

# **DAIRY FARM BUSINESS SUMMARY**

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## ***NEW YORK LARGE HERD FARMS, 300 COWS OR LARGER 2010***



**Jason Karszes  
Wayne A. Knoblauch  
Linda D. Putnam  
Allie B. Angell**

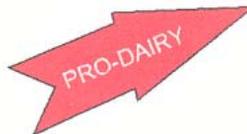
**Charles H. Dyson School of Applied Economics and Management  
College of Agriculture and Life Sciences  
Cornell University, Ithaca, New York 14853-7801**

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For additional copies, please contact:

Linda Putnam  
Cornell University  
Charles H. Dyson School of Applied Economics and 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  
Or visit:  
<http://www.dyson.cornell.edu/outreach/order.php>

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LARGE HERD DAIRY FARMS  
300 Cows or Larger**

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# 2010 DAIRY FARM BUSINESS SUMMARY AND ANALYSIS LARGE HERD DAIRY FARMS<sup>1</sup>

## INTRODUCTION

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

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 599 cows, 600 to 899 cows, and 900 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. Ninety 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 2009 to 2010 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 96 large herd farms that participated in the 2010 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 96 large herd farms that participated in the 2010 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 300-599 cows, 600-899 cows, and farms with 900 and more cows.

The fifth section contains the income and expense profiles for the 300-599 cow farms, 600-899 cow farms, and 900 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, Chautauqua, Chenango, Clinton, Columbia, Cortland, Delaware, Erie, Genesee, Jefferson, Lewis, Livingston, Madison, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orleans, Otsego, Rensselaer, Saratoga, Schuyler, St. Lawrence, Tompkins, Washington, and Wyoming, counties had farms of this size participating in 2010. 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. Allie Angell assisted in data and publication preparation. Data were collected by Cornell Cooperative Extension educators across the state. We also acknowledge the cooperation of Cathy Wickswat, Cargill Animal Nutrition; Farm Credit East Association; and Dehm Associates, for their assistance in data collection.

## PROGRESS OF THE FARM BUSINESS

The 2010 business year for the New York State dairy industry was a rebound year from 2009, with milk prices increasing significantly, leading to a return to profitability for most dairy producers. Growing conditions generally were above average across the state with regional differences in yields, from below to above average. While there were challenges for the 2010 crop year, many farms were able to take advantage of the improved forages from 2009 and into 2010 to increase production during the year, even though there was a hotter summer in 2010. With the increase in milk prices, much of the year was spent catching up from 2009 and producers maintained a focus on controlling costs during the year, with total farm operating costs increasing only 1.3% from 2009. With the combination of changes during the year, 2010 was a profitable year for the average farm over 300 cows in New York, leading to significant changes in the financial position of the farm.

For both 2009 and 2010, 90 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 90 farms that participated in the DFBS project each of the last two years.

**Milk Income.** Gross milk prices increased 28.6 percent to \$17.82 per hundredweight, an increase of \$3.96, offsetting 73.6% of the decrease from the 2008 to 2009 year. Milk marketing expenses increased 3 cents to \$0.90 per hundredweight. These two changes led to an increase of 30.3 percent in net milk price received on the farm, averaging \$16.92 per hundredweight. With the improved forage quality from 2009 and 2010, milk production per cow increased 0.8 percent to 25,286 pounds per cow. Gross milk revenue per cow increased 29.6 percent from the previous year. Average herd size for the participating farms increased by 5.8 percent to 890 cows. With both milk sold per cow and herd size increasing, total milk pounds shipped per farm increased 6.7 percent. With the good growing conditions in 2010, hay yield increased 5.6 percent and corn silage yield increased 4.2 percent, leading to an increase in forage inventory and an 196 percent increase in crop revenue per cow, averaging \$154 per cow. With the higher milk prices, the MILC program and government loss assistance were an insignificant factor in 2010, with miscellaneous revenue decreasing 45 percent. With all factors combined, total revenue per cow rose 25.9 percent, increasing \$1,049 per cow to \$5,105.

**Cost Control.** Cost management continued to be the focus for the average dairy farm in 2010, with 14 of the cost categories staying the same or showing a decrease per hundredweight and another 8 cost categories increasing by 1 to 2 cents per hundredweight. Purchased grain and concentrates continued to lead the way on cost control, decreasing 2.7 percent, or 14 cents, to \$5.05 per hundredweight. Direct fuel purchased by the farm increased 8 cents per hundredweight, or 14.5 percent from the previous year. Custom hire, machinery repairs, building repair, utilities, and interest expense were the key expense categories that all show increases.

Worker equivalents increased 4.0 percent, which is less than the growth in herd size. Cows per worker increased 1 to 47. Coupled with the increase in milk sold per cow, milk sold per worker equivalent increased 2.6 percent. Hired labor costs per worker equivalent decreased -0.6 percent. With the small decrease in labor cost per worker and the increase in labor efficiency, hired labor costs per hundredweight decreased 2.2 percent.

With most change, up or down, being small, farm operating costs increased only \$0.21, or 1.3% to \$16.01 per hundredweight.

**Capital Investment.** The average investment in the farm decreased 1.5 percent to \$8,894 per cow. A decrease in the values of cattle and machinery along with increased cow numbers offset the increase in grown feed inventory, leading to the decrease in average investment per cow.

**Increase in Earnings.** Profits increased dramatically in 2010, continuing the recent trend of large changes in earnings from year to year. The 28.6 percent increase in milk price along with continued increase in milk shipped off the farm was largely captured in earnings as costs remained relatively flat. Net farm income without appreciation rose to \$626,991. Net farm income with appreciation increased to \$778,225.

- Labor and management income per operator/manager increased 182.7 percent, from \$-219,363 in 2009 to \$181,429 in 2010.
- Rate of return to all capital without appreciation increased to 7.6 percent, from -3.4 percent in 2009. Rate of return on equity capital without appreciation rose to 9.6 percent.
- Farm net worth increased by 12.6 percent.
- Debt to asset ratio decreased 7.9 percent to 0.35, reflecting the earnings used to increase herd size and reduce outstanding principal.

Overall, 2010 was a year of positive earnings, and a dramatically different year than 2009, for the 300 cow and larger farms. While, on average, farms showed significant earnings in 2010, the changes on individual farms varied, with some farms actually showing very little change from 2009, with changes to operating costs and non-milk revenue offsetting the increase in milk prices.

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. 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. 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 90 Large Herd Dairy Farms, 2009 & 2010

Selected Factors	Average of 90 Farms		Percent Change
	2009	2010	
<u>Size of Business</u>			
Average number of cows	841	890	5.8
Average number of heifers	711	765	7.6
Milk sold, lbs.	21,104,901	22,515,093	6.7
Worker equivalent	18.37	19.11	4.0
Total tillable acres	1,650	1,714	3.9
<u>Rates of Production</u>			
Milk sold per cow, lbs.	25,083	25,286	0.8
Butterfat per cow, lbs. <sup>2</sup>	913	920	0.8
Protein per cow, lbs. <sup>2</sup>	771	776	0.7
Hay DM per acre, tons	3.6	3.8	5.6
Corn silage per acre, tons	18.9	19.7	4.2
<u>Labor Efficiency &amp; Costs</u>			
Cows per worker	46	47	2.2
Milk sold per worker, lbs.	1,148,879	1,178,184	2.6
Hired labor cost per cwt.	\$2.78	\$2.72	-2.2
Hired labor cost per worker	\$36,820	\$36,604	-0.6
Hired labor cost as % of milk sales	20.0%	15.3%	-23.5
<u>Cost Control</u>			
Grain & concentrate purchased as % of milk sales	37%	28%	-24.3
Grain & concentrate per cwt. milk	\$5.19	\$5.05	-2.7
Dairy feed & crop expense per cwt. milk	\$6.39	\$6.28	-1.7
Labor & machinery costs per cow	\$1,439	\$1,473	2.4
Total farm operating costs per cwt. sold	\$15.80	\$16.01	1.3
Interest costs per cwt. milk	\$0.47	\$0.50	6.4
Operating cost of producing cwt. of milk	\$13.64	\$13.73	0.7
Net milk income over purchased feed costs per cow	\$1,956	\$3,001	53.4
<u>Capital Efficiency(average for the year)</u>			
Farm capital per cow	\$9,032	\$8,894	-1.5
Machinery & equipment per cow	\$1,547	\$1,504	-2.8
Asset turnover ratio	0.45	0.59	31.1
<u>Income Generation</u>			
Gross milk sales per cow	\$3,477	\$4,506	29.6
Gross milk sales per cwt.	\$13.86	\$17.82	28.6
Net milk sales per cwt.	\$12.99	\$16.92	30.3
Dairy cattle sales per cow	\$278	\$300	7.9
Dairy calf sales per cow	\$40	\$24	-40.0
<u>Profitability</u>			
Net farm income without appreciation	\$-226,019	\$626,991	377.4
Net farm income with appreciation	\$-188,742	\$778,225	514.3
Labor & mgt. income per operator/manager	\$-219,363	\$181,429	182.7
Rate of return on equity capital w/o appreciation	-7.3%	9.6%	231.5
Rate of return on all capital without appreciation	-3.4%	7.6%	323.5
<u>Financial Summary (excluding deferred taxes)</u>			
Farm net worth, end year	\$4,727,756	\$5,321,826	12.6
Debt to asset ratio	0.38	0.35	-7.9
Farm debt per cow	\$3,332	\$3,168	-4.9

<sup>2</sup>Average of 88 large herd dairy farms that provided this data.

**RECEIPTS AND EXPENSES PER COW AND PER HUNDREDWEIGHT**

Same 90 Large Herd Dairy Farms, 2009 &amp; 2010

Item	2009		2010	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average number of cows	841		890	
Cwt. of milk sold		211,049		225,151
<b><u>ACCRUAL OPERATING RECEIPTS</u></b>				
Milk	\$3,477	\$13.86	\$4,506	\$17.82
Dairy cattle	278	1.11	300	1.19
Dairy calves	40	0.16	24	0.09
Other livestock	5	0.02	9	0.03
Crops	52	0.21	154	0.61
Miscellaneous receipts	<u>205</u>	<u>0.82</u>	<u>113</u>	<u>0.45</u>
Total Receipts	\$4,056	\$16.17	\$5,105	\$20.19
<b><u>ACCRUAL OPERATING EXPENSES</u></b>				
Hired labor	\$ 696	\$ 2.78	\$ 687	\$ 2.72
Dairy grain & concentrate	1,302	5.19	1,278	5.05
Dairy roughage	61	0.24	76	0.30
Nondairy feed	0	0.00	0	0.00
Professional nutritional services	1	0.00	2	0.01
Machine hire, rent & lease	77	0.31	86	0.34
Machine repair & vehicle expense	172	0.69	192	0.76
Fuel, oil & grease	137	0.55	160	0.63
Replacement livestock	9	0.04	11	0.04
Breeding	52	0.21	51	0.20
Veterinary & medicine	156	0.62	161	0.64
Milk marketing	219	0.87	227	0.90
Bedding	89	0.36	93	0.37
Milking supplies	93	0.37	90	0.36
Cattle lease	2	0.01	3	0.01
Custom boarding	95	0.38	100	0.40
bST expense	64	0.25	64	0.25
Livestock professional fees	11	0.05	13	0.05
Other livestock expense	18	0.07	17	0.07
Fertilizer & lime	97	0.39	88	0.35
Seeds & plants	90	0.36	94	0.37
Spray & other crop expense	46	0.19	44	0.17
Crop professional fees	6	0.03	9	0.03
Land, building, fence repair	60	0.24	69	0.27
Taxes	50	0.20	50	0.20
Real estate rent/lease	61	0.24	65	0.26
Insurance	39	0.16	40	0.16
Utilities	90	0.36	101	0.40
Interest paid	119	0.47	128	0.50
Other professional fees	23	0.09	25	0.10
Miscellaneous	<u>25</u>	<u>0.10</u>	<u>27</u>	<u>0.11</u>
Total Operating Expenses	\$3,963	\$15.80	\$4,049	\$16.01
Expansion livestock	37	0.15	21	0.08
Extraordinary expense	2	0.01	1	0.00
Machinery depreciation	191	0.76	195	0.77
Real estate depreciation	<u>132</u>	<u>0.53</u>	<u>136</u>	<u>0.54</u>
Total Expenses	\$4,325	\$17.25	\$4,402	\$17.40
Net Farm Income Without Appreciation	\$ -269	\$ -1.07	\$ 704	\$ 2.78

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

In 2010, 29 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 29 farms and only represents these 29 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 96 farms over 300 cows that participated in the DFBS project in 2010. 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.

Seventeen farms that were in the top 20 percent in 2010 were also in the summary in 2009. The table on page 7 shows income and expenses for these farms for both 2009 and 2010. 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  
29 New York Dairy Farms, 2010**

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	3,357	62	1,147,874
	1,933	32	713,417
	1,472	24	567,356
	1,194	19	394,532
Average of Lowest Quintile	969	16	169,158
Overall Average	1,796	31	599,540
Dairy Enterprise Only			
Quintile	Worker Equivalents	Cows per Worker Equivalent	Pounds Sold per Worker Equivalent
Average of Highest Quintile	10.93	299	4,891,272
	6.84	132	2,975,237
	4.80	105	2,548,045
	3.04	93	2,163,261
Average of Lowest Quintile	1.29	69	1,529,530
Overall Average	5.40	141	2,830,897

**TOP 20 PERCENT VERSUS AVERAGE**  
96 Large Herd Dairy Farms, 2010

Selected Factors	Average 96 Farms	Average Top 20% Farms	Percent Difference
<u>Size of Business</u>			
Average number of cows	883	884	0.1
Average number of heifers	754	771	2.6
Milk sold, lbs.	22,149,552	22,311,404	7.3
Worker equivalent	18.87	17.85	-5.4
Total tillable acres	1,677	1,470	-12.3
<u>Rates of Production</u>			
Milk sold per cow, lbs.	25,092	25,230	0.6
Butterfat per cow, lbs. <sup>3</sup>	912	921	1.0
Protein per cow, lbs. <sup>3</sup>	770	773	0.3
Hay DM per acre, tons	3.8	3.4	-9.1
Corn silage per acre, tons	19.7	20.7	5.3
<u>Labor Efficiency &amp; Costs</u>			
Cows per worker	47	50	6.4
Milk sold/worker, lbs.	1,174,056	1,250,289	6.5
Hired labor cost/cwt.	\$2.72	\$2.64	-2.9
Hired labor cost/hired worker	\$36,447	\$37,481	2.8
Hired labor cost as % of milk sales	15.3%	14.7%	-4.0
<u>Cost Control</u>			
Grain & concentrate purchased as % of milk sales	28%	26%	-7.1
Grain & concentrate per cwt. milk	\$5.05	\$4.68	-7.3
Dairy feed & crop expense per cwt. milk	\$6.30	\$5.92	-6.0
Labor & machinery costs/cow	\$1,458	\$1,347	-7.6
Total farm operating costs per cwt. Sold	\$16.05	\$14.82	-7.7
Interest costs per cwt. milk	\$0.52	\$0.40	-23.1
Milk marketing costs per cwt. milk sold	\$0.89	\$0.84	-5.6
Operating cost of producing cwt. of milk	\$13.76	\$12.32	-10.5
Net milk income over purchased feed costs per cow	\$2,978	\$3,148	5.7
<u>Capital Efficiency (average for the year)</u>			
Farm capital per cow	\$8,764	\$7,764	-11.4
Machinery & equipment per cow	\$1,474	\$1,213	-17.7
Asset turnover ratio	0.60	0.68	13.3
<u>Income Generation</u>			
Gross milk sales per cow	\$4,470	\$4,539	1.5
Gross milk sales per cwt.	\$17.81	\$17.99	1.0
Net milk sales per cwt.	\$16.92	\$17.15	1.4
Dairy cattle sales per cow	\$299	\$335	12.0
Dairy calf sales per cow	\$25	\$19	-24.0
<u>Profitability</u>			
Net farm income without appreciation	\$610,776	\$1,035,705	69.6
Net farm income with appreciation	\$759,459	\$1,109,707	46.1
Labor & management income per operator/manager	\$181,724	\$411,060	126.2
Rate of return on equity capital without appreciation	9.7%	18.8%	93.4
Rate of return on all capital without appreciation	7.6%	14.6%	92.9
<u>Financial Summary (excluding deferred taxes)</u>			
Farm net worth, end of year	\$5,134,933	\$5,300,658	3.2
Debt to asset ratio	0.36	0.26	-27.8
Farm debt per cow	\$3,191	\$2,096	-34.3

<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, 2009 & 2010

Item	2009		2010	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	839		909	
Cwt. of Milk Sold		217,004		238,781
<u>Accrual Operating Receipts</u>				
Milk	\$3,597	\$13.91	\$4,722	\$17.97
Dairy cattle	272	1.05	359	1.37
Dairy calves	70	0.27	13	0.05
Other livestock	1	0.00	0	0.00
Crops	42	0.16	202	0.77
Miscellaneous receipts	<u>196</u>	<u>0.76</u>	<u>107</u>	<u>0.41</u>
Total	\$4,177	\$16.16	\$5,403	\$20.57
<u>Accrual Operating Expenses</u>				
Hired labor	\$ 695	\$ 2.69	\$ 690	\$ 2.63
Dairy grain & concentrate	1,286	4.97	1,225	4.66
Dairy roughage	61	0.23	81	0.31
Nondairy feed	0	0.00	0	0.00
Professional nutritional services	1	0.00	2	0.01
Machine hire, rent & lease	78	0.30	87	0.33
Machine repair & vehicle expense	146	0.57	172	0.66
Fuel, oil & grease	121	0.47	149	0.57
Replacement livestock	7	0.03	0	0.00
Breeding	46	0.18	51	0.19
Veterinary & medicine	153	0.59	153	0.58
Milk marketing	216	0.84	223	0.85
Bedding	73	0.28	91	0.34
Milking supplies	95	0.37	85	0.32
Cattle lease	4	0.02	5	0.02
Custom boarding	48	0.19	43	0.17
bST expense	71	0.27	73	0.28
Livestock professional fees	9	0.04	16	0.06
Other livestock expense	21	0.08	8	0.03
Fertilizer & lime	74	0.29	82	0.31
Seeds & plants	82	0.32	89	0.34
Spray & other crop expense	48	0.18	32	0.12
Crop professional fees	3	0.01	7	0.03
Land, building & fence repair	55	0.21	64	0.24
Taxes	46	0.18	48	0.18
Real estate rent/lease	64	0.25	78	0.30
Insurance	36	0.14	39	0.15
Utilities	88	0.34	107	0.41
Interest paid	91	0.35	93	0.35
Other professional fees	21	0.08	18	0.07
Miscellaneous	<u>27</u>	<u>0.10</u>	<u>24</u>	<u>0.09</u>
Total Operating Expenses	\$3,766	\$14.57	\$3,835	\$14.60
Expansion livestock	45	0.17	12	0.05
Extraordinary Expense	4	0.02	0	0.00
Machinery depreciation	171	0.66	179	0.68
Real Estate depreciation	<u>97</u>	<u>0.38</u>	<u>106</u>	<u>0.40</u>
Total Expenses	\$4,083	\$15.80	\$4,132	\$15.73
Net Farm Income without appreciation	\$ 93	\$ 0.36	\$1,271	\$ 4.84

### **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**

29 New York Dairy Farms, 2010

<u>Animals Entering Herd</u>	Average
Number calving in 2010 for first time	243
Animals purchased, % <sup>4</sup>	1
Animals raised by farm, % <sup>5</sup>	99
<u>Current Heifer Inventory</u>	
Raised on dairy, %	92
Raised by a custom grower, %	8

<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, 243 animals calved for the first time in 2010. The breakdown on the source of these animals was one percent purchased and 99 percent raised on the farm. Of the current heifer inventory, 92 percent were raised on the dairy and 8 percent were 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, 88 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 line item in this section is the expense associated with utilizing forward contracting or hedging programs to market milk, such as commission or broker fees. The fifth area is income 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**  
88 Large Herd Dairy Farms, 2010

	Pounds	Percent	Price/Pound	Total	\$/Cwt of Milk
<b>BASE FARM PRICE</b>					
Butterfat	794,668	3.64%	\$1.86	\$1,474,791	\$ 6.75
Protein	670,306	3.07%	\$2.30	\$1,542,395	\$ 7.06
Solids	1,272,399	5.82%	\$0.17	\$220,182	\$ 1.01
<b>Total Component Contribution</b>					<b>\$ 14.82</b>
<b>PPD</b>	21,849,893			\$371,143	<b>\$ 1.70</b>
<b>Base Farm Price</b>					<b>\$ 16.52</b>
<b>Premiums</b>					
Quality				\$59,762	\$ 0.27
Volume				\$70,114	\$ 0.32
Market Premiums				\$121,144	\$ 0.55
<b>Total Premiums</b>					<b>\$ 1.14</b>
<b>BASE FARM PRICE + PREMIUM</b>					<b>\$ 17.66</b>
<hr style="border-top: 1px dashed black;"/>					
<b>Deductions</b>					
Promo				\$33,444	\$ 0.15
Hauling + Stop Charges.				\$136,312	\$ 0.62
Market Fees & Coop Dues				\$30,946	\$ 0.14
<b>Total Deductions</b>					<b>\$ 0.91</b>
<b>BASE FARM PRICE + PREMIUMS – DEDUCTIONS</b>					<b>\$ 16.75</b>
<b>Marketing Programs</b>					
Futures Contracts, Forward Contracting, Etc.				\$-1,317	\$ -0.01
<b>Total Marketing Income</b>					<b>\$ -0.01</b>
<b>Patronage Dividends</b>				\$39,623	<b>\$ 0.18</b>
<b>NET PRICE RECEIVED ON FARM, ALL SOURCES</b>					<b>\$ 16.92</b>
<b>PPD - Hauling, per cwt., \$ per cwt.</b>					\$ 1.07
<b>PPD - Hauling + Market Premiums, per cwt., \$ per cwt.</b>					\$ 1.63
<b>Net Marketing Value (PPD + Total Premiums – Total Deductions), \$ per cwt.</b>					\$ 1.93

<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)  
88 Large Herd Dairy Farms, 2010

	Lowest Quintile	←—————→			Highest Quintile
Butterfat, %	3.47	3.58	3.64	3.70	3.93
Protein, %	2.97	3.04	3.07	3.11	3.24
Other Solids, %	5.63	5.72	5.74	5.76	6.09
Butterfat, \$ per Cwt.	6.42	6.62	6.75	6.87	7.32
Protein, \$ per Cwt.	6.78	7.00	7.08	7.16	7.42
Other solids, \$ per Cwt.	0.99	1.01	1.02	1.02	1.03
<b>Total Component Value per Cwt.</b>	<b>\$ 14.33</b>	<b>\$ 14.68</b>	<b>\$ 14.84</b>	<b>\$ 14.96</b>	<b>\$ 15.67</b>
PPD, \$ per Cwt.	1.45	1.55	1.68	1.80	2.13
<b>Base Farm Price per Cwt.</b>	<b>\$ 15.91</b>	<b>\$ 16.34</b>	<b>\$ 16.49</b>	<b>\$ 16.73</b>	<b>\$ 17.60</b>
Quality, \$ per Cwt.	0.12	0.20	0.27	0.32	0.46
Volume, \$ per Cwt.	0.00	0.05	0.28	0.45	0.72
Market premium, \$ per Cwt.	0.02	0.21	0.46	0.80	1.22
<b>Total Premium, \$ per Cwt.</b>	<b>0.63</b>	<b>0.88</b>	<b>1.09</b>	<b>1.30</b>	<b>1.60</b>
<b>Base Farm Price + Premiums per Cwt.</b>	<b>\$ 16.76</b>	<b>\$ 17.28</b>	<b>\$ 17.68</b>	<b>\$ 18.00</b>	<b>\$ 18.83</b>
Promotion, \$ per Cwt.	0.15	0.15	0.15	0.15	0.15
Hauling, \$ per Cwt.	0.31	0.44	0.55	0.72	1.05
Market fees & coop dues per Cwt.	0.06	0.10	0.15	0.17	0.21
<b>Total Marketing Expenses per Cwt.</b>	<b>\$ 0.57</b>	<b>\$ 0.71</b>	<b>\$ 0.85</b>	<b>\$ 1.05</b>	<b>\$ 1.32</b>
<b>Base + Premiums – Deductions per Cwt.</b>	<b>\$ 16.01</b>	<b>\$ 16.53</b>	<b>\$ 16.74</b>	<b>\$ 17.02</b>	<b>\$ 17.75</b>
Futures contract, forward contracting, \$ per Cwt.	-0.02	0.00	0.00	0.00	0.00
<b>Total Marketing Income, \$ per Cwt.</b>	<b>\$ -0.02</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>\$ 0.03</b>	<b>\$ 0.85</b>
<b>Net Price Received From All Sources, \$ per Cwt.</b>	<b>\$ 16.26</b>	<b>\$16.63</b>	<b>\$ 16.85</b>	<b>\$ 17.16</b>	<b>\$ 18.02</b>
<b>PPD – Hauling, \$ per cwt.</b>	<b>\$ 0.87</b>	<b>\$ 0.97</b>	<b>\$ 1.07</b>	<b>\$ 1.22</b>	<b>\$ 1.42</b>
<b>PPD – Hauling + Market Premiums, \$ per cwt.</b>	<b>\$ 1.05</b>	<b>\$ 1.29</b>	<b>\$ 1.59</b>	<b>\$ 2.00</b>	<b>\$ 2.32</b>
<b>Net Marketing Value (PPD + Total Premiums – Total Deductions), \$ per cwt.</b>	<b>\$ 1.42</b>	<b>\$ 1.72</b>	<b>\$ 1.89</b>	<b>\$ 2.13</b>	<b>\$ 2.45</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 96 Large Herd Dairy Farms, 2010

Type of Farm	Number	Type of Barn	Number
Dairy	94	Stanchion/Tie-Stall	0
Dairy – cash crop	2	Freestall	92
		Combination	4
Type of Ownership	Number	Milking System	Number
Owner	92	Pipeline	0
Renter	4	Herringbone Conventional	24
		Herringbone Rapid Exit	18
Type of Business	Number	Parallel	42
Single proprietorship	12	Parabone	3
Partnership	15	Rotary	5
Limited Liability Corporation	53	Other	4
Subchapter S Corporation	14		
Subchapter C Corporation	2	Milking Frequency	Number
		2x/day	19
		3x/day	69
		Other	8
		Production Records	Number
		Testing Service	74
		On-Farm System	20
		Other	0
		None	2
		Breed	Percent
		Holstein	94
		Jersey	3
		Other	3
BST Usage (reporting this is optional)	Number		
Used consistently	6		
Used inconsistently	1		
Started Use in 2010	0		
Stopped Use in 2010	0		
Not Used	1		
Average % bst usage of those reporting	48%		

### 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 2010.

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**

96 Large Herd Dairy Farms, 2010

Expense Item	Cash Paid	-	Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses
<u>Hired Labor</u>	\$ 602,150		\$ -823	**	\$ -287		\$ 602,685
<u>Feed</u>							
Dairy grain & concentrate	1,169,092		17,364		-32,497		1,119,232
Dairy roughage	70,939		435		1,381		71,885
Nondairy	204		-1		0		205
Professional nutritional services	1,427		0	**	102		1,529
<u>Machinery</u>							
Machinery hire, rent/lease	75,003		-185	**	-267		74,922
Mach. repair & farm vehicle exp.	169,976		531		-214		169,231
Fuel, oil & grease	139,903		644		-148		139,111
<u>Livestock</u>							
Replacement livestock	8,857		0	**	0		8,857
Breeding	45,068		96		-150		44,823
Vet & medicine	143,293		-310		-1,866		141,736
Milk marketing	196,601		0	**	656		197,256
Bedding	81,136		-50		-824		80,362
Milk supplies	80,207		268		-326		79,613
Cattle lease/rent	2,567		0	**	0		2,567
Custom boarding	84,756		-2,744	**	-224		87,275
bST expense	55,666		-384		-26		56,023
Livestock professional fees	11,943		246	**	-131		11,567
Other livestock expense	15,914		-67		383		16,364
<u>Crops</u>							
Fertilizer & lime	88,213		7,081		-2,722		78,410
Seeds & plants	95,142		12,280		-2,070		80,791
Spray, other crop exp.	39,725		197		-1,324		38,203
Crop professional fees	7,840		110	**	-115		7,615
<u>Real Estate</u>							
Land/bldg./fence repair	60,817		101		-717		59,998
Taxes	42,961		328	**	804		43,436
Rent & lease	58,568		103	**	149		58,615
<u>Other</u>							
Insurance	35,293		155	**	-58		35,080
Utilities (farm share)	87,581		-58	**	-281		87,358
Interest paid	114,170		13	**	81		114,237
Other professional fees	21,371		-199	**	50		21,620
Miscellaneous	<u>22,395</u>		<u>-19</u>		<u>1,502</u>		<u>23,916</u>
Total Operating Expenses	\$3,628,777		\$35,113		\$-39,141		\$3,554,523
Expansion livestock	\$ 18,037		0		0		18,037
Extraordinary expense	\$ 844		0		0		844
Machinery depreciation							168,153
Building depreciation							118,288
Total Accrual Expenses							\$3,859,844

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 2010 funds used to prepay 2011 leases exceed the amount of 2010 leases prepaid in 2009, the amount of this excess is subtracted to exclude it from 2010 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 2010 but not paid for. A decrease is subtracted because the resource was used before 2010.

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**  
96 Large Herd Dairy Farms, 2010

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts
Milk sales	\$3,891,333				\$54,315		\$3,945,648
Dairy cattle	183,570		\$80,074		-33		263,612
Dairy calves	19,729		2,250		9		21,987
Other livestock	7,733		2,616		1,313		11,662
Crops	49,425		81,065		-1,031		129,460
Government receipts	28,026		108 <sup>8</sup>		245		28,379
Custom machine work	9,000				-524		8,477
Gas tax refund	399				0		399
Other	<u>61,007</u>				<u>-12</u>		60,996
Less nonfarm noncash cap.			<u>0<sup>9</sup></u>				<u>0</u>
Total Receipts	\$4,250,224		\$166,113		\$ 54,283		\$4,470,620

<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 2010 for the 2011 crop year in excess of funds earned for 2010. Likewise, a decrease is added to cash government receipts because it represents funds earned for 2010 but received in 2009.

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.

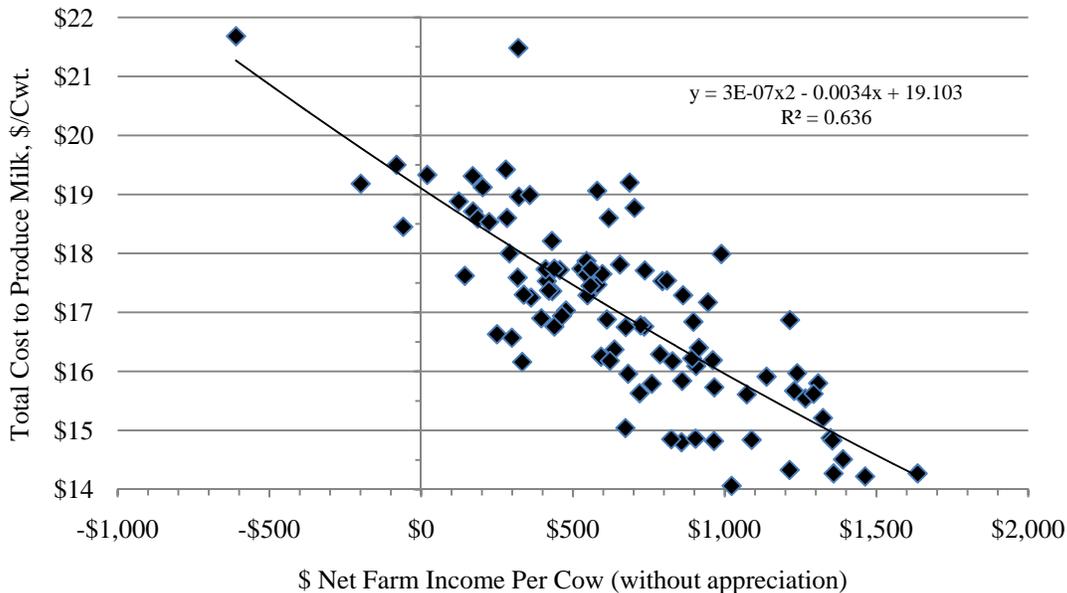
Net farm income is computed both with and without appreciation. Appreciation represents the change in values caused by annual changes in prices of livestock, machinery, real estate inventory, and stocks and certificates (other than Farm Credit). Appreciation is a major factor contributing to changes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

#### NET FARM INCOME 96 Large Herd Dairy Farms, 2010

Item	<u>Average 96 Farms</u>		<u>Average Top 20%<sup>11</sup> Farms</u>	
	Total	Per Cow	Total	Per Cow
Total accrual receipts	\$ 4,470,620		\$ 4,575,560	
Appreciation: Livestock	5,385		-45	
Machinery	32,530		23,445	
Real Estate	110,096		41,721	
Other Stock/Certificates	673		8,882	
Total Including Appreciation	\$ 4,619,303		\$ 4,649,562	
Total accrual expenses	3,859,844		3,539,855	
Net Farm Income (with appreciation)	\$ 759,459	\$860	\$ 1,109,707	\$1,255
Net Farm Income (without appreciation)	\$ 610,776	\$692	\$ 1,035,705	\$1,171

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

96 Large Herd Dairy Farms, 2010



<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.

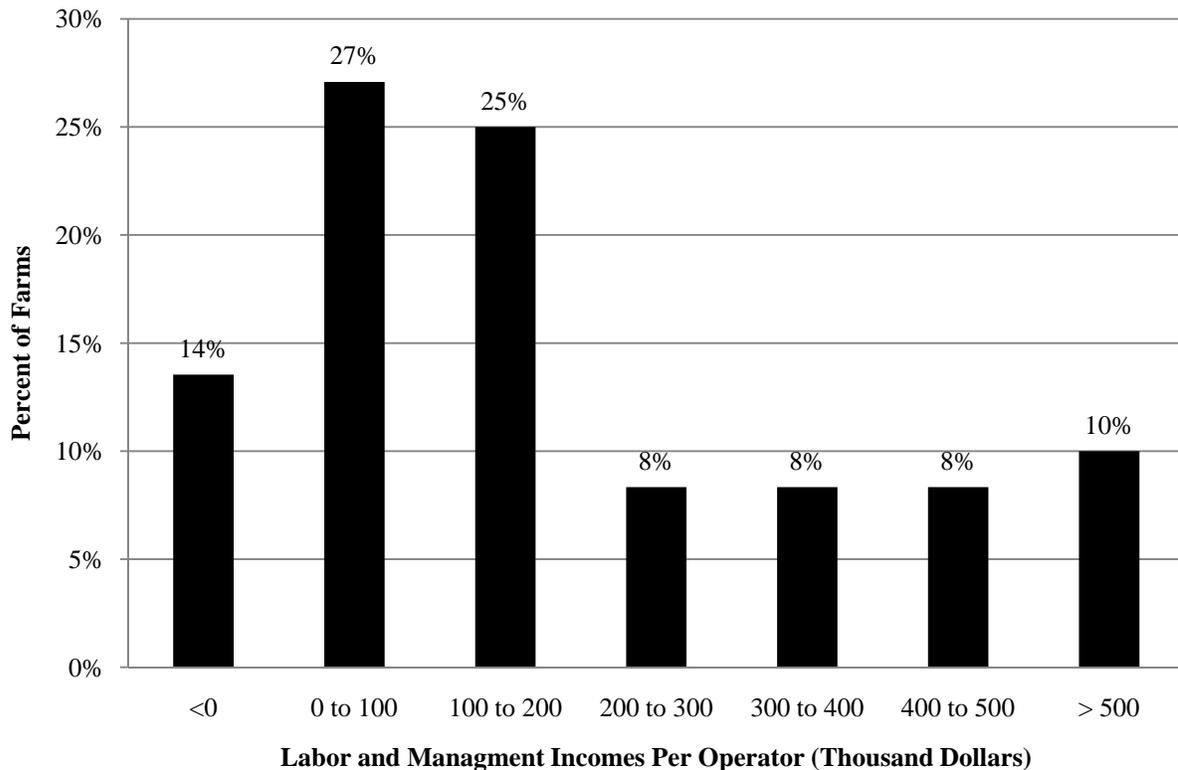
Labor and management income is the return which farm operators receive for their labor and management used in operating the farm business. Appreciation is not included as part of the return to labor and management because it results from ownership of assets rather than management of the farm business. 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**  
96 Large Herd Dairy Farms, 2010

Item	Average 96 Farms	Average Top 20% Farms
Net farm income without appreciation	\$ 610,776	\$ 1,035,705
Family labor unpaid @ \$2,500 per month	- 919	- 513
Interest on \$4,857,601 (\$4,859,651 for top 20%) average equity capital @ 5% real rate	<u>- 231,870</u>	<u>- 245,956</u>
Labor & Management Income per Farm (2.08 operators/farm; 1.92 operators for top 20%)	\$ 377,987	\$ 789,236
Labor & Management Income per Operator/Manager	\$ 181,724	\$ 411,060

Labor and management income per operator averaged \$181,724 on these 96 farms in 2010. Returns to labor and management were less than \$100,000 on 41 percent of the farms. Labor and management income per operator ranged from \$100,000 to \$400,000 on 41 percent of the farms while 18 percent had labor and management incomes per operator greater than \$400,000.

**DISTRIBUTION OF LABOR & MANAGEMENT INCOMES PER OPERATOR**  
96 Large Herd Dairy Farms, 2010



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**  
96 Large Herd Dairy Farms, 2010

Item	Average 96 Farms	Average Top 20% Farms
Net farm income with appreciation	\$ 759,459	\$ 1,109,707
Family labor unpaid @ \$2,500 per month	- 919	- 513
Value of operators' labor & management	<u>- 136,806</u>	<u>- 119,646</u>
Return on equity capital with appreciation	\$ 621,734	\$ 989,548
Interest paid	<u>+ 114,237</u>	<u>+ 89,720</u>
Return on total capital with appreciation	\$ 735,972	\$ 1,079,268
Return on equity capital without appreciation	\$ 473,051	\$ 915,546
Return on total capital without appreciation	\$ 587,289	\$ 1,005,267
Rate of return on average equity capital:		
with appreciation	12.8%	20.4%
without appreciation	9.7%	18.8%
Rate of return on average total capital:		
with appreciation	9.5%	15.7%
without appreciation	7.6%	14.6%
Net farm income from operations ratio	0.14	0.23

**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 2010, leases were discounted by 7 percent.

Advanced government receipts are included as current liabilities. Government payments received in 2010 that are for participation in the 2011 program are the end year balance and payments received in 2009 for participation in the 2010 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.

**2010 FARM BUSINESS & NONFARM MARKET VALUE BALANCE SHEET**

96 Large Herd Dairy Farms, 2010

Farm Assets			Farm Liabilities & Net Worth		
	Jan. 1	Dec. 31		Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$ 71,450	\$ 76,015	Accounts payable	\$ 161,428	\$ 122,287
Accounts receivable	250,040	304,323	Operating debt	207,557	160,827
Prepaid expenses	8,868	5,814	Short Term	9,911	11,408
Feed & supplies	736,852	856,084	Advanced govt. receipts	798	689
			Current Portion:		
			Intermediate	206,890	230,809
			Long Term	<u>83,692</u>	<u>90,858</u>
Total Current	\$ 1,067,210	\$ 1,242,236	Total Current	\$ 670,276	\$ 616,878
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy cows:			Structured debt		
owned	\$ 1,184,152	\$ 1,237,198	1-10 years	\$1,198,389	\$ 1,142,249
leased	2,114	1,370	Financial lease		
Heifers	688,408	718,233	(cattle/machinery)	14,623	11,109
Bulls/other livestock	14,208	21,661	Farm Credit stock	<u>1,428</u>	<u>1,442</u>
Mach./equipment owned	1,265,756	1,314,056	Total Intermediate	\$1,214,440	\$ 1,154,800
Mach./equipment leased	12,509	9,739			
Farm Credit stock	1,428	1,442			
Other stock/certificate	<u>172,348</u>	<u>200,862</u>			
Total Intermediate	\$ 3,340,923	\$ 3,504,561			
<u>Long Term</u>			<u>Long Term</u>		
Land/buildings:			Structured debt		
owned	\$ 3,067,131	\$ 3,249,797	>10 years	\$1,010,281	\$ 1,089,981
leased	<u>350</u>	<u>904</u>	Financial lease		
Total Long Term	\$ 3,067,481	\$ 3,250,701	(structures)	<u>350</u>	<u>904</u>
			Total Long Term	\$1,010,631	\$ 1,090,885
Total Farm Assets	\$ 7,475,614	\$ 7,997,498	Total Farm Liab.	\$2,895,347	\$ 2,862,564
			FARM NET WORTH	\$4,580,267	\$ 5,134,933
Nonfarm Assets, Liabilities & Net Worth (Average of 27 farms reporting)					
Assets			Liabilities & Net Worth		
	Jan. 1	Dec. 31		Jan. 1	Dec. 31
Personal cash, checking & savings	\$ 6,266	\$ 6,003	Nonfarm Liabilities	\$ 1,868	\$ 1,667
Cash value life insurance	77,011	84,192			
Nonfarm real estate	284,532	266,482			
Auto (personal share)	2,981	3,370			
Stocks & bonds	55,726	62,253			
Household furnishings	3,481	3,500			
All other nonfarm assets	40,726	53,935			
Total Nonfarm Assets	\$ 470,723	\$ 479,735	NONFARM NET WORTH	\$ 468,855	\$ 478,068
Farm & Nonfarm Assets, Liabilities, and Net Worth <sup>12</sup>					
				Jan. 1	Dec. 31
Total Assets				\$ 7,946,337	\$ 8,477,233
Total Liabilities				<u>2,897,215</u>	<u>2,864,231</u>
TOTAL FARM & NONFARM NET WORTH				\$ 5,049,122	\$ 5,613,002

<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**  
96 Large Herd Dairy Farms, 2010

Item	Average 96 Farms	Average Top 20% Farms		
<u>Financial Ratios - Farm:</u>				
Percent equity	64%	74%		
Debt/asset ratio: total	0.36	0.26		
long-term	0.34	0.19		
intermediate/current	0.37	0.31		
Leverage Ratio	0.56	0.36		
Current Ratio	2.01	2.00		
Working Capital: \$625,357	as % of Total Expenses: 16%	\$567,193 16%		
<u>Farm Debt Analysis:</u>				
Accounts payable as % of total debt	4%	4%		
Long-term liabilities as a % of total debt	38%	27%		
Current & intermediate liabilities as a % of total debt	62%	73%		
Cost of term debt (weighted average)	4.06%	3.84%		
	<u>Average 96 Farms</u>	<u>Average Top 20% Farms</u>		
<u>Farm Debt Levels:</u>	<u>Per Cow</u>	<u>Per Tillable Acre Owned</u>	<u>Per Cow</u>	<u>Per Tillable Acre Owned</u>
Total farm debt	\$ 3,191	\$ 3,507	\$ 2,096	\$ 2,393
Long-term debt	1,216	1,336	575	656
Long-term & intermediate	2,503	2,751	1,472	1,680
Intermediate & current debt	1,975	2,170	1,521	1,737

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**  
96 Large Herd Dairy Farms, 2010

Item	Average of 96 Farms	
	<u>Real Estate</u>	<u>Machinery &amp; Equipment</u>
Value beginning of year	\$ 3,067,131	\$ 1,265,756
Purchases	\$ 270,999 <sup>13</sup>	\$ 197,428
Gift/inheritance	+ 0	+ 0
Lost capital	- 75,283	
Sales	- 4,859	- 13,505
Depreciation	- 118,288	- 168,153
Net investment	= 72,569	= 15,770
Appreciation	+ 110,096	+ 32,530
Value end of year	\$ 3,249,797	\$ 1,314,056

<sup>13</sup> \$80,546 land and \$190,453 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)**

96 Large Herd Dairy Farms, 2010

Item	Average 96 Farms	Average Top 20% Farms
Beginning of year farm net worth	\$ 4,580,268	\$4,418,645
Net farm income without appreciation	\$ 610,776	\$ 1,035,705
+ Nonfarm cash income	+ 8,794	+ 2,059
- Personal withdrawals & family expenditures excluding nonfarm borrowings	- 175,889	- \$ 175,832
Retained Earnings	+\$ 443,681	+ \$ 861,933
Nonfarm noncash transfers to farm	\$ 0	\$ 0
+ Cash used in business from nonfarm capital	+ 35,953	+ 12,310
- Note/mortgage from farm real estate sold (nonfarm)	- 35	- 0
Contributed/Withdrawn Capital	= \$ 35,918	+ \$ 12,310
Appreciation	\$ 148,683	\$ 74,001
- Lost capital	- 75,283	- 73,062
Change in Valuation Equity	+\$ 73,400	+ \$ 939
Imbalance/Error	- -1,666	- -6,831
End of year farm net worth <sup>14</sup>	= \$ 5,134,933	= \$ 5,300,658
Change in net worth with appreciation	\$ 554,666	\$ 882,013
<u>Change in Net Worth</u>		
Without appreciation	\$ 405,982	\$ 808,012
With appreciation	\$ 554,666	\$ 882,013

<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**  
96 Large Herd Dairy Farms, 2010

Item	Average 96 Farms	
<b><u>Cash Flow from Operating Activities</u></b>		
Cash farm receipts	\$ 4,250,224	
- Cash farm expenses	3,628,777	
- Extraordinary expense	<u>844</u>	
= Net cash farm income		\$ 620,603
Personal withdrawals/family expenses including nonfarm debt payments	\$ 176,184	
- Nonfarm income	<u>8,794</u>	
- Net cash withdrawals from the farm		\$ <u>167,390</u>
= Net Provided by Operating Activities		\$ 453,213
<b><u>Cash Flow From Investing Activities</u></b>		
Sale of Assets: Machinery	\$ 13,505	
+ real estate	4,824	
+ other stock & certificates	<u>4,973</u>	
= Total asset sales		\$ 23,302
Capital purchases: expansion livestock	\$ 18,037	
+ machinery	197,428	
+ real estate	270,999	
+ other stock & certificates	<u>32,814</u>	
- Total invested in farm assets		\$ <u>519,278</u>
= Net Provided by Investment Activities		\$ -495,976
<b><u>Cash Flow From Financing Activities</u></b>		
Money borrowed (intermediate & long term)	\$ 381,503	
+ Money borrowed (short-term)	8,626	
+ Increase in operating debt	0	
+ Cash from nonfarm capital used in business	35,953	
+ Money borrowed - nonfarm	<u>295</u>	
= Cash inflow from financing		\$ 426,377
Principal payments (intermediate & long-term)	\$ 326,859	
+ Principal payments (short-term)	7,129	
+ Decrease in operating debt	<u>46,730</u>	
- Cash outflow for financing		\$ <u>380,717</u>
= Net Provided by Financing Activities		\$ 45,660
<b><u>Cash Flow From Business</u></b>		
Beginning farm cash, checking & savings		\$ 71,450
- Ending farm cash, checking & savings		<u>76,014</u>
= Net Provided from Reserves		\$ <u>-4,564</u>
<b><u>Imbalance (error)</u></b>		<b>\$ -1,667</b>

**ANNUAL CASH FLOW STATEMENT**  
19 Top 20% Large Herd Dairy Farms, 2010

Item	Average Top 20% Farms	
<u>Cash Flow from Operating Activities</u>		
Cash farm receipts	\$4,240,971	
- Cash farm expenses	3,445,700	
- Extraordinary expense	<u>0</u>	
= Net cash farm income		\$ 795,271
Personal withdrawals/family expenses including nonfarm debt payments	\$ 175,831	
- Nonfarm income	<u>2,059</u>	
- Net cash withdrawals from the farm		<u>\$ 173,772</u>
= Net Provided by Operating Activities		\$ 621,499
<u>Cash Flow From Investing Activities</u>		
Sale of Assets: Machinery	\$ 7,381	
+ real estate	6,947	
+ other stock & certificate	<u>943</u>	
= Total asset sales		\$ 15,271
Capital purchases: expansion livestock	\$ 3,716	
+ machinery	226,320	
+ real estate	193,843	
+ other stock & certificate	<u>62,178</u>	
- Total invested in farm assets		<u>\$ 486,057</u>
= Net Provided by Investment Activities		\$ -470,786
<u>Cash Flow From Financing Activities</u>		
Money borrowed (intermediate & long term)	\$ 162,216	
+ Money borrowed (short-term)	17,347	
+ Increase in operating debt	0	
+ Cash from nonfarm capital used in business	12,310	
+ Money borrowed - nonfarm	<u>0</u>	
= Cash inflow from financing		\$ 191,873
Principal payments (intermediate & long-term)	\$ 324,692	
+ Principal payments (short-term)	2,693	
+ Decrease in operating debt	<u>3,415</u>	
- Cash outflow for financing		<u>\$ 330,800</u>
= Net Provided by Financing Activities		\$ -138,927
<u>Cash Flow From Business</u>		
Beginning farm cash, checking & savings		\$ 40,549
- Ending farm cash, checking & savings		<u>59,166</u>
= Net Provided from Reserves		\$ -18,617
<u>Imbalance (error)</u>		\$ -6,831

## 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 2011. The cash flow projection worksheet on the next page can be used to estimate repayment ability, which can then be compared to planned 2011 debt payments shown below.

### FARM DEBT PAYMENTS PLANNED

Large Herd Dairy Farms, 2009 & 2010

Debt Payments	Same 90 Dairy Farms			Same 17 Top 20% Farms		
	2010 Payments		Planned 2011	2010 Payments		Planned 2011
	Planned	Made		Planned	Made	
Long-term	\$ 106,472	\$ 143,306	\$ 134,848	\$ 61,711	\$ 142,895	\$ 122,689
Intermediate-term	255,653	301,080	285,040	230,000	276,656	244,160
Short-term	7,778	7,772	8,200	0	3,126	16,013
Operating (net reduction)	29,897	59,350	16,287	47,494	38,155	14,118
Accounts payable (net reduction)	7,989	52,680	5,641	24,941	80,851	0
Total	\$ 407,789	\$ 564,188	\$ 450,016	\$ 364,146	\$ 541,683	\$ 396,980
Per cow	\$ 458	\$ 634		\$ 401	\$ 596	
Per cwt. 2010 milk	\$ 1.81	\$ 2.51		\$ 1.53	\$ 2.27	
Percent of total 2010 receipts	9%	12%		8%	11%	
Percent of 2010 milk receipts	10%	14%		9%	13%	

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 2010 (as of December 31, 2009) that could have been made with the amount available for debt service in 2010. Farmers who did not participate in DFBS in 2009 have their 2010 cash flow coverage ratio based on planned debt payments for 2011.

### COVERAGE RATIOS

Same 90 Large Herd Dairy Farms, 2009 & 2010

Item	Average	Item	Average
<u>Cash Flow Coverage Ratio</u>		<u>Debt Coverage Ratio</u>	
Cash farm receipts	\$ 4,320,688	Net farm income (without appreciation)	\$ 626,991
- Cash farm expenses	3,680,336	+ Depreciation	294,133
+ Interest paid (cash)	113,524	+ Interest paid (accrual)	113,579
- Net personal withdrawals from farm <sup>15</sup>	<u>171,793</u>	- Net personal withdrawals from farm <sup>15</sup>	<u>171,793</u>
(A) = Amount Available for Debt Service	\$ 582,083	(A') = Repayment Capacity	\$ 862,910
(B) = Debt Payments Planned for 2010 (as of December 31, 2009)	\$ 407,789	(B) = Debt Payments Planned for 2010 (as of December 31, 2009)	\$ 407,789
(A/B) = Cash Flow Coverage Ratio for 2010	1.43	(A'/B) = Debt Coverage Ratio for 2010	2.12
-----			
Same 17 Top 20% Dairy Farms, 2009 & 2010			
(A) = Amount Available for Debt Service	\$ 790,413	(A') = Repayment Capacity	\$ 1,295,509
(B) = Debt Payments Planned for 2010	\$ 364,146	(B) = Debt Payments Planned for 2010	\$ 364,146
(A/B) = Cash Flow Coverage Ratio for 2010	2.17	(A'/B) = Debt Coverage Ratio for 2010	3.56

<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**  
96 Large Herd Dairy Farms, 2010

Item	Average 96 Farms		Total
	Per Cow	Per Cwt.	
Number cows and cwt. Milk	883	221,496	
<u>Accrual Operating Receipts</u>			
Milk	\$4,470	\$17.81	\$3,945,648
Dairy cattle	299	1.19	263,612
Dairy calves	25	0.10	21,987
Other livestock	13	0.05	11,662
Crops	147	0.58	129,460
Misc. receipts	<u>111</u>	<u>0.44</u>	<u>98,251</u>
Total Operating Receipts	\$5,064	\$20.18	\$4,470,620
<u>Accrual Operating Expenses</u>			
Hired labor	\$ 683	\$ 2.72	\$ 602,685
Dairy grain & concentrate	1,268	5.05	1,119,232
Dairy roughage	81	0.32	71,885
Nondairy feed	0	0.00	205
Professional nutritional services	2	0.01	1,529
Machinery hire/rent/lease	85	0.34	74,922
Machinery repair & farm vehicle expense	192	0.76	169,231
Fuel, oil & grease	157	0.63	139,111
Replacement livestock	10	0.04	8,857
Breeding	51	0.20	44,823
Veterinary & medicine	161	0.64	141,736
Milk marketing	223	0.89	197,256
Bedding	91	0.36	80,362
Milking supplies	90	0.36	79,613
Cattle lease	3	0.01	2,567
Custom boarding	99	0.39	87,275
bST expense	63	0.25	56,023
Livestock professional fees	13	0.05	11,567
Other livestock expense	19	0.07	16,364
Fertilizer & lime	89	0.35	78,410
Seeds & plants	92	0.36	80,791
Spray/other crop expenses	43	0.17	38,203
Crop professional fees	9	0.03	7,615
Land, building, fence repair	68	0.27	59,998
Taxes	49	0.20	43,436
Real estate rent/lease	66	0.26	58,615
Insurance	40	0.16	35,080
Utilities	99	0.39	87,358
Other professional fees	24	0.10	21,620
Miscellaneous	<u>27</u>	<u>0.11</u>	<u>23,916</u>
Total Less Interest Paid	\$3,897	\$15.53	\$3,440,285
<u>Net Accrual Operating Income</u>			
(without interest paid)	\$1,167	\$ 4.65	\$1,030,335
- Change in livestock/crop inventory <sup>16</sup>	188	0.75	166,113
- Change in accounts receivable	61	0.25	54,283
- Change in feed/supply inventory <sup>17</sup>	40	0.16	35,113
+ Change in accounts payable <sup>18</sup>	<u>-44</u>	<u>-0.18</u>	<u>-39,222</u>
<b>NET CASH FLOW</b>	\$ 833	\$ 3.32	\$ 735,604
- Net personal withdrawals from farm (see footnote on page 22)	<u>189</u>	<u>0.75</u>	<u>167,020</u>
Available for Farm Debt Payments & Investments	\$ 644	\$ 2.57	\$ 568,584
- Farm debt payments	<u>642</u>	<u>2.56</u>	<u>566,728</u>
Available for Farm Investment	\$ 2	\$ 0.01	\$ 1,856
- Capital purchases: cattle, machinery & improvements	<u>588</u>	<u>2.34</u>	<u>519,278</u>
<b>Additional Capital Needed</b>	\$ 586	\$ 2.33	\$ -517,422

<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**  
19 Top 20% Large Herd Dairy Farms, 2010

Item	Average Top 20% Farms		
	Per Cow	Per Cwt.	Total
No. cows or cwt. milk	884	223,114	
<u>Accrual Operating Receipts</u>			
Milk	\$4,539	\$17.99	\$4,014,282
Dairy cattle	335	1.33	296,514
Dairy calves	19	0.07	16,391
Other livestock	26	0.10	23,106
Crops	156	0.62	138,199
Misc. receipts	<u>98</u>	<u>0.39</u>	<u>87,069</u>
Total Operating Receipts	\$5,174	\$20.51	\$4,575,560
<u>Accrual Operating Expenses</u>			
Hired labor	\$ 665	\$ 2.64	\$ 588,420
Dairy grain & concentrate	1,180	4.68	1,043,688
Dairy roughage	120	0.47	105,914
Nondairy feed	0	0.00	72
Professional nutritional services	2	0.01	1,612
Mach. hire/rent/lease	86	0.34	76,204
Mach. repair & farm vehicle expense	165	0.65	146,024
Fuel, oil & grease	137	0.54	120,981
Replacement livestock	1	0.00	591
Breeding	46	0.18	40,453
Veterinary & medicine	147	0.58	129,608
Milk marketing	212	0.84	187,367
Bedding	86	0.34	76,178
Milking supplies	79	0.31	70,041
Cattle lease	5	0.02	4,331
Custom boarding	55	0.22	48,407
bST expense	71	0.28	62,777
Livestock professional fees	14	0.06	12,553
Other livestock expense	10	0.04	8,832
Fertilizer & lime	81	0.32	71,475
Seeds & plants	78	0.31	69,161
Spray/other crop expenses	27	0.11	24,244
Crop professional fees	6	0.03	5,653
Land, building, fence repair	59	0.23	52,153
Taxes	45	0.18	40,008
Real estate rent/lease	84	0.33	74,366
Insurance	36	0.14	32,062
Utilities	99	0.39	87,456
Other professional fees	18	0.07	15,540
Miscellaneous	<u>24</u>	<u>0.09</u>	<u>21,009</u>
Total Less Interest Paid	\$3,638	\$14.42	\$3,217,179
<u>Net Accrual Operating Income</u>			
(without interest paid)	\$1,536	\$ 6.09	\$1,358,381
- Change in livestock/crop inventory <sup>19</sup>	268	1.06	236,851
- Change in accounts receivable	111	0.44	97,737
- Change in feed/supply inventory <sup>20</sup>	85	0.34	74,960
+ Change in accounts payable <sup>21</sup>	<u>-71</u>	<u>-0.28</u>	<u>-63,017</u>
<b>NET CASH FLOW</b>	\$1,001	\$ 3.97	\$ 885,815
- Net personal withdrawals from farm(see footnote page 22)	<u>196</u>	<u>0.78</u>	<u>173,738</u>
Available for Farm Debt Payments & Investments	\$ 805	\$ 3.19	\$ 712,078
- Farm debt payments	<u>589</u>	<u>2.33</u>	<u>520,435</u>
Available for Farm Investment	\$ 217	\$ 0.86	\$ 191,643
- Capital purchases: cattle, machinery & improvements	<u>550</u>	<u>2.18</u>	<u>486,057</u>
<b>Additional Capital Needed</b>	\$ 333	\$ 1.32	\$ 294,414

<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**

96 Large Herd Dairy Farms, 2010

Item	Average 96 Farms			Average Top 20% Farms		
	<u>Owned</u>	<u>Rented</u>	<u>Total</u>	<u>Owned</u>	<u>Rented</u>	<u>Total</u>
<u>Land</u>						
Tillable	816	861	1,677	793	677	1,470
Nontillable	31	5	35	11	3	14
Other nontillable	<u>207</u>	<u>5</u>	<u>213</u>	<u>141</u>	<u>0</u>	<u>141</u>
Total	1,054	871	1,925	945	680	1,625
<u>Crop Yields</u>	<u>Farms</u>	<u>Acres<sup>22</sup></u>	<u>Prod/Acre</u>	<u>Farms</u>	<u>Acres</u>	<u>Prod/Acre</u>
Hay crop	93	772	3.75 tn DM	17	753	3.41 tn DM
Corn silage	89	671	19.66 tn	16	650	20.71 tn
Other forage	13	158	2.25 tn DM	0	0	0 tn DM
Total forage	93	1,436	5.06 tn DM	17	1,398	5.03 tn DM
Corn grain	69	255	146 bu	13	200	149 bu
Oats	7	57	60 bu	0	0	80 bu
Wheat	17	140	62 bu	3	88	65 bu
Other crops	32	153		6	112	
Tillable pasture	7	188		2	340	
Idle tillable	22	74		2	20	
Total Tillable Acres	96	1,677		19	1,470	

<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 183, oats 4, wheat 25, tillable pasture 14, and idle 17.

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

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

**CROP/DAIRY RATIOS**93 Large Herd Dairy Farms, 2010 <sup>23</sup>

Item	Average 93 Farms	Average Top 20% Farms
Total tillable acres per cow	1.93	1.79
Total forage acres per cow	1.61	1.53
Harvested forage dry matter, tons per cow	8.12	7.68

<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 three farms.

**CROP RELATED ACCRUAL EXPENSES**

Large Herd Dairy Farms Reporting, 2010

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	93 <sup>24</sup>	35			35	
Ave. number of acres	1,728	962			899	
Fertilizer/lime	\$ 50.28	\$ 49.92	\$ 7.77	\$ 0.37	\$ 30.68	\$ 8.34
Seed/plants	49.26	77.48	11.89	0.55	16.95	4.93
Spray/other crop exp.	<u>23.32</u>	<u>46.14</u>	<u>7.13</u>	<u>0.35</u>	<u>8.16</u>	<u>2.66</u>
TOTAL	\$ 122.86	\$ 173.54	\$ 26.79	\$ 1.27	\$ 55.79	\$ 15.93
<b>Average Top 20% Farms:</b>						
No. of farms reporting	17 <sup>24</sup>	8			8	
Ave. number of acres	1,642	893			835	
Fertilizer/lime	\$ 69.81	\$ 49.78	\$ 7.20	\$ 0.41	\$ 31.31	\$ 9.12
Seeds/plants	43.97	79.18	11.80	0.59	17.62	5.54
Spray/other crop exp.	<u>14.97</u>	<u>37.68</u>	<u>5.64</u>	<u>0.32</u>	<u>8.57</u>	<u>2.96</u>
TOTAL	\$ 128.75	\$ 166.64	\$ 24.64	\$ 1.32	\$ 57.50	\$ 17.62

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

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

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

93 Large Herd Dairy Farms, 2010

Machinery Expense Item	Average 93 Farms		Average Top 20% Farms	
	Total Expenses	Per Tillable Acre	Total Expenses	Per Tillable Acre
Fuel, oil & grease	\$142,385	\$ 82.39	\$131,388	\$ 79.96
Machinery repairs & farm vehicle exp.	172,847	100.02	155,166	94.43
Machine hire, rent & lease	76,607	44.33	81,516	49.61
Interest (4.95%)	65,265	37.77	59,462	36.19
Depreciation	<u>172,397</u>	<u>99.76</u>	<u>156,380</u>	<u>95.17</u>
Total	\$629,501	\$364.27	\$583,911	\$355.36

<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**  
96 Large Herd Dairy Farms, 2010

Item	Dairy Cows		Bred		Heifers		Calves	
	No.	Value	No.	Value	No.	Value	No.	Value
<u>Average 96 Farms:</u>								
Beginning year (owned)	850	\$1,184,152	269	\$371,245	247	\$210,465	219	\$106,698
+ Change w/o apprec.		50,322		14,873		14,879		2,250
+ Appreciation		<u>2,723</u>		<u>-916</u>		<u>1,136</u>		<u>-2,397</u>
End year (owned)	887	\$1,237,198	279	\$385,202	264	\$226,480	222	\$106,550
End including leased	897							
Average number	883		754 (all age groups)					
<u>Average Top 20% Farms:</u>								
Beginning year (owned)	833	\$1,120,392	247	\$334,634	201	\$170,717	280	\$143,682
+ Change w/o apprec.		70,095		31,855		29,221		-1,536
+ Appreciation		<u>9,105</u>		<u>-7,323</u>		<u>-3,114</u>		<u>-9,441</u>
End of year (owned)	886	\$1,199,592	268	\$359,166	235	\$196,824	271	\$132,705
End including leased	905							
Average number	884		771 (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**  
96 Large Herd Dairy Farms, 2010

Item	Average 96 Farms	Average Top 20% Farms
Total milk sold, lbs.	22,149,552	22,311,404
Milk sold per cow, lbs.	25,092	25,230
Butterfat per cow, lbs.	912 <sup>26</sup>	921
Protein per cow, lbs.	770 <sup>26</sup>	773
Total butterfat and protein per cow, lbs.	1,682 <sup>26</sup>	1,694
Other solids per cow, lbs.	1,461 <sup>26</sup>	1,452
Total components per cow, lbs.	3,143 <sup>26</sup>	3,146

<sup>26</sup> This data is an average for the 88 farms that provided the data.

**ANIMALS LEAVING THE HERD**  
96 Large Herd Dairy Farms, 2010

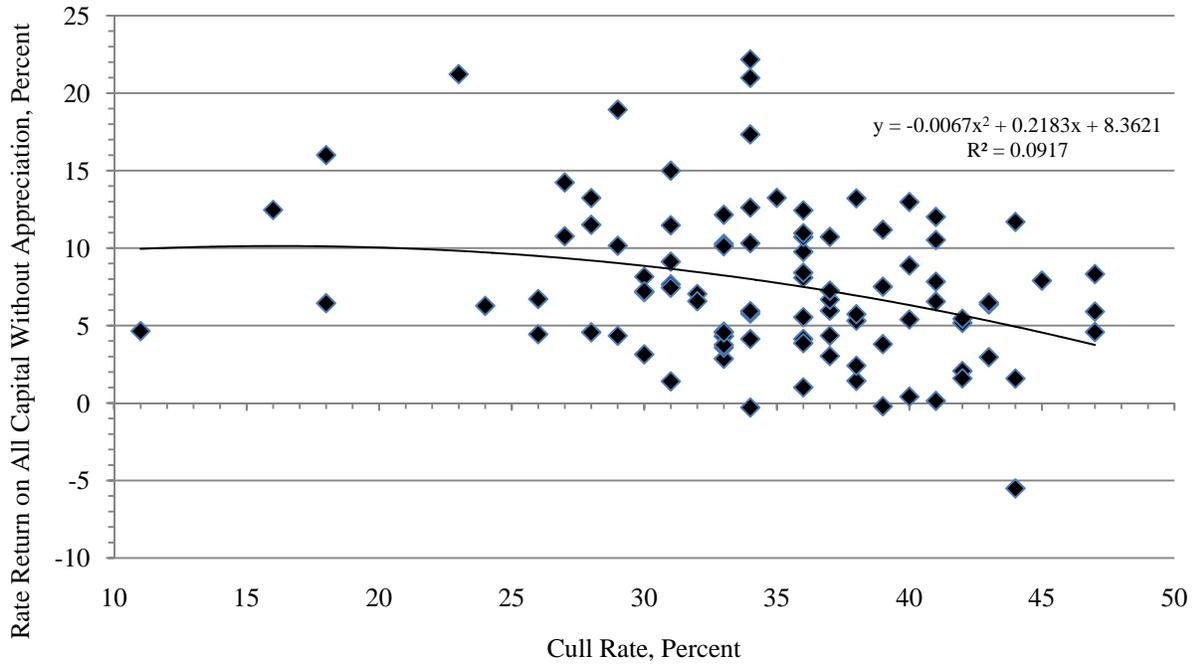
	Average 96 Farms		Average Top 20% Farms	
	Number	Percent <sup>27</sup>	Number	Percent <sup>27</sup>
Cows sold for beef	249	28.2	228	25.8
Cows sold for dairy	10	1.1	13	1.4
Cows died	59	6.7	56	6.3
Culling rate <sup>28</sup>	---	35.0	---	32.0

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

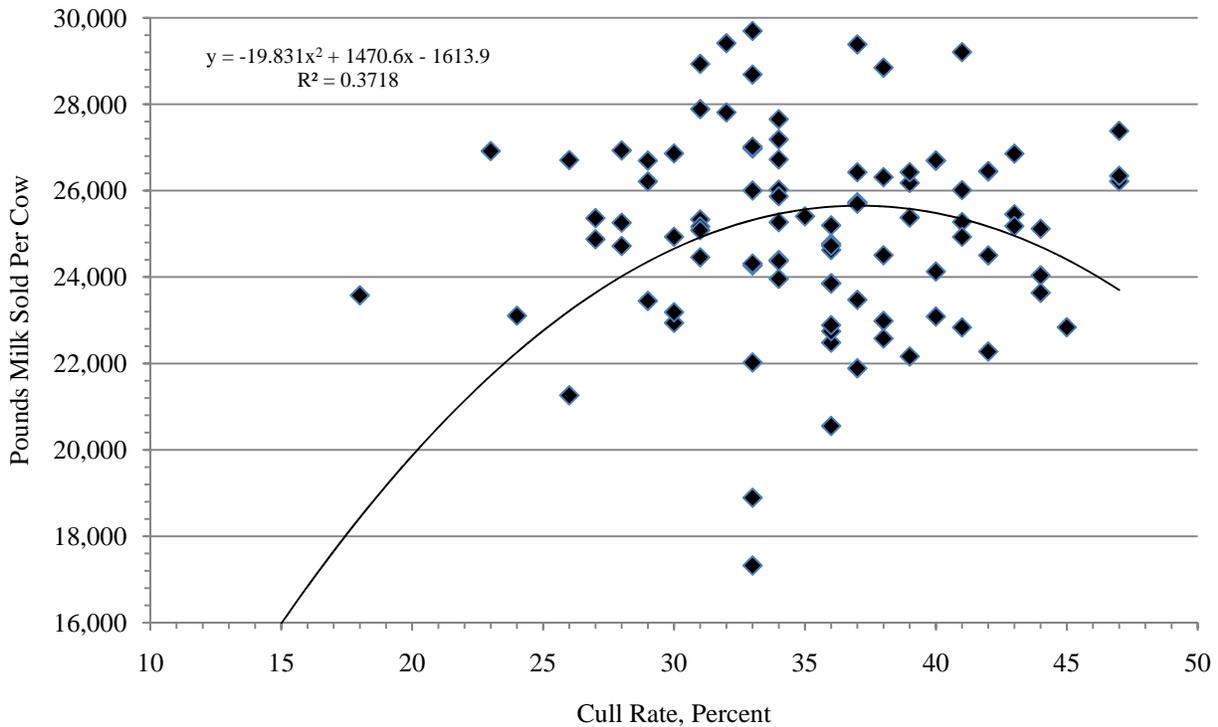
<sup>28</sup> Cows sold for beef plus cows died.

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 a curvilinear relationship between cull rate and these two measures for 2010.

**RETURN TO ALL CAPITAL WITHOUT APPRECIATION VERSUS CULL RATE**  
 96 Large Herd Dairy Farms, 2010



**MILK SOLD PER COW VERSUS CULL RATE**  
 96 Large Herd Dairy Farms, 2010



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

96 Large Herd Dairy Farms, 2010

Item	Average 96 Farms			Average Top 20% Farms		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
<u>Accrual Costs of Producing Milk</u>						
Operating costs	\$ 3,047,588	\$ 3,452	\$13.76	\$ 2,749,337	\$ 3,109	\$12.32
Purchased inputs costs	\$ 3,334,872	\$ 3,778	\$15.06	\$ 2,978,576	\$ 3,368	\$13.35
Total Costs	\$ 3,704,467	\$ 4,197	\$16.72	\$ 3,344,691	\$ 3,782	\$14.99
<u>Accrual Receipts From Milk</u>						
Net Milk Receipts	\$ 3,945,648	\$ 4,470	\$17.81	\$ 4,014,282	\$ 4,539	\$17.99
Net Farm Income	\$ 3,748,392	\$ 4,246	\$16.92	\$ 3,826,914	\$ 4,328	\$17.15
without appreciation	\$ 610,776	\$ 692	\$ 2.76	\$ 1,035,705	\$ 1,171	\$ 4.64
with appreciation	\$ 759,459	\$ 860	\$ 3.43	\$ 1,109,707	\$ 1,255	\$ 4.97

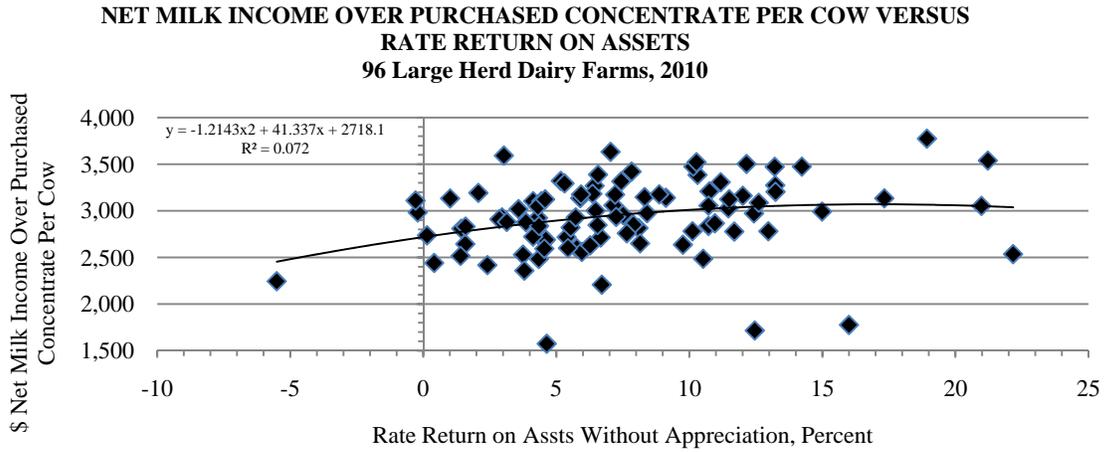
The accrual operating expenses most commonly associated with the dairy enterprise are listed in the table below. Evaluating these costs per unit of production enables an evaluation of the dairy enterprise.

### DAIRY RELATED ACCRUAL EXPENSES

96 Large Herd Dairy Farms, 2010

Item	Average 96 Farms		Average Top 20% Farms	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	\$ 1,268	\$5.05	\$ 1,180	\$ 4.68
Purchased dairy roughage	81	0.32	120	0.47
Total Purchased Dairy Feed	\$ 1,349	\$5.38	\$ 1,300	\$ 5.15
Purchased grain & concentrate as % of milk receipts		28%		26%
Purchased feed & crop expense	\$ 1,582	\$6.30	\$ 1,493	\$ 5.92
Purchased feed & crop expense as % of milk receipts		36%		35%
Breeding	\$ 51	\$0.20	\$ 46	\$ 0.18
Veterinary & medicine	161	0.64	147	0.58
Milk marketing	223	0.89	212	0.84
Bedding	91	0.36	86	0.34
Milking supplies	90	0.36	79	0.31
Cattle lease	3	0.01	5	0.02
Custom boarding	99	0.39	55	0.22
bST expense	63	0.25	71	0.28
Livestock professional fees	13	0.05	14	0.06
Other livestock expenses	19	0.07	10	0.04

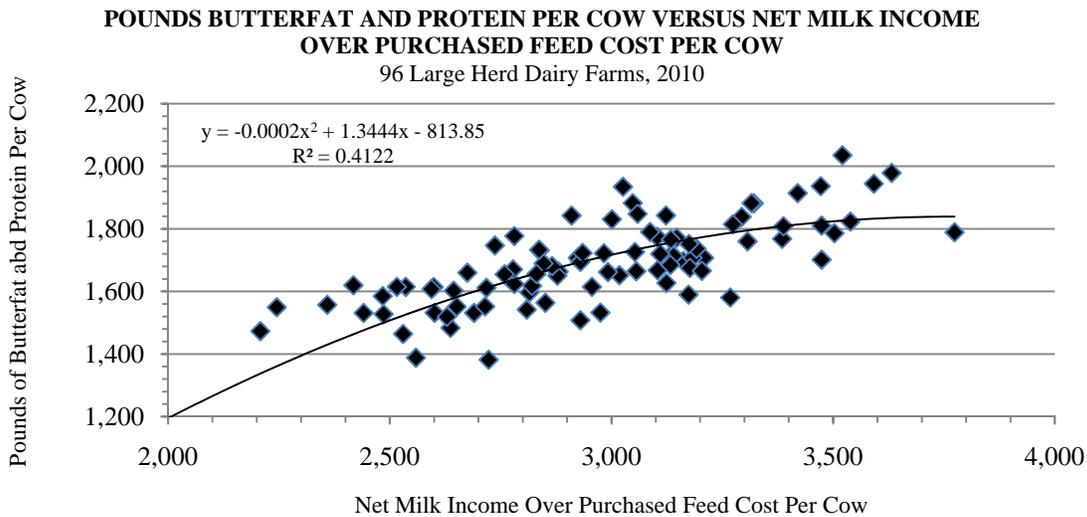
Net milk income over purchased feed cost per cow is a measure that incorporates the cost of purchased grain and concentrates along with the milk produced per cow and the price received for the component production. It is one of the key measures used to evaluate the effectiveness of the feeding program.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



With the change to component milk pricing in 2000, component production has become a focus point for dairy managers. The table and chart below examine the relationship between net milk income over purchased grain and concentrates 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 HUNDREDWEIGHT BY NET MILK INCOME OVER PURCHASED FEED COST PER COW**  
**96 Large Herd Dairy Farms, 2010**

Net Milk Income Over Purchased Feed Cost 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.
\$ 3,540	27,871	1,013	\$ 859	\$ 4.88	\$ 12.95	\$ 17.19
3,303	26,526	964	819	5.03	13.50	17.15
3,176	25,773	922	785	4.75	12.73	17.01
3,117	26,024	941	791	5.17	13.94	16.92
3,021	25,966	949	796	5.94	13.99	16.94
2,912	25,044	910	766	5.51	14.54	17.02
2,821	24,160	897	756	5.37	14.59	17.00
2,708	23,793	869	732	5.51	13.99	16.71
2,578	22,690	835	702	5.96	14.78	16.97
2,217	20,451	761	633	6.69	14.34	16.84



**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**

96 Large Herd Dairy Farms, 2010

Item	Average 96 Farms		Average Top 20% Farms	
Total Accrual Operating Expenses	\$	3,554,523	\$	3,306,899
Expansion Livestock, Accrual	+	18,037	+	3,716
1. Total Accrual Operating Expenses, Including Expansion Livestock		\$ 3,572,560		\$ 3,310,615
Total Accrual Receipts	\$	4,470,620	\$	4,575,560
Milk Sales, Accrual	-	3,945,648	-	4,014,282
2. Total Accrual Nonmilk Receipts		- 524,972		- 561,278
3. Operating Costs of Producing Milk		\$ 3,047,588		\$ 2,749,337
Cwt. of Milk Sold	÷	221,496	÷	223,114
Operating Costs/Cwt.	=	\$13.76	=	\$12.32
Machinery Depreciation	+	168,152	+	141,670
Building Depreciation	+	118,288	+	87,569
Extraordinary Expenses	+	844	+	0
4. Purchased Inputs Cost of Producing Milk		\$ 3,334,872		\$ 2,978,576
Cwt. of Milk Sold	÷	221,496	÷	223,114
Purchased Inputs Cost/Cwt.	=	\$15.06	=	\$13.35
Family Labor Unpaid (\$2,500/month)	+	919	+	513
Real Interest on Equity Capital	+	231,870	+	245,956
Value of Operators' Labor & Management	+	136,806	+	119,646
5. Total Costs of Producing Milk		\$ 3,704,467		\$ 3,344,691
Cwt. Milk Sold	÷	221,496	÷	223,114
Total Costs/Cwt.	=	\$16.72	=	\$14.99

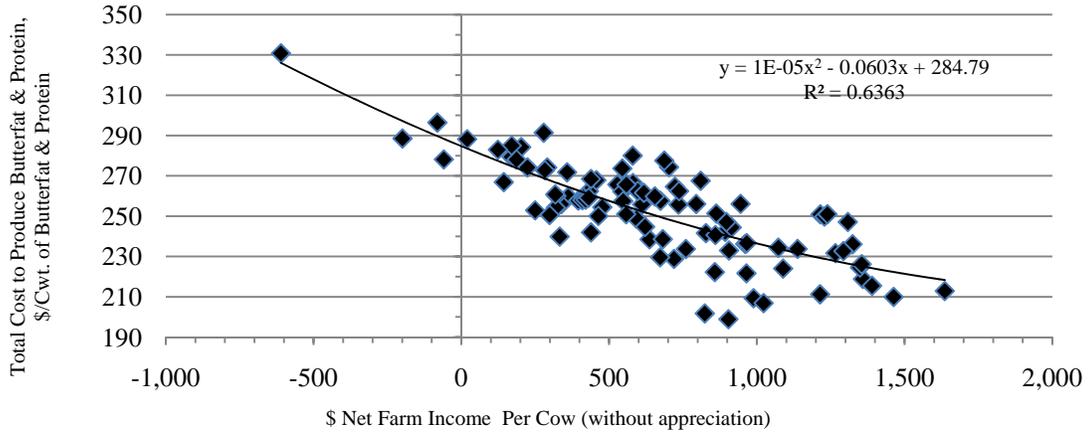
**RECEIPTS AND EXPENSES PER HUNDREDWEIGHT OF BUTTERFAT AND PROTEIN<sup>29</sup>**

Same 88 Large Herd Dairy Farms, 2009 &amp; 2010

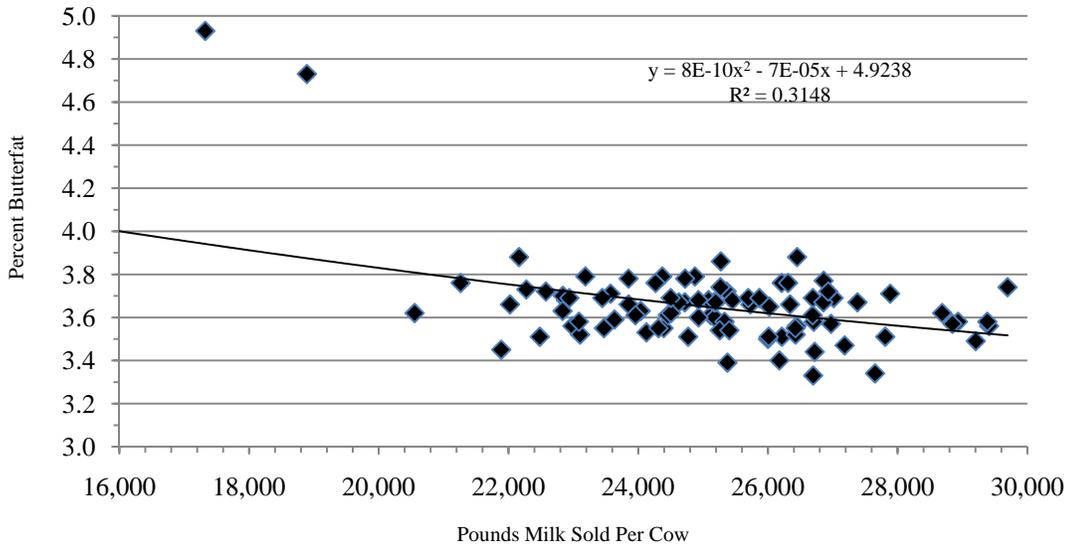
Item	Average Same 88 Large Herd Dairy Farms		Average Top 20% Farms	
	2009	2010	2009	2010
Cwt. of butterfat and protein sold	13,900.66	14,748.17	15,221.06	16,317.01
<u>Accrual Operating Receipts</u>				
Milk	\$208.97	\$270.76	\$198.32	\$263.03
Dairy cattle	16.95	18.12	14.99	20.00
Dairy calves	2.44	1.50	3.87	0.70
Other livestock	0.46	0.85	0.03	0.02
Crops	2.96	8.26	2.34	11.24
Miscellaneous receipts	<u>12.19</u>	<u>6.88</u>	<u>10.79</u>	<u>5.95</u>
Total Operating Receipts	\$243.97	\$306.38	\$230.33	\$300.95
<u>Accrual Operating Expenses</u>				
Hired labor	\$41.85	\$41.29	\$38.33	\$38.45
Dairy grain & concentrate	78.08	76.73	70.89	68.24
Dairy roughage	3.94	4.88	3.34	4.49
Nondairy feed	0.01	0.02	0.00	0.00
Professional nutritional services	0.04	0.08	0.04	0.11
Machine hire, rent & lease	4.68	5.33	4.29	4.83
Machine repair & vehicle expense	10.37	11.46	8.08	9.60
Fuel, oil & grease	8.28	9.50	6.69	8.32
Replacement livestock	0.59	0.65	0.39	0.02
Breeding	3.08	3.07	2.54	2.83
Veterinary & medicine	9.45	9.68	8.43	8.52
Milk marketing	13.09	13.52	11.94	12.41
Bedding	5.46	5.55	4.05	5.04
Milking supplies	5.50	5.30	5.26	4.74
Cattle lease	0.15	0.17	0.23	0.30
Custom boarding	6.13	6.63	2.65	2.41
bST expense	3.82	3.89	3.92	4.07
Livestock professional fees	0.69	0.77	0.51	0.89
Other livestock expense	1.03	1.04	1.15	0.43
Fertilizer & lime	5.77	5.22	4.10	4.58
Seeds & plants	5.30	5.54	4.50	4.95
Spray & other crop expense	2.73	2.64	2.62	1.81
Crop professional fees	0.35	0.49	0.17	0.38
Land, building & fence repair	3.43	3.94	3.03	3.56
Taxes	2.95	2.89	2.54	2.66
Real estate rent/lease	3.55	3.89	3.52	4.35
Insurance	2.39	2.37	1.96	2.16
Utilities	5.38	6.01	4.85	5.94
Interest paid	7.41	7.87	5.03	5.17
Other professional fees	1.41	1.48	1.16	0.98
Miscellaneous	<u>1.45</u>	<u>1.64</u>	<u>1.48</u>	<u>1.34</u>
Total Operating Expenses	\$238.35	\$243.56	\$207.68	\$213.59
Expansion livestock	2.35	1.30	2.46	0.68
Extraordinary expense	0.07	0.07	0.23	0.00
Machinery depreciation	11.50	11.54	9.46	9.99
Real Estate depreciation	<u>7.97</u>	<u>8.05</u>	<u>5.36</u>	<u>5.89</u>
Total Expenses	\$260.25	\$264.51	\$225.19	\$230.16
Net Farm Income without appreciation	\$-16.28	\$41.87	\$5.14	\$70.79

<sup>29</sup>Average data for farms that provided complete milk component data for 2009 – 2010.

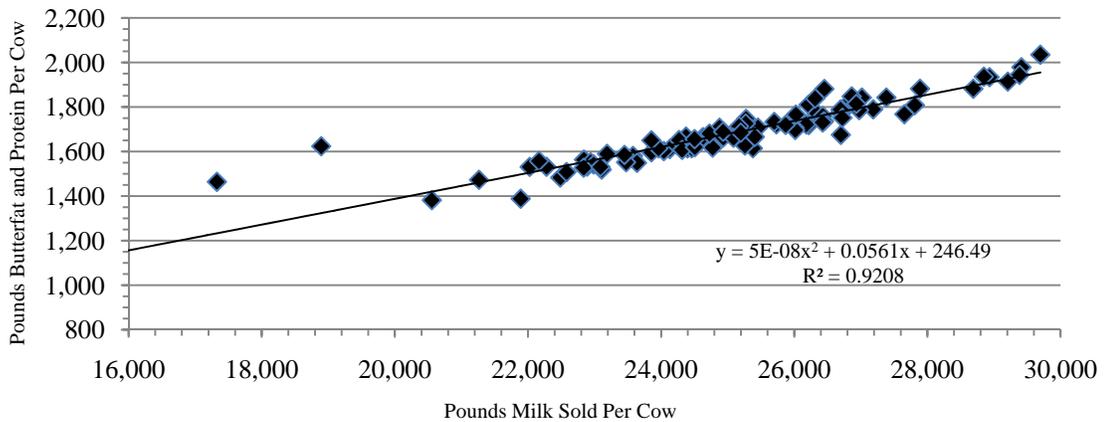
**TOTAL COST TO PRODUCE BUTTERFAT & PROTEIN VERSUS NET FARM INCOME PER COW**  
 96 Large Herd Dairy Farms, 2010



**POUNDS MILK SOLD PER COW VERSUS PERCENT BUTTERFAT**  
 96 Large Herd Dairy Farms, 2010



**POUNDS OF BUTTERFAT AND PROTEIN PER COW VERSUS POUNDS MILK SOLD PER COW**  
 96 Large Herd Dairy Farms, 2010



**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**  
96 Large Herd Dairy Farms, 2010

Item	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
<u>Average 96 Farms:</u>				
Farm capital	\$ 409,992	\$ 8,764	\$ 4,612	\$ 9,477
Real estate		3,579		3,870
Machinery & equipment	68,947	1,474	776	
<u>Ratios</u>				
Asset turnover ratio	Operating Expense 0.60	Interest Expense 0.77	Depreciation Expense 0.03	0.06
<u>Average Top 20% Farms:</u>				
Farm capital	\$ 384,662	\$ 7,764	\$ 4,670	\$ 8,659
Real estate		3,063		3,416
Machinery & equipment	60,100	1,213	730	
<u>Ratios</u>				
Asset turnover ratio	Operating Expense 0.68	Interest Expense 0.70	Depreciation Expense 0.02	0.05

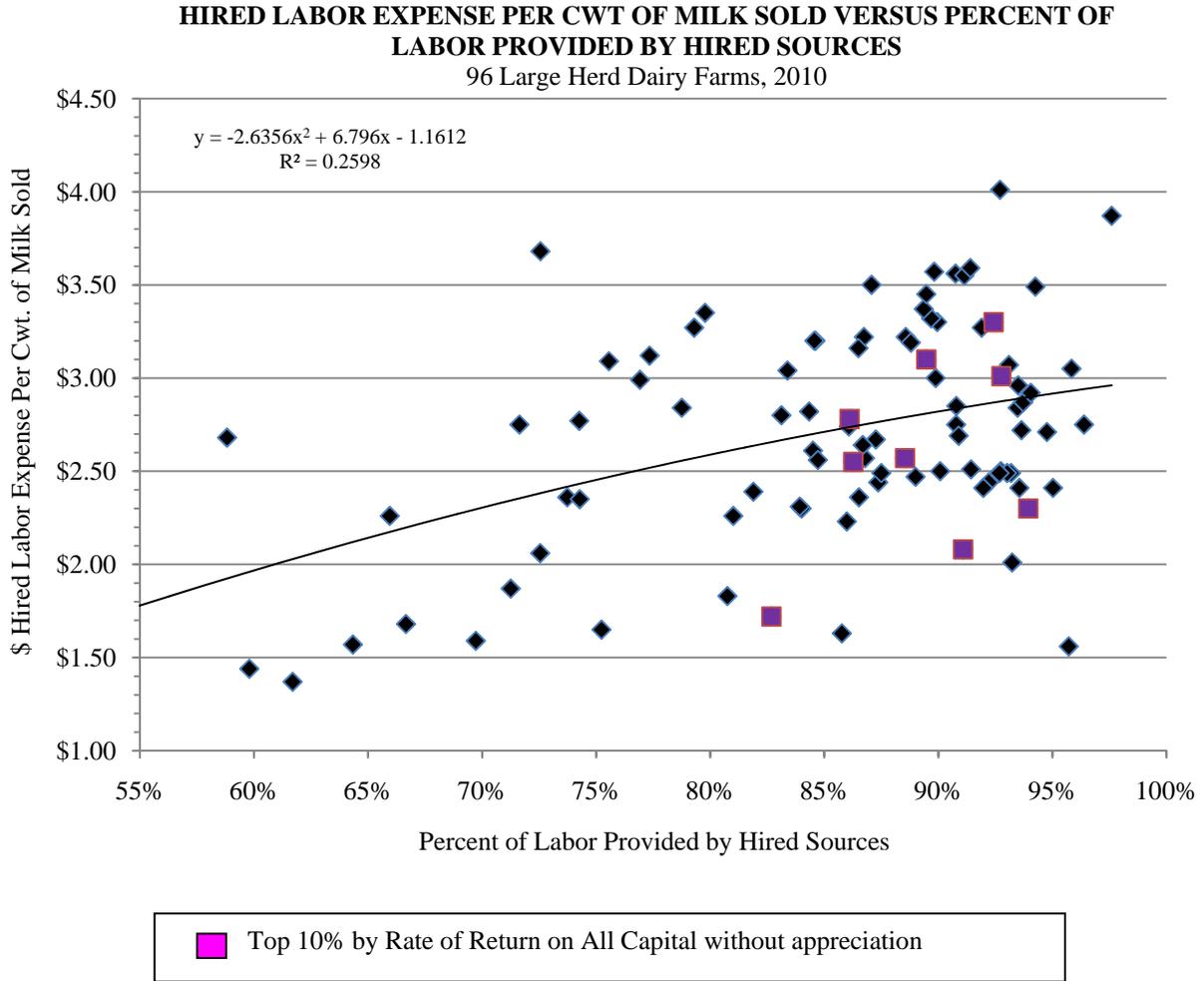
**LABOR FORCE INVENTORY AND ANALYSIS**

96 Large Herd Dairy Farms, 2010

Labor Force	Months	Age	Years of Education	Value of Labor & Mgmt.		
Operator number 1	12.53	54	14	\$ 63,833		
Operator number 2	9.29	47	14	46,787		
Operator number 3	3.80	40	15	19,041		
Operator number 4	1.97	49	15	7,145		
Family paid	3.78					
Family unpaid	0.37					
Hired	<u>194.65</u>					
Total	226.39 /	12 = 18.87 Worker Equivalent 2.08 Operator/Manager Equivalent				
<u>Average Top 20% Farms:</u>						
Total	214.14 /	12 = 17.85 Worker Equivalent 1.92 Operator/Manager Equivalent				
<u>Operator's</u>						
Labor Efficiency	Average 96 Farms		Average Top 20% Farms			
	Total	Per Worker	Total	Per Worker		
Cows, average number	883	47	884	50		
Milk sold, pounds	22,149,552	1,174,056	22,311,404	1,250,289		
Tillable acres	1,677	89	1,470	82		
<u>Labor Costs</u>						
	Average 96 Farms			Average Top 20% Farms		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Value of operator(s) labor (\$2,500/month)	\$ 68,257	\$ 77	\$0.31	\$ 63,850	\$ 72	\$ 0.29
Family unpaid (\$2,500/month)	915	1	0.00	525	1	0.00
Hired	<u>602,685</u>	<u>683</u>	<u>2.72</u>	<u>588,420</u>	<u>665</u>	<u>2.64</u>
Total Labor	\$ 671,857	\$ 761	\$3.03	\$ 652,795	\$ 738	\$ 2.93
Machinery Cost	<u>615,070</u>	<u>697</u>	<u>2.78</u>	<u>538,519</u>	<u>609</u>	<u>2.41</u>
Total Labor & Machinery	\$1,286,927	\$ 1,458	\$5.81	\$ 1,191,314	\$ 1,347	\$ 5.34
Hired labor expense per hired worker equiv.		\$ 36,447		\$ 37,481		
Hired labor expense as % of milk sales		15.27%		14.66%		

**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.



**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.

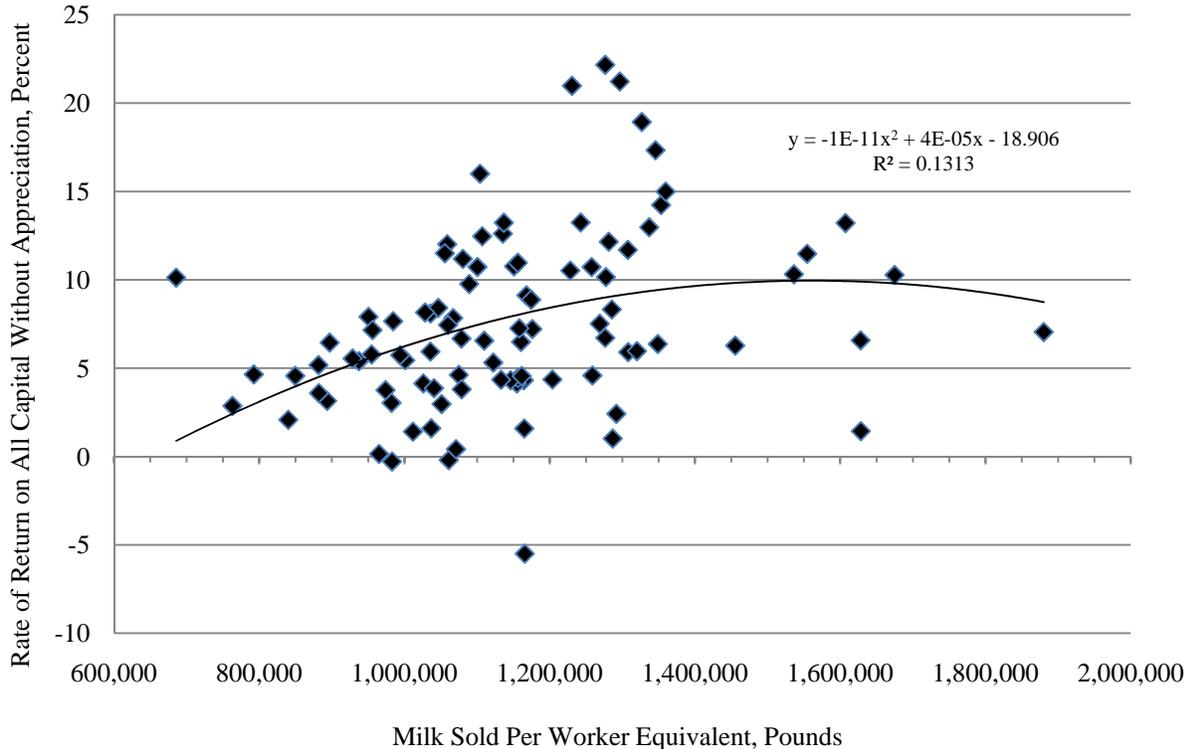
Months of hired labor		_____	
Months of family paid labor	+	_____	
Total hired labor	=	_____	
Total Labor Months	÷	_____	
Percent of labor from hired sources	x 100 =	_____	%

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 hundredweight 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 hundredweight of milk sold.

**HIRED LABOR EXPENSE BUSINESS CHARTS**  
96 Large Herd Dairy Farms, 2010

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	\$ 1.50	9%	\$ 26,836	\$ 9.72
	2.08	12	29,575	10.72
	2.36	13	31,057	11.25
	2.48	14	32,195	11.66
	2.59	14	33,892	12.28
	2.74	15	35,941	13.02
	2.89	16	38,260	13.86
	3.11	17	40,302	14.60
	3.28	18	42,426	15.37
Average of Highest Decile	3.62	21	45,878	16.62

**RATE OF RETURN ON ALL CAPITAL WITHOUT APPRECIATION VERSUS MILK SOLD PER WORKER EQUIVALENT**  
96 Large Herd Dairy Farms, 2010



## CONDENSED SUMMARY &amp; SELECTED BUSINESS FACTORS

## CONDENSED FARM BUSINESS SUMMARY FOR THREE LARGE HERD GROUPS

96 Large Herd Dairy Farms, 2010

Item	33 Farms with 300-599 Cows		31 Farms with 600-899 Cows		32 Farms with ≥900 Cows	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<b>ACCRUAL EXPENSES</b>						
Hired labor	\$ 581	\$ 2.46	\$ 675	\$ 2.73	\$ 718	\$ 2.79
Dairy grain & concentrate	1,208	5.12	1,254	5.06	1,293	5.03
Dairy roughage	101	0.43	103	0.42	65	0.25
Nondairy feed	0	0.00	0	0.00	0	0.00
Professional nutritional services	1	0.00	3	0.01	2	0.01
Machine hire, rent & lease	139	0.59	80	0.32	70	0.27
Machine repairs & farm vehicle expense	187	0.79	199	0.80	190	0.74
Fuel, oil & grease	164	0.69	160	0.64	155	0.60
Replacement livestock	32	0.14	9	0.04	4	0.01
Breeding	51	0.22	52	0.21	50	0.19
Veterinary & medicine	141	0.60	162	0.66	166	0.65
Milk marketing	209	0.89	234	0.95	223	0.87
Bedding	88	0.37	96	0.39	90	0.35
Milking supplies	92	0.39	92	0.37	89	0.35
Cattle lease & rent	0	0.00	2	0.01	4	0.02
Custom boarding	57	0.24	120	0.48	102	0.39
bST expense	33	0.14	55	0.22	77	0.30
Livestock professional fees	19	0.08	10	0.04	13	0.05
Other livestock expense	18	0.07	23	0.09	17	0.07
Fertilizer & lime	121	0.51	81	0.33	83	0.32
Seeds & plants	85	0.36	88	0.36	95	0.37
Spray & other crop expense	45	0.19	48	0.19	40	0.16
Crop professional fees	6	0.03	10	0.04	9	0.03
Land, building & fence repair	53	0.23	62	0.25	76	0.29
Taxes & rent	126	0.53	114	0.46	113	0.44
Utilities	112	0.48	94	0.38	97	0.38
Interest paid	120	0.51	140	0.56	127	0.50
Other professional fees	21	0.09	24	0.10	26	0.10
Misc. (including insurance)	64	0.28	75	0.30	64	0.24
Total Operating Expenses	\$3,874	\$16.43	\$4,065	\$16.41	\$4,058	\$15.77
Expansion livestock	22	0.09	14	0.06	23	0.09
Extraordinary expense	1	0.00	2	0.00	0	0.00
Machinery depreciation	157	0.66	178	0.72	207	0.81
Building depreciation	113	0.48	116	0.47	149	0.58
Total Accrual Expenses	\$4,167	\$17.66	\$4,375	\$17.66	\$4,437	\$17.25
<b>ACCRUAL RECEIPTS</b>						
Milk sales	\$4,243	\$17.97	\$4,471	\$18.05	\$4,540	\$17.66
Dairy cattle	278	1.18	296	1.20	306	1.19
Dairy calves	41	0.17	25	0.10	20	0.08
Other livestock	20	0.09	18	0.07	8	0.03
Crops	162	0.68	125	0.50	153	0.59
Miscellaneous receipts	104	0.44	85	0.35	126	0.49
Total Accrual Receipts	\$4,848	\$20.53	\$5,020	\$20.28	\$5,153	\$20.04
<b>PROFITABILITY ANALYSIS (Total)</b>						
Net farm income (without appreciation)	\$302,811		\$482,944		\$1,052,202	
Net farm income (with appreciation)	\$372,009		\$604,591		\$1,309,046	
Labor & management income	\$182,265		\$290,600		\$664,480	
Number of operators	2.05		1.84		2.35	
Labor & management income/operator	\$88,910		\$157,935		\$282,758	
Rates of return on:	Equity capital w/o apprec.		8.4%		9.8%	
	Equity capital w/ apprec.		11.3%		13.0%	
	All capital w/o apprec.		6.9%		7.4%	
	All capital w/ apprec.		8.7%		9.3%	

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

96 Large Herd Dairy Farms, 2010

Item	33 Farms with 300-599 Cows	31 Farms with 600-899 Cows	32 Farms with ≥ 900 Cows
<u>Cropping Program Analysis</u>			
Total Tillable acres	956	1,421	2,669
Tillable acres rented <sup>30</sup>	559	800	1,232
Hay crop acres <sup>30</sup>	461	627	1,161
Corn silage acres <sup>30</sup>	312	498	1,061
Hay crop, tons DM/acre	3.4	3.7	3.9
Corn silage, tons/acre	17.4	19.8	20.3
Forage DM per cow, tons	8.1	7.9	8.2
Tillable acres/cow	2.2	2.0	1.8
Fertilizer & lime expense/tillable acre	\$60.23	\$45.89	\$44.76
Machinery cost/tillable acre	\$329	\$358	\$380
<u>Dairy Analysis</u>			
Number of cows	444	747	1,467
Number of heifers	367	656	1,248
Milk sold, lbs.	10,490,990	18,493,102	37,714,629
Butterfat & protein, lbs./cow	1,609	1,668	1,678
Milk sold/cow, lbs.	23,616	24,763	25,715
Operating cost of prod. milk/cwt.	\$13.93	\$14.25	\$13.48
Total cost of prod. milk/cwt.	\$17.19	\$17.08	\$16.42
Price/cwt. milk sold	\$17.97	\$18.05	\$17.66
Purchased dairy feed/cow	\$1,310	\$1,357	\$1,358
Purchased dairy feed/cwt. milk	\$5.55	\$5.48	\$5.28
Purchased grain & concentrate as % of milk receipts	28%	28%	29%
Purchased feed & crop expense/cwt. milk	\$6.63	\$6.40	\$6.16
Net milk income over purchased feed costs per cow	\$2,825	\$2,982	\$3,025
<u>Capital Efficiency</u>			
Farm capital/worker	\$365,635	\$389,481	\$436,232
Farm capital/cow	\$8,313	\$8,553	\$9,009
Real estate/cow	\$3,290	\$3,308	\$3,803
Machinery investment/cow	\$1,493	\$1,487	\$1,461
Asset turnover ratio	0.60	0.61	0.59
<u>Labor Efficiency</u>			
Worker equivalent	10.10	16.40	30.29
Operator/manager equivalent	2.05	1.84	2.35
Milk sold/worker, lbs.	1,038,284	1,127,514	1,245,289
Cows/worker	44	46	48
Labor cost/cow	\$742	\$755	\$770
<u>Financial Measures</u>			
Percent equity	66%	61%	65%
Debt/asset ratio - long term	0.38	0.35	0.32
Debt/asset ratio - intermediate & current	0.32	0.42	0.37
Change in net worth with appreciation	\$262,953	\$417,691	\$988,189
Total farm debt per cow	\$2,918	\$3,424	\$3,161
Debt payments made per cow	\$599	\$676	\$626
Debt payments as % of milk sales	14%	15%	14%
Amount available for debt service	\$241,756	\$434,261	\$1,062,136
Debt coverage ratio for 2010	1.79	1.62	2.53

<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 599 cows. The second two tables are of farms with 600 - 899 cows. The third set of tables is of farms with 900 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 33 Large Herd Dairy Farms with 300 – 599 Cows, 2010

Item	QUINTILE				
	1	2	3	4	5
<u>Accrual Operating Receipts</u>					
Milk	\$4,911	\$4,574	\$4,348	\$4,149	\$3,391
Dairy cattle	473	334	284	230	124
Dairy calves	125	46	32	13	-1
Other livestock	93	3	0	0	0
Crops	606	219	130	54	-80
Miscellaneous receipts	204	133	91	76	48
Total Operating Receipts	\$5,667	\$5,288	\$4,917	\$4,663	\$3,962
<u>Accrual Operating Expenses</u>					
Hired labor	\$ 292	\$ 474	\$ 642	\$ 742	\$ 846
Dairy grain & concentrate	779	1,161	1,252	1,346	1,568
Dairy roughage	0	7	28	77	503
Nondairy feed	0	0	0	0	1
Professional nutritional services	0	0	0	0	3
Machinery hire/rent/lease	9	70	125	176	322
Mach. repair & farm vehicle exp.	93	132	183	233	318
Fuel, oil & grease	91	146	165	188	235
Replacement livestock	0	0	0	0	212
Breeding	11	35	53	71	92
Veterinary & medicine	77	123	147	173	204
Milk marketing	131	177	203	239	320
Bedding	20	61	87	122	182
Milking supplies	36	59	88	115	165
Cattle lease	0	0	0	0	1
Custom boarding	0	0	0	59	283
bST expense	0	0	17	77	111
Livestock professional fees	0	15	17	22	45
Other livestock expense	0	5	14	24	48
Fertilizer & lime	22	55	106	140	271
Seeds & plants	17	75	88	111	137
Spray/other crop expenses	0	24	49	66	96
Crop professional fees	0	0	3	11	22
Land, building, fence repair	17	25	40	73	123
Taxes	14	37	51	69	106
Real estate rent/lease	11	34	56	88	168
Insurance	24	33	38	45	71
Utilities	64	91	109	125	186
Interest	35	81	116	170	215
Other professional fees	3	11	17	24	55
Miscellaneous	8	14	19	28	47
Total Operating Expenses	\$3,003	\$3,730	\$3,901	\$4,254	\$4,720
Expansion livestock	0	0	0	0	146
Extraordinary expense	0	0	0	0	5
Machinery depreciation	61	111	137	176	331
Building depreciation	29	73	90	154	256
Net Farm Income w/o Appreciation	\$ 1,189	\$ 889	\$ 731	\$ 493	\$ 185

**RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD**  
33 Large Herd Dairy Farms with 300 – 599 Cows, 2010

Item	QUINTILE				
	1	2	3	4	5
<u>Accrual Operating Receipts</u>					
Milk	\$19.26	\$18.38	\$17.88	\$17.55	\$17.08
Dairy cattle	2.14	1.41	1.22	0.98	0.51
Dairy calves	0.63	0.21	0.14	0.05	-0.01
Other livestock	0.43	0.02	0.00	0.00	0.00
Crops	2.62	0.92	0.56	0.26	-0.31
Miscellaneous receipts	0.83	0.59	0.41	0.33	0.20
<b>Total Operating Receipts</b>	<b>\$23.96</b>	<b>\$21.37</b>	<b>\$20.26</b>	<b>\$19.52</b>	<b>\$18.88</b>
<u>Accrual Operating Expenses</u>					
Hired labor	\$ 1.44	\$ 2.05	\$ 2.67	\$ 2.94	\$ 3.39
Dairy grain & concentrate	3.94	4.69	5.08	5.53	6.32
Dairy roughage	0.00	0.03	0.11	0.31	2.53
Nondairy feed	0.00	0.00	0.00	0.00	0.01
Professional nutritional services	0.00	0.00	0.00	0.00	0.01
Machinery hire/rent/lease	0.04	0.31	0.52	0.82	1.34
Mach. repair & farm vehicle exp.	0.40	0.60	0.81	1.00	1.28
Fuel, oil & grease	0.41	0.59	0.73	0.78	0.98
Replacement livestock	0.00	0.00	0.00	0.00	0.92
Breeding	0.05	0.15	0.22	0.28	0.37
Veterinary & medicine	0.36	0.49	0.62	0.72	0.81
Milk marketing	0.59	0.75	0.87	1.02	1.30
Bedding	0.10	0.26	0.36	0.49	0.71
Milking supplies	0.16	0.25	0.35	0.48	0.71
Cattle lease	0.00	0.00	0.00	0.00	0.01
Custom boarding	0.00	0.00	0.00	0.23	1.18
bST expense	0.00	0.00	0.07	0.31	0.43
Livestock professional fees	0.00	0.06	0.07	0.09	0.17
Other livestock expense	0.00	0.02	0.06	0.10	0.22
Fertilizer & lime	0.10	0.22	0.43	0.60	1.36
Seeds & plants	0.07	0.30	0.36	0.45	0.59
Spray/other crop expenses	0.00	0.09	0.20	0.26	0.39
Crop professional fees	0.00	0.00	0.01	0.05	0.09
Land, building, fence repair	0.07	0.12	0.18	0.32	0.49
Taxes	0.07	0.16	0.20	0.30	0.46
Real estate rent/lease	0.04	0.15	0.24	0.36	0.72
Insurance	0.10	0.14	0.16	0.19	0.32
Utilities	0.31	0.38	0.45	0.52	0.74
Interest	0.14	0.34	0.50	0.74	1.02
Other professional fees	0.01	0.04	0.07	0.10	0.23
Miscellaneous	0.04	0.06	0.08	0.11	0.24
<b>Total Operating Expenses</b>	<b>\$14.23</b>	<b>\$15.59</b>	<b>\$16.52</b>	<b>\$17.57</b>	<b>\$18.92</b>
Expansion livestock	0.00	0.00	0.00	0.00	0.62
Extraordinary expense	0.00	0.00	0.00	0.00	0.03
Machinery depreciation	0.26	0.44	0.62	0.80	1.42
Building depreciation	0.12	0.29	0.40	0.67	1.14
<b>Net Farm Income w/o Appreciation</b>	<b>\$ 5.25</b>	<b>\$ 3.80</b>	<b>\$3.03</b>	<b>\$2.188</b>	<b>\$0.79</b>

**RECEIPTS AND EXPENSES PER COW**  
31 Large Herd Dairy Farms with 600 – 899 Cows, 2010

Item	QUINTILE				
	1	2	3	4	5
<u>Accrual Operating Receipts</u>					
Milk	\$5,116	\$4,726	\$4,521	\$4,301	\$3,750
Dairy cattle	525	373	258	204	155
Dairy calves	84	36	23	10	-15
Other livestock	108	1	0	0	-2
Crops	426	210	92	32	-94
Miscellaneous receipts	153	105	78	66	39
Total Operating Receipts	\$5,847	5,261	5,077	4,801	4,226
<u>Accrual Operating Expenses</u>					
Hired labor	\$ 501	\$ 606	\$ 674	\$ 743	\$ 884
Dairy grain & concentrate	922	1,171	1,313	1,400	1,514
Dairy roughage	1	13	28	79	372
Nondairy feed	0	0	0	0	0
Professional nutritional services	0	0	0	0	13
Machinery hire/rent/lease	7	31	61	99	219
Mach. repair & farm vehicle exp.	126	166	194	223	293
Fuel, oil & grease	97	138	169	190	216
Replacement livestock	0	0	0	0	43
Breeding	20	41	55	69	82
Veterinary & medicine	115	142	161	179	221
Milk marketing	132	170	222	274	383
Bedding	42	79	93	115	161
Milking supplies	37	63	93	110	171
Cattle lease	0	0	0	0	13
Custom boarding	0	0	20	153	432
bST expense	0	1	46	100	129
Livestock professional fees	0	4	10	15	20
Other livestock expense	0	3	13	30	68
Fertilizer & lime	24	46	71	103	175
Seeds & plants	42	79	93	104	138
Spray/other crop expenses	11	35	48	64	89
Crop professional fees	0	0	6	14	29
Land, building, fence repair	13	39	62	75	124
Taxes	20	40	51	60	77
Real estate rent/lease	17	37	55	80	148
Insurance	19	32	40	48	64
Utilities	60	79	96	111	134
Interest	56	100	139	176	245
Other professional fees	2	12	22	35	58
Miscellaneous	12	24	29	41	75
Total Operating Expenses	\$3,340	3,801	4,025	4,324	4,899
Expansion livestock	0	0	0	5	73
Extraordinary expense	0	0	0	0	13
Machinery depreciation	63	141	194	228	297
Building depreciation	57	85	113	150	199
Net Farm Income w/o Appreciation	\$ 1,266	\$ 778	\$ 602	\$ 427	\$ 224

**RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD**  
31 Large Herd Dairy Farms with 600 – 899 Cows, 2010

Item	QUINTILE				
	1	2	3	4	5
<u>Accrual Operating Receipts</u>					
Milk	\$19.36	\$18.37	\$18.09	\$17.75	\$17.13
Dairy cattle	2.27	1.44	1.05	0.85	0.64
Dairy calves	0.42	0.15	0.09	0.04	-0.06
Other livestock	0.91	0.00	0.00	0.00	-0.01
Crops	1.75	0.83	0.36	0.13	-0.41
Miscellaneous receipts	0.59	0.42	0.32	0.28	0.17
<b>Total Operating Receipts</b>	<b>\$23.25</b>	<b>\$20.92</b>	<b>\$20.24</b>	<b>\$19.64</b>	<b>\$18.65</b>
<u>Accrual Operating Expenses</u>					
Hired labor	\$ 2.16	\$ 2.47	\$ 2.74	\$ 3.12	\$ 3.35
Dairy grain & concentrate	4.16	4.75	5.10	5.48	5.94
Dairy roughage	0.01	0.06	0.11	0.30	1.44
Nondairy feed	0.00	0.00	0.00	0.00	0.00
Professional nutritional services	0.00	0.00	0.00	0.00	0.05
Machinery hire/rent/lease	0.03	0.12	0.25	0.42	0.92
Mach. repair & farm vehicle exp.	0.53	0.69	0.82	0.91	1.15
Fuel, oil & grease	0.42	0.56	0.65	0.73	0.89
Replacement livestock	0.00	0.00	0.00	0.00	0.17
Breeding	0.08	0.16	0.22	0.27	0.34
Veterinary & medicine	0.51	0.57	0.63	0.71	0.89
Milk marketing	0.57	0.74	0.90	1.10	1.42
Bedding	0.17	0.29	0.37	0.48	0.69
Milking supplies	0.15	0.27	0.36	0.44	0.65
Cattle lease	0.00	0.00	0.00	0.00	0.05
Custom boarding	0.00	0.00	0.08	0.59	2.01
bST expense	0.00	0.01	0.19	0.39	0.50
Livestock professional fees	0.00	0.02	0.05	0.06	0.08
Other livestock expense	0.00	0.01	0.05	0.12	0.30
Fertilizer & lime	0.10	0.19	0.28	0.42	0.82
Seeds & plants	0.18	0.31	0.38	0.42	0.54
Spray/other crop expenses	0.04	0.13	0.19	0.27	0.37
Crop professional fees	0.00	0.00	0.02	0.06	0.12
Land, building, fence repair	0.06	0.16	0.23	0.30	0.49
Taxes	0.08	0.16	0.20	0.24	0.37
Real estate rent/lease	0.07	0.15	0.22	0.36	0.66
Insurance	0.08	0.14	0.17	0.20	0.25
Utilities	0.26	0.34	0.38	0.44	0.52
Interest	0.22	0.41	0.58	0.78	0.99
Other professional fees	0.01	0.05	0.10	0.14	0.23
Miscellaneous	0.05	0.10	0.13	0.17	0.29
<b>Total Operating Expenses</b>	<b>\$14.44</b>	<b>\$15.79</b>	<b>\$16.71</b>	<b>\$17.40</b>	<b>\$18.40</b>
Expansion livestock	0.00	0.00	0.00	0.02	0.30
Extraordinary expense	0.00	0.00	0.00	0.00	0.05
Machinery depreciation	0.27	0.58	0.81	0.91	1.19
Building depreciation	0.22	0.33	0.47	0.63	0.87
<b>Net Farm Income w/o Appreciation</b>	<b>\$ 5.57</b>	<b>\$3.09</b>	<b>\$2.46</b>	<b>\$1.74</b>	<b>\$0.91</b>

**RECEIPTS AND EXPENSES PER COW**  
32 Large Herd Dairy Farms with 900 or More Cows, 2010

Item	QUINTILE				
	1	2	3	4	5
<u>Accrual Operating Receipts</u>					
Milk	\$5,073	\$4,769	\$4,570	\$4,386	\$3,933
Dairy cattle	438	364	311	258	188
Dairy calves	57	34	22	12	-26
Other livestock	44	3	0	0	-1
Crops	450	238	115	68	-41
Miscellaneous receipts	337	162	114	78	40
Total Operating Receipts	\$5,772	\$5,449	\$5,252	\$4,931	\$4,499
<u>Accrual Operating Expenses</u>					
Hired labor	\$ 580	\$ 671	\$ 695	\$ 778	\$ 947
Dairy grain & concentrate	1,032	1,217	1,319	1,425	1,561
Dairy roughage	3	27	46	83	163
Nondairy feed	0	0	0	0	3
Professional nutritional services	0	0	0	1	10
Machinery hire/rent/lease	7	34	69	104	171
Mach. repair & farm vehicle exp.	129	164	197	231	262
Fuel, oil & grease	124	142	159	173	205
Replacement livestock	0	0	0	1	18
Breeding	29	38	52	65	81
Veterinary & medicine	121	155	169	187	217
Milk marketing	143	182	216	277	343
Bedding	26	77	95	115	155
Milking supplies	46	66	85	111	153
Cattle lease	0	0	0	0	19
Custom boarding	0	1	29	78	294
bST expense	0	66	95	112	138
Livestock professional fees	3	10	13	17	27
Other livestock expense	0	0	11	31	60
Fertilizer & lime	27	47	72	98	197
Seeds & plants	64	80	95	119	141
Spray/other crop expenses	6	31	46	58	79
Crop professional fees	0	2	7	13	28
Land, building, fence repair	23	36	61	86	157
Taxes	30	40	49	63	81
Real estate rent/lease	20	44	70	95	146
Insurance	20	32	43	53	72
Utilities	52	89	104	121	149
Interest	38	87	116	184	270
Other professional fees	7	14	22	29	77
Miscellaneous	8	16	22	32	50
Total Operating Expenses	\$3,485	\$3,871	\$4,198	\$4,388	\$4,694
Expansion livestock	0	0	0	5	116
Extraordinary expense	0	0	0	0	2
Machinery depreciation	123	176	218	258	318
Building depreciation	65	122	156	183	244
Net Farm Income w/o Appreciation	\$ 1,336	\$ 972	\$ 690	\$ 441	\$ 29

**RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD**  
32 Large Herd Dairy Farms with 900 or More Cows, 2010

Item	QUINTILE				
	1	2	3	4	5
<u>Accrual Operating Receipts</u>					
Milk	\$18.36	\$17.89	\$17.68	\$17.41	\$16.87
Dairy cattle	1.82	1.39	1.18	0.99	0.74
Dairy calves	0.22	0.14	0.09	0.05	-0.10
Other livestock	0.19	0.01	0.00	0.00	0.00
Crops	1.79	0.88	0.46	0.27	-0.16
Miscellaneous receipts	1.34	0.67	0.44	0.30	0.15
<b>Total Operating Receipts</b>	<b>\$21.76</b>	<b>\$20.69</b>	<b>\$20.17</b>	<b>\$19.51</b>	<b>\$18.63</b>
<u>Accrual Operating Expenses</u>					
Hired labor	\$ 2.27	\$ 2.52	\$ 2.76	\$ 3.13	\$ 3.68
Dairy grain & concentrate	4.12	4.87	5.16	5.44	5.87
Dairy roughage	0.01	0.10	0.17	0.34	0.64
Nondairy feed	0.00	0.00	0.00	0.00	0.01
Professional nutritional services	0.00	0.00	0.00	0.00	0.04
Machinery hire/rent/lease	0.02	0.14	0.27	0.40	0.66
Mach. repair & farm vehicle exp.	0.51	0.64	0.75	0.90	1.07
Fuel, oil & grease	0.47	0.55	0.60	0.70	0.84
Replacement livestock	0.00	0.00	0.00	0.01	0.07
Breeding	0.11	0.15	0.20	0.25	0.32
Veterinary & medicine	0.47	0.58	0.66	0.73	0.89
Milk marketing	0.57	0.69	0.85	1.12	1.31
Bedding	0.10	0.31	0.37	0.44	0.60
Milking supplies	0.18	0.25	0.33	0.43	0.64
Cattle lease	0.00	0.00	0.00	0.00	0.07
Custom boarding	0.00	0.00	0.11	0.30	1.15
bST expense	0.00	0.26	0.37	0.42	0.53
Livestock professional fees	0.01	0.04	0.05	0.07	0.11
Other livestock expense	0.00	0.00	0.04	0.12	0.24
Fertilizer & lime	0.10	0.19	0.29	0.38	0.79
Seeds & plants	0.25	0.31	0.37	0.46	0.58
Spray/other crop expenses	0.02	0.12	0.18	0.23	0.32
Crop professional fees	0.00	0.01	0.03	0.05	0.11
Land, building, fence repair	0.09	0.15	0.24	0.33	0.60
Taxes	0.12	0.16	0.19	0.25	0.33
Real estate rent/lease	0.08	0.17	0.27	0.39	0.55
Insurance	0.07	0.12	0.17	0.22	0.29
Utilities	0.21	0.34	0.41	0.48	0.58
Interest	0.15	0.33	0.44	0.73	1.08
Other professional fees	0.03	0.05	0.09	0.12	0.30
Miscellaneous	0.03	0.06	0.09	0.12	0.20
<b>Total Operating Expenses</b>	<b>\$14.03</b>	<b>\$15.01</b>	<b>\$16.03</b>	<b>\$16.91</b>	<b>\$18.55</b>
Expansion livestock	0.00	0.00	0.00	0.02	0.51
Extraordinary expense	0.00	0.00	0.00	0.00	0.01
Machinery depreciation	0.47	0.71	0.83	0.98	1.30
Building depreciation	0.26	0.46	0.62	0.71	0.97
<b>Net Farm Income w/o Appreciation</b>	<b>\$ 4.98</b>	<b>\$ 3.63</b>	<b>\$ 2.83</b>	<b>\$ 1.73</b>	<b>\$ 0.11</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 96 Large Herd Dairy Farms, 2010

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	Number of Cows	Pounds of Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(14) <sup>31</sup>	(12)	(12)	(12)	(11)	(11)	(14)	(14)
42.5	2,231	58,075,335	28,874	6.1	27	71	1,591,611
28.7	1,319	34,182,963	27,087	5.0	24	55	1,327,092
24.6	1,122	28,500,971	26,586	4.5	22	51	1,278,165
21.4	931	23,565,996	26,131	4.2	21	49	1,205,283
18.0	813	20,413,988	25,417	4.0	20	48	1,157,378
16.1	694	17,845,025	24,999	3.7	19	46	1,111,881
14.0	632	14,889,398	24,430	3.5	18	44	1,065,671
11.8	524	12,319,849	23,614	3.2	18	41	1,025,729
9.3	433	9,996,601	22,767	2.7	17	38	961,641
6.6	335	7,278,098	17,902	1.7	14	34	832,460

### Cost Control

Grain Bought Per Cow	% Grain is of Milk Receipts	Net Milk Income Over Purchased Feed Cost Per Cow	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
(12)	(12)	(CALC)	(14)	(14)	(12)	(12)
\$ 748	21%	\$3,540	\$418	\$958	\$1,058	\$4.95
1,051	24	3,297	580	1,277	1,354	5.63
1,134	26	3,162	624	1,365	1,443	5.90
1,209	27	3,095	662	1,432	1,502	6.12
1,269	28	2,991	693	1,490	1,570	6.32
1,312	29	2,886	726	1,520	1,630	6.51
1,366	30	2,801	757	1,581	1,697	6.72
1,427	32	2,688	794	1,620	1,761	6.98
1,475	33	2,561	876	1,678	1,853	7.26
1,622	36	2,136	1,025	1,895	2,038	8.21

<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)
\$1.51	\$26,380	8%	\$0.50	\$0.37	\$0.00
2.12	29,557	12	0.64	0.49	0.00
2.39	31,138	13	0.70	0.54	0.00
2.50	32,453	14	0.75	0.57	0.02
2.64	34,325	15	0.83	0.62	0.04
2.78	36,227	16	0.91	0.65	0.06
2.97	38,637	16	1.02	0.71	0.09
3.15	40,460	17	1.13	0.73	0.13
3.32	42,718	19	1.21	0.79	0.20
3.65	46,101	21	1.49	0.94	0.32

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)
\$330	\$82	\$2,250	\$10.87	\$3,075	\$14.50
391	93	2,949	11.85	3,759	15.29
417	102	3,108	12.62	3,890	15.94
439	109	3,243	13.33	3,993	16.39
466	115	3,378	13.94	4,123	16.89
491	123	3,576	14.30	4,289	17.38
533	129	3,715	14.72	4,484	17.66
592	142	3,851	15.12	4,636	18.04
671	165	4,096	15.84	4,813	18.80
1,213	247	4,373	17.01	5,055	19.80

bST Expense Per Cow	bST Expense Per Cwt.	Culling Rate	Expense Ratios		
			Operating	Depreciation	Interest
(12)	(12)	(12)	(14)	(14)	(14)
\$ 0	\$0.00	22%	0.66	0.02	0.00
0	0.00	29	0.69	0.04	0.01
0	0.00	32	0.73	0.04	0.02
3	0.01	33	0.76	0.05	0.02
52	0.20	35	0.78	0.05	0.02
77	0.30	36	0.80	0.07	0.03
96	0.38	38	0.81	0.07	0.03
104	0.40	40	0.84	0.18	0.04
117	0.45	42	0.86	0.09	0.04
141	0.54	45	0.92	0.11	0.06

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)
\$19.51	\$18.57	\$5,194	\$540	\$123
18.65	17.63	4,890	422	57
18.30	17.32	4,755	376	41
18.08	17.15	4,657	338	35
17.92	16.96	4,516	298	29
17.80	16.83	4,426	272	21
17.59	16.70	4,322	242	15
17.40	16.60	4,169	210	7
17.18	16.41	4,020	185	-2
16.85	16.04	3,306	118	-29
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)
\$ 599	\$ 321	1.9%	\$ 39	\$0.00
1,577	1,042	3.5	193	1.00
2,227	1,600	4.0	287	1.00
2,798	2,124	4.0	359	1.20
3,123	2,447	4.0	422	2.00
3,517	2,776	4.0	503	2.00
3,952	3,075	4.0	588	2.11
4,429	3,587	4.8	637	3.00
4,820	4,073	5.0	735	3.00
5,874	4,840	5.8	963	3.89
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)
\$1,404	\$5.91	\$689	\$2.60	10.34
1,179	4.79	320	1.38	3.12
1,026	4.33	253	1.06	2.08
919	3.86	214	0.87	1.61
843	3.43	163	0.68	1.38
770	3.16	139	0.58	1.15
676	2.73	118	0.48	0.89
584	2.41	98	0.41	0.82
484	1.89	79	0.31	0.64
260	1.07	50	0.20	0.09
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)
\$ 4,781	\$975	\$ 537	\$27,162	1.09
6,731	2,379	913	29,612	0.79
7,608	2,805	1,161	30,939	0.69
8,217	3,094	1,330	31,967	0.65
8,658	3,319	1,468	33,452	0.61
9,189	3,705	1,594	35,287	0.57
9,644	4,108	1,804	37,385	0.55
10,035	4,431	1,936	38,922	0.52
11,103	5,028	2,154	40,808	0.49
12,488	6,164	2,637	44,439	0.42

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)
93%	-0.25	0.08	0.07	0.00	43%	10.00%
83	0.21	0.18	0.17	0.01	32	4.87
77	0.31	0.25	0.22	0.10	26	3.62
72	0.43	0.30	0.29	0.19	22	2.78
65	0.59	0.38	0.35	0.31	19	2.33
60	0.71	0.42	0.40	0.41	15	2.04
56	0.82	0.45	0.46	0.50	13	1.80
51	1.02	0.51	0.53	0.58	9	1.45
45	1.28	0.57	0.61	0.71	1	1.07
27	1.88	0.74	0.81	0.91	-14	0.64

Profitability					
Labor and Mgmt. Income Per Operator	Rate Return to Equity Capital		Rate Return to All Capital		
	Without Appreciation	With Appreciation	Without Appreciation	With Appreciation	
(4)	(4)	(4)	(4)	(4)	(4)
\$ 819,755	27.34%	36.17%	17.68%	19.61%	
425,968	19.31	22.10	12.53	14.81	
311,428	14.16	18.20	10.90	12.61	
206,716	11.82	15.57	9.24	11.17	
148,877	10.02	12.89	7.51	9.73	
119,591	7.66	10.68	6.39	8.58	
82,840	6.38	9.00	5.35	7.29	
46,233	4.66	7.23	4.37	6.21	
18,329	2.47	4.51	3.15	4.43	
-105,894	-3.51	-3.12	0.16	0.43	

Profitability, Continued				
Net Farm Income Without Appreciation		Net Farm Income From Operations	Net Income Efficiency	
Per Cow	Per Cwt.	Ratio	Ratio	
(12)	(12)	(4)	(CALC)	
\$ 1,386	\$ 5.83	26%	24%	
1,165	4.72	23	14	
939	3.87	19	10	
835	3.30	16	9	
709	2.90	14	8	
605	2.51	12	7	
500	2.07	10	6	
390	1.64	8	5	
279	1.13	6	4	
-13	-0.07	-1	2	

## IDENTIFY AND SET GOALS

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

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

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

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

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

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

### Worksheet for Setting Goals

#### I. Mission and Objectives

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## 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.

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