$ 991,008	\$ 1,309	\$ 5.67
Hired labor expense per hired worker equiv.		\$ 35,037		\$ 37,491		
Hired labor expense as % of milk sales		20.1%		20.9%		

**Labor Cost Evaluation**

Labor costs have been the first or second largest expense on large dairy farms in New York the last five years. A key factor to track on these farms is hired labor expense per cwt. milk sold. The chart below shows the relationship between hired labor expenses per cwt. and percent of labor provided by hired labor sources and can be used to see how your farms' expense compares to other farms. To calculate percent of labor provided by hired sources use the worksheet below.

**HIRED LABOR EXPENSE PER CWT OF MILK SOLD VERSUS PERCENT OF LABOR PROVIDED BY HIRED SOURCES**  
82 Large Herd Dairy Farms, 2006



■ Top 10% by ROA without appreciation

**Worksheet for Determining Percent of Labor From Hired Sources**

Divide total hired and family paid months of labor by the total months of labor provided from all sources. These values can be found on page 14 of your farm's Dairy Farm Business Summary report.

Months of hired labor			_____
Months of family paid labor	+		_____
Total hired labor	=		_____
Total Labor Months	÷		_____
Percent of labor from hired sources	x 100 =		_____ %

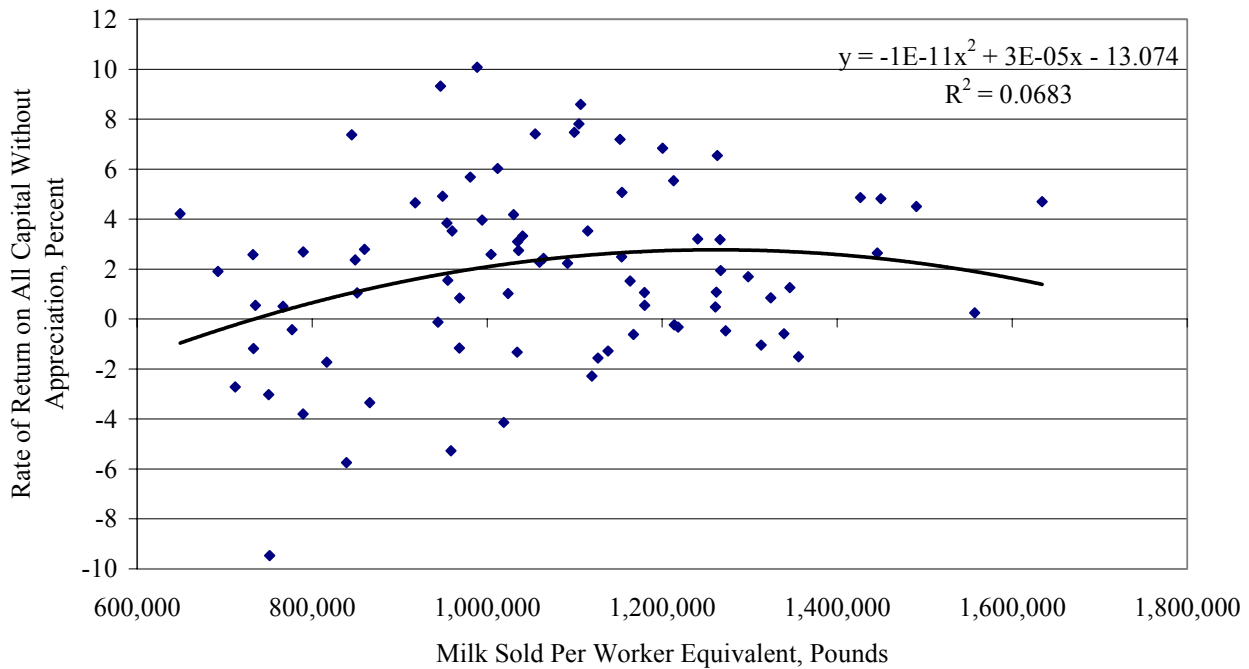
The table below is the business chart for labor costs on a per worker and per hour basis and shows the range of costs for these farms. Hired Labor expenses are all expenses that are associated with labor, and are not just payroll. The chart below shows the relationship between labor efficiency and return on all capital without appreciation. Labor efficiency improvements are one method that is used to allow the business to reward their employees while maintaining their labor costs per cwt. of milk produced. A second area is improved cost control of day to day activities, which is one reason why some farms can generate higher than average profits while having some of the higher labor costs per cwt. of milk sold.

**Hired Labor Expense Business Charts**  
82 Large Herd Dairy Farms, 2006

Decile	Hired Labor Expense per Cwt	Hired Labor Expense as % of Milk Sales	Hired Labor Expense per Hired Worker Equivalent	Hired Labor Expense per Hour
Average of Lowest Decile	\$ 1.70	12%	\$ 25,517	\$ 9.23
	2.24	16	28,010	10.13
	2.39	17	29,469	10.66
	2.51	18	30,921	11.19
	2.64	19	32,473	11.75
	2.82	20	33,697	12.19
	2.97	21	35,136	12.71
	3.16	22	37,562	13.59
	3.34	24	40,342	14.60
Average of Highest Decile	3.61	25	45,502	16.46

**RATE OF RETURN ON ALL CAPITAL WITHOUT APPRECIATION VERSUS MILK SOLD PER WORKER EQUIVALENT**

82 Large Herd Dairy Farms, 2006



## CONDENSED SUMMARY &amp; SELECTED BUSINESS FACTORS

## CONDENSED FARM BUSINESS SUMMARY FOR THREE LARGE HERD GROUPS

82 Large Herd Dairy Farms, 2006

Item	29 Farms with 300-500 Cows		21 Farms with 501-699 Cows		32 Farms with ≥700 Cows	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<b>ACCRUAL EXPENSES</b>						
Hired labor	\$612	\$2.64	\$585	\$2.53	\$710	\$2.89
Dairy grain & concentrate	941	4.05	908	3.92	989	4.03
Dairy roughage	37	0.16	77	0.33	76	0.31
Nondairy feed	0	0.00	0	0.00	0	0.00
Professional nutritional services	1	0.00	0	0.00	0	0.00
Machine hire, rent & lease	89	0.38	83	0.36	56	0.23
Machine repairs & farm vehicle expense	192	0.83	166	0.72	168	0.68
Fuel, oil & grease	142	0.61	129	0.56	124	0.50
Replacement livestock	21	0.09	32	0.14	10	0.04
Breeding	56	0.24	52	0.22	54	0.22
Veterinary & medicine	145	0.63	165	0.71	168	0.68
Milk marketing	187	0.81	194	0.84	182	0.74
Bedding	70	0.30	76	0.33	82	0.33
Milking supplies	80	0.34	72	0.31	83	0.34
Cattle lease & rent	3	0.01	2	0.01	6	0.02
Custom boarding	72	0.31	81	0.35	83	0.34
bST expense	44	0.19	46	0.20	63	0.26
Livestock professional fees	17	0.07	10	0.05	12	0.05
Other livestock expense	17	0.07	18	0.08	15	0.06
Fertilizer & lime	75	0.32	83	0.36	57	0.23
Seeds & plants	55	0.24	50	0.22	52	0.21
Spray & other crop expense	38	0.16	35	0.15	41	0.17
Crop professional fees	8	0.03	6	0.03	5	0.02
Land, building & fence repair	42	0.18	60	0.26	57	0.23
Taxes & rent	103	0.44	103	0.44	107	0.44
Utilities	100	0.43	87	0.38	87	0.36
Interest paid	188	0.81	191	0.83	187	0.76
Other professional fees	19	0.08	18	0.08	23	0.09
Misc. (including insurance)	61	0.26	54	0.24	59	0.24
Total Operating Expenses	\$3,416	\$14.71	\$3,384	\$14.63	\$3,557	\$14.48
Expansion livestock	63	0.27	44	0.19	54	0.22
Extraordinary expense	0	0.00	1	0.01	0	0.00
Machinery depreciation	154	0.66	193	0.84	165	0.67
Building depreciation	128	0.55	107	0.46	129	0.53
Total Accrual Expenses	\$3,761	\$16.19	\$3,729	\$16.13	\$3,905	\$15.90
<b>ACCRUAL RECEIPTS</b>						
Milk sales	\$3,217	\$13.86	\$3,232	\$13.97	\$3,376	\$13.75
Dairy cattle	297	1.28	251	1.08	273	1.11
Dairy calves	65	0.28	74	0.32	72	0.29
Other livestock	37	0.16	6	0.02	1	0.00
Crops	81	0.35	107	0.46	88	0.36
Miscellaneous receipts	210	0.91	214	0.92	148	0.60
Total Accrual Receipts	\$3,906	\$16.83	\$3,882	\$16.78	\$3,957	\$16.12
<b>PROFITABILITY ANALYSIS (Total)</b>						
Net farm income (without appreciation)	\$56,028		\$92,533		\$64,460	
Net farm income (with appreciation)	\$128,964		234,788		\$344,822	
Labor & management income	-\$44,741		-37,251		-\$189,604	
Number of operators	1.68		1.72		2.16	
Labor & management income/operator	-\$26,632		-\$21,657		-\$87,779	
Rates of return on:						
Equity capital w/o apprec.	-1.1%		-0.1%		-1.3%	
Equity capital w/ apprec.	2.7%		5.6%		4.2%	
All capital w/o apprec.	1.7%		2.7%		1.8%	
All capital w/ apprec.	4.1%		5.9%		5.0%	

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

82 Large Herd Dairy Farms, 2006

Item	29 Farms with 300-500 Cows	21 Farms with 501-699 Cows	32 Farms with ≥ 700 Cows
<u>Cropping Program Analysis</u>			
Total Tillable acres	826	1,215	2,075
Tillable acres rented <sup>30</sup>	439	697	1,034
Hay crop acres <sup>30</sup>	402	561	998
Corn silage acres <sup>30</sup>	307	452	814
Hay crop, tons DM/acre	3.5	3.4	3.6
Corn silage, tons/acre	17.8	18.8	19.2
Forage DM per cow, tons	8.6	8.2	7.7
Tillable acres/cow	2.2	2.1	1.8
Fertilizer & lime expense/tillable acre	\$35.90	\$42.28	\$32.72
Machinery cost/tillable acre	\$299	\$307	\$323
<u>Dairy Analysis</u>			
Number of cows	380	609	1,191
Number of heifers	15	476	962
Milk sold, lbs.	8,822,367	14,087,571	29,253,229
Butterfat & protein, lbs./cow	1,567	1,567	1,628
Milk sold/cow, lbs.	23,208	23,136	24,557
Operating cost of prod. milk/cwt.	\$12.01	\$12.01	\$12.33
Total cost of prod. milk/cwt.	\$15.18	\$14.88	\$14.84
Price/cwt. milk sold	\$13.86	\$13.97	\$13.75
Purchased dairy feed/cow	\$977	\$985	\$1,065
Purchased dairy feed/cwt. milk	\$4.21	\$4.26	\$4.34
Purchased grain & concentrate as % of milk receipts	29%	28%	29%
Purchased feed & crop expense/cwt. milk	\$4.97	\$5.01	\$4.97
<u>Capital Efficiency</u>			
Farm capital/worker	\$314,055	\$322,177	\$344,747
Farm capital/cow	\$7,915	\$7,127	\$7,264
Real estate/cow	\$3,139	\$2,635	\$2,716
Machinery investment/cow	\$1,466	\$1,300	\$1,143
Asset turnover ratio	0.52	0.58	0.58
<u>Labor Efficiency</u>			
Worker equivalent	9.58	13.47	25.10
Operator/manager equivalent	1.68	1.72	2.16
Milk sold/worker, lbs.	921,236	1,045,654	1,165,661
Cows/worker	40	45	47
Labor cost/cow	\$758	\$684	\$769
<u>Financial Measures</u>			
Percent equity	62%	57%	57%
Debt/asset ratio - long term	0.37	0.42	0.41
Debt/asset ratio - intermediate & current	0.38	0.43	0.44
Change in net worth with appreciation	\$12,029	\$94,529	\$47,418
Total farm debt per cow	\$2,958	\$3,076	\$3,127
Debt payments made per cow	\$613	\$506	\$468
Debt payments as % of milk sales	19%	16%	14%
Amount available for debt service	\$169,460	\$320,945	\$519,250
Debt coverage ratio for 2006	0.82	1.08	0.81

<sup>30</sup>Average of all farms, not only those reporting data.

### INCOME AND EXPENSE PROFILES BY HERD SIZE

Use two of the following six tables to make an income and expense profile for your dairy farm business. The first two tables represent farms with 300 to 500 cows. The second two tables are of farms with 501-699 cows. The third set of tables is of farms with 700 or more cows. The figures in the quintile columns represent the average of the top 20 percent to the bottom 20 percent for each receipt and expenditure category. Each line is computed independently. The farms that comprise the top 20 percent in milk sales do not necessarily make up the top 20 percent of any other category. On each line circle the income and cost measures closest to the one for your farm. Then draw a vertical line connecting your circles on each table. The strongest profile will be a relatively straight line on the left side of the table.

#### RECEIPTS AND EXPENSES PER COW 29 Large Herd Dairy Farms with 300 – 500 Cows, 2006

Item	QUINTILE				
	1	2	3	4	5
<b>Accrual Operating Receipts</b>					
Milk	\$3,772	\$3,352	\$3,222	\$3,066	\$2,804
Dairy cattle	720	300	258	201	78
Dairy calves	140	86	58	43	14
Other livestock	183	2	0	0	-1
Crops	346	139	54	-2	-73
Miscellaneous receipts	366	212	181	170	142
Total Operating Receipts	\$4,949	\$4,033	\$3,818	\$3,628	\$3,305
<b>Accrual Operating Expenses</b>					
Hired labor	\$375	\$537	\$644	\$733	\$850
Dairy grain & concentrate	737	864	940	1,028	1,195
Dairy roughage	0	0	7	27	174
Nondairy feed	0	0	0	0	1
Professional nutritional services	0	0	0	0	5
Machinery hire/rent/lease	2	19	45	130	273
Mach. repair & farm vehicle exp.	109	135	173	226	332
Fuel, oil & grease	83	121	139	167	214
Replacement livestock	0	0	0	0	127
Breeding	24	38	56	72	98
Veterinary & medicine	87	121	137	167	223
Milk marketing	113	161	186	205	294
Bedding	16	52	70	87	138
Milking supplies	45	62	79	92	122
Cattle lease	0	0	0	0	17
Custom boarding	0	0	0	27	351
bST expense	0	12	46	77	100
Livestock professional fees	0	3	14	23	50
Other livestock expense	0	1	12	28	47
Fertilizer & lime	31	52	67	87	146
Seeds & plants	31	43	52	62	97
Spray/other crop expenses	3	28	42	49	73
Crop professional fees	0	0	0	7	34
Land, building, fence repair	7	25	40	52	102
Taxes	17	37	53	68	86
Real estate rent/lease	13	33	47	65	118
Insurance	16	28	36	47	64
Utilities	70	85	94	114	145
Interest	85	149	182	225	324
Other professional fees	2	10	17	23	43
Miscellaneous	7	12	21	30	55
Total Operating Expenses	\$2,698	\$3,207	\$3,467	\$3,694	\$4,150
Expansion livestock	0	0	0	6	361
Extraordinary expense	0	0	0	0	0
Machinery depreciation	64	119	139	188	267
Building depreciation	37	88	117	159	251
Net Farm Income w/o Appreciation	\$610	\$380	\$107	\$-55	\$-206

**RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD**  
29 Large Herd Dairy Farms with 300 – 500 Cows, 2006

Item	QUINTILE				
	1	2	3	4	5
<u>Accrual Operating Receipts</u>					
Milk	\$14.53	\$14.22	\$13.77	\$13.54	\$13.34
Dairy cattle	2.99	1.31	1.13	0.85	0.34
Dairy calves	0.58	0.35	0.26	0.18	0.06
Other livestock	0.76	0.01	0.00	0.00	-0.01
Crops	1.51	0.61	0.22	-0.01	-0.33
Miscellaneous receipts	1.54	0.95	0.79	0.71	0.62
<b>Total Operating Receipts</b>	<b>\$19.36</b>	<b>\$17.27</b>	<b>\$16.74</b>	<b>\$15.79</b>	<b>\$15.22</b>
<u>Accrual Operating Expenses</u>					
Hired labor	\$1.74	\$2.31	\$2.65	\$3.12	\$3.61
Dairy grain & concentrate	3.34	3.71	4.08	4.49	4.77
Dairy roughage	0.00	0.00	0.03	0.12	0.67
Nondairy feed	0.00	0.00	0.00	0.00	0.00
Professional nutritional services	0.00	0.00	0.00	0.00	0.02
Machinery hire/rent/lease	0.01	0.09	0.19	0.56	1.15
Mach. repair & farm vehicle exp.	0.47	0.60	0.74	0.98	1.44
Fuel, oil & grease	0.35	0.54	0.61	0.71	0.92
Replacement livestock	0.00	0.00	0.00	0.00	0.52
Breeding	0.11	0.18	0.24	0.30	0.40
Veterinary & medicine	0.39	0.53	0.60	0.70	0.94
Milk marketing	0.51	0.68	0.80	0.94	1.14
Bedding	0.08	0.23	0.29	0.38	0.57
Milking supplies	0.19	0.27	0.35	0.39	0.54
Cattle lease	0.00	0.00	0.00	0.00	0.08
Custom boarding	0.00	0.00	0.00	0.12	1.43
bST expense	0.00	0.05	0.19	0.32	0.42
Livestock professional fees	0.00	0.01	0.06	0.10	0.20
Other livestock expense	0.00	0.00	0.05	0.12	0.21
Fertilizer & lime	0.13	0.23	0.31	0.36	0.62
Seeds & plants	0.13	0.20	0.23	0.27	0.40
Spray/other crop expenses	0.01	0.12	0.18	0.21	0.32
Crop professional fees	0.00	0.00	0.00	0.03	0.14
Land, building, fence repair	0.03	0.10	0.17	0.24	0.44
Taxes	0.07	0.16	0.22	0.30	0.38
Real estate rent/lease	0.06	0.14	0.21	0.27	0.52
Insurance	0.07	0.12	0.16	0.20	0.28
Utilities	0.31	0.38	0.40	0.50	0.61
Interest	0.36	0.63	0.82	0.99	1.36
Other professional fees	0.01	0.05	0.07	0.10	0.20
Miscellaneous	0.03	0.06	0.09	0.13	0.23
<b>Total Operating Expenses</b>	<b>\$12.97</b>	<b>\$14.07</b>	<b>\$14.75</b>	<b>\$15.43</b>	<b>\$16.31</b>
Expansion livestock	0.00	0.00	0.00	0.03	1.49
Extraordinary expense	0.00	0.00	0.00	0.00	0.00
Machinery depreciation	0.29	0.49	0.59	0.84	1.17
Building depreciation	0.16	0.36	0.51	0.69	1.12
<b>Net Farm Income w/o Appreciation</b>	<b>\$2.66</b>	<b>\$1.64</b>	<b>\$0.48</b>	<b>\$-0.25</b>	<b>\$-0.84</b>

**RECEIPTS AND EXPENSES PER COW**  
21 Large Herd Dairy Farms with 501 – 699 Cows, 2006

Item	QUINTILE				
	1	2	3	4	5
<u>Accrual Operating Receipts</u>					
Milk	\$3,743	\$3,437	\$3,285	\$3,187	\$2,664
Dairy cattle	379	320	240	197	140
Dairy calves	113	86	77	67	37
Other livestock	26	3	0	0	-1
Crops	291	138	95	47	-17
Miscellaneous receipts	457	199	176	153	104
<b>Total Operating Receipts</b>	<b>\$4,570</b>	<b>\$4,141</b>	<b>\$3,964</b>	<b>\$3,754</b>	<b>\$3,155</b>
<u>Accrual Operating Expenses</u>					
Hired labor	\$394	\$569	\$601	\$645	\$769
Dairy grain & concentrate	646	857	924	999	1,183
Dairy roughage	6	25	47	83	240
Nondairy feed	0	0	0	0	1
Professional nutritional services	0	0	0	0	2
Machinery hire/rent/lease	28	49	73	99	187
Mach. repair & farm vehicle exp.	94	133	164	183	277
Fuel, oil & grease	73	111	128	156	190
Replacement livestock	0	0	0	5	148
Breeding	25	41	51	68	80
Veterinary & medicine	89	136	183	209	232
Milk marketing	118	146	175	221	329
Bedding	32	58	82	103	123
Milking supplies	35	52	61	76	141
Cattle lease	0	0	0	0	8
Custom boarding	0	0	12	108	299
bST expense	0	6	30	82	121
Livestock professional fees	0	3	12	16	23
Other livestock expense	1	8	14	19	55
Fertilizer & lime	42	62	68	91	57
Seeds & plants	18	40	54	64	89
Spray/other crop expenses	2	19	40	53	75
Crop professional fees	0	1	4	11	16
Land, building, fence repair	17	32	56	76	135
Taxes	11	26	41	50	69
Real estate rent/lease	17	29	58	112	129
Insurance	17	22	31	35	54
Utilities	53	77	90	102	123
Interest	99	152	202	234	295
Other professional fees	3	7	17	27	44
Miscellaneous	5	16	21	26	49
<b>Total Operating Expenses</b>	<b>\$2,811</b>	<b>\$3,225</b>	<b>\$3,396</b>	<b>\$3,596</b>	<b>\$4,049</b>
Expansion livestock	0	0	0	30	200
Extraordinary expense	0	0	0	0	5
Machinery depreciation	111	149	192	235	296
Building depreciation	47	61	90	153	191
<b>Net Farm Income w/o Appreciation</b>	<b>\$551</b>	<b>\$289</b>	<b>\$173</b>	<b>\$15</b>	<b>-\$188</b>

**RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD**  
21 Large Herd Dairy Farms with 501 – 699 Cows, 2006

Item	QUINTILE				
	1	2	3	4	5
<u>Accrual Operating Receipts</u>					
Milk	\$15.25	\$14.42	\$13.84	\$13.55	\$13.17
Dairy cattle	1.91	1.30	1.04	0.85	0.59
Dairy calves	0.54	0.37	0.32	0.29	0.16
Other livestock	0.13	0.01	0.00	0.00	-0.01
Crops	1.24	0.69	0.43	0.20	-0.08
Miscellaneous receipts	1.87	0.84	0.75	0.68	0.51
<b>Total Operating Receipts</b>	<b>\$19.24</b>	<b>\$17.56</b>	<b>\$16.79</b>	<b>\$15.89</b>	<b>\$15.16</b>
<u>Accrual Operating Expenses</u>					
Hired labor	\$1.86	\$2.38	\$2.53	\$2.87	\$3.23
Dairy grain & concentrate	3.04	3.67	4.01	4.24	4.79
Dairy roughage	0.02	0.10	0.20	0.37	1.19
Nondairy feed	0.00	0.00	0.00	0.00	0.01
Professional nutritional services	0.00	0.00	0.00	0.00	0.01
Machinery hire/rent/lease	0.12	0.21	0.30	0.44	0.87
Mach. repair & farm vehicle exp.	0.43	0.60	0.72	0.80	1.12
Fuel, oil & grease	0.33	0.48	0.54	0.67	0.79
Replacement livestock	0.00	0.00	0.00	0.02	0.62
Breeding	0.10	0.18	0.23	0.28	0.35
Veterinary & medicine	0.39	0.64	0.76	0.85	0.97
Milk marketing	0.57	0.66	0.74	0.89	1.37
Bedding	0.14	0.24	0.34	0.44	0.54
Milking supplies	0.16	0.22	0.26	0.33	0.55
Cattle lease	0.00	0.00	0.00	0.00	0.03
Custom boarding	0.00	0.00	0.05	0.45	1.26
bST expense	0.00	0.03	0.15	0.34	0.46
Livestock professional fees	0.00	0.02	0.06	0.06	0.11
Other livestock expense	0.00	0.03	0.06	0.10	0.23
Fertilizer & lime	0.18	0.25	0.30	0.38	0.84
Seeds & plants	0.09	0.17	0.23	0.28	0.36
Spray/other crop expenses	0.01	0.08	0.16	0.21	0.36
Crop professional fees	0.00	0.00	0.02	0.05	0.07
Land, building, fence repair	0.09	0.14	0.23	0.32	0.54
Taxes	0.04	0.11	0.17	0.24	0.33
Real estate rent/lease	0.07	0.14	0.26	0.48	0.55
Insurance	0.07	0.11	0.14	0.16	0.23
Utilities	0.26	0.34	0.37	0.43	0.52
Interest	0.41	0.69	0.92	1.01	1.28
Other professional fees	0.02	0.03	0.07	0.11	0.18
Miscellaneous	0.02	0.07	0.09	0.12	0.25
<b>Total Operating Expenses</b>	<b>\$13.43</b>	<b>\$14.12</b>	<b>\$14.50</b>	<b>\$15.12</b>	<b>\$16.32</b>
Expansion livestock	0.00	0.00	0.00	0.13	0.77
Extraordinary expense	0.00	0.00	0.00	0.00	0.02
Machinery depreciation	0.49	0.64	0.79	1.07	1.31
Building depreciation	0.20	0.28	0.42	0.63	0.85
<b>Net Farm Income w/o Appreciation</b>	<b>\$2.88</b>	<b>\$1.20</b>	<b>\$0.72</b>	<b>\$0.06</b>	<b>-\$0.83</b>

**RECEIPTS AND EXPENSES PER COW**  
32 Large Herd Dairy Farms with 700 or More Cows, 2006

Item	QUINTILE				
	1	2	3	4	5
<u>Accrual Operating Receipts</u>					
Milk	\$3,824	\$3,550	\$3,387	\$3,198	\$3,016
Dairy cattle	544	294	269	222	163
Dairy calves	130	94	77	57	34
Other livestock	6	1	0	0	-2
Crops	235	128	89	47	-56
Miscellaneous receipts	346	179	136	119	71
Total Operating Receipts	\$4,524	\$4,196	\$3,986	\$3,791	\$3,575
<u>Accrual Operating Expenses</u>					
Hired labor	\$570	\$650	\$722	\$771	\$873
Dairy grain & concentrate	809	927	993	1,032	1,168
Dairy roughage	4	29	45	64	292
Nondairy feed	0	0	0	0	0
Professional nutritional services	0	0	0	0	3
Machinery hire/rent/lease	6	24	47	77	129
Mach. repair & farm vehicle exp.	96	133	170	203	261
Fuel, oil & grease	90	113	123	141	183
Replacement livestock	0	0	0	3	73
Breeding	37	45	53	62	86
Veterinary & medicine	132	153	168	181	204
Milk marketing	135	151	163	189	313
Bedding	38	63	79	105	137
Milking supplies	38	60	85	102	140
Cattle lease	0	0	0	0	23
Custom boarding	0	6	48	89	239
bST expense	12	48	71	88	120
Livestock professional fees	0	3	12	17	34
Other livestock expense	0	1	8	22	72
Fertilizer & lime	16	47	60	80	109
Seeds & plants	23	47	55	66	77
Spray/other crop expenses	2	24	45	64	90
Crop professional fees	0	0	3	9	18
Land, building, fence repair	13	35	51	69	133
Taxes	21	31	39	53	77
Real estate rent/lease	16	42	64	85	136
Insurance	16	28	35	41	61
Utilities	50	77	84	107	145
Interest	98	178	204	229	271
Other professional fees	2	10	15	22	53
Miscellaneous	6	17	22	28	51
Total Operating Expenses	\$3,207	\$3,394	\$3,576	\$3,693	\$4,082
Expansion livestock	0	0	1	40	316
Extraordinary expense	0	0	0	0	0
Machinery depreciation	94	136	173	204	281
Building depreciation	57	97	122	169	238
Net Farm Income w/o Appreciation	\$465	\$164	\$70	\$-15	\$-362

**RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD**  
32 Large Herd Dairy Farms with 700 or More Cows, 2006

Item	QUINTILE				
	1	2	3	4	5
<u>Accrual Operating Receipts</u>					
Milk	\$14.48	\$13.96	\$13.71	\$13.54	\$13.30
Dairy cattle	2.15	1.21	1.11	0.93	0.66
Dairy calves	0.57	0.38	0.31	0.24	0.14
Other livestock	0.02	0.01	0.00	0.00	-0.01
Crops	1.04	0.51	0.35	0.19	-0.23
Miscellaneous receipts	1.45	0.74	0.57	0.49	0.28
<b>Total Operating Receipts</b>	<b>\$17.99</b>	<b>\$16.82</b>	<b>\$16.19</b>	<b>\$15.71</b>	<b>\$15.13</b>
<u>Accrual Operating Expenses</u>					
Hired labor	\$2.36	\$2.66	\$2.94	\$3.23	\$3.45
Dairy grain & concentrate	3.30	3.75	4.06	4.31	4.73
Dairy roughage	0.01	0.12	0.18	0.28	1.21
Nondairy feed	0.00	0.00	0.00	0.00	0.00
Professional nutritional services	0.00	0.00	0.00	0.00	0.01
Machinery hire/rent/lease	0.02	0.10	0.19	0.32	0.54
Mach. repair & farm vehicle exp.	0.40	0.54	0.70	0.83	1.03
Fuel, oil & grease	0.37	0.47	0.50	0.55	0.75
Replacement livestock	0.00	0.00	0.00	0.01	0.31
Breeding	0.15	0.18	0.21	0.26	0.35
Veterinary & medicine	0.54	0.60	0.69	0.73	0.88
Milk marketing	0.56	0.63	0.68	0.76	1.23
Bedding	0.16	0.25	0.33	0.43	0.54
Milking supplies	0.16	0.25	0.34	0.41	0.58
Cattle lease	0.00	0.00	0.00	0.00	0.10
Custom boarding	0.00	0.02	0.20	0.37	1.01
bST expense	0.05	0.19	0.29	0.35	0.48
Livestock professional fees	0.00	0.01	0.05	0.07	0.13
Other livestock expense	0.00	0.00	0.04	0.10	0.28
Fertilizer & lime	0.06	0.18	0.24	0.34	0.48
Seeds & plants	0.09	0.19	0.23	0.27	0.32
Spray/other crop expenses	0.01	0.10	0.18	0.27	0.36
Crop professional fees	0.00	0.00	0.01	0.04	0.07
Land, building, fence repair	0.06	0.14	0.21	0.28	0.54
Taxes	0.09	0.12	0.16	0.22	0.33
Real estate rent/lease	0.06	0.17	0.26	0.36	0.56
Insurance	0.07	0.11	0.14	0.18	0.26
Utilities	0.21	0.31	0.35	0.42	0.60
Interest	0.38	0.71	0.87	0.97	1.13
Other professional fees	0.01	0.04	0.07	0.09	0.22
Miscellaneous	0.02	0.07	0.09	0.11	0.20
<b>Total Operating Expenses</b>	<b>\$12.96</b>	<b>\$13.95</b>	<b>\$14.57</b>	<b>\$15.21</b>	<b>\$16.74</b>
Expansion livestock	0.00	0.00	0.00	0.16	1.28
Extraordinary expense	0.00	0.00	0.00	0.00	0.00
Machinery depreciation	0.39	0.57	0.67	0.81	1.17
Building depreciation	0.23	0.39	0.53	0.70	0.95
<b>Net Farm Income w/o Appreciation</b>	<b>\$1.90</b>	<b>\$0.65</b>	<b>\$0.28</b>	<b>\$-0.06</b>	<b>\$-1.56</b>

## 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 ten figures in each column represent the average of each 10 percent or decile of farms included in this summary. 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 10 percent for any other factor. Use this information to identify business areas where more challenging goals are needed.

### FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS

82 Large Herd Dairy Farms, 2006

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	Number of Cows	Pounds of Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(14) <sup>31</sup>	(12)	(12)	(12)	(11)	(11)	(14)	(14)
37.0	1,886	46,990,931	27,396	6.5	26	66	1,463,189
25.9	1,139	28,265,400	25,999	4.9	23	55	1,292,871
21.3	968	22,970,124	25,417	4.2	21	52	1,223,569
18.1	771	18,786,462	24,817	3.8	20	49	1,154,329
15.3	664	16,226,845	24,318	3.6	19	46	1,095,291
13.0	604	13,971,312	23,797	3.2	18	44	1,034,217
11.6	502	11,385,941	23,147	3.0	17	41	984,597
10.3	430	9,557,918	22,607	2.8	16	39	936,366
8.7	371	8,562,937	21,671	2.3	14	35	824,228
7.4	320	7,276,119	19,003	1.8	11	31	724,699

### Cost Control

Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
(12)	(12)	(14)	(14)	(12)	(12)
\$661	22%	\$400	\$989	\$866	\$3.92
817	25	505	1,135	1,040	4.44
857	26	536	1,254	1,094	4.60
899	27	564	1,324	1,136	4.78
938	28	612	1,379	1,156	4.92
975	30	646	1,409	1,187	5.12
1,000	31	668	1,468	1,238	5.23
1,041	32	698	1,516	1,292	5.37
1,086	33	753	1,574	1,350	5.69
1,265	36	857	1,723	1,530	6.10

<sup>31</sup>( ) = page number of the participant's DFBS where factor is located.

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

Cost Control (con't)					
Hired Labor Expense			Expenses Per Cwt.		
Per Cwt.	Per Hired Worker Equiv.	As % of Milk Sales	Milk Marketing	Veterinary & Medicine	Other Livestock
(14)	(14)	(14)	(15)	(15)	(15)
\$1.70	\$25,517	20%	\$0.51	\$0.36	\$0.00
2.24	28,010	16	0.58	0.51	0.00
2.39	29,469	17	0.63	0.56	0.00
2.51	30,921	18	0.66	0.59	0.01
2.64	32,473	19	0.69	0.65	0.04
2.82	33,697	20	0.75	0.69	0.06
2.97	35,136	21	0.79	0.73	0.09
3.16	37,562	22	0.90	0.77	0.12
3.34	40,342	24	1.09	0.86	0.16
3.61	45,502	25	1.38	1.00	0.31

Cost of Producing Milk					
Machinery & Crop Expense		Operating Cost		Total Cost	
Per Tillable Acre	Per Ton Dry Matter	Per Cow	Per Cwt.	Per Cow	Per Cwt.
(CALC)	(CALC)	(12)	(12)	(12)	(12)
\$260	\$61	\$2,094	\$9.94	\$2,765	\$13.11
317	76	2,419	10.73	3,175	13.84
353	83	2,628	11.17	3,313	14.18
374	89	2,727	11.62	3,405	14.44
393	97	2,844	12.03	3,481	14.80
414	103	2,957	12.41	3,620	15.09
432	110	3,108	12.70	3,751	15.31
468	116	3,188	12.99	3,851	15.71
541	125	3,350	13.50	4,058	16.24
883	350	3,654	14.53	4,324	17.74

bST Expense Per Cow	bST Expense Per Cwt.	Culling Rate	Expense Ratios		
			Operating	Depreciation	Interest
(12)	(12)	(12)	(14)	(14)	(14)
\$ 0	\$0.00	22%	73	4	2
1	0.00	27	77	5	3
12	0.06	29	80	6	4
30	0.13	31	83	6	4
47	0.20	33	84	7	5
65	0.27	34	86	8	5
77	0.31	35	87	8	6
87	0.35	37	90	9	6
99	0.40	39	92	11	7
126	0.51	42	99	13	9

Income Generation				
Milk Receipts Per Cwt.	Net Milk Receipts Per Cwt.	Milk Receipts Per Cow	Dairy Cattle Sales Per Cow	Dairy Calf Sales Per Cow
(12)	(12)	(12)	(12)	(12)
\$15.03	\$14.00	\$3,899	\$755	\$145
14.43	13.57	3,664	333	111
14.23	13.36	3,495	309	91
13.98	13.15	3,399	291	84
13.80	13.03	3,315	269	77
13.67	12.94	3,250	243	65
13.57	12.87	3,175	222	57
13.51	12.79	3,112	199	49
13.41	12.66	3,010	168	37
13.14	12.44	2,661	80	14
Debt Management				
Farm Debt Per Cow		Cost of	Planned Debt Payments	
Total	Intermediate & Long Term	Borrowed Capital	Per Cow	Per Cwt.
(7)	(7)	(7)	(10)	(10)
\$1,298	\$1,012	5.1%	\$ 79	\$0.00
2,061	1,543	6.0	295	0.89
2,403	1,812	6.0	366	1.00
2,725	2,112	6.9	398	1.00
2,966	2,441	7.0	437	1.50
3,293	2,548	7.0	493	2.00
3,438	2,874	7.0	563	2.00
3,794	3,092	7.0	606	2.00
4,259	3,313	7.4	700	2.13
4,859	3,736	8.4	841	3.25
Cash Flow Analysis				
Amount Available for Family Living, Debt Service & Investment		Personal Withdrawals & Family Expenditures		Cash Flow Coverage Ratio
Per Cow	Per Cwt.	Per Cow	Per Cwt.	Ratio
(16)	(16)	(CALC)	(CALC)	(10)
\$999	\$4.49	\$386	\$1.65	3.64
868	3.67	278	1.22	2.29
808	3.48	240	0.98	1.92
763	3.18	188	0.81	1.58
707	3.05	156	0.67	1.31
656	2.80	136	0.57	1.23
586	2.39	120	0.50	1.12
484	2.10	100	0.42	0.95
400	1.67	82	0.34	0.76
146	0.59	52	0.22	0.38
Capital Efficiency				
Farm Capital Per Cow	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Labor Cost Per Worker Equivalent	Asset Turnover Ratio
(14)	(14)	(14)	(CALC)	(14)
\$5,072	\$1,032	\$654	\$25,912	.85
6,328	1,877	858	27,936	0.68
6,701	2,204	1,002	29,200	0.63
6,938	2,382	1,134	30,400	0.60
7,178	2,660	1,257	31,482	0.57
7,479	2,842	1,387	32,845	0.54
7,695	3,207	1,500	33,930	0.52
8,324	3,512	1,656	36,040	0.49
9,313	3,972	1,838	38,607	0.46
10,935	5,456	2,163	43,599	0.40

		Solvency			Liquidity	
Percent Equity	Leverage Ratio	Debt to Asset Ratios			Working Capital as % of Total Expenses	Current Ratio
		Total	Current/Intermediate	Long Term		
(7)	(7)	(7)	(7)	(7)	(7)	(7)
84%	0.20	0.16	0.13	0.00	31.6%	7.49%
74	0.39	0.28	0.23	0.07	21.0	3.44
68	0.48	0.33	0.27	0.18	16.5	2.39
64	0.58	0.37	0.33	0.26	13.9	1.96
61	0.66	0.40	0.37	0.34	12.1	1.70
56	0.82	0.45	0.44	0.43	9.5	1.57
52	0.98	0.50	0.49	0.55	5.8	1.37
47	1.16	0.54	0.56	0.65	2.8	1.18
43	1.36	0.58	0.67	0.75	-2.6	0.90
33	2.56	0.67	0.88	0.97	-14.2	0.63

Labor and Mgmt. Income Per Operator	Rate Return to Equity Capital		Rate Return to All Capital	
	Without Appreciation	With Appreciation	Without Appreciation	With Appreciation
(4)	(4)	(4)	(4)	(4)
\$164,816	9.6%	17.5%	8.2%	12.5%
60,590	5.8	10.4	5.7	8.6
21,589	2.9	8.8	4.4	7.8
-2,017	0.9	7.2	3.2	6.7
-35,550	-0.1	4.9	2.5	5.5
-58,318	-1.7	2.9	1.6	4.3
-74,145	-3.4	1.0	0.8	3.5
-102,561	-5.6	-0.5	-0.2	2.4
-157,523	-8.7	-3.1	-1.3	1.2
-308,007	-17.0	-8.2	-4.4	-1.6

Profitability, Continued				
Net Farm Income Without Appreciation		Net Farm Income From Operations	Net Income Efficiency	Net Milk Income Over Purchased Feed
Per Cow	Per Cwt.	Ratio	Ratio	Costs Per Cow
(12)	(12)	(4)	(CALC)	(CALC)
\$620	\$2.88	16%	16%	\$2,559
452	1.92	11	10	2,390
338	1.46	9	7	2,297
189	0.78	5	5	2,229
120	0.50	3	4	2,188
69	0.28	2	3	2,123
19	0.08	1	3	2,052
-68	-0.3	-2	1	1,989
-148	-0.6	-4	1	1,912
-383	-1.6	-10	-3	1,672

### IDENTIFY AND SET GOALS

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

1. Goals should be Specific.
2. Goals should be Measurable.
3. Goals should be Achievable but challenging.
4. Goals should be Rewarding.
5. Goals should designate a Time when each goal will be achieved.

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

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

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

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

#### Worksheet for Setting Goals

##### I. Mission and Objectives

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## GLOSSARY AND LOCATION OF COMMON TERMS

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

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

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

**Accrual Expenses** - (defined on page 13).

**Accrual Receipts** - (defined on page 13).

**Annual Cash Flow Statement** - (defined on page 20).

**Appreciation** - (defined on page 14).

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

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

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

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

**Cash Flow Coverage Ratio** - (defined on page 22).

**Cash Paid** - (defined on page 11).

**Cash Receipts** - (defined on page 13).

**Change in Accounts Payable** - (defined on page 11).

**Change in Accounts Receivable** - (defined on page 11).

**Change in Inventory** - (defined on page 11).

**Cost of Borrowed Capital** - A weighted average of the cost of borrowed capital to the farm. Calculate by multiplying end of year principal of each loan that is borrowed by the interest rate for each loan at that time. Add up each amount that is calculated for each loan and then divide by total amount of borrowed funds. Do not include accounts payable. This information is found on pages 10 & 11 of the data entry form.

**Cows per Worker Equivalent for the Dairy Enterprise** - Determined by dividing the average number of milking and dry cows by the number of worker equivalents in the dairy enterprise.

**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 16).

**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 Enterprise Only** – Dairy enterprise only represents the estimate of labor hours, hired and family, that was utilized to operate the dairy. This estimate includes all labor to milk, feed, scrape, and take care of the milking and dry cows. Labor to take care of dairy replacements, produce crops, and spread manure was excluded. Labor efficiency numbers calculated for the dairy enterprise only help evaluate the labor efficiency of the dairy and the overall business.

**Debt Coverage Ratio** – (defined on page 22).

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

**Debt to Asset Ratios** - (defined on page 18).

**Deferred Taxes** - (defined on page 17).

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

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

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

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

**Farm Debt Payments as Percent of Milk Sales** - Amount of milk income committed to debt repayment, calculated by dividing planned debt payments by total milk receipts. A reliable measure of repayment ability, see page 22.

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

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

**Hired Labor Expense per Hired Worker Equivalent** - The total cost to the farm per hired worker equivalent. Divide accrual hired labor expense (DFBS p. 2) by number of hired plus family paid worker equivalents (p. 14).

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

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

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

**Labor and Management Income** - (defined on page 15).

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

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

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

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

**Machinery & Crop Expenses per Tillable Acre** - A measure of the cost to produce crops on a tillable acre basis. Add total crop expenses (DFBS p. 2) and total machinery expenses (p. 11), then divide by number of tillable acres, owned & rented (p. 11).

**Machinery & Crop Expense per Ton Dry Matter** - A measure of the cost per ton of DM to produce a crop. It is not a measure of total costs to produce feed. Add total crop expenses (DFBS p. 2) and total machinery expenses (p. 11), then divide by total forage, production, tons DM (p. 11).

**Milk Sold per Worker Equivalent for the Dairy Enterprise** – Determined by dividing the total amount of milk produced in the year by the number of worker equivalents in the dairy enterprise

**Milking System Only** – The milking center of dairy farms is a major investment and utilizes a significant portion of the farm labor. Producers provided estimates concerning the number of labor hours per day spent employed in the milking center and the number of milking units utilized. The labor represents time spent to set up, milk cows, and clean the milking center during a 24-hour period. Time spent to move cows to and from the milking center is not included.

**Net Farm Income** - (defined on page 14).

**Net Farm Income from Operations Ratio** - The percentage of each gross dollar that is generated that is net farm income. Net Farm Income without Appreciation (DFBS p. 4) divided by Total Accrual Receipts (p. 3) times 100.

**Net Farm Income without Appreciation per Cwt.** - The amount of net farm income, without appreciation, per cwt., that the farm generated. Divide net farm income without appreciation (DFBS p. 4) by number of cwt. of milk sold, which is total milk sold (p. 12) divided by 100.

**Net Farm Income without Appreciation per Cow** - The amount of net farm income, without appreciation, per cow that the farm generated. Divide net farm income without appreciation (DFBS p. 4) by average number of cows for the year (p. 12).

**Net Income Efficiency Ratio** - A measure of how efficiently the business is in generating net income, taking into account the differences in number of operators, debt levels, and amount of unpaid family labor being used on a farm. Net farm income without appreciation minus unpaid family labor charge (DFBS p. 4), plus Accrual Interest Paid (p. 3), divided by number of operators (p. 4), divided by Total Accrual Receipts (p. 3) times 100.

**Net Milk Income over Purchased Feed Costs per Cow** – A measure of the overall performance of the feeding program for the dairy. Gross milk sales per cow minus milk marketing expenses per cow minus purchased grain and concentrates per cow.

**Net Milk Receipts per Cwt.** - The mail box price received by farmers before any farmer authorized assignments or deductions. Accrual Receipts from milk, per cwt. (DFBS p. 12) minus accrual milk marketing expense per cwt. (p. 12).

**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 29).

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

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

**Other Livestock Expenses** - All other dairy herd and livestock expenses not included in more specific categories. Other livestock expenses include; bedding, DHIC, milk house and parlor supplies, livestock board, registration fees and transfers.

**Percent Herd on bST** – Percent of maximum number of cow days per year that could be supplemented following label restrictions that were treated with bST.

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

**Personal Withdrawals & Family Expenditures per Cwt.** - The amount of money on a per cwt. basis that the family uses for family living and personal expenses. This is the total amount, per cwt., used by the family, including farm and nonfarm income. Personal withdrawals/family expense, including nonfarm debt payments (DFBS p. 9) divided by pounds milk sold (p. 12) divided by 100.

**Personal Withdrawals & Family Expenditures per Cow** - The amount of money on a per cow basis that the family used for family living and personal expenses. This is the total amount, per cow, used by the family, including farm and nonfarm income. Personal withdrawals/family expense, including nonfarm debt payments (DFBS p. 9) divided by average number of cows (p. 12).

**Pounds of Milk Harvested per Hour of Milking Labor** – Calculated by dividing the total pounds milk produced by the total number of labor hours used to operate the milking center for one year. The total number of labor hours is estimated by multiplying the number of hours to operate the milking center for one day, which was provided by the participating dairies, by 365. Operating the milking center includes setting up, milking, and washing down the milking center, but doesn't include time spent to bring cows to and from the milking center.

**Pounds of Milk Harvested per Machine Per Year** – Calculated by dividing the total pounds of milk produced for the year by the number of milking machines in the milking center.

**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 29).

**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 16).

**Return on Total Capital** - (defined on page 16).

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

**Total Costs of Producing Milk** - (defined on page 29).

**Total Cows Milked Per Hour of Milking Labor Per Day** – Determined by dividing the average number of milking and dry cows by the labor hours required to operate the milking center for a one day period.

**Total Labor Costs per Worker Equivalent, All Labor** - The average cost per worker equivalent when considering all labor (hired, paid family, family non-paid, and operators) used on the farm and total costs for this labor. Total Labor Cost (p. 14) divided by number of worker equivalents (p. 14).

**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.

**Worker Equivalents for the Dairy Enterprise** – Determined by the farmer estimating how many of hours of labor are spent in the milking center and dairy complex performing all routine tasks. Labor spent in the field or in the dairy replacement enterprise is excluded. The daily labor estimate is multiplied by 365 days and then divided by 2,760 hours to get the number of worker equivalents.

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