

**DAIRY FARM  
BUSINESS SUMMARY**

MAY 2008

PRO-DAIRY

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**NEW YORK  
LARGE HERD  
FARMS,  
300 COWS  
OR LARGER  
2007**



**Jason Karszes  
Wayne A. Knoblauch  
Linda D. Putnam**

**Department of Applied Economics and Management  
College of Agriculture and Life Sciences  
Cornell University, Ithaca, New York 14853-7801**

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For additional copies, please contact:

Linda Putnam  
Cornell University  
Dept of Applied Economics & Management  
305 Warren Hall  
Ithaca, NY 14853-7801

E-mail: [ldp2@cornell.edu](mailto:ldp2@cornell.edu)  
Fax: 607-255-1589  
Voice: 607-255-8429  
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**2007 DAIRY FARM BUSINESS SUMMARY**  
**LARGE HERD DAIRY FARMS**  
**300 Cows or Larger**

**Table of Contents**

	<u>Page</u>
INTRODUCTION.....	1
Program Objectives.....	1
Format.....	1
PROGRESS OF THE FARM BUSINESS.....	2
TOP 20 PERCENT COMPARISON TO AVERAGE AND FACTORS CONCERNING DAIRY ENTERPRISE, AND PARLOR EFFICIENCY.....	5
SUPPLEMENTARY INFORMATION.....	8
SUMMARY AND ANALYSIS OF THE FARM BUSINESS.....	11
Business Characteristics.....	11
Income Statement.....	11
Profitability Analysis.....	14
Farm and Family Financial Status.....	16
Statement of Owner Equity.....	19
Cash Flow Statement.....	20
Repayment Analysis.....	22
Cropping Analysis.....	25
Dairy Analysis.....	26
Cost of Producing Milk.....	31
Capital and Labor Efficiency Analysis.....	34
Labor Cost Evaluation.....	35
CONDENSED SUMMARY AND SELECTED BUSINESS FACTORS.....	37
INCOME AND EXPENSE PROFILES BY HERD SIZE.....	39
FARM BUSINESS CHART.....	45
IDENTIFY AND SET GOALS.....	49
GLOSSARY AND LOCATION OF COMMON TERMS.....	51
INDEX.....	55

# 2007 DAIRY FARM BUSINESS SUMMARY AND ANALYSIS 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 749 cows, and 750 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. Eighty-three 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 2006 to 2007 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 86 large herd farms that participated in the 2007 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 86 large herd farms that participated in the 2007 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, 501-749 cows, and farms with 750 and more cows.

The fifth section contains the income and expense profiles for the 300-500 cow farms, 501-749 cow farms, and 750 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, Cayuga, Chautaugua, Chenango, Clinton, Cortland, Erie, Genesee, Jefferson, Lewis, Livingston, Madison, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orleans, Otsego, Rensselaer, Saratoga, Schoharie, Schuyler, St. Lawrence, Tompkins, Washington, Wayne, Wyoming, and Yates counties had farms of this size participating in 2007. 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. 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 2007 business year for the New York State dairy industry was dramatically different than 2006, with record high milk prices leading to record milk revenue, resulting in strong earnings for many dairy producers. Growing conditions were variable across the State, with close to record yields in some areas, while other areas experienced dry conditions and loss of yield and quality 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. While milk prices rebounded from the historical lows in 2006 to record highs in 2007, the costs associated with energy and feed continued to increase, offsetting some of the increase in milk prices. The combination of these factors led to a year that was profitable for the average farm participating in this project.

For both 2006 and 2007, 83 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 83 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 increased 46.9 percent to \$20.36, an increase of \$6.50 per hundredweight. Milk marketing expenses increased 2 cents to \$0.79 per hundredweight. These two changes led to an increase of 49.6 percent in net milk price received on farm, averaging \$19.58 per hundredweight. With the variable growing conditions around the State, forage quality, on average, stayed consistent with previous year levels, with small decreases in yields impacting both hay and corn production. With no improvement in forage quality, milk production per cow was relatively flat, 0.1 percent increase to 23,804 pounds per cow. Average herd size for the participating farms increased by 1.2 percent to 742 cows. With milk production per cow relatively flat, and a small increase in herd size, total milk produced and marketed off the farm increased by 1.3 percent.

**Cost control.** Purchased grain and concentrates led the way for increased costs to produce milk in 2007, increasing 88 cents to \$4.90 per hundredweight. While feed was the largest per hundredweight increase from 2006 to 2007, many of the key expense categories showed significant increases. Eight different expense categories increased by 5 cents or more per cwt., with both fertilizer and fuel & oil increasing 9 cents per hundredweight

While herd size did increase slightly, worker equivalents increased at a faster rate, increasing by 2.2 percent. With the additional worker equivalents and small herd size increase, labor efficiency slipped slightly. Cows per worker decreased from 46 to 45, and milk sold per worker decreased slightly to 1,075,016 pounds per worker. Hired labor costs per worker equivalent increased 2.4 percent; and in conjunction with the small decrease in milk sold per worker, labor costs per hundredweight increased 4.0 percent to \$2.87 per hundredweight.

With increased input costs driving up many cost areas and no significant change in cow numbers or milk produced per cow, total farm operating costs increased 11.9 percent to \$16.29, an increase of \$1.73 per hundredweight of milk shipped.

**Increase in Earnings.** With the almost 50 percent increase in net milk price received for milk shipped off the farm, the increase in costs to produce the milk was offset and the farms showed dramatic changes in profitability from 2006. Net farm income without appreciation increased to \$896,059. Net farm income with appreciation increased to \$1,206,792. Increasing cattle and machinery prices along with increasing land values contributed to appreciation in 2007.

- Labor and management income per operator/manager increased over 8 fold, to \$357,338 from a negative \$46, 601.
- Rate of return to all capital without appreciation increased to 20.8 percent, from -0.9 percent in 2006. Rate of return on equity capital without appreciation increased to 15.5 percent.
- Farm net worth increased by 28.9 percent from the previous year, with approximately 63 percent of this increase through retained earnings.
- Debt to asset ratio decreased 17.1 percent to 0.34, reflecting the increased asset values during the year.

Overall, 2007 was a year of record high earnings, and a dramatically different year than 2006, for the 300 cow and larger farms. While, on average, profits did increase from 2006, the changes on individual farms varied, with some farms actually showing little change from 2006. 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 83 Large Herd Dairy Farms, 2006 & 2007

Selected Factors	Average of 83 Farms		Percent Change
	2006	2007	
<u>Size of Business</u>			
Average number of cows	733	742	1.2
Average number of heifers	596	600	0.7
Milk sold, lbs.	17,430,988	17,662,514	1.3
Worker equivalent	16.08	16.43	2.2
Total tillable acres	1,412	1,456	3.1
<u>Rates of Production</u>			
Milk sold per cow, lbs.	23,787	23,804	0.1
Butterfat per cow, lbs. <sup>2</sup>	875	860	-1.7
Protein per cow, lbs. <sup>2</sup>	718	731	1.8
Hay DM per acre, tons	3.5	3.4	-2.9
Corn silage per acre, tons	19.4	19.1	-1.6
<u>Labor Efficiency &amp; Costs</u>			
Cows per worker	46	45	-2.2
Milk sold per worker, lbs.	1,084,017	1,075,016	-0.8
Hired labor cost per cwt.	\$2.76	\$2.87	4.0
Hired labor cost per worker	\$35,071	\$35,894	2.4
Hired labor cost as % of milk sales	19.9%	14.1%	-29.2
<u>Cost Control</u>			
Grain & concentrate purchased as % of milk sales	29%	24%	-17.2
Grain & concentrate per cwt. milk	\$4.02	\$4.90	21.9
Dairy feed & crop expense per cwt. milk	\$4.99	\$6.08	21.8
Labor & machinery costs per cow	\$1,346	\$1,452	7.9
Total farm operating costs per cwt. sold	\$14.56	\$16.29	11.9
Interest costs per cwt. milk	\$0.77	\$0.81	5.2
Operating cost of producing cwt. of milk	\$12.17	\$13.94	14.5
<u>Capital Efficiency</u> (average for the year)			
Farm capital per cow	\$7,475	\$8,098	8.3
Machinery & equipment per cow	\$1,255	\$1,359	8.3
Asset turnover ratio	0.56	0.72	28.6
<u>Income Generation</u>			
Gross milk sales per cow	\$3,298	\$4,848	47.0
Gross milk sales per cwt.	\$13.86	\$20.36	46.9
Net milk sales per cwt.	\$13.09	\$19.58	49.6
Dairy cattle sales per cow	\$265	\$277	4.5
Dairy calf sales per cow	\$65	\$34	-47.7
<u>Profitability</u>			
Net farm income without appreciation	\$76,225	\$896,059	1,075.5
Net farm income with appreciation	\$259,843	\$1,206,792	364.4
Labor & mgt. income per operator/manager	-\$46,601	\$357,338	866.8
Rate of return on equity capital w/o appreciation	-0.9%	20.8%	2,411.1
Rate of return on all capital without appreciation	1.9%	15.5%	715.8
<u>Financial Summary (excluding deferred taxes)</u>			
Farm net worth, end year	\$3,333,661	\$4,295,825	28.9
Debt to asset ratio	0.41	0.34	-17.1
Farm debt per cow	\$3,077	\$2,939	-4.5

<sup>2</sup>Average of 72 large herd dairy farms that provided this data.

**RECEIPTS AND EXPENSES PER COW AND PER HUNDREDWEIGHT**  
Same 83 Large Herd Dairy Farms, 2006 & 2007

Item	2006		2007	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average number of cows	733		742	
Cwt. of milk sold		174,310		176,625
<u>ACCRUAL OPERATING RECEIPTS</u>				
Milk	\$3,298	\$13.86	\$4,848	\$20.36
Dairy cattle	265	1.11	277	1.16
Dairy calves	65	0.27	34	0.14
Other livestock	10	0.04	10	0.04
Crops	104	0.44	136	0.57
Miscellaneous receipts	<u>178</u>	<u>0.75</u>	<u>131</u>	<u>0.55</u>
Total Receipts	\$3,919	\$16.48	\$5,435	\$22.83
<u>ACCRUAL OPERATING EXPENSES</u>				
Hired labor	\$ 656	\$ 2.76	\$ 683	\$ 2.87
Dairy grain & concentrate	957	4.02	1,166	4.90
Dairy roughage	61	0.26	69	0.29
Nondairy feed	0	0.00	1	0.00
Professional nutritional services	0	0.00	1	0.00
Machine hire, rent & lease	63	0.27	80	0.34
Machine repair & vehicle expense	172	0.72	189	0.79
Fuel, oil & grease	129	0.54	149	0.63
Replacement livestock	14	0.06	18	0.08
Breeding	53	0.22	57	0.24
Veterinary & medicine	161	0.68	158	0.66
Milk marketing	184	0.77	187	0.79
Bedding	75	0.32	77	0.32
Milking supplies	84	0.35	95	0.40
Cattle lease	5	0.02	4	0.02
Custom boarding	77	0.32	67	0.28
bST expense	56	0.23	63	0.27
Livestock professional fees	13	0.05	11	0.05
Other livestock expense	15	0.06	18	0.08
Fertilizer & lime	69	0.29	90	0.38
Seeds & plants	55	0.23	65	0.27
Spray & other crop expense	39	0.17	50	0.21
Crop professional fees	5	0.02	7	0.03
Land, building, fence repair	57	0.24	75	0.31
Taxes	43	0.18	47	0.20
Real estate rent/lease	65	0.27	69	0.29
Insurance	37	0.15	40	0.17
Utilities	90	0.38	97	0.41
Interest paid	184	0.77	193	0.81
Other professional fees	22	0.09	23	0.10
Miscellaneous	<u>23</u>	<u>0.09</u>	<u>27</u>	<u>0.11</u>
Total Operating Expenses	\$3,463	\$14.56	\$3,877	\$16.29
Expansion livestock	52	0.22	30	0.12
Extraordinary expense	0	0.00	1	0.00
Machinery depreciation	174	0.73	193	0.81
Real estate depreciation	<u>125</u>	<u>0.53</u>	<u>127</u>	<u>0.53</u>
Total Expenses	\$3,814	\$16.04	\$4,228	\$17.75
Net Farm Income Without Appreciation	\$ 105	\$ 0.44	\$1,207	\$ 5.08

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

In 2007, 39 farms across all herd sizes 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 39 farms and only represents these 39 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 86 farms over 300 cows that participated in the DFBS project in 2007. 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 seventeen farms that were in the top 20 percent in 2007 were also in the summary in 2006. The table on page 7 shows income and expenses for these farms for both 2006 and 2007. 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**  
39 New York Dairy Farms, 2007

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	1,850	31	696,977
	1,346	24	444,817
	1,106	20	325,795
	860	17	210,812
Average of Lowest Quintile	613	13	116,302
Overall Average	1,156	21	359,790
Dairy Enterprise Only			
Quintile	Worker Equivalents	Cows per Worker Equivalent	Pounds Sold per Worker Equivalent
Average of Highest Quintile	15.10	102	2,193,931
	6.98	72	1,486,885
	3.82	58	1,156,688
	2.40	49	914,185
Average of Lowest Quintile	1.59	36	642,983
Overall Average	6.03	64	1,282,069



**TOP 20 PERCENT VS. AVERAGE**  
86 Large Herd Dairy Farms, 2007

Selected Factors	Average 86 Farms	Average Top 20% Farms	Percent Difference
<u>Size of Business</u>			
Average number of cows	759	711	-6.3
Average number of heifers	611	564	-7.7
Milk sold, lbs.	18,040,337	18,018,722	-0.1
Worker equivalent	16.72	15.97	-4.5
Total tillable acres	1,482	1,357	-8.4
<u>Rates of Production</u>			
Milk sold per cow, lbs.	23,780	25,360	6.6
Butterfat per cow, lbs. <sup>3</sup>	860	908	5.6
Protein per cow, lbs. <sup>3</sup>	731	762	4.2
Hay DM per acre, tons	3.4	3.1	-8.8
Corn silage per acre, tons	19.1	18.7	-2.1
<u>Labor Efficiency &amp; Costs</u>			
Cows per worker	45	44	-2.2
Milk sold/worker, lbs.	1,079,183	1,127,991	4.5
Hired labor cost/cwt.	\$2.88	\$2.64	-8.3
Hired labor cost/hired worker	\$35,987	\$34,849	-3.2
Hired labor cost as % of milk sales	14.2%	12.7%	-10.6
<u>Cost Control</u>			
Grain & conconcentrate purchased as % of milk sales	24%	23%	-4.2
Grain & conconcentrate per cwt. milk	\$4.90	\$4.93	0.6
Dairy feed & crop expense per cwt. milk	\$6.08	\$5.98	-1.6
Labor & machinery costs/cow	\$1,443	\$1,400	-3.0
Total farm operating costs per cwt. sold	\$16.39	\$15.35	-6.4
Interest costs per cwt. milk	\$0.83	\$0.61	-26.5
Milk marketing costs per cwt. milk sold	\$0.79	\$0.83	5.1
Operating cost of producing cwt. of milk	\$14.05	\$13.10	-6.8
Net milk income over purchased feed costs per cow	\$3,368	\$3,585	6.4
<u>Capital Efficiency</u> (average for the year)			
Farm capital per cow	\$8,033	\$7,347	-8.5
Machinery & equipment per cow	\$1,324	\$1,080	-18.4
Asset turnover ratio	0.73	0.84	15.1
<u>Income Generation</u>			
Gross milk sales per cow	\$4,832	\$5,280	9.3
Gross milk sales per cwt.	\$20.32	\$20.82	2.5
Net milk sales per cwt.	\$19.53	\$19.99	2.4
Dairy cattle sales per cow	\$282	\$305	8.2
Dairy calf sales per cow	\$34	\$52	52.9
<u>Profitability</u>			
Net farm income without appreciation	\$893,659	\$1,214,228	35.9
Net farm income with appreciation	\$1,221,189	\$1,397,844	14.5
Labor & management income per operator/manager	\$357,976	\$524,390	46.5
Rate of return on equity capital without appreciation	20.7%	32.4%	56.5
Rate of return on all capital without appreciation	15.4%	23.2%	50.7
<u>Financial Summary (excluding deferred taxes)</u>			
Farm net worth, end of year	\$4,303,609	\$3,963,918	-7.9
Debt to asset ratio	0.35	0.31	-11.4
Farm debt per cow	\$2,985	\$2,431	-18.6

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

**RECEIPTS AND EXPENSES PER COW AND PER HUNDREDWEIGHT**  
Same 17 Top 20% Large Herd Dairy Farms, 2006 & 2007

Item	2006		2007	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	634		711	
Cwt. of Milk Sold		157,654		180,187
<u>Accrual Operating Receipts</u>				
Milk	\$3,525	\$14.18	\$5,280	\$20.82
Dairy cattle	371	1.49	305	1.20
Dairy calves	61	0.24	52	0.21
Other livestock	0	0.00	0	0.00
Crops	48	0.19	138	0.54
Miscellaneous receipts	<u>161</u>	<u>0.65</u>	<u>105</u>	<u>0.42</u>
Total	\$4,165	\$16.76	\$5,880	\$23.19
<u>Accrual Operating Expenses</u>				
Hired labor	\$ 670	\$ 2.70	\$ 669	\$ 2.64
Dairy grain & concentrate	1,013	4.08	1,250	4.93
Dairy roughage	73	0.29	68	0.27
Nondairy feed	0	0.00	0	0.00
Professional nutritional services	0	0.00	1	0.00
Machine hire, rent & lease	86	0.35	113	0.45
Machine repair & vehicle expense	155	0.63	170	0.67
Fuel, oil & grease	132	0.53	157	0.62
Replacement livestock	9	0.04	1	0.00
Breeding	58	0.23	57	0.22
Veterinary & medicine	145	0.58	138	0.54
Milk marketing	203	0.82	210	0.83
Bedding	76	0.31	86	0.34
Milking supplies	78	0.32	91	0.36
Cattle lease	10	0.04	8	0.03
Custom boarding	69	0.28	78	0.31
bST expense	62	0.25	75	0.30
Livestock professional fees	14	0.06	10	0.04
Other livestock expense	10	0.04	14	0.05
Fertilizer & lime	61	0.24	75	0.29
Seeds & plants	56	0.23	60	0.24
Spray & other crop expense	46	0.19	55	0.22
Crop professional fees	5	0.02	8	0.03
Land, building & fence repair	63	0.25	82	0.32
Taxes	29	0.12	31	0.12
Real estate rent/lease	60	0.24	65	0.25
Insurance	25	0.10	26	0.10
Utilities	92	0.37	103	0.41
Interest paid	157	0.63	155	0.61
Other professional fees	16	0.06	18	0.07
Miscellaneous	<u>24</u>	<u>0.10</u>	<u>23</u>	<u>0.09</u>
Total Operating Expenses	\$3,501	\$14.09	\$3,894	\$15.35
Expansion livestock	122	0.49	30	0.12
Extraordinary Expense	0	0.00	0	0.00
Machinery depreciation	151	0.61	142	0.56
Real Estate depreciation	<u>115</u>	<u>0.46</u>	<u>105</u>	<u>0.41</u>
Total Expenses	\$3,889	\$15.65	\$4,171	\$16.44
Net Farm Income without appreciation	\$ 276	\$ 1.11	\$1,709	\$ 6.75

## **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**

39 New York Dairy Farms, 2007

<u>Animals Entering Herd</u>	Average
Number calving in 2007 for first time	127.4
Animals purchased, % <sup>4</sup>	5.9
Animals raised by farm, % <sup>5</sup>	94.1
<u>Current Heifer Inventory</u>	
Raised on dairy, %	89.7
Raised by a custom grower, %	10.3

<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, 127.4 animals calved for the first time in 2007. The breakdown on the source of these animals was 5.9 percent purchased and 94.1 percent raised by the farm. Of the current heifer inventory, 89.7 percent were raised on the dairy and 10.3 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, 77 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**  
77 Large Herd Dairy Farms, 2007

	Pounds	Percent	Price/Pound	Total	\$/Cwt of Milk
<b>BASE FARM PRICE</b>					
Butterfat	663,082.86	3.62%	\$ 1.48	\$ 982,514.51	\$ 5.36
Protein	563,907.23	3.07%	\$ 3.47	\$ 1,958,855.62	\$10.68
Solids	1,031,029.90	5.62%	\$ 0.42	\$ 430,698.47	\$ 2.35
<b>Total Component Contribution</b>					<b>\$ 18.39</b>
<b>PPD</b>	18,340,319.79			\$ 178,277.06	<b>\$ 0.97</b>
<b>Base Farm Price</b>					<b>\$ 19.36</b>
<b>Premiums</b>					
Quality				\$ 34,654.62	\$ 0.19
Volume				\$ 63,878.66	\$ 0.35
Market Premiums				\$ 88,885.57	\$ 0.48
<b>Total Premiums</b>					<b>\$ 1.02</b>
<b>BASE FARM PRICE + PREMIUM</b>					<b>\$ 20.38</b>
<b>Deductions</b>					
Promo				\$ 27,464.84	\$ 0.15
Hauling + Stop Charges.				\$ 93,469.75	\$ 0.51
Market Fees & Coop Dues				\$ 25,972.49	\$ 0.14
<b>Total Deductions</b>					<b>\$ 0.80</b>
<b>BASE FARM PRICE + PREMIUMS – DEDUCTIONS</b>					<b>\$ 19.58</b>
<b>Marketing Programs</b>					
Futures Contracts, Forward Contracting, Etc.				\$ -16,342.06	\$ -0.09
<b>Total Marketing Income</b>					<b>\$ -0.09</b>
<b>Patronage Dividends</b>				\$ 14,840.30	<b>\$ 0.08</b>
<b>NET PRICE RECEIVED ON FARM, ALL SOURCES</b>					<b>\$ 19.57</b>
<b>PPD - Hauling, per cwt., \$ per cwt.</b>					\$ 0.46
<b>PPD - Hauling + Market Premiums, per cwt., \$ per cwt.</b>					\$ 0.95
<b>Net Marketing Value (PPD + Total Premiums – Total Deductions), \$ per cwt.</b>					\$ 1.19

<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)  
 77 Large Herd Dairy Farms, 2007

	Lowest Quintile	←	→	Highest Quintile	
Butterfat, %	3.48	3.56	3.63	3.70	3.99
Protein, %	2.94	3.00	3.04	3.08	3.69
Other Solids, %	5.14	5.73	5.75	5.77	5.81
Butterfat, \$ per Cwt.	4.83	5.23	5.36	5.46	6.02
Protein, \$ per Cwt.	9.62	10.55	10.67	10.85	11.41
Other solids, \$ per Cwt.	2.04	2.40	2.42	2.44	2.53
<b>Total Component Value per Cwt.</b>	<b>\$ 16.74</b>	<b>\$ 18.20</b>	<b>\$ 18.44</b>	<b>\$ 18.72</b>	<b>\$ 19.71</b>
PPD, \$ per Cwt.	0.65	0.80	0.93	1.07	1.46
<b>Base Farm Price per Cwt.</b>	<b>\$ 17.55</b>	<b>\$ 19.07</b>	<b>\$ 19.38</b>	<b>\$ 19.80</b>	<b>\$ 20.90</b>
Quality, \$ per Cwt.	0.04	0.11	0.17	0.27	0.47
Volume, \$ per Cwt.	0.00	0.17	0.32	0.49	0.73
Market premium, \$ per Cwt.	0.02	0.15	0.31	0.64	2.17
<b>Total Premium, \$ per Cwt.</b>	<b>0.51</b>	<b>0.80</b>	<b>0.98</b>	<b>1.15</b>	<b>2.55</b>
<b>Base Farm Price + Premiums per Cwt.</b>	<b>\$ 19.53</b>	<b>\$ 19.93</b>	<b>\$ 20.32</b>	<b>\$ 20.79</b>	<b>\$ 22.01</b>
Promotion, \$ per Cwt.	0.15	0.15	0.15	0.15	0.15
Hauling, \$ per Cwt.	0.33	0.40	0.46	0.58	0.93
Market fees & coop dues per Cwt.	0.04	0.10	0.14	0.16	0.20
<b>Total Marketing Expenses per Cwt.</b>	<b>\$ 0.58</b>	<b>\$ 0.68</b>	<b>\$ 0.76</b>	<b>\$ 0.87</b>	<b>\$ 1.20</b>
<b>Base + Premiums – Deductions per Cwt.</b>	<b>\$ 18.84</b>	<b>\$ 19.22</b>	<b>\$ 19.52</b>	<b>\$ 19.91</b>	<b>\$ 21.04</b>
Futures contract, forward contracting, \$ per Cwt.	-0.31	0.00	0.00	0.00	0.00
<b>Total Marketing Income, \$ per Cwt.</b>	<b>\$ -0.31</b>	<b>\$ 0.00</b>	<b>\$ 0.00</b>	<b>\$ 0.00</b>	<b>\$ 0.00</b>
<b>Patronage Dividends, \$ per Cwt.</b>	<b>\$ 0.00</b>	<b>\$ 0.00</b>	<b>\$ 0.00</b>	<b>\$ 0.05</b>	<b>\$ 0.39</b>
<b>Net Price Received From All Sources, \$ per Cwt.</b>	<b>\$ 18.76</b>	<b>\$ 19.29</b>	<b>\$ 19.61</b>	<b>\$ 19.93</b>	<b>\$ 21.03</b>
<b>PPD – Hauling, \$ per cwt.</b>	<b>\$ 0.17</b>	<b>\$ 0.35</b>	<b>\$ 0.44</b>	<b>\$ 0.58</b>	<b>\$ 0.69</b>
<b>PPD – Hauling + Market Premiums, \$ per cwt.</b>	<b>\$ 0.33</b>	<b>\$ 0.55</b>	<b>\$ 0.76</b>	<b>\$ 1.14</b>	<b>\$ 2.71</b>
<b>Net Marketing Value (PPD + Total Premiums – Total Deductions), \$ per cwt.</b>	<b>\$ 0.65</b>	<b>\$ 0.88</b>	<b>\$ 1.09</b>	<b>\$ 1.37</b>	<b>\$ 2.82</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 86 Large Herd Dairy Farms, 2007

Type of Farm	Number	Type of Barn	Number
Dairy	86	Stanchion/Tie-Stall	0
Dairy – cash crop	0	Freestall	82
		Combination	4
Type of Ownership	Number	Milking System	Number
Owner	85	Pipeline	0
Renter	1	Herringbone Conventional	24
		Herringbone Rapid Exit	16
Type of Business	Number	Parallel	38
Single proprietorship	15	Parabone	2
Partnership	20	Rotary	1
Limited Liability Corporation	37	Other	5
Subchapter S Corporation	11		
Subchapter C Corporation	3	Milking Frequency	Number
		2x/day	22
Business Record System	Number	3x/day	55
Account Book	1	Other	9
Accounting Service	7		
On-Farm Computer	77	Production Records	Number
Other	1	Testing Service	67
		On-Farm System	16
BST Usage	Number	Other	0
Used consistently	54	None	3
Used inconsistently	3		
Started Use in 2007	2	Breed	Percent
Stopped Use in 2007	1	Holstein	94
Not Used	26	Jersey	3
Average % bst usage of those reporting	54%	Other	3

### 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 2007.

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**

86 Large Herd Dairy Farms, 2007

Expense Item	Cash Paid	-	Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses
<u>Hired Labor</u>	\$519,306	\$	626	\$	276		518,956
<u>Feed</u>							
Dairy grain & concentrate	995,827		96,098		-15,617		884,112
Dairy roughage	54,495		736		-1,888		51,871
Nondairy	643		17		0		626
Professional nutritional services	675		-29		-1		703
<u>Machinery</u>							
Mach. hire, rent/lease	62,896		117		-2,130		60,649
Mach. rep. & farm veh. exp	149,292		2,389		-3,600		143,303
Fuel, oil & grease	117,512		2,349		-2,356		112,808
<u>Livestock</u>							
Replacement livestock	14,425		0		0		14,425
Breeding	45,988		1,995		-900		43,093
Vet & medicine	126,092		3,743		-1,119		121,230
Milk marketing	143,288		0		-282		143,006
Bedding	60,046		753		-1,150		58,144
Milk supplies	77,533		3,976		-1,256		72,302
Cattle lease/rent	3,594		0		-145		3,449
Custom boarding	60,122		249		-952		58,921
bST expense	50,177		968		81		49,289
Livestock professional fees	9,593		948		-139		8,506
Other livestock expense	13,236		218		-69		12,949
<u>Crops</u>							
Fertilizer & lime	90,065		19,765		-1,663		68,637
Seeds & plants	77,951		26,964		-1,514		49,473
Spray, other crop exp.	42,007		2,945		-792		38,270
Crop professional fees	6,029		815		-235		4,979
<u>Real Estate</u>							
Land/bldg./fence repair	57,654		1,080		-789		55,784
Taxes	37,029		751		-45		36,233
Rent & lease	55,590		1,313		-1,235		53,043
<u>Other</u>							
Insurance	31,774		740		-163		30,871
Utilities (farm share)	75,055		583		-657		73,815
Interest paid	150,694		0		-333		150,361
Other professional fees	17,925		465		-288		17,172
Miscellaneous	20,528		36		-173		20,319
Total Operating Expenses	\$ 3,167,043	\$	170,611	\$	-39,137		\$2,957,295
Expansion livestock	\$ 25,928	\$	0	\$	-93		\$ 25,835
Extraordinary expense	\$ 745	\$	0	\$	0		\$ 745
Machinery depreciation							\$ 142,548
Building depreciation							\$ 94,713
Total Accrual Expenses							\$3,221,136

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 2007 funds used to prepay 2008 leases exceed the amount of 2007 leases prepaid in 2006, the amount of this excess is subtracted to exclude it from 2007 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 2007 but not paid for. A decrease is subtracted because the resource was used before 2007.

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

86 Large Herd Dairy Farms, 2007

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts
Milk sales	\$3,528,676				\$137,339		\$3,666,015
Dairy cattle	126,403		\$ 86,742		1,112		214,257
Dairy calves	24,972		721		110		25,802
Other livestock	6,701		492		0		7,194
Crops	38,455		64,365		-753		102,067
Government receipts	42,099		0 <sup>8</sup>		8		42,108
Custom machine work	6,649				152		6,801
Gas tax refund	516				23		539
Other	<u>50,243</u>				<u>-231</u>		50,012
Less nonfarm noncash cap.			<u>0<sup>9</sup></u>				<u>0</u>
Total Receipts	\$3,824,715		\$152,320		\$ 137,761		\$4,114,796

<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 2007 for the 2008 crop year in excess of funds earned for 2007. Likewise, a decrease is added to cash government receipts because it represents funds earned for 2007 but received in 2006.

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.

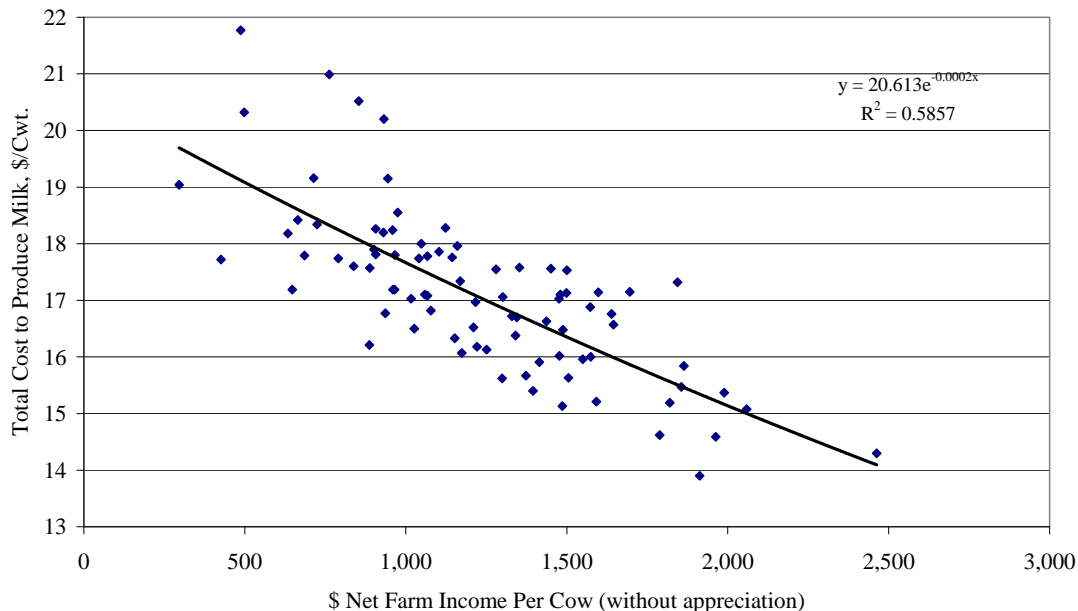
Net farm income is the return to the farm operators and other unpaid family members for their labor, management, and equity capital. It is the farm family's net annual return from working, managing, financing, and owning the farm business. This is not a measure of cash available from the year's business 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 86 Large Herd Dairy Farms, 2007

Item	Average 86 Farms		Average Top 20% <sup>11</sup> Farms	
	Total	Per Cow	Total	Per Cow
Total accrual receipts	\$ 4,114,796		\$ 4,178,168	
Appreciation: Livestock	165,061		86,348	
Machinery	39,610		12,896	
Real Estate	117,615		85,765	
Other Stock/Certificates	5,243		-1,393	
Total Including Appreciation	\$ 4,442,325		\$ 4,361,784	
Total accrual expenses	3,221,136		2,963,940	
Net Farm Income (with appreciation)	\$ 1,221,189	\$1,610	\$ 1,397,844	\$1,967
Net Farm Income (w/o appreciation)	\$ 893,659	1,178	\$ 1,214,228	\$1,709

#### TOTAL COST TO PRODUCE MILK VS. NET FARM INCOME PER COW 86 Large Herd Dairy Farms ,2007



<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.

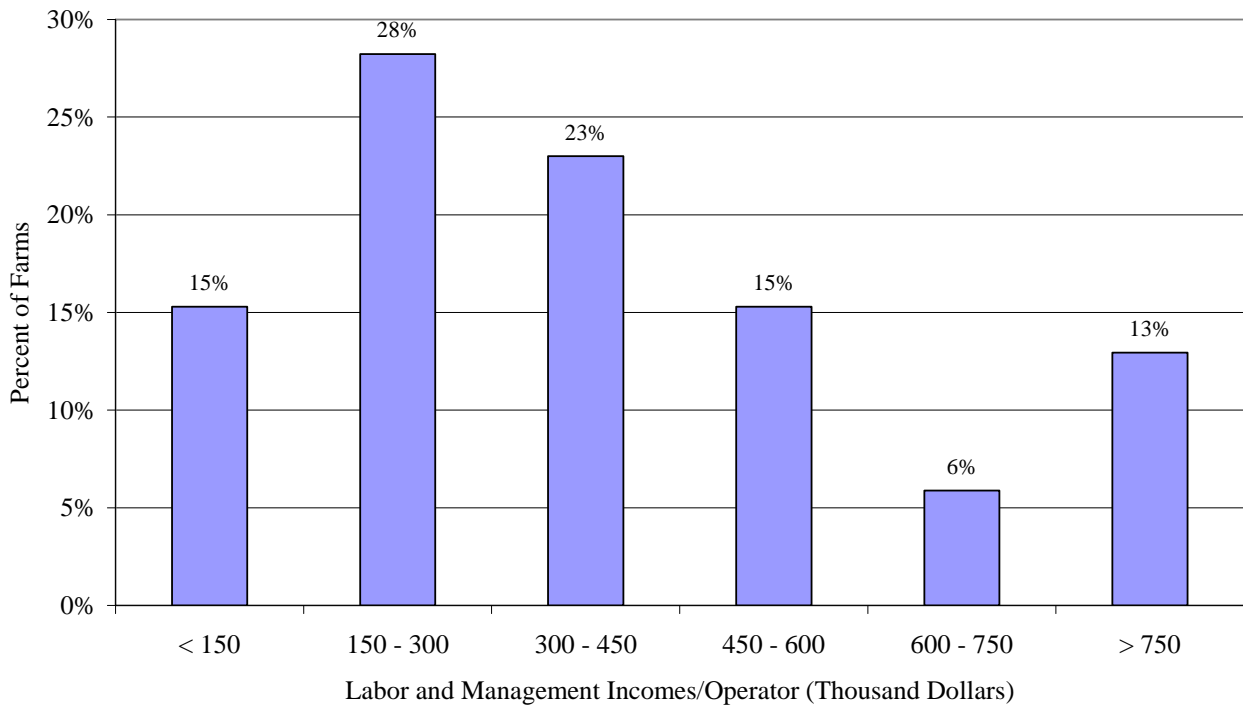
Labor and management income is the return which farm operators receive for their labor and management used in operating the farm business. Appreciation is not included as part of the return to labor and management because it results from ownership of assets rather than management of the farm business. 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**  
86 Large Herd Dairy Farms, 2007

Item	Average 86 Farms	Average Top 20% Farms
Net farm income without appreciation	\$ 893,659	\$ 1,214,228
Family labor unpaid @ \$2,400 per month	- 2,300	- 607
Interest on \$3,794,543 (\$3,401,698 for top 20%) average equity capital @ 5% real rate	- 189,727	- 170,085
Labor & Management Income per Farm (1.96 operators/farm; 1.99 operators for top 20%)	\$ 701,632	\$ 1,043,536
Labor & Management Income per Operator/Manager	\$ 357,976	\$ 524,390

Labor and management income per operator averaged \$357,976 on these 86 farms in 2007. Returns to labor and management were less than \$300,000 on 43 percent of the farms. Labor and management income per operator ranged from \$300,000 to \$600,000 on 38 percent of the farms while 19 percent showed labor and management incomes per operator greater than \$600,000.

**DISTRIBUTION OF LABOR & MANAGEMENT INCOMES PER OPERATOR**  
86 Large Herd Dairy Farms, 2007



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**  
86 Large Herd Dairy Farms, 2007

Item	Average 86 Farms	Average Top 20% Farms
Net farm income with appreciation	\$ 1,221,189	\$ 1,397,844
Family labor unpaid @ \$2,400 per month	- 2,300	- 607
Value of operators' labor & management	- 105,995	- 110,587
Return on equity capital with appreciation	\$ 1,112,894	\$ 1,286,650
Interest paid	+ 150,361	+ 110,252
Return on total capital with appreciation	\$ 1,263,255	\$ 1,396,902
Return on equity capital without appreciation	\$ 785,365	\$ 1,103,034
Return on total capital without appreciation	\$ 935,725	\$ 1,213,285
Rate of return on average equity capital:		
with appreciation	29.3%	37.8 %
without appreciation	20.7%	32.4 %
Rate of return on average total capital:		
with appreciation	20.7%	26.8 %
without appreciation	15.4%	23.2 %
Net farm income from operations ratio	0.22	0.29

**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 2007, leases were discounted by 9.06 percent.

Advanced government receipts are included as current liabilities. Government payments received in 2007 that are for participation in the 2008 program are the end year balance and payments received in 2006 for participation in the 2007 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.

**2007 FARM BUSINESS & NONFARM BALANCE SHEET**

86 Large Herd Dairy Farms, 2007

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$ 36,321	\$ 29,358	Accounts payable	\$ 108,747	\$ 69,517
Accounts receivable	169,986	307,747	Operating debt	131,872	147,296
Prepaid expenses	4,624	11,202	Short Term	14,387	7,205
Feed & supplies	531,531	759,929	Advanced govt. receipts	0	0
			Current Portion:		
			Intermediate	168,730	185,715
			Long Term	<u>51,684</u>	<u>57,600</u>
Total Current	\$ 742,462	\$ 1,108,235	Total Current	\$ 475,420	\$ 467,333
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy cows:			Structured debt		
owned	\$ 979,996	\$ 1,133,343	1-10 years	\$ 998,042	\$ 945,053
leased	2,360	1,808	Financial lease		
Heifers	565,935	665,007	(cattle/machinery)	5,745	4,047
Bulls/other livestock	8,425	9,023	Farm Credit stock	<u>8,079</u>	<u>1,149</u>
Mach./equipment owned	932,282	1,070,708	Total Intermediate	\$ 1,011,866	\$ 950,249
Mach./equipment leased	3,385	2,239			
Farm Credit stock	8,079	1,149			
Other stock/certificate	<u>121,127</u>	<u>137,594</u>			
Total Intermediate	\$ 2,621,590	\$ 3,020,870			
<u>Long Term</u>			<u>Long Term</u>		
Land/buildings:			Structured debt		
owned	\$ 2,228,736	\$ 2,465,536	>10 years	\$ 820,025	\$ 873,451
leased	<u>772</u>	<u>626</u>	Financial lease		
Total Long Term	\$ 2,229,508	\$ 2,466,162	(structures)	<u>772</u>	<u>626</u>
			Total Long Term	\$ 820,797	\$ 874,076
			Total Farm Liab.	\$ 2,308,083	\$ 2,291,658
Total Farm Assets	\$ 5,593,560	\$ 6,595,267	FARM NET WORTH	\$ 3,285,477	\$ 4,303,609

## Nonfarm Assets, Liabilities &amp; Net Worth (Average of 30 farms reporting)

Assets	Jan. 1	Dec. 31	Liabilities & Net Worth	Jan. 1	Dec. 31
Personal cash, checking & savings	\$ 9,781	\$ 15,195	Nonfarm Liabilities	\$ 2,471	\$ 3,356
Cash value life insurance	52,406	55,427			
Nonfarm real estate	278,024	283,707			
Auto (personal share)	12,215	13,849			
Stocks & bonds	83,030	80,826			
Household furnishings	6,917	6,833			
All other nonfarm assets	<u>7,683</u>	<u>8,737</u>			
Total Nonfarm Assets	\$ 450,055	\$ 464,573	NONFARM NET WORTH	\$ 447,584	\$ 461,217

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

	Jan. 1	Dec. 31
Total Assets	\$ 6,043,615	\$ 7,059,840
Total Liabilities	<u>2,310,554</u>	<u>2,295,014</u>
TOTAL FARM & NONFARM NET WORTH	\$ 3,733,061	\$ 4,764,826

<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**  
86 Large Herd Dairy Farms, 2007

Item	Average 86 Farms	Average Top 20% Farms
<u>Financial Ratios - Farm:</u>		
Percent equity	65%	69%
Debt/asset ratio: total	0.35	0.31
long-term	0.35	0.36
intermediate/current	0.34	0.29
Leverage Ratio	0.53	0.45
Current Ratio	2.37	2.50
Working Capital: \$640,902	as % of Total Expenses: 20%	\$694,990 23%

Farm Debt Analysis:

Accounts payable as % of total debt	3%	3%
Long-term liabilities as a % of total debt	38%	40%
Current & intermediate liabilities as a % of total debt	62%	60%
Cost of term debt (weighted average)	6.6%	6.3%

Average 86 Farms

Average Top 20% Farms

<u>Farm Debt Levels:</u>	<u>Per Cow</u>	<u>Per Tillable Acre Owned</u>	<u>Per Cow</u>	<u>Per Tillable Acre Owned</u>
Total farm debt	\$ 2,985	\$ 3,229	\$ 2,431	\$ 3,224
Long-term debt	1,139	1,231	973	1,291
Long-term & intermediate	2,377	2,570	1,799	2,386
Intermediate & current debt	1,847	1,997	1,458	1,933

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**  
86 Large Herd Dairy Farms, 2007

Item	Average of 86 Farms	
	<u>Real Estate</u>	<u>Machinery &amp; Equipment</u>
Value beginning of year	\$ 2,228,736	\$ 932,282
Purchases	\$ 308,332 <sup>13</sup>	\$ 250,577
Gift/inheritance	+ 0	+ 0
Lost capital	- 80,480	
Sales	- 13,954	- 9,213
Depreciation	- 94,713	- 142,548
Net investment	= 119,185	= 98,816
Appreciation	+ 117,615	+ 39,610
Value end of year	\$ 2,465,536	\$ 1,070,708

<sup>13</sup> \$91,276 land and \$217,056 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)**  
86 Large Herd Dairy Farms, 2007

Item	Average 86 Farms		Average Top 20% Farms	
Beginning of year farm net worth		\$ 3,285,477		\$2,839,478
Net farm income w/o appreciation	\$ 893,659		\$1,214,228	
+ Nonfarm cash income	+ 5,661		+ 2,332	
- Personal withdrawals & family expenditures excluding nonfarm borrowings	- 184,650		- \$ 226,233	
Retained Earnings		+\$ 714,670		+ \$ 990,327
Nonfarm noncash transfers to farm	\$ 0		\$ 0	
+ Cash used in business from nonfarm capital	+ 59,749		+ 16,900	
- Note/mortgage from farm real estate sold (nonfarm)	- 0		- 0	
Contributed/Withdrawn Capital	=	+\$ 59,749	=	+ \$ 16,900
Appreciation	\$ 327,530		\$ 183,616	
- Lost capital	- 80,480		- 66,015	
Change in Valuation Equity		+\$ 247,049		+ \$ 117,602
Imbalance/Error		- 3,337		- 388
End of year farm net worth <sup>14</sup>		=\$ 4,303,609		= \$3,963,918
Change in net worth w/apprec.		\$ 1,018,132		\$1,124,441
<hr/>				
<u>Change in Net Worth</u>				
Without appreciation		\$ 690,602		\$ 940,824
With appreciation		\$ 1,018,132		\$ 1,124,441

<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**

86 Large Herd Dairy Farms, 2007

Item	Average 86 Farms	
<b><u>Cash Flow from Operating Activities</u></b>		
Cash farm receipts	\$ 3,824,715	
- Cash farm expenses	3,167,043	
- Extraordinary expense	<u>745</u>	
= Net cash farm income		\$ 656,927
Personal withdrawals/family expenses including nonfarm debt payments	\$ 184,178	
- Nonfarm income	<u>5,661</u>	
- Net cash withdrawals from the farm		\$ <u>178,517</u>
= Net Provided by Operating Activities		\$ 478,410
<b><u>Cash Flow From Investing Activities</u></b>		
Sale of Assets: Machinery	\$ 9,213	
+ real estate	13,954	
+ other stock/cert.	<u>3,775</u>	
= Total asset sales		\$ 26,942
Capital purchases: expansion livestock	\$ 25,928	
+ machinery	250,577	
+ real estate	308,332	
+ other stock/cert.	<u>14,999</u>	
- Total invested in farm assets		\$ <u>599,836</u>
= Net Provided by Investment Activities		\$ -572,894
<b><u>Cash Flow From Financing Activities</u></b>		
Money borrowed (inter. & long term)	\$ 349,540	
+ Money borrowed (short-term)	12,404	
+ Increase in operating debt	15,424	
+ Cash from nonfarm cap. used in business	59,277	
+ Money borrowed - nonfarm	<u>0</u>	
= Cash inflow from financing		\$ 436,646
Principal payments (inter. & long-term)	\$ 326,205	
+ Principal payments (short-term)	19,586	
+ Decrease in operating debt	<u>0</u>	
- Cash outflow for financing		\$ <u>345,792</u>
= Net Provided by Financing Activities		\$ 90,854
<b><u>Cash Flow From Business</u></b>		
Beginning farm cash, checking & savings		\$ 36,321
- Ending farm cash, checking & savings		<u>29,358</u>
= Net Provided from Reserves		\$ <u>6,964</u>
<b><u>Imbalance (error)</u></b>		<b>\$ 3,333</b>

**ANNUAL CASH FLOW STATEMENT**  
17 Top 20% Large Herd Dairy Farms, 2007

Item	Average Top 20% Farms	
<u>Cash Flow from Operating Activities</u>		
Cash farm receipts	\$3,842,590	
- Cash farm expenses	3,000,450	
- Extraordinary expense	<u>0</u>	
= Net cash farm income		\$ 842,140
Personal withdrawals/family expenses including nonfarm debt payments	\$ 226,233	
- Nonfarm income	<u>2,332</u>	
- Net cash withdrawals from the farm		<u>\$ 223,901</u>
= Net Provided by Operating Activities		\$ 618,239
<u>Cash Flow From Investing Activities</u>		
Sale of Assets: Machinery	\$ 2,313	
+ real estate	8,412	
+ other stock/cert.	<u>10,332</u>	
= Total asset sales		\$ 21,056
Capital purchases: expansion livestock	\$ 22,080	
+ machinery	232,516	
+ real estate	331,030	
+ other stock/cert.	<u>34,644</u>	
- Total invested in farm assets		<u>\$ 620,270</u>
= Net Provided by Investment Activities		\$ -599,214
<u>Cash Flow From Financing Activities</u>		
Money borrowed (inter. & long term)	\$ 434,432	
+ Money borrowed (short-term)	13,167	
+ Increase in operating debt	112,441	
+ Cash from nonfarm cap. used in business	16,900	
+ Money borrowed - nonfarm	<u>0</u>	
= Cash inflow from financing		\$ 576,940
Principal payments (inter. & long-term)	\$ 594,799	
+ Principal payments (short-term)	22,638	
+ Decrease in operating debt	<u>0</u>	
- Cash outflow for financing		<u>\$ 617,437</u>
= Net Provided by Financing Activities		\$ -40,496
<u>Cash Flow From Business</u>		
Beginning farm cash, checking & savings		\$ 50,464
- Ending farm cash, checking & savings		<u>28,604</u>
= Net Provided from Reserves		\$ 21,859
<u>Imbalance (error)</u>		\$ 388



## 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 2008. The cash flow projection worksheet on the next page can be used to estimate repayment ability, which can then be compared to planned 2008 debt payments shown below.

### FARM DEBT PAYMENTS PLANNED

Large Herd Dairy Farms, 2006 & 2007

Debt Payments	Same 83 Dairy Farms			Same 17 Top 20% Farms		
	2007 Payments		Planned 2008	2007 Payments		Planned 2008
	Planned	Made		Planned	Made	
Long-term	\$ 111,229	\$ 169,790	\$ 111,687	\$ 83,236	\$ 315,106	\$ 74,337
Intermediate-term	250,858	297,951	251,935	202,667	389,979	186,722
Short-term	6,150	19,930	6,848	19,173	23,100	14,941
Operating (net reduction)	15,077	45,876	27,261	16,251	40,586	70,412
Accounts payable (net reduction)	<u>1,182</u>	<u>46,308</u>	<u>3,947</u>	<u>0</u>	<u>19,292</u>	<u>17,302</u>
Total	\$ 384,496	\$ 579,856	\$ 401,678	\$ 321,326	\$ 788,063	\$ 363,712
Per cow	\$ 518	\$ 781		\$ 452	\$ 1,109	
Per cwt. 2007 milk	\$ 2	\$ 3		\$ 2	\$ 4	
Percent of total 2007 receipts	10%	14%		8%	19%	
Percent of 2007 milk receipts	11%	16%		9%	21%	

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 2007 (as of December 31, 2006) that could have been made with the amount available for debt service in 2007. Farmers who did not participate in DFBS in 2006 have their 2007 cash flow coverage ratio based on planned debt payments for 2008.

### COVERAGE RATIOS

Same 83 Large Herd Dairy Farms, 2006 & 2007

Item	Average	Item	Average
<u>Cash Flow Coverage Ratio</u>		<u>Debt Coverage Ratio</u>	
Cash farm receipts	\$ 3,744,716	Net farm income (w/o apprec.)	\$ 896,059
- Cash farm expenses	3,088,765	+ Depreciation	237,725
+ Interest paid (cash)	143,857	+ Interest paid (accrual)	143,558
- Net personal withdrawals from farm <sup>15</sup>	<u>178,482</u>	- Net personal withdrawals from farm <sup>15</sup>	<u>178,482</u>
(A) = Amount Available for Debt Service	\$ 621,326	(A') = Repayment Capacity	\$1,098,860
(B) = Debt Payments Planned for 2007 (as of December 31, 2006)	\$ 384,496	(B) = Debt Payments Planned for 2007 (as of December 31, 2006)	\$ 384,496
(A/B) = Cash Flow Coverage Ratio for 2007	1.62	(A'/B) = Debt Coverage Ratio for 2007	2.86

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Same 17 Top 20% Dairy Farms, 2006 & 2007

(A) = Amount Available for Debt Service	\$ 731,376	(A') = Repayment Capacity	\$1,276,438
(B) = Debt Payments Planned for 2007	321,326	(B) = Debt Payments Planned for 2007	321,326
(A/B) = Cash Flow Coverage Ratio for 2007	2.28	(A'/B) = Debt Coverage Ratio for 2007	3.97

<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**  
86 Large Herd Dairy Farms, 2007

Item	Average 86 Farms		Total
	Per Cow	Per Cwt.	
Number cows and cwt. Milk	759	180,403	
<u>Accrual Operating Receipts</u>			
Milk	\$4,832	\$20.32	\$3,666,015
Dairy cattle	282	1.19	214,257
Dairy calves	34	0.14	25,802
Other livestock	9	0.04	7,194
Crops	135	0.57	102,067
Misc. receipts	<u>131</u>	<u>0.55</u>	<u>99,461</u>
Total	\$5,424	\$22.81	\$4,114,796
<u>Accrual Operating Expenses</u>			
Hired labor	\$ 684	\$ 2.88	\$ 518,956
Dairy grain & concentrate	1,165	4.90	884,112
Dairy roughage	68	0.29	51,871
Nondairy feed	1	0.00	626
Professional nutritional services	1	0.00	703
Machinery hire/rent/lease	80	0.34	60,649
Machinery repair & farm vehicle expense	189	0.79	143,303
Fuel, oil & grease	149	0.63	112,808
Replacement livestock	19	0.08	14,425
Breeding	57	0.24	43,093
Veterinary & medicine	160	0.67	121,230
Milk marketing	189	0.79	143,006
Bedding	77	0.32	58,144
Milking supplies	95	0.40	72,302
Cattle lease	5	0.02	3,449
Custom boarding	78	0.33	58,921
bST expense	65	0.27	49,289
Livestock professional fees	11	0.05	8,506
Other livestock expense	17	0.07	12,949
Fertilizer & lime	90	0.38	68,637
Seeds & plants	65	0.27	49,473
Spray/other crop expenses	50	0.21	38,270
Crop professional fees	7	0.03	4,979
Land, building, fence repair	74	0.31	55,784
Taxes	48	0.20	36,233
Real estate rent/lease	70	0.29	53,043
Insurance	41	0.17	30,871
Utilities	97	0.41	73,815
Other professional fees	23	0.10	17,172
Miscellaneous	<u>27</u>	<u>0.11</u>	<u>20,319</u>
Total Less Interest Paid	\$3,700	\$15.56	\$2,806,935
<u>Net Accrual Operating Income</u>			
(without interest paid)	\$1,724	\$ 7.25	\$1,307,861
- Change in livestock/crop inventory <sup>16</sup>	201	0.84	152,320
- Change in accounts receivable	182	0.76	137,761
- Change in feed/supply inventory <sup>17</sup>	225	0.95	170,611
+ Change in accounts payable <sup>18</sup>	<u>-51</u>	<u>-0.22</u>	<u>-38,804</u>
NET CASH FLOW	\$1,066	\$ 4.48	\$ 808,366
- Net personal withdrawals from farm (see footnote on p. 22)	<u>236</u>	<u>0.99</u>	<u>178,732</u>
Available for Farm Debt Payments & Investments	\$ 830	\$ 3.49	\$ 629,634
- Farm debt payments	<u>777</u>	<u>3.27</u>	<u>589,380</u>
Available for Farm Investment	\$ 53	\$ 0.22	\$ 40,253
- Capital purchases: cattle, machinery & improvements	<u>791</u>	<u>3.32</u>	<u>599,836</u>
Additional Capital Needed	\$ 738	\$ 3.10	\$ 559,582

<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**  
17 Top 20% Large Herd Dairy Farms, 2007

Item	Average Top 20% Farms		
	Per Cow	Per Cwt.	Total
No. cows or cwt. milk	711	180,187	
<u>Accrual Operating Receipts</u>			
Milk	\$5,280	\$20.82	\$3,751,304
Dairy cattle	305	1.20	216,882
Dairy calves	52	0.21	36,973
Other livestock	0	0.00	243
Crops	138	0.54	97,928
Misc. receipts	<u>105</u>	<u>0.42</u>	<u>74,838</u>
Total	\$5,880	\$23.19	\$4,178,168
<u>Accrual Operating Expenses</u>			
Hired labor	\$ 669	\$ 2.64	\$ 475,133
Dairy grain & concentrate	1,250	4.93	888,309
Dairy roughage	68	0.27	48,575
Nondairy feed	0	0.00	55
Professional nutritional services	1	0.00	462
Mach. hire/rent/lease	113	0.45	80,355
Mach. repair & farm vehicle expense	170	0.67	120,796
Fuel, oil & grease	157	0.62	111,672
Replacement livestock	1	0.00	382
Breeding	57	0.22	40,202
Vet & medicine	138	0.54	97,930
Milk marketing	210	0.83	148,966
Bedding	86	0.34	60,906
Milking supplies	91	0.36	64,317
Cattle lease	8	0.03	5,457
Custom boarding	78	0.31	55,467
bST expense	75	0.30	53,182
Livestock professional fees	10	0.04	6,954
Other livestock expense	14	0.05	9,871
Fertilizer & lime	75	0.29	53,003
Seeds & plants	60	0.24	42,593
Spray/other crop expenses	55	0.22	39,169
Crop professional fees	8	0.03	5,484
Land, building, fence repair	82	0.32	58,100
Taxes	31	0.12	21,685
Real estate rent/lease	65	0.25	45,911
Insurance	26	0.10	18,697
Utilities	103	0.41	73,221
Other professional fees	18	0.07	12,891
Miscellaneous	23	0.09	16,489
Total Less Interest Paid	\$3,738	\$14.74	\$2,656,232
<u>Net Accrual Operating Income</u>			
(without interest paid)	\$2,142	\$ 8.45	\$1,521,936
- Change in livestock/crop inventory <sup>19</sup>	300	1.18	212,855
- Change in accounts receivable	173	0.68	122,723
- Change in feed/supply inventory <sup>20</sup>	326	1.28	231,398
+ Change in accounts payable <sup>21</sup>	<u>0</u>	<u>0.00</u>	<u>304</u>
NET CASH FLOW	\$1,344	\$ 5.30	\$ 955,265
- Net personal withdrawals from farm(see footnote p.22)	<u>315</u>	<u>1.24</u>	<u>223,888</u>
Available for Farm Debt Payments & Investments	\$1,029	\$ 4.06	\$ 731,376
- Farm debt payments	<u>1,109</u>	<u>4.37</u>	<u>788,063</u>
Available for Farm Investment	\$ -80	\$ -0.31	\$ -56,687
- Capital purchases: cattle, machinery & improvements	<u>873</u>	<u>3.44</u>	<u>620,270</u>
Additional Capital Needed	\$ 953	\$ 3.75	\$ 676,957

<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**

86 Large Herd Dairy Farms, 2007

Item	Average 86 Farms			Average Top 20% Farms		
	Owned	Rented	Total	Owned	Rented	Total
Land						
Tillable	710	773	1,483	485	678	1,163
Nontillable	32	11	43	22	12	34
Other nontillable	204	6	210	197	9	206
Total	946	790	1,736	704	699	1,403
<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	85	653	3.35 tn DM	16	609	3.35 tn DM
Corn silage	81	589	19.06 tn	16	487	19.02 tn
Other forage	4	115	3.00 tn DM	0	0	0.00 tn DM
Total forage	85	1,220	4.78 tn DM	16	1,108	4.73 tn DM
Corn grain	52	257	136 bu	8	146	118 bu
Oats	6	68	71 bu	0	0	0 bu
Wheat	10	126	46 bu	0	0	0 bu
Other crops	30	205		5	49	
Tillable pasture	10	196		0	0	
Idle tillable	18	55		3	170	
Total Tillable Acres	86	1,482		17	1,163	

<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 156, oats 5, wheat 15, tillable pasture 23 and idle 12.

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**85 Large Herd Dairy Farms, 2007 <sup>23</sup>

Item	Average 85 Farms	Average Top 20% Farms
Total tillable acres per cow	1.97	1.91
Total forage acres per cow	1.63	1.66
Harvested forage dry matter, tons per cow	7.76	7.54

<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 two farms.

**CROP RELATED ACCRUAL EXPENSES**

Large Herd Dairy Farms Reporting, 2007

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	85 <sup>24</sup>	7			7	
Ave. number of acres	1,475	620			590	
Fertilizer/lime	\$ 47.20	\$ 49.29	\$ 7.60	\$ 0.27	\$ 45.41	\$ 14.60
Seed/plants	35.24	46.19	7.13	0.22	10.71	3.53
Spray/other crop exp.	<u>25.37</u>	<u>60.52</u>	<u>9.47</u>	<u>0.27</u>	<u>9.56</u>	<u>3.45</u>
TOTAL	\$ 107.81	\$ 156.00	\$ 24.20	\$ 0.76	\$ 65.68	\$ 21.58

Average Top 20% Farms:

No. of farms reporting	17 <sup>24</sup>
Ave. number of acres	1,357
Fertilizer/lime	\$ 48.12
Seeds/plants	45.43
Spray/other crop exp.	<u>28.10</u>
TOTAL	\$ 121.65

<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>

85 Large Herd Dairy Farms, 2007

Machinery Expense Item	Average 85 Farms		Average Top 20% Farms	
	Total Expenses	Per Till. Acre	Total Expenses	Per Till. Acre
Fuel, oil & grease	\$ 112,106	\$ 75.99	\$ 111,672	\$ 82.31
Mach. repairs & farm veh. exp.	141,182	95.70	120,796	89.04
Machine hire, rent & lease	61,345	41.58	80,355	59.23
Interest (5%)	50,222	34.04	38,367	28.28
Depreciation	<u>142,347</u>	<u>96.49</u>	<u>101,129</u>	<u>74.54</u>
Total	\$ 507,201	\$ 343.80	\$ 452,319	\$ 333.40

<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**  
86 Large Herd Dairy Farms, 2007

Item	Dairy Cows				Heifers		Calves	
	No.	Value	No.	Bred Value	No.	Open Value	No.	Value
<u>Average 86 Farms:</u>								
Beginning year (owned)	728	\$ 979,996	215	\$ 292,327	210	\$181,905	168	\$ 91,703
+ Change w/o apprec.		43,545		24,914		18,282		721
+ Appreciation		<u>109,802</u>		<u>30,692</u>		<u>14,632</u>		<u>9,830</u>
End year (owned)	757	\$1,133,342	234	\$ 347,934	229	\$214,819	170	\$102,254
End including leased	768							
Average number	759		611 (all age groups)					
<u>Average Top 20% Farms:</u>								
Beginning year (owned)	651	\$ 871,814	202	\$ 261,993	178	\$153,874	160	\$ 83,598
+ Change w/o apprec.		91,159		16,974		8,331		16,618
+ Appreciation		<u>53,200</u>		<u>16,638</u>		<u>9,568</u>		<u>6,918</u>
End of year (owned)	711	\$1,016,174	213	\$ 295,605	184	\$171,773	185	\$107,134
End including leased	734							
Average number	711		564 (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**  
86 Large Herd Dairy Farms, 2007

Item	Average 86 Farms	Average Top 20% Farms
Total milk sold, lbs.	18,040,337	18,018,722
Milk sold per cow, lbs.	23,780	25,360
Butterfat per cow, lbs.	860 <sup>26</sup>	908
Protein per cow, lbs.	731 <sup>26</sup>	762
Other solids per cow, lbs.	1,337 <sup>26</sup>	1,430
Total components per cow, lbs.	2,928 <sup>26</sup>	3,100

<sup>26</sup> This data is an average for the 77 farms that provided the data.

**ANIMALS LEAVING THE HERD**  
86 Large Herd Dairy Farms, 2007

	Average 86 Farms		Average Top 20% Farms	
	Number	Percent <sup>27</sup>	Number	Percent <sup>27</sup>
Cows sold for beef	193	25.4	170	23.9
Cows sold for dairy	5	0.7	1	0.2
Cows died	51	6.7	42	6.0
Culling rate <sup>28</sup>	---	32.1	---	29.9

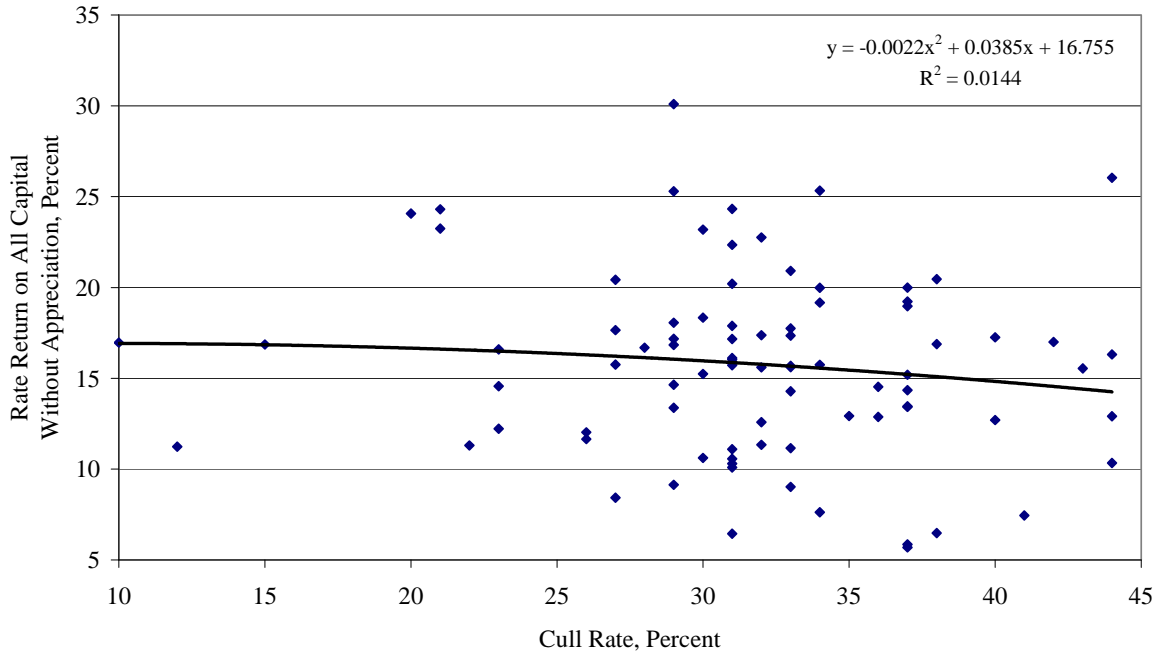
<sup>27</sup>Percent of average number of cows in the herd.

<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 little significance in the relationship between cull rate and these two measures for 2007. A curvilinear relationship has existed in prior years.

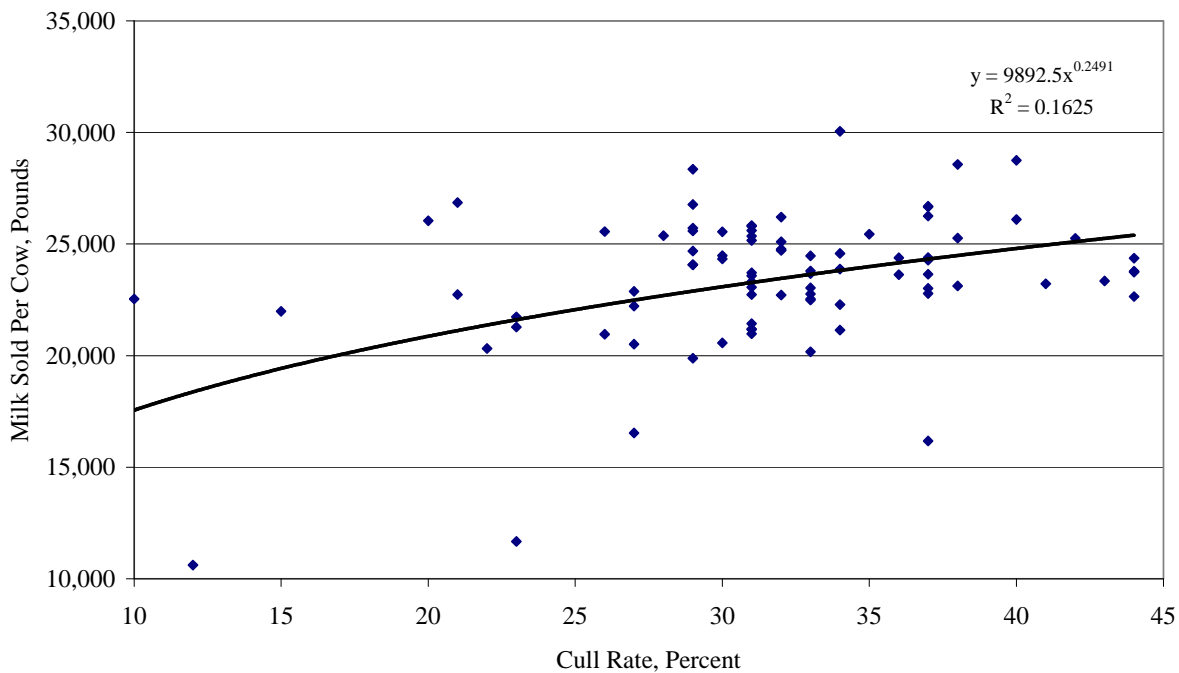
**RETURN TO ALL CAPITAL WITHOUT APPRECIATION VERSUS CULL RATE**

86 Large Herd Dairy Farms, 2007



**MILK SOLD PER COW VERSUS CULL RATE**

86 Large Herd Dairy Farms, 2007



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

86 Large Herd Dairy Farms, 2007

Item	Average 86 Farms			Average Top 20% Farms		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
<u>Accrual Costs of Producing Milk</u>						
Operating costs	\$ 2,534,350	\$ 3,341	\$14.05	\$ 2,361,229	\$ 3,323	\$ 13.10
Purchased inputs costs	\$ 2,772,356	\$ 3,654	\$15.37	\$ 2,537,076	\$ 3,571	\$ 14.08
Total Costs	\$ 3,070,378	\$ 4,047	\$17.02	\$ 2,818,356	\$ 3,967	\$ 15.64
<u>Accrual Receipts From Milk</u>						
Net Milk Receipts	\$ 3,666,015	\$ 4,832	\$20.32	\$ 3,751,304	\$ 5,280	\$ 20.82
Net Farm Income w/o appreciation	\$ 3,523,009	\$ 4,602	\$19.53	\$ 3,602,338	\$ 4,904	\$ 19.99
Net Farm Income with appreciation	\$ 893,659	\$ 1,178	\$ 4.95	\$ 1,214,228	\$ 1,709	\$ 6.74
Net Farm Income with appreciation	\$ 1,221,189	\$ 1,610	\$6.77	\$ 1,397,844	\$ 1,967	\$ 7.76

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

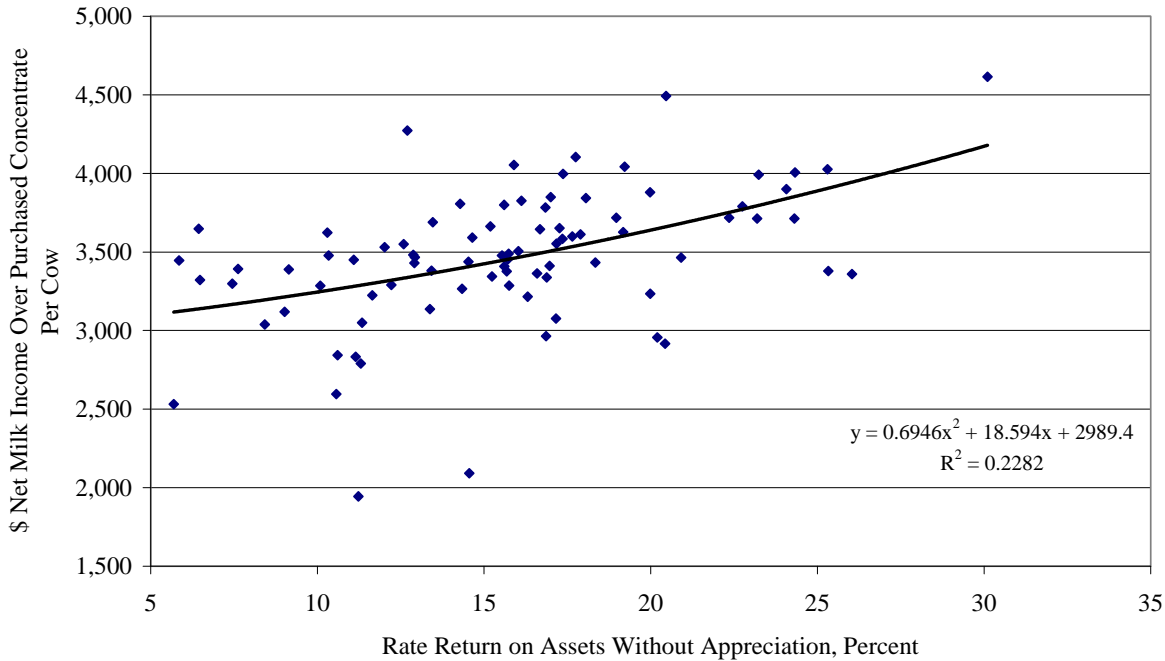
86 Large Herd Dairy Farms, 2007

Item	Average 86 Farms		Average Top 20% Farms	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	\$ 1,166	\$4.90	\$ 1,250	\$ 4.93
Purchased dairy roughage	68	0.29	68	0.27
Total Purchased Dairy Feed	\$ 1,234	\$5.19	\$ 1,318	\$ 5.20
Purchased grain & concentrate as % of milk receipts		24%		23 %
Purchased feed & crop expense	\$ 1,446	\$6.08	\$ 1,516	\$ 5.98
Purchased feed & crop expense as % of milk receipts		30%		29 %
Breeding	\$ 57	\$0.24	\$ 57	\$ 0.22
Veterinary & medicine	160	0.67	138	0.54
Milk marketing	189	0.79	210	0.83
Bedding	77	0.32	86	0.34
Milking supplies	95	0.40	91	0.36
Cattle lease	5	0.02	8	0.03
Custom boarding	78	0.33	78	0.31
bST expense	65	0.27	75	0.30
Livestock professional fees	11	0.05	10	0.04
Other livestock expenses	17	0.07	14	0.05



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,  
86 Large Herd Dairy Farms, 2007**



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  
86 Large Herd Dairy Farms, 2007**

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.
\$ 4,179	26,591	990	\$ 1,011	\$ 5.13	\$ 13.78	\$ 20.19
3,854	25,728	935	790	4.79	13.53	19.71
3,700	24,447	883	740	4.94	13.32	19.98
3,598	24,685	898	742	4.93	13.56	19.34
3,483	23,670	863	722	4.78	13.47	19.38
3,422	23,676	854	718	5.36	14.51	19.52
3,358	23,296	850	707	5.65	14.58	19.50
3,263	22,852	727	605	4.85	14.03	19.10
3,032	20,969	780	641	5.46	14.21	19.85
2,529	17,542	662	543	5.79	14.66	20.17

**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	86 Large Herd Dairy Farms, 2007		Average Top 20% Farms	
	Average 86 Farms		Average Top 20% Farms	
Total Accrual Operating Expenses	\$	2,957,295	\$	2,766,484
Expansion Livestock, Accrual	+	<u>25,835</u>	+	<u>21,609</u>
1. Total Accrual Operating Expenses, Including Expansion Livestock		\$ 2,983,130		\$ 2,788,093
Total Accrual Receipts	\$	4,114,796	\$	4,178,168
Milk Sales, Accrual	-	<u>3,666,015</u>	-	<u>3,751,304</u>
2. Total Accrual Nonmilk Receipts		- 448,781		- 426,864
3. Operating Costs of Producing Milk		\$ 2,534,349		\$ 2,361,229
Cwt. of Milk Sold	÷	180,403	÷	180,187
Operating Costs/Cwt.	=	\$14.05	=	\$13.10
Machinery Depreciation	+	142,548	+	101,129
Building Depreciation	+	94,713	+	74,718
Extraordinary Expenses	+	<u>745</u>	+	<u>0</u>
4. Purchased Inputs Cost of Producing Milk		\$ 2,772,355		\$ 2,537,076
Cwt. of Milk Sold	÷	180,403	÷	180,187
Purchased Inputs Cost/Cwt.	=	\$15.37	=	\$14.08
Family Labor Unpaid (\$2,400/month)	+	2,300	+	607
Real Interest on Equity Capital	+	189,727	+	170,085
Value of Operators' Labor & Management	+	<u>105,995</u>	+	<u>110,587</u>
5. Total Costs of Producing Milk		\$ 3,070,377		\$ 2,818,355
Cwt. Milk Sold	÷	180,403	÷	180,187
Total Costs/Cwt.	=	\$17.02	=	\$15.64

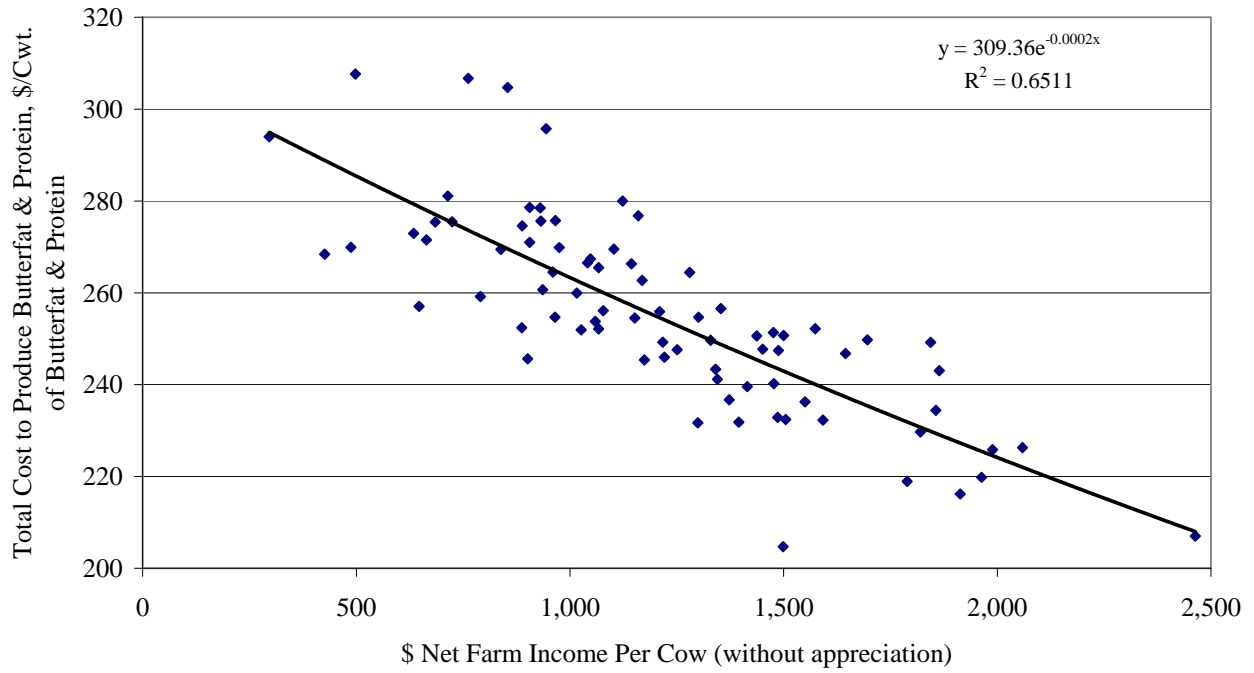
**RECEIPTS AND EXPENSES PER HUNDREDWEIGHT OF BUTTERFAT AND PROTEIN<sup>29</sup>**

Same 73 Large Herd Dairy Farms, 2006 &amp; 2007

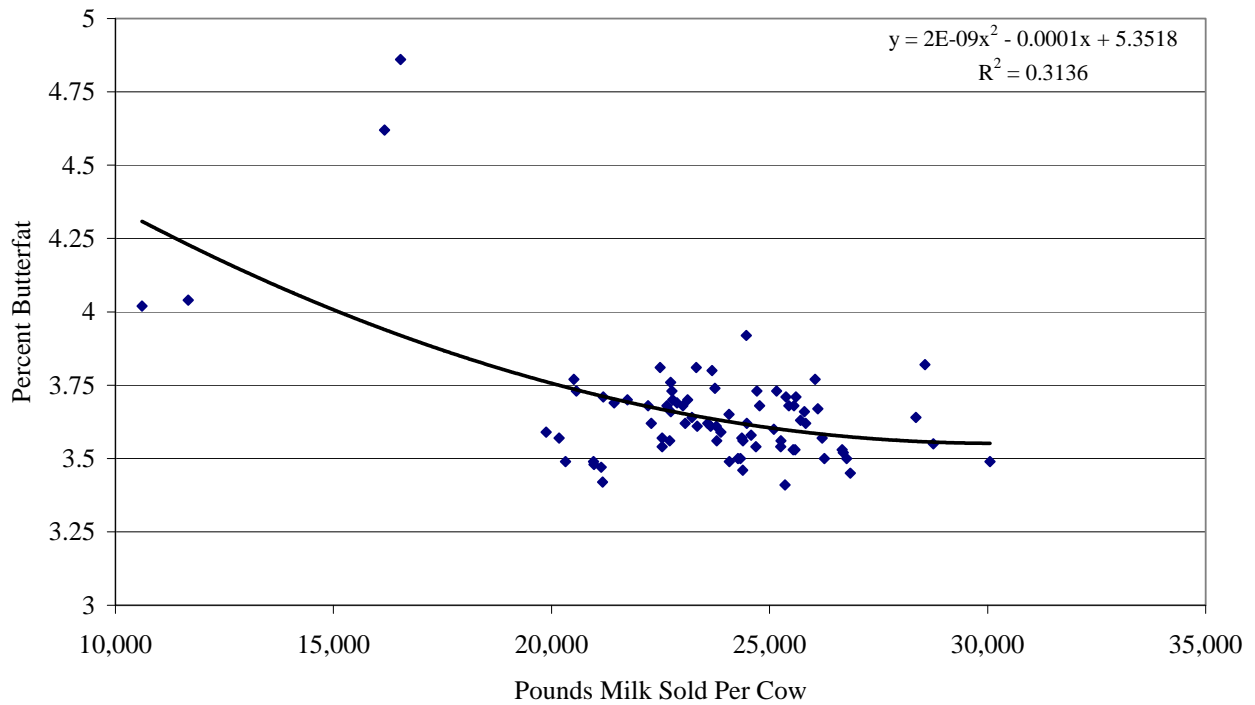
Item	Average Same 73 Large Herd Dairy Farms		Average Top 20% Farms	
	<u>2006</u>	<u>2007</u>	<u>2006</u>	<u>2007</u>
Cwt. of butterfat and protein sold	12,010.91	12,446.53	11,104.19	12,598.03
<u>Accrual Operating Receipts</u>				
Milk	\$208.04	\$302.91	\$208.41	\$308.87
Dairy cattle	16.61	17.56	22.02	17.39
Dairy calves	4.37	2.05	3.55	2.99
Other livestock	0.58	0.48	0.02	0.02
Crops	5.79	8.03	2.87	8.17
Miscellaneous receipts	<u>11.11</u>	<u>8.09</u>	<u>9.58</u>	<u>6.01</u>
Total Operating Receipts	\$246.50	\$339.12	\$246.45	\$343.44
<u>Accrual Operating Expenses</u>				
Hired labor	\$41.88	\$43.04	\$40.01	\$39.50
Dairy grain & concentrate	60.88	73.40	60.06	73.23
Dairy roughage	3.54	4.60	3.76	3.39
Nondairy feed	0.00	0.06	0.01	0.01
Professional nutritional services	0.03	0.06	0.02	0.01
Machine hire, rent & lease	4.08	5.15	5.19	6.72
Machine repair & vehicle expense	10.88	11.73	9.34	10.10
Fuel, oil & grease	8.05	9.17	7.89	9.30
Replacement livestock	0.93	1.20	0.54	0.03
Breeding	3.40	3.59	3.51	3.33
Veterinary & medicine	10.09	10.01	8.62	8.18
Milk marketing	11.47	11.61	11.94	12.22
Bedding	4.85	4.86	4.59	5.09
Milking supplies	4.99	5.72	4.68	5.39
Cattle lease	0.30	0.31	0.62	0.46
Custom boarding	4.43	4.24	3.55	3.87
bST expense	3.56	4.25	3.70	4.49
Livestock professional fees	0.85	0.70	0.85	0.56
Other livestock expense	0.92	1.19	0.63	0.82
Fertilizer & lime	4.12	5.35	3.68	4.47
Seeds & plants	3.35	4.03	3.37	3.58
Spray & other crop expense	2.51	3.11	2.77	3.30
Crop professional fees	0.36	0.44	0.33	0.46
Land, building & fence repair	3.62	4.71	3.73	4.73
Taxes	2.66	2.83	1.77	1.78
Real estate rent/lease	3.98	4.43	3.62	3.86
Insurance	2.28	2.37	1.52	1.53
Utilities	5.55	5.97	5.42	6.03
Interest paid	11.82	12.20	9.32	9.10
Other professional fees	1.39	1.37	0.93	1.06
Miscellaneous	<u>1.42</u>	<u>1.58</u>	<u>1.44</u>	<u>1.36</u>
Total Operating Expenses	\$218.18	\$243.30	\$207.39	\$227.98
Expansion livestock	3.34	1.47	7.42	1.10
Extraordinary expense	0.02	0.07	0.00	0.00
Machinery depreciation	10.87	12.05	8.97	8.30
Real Estate depreciation	<u>8.11</u>	<u>8.00</u>	<u>6.79</u>	<u>6.09</u>
Total Expenses	\$240.52	\$264.89	\$230.57	\$243.47
Net Farm Income without appreciation	\$5.98	\$74.23	\$15.88	\$99.97

<sup>29</sup>Average data for farms that provided complete milk component data for 2006 – 2007.

**TOTAL COST TO PRODUCE BUTTERFAT & PROTEIN VERSUS NET FARM INCOME PER COW,**  
81 Large Herd Dairy Farms, 2007



**POUNDS MILK SOLD PER COW VERSUS PERCENT BUTTERFAT**  
81 Large Herd Dairy Farms, 2007



**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**  
86 Large Herd Dairy Farms, 2007

Item	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
<u>Average 86 Farms:</u>				
Farm capital	\$ 364,498	\$ 8,033	\$ 4,111	\$ 8,586
Real estate		3,095		3,308
Machinery & equipment	60,066	1,324	677	
<u>Ratios</u>				
Asset turnover ratio	Operating Expense	Interest Expense	Depreciation Expense	
0.73	0.69	0.04	0.06	
<u>Average Top 20% Farms:</u>				
Farm capital	\$ 326,857	\$ 7,347	\$ 3,847	\$ 9,429
Real estate		2,628		3,374
Machinery & equipment	48,049	1,080	566	
<u>Ratios</u>				
Asset turnover ratio	Operating Expense	Interest Expense	Depreciation Expense	
0.84	0.64	0.03	0.04	

**LABOR FORCE INVENTORY AND ANALYSIS**

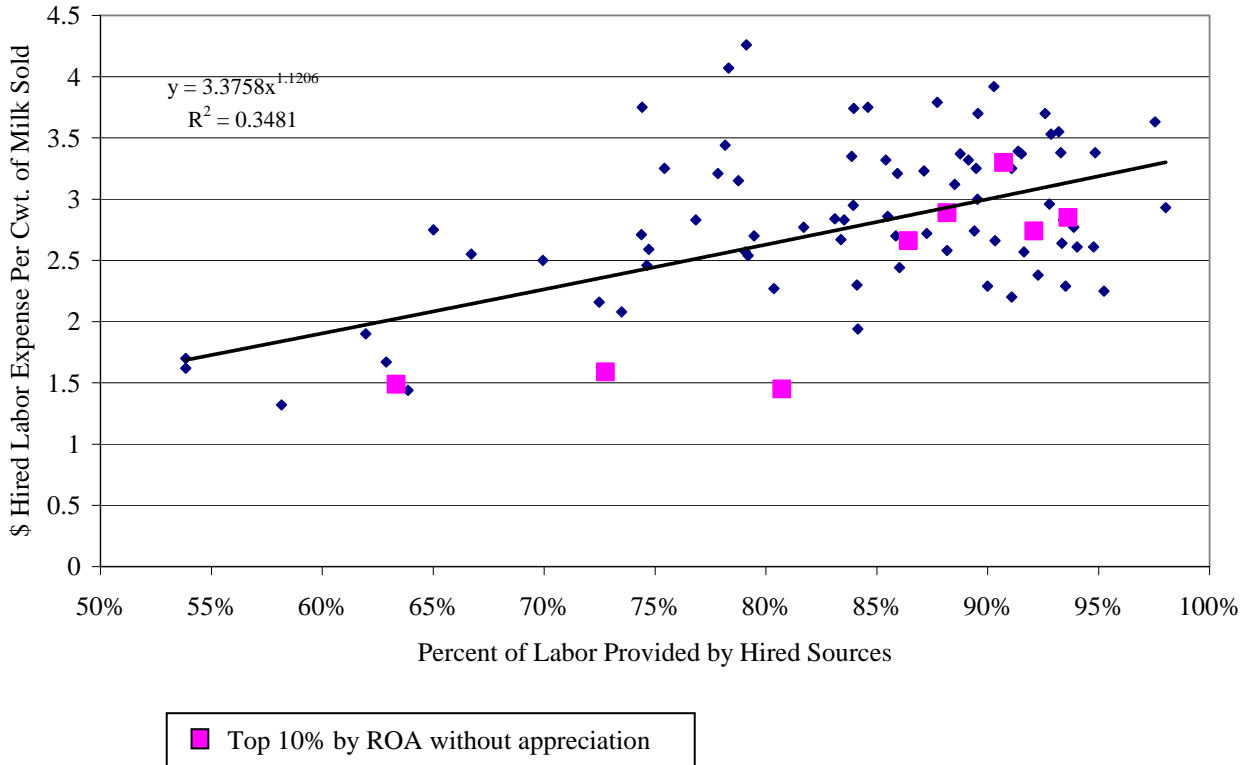
86 Large Herd Dairy Farms, 2007

Labor Force	Months	Age	Years of Education	Value of Labor & Mgmt.		
Operator number 1	13.28	52	15	\$	56,268	
Operator number 2	8.74	46	13		34,398	
Operator number 3	3.02	46	14		10,317	
Operator number 4	1.55	51	14		5,012	
Family paid	6.50					
Family unpaid	0.96					
Hired	<u>166.55</u>					
Total	200.60 /	12 = 16.72 Worker Equivalent 1.96 Operator/Manager Equivalent				
<u>Average Top 20% Farms:</u>						
Total	191.69 /	12 = 15.97 Worker Equivalent 1.99 Operator/Manager Equivalent				
<u>Operator's</u>						
Labor	Average 86 Farms		Average Top 20% Farms			
Efficiency	Total	Per Worker	Total	Per Worker		
Cows, average number	759	45	711	44		
Milk sold, pounds	18,040,337	1,079,183	18,018,722	1,127,991		
Tillable acres	1,482	89	1,357	85		
<u>Labor Costs</u>						
Labor Costs	Average 86 Farms			Average Top 20% Farms		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Value of operator(s) labor (\$2,400/month)	\$ 63,816	\$ 84	\$0.35	\$ 66,792	\$ 94	\$ 0.37
Family unpaid (\$2,400/month)	2,304	3	0.01	600	1	0.00
Hired	<u>518,956</u>	<u>684</u>	<u>2.88</u>	<u>475,133</u>	<u>669</u>	<u>2.64</u>
Total Labor	\$ 585,076	\$ 771	\$3.24	\$ 542,525	\$ 764	\$ 3.01
Machinery Cost	<u>509,524</u>	<u>672</u>	<u>2.82</u>	<u>452,319</u>	<u>636</u>	<u>2.51</u>
Total Labor & Machinery	\$1,094,600	\$ 1,443	\$6.06	\$ 994,844	\$ 1,400	\$ 5.52
Hired labor expense per hired worker equiv.	\$ 35,987		\$ 34,849			
Hired labor expense as % of milk sales	14.2%		12.7%			

**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**  
86 Large Herd Dairy Farms, 2007



**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 =	_____	%

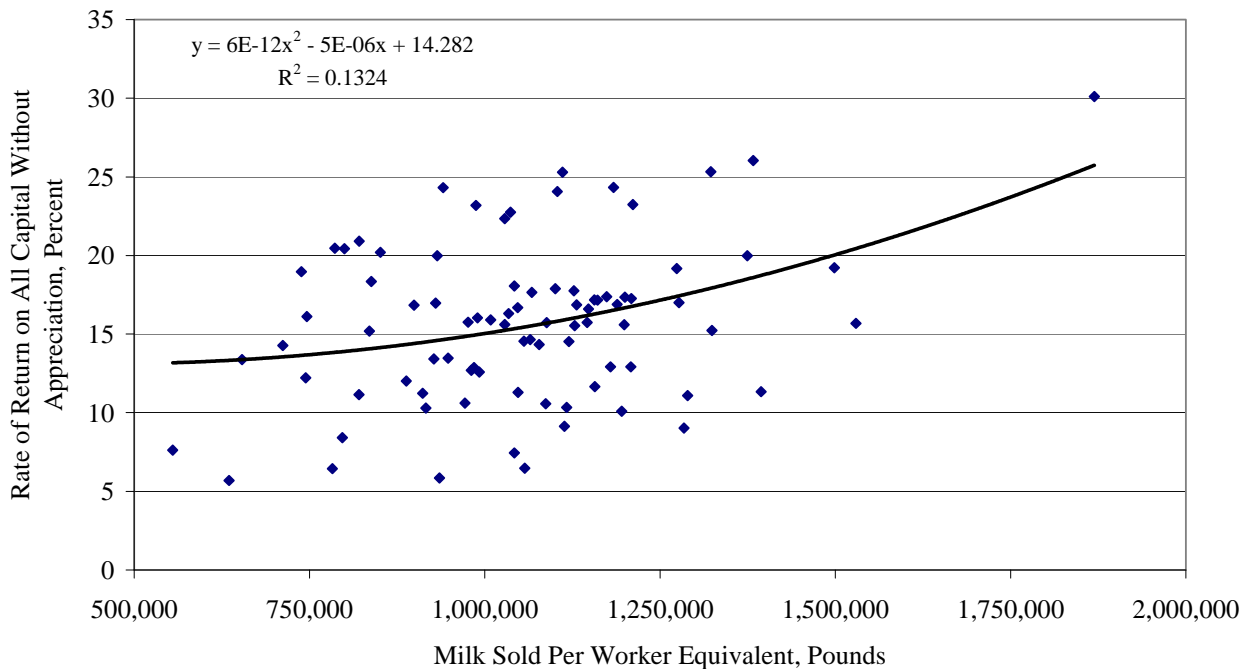
The table below is the business chart for labor costs on a per worker and per hour basis and shows the range of costs for these farms. Hired Labor expenses are all expenses that are associated with labor, and are not just payroll. The chart below shows the relationship between labor efficiency and return 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**  
86 Large Herd Dairy Farms, 2007

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	\$ 1.52	7%	\$ 25,628	\$ 9.29	
↓ Dashed arrow pointing down	2.11	10	27,929	10.12	
	2.45	12	30,193	10.94	
	2.61	13	31,927	11.57	
	2.72	13	33,049	11.97	
	2.85	14	34,768	12.60	
	3.12	15	37,457	13.57	
	3.33	16	39,813	14.43	
	3.54	18	42,351	15.34	
	Average of Highest Decile	3.93	19	46,808	16.96

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

86 Large Herd Dairy Farms, 2007



## CONDENSED SUMMARY &amp; SELECTED BUSINESS FACTORS

## CONDENSED FARM BUSINESS SUMMARY FOR THREE LARGE HERD GROUPS

86 Large Herd Dairy Farms, 2007

Item	31 Farms with 300-500 Cows		23 Farms with 501-749 Cows		32 Farms with ≥750 Cows	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<b>ACCRUAL EXPENSES</b>						
Hired labor	\$607	\$2.67	\$610	\$2.61	\$737	\$3.04
Dairy grain & concentrate	1,117	4.92	1,115	4.77	1,200	4.94
Dairy roughage	67	0.29	66	0.28	70	0.29
Nondairy feed	4	0.02	0	0.00	0	0.00
Professional nutritional services	1	0.00	1	0.00	1	0.00
Machine hire, rent & lease	84	0.37	112	0.48	66	0.27
Machine repairs & farm vehicle expense	220	0.97	191	0.82	178	0.73
Fuel, oil & grease	165	0.73	149	0.64	144	0.59
Replacement livestock	20	0.09	27	0.12	16	0.06
Breeding	57	0.25	57	0.25	56	0.23
Veterinary & medicine	152	0.67	167	0.72	159	0.66
Milk marketing	187	0.82	195	0.83	187	0.77
Bedding	66	0.29	75	0.32	81	0.33
Milking supplies	90	0.39	95	0.41	97	0.40
Cattle lease & rent	3	0.01	2	0.01	6	0.03
Custom boarding	52	0.23	84	0.36	83	0.34
bST expense	43	0.19	50	0.21	78	0.32
Livestock professional fees	13	0.06	15	0.06	9	0.04
Other livestock expense	16	0.07	21	0.09	16	0.07
Fertilizer & lime	108	0.48	98	0.42	82	0.34
Seeds & plants	65	0.29	70	0.30	64	0.26
Spray & other crop expense	47	0.21	55	0.24	50	0.21
Crop professional fees	7	0.03	5	0.02	7	0.03
Land, building & fence repair	69	0.31	75	0.32	74	0.31
Taxes & rent	106	0.47	98	0.42	129	0.53
Utilities	106	0.47	97	0.41	95	0.39
Interest paid	195	0.86	199	0.85	199	0.82
Other professional fees	20	0.09	24	0.10	23	0.10
Misc. (including insurance)	64	0.29	60	0.26	71	0.29
Total Operating Expenses	\$3,752	\$16.53	\$3,812	\$16.30	\$3,978	\$16.39
Expansion livestock	48	0.21	44	0.19	26	0.11
Extraordinary expense	1	0.01	1	0.00	1	0.00
Machinery depreciation	164	0.72	203	0.87	190	0.78
Building depreciation	126	0.55	111	0.47	130	0.53
Total Accrual Expenses	\$4,091	\$18.02	\$4,171	\$17.83	\$4,325	\$17.81
<b>ACCRUAL RECEIPTS</b>						
Milk sales	\$4,687	\$20.65	\$4,807	\$20.56	\$4,888	\$20.14
Dairy cattle	294	1.30	274	1.17	282	1.16
Dairy calves	50	0.22	49	0.21	23	0.10
Other livestock	24	0.11	1	0.01	8	0.03
Crops	143	0.63	142	0.61	129	0.53
Miscellaneous receipts	159	0.70	122	0.52	126	0.52
Total Accrual Receipts	\$5,357	\$23.61	\$5,395	\$23.08	\$5,456	\$22.48
<b>PROFITABILITY ANALYSIS (Total)</b>						
Net farm income (without appreciation)	\$496,950		\$778,826		\$1,360,508	
Net farm income (with appreciation)	\$662,487		\$1,055,320		\$1,881,649	
Labor & management income	\$389,854		\$608,689		\$1,070,471	
Number of operators	1.94		1.94		2.00	
Labor & management income/operator	\$200,956		\$313,757		\$535,235	
Rates of return on:						
Equity capital w/o apprec.	19.7%		20.0%		21.3%	
Equity capital w/ apprec.	27.7%		28.2%		30.3%	
All capital w/o apprec.	15.1%		15.3%		15.5%	
All capital w/ apprec.	20.2%		20.6%		20.9%	



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

86 Large Herd Dairy Farms, 2007

Item	31 Farms with 300-500 Cows	23 Farms with 501-749 Cows	32 Farms with ≥ 750 Cows
<u>Cropping Program Analysis</u>			
Total Tillable acres	883	1,255	2,227
Tillable acres rented <sup>30</sup>	485	661	1,132
Hay crop acres <sup>30</sup>	400	538	961
Corn silage acres <sup>30</sup>	320	453	856
Hay crop, tons DM/acre	3.2	3.3	3.4
Corn silage, tons/acre	18.8	19.4	19.0
Forage DM per cow, tons	8.5	7.5	7.7
Tillable acres/cow	2.3	2.0	1.9
Fertilizer & lime expense/tillable acre	\$44.35	\$55.86	\$43.63
Machinery cost/tillable acre	\$314	\$369	\$345
<u>Dairy Analysis</u>			
Number of cows	393	636	1,201
Number of heifers	319	501	974
Milk sold, lbs.	8,916,216	14,870,544	29,157,619
Butterfat & protein, lbs./cow	1,552	1,580	1,624
Milk sold/cow, lbs.	22,704	23,381	24,273
Operating cost of prod. milk/cwt.	\$13.79	\$13.97	\$14.15
Total cost of prod. milk/cwt.	\$17.23	\$17.18	\$16.90
Price/cwt. milk sold	\$20.65	\$20.56	\$20.14
Purchased dairy feed/cow	\$1,184	\$1,181	\$1,270
Purchased dairy feed/cwt. milk	\$5.21	\$5.05	\$5.23
Purchased grain & concentrate as % of milk receipts	24%	23%	24%
Purchased feed & crop expense/cwt. milk	\$6.22	\$6.02	\$6.07
<u>Capital Efficiency</u>			
Farm capital/worker	\$323,126	\$371,670	\$377,669
Farm capital/cow	\$8,195	\$8,181	\$7,926
Real estate/cow	\$3,185	\$3,075	\$3,074
Machinery investment/cow	\$1,441	\$1,462	\$1,234
Asset turnover ratio	0.71	0.71	0.74
<u>Labor Efficiency</u>			
Worker equivalent	9.96	14.00	25.22
Operator/manager equivalent	1.94	1.94	2.00
Milk sold/worker, lbs.	894,903	1,062,308	1,156,322
Cows/worker	39	45	48
Labor cost/cow	\$777	\$713	\$792
<u>Financial Measures</u>			
Percent equity	68%	67%	64%
Debt/asset ratio - long term	0.34	0.34	0.36
Debt/asset ratio - intermediate & current	0.32	0.32	0.36
Change in net worth with appreciation	\$569,102	\$854,495	\$1,570,744
Total farm debt per cow	\$2,817	\$2,868	\$3,085
Debt payments made per cow	\$744	\$641	\$852
Debt payments as % of milk sales	16%	13%	17%
Amount available for debt service	\$332,704	\$504,318	\$999,654
Debt coverage ratio for 2007	3.05	2.86	2.80

<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 501-749 cows. The third set of tables is of farms with 750 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

31 Large Herd Dairy Farms with 300 – 500 Cows, 2007

Item	QUINTILE				
	1	2	3	4	5
<b>Accrual Operating Receipts</b>					
Milk	\$5,456	\$4,949	\$4,759	\$4,528	\$3,810
Dairy cattle	580	337	277	207	77
Dairy calves	135	74	40	22	-4
Other livestock	104	7	1	0	-2
Crops	340	220	139	70	-33
Miscellaneous receipts	238	183	160	127	87
Total Operating Receipts	\$6,298	\$5,642	\$5,488	\$5,185	\$4,227
<b>Accrual Operating Expenses</b>					
Hired labor	\$316	\$539	\$648	\$736	\$831
Dairy grain & concentrate	793	1,032	1,109	1,214	1,466
Dairy roughage	0	1	29	64	273
Nondairy feed	0	0	0	0	19
Professional nutritional services	0	0	0	0	3
Machinery hire/rent/lease	15	34	63	117	204
Mach. repair & farm vehicle exp.	117	180	206	240	359
Fuel, oil & grease	105	144	156	183	240
Replacement livestock	0	0	0	1	112
Breeding	18	42	61	72	99
Veterinary & medicine	87	121	141	165	247
Milk marketing	115	160	192	216	266
Bedding	20	37	63	86	137
Milking supplies	34	60	94	120	141
Cattle lease	0	0	0	0	14
Custom boarding	0	0	0	32	246
bST expense	0	0	29	79	113
Livestock professional fees	0	4	14	21	30
Other livestock expense	0	0	8	20	54
Fertilizer & lime	28	62	89	138	215
Seeds & plants	28	46	55	73	121
Spray/other crop expenses	5	25	47	66	103
Crop professional fees	0	0	1	6	31
Land, building, fence repair	15	36	66	103	128
Taxes	20	42	62	71	90
Real estate rent/lease	11	31	42	64	118
Insurance	20	27	32	41	63
Utilities	69	89	104	119	155
Interest	91	138	179	229	340
Other professional fees	7	10	17	25	43
Miscellaneous	7	15	20	40	61
Total Operating Expenses	\$3,009	\$3,501	\$3,763	\$3,962	\$4,561
Expansion livestock	0	0	0	18	228
Extraordinary expense	0	0	0	0	6
Machinery depreciation	79	125	155	196	260
Building depreciation	38	78	106	128	288
Net Farm Income w/o Appreciation	\$1,848	\$1,450	\$1,267	\$1,020	\$805

**RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD**  
31 Large Herd Dairy Farms with 300 – 500 Cows, 2007

Item	QUINTILE				
	1	2	3	4	5
<u>Accrual Operating Receipts</u>					
Milk	\$21.93	\$21.01	\$20.68	\$20.35	\$19.64
Dairy cattle	2.88	1.52	1.16	0.91	0.32
Dairy calves	0.58	0.32	0.17	0.11	-0.04
Other livestock	0.47	0.04	0.00	0.00	-0.01
Crops	1.53	0.88	0.62	0.29	-0.21
Miscellaneous receipts	1.09	0.80	0.67	0.56	0.41
<b>Total Operating Receipts</b>	<b>\$26.20</b>	<b>\$24.31</b>	<b>\$23.66</b>	<b>\$22.75</b>	<b>\$21.52</b>
<u>Accrual Operating Expenses</u>					
Hired labor	\$1.54	\$2.36	\$2.71	\$3.06	\$3.82
Dairy grain & concentrate	3.92	4.50	4.97	5.22	6.03
Dairy roughage	0.00	0.00	0.13	0.28	1.28
Nondairy feed	0.00	0.00	0.00	0.00	0.11
Professional nutritional services	0.00	0.00	0.00	0.00	0.01
Machinery hire/rent/lease	0.07	0.14	0.28	0.55	0.88
Mach. repair & farm vehicle exp.	0.57	0.79	0.91	1.06	1.50
Fuel, oil & grease	0.49	0.60	0.72	0.81	1.04
Replacement livestock	0.00	0.00	0.00	0.00	0.46
Breeding	0.08	0.19	0.25	0.31	0.45
Veterinary & medicine	0.40	0.56	0.62	0.73	1.08
Milk marketing	0.55	0.68	0.84	0.93	1.23
Bedding	0.09	0.19	0.27	0.36	0.58
Milking supplies	0.16	0.27	0.40	0.50	0.61
Cattle lease	0.00	0.00	0.00	0.00	0.06
Custom boarding	0.00	0.00	0.00	0.13	1.05
bST expense	0.00	0.00	0.14	0.32	0.46
Livestock professional fees	0.00	0.02	0.06	0.09	0.13
Other livestock expense	0.00	0.00	0.03	0.09	0.24
Fertilizer & lime	0.12	0.27	0.43	0.63	0.93
Seeds & plants	0.13	0.20	0.25	0.33	0.53
Spray/other crop expenses	0.02	0.11	0.20	0.31	0.46
Crop professional fees	0.00	0.00	0.00	0.03	0.16
Land, building, fence repair	0.06	0.17	0.28	0.45	0.57
Taxes	0.09	0.18	0.26	0.31	0.49
Real estate rent/lease	0.05	0.13	0.19	0.28	0.59
Insurance	0.08	0.12	0.15	0.20	0.28
Utilities	0.34	0.41	0.44	0.52	0.65
Interest	0.39	0.61	0.85	1.09	1.49
Other professional fees	0.03	0.05	0.08	0.12	0.19
Miscellaneous	0.03	0.07	0.09	0.18	0.30
<b>Total Operating Expenses</b>	<b>\$14.78</b>	<b>\$15.79</b>	<b>\$16.50</b>	<b>\$16.97</b>	<b>\$18.85</b>
Expansion livestock	0.00	0.00	0.00	0.08	1.02
Extraordinary expense	0.00	0.00	0.00	0.00	0.03
Machinery depreciation	0.36	0.53	0.66	0.90	1.23
Building depreciation	0.16	0.35	0.48	0.58	1.26
<b>Net Farm Income w/o Appreciation</b>	<b>\$8.05</b>	<b>\$6.28</b>	<b>\$5.63</b>	<b>\$4.78</b>	<b>\$3.61</b>

**RECEIPTS AND EXPENSES PER COW**  
23 Large Herd Dairy Farms with 501 – 749 Cows, 2007

Item	QUINTILE				
	1	2	3	4	5
<u>Accrual Operating Receipts</u>					
Milk	\$5,701	\$5,150	\$4,879	\$4,645	\$3,937
Dairy cattle	450	323	265	210	147
Dairy calves	88	64	49	41	15
Other livestock	9	3	0	0	-4
Crops	316	250	148	87	-19
Miscellaneous receipts	223	163	113	93	54
<b>Total Operating Receipts</b>	<b>\$6,296</b>	<b>\$5,750</b>	<b>\$5,471</b>	<b>\$5,301</b>	<b>\$4,441</b>
<u>Accrual Operating Expenses</u>					
Hired labor	\$402	\$567	\$627	\$686	\$839
Dairy grain & concentrate	721	1,012	1,180	1,296	1,465
Dairy roughage	0	5	26	86	227
Nondairy feed	0	0	0	0	2
Professional nutritional services	0	0	0	0	6
Machinery hire/rent/lease	18	39	89	135	323
Mach. repair & farm vehicle exp.	101	161	182	233	311
Fuel, oil & grease	88	128	160	186	207
Replacement livestock	0	0	0	1	139
Breeding	23	49	60	77	87
Veterinary & medicine	104	153	176	202	232
Milk marketing	122	158	184	210	330
Bedding	23	63	83	99	122
Milking supplies	42	67	81	111	198
Cattle lease	0	0	0	0	10
Custom boarding	0	0	19	97	340
bST expense	0	4	48	93	122
Livestock professional fees	0	4	14	19	45
Other livestock expense	1	11	16	22	62
Fertilizer & lime	38	58	84	107	242
Seeds & plants	33	62	73	87	107
Spray/other crop expenses	13	39	57	76	109
Crop professional fees	0	0	4	10	14
Land, building, fence repair	19	41	64	115	171
Taxes	11	36	46	60	83
Real estate rent/lease	13	29	47	72	125
Insurance	21	31	37	44	62
Utilities	61	88	102	113	133
Interest	74	151	214	266	322
Other professional fees	1	7	20	33	72
Miscellaneous	8	16	24	32	44
<b>Total Operating Expenses</b>	<b>\$3,040</b>	<b>\$3,582</b>	<b>\$3,800</b>	<b>\$4,086</b>	<b>\$4,789</b>
Expansion livestock	0	0	5	57	193
Extraordinary expense	0	0	0	0	4
Machinery depreciation	113	155	203	247	328
Building depreciation	55	81	110	146	181
<b>Net Farm Income w/o Appreciation</b>	<b>\$1,809</b>	<b>\$1,494</b>	<b>\$1,297</b>	<b>\$1,025</b>	<b>\$720</b>

**RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD**  
23 Large Herd Dairy Farms with 501 – 749 Cows, 2007

Item	QUINTILE				
	1	2	3	4	5
<u>Accrual Operating Receipts</u>					
Milk	\$22.39	\$20.99	\$20.38	\$20.17	\$19.68
Dairy cattle	2.20	1.45	1.09	0.92	0.60
Dairy calves	0.47	0.29	0.22	0.16	0.06
Other livestock	0.05	0.02	0.00	0.00	-0.02
Crops	1.44	1.08	0.60	0.35	-0.12
Miscellaneous receipts	1.05	0.68	0.51	0.41	0.22
<b>Total Operating Receipts</b>	<b>\$26.31</b>	<b>\$23.65</b>	<b>\$23.14</b>	<b>\$22.48</b>	<b>\$21.34</b>
<u>Accrual Operating Expenses</u>					
Hired labor	\$1.86	\$2.43	\$2.66	\$3.07	\$3.35
Dairy grain & concentrate	3.59	4.45	4.86	5.28	5.80
Dairy roughage	0.00	0.03	0.10	0.35	1.06
Nondairy feed	0.00	0.00	0.00	0.00	0.01
Professional nutritional services	0.00	0.00	0.00	0.00	0.03
Machinery hire/rent/lease	0.07	0.18	0.38	0.65	1.33
Mach. repair & farm vehicle exp.	0.44	0.68	0.83	0.96	1.29
Fuel, oil & grease	0.39	0.57	0.68	0.76	0.84
Replacement livestock	0.00	0.00	0.00	0.01	0.58
Breeding	0.10	0.20	0.28	0.31	0.37
Veterinary & medicine	0.50	0.66	0.73	0.81	0.95
Milk marketing	0.59	0.70	0.78	0.84	1.34
Bedding	0.10	0.25	0.35	0.43	0.52
Milking supplies	0.20	0.28	0.35	0.46	0.77
Cattle lease	0.00	0.00	0.00	0.00	0.04
Custom boarding	0.00	0.00	0.07	0.40	1.41
bST expense	0.00	0.02	0.20	0.37	0.47
Livestock professional fees	0.00	0.01	0.06	0.08	0.19
Other livestock expense	0.01	0.05	0.07	0.11	0.26
Fertilizer & lime	0.15	0.27	0.35	0.45	1.21
Seeds & plants	0.16	0.27	0.30	0.36	0.45
Spray/other crop expenses	0.06	0.16	0.25	0.34	0.44
Crop professional fees	0.00	0.00	0.02	0.04	0.07
Land, building, fence repair	0.09	0.18	0.27	0.45	0.75
Taxes	0.05	0.14	0.20	0.26	0.44
Real estate rent/lease	0.06	0.13	0.20	0.32	0.52
Insurance	0.10	0.13	0.16	0.18	0.27
Utilities	0.30	0.37	0.42	0.47	0.57
Interest	0.31	0.62	0.95	1.14	1.48
Other professional fees	0.00	0.03	0.08	0.16	0.28
Miscellaneous	0.03	0.07	0.10	0.14	0.21
<b>Total Operating Expenses</b>	<b>\$14.73</b>	<b>\$15.71</b>	<b>\$16.21</b>	<b>\$17.16</b>	<b>\$18.21</b>
Expansion livestock	0.00	0.00	0.02	0.23	0.79
Extraordinary expense	0.00	0.00	0.00	0.00	0.02
Machinery depreciation	0.48	0.66	0.86	1.09	1.52
Building depreciation	0.23	0.34	0.51	0.65	0.80
<b>Net Farm Income w/o Appreciation</b>	<b>\$7.86</b>	<b>\$6.79</b>	<b>\$5.68</b>	<b>\$4.47</b>	<b>\$2.96</b>

**RECEIPTS AND EXPENSES PER COW**  
32 Large Herd Dairy Farms with 750 or More Cows, 2007

Item	QUINTILE				
	1	2	3	4	5
<u>Accrual Operating Receipts</u>					
Milk	\$5,610	\$5,124	\$4,908	\$4,715	\$4,251
Dairy cattle	529	322	265	216	134
Dairy calves	77	43	32	26	-36
Other livestock	54	1	0	0	-2
Crops	471	175	87	25	-17
Miscellaneous receipts	302	145	114	91	49
Total Operating Receipts	\$6,312	\$5,759	\$5,488	\$5,233	\$4,815
<u>Accrual Operating Expenses</u>					
Hired labor	\$578	\$678	\$761	\$823	\$892
Dairy grain & concentrate	949	1,056	1,174	1,316	1,531
Dairy roughage	2	19	34	58	249
Nondairy feed	0	0	0	0	0
Professional nutritional services	0	0	0	0	6
Machinery hire/rent/lease	7	30	57	92	179
Mach. repair & farm vehicle exp.	118	161	181	206	252
Fuel, oil & grease	109	128	142	159	203
Replacement livestock	0	0	0	7	81
Breeding	37	46	59	68	84
Veterinary & medicine	116	141	155	181	204
Milk marketing	140	159	177	200	282
Bedding	19	55	79	100	152
Milking supplies	43	72	94	110	190
Cattle lease	0	0	0	0	27
Custom boarding	0	0	19	79	286
bST expense	4	63	93	100	129
Livestock professional fees	0	2	10	16	20
Other livestock expense	0	1	7	21	66
Fertilizer & lime	28	58	83	118	148
Seeds & plants	35	56	68	75	95
Spray/other crop expenses	11	40	55	68	96
Crop professional fees	0	0	3	11	23
Land, building, fence repair	14	38	66	109	164
Taxes	23	34	43	55	79
Real estate rent/lease	22	54	91	114	155
Insurance	21	32	41	50	77
Utilities	56	79	97	115	149
Interest	94	179	217	255	306
Other professional fees	4	13	24	31	53
Miscellaneous	5	15	23	34	75
Total Operating Expenses	\$3,521	\$3,792	\$3,900	\$4,185	\$4,644
Expansion livestock	0	0	0	9	149
Extraordinary expense	0	0	0	0	6
Machinery depreciation	87	151	198	250	342
Building depreciation	56	88	124	162	249
Net Farm Income w/o Appreciation	\$1,819	\$1,458	\$1,151	\$932	\$492

**RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD**  
32 Large Herd Dairy Farms with 750 or More Cows, 2007

Item	QUINTILE				
	1	2	3	4	5
<u>Accrual Operating Receipts</u>					
Milk	\$21.48	\$20.45	\$20.16	\$19.84	\$19.23
Dairy cattle	2.29	1.30	1.08	0.89	0.55
Dairy calves	0.31	0.17	0.14	0.11	-0.17
Other livestock	0.24	0.00	0.00	0.00	-0.01
Crops	2.05	0.73	0.36	0.10	-0.07
Miscellaneous receipts	1.28	0.64	0.47	0.36	0.19
<b>Total Operating Receipts</b>	<b>\$25.30</b>	<b>\$23.80</b>	<b>\$22.28</b>	<b>\$21.62</b>	<b>\$20.92</b>
<u>Accrual Operating Expenses</u>					
Hired labor	\$2.41	\$2.77	\$3.05	\$3.43	\$3.82
Dairy grain & concentrate	3.99	4.45	4.91	5.41	6.02
Dairy roughage	1.04	0.24	0.14	0.08	0.01
Nondairy feed	0.00	0.00	0.00	0.00	0.00
Professional nutritional services	0.00	0.00	0.00	0.00	0.00
Machinery hire/rent/lease	0.03	0.13	0.24	0.39	0.75
Mach. repair & farm vehicle exp.	0.49	0.66	0.75	0.85	1.05
Fuel, oil & grease	0.44	0.54	0.59	0.66	0.83
Replacement livestock	0.00	0.00	0.00	0.03	0.34
Breeding	0.15	0.20	0.25	0.28	0.34
Veterinary & medicine	0.47	0.56	0.64	0.77	0.90
Milk marketing	0.59	0.66	0.73	0.81	1.14
Bedding	0.08	0.23	0.33	0.41	0.63
Milking supplies	0.18	0.30	0.37	0.45	0.82
Cattle lease	0.00	0.00	0.00	0.00	0.11
Custom boarding	0.00	0.00	0.08	0.33	1.24
bST expense	0.02	0.25	0.36	0.42	0.52
Livestock professional fees	0.00	0.01	0.04	0.07	0.09
Other livestock expense	0.00	0.00	0.03	0.09	0.27
Fertilizer & lime	0.12	0.23	0.36	0.50	0.64
Seeds & plants	0.14	0.23	0.29	0.33	0.40
Spray/other crop expenses	0.04	0.17	0.23	0.29	0.38
Crop professional fees	0.00	0.00	0.01	0.04	0.09
Land, building, fence repair	0.06	0.17	0.28	0.44	0.66
Taxes	0.10	0.14	0.18	0.24	0.33
Real estate rent/lease	0.09	0.22	0.37	0.49	0.66
Insurance	0.08	0.14	0.18	0.21	0.32
Utilities	0.23	0.33	0.41	0.47	0.62
Interest	0.36	0.77	0.93	1.06	1.29
Other professional fees	0.02	0.05	0.10	0.13	0.22
Miscellaneous	0.02	0.07	0.10	0.13	0.31
<b>Total Operating Expenses</b>	<b>\$14.36</b>	<b>\$15.62</b>	<b>\$16.48</b>	<b>\$17.59</b>	<b>\$19.02</b>
Expansion livestock	0.00	0.00	0.00	0.04	0.65
Extraordinary expense	0.00	0.00	0.00	0.00	0.03
Machinery depreciation	0.34	0.65	0.82	1.01	1.50
Building depreciation	0.23	0.36	0.52	0.69	1.01
<b>Net Farm Income w/o Appreciation</b>	<b>\$7.20</b>	<b>\$5.86</b>	<b>\$4.79</b>	<b>\$3.90</b>	<b>\$2.08</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

86 Large Herd Dairy Farms, 2007

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	Number of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(14) <sup>31</sup>	(12)	(12)	(12)	(11)	(11)	(14)	(14)
35.1	1,801	44,290,431	27,838	5.7	26	68	1,461,978
26.1	1,154	28,524,000	25,943	4.7	23	54	1,244,121
21.8	995	24,040,110	25,421	4.0	21	51	1,179,742
18.6	855	20,427,996	24,742	3.7	20	48	1,134,161
16.2	709	17,089,191	24,172	3.4	20	46	1,090,405
14.3	620	14,090,585	23,604	3.1	19	44	1,043,422
12.4	511	11,799,125	22,955	2.9	18	42	991,199
10.6	432	9,794,660	22,459	2.7	17	41	926,610
9.0	379	8,565,678	21,161	2.5	16	36	837,839
6.8	327	6,795,063	17,302	1.9	15	30	706,010

### 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)
\$712	17%	\$435	\$996	\$990	\$4.66
918	20	547	1,256	1,188	5.30
1,013	21	596	1,347	1,268	5.62
1,053	22	636	1,404	1,338	5.80
1,125	23	665	1,442	1,411	5.98
1,173	25	710	1,499	1,459	6.21
1,233	26	757	1,571	1,506	6.47
1,319	26	802	1,626	1,587	6.76
1,388	27	868	1,704	1,688	7.12
1,597	31	979	1,862	1,967	7.52

<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)
\$1.52	\$25,731	7%	\$0.52	\$0.38	\$0.00
2.15	28,099	11	0.62	0.51	0.00
2.48	30,452	12	0.66	0.55	0.00
2.62	32,076	13	0.69	0.59	0.02
2.73	33,199	13	0.74	0.64	0.03
2.87	35,033	14	0.79	0.69	0.05
3.14	37,613	15	0.84	0.74	0.08
3.33	39,813	16	0.91	0.80	0.11
3.54	42,351	18	1.02	0.86	0.17
3.93	46,808	19	1.44	1.10	0.34

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)
\$294	\$76	\$2,231	\$11.24	\$3,047	\$14.82
359	91	2,828	12.52	3,584	15.72
387	100	2,983	12.96	3,749	16.26
417	106	3,060	13.38	3,867	16.69
438	113	3,175	13.88	3,954	17.04
468	119	3,402	14.22	4,044	17.31
492	125	3,515	14.50	4,200	17.69
527	139	3,675	15.05	4,346	17.91
607	156	3,863	15.73	4,517	18.42
1,199	864	4,224	16.65	5,004	20.41

bST Expense Per Cow	bST Expense Per Cwt.	Culling Rate	Expense Ratios		
			Operating	Depreciation	Interest
(12)	(12)	(12)	(14)	(14)	(14)
\$ 0	\$0.00	19%	0.58	0.02	0.01
0	0.00	27	0.61	0.04	0.02
0	0.00	29	0.64	0.04	0.03
17	0.08	31	0.66	0.05	0.03
54	0.23	31	0.68	0.05	0.04
78	0.31	33	0.70	0.06	0.04
95	0.37	34	0.72	0.07	0.05
100	0.41	37	0.73	0.07	0.05
110	0.44	38	0.75	0.08	0.05
133	0.53	43	0.80	0.10	0.07

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)
\$22.51	\$21.53	\$5,805	\$646	\$131
21.40	20.43	5,374	410	84
20.94	19.98	5,134	353	64
20.67	19.86	5,028	305	50
20.46	19.68	4,866	280	44
20.32	19.54	4,788	254	35
20.16	19.36	4,700	225	29
19.95	19.24	4,539	191	23
19.71	19.00	4,281	160	14
19.16	18.47	3,650	64	-40
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)
\$972	\$622	4.1%	\$ 148	\$0.67
1,900	1,339	6.0	304	1.11
2,147	1,640	6.0	360	2.00
2,525	1,920	6.0	422	2.00
2,880	2,332	6.6	510	2.00
3,186	2,502	7.0	555	2.00
3,522	2,863	7.0	599	2.63
3,847	3,145	7.0	650	3.00
4,103	3,428	7.0	715	3.00
4,776	4,029	9.8	937	4.25
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)
\$1,631	\$7.10	\$684	\$2.85	4.75
1,354	5.73	350	1.53	2.63
1,242	5.33	256	1.16	2.00
1,162	5.05	216	0.92	2.00
1,093	4.70	186	0.82	2.00
1,019	4.34	162	0.70	2.00
941	4.03	148	0.62	1.11
866	3.62	136	0.55	1.00
770	3.38	108	0.47	1.00
597	2.65	69	0.31	0.67
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)
\$5,388	\$1,178	\$678	\$26,522	1.07
6,797	1,941	837	28,235	0.90
7,199	2,412	983	30,158	0.82
7,530	2,718	1,139	31,398	0.77
7,781	2,977	1,296	32,485	0.74
8,169	3,313	1,442	33,763	0.71
8,526	3,486	1,604	35,982	0.68
9,203	3,744	1,814	38,265	0.65
10,201	4,375	2,048	40,321	0.60
11,514	5,818	2,370	43,778	0.53

		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)
89%	0.13	0.12	0.08	0.00	44.9%	18.39%
81	0.26	0.20	0.19	0.03	35.1	5.03
76	0.33	0.25	0.23	0.12	29.8	4.14
73	0.40	0.29	0.27	0.23	26.0	3.58
69	0.48	0.32	0.31	0.30	24.1	2.90
65	0.60	0.37	0.33	0.37	21.3	2.36
60	0.72	0.42	0.39	0.47	16.7	2.10
54	0.92	0.48	0.45	0.61	11.8	1.78
50	1.02	0.51	0.55	0.73	9.0	1.53
42	1.49	0.59	0.64	1.03	0.2	1.01

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)
\$1,099,825	49.9%	65.1%	25.3%	32.6%
727,937	33.7	46.0	21.3	27.3
542,583	28.1	40.0	18.8	25.4
465,102	24.9	35.1	17.3	23.8
400,575	22.5	31.8	16.5	22.3
318,894	20.1	28.5	15.6	20.4
259,692	17.7	25.6	14.0	18.9
191,846	15.5	22.0	12.2	17.0
147,298	12.7	18.7	10.5	14.1
44,705	5.7	13.0	6.6	11.0

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)
\$1,994	\$8.37	33%	30%	\$4,179
1,669	7.13	30	24	3,854
1,510	6.46	28	20	3,700
1,422	6.01	26	17	3,598
1,298	5.65	24	15	3,483
1,151	5.03	22	13	3,422
1,029	4.55	20	11	3,358
938	4.07	18	10	3,263
818	3.36	15	8	3,032
471	2.11	10	5	2,529

## 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, 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.

## INDEX

	Page(s)		Page(s)
Accounts Payable .....	13, 17	Financial Lease .....	17
Accounts Receivable .....	13, 17	Income Statement.....	11
Accrual Expenses .....	12, 13	Inflows .....	20
Accrual Receipts.....	13	Labor & Mgmt. Income .....	15
Acreage.....	25	Labor & Mgmt. Income Per Oper.....	15
Advanced Government Receipts .....	16, 17	Labor Efficiency .....	34
Age .....	34	Land Resources .....	25
Amount Available for Debt Service .....	22	Liquidity.....	18
Annual Cash Flow Statement .....	20	Lost Capital.....	18
Appreciation .....	14, 19, 27	Machinery Expenses .....	12, 26
Asset Turnover Ratio.....	34	Marketing.....	9
Balance Sheet .....	17	Milk Price .....	9,10
Barn Type .....	11	Milk Production .....	27
Business Type.....	11	Milking Frequency.....	11
Capital Efficiency .....	34	Milking System.....	11
Cash From Nonfarm Capital Used in		Money Borrowed.....	20
Business.....	20	Net Farm Income .....	14
Cash Flow Coverage Ratio .....	22	Net Investment .....	18
Cash Paid .....	11	Net Worth .....	17
Cash Receipts .....	13, 20	Number of Cows.....	27
Change in Accounts Payable .....	13	Operating Costs of Producing Milk .....	29, 31
Change in Accounts Receivable .....	13	Opportunity Cost.....	16
Change in Inventory .....	12, 13	Other Livestock Expenses.....	12
Change in Net Worth.....	19	Outflows.....	20
Crop Expenses .....	12, 26	Percent Equity .....	18
Crop/Dairy Ratios.....	25	Personal Withdrawals and Family	
Current Portion .....	16, 17	Expenditures Including Nonfarm	
Dairy (farm).....	11	Debt Payment.....	20
Dairy Cash-Crop (farm) .....	11	Principal Payments.....	20
Dairy Replacements.....	8	Profitability .....	14
Debt Coverage Ratio .....	22	Purchased Inputs Cost.....	29, 31
Debt per Cow.....	18	Receipts.....	13
Debt to Asset Ratios .....	18	Record System .....	11
Depreciation .....	12, 18	Repayment Analysis .....	22
Dry Matter .....	25	Replacement Livestock .....	12
Education.....	34	Retained Earnings.....	19
Equity Capital.....	16	Return on Equity Capital .....	16
Expansion Livestock .....	12, 20	Return on Total Capital.....	16
Expenses.....	12	Solvency.....	18
Farm Business Chart.....	45, 46, 47, 48	Total Costs of Producing Milk.....	29, 31
Farm Debt Payments as Percent		Whole Farm Method.....	29, 31
of Milk Sales.....	22	Worker Equivalent.....	34
Farm Debt Payments Per Cow.....	22	Yields Per Acre .....	25

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