

DAIRY FARM BUSINESS SUMMARY

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NEW YORK LARGE HERD FARMS, 300 COWS OR LARGER, 2014



*You can't manage what you can't measure
but if you measure it you can improve it!*

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**2014 DAIRY FARM BUSINESS SUMMARY
LARGE HERD DAIRY FARMS
300 Cows or Larger**

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2014 DAIRY FARM BUSINESS SUMMARY AND ANALYSIS

LARGE HERD DAIRY FARMS¹

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. One hundred and nine 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 2013 to 2014 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 110 large herd farms that participated in the 2014 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 110 large herd farms that participated in the 2014 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.

¹The large herd summary is comprised of farms with 300 or more cows. Albany, Cayuga, Chautauqua, Chenango, Clinton, 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 2014. This report was written by Jason Karszes, Senior Extension Associate, Pro-Dairy and Wayne A. Knoblauch, Professor, Farm Management. Cathryn Dymond was in charge of data and publication preparation. Data were collected by Cornell Cooperative Extension educators across the state. We also acknowledge the cooperation of Farm Credit East Association; and Dehm Associates, for their assistance in data collection.

PROGRESS OF THE FARM BUSINESS

The 2014 business year for the New York State dairy industry showed significant earnings growth from 2013, continuing the trend in variation in earnings from one year to the next. Record high increases in milk prices provided the opportunity for increased input utilization and re-investment into the dairy, and the ability to generate higher levels of profit. While herd size continued to grow, milk production per cow fell slightly, in part due to different growing conditions. With the combination of changes during the year, record high profits were realized for 2014, leading to continued improvements in the financial position of the average farm over 300 cows in New York.

For both 2013 and 2014, 109 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 same 109 farms that participated in the DFBS project each of the last two years.

Milk Income. Gross milk prices increased 17.3 percent to \$25.43 per hundredweight, an increase of \$3.75, setting a new high for milk prices received on farm. Milk marketing expenses increased by \$0.06 per hundredweight, leading to an increase of \$3.69 in net milk price received on farms. Milk production per cow decreased 0.5 percent to 25,774 pounds per cow. Gross milk revenue per cow increased 16.7 percent from the previous year. Average herd size for the participating farms increased by six percent to 994 cows. While milk per cow fell slightly, the increase in herd size led to total milk pounds shipped per farm increasing by 5.4 percent. 2014 presented different growing conditions than 2013, with hay yields down 5.4% and corn silage yields up 6.1%. With yields staying relatively similar, the increase in tillable land worked of 4.4% was not quite large enough to offset the increase in cow numbers, leading to a decrease in crop revenue per cow, falling 8.3% to \$165 per cow. With all factors combined, total revenue per cow increased 15.5 percent, growing by \$997 per cow to \$7,424.

Cost Control. Costs continued to increase on the participating farms. Purchased grain again led the increase, increasing \$0.26 per hundredweight to \$7.31 per cwt. Hired labor costs was the second largest increase, increasing by \$0.17 per hundredweight to \$3.00. Custom hire and lease, equipment repair, and building repair also showed increases of between \$0.08 and \$0.10 per hundredweight of milk. These increases were driven by both increases in cost per unit along with management decisions to address deferred maintenance issues and reward hired labor due to the higher profits generated during the year.

Worker equivalents increased 7.3 percent, a faster pace than which herd size increased, leading to a decrease in cows per worker of 1.5 percent. With both cows per worker and milk sold per cow decreasing, milk sold per worker equivalent decreased 1.9% to 1,166,433. This decrease in milk sold per worker coupled with the increase in the average cost per hired worker of 3.2 percent, led to an increase of 6.0 percent in the hired labor cost per cwt.

The combination of these changes led to an increase in farm operating costs of \$0.85, or 4.7 percent, to \$20.34 per hundredweight.

Capital Investment. The average investment in the farm increased 6.4 percent to \$11,454 per cow. Additional investments in the farm plus increasing value of land were the key factors leading to the increased investment per cow. The higher investment resulted in total depreciation (machinery and real estate) expenses increasing by \$0.12 cents per hundredweight to \$1.65 per cwt.

Increase in Earnings. Profits rose in 2014, second year in a row in which earnings increased. The 17.3 percent increase in milk price more than offset the 4.7 percent increase in total farm operating costs per hundredweight. This increase in margin per hundredweight and the increase in herd size led to higher earnings. Net farm income without appreciation rose to \$1,698,381. Net farm income with appreciation increased to \$2,041,555.

- Labor and management income per operator/manager increased 126.2 percent, from \$247,452 in 2013 to \$559,790 in 2014.
- Rate of return to all capital without appreciation increased to 14.29 percent, from 8.35 percent in 2013. Rate of return on equity capital without appreciation rose to 19.04 percent.
- Farm net worth increased by 21.6 percent.
- Debt to asset ratio decreased from 0.32 to 0.28, reflecting the increased asset values offsetting the 1.7 percent increase in debt per cow.

Overall, 2014 was a year of unusually high earnings and marks the 5th year of average to above average earnings for the average dairy farm over 300 cows in New York. While, on average, farms showed significant increased earnings in 2014, the changes on individual farms varied, with some farms actually showing little change from 2013, with changes to operating costs, milk production, and growing conditions 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 109 Large Herd Dairy Farms, 2013 & 2014

Selected Factors	Average of 109 Farms		Percent Change
	2013	2014	
<u>Size of Business</u>			
Average number of cows	939	994	5.9
Average number of heifers	812	831	2.3
Milk sold, lbs.	24,325,346	25,626,524	5.4
Worker equivalent	20.5	22.0	7.3
Total tillable acres	1,900	1,983	4.4
<u>Rates of Production</u>			
Milk sold per cow, lbs.	25,901	25,774	-0.5
Butterfat per cow, lbs. ²	985	974	-1.1
Protein per cow, lbs. ²	812	797	-1.9
Hay DM per acre, tons	3.7	3.5	-5.4
Corn silage per acre, tons	18.1	19.2	6.1
<u>Labor Efficiency & Costs</u>			
Cows per worker	45.9	45.2	-1.5
Milk sold per worker, lbs.	1,189,503	1,166,433	-1.9
Hired labor cost per cwt.	\$2.83	\$3.00	6.0
Hired labor cost per worker	\$38,436	\$39,683	3.2
Hired labor cost as % of milk sales	13.1%	11.8%	-9.9
<u>Cost Control</u>			
Grain & concentrate purchased as % of milk sales	33%	29%	-12.1
Grain & concentrate per cwt. milk	\$7.05	\$7.31	3.7
Dairy feed & crop expense per cwt. milk	\$8.85	\$9.07	2.5
Labor & machinery costs per cow	\$1,740	\$1,850	6.3
Total farm operating costs per cwt. sold	\$19.49	\$20.34	4.4
Interest costs per cwt. milk	\$0.47	\$0.43	-8.5
Operating cost of producing cwt. of milk	\$16.45	\$17.15	4.3
Net milk income over purchased feed costs per cow	\$3,568	\$4,436	24.3
<u>Capital Efficiency(average for the year)</u>			
Farm capital per cow	\$10,765	\$11,454	6.4
Machinery & equipment per cow	\$1,797	\$1,936	7.7
Asset turnover ratio	0.62	0.68	9.7
<u>Income Generation</u>			
Gross milk sales per cow	\$5,615	\$6,554	16.7
Gross milk sales per cwt.	\$21.68	\$25.43	17.3
Net milk sales per cwt.	\$20.83	\$24.52	17.7
Dairy cattle sales per cow	\$397	\$496	24.9
Dairy calf sales per cow	\$42	\$74	76.2
<u>Profitability</u>			
Net farm income without appreciation	\$899,549	\$1,698,381	88.8
Net farm income with appreciation	\$1,133,812	\$2,041,555	80.1
Labor & mgt. income per operator/manager	\$247,452	\$559,790	126.2
Rate of return on equity capital w/o appreciation	10.62%	19.04%	79.3
Rate of return on all capital without appreciation	8.35%	14.28%	71.0
<u>Financial Summary (excluding deferred taxes)</u>			
Farm net worth, end year	\$7,203,019	\$8,759,877	21.6
Debt to asset ratio	0.32	0.28	-12.5
Farm debt per cow	\$3,545	\$3,484	-1.7

²Average of 106 large herd dairy farms that provided this data for both years.

RECEIPTS AND EXPENSES PER COW AND PER HUNDREDWEIGHT

Same 109 Large Herd Dairy Farms, 2013 & 2014

Item	2013		2014	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average number of cows	939		994	
Cwt. of milk sold		243,253		256,265
<u>ACCRUAL OPERATING RECEIPTS</u>				
Milk	\$5,615	\$21.68	\$6,554	\$25.43
Dairy cattle	397	1.53	496	1.92
Dairy calves	42	0.16	74	0.29
Other livestock	11	0.04	15	0.06
Crops	180	0.69	165	0.64
Miscellaneous receipts	<u>184</u>	<u>0.71</u>	<u>118</u>	<u>0.46</u>
Total Receipts	\$6,427	\$24.81	\$7,424	\$28.80
<u>ACCRUAL OPERATING EXPENSES</u>				
Hired labor	\$ 734	\$ 2.83	\$ 773	\$ 3.00
Dairy grain & concentrate	1,826	7.05	1,884	7.31
Dairy roughage	107	0.41	103	0.40
Nondairy feed	0	0.00	0	0.00
Professional nutritional services	1	0.01	1	0.00
Machine hire, rent & lease	109	0.42	128	0.50
Machine repair & vehicle expense	261	1.01	284	1.10
Fuel, oil & grease	223	0.86	224	0.87
Replacement livestock	20	0.08	14	0.05
Breeding	53	0.20	57	0.22
Veterinary & medicine	178	0.69	178	0.69
Milk marketing	220	0.85	235	0.91
Bedding	103	0.40	100	0.39
Milking supplies	99	0.38	98	0.38
Cattle lease	4	0.01	5	0.02
Custom boarding	96	0.37	106	0.41
bST expense	48	0.19	52	0.20
Livestock professional fees	20	0.08	18	0.07
Other livestock expense	21	0.08	26	0.10
Fertilizer & lime	160	0.62	139	0.54
Seeds & plants	132	0.51	135	0.52
Spray & other crop expense	60	0.23	72	0.28
Crop professional fees	9	0.04	5	0.02
Land, building, fence repair	94	0.36	119	0.46
Taxes	59	0.23	62	0.24
Real estate rent/lease	81	0.31	78	0.30
Insurance	44	0.17	49	0.19
Utilities	102	0.39	118	0.46
Interest paid	122	0.47	110	0.43
Other professional fees	30	0.12	32	0.12
Miscellaneous	<u>34</u>	<u>0.13</u>	<u>38</u>	<u>0.15</u>
Total Operating Expenses	\$5,048	\$19.49	\$5,243	\$20.34
Expansion livestock	26	0.10	47	0.18
Extraordinary expense	1	0.00	2	0.01
Machinery depreciation	240	0.93	262	1.02
Real estate depreciation	<u>156</u>	<u>0.60</u>	<u>162</u>	<u>0.63</u>
Total Expenses	\$5,471	\$21.12	\$5,716	\$22.18
Net Farm Income Without Appreciation	\$ 958	\$ 3.70	\$1,708	\$ 6.63

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

In 2014, 25 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 25 farms and only represents these 25 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 110 farms over 300 cows that participated in the DFBS project in 2014. 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.

All twenty two farms that were in the top 20 percent in 2014 were also in the summary in 2013. The table on page 7 shows income and expenses for these farms for both 2013 and 2014. 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

25 Dairy Farms, 2014

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 Ma- chine Per Year
Average of Highest Quintile	1,987	27.4	1,276,736
↓	1,653	23.5	937,620
↓	1,420	19.9	796,288
↓	1,253	17.7	625,729
Average of Lowest Quintile	959	13.0	428,176
Overall Average	1,453	20.3	812,910
Dairy Enterprise Only			
Quintile	Worker Equivalents	Cows per Worker Equivalent	Pounds Sold per Worker Equivalent
Average of Highest Quintile	15.2	172	4,437,618
↓	10.9	124	3,310,374
↓	8.9	103	2,780,844
↓	5.7	88	2,285,108
Average of Lowest Quintile	3.1	66	1,676,243
Overall Average	8.7	111	2,898,038

TOP 20 PERCENT VERSUS AVERAGE
110 Large Herd Dairy Farms, 2014

Selected Factors	Average 110 Farms	Average Top 20% Farms ⁴	Percent Difference
<u>Size of Business</u>			
Average number of cows	992	1,130	13.9
Average number of heifers	830	886	6.8
Milk sold, lbs.	25,580,851	29,712,039	16.2
Worker equivalent	22.0	23.9	8.6
Total tillable acres	1,983	1,999	0.8
<u>Rates of Production</u>			
Milk sold per cow, lbs.	25,777	26,302	2.0
Butterfat per cow, lbs. ³	966	1,007	3.3
Protein per cow, lbs. ³	784	819	2.8
Hay DM per acre, tons	3.5	3.5	0.0
Corn silage per acre, tons	19.2	19.5	1.6
<u>Labor Efficiency & Costs</u>			
Cows per worker	45	47	4.4
Milk sold/worker, lbs.	1,164,796	1,242,792	6.7
Hired labor cost/cwt.	\$3.01	\$2.56	-15.0
Hired labor cost/hired worker	\$39,681	\$35,722	-10.0
Hired labor cost as % of milk sales	11.8%	10.0%	-15.3
<u>Cost Control</u>			
Grain & concentrate purchased as % of milk sales	28%	27%	-3.6
Grain & concentrate per cwt. milk	\$7.32	\$7.12	-2.7
Dairy feed & crop expense per cwt. milk	\$9.09	\$8.80	-3.2
Labor & machinery costs/cow	\$1,851	\$1,574	-15.0
Total farm operating costs per cwt. sold	\$20.38	\$18.69	-8.3
Interest costs per cwt. milk	\$0.43	\$0.25	-41.9
Milk marketing costs per cwt. milk sold	\$0.91	\$0.98	7.7
Operating cost of producing cwt. of milk	\$17.18	\$15.57	-9.4
Net milk income over purchased feed costs per cow	\$4,433	\$4,582	3.4
<u>Capital Efficiency</u> (average for the year)			
Farm capital per cow	\$11,413	\$10,113	-11.4
Machinery & equipment per cow	\$1,931	\$1,490	-22.8
Asset turnover ratio	0.68	0.78	14.7
<u>Income Generation</u>			
Gross milk sales per cow	\$6,556	\$6,712	2.4
Gross milk sales per cwt.	\$25.43	\$25.52	0.4
Net milk sales per cwt.	\$24.52	\$24.54	0.1
Dairy cattle sales per cow	\$496	\$509	2.6
Dairy calf sales per cow	\$73	\$77	5.5
<u>Profitability</u>			
Net farm income without appreciation	\$1,688,449	\$2,551,500	51.1
Net farm income with appreciation	\$2,028,009	\$2,792,493	37.7
Labor & management income per operator/manager	\$559,186	\$911,515	63.0
Rate of return on equity capital without appreciation	19.1%	27.1%	41.9
Rate of return on all capital without appreciation	14.3%	21.3%	49.0
<u>Financial Summary</u> (excluding deferred taxes)			
Farm net worth, end of year	\$8,695,858	\$9,837,537	13.1
Debt to asset ratio	0.29	0.22	-24.1
Farm debt per cow	\$3,486	\$2,452	-29.6

³ Average of large herd dairy farms that provided this data.

⁴ Top 20% of large herd farms by rate of return on all assets without appreciation.

RECEIPTS AND EXPENSES PER COW AND PER HUNDREDWEIGHT
 Same 22 Top 20% Large Herd Dairy Farms, 2013 & 2014

Item	2013		2014	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Average Number of Cows	1,017		1,130	
Cwt. of Milk Sold		269,022		297,120
<u>Accrual Operating Receipts</u>				
Milk	\$5,786	\$21.87	\$6,712	\$25.52
Dairy cattle	390	1.47	509	1.94
Dairy calves	38	0.14	77	0.29
Other livestock	5	0.02	16	0.06
Crops	137	0.52	240	0.91
Miscellaneous receipts	<u>149</u>	<u>0.56</u>	<u>84</u>	<u>0.32</u>
Total	\$6,504	\$24.58	\$7,637	\$29.04
<u>Accrual Operating Expenses</u>				
Hired labor	\$ 648	\$ 2.45	\$ 674	\$ 2.56
Dairy grain & concentrate	1,877	7.09	1,873	7.12
Dairy roughage	126	0.48	124	0.47
Nondairy feed	0	0.00	0	0.00
Professional nutritional services	3	0.01	1	0.00
Machine hire, rent & lease	96	0.36	92	0.35
Machine repair & vehicle expense	269	1.02	251	0.95
Fuel, oil & grease	214	0.81	204	0.78
Replacement livestock	27	0.10	15	0.06
Breeding	51	0.19	53	0.20
Veterinary & medicine	190	0.72	178	0.68
Milk marketing	235	0.89	257	0.98
Bedding	114	0.43	108	0.41
Milking supplies	79	0.30	81	0.31
Cattle lease	3	0.01	1	0.00
Custom boarding	55	0.21	79	0.30
bST expense	65	0.25	63	0.24
Livestock professional fees	20	0.08	15	0.06
Other livestock expense	21	0.08	20	0.07
Fertilizer & lime	154	0.58	124	0.47
Seeds & plants	110	0.42	134	0.51
Spray & other crop expense	56	0.21	58	0.22
Crop professional fees	3	0.01	3	0.01
Land, building & fence repair	98	0.37	102	0.39
Taxes	57	0.22	61	0.23
Real estate rent/lease	60	0.23	58	0.22
Insurance	39	0.15	43	0.16
Utilities	101	0.38	118	0.45
Interest paid	79	0.30	65	0.25
Other professional fees	25	0.09	22	0.08
Miscellaneous	<u>26</u>	<u>0.10</u>	<u>40</u>	<u>0.15</u>
Total Operating Expenses	\$4,901	\$18.52	\$4,917	\$18.69
Expansion livestock	41	0.15	105	0.40
Extraordinary Expense	0	0.00	7	0.03
Machinery depreciation	198	0.75	207	0.79
Real Estate depreciation	<u>142</u>	<u>0.54</u>	<u>143</u>	<u>0.54</u>
Total Expenses	\$5,282	\$19.96	\$5,379	\$20.45
Net Farm Income without appreciation	\$1,222	\$ 4.62	\$2,259	\$ 8.59

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

32 Dairy Farms, 2014

<u>Animals Entering Herd</u>	Average
Number calving in 2014 for first time	409
Animals purchased, % ⁵	3.0
Animals raised by farm, % ⁶	97.0
<u>Current Heifer Inventory</u>	
Raised on dairy, %	83.4
Raised by a custom grower, %	16.6

⁵Animals purchased are animals purchased from a different farm and were not the farm's genetics.

⁶Animals 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, 409 animals calved for the first time in 2014. The breakdown on the source of these animals was 3.0 percent purchased and 97.0 percent raised on the farm. Of the current heifer inventory, 83.4 percent were raised on the dairy and 16.6 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 1st, 2000, the northeast switched to multiple component 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, 107 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 commissions 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.

AVERAGE⁷ MILK INCOME AND MARKETING REPORT
107 Large Herd Dairy Farms, 2014

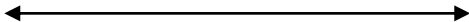
	Pounds	Percent	Price/Pound	Total	\$/Cwt of Milk
BASE FARM PRICE					
Butterfat	971,256	3.77%	\$2.38	\$2,310,392	\$ 8.97
Protein	793,503	3.08%	\$3.78	\$3,001,334	\$11.65
Solids	1,485,084	5.77%	\$0.47	\$700,448	\$ 2.72
Total Component Contribution					\$ 23.34
PPD	25,753,566			\$297,903	\$ 1.16
Base Farm Price					\$ 24.50
Premiums					
Quality				\$70,980	\$ 0.28
Volume				\$72,228	\$ 0.28
Market Premiums				\$132,916	\$ 0.52
Total Premiums					\$ 1.08
BASE FARM PRICE + PREMIUM					\$ 25.58
<hr style="border-top: 1px dashed black;"/>					
Deductions					
Promo				\$38,793	\$ 0.15
Hauling & Coop Dues				\$196,553	\$ 0.76
Total Deductions				\$235,346	\$ 0.91
BASE FARM PRICE + PREMIUMS – DEDUCTIONS					\$ 24.67
Marketing Programs					
Futures Contracts, Forward Contracting, Etc.				\$-69,135	\$ -0.27
Total Marketing Income					\$ -0.27
Patronage Dividends				\$31,668	\$ 0.12
NET PRICE RECEIVED ON FARM, ALL SOURCES					\$ 24.52
Net Marketing Value (PPD + Total Premiums – Total Deductions), \$ per cwt.					\$ 1.33

⁷Each 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 QUINTILE⁸

(Each Category Sorted Independently)

107 Large Herd Dairy Farms, 2014

	Lowest Quintile				Highest Quintile
Butterfat, %	3.64	3.72	3.78	3.85	4.07
Protein, %	2.98	3.05	3.08	3.11	3.22
Other Solids, %	5.70	5.75	5.77	5.79	5.82
Butterfat, \$ per Cwt.	8.64	8.84	8.98	9.14	9.77
Protein, \$ per Cwt.	11.23	11.55	11.65	11.80	12.17
Other solids, \$ per Cwt.	2.67	2.70	2.71	2.72	2.83
Total Component Value per Cwt.	\$ 22.78	\$ 23.12	\$ 23.13	\$ 23.59	\$ 24.55
PPD, \$ per Cwt.	0.90	0.99	1.09	1.22	1.58
Base Farm Price per Cwt.	\$ 23.84	\$ 24.21	\$ 24.47	\$ 24.77	\$ 25.83
Quality, \$ per Cwt.	0.07	0.21	0.27	0.37	0.54
Volume, \$ per Cwt.	0.00	0.05	0.25	0.40	0.63
Market premium, \$ per Cwt.	0.01	0.17	0.43	0.74	1.08
Total Premium, \$ per Cwt.	0.53	0.83	1.02	1.26	1.53
Base Farm Price + Premiums per Cwt.	\$ 24.68	\$25.12	\$ 25.45	\$ 25.93	\$ 27.04
Promotion, \$ per Cwt.	0.15	0.15	0.15	0.15	0.15
Hauling & Coop Dues \$ per Cwt.	0.37	0.54	0.72	0.92	1.23
Total Deductions per Cwt.	\$ 0.52	\$ 0.69	\$ 0.87	\$1.07	\$ 1.38
Base + Premiums – Deductions per Cwt.	\$ 23.91	\$ 24.36	\$ 24.60	\$ 24.92	\$ 25.91
Futures contract, forward contracting, \$ per Cwt.	-0.94	-0.01	0.00	0.00	0.00
Total Marketing Income, \$ per Cwt.	\$-0.94	\$-0.01	\$ 0.00	\$ 0.00	\$ 0.00
Patronage Dividends, \$ per Cwt.	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.13	\$ 0.45
Net Price Received From All Sources, \$ per Cwt.	\$ 23.50	\$ 24.37	\$ 24.61	\$ 24.94	\$ 26.00
Net Marketing Value (PPD + Total Premiums – Total Deductions), \$ per cwt.	\$ 0.67	\$ 1.12	\$ 1.28	\$ 1.45	\$ 1.86

⁸Each 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

110 Large Herd Dairy Farms, 2014

Type of Farm	Number	Type of Barn	Number
Dairy	106	Stanchion/Tie-Stall	0
Dairy – cash crop	4	Freestall	104
		Combination	6
Type of Ownership	Number	Milking System	Number
Owner	109	Pipeline	0
Renter	1	Herringbone Conventional	29
		Herringbone Rapid Exit	12
Type of Business	Number	Parallel	54
Single proprietorship	8	Parabone	4
Partnership	16	Rotary	5
Limited Liability Corporation	73	Other	6
Subchapter S Corporation	12		
Subchapter C Corporation	1		
Business Record System	Number	Milking Frequency	Number
Account Book	2	2x/day	16
Accounting Service	6	3x/day	86
On-Farm Computer	100	Other	8
Other	0		
BST Usage (reporting this is optional)	Number	Production Records	Number
Used consistently	2	Testing Service	80
Used inconsistently	0	On-Farm System	22
Started Use in 2014	0	Other	2
Stopped Use in 2014	0	None	5
Not Used	4		
Average % bst usage of those reporting	53%	Breed	Percent
		Holstein	94
		Jersey	2
		Other	4

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 2014.

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
110 Large Herd Dairy Farms, 2014

Expense Item	Cash Paid	-	Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses
<u>Hired Labor</u>	\$771,751		\$2,644		\$4		\$769,111
<u>Feed</u>							
Dairy grain & concentrate	2,077,284		184,808		-19,680		1,872,795
Dairy roughage	105,431		7,284		3,304		101,450
Nondairy	31		0		0		31
Professional nutritional services	968		0		-4		964
<u>Machinery</u>							
Machinery hire, rent/lease	128,238		1,166		-906		126,166
Mach. repair & farm vehicle exp.	287,800		3,239		-2,029		282,532
Fuel, oil & grease	226,477		2,877		-701		222,900
<u>Livestock</u>							
Replacement livestock	15,258		0		-1,355		13,904
Breeding	59,032		2,291		-281		56,461
Vet & medicine	180,354		2,943		-381		177,031
Milk marketing	222,868		0		10,719		233,587
Bedding	100,790		1,419		-420		98,951
Milk supplies	99,750		1,111		-789		97,850
Cattle lease/rent	4,485		0		0		4,485
Custom boarding	109,817		3,249		-1,044		105,524
bST expense	52,215		83		-182		51,951
Livestock professional fees	17,664		167		-50		17,447
Other livestock expense	26,750		360		-676		25,713
<u>Crops</u>							
Fertilizer & lime	153,792		11,290		-3,731		138,771
Seeds & plants	162,854		27,835		-455		134,564
Spray, other crop exp.	77,105		2,214		-3,521		71,370
Crop professional fees	5,777		251		-162		5,363
<u>Real Estate</u>							
Land/bldg./fence repair	118,552		515		-198		117,839
Taxes	62,906		1,571		190		61,526
Rent & lease	79,423		832		-104		78,488
<u>Other</u>							
Insurance	55,247		7,229		888		48,906
Utilities (farm share)	117,182		-140		97		117,419
Interest paid	110,144		147		-292		109,705
Other professional fees	31,137		-470		163		31,769
Miscellaneous	38,210		144		-180		37,886
Total Operating Expenses	\$5,499,290		\$265,058		\$-21,775		\$5,212,457
Expansion livestock	46,232		0		0		46,232
Extraordinary expense	1,942		0		-340		1,602
Machinery depreciation							259,477
Building depreciation							161,078
Total Accrual Expenses							\$5,680,847

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 2014 funds used to prepay 2015 leases exceed the amount of 2014 leases prepaid in 2013, the amount of this excess is subtracted to exclude it from 2014 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 2014 but not paid for. A decrease is subtracted because the resource was used before 2014.

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

110 Large Herd Dairy Farms, 2014

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts
Milk sales	\$6,277,575				\$228,298		\$6,505,873
Dairy cattle	369,457		118,493		4,628		492,579
Dairy calves	64,002		7,790		946		72,738
Other livestock	11,510		4,946		-1,320		15,137
Crops	73,827		95,134		-2,828		166,133
Government receipts	8,523		0 ⁹		585		9,107
Custom machine work	19,107				-156		18,951
Gas tax refund	664				0		664
Other	<u>87,103</u>				<u>2,413</u>		<u>89,516</u>
Less nonfarm noncash cap.			<u>1,402</u> ¹⁰				<u>1,402</u>
Total Receipts	\$6,911,769		\$224,961		\$232,565		\$7,369,296

⁹ Change in advanced government receipts.

¹⁰ 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 2014 for the 2015 crop year in excess of funds earned for 2014. Likewise, a decrease is added to cash government receipts because it represents funds earned for 2014 but received in 2013.

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 operators¹¹ 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.

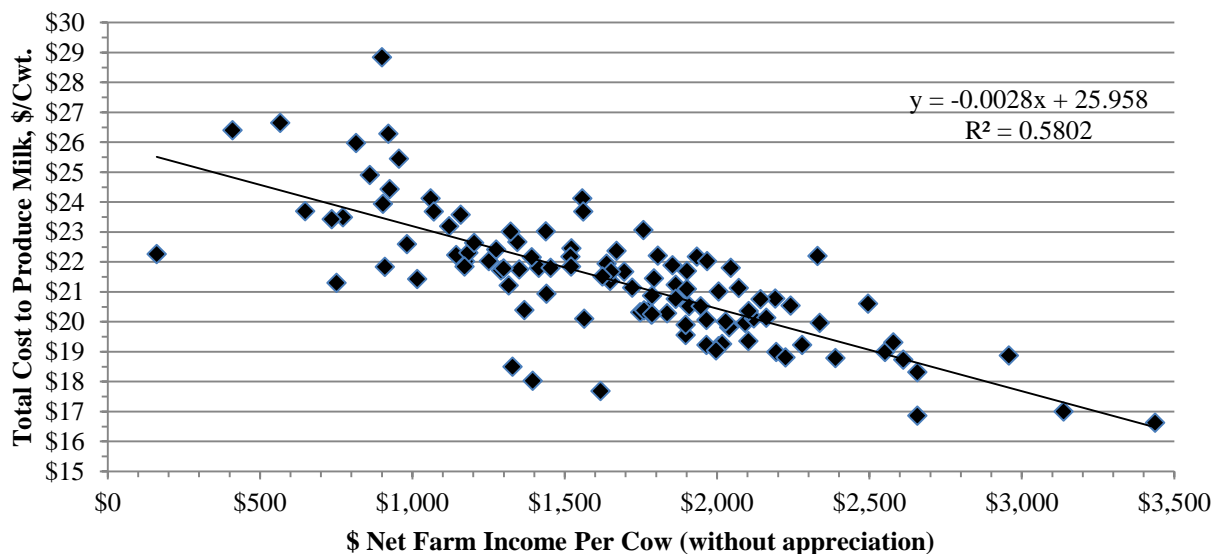
Net farm income is the return to the farm operators and other unpaid family members for their labor, management, and equity capital. It is the farm family's net annual return from working, managing, financing, and owning the farm business. This is not a measure of cash available from the year's business 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 110 Large Herd Dairy Farms, 2014

Item	<u>Average 110 farms</u>		<u>Average Top 20%¹² Farms</u>	
	Total	Per Cow	Total	Per Cow
Total accrual receipts	\$ 7,369,296		\$ 8,627,503	
Appreciation: Livestock	53,784		49,825	
Machinery	37,754		19,939	
Real Estate	219,743		159,857	
Other Stock/Certificates	28,280		11,371	
Total Including Appreciation	\$ 7,708,856		\$ 8,868,496	
Total accrual expenses	5,680,847		6,076,003	
Net Farm Income (with appreciation)	\$ 2,028,009	\$2,044	\$ 2,792,492	\$2,472
Net Farm Income (without appreciation)	\$ 1,688,449	\$1,701	\$ 2,551,500	\$2,259

TOTAL COST TO PRODUCE MILK PER CWT. VS. NET FARM INCOME PER COW 110 Large Herd Dairy Farms, 2014



¹¹Operators 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.

¹²Top 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.

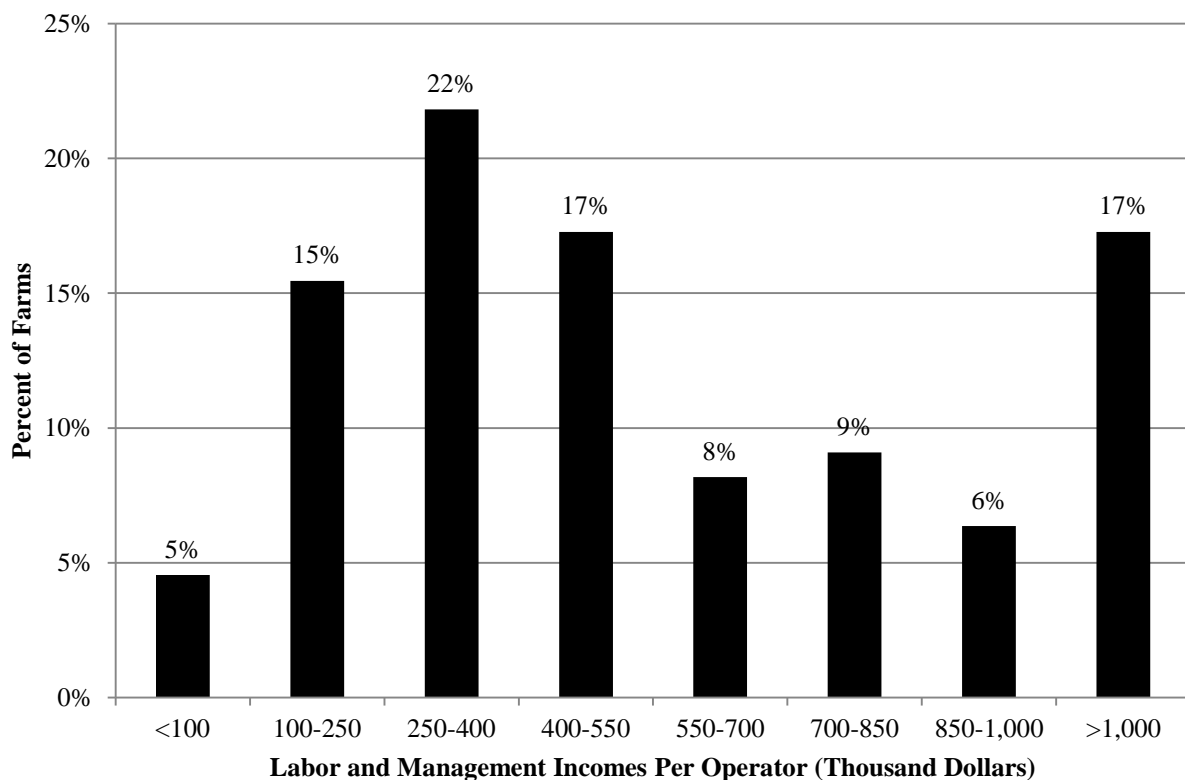
LABOR AND MANAGEMENT INCOME

110 Large Herd Dairy Farms, 2014

Item	Average 110 farms	Average Top 20% Farms
Net farm income without appreciation	\$ 1688,449	\$ 2,551,500
Family labor unpaid @ \$2,600 per month	- 1,300	- 1,383
Interest on \$7,908,578 (\$8,708,050 for top 20%) average equity capital @ 5% real rate	- 395,429	- 435,403
Labor & Management Income per Farm (2.31 operators/farm; 2.32 operators for top 20%)	\$ 1,291,720	\$ 2,114,715
Labor & Management Income per Operator/Manager	\$ 559,186	\$ 911,515

Labor and management income per operator averaged \$559,186 on these 110 farms in 2014. Returns to labor and management were less than \$400,000 on 42 percent of the farms, with 5% of the farms showing a return to labor & management less than \$100,000. Labor and management income per operator ranged from \$400,000 to \$850,000 on 34 percent of the farms while 23 percent showed labor and management incomes per operator greater than \$850,000.

DISTRIBUTION OF LABOR & MANAGEMENT INCOMES PER OPERATOR 110 Large Herd Dairy Farms, 2014



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

110 Large Herd Dairy Farms, 2014

Item	Average 110 farms	Average Top 20% Farms
Net farm income with appreciation	\$ 2,028,009	\$ 2,792,492
Family labor unpaid @ \$2,600 per month	- 1,300	- 1,383
Value of operators' labor & management	- 179,343	- 189,273
Return on equity capital with appreciation	\$ 1,847,366	\$ 2,601,837
Interest paid	+ 109,705	+ 73,772
Return on total capital with appreciation	\$ 1,957,071	\$ 2,675,608
Return on equity capital without appreciation	\$ 1,507,805	\$ 2,360,844
Return on total capital without appreciation	\$ 1,617,510	\$ 2,434,616
Rate of return on average equity capital:		
with appreciation	23.4%	29.9%
without appreciation	19.1%	27.1%
Rate of return on average total capital:		
with appreciation	17.3%	23.4%
without appreciation	14.3%	21.3%
Net farm income from operations ratio	0.23	0.30

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 2014, leases were discounted by 7 percent.

Advanced government receipts are included as current liabilities. Government payments received in 2014 that are for participation in the 2015 program are the end year balance and payments received in 2013 for participation in the 2014 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.

2014 FARM BUSINESS & NONFARM MARKET VALUE BALANCE SHEET

110 Large Herd Dairy Farms, 2014

Farm Assets			Farm Liabilities & Net Worth		
	Jan. 1	Dec. 31		Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$ 105,462	\$ 133,209	Accounts payable	\$ 100,722	\$ 78,607
Accounts receivable	579,430	811,995	Operating debt	307,558	360,101
Prepaid expenses	11,170	27,816	Short Term	7,242	3,166
Feed & supplies	1,262,572	1,606,117	Advanced govt. receipts	0	0
			Current Portion:		
			Intermediate	273,172	295,146
			Long Term	95,359	105,306
Total Current	\$ 1,958,634	\$ 2,579,138	Total Current	\$ 784,054	\$ 842,326
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy cows:			Structured debt		
owned	\$ 1,353,432	\$ 1,475,274	1-10 years	\$ 1,416,443	\$ 1,344,979
leased	0	0	Financial lease		
Heifers	791,945	844,918	(cattle/machinery)	12,849	10,349
Bulls/other livestock	14,979	25,178	Farm Credit stock	1,413	1,436
Mach./equipment owned	1,765,022	2,045,366	Total Intermediate	\$1,430,704	\$ 1,356,763
Mach./equipment leased	12,849	10,349			
Farm Credit stock	1,413	1,436			
Other stock/certificate	321,642	375,277			
Total Intermediate	\$ 4,261,281	\$ 4,777,796			
<u>Long Term</u>			<u>Long Term</u>		
Land/buildings:			Structured debt		
owned	\$ 4,261,965	\$ 4,811,011	>10 years	\$ 1,235,534	\$ 1,272,998
leased	1,827	1,006	Financial lease		
Total Long Term	\$ 4,263,792	\$ 4,812,018	(structures)	1,827	1,006
			Total Long Term	\$ 1,237,362	\$ 1,274,004
Total Farm Assets	\$10,483,707	\$12,168,951	Total Farm Liab.	\$ 3,452,120	\$ 3,473,094
			FARM NET WORTH	\$ 7,031,587	\$ 8,695,858
Nonfarm Assets, Liabilities & Net Worth (Average of 36 farms reporting)					
Assets	Jan. 1	Dec. 31	Liabilities & Net Worth	Jan. 1	Dec. 31
Personal cash, checking & savings	\$ 6,476	\$ 6,801	Nonfarm Liabilities	\$ 3,620	\$ 3,560
Cash value life insurance	80,354	83,233			
Nonfarm real estate	154,412	154,412			
Auto (personal share)	5,156	5,397			
Stocks & bonds	408,481	379,306			
Household furnishings	2,647	2,647			
All other nonfarm assets	287,159	322,597			
Total Nonfarm Assets	\$ 944,684	\$ 954,393	NONFARM NET WORTH	\$ 941,065	\$ 950,832
Farm & Nonfarm Assets, Liabilities, and Net Worth ¹³					
				Jan. 1	Dec. 31
Total Assets				\$11,428,391	\$13,123,344
Total Liabilities				3,455,740	3,476,654
TOTAL FARM & NONFARM NET WORTH				\$7,972,651	\$9,646,690

¹³Assumes 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

110 Large Herd Dairy Farms, 2014

Item	Average 110 farms	Average Top 20% Farms
<u>Financial Ratios - Farm:</u>		
Percent equity	71%	78%
Debt/asset ratio: total	0.29	0.22
long-term	0.26	0.21
intermediate/current	0.30	0.22
Leverage Ratio	0.40	0.28
Current Ratio	3.06	4.69
Working Capital: \$1,736,811	as % of Total Expenses: 31%	\$2,533,914 42%
<u>Farm Debt Analysis:</u>		
Accounts payable as % of total debt	2%	2%
Long-term liabilities as a % of total debt	37%	37%
Current & intermediate liabilities as a % of total debt	63%	63%
Cost of term debt (weighted average)	3.93%	3.55%
	<u>Average 110 farms</u>	<u>Average Top 20% Farms</u>
	Per Cow	Per Tillable Acre Owned
<u>Farm Debt Levels:</u>		
Total farm debt	\$ 3,486	\$ 2,452
Long-term debt	1,279	902
Long-term & intermediate	2,641	1,837
Intermediate & current debt	2,207	1,550
		Per Tillable Acre Owned
		\$ 2,789
		1,026
		2,089
		1,764

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

110 Large Herd Dairy Farms, 2014

Item	Average of 110 farms	
	<u>Real Estate</u>	<u>Machinery & Equipment</u>
Value beginning of year	\$ 4,261,965	\$ 1,765,022
Purchases	\$ 727,334 ¹⁴	\$ 506,399
Gift/inheritance	+ 2,727	+ 5,400
Lost capital	- 217,714	
Sales	- 21,966	- 9,732
Depreciation	- 161,078	- 259,477
Net investment	= 329,303	= 242,591
Appreciation	+ 219,743	+ 37,754
Value end of year	\$ 4,811,011	\$ 2,045,366

¹⁴ \$215,678 land and \$511,657 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)

110 Large Herd Dairy Farms, 2014

Item	Average 110 farms	Average Top 20% Farms
Beginning of year farm net worth	\$ 7,121,299	\$7,578,563
Net farm income without appreciation	\$1,688,449	\$2,551,500
+ Nonfarm cash income	+ 2,693	+ 1,026
- Personal withdrawals & family expenditures excluding nonfarm borrowings	- 304,559	- \$ 348,691
Retained Earnings	+\$ 1,386,582	+ \$2,203,835
Nonfarm noncash transfers to farm	\$ 9,529	\$ 14,874
+ Cash used in business from nonfarm capital	+ 57,670	+ 47,089
- Note/mortgage from farm real estate sold (nonfarm)	- 0	- 0
Contributed/Withdrawn Capital	= \$ 67,199	+ \$ 61,962
Appreciation	\$ 339,561	\$ 240,993
- Lost capital	- 217,714	- 258,592
Change in Valuation Equity	+\$ 121,846	+ \$ -17,599
Imbalance/Error	- 1,069	- -10,777
End of year farm net worth ¹⁵	= \$78,695,858	= \$9,837,537
Change in net worth with appreciation	\$ 1,574,559	\$2,258,974
<u>Change in Net Worth</u>		
Without appreciation	\$ 1,234,998	\$2,017,982
With appreciation	\$ 1,574,559	\$2,258,974

¹⁵May 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 110 Large Herd Dairy Farms, 2014

Item	Average 110 farms	
<u>Cash Flow from Operating Activities</u>		
Cash farm receipts	\$ 6,911,769	
- Cash farm expenses	5,499,290	
- Extraordinary expense	1,942	
= Net cash farm income		\$ 1,410,537
Personal withdrawals/family expenses including nonfarm debt payments	\$ 304,704	
- Nonfarm income	<u>2,693</u>	
- Net cash withdrawals from the farm		<u>\$ 302,011</u>
= Net Provided by Operating Activities		\$ 1,108,525
<u>Cash Flow From Investing Activities</u>		
Sale of Assets: Machinery	\$ 9,732	
+ real estate	21,966	
+ other stock & certificates	<u>11,085</u>	
= Total asset sales		\$ 42,783
Capital purchases: expansion livestock	\$ 46,232	
+ machinery	506,399	
+ real estate	727,334	
+ other stock & certificates	<u>36,440</u>	
- Total invested in farm assets		<u>\$ 1,316,406</u>
= Net Provided by Investment Activities		\$-1,273,623
<u>Cash Flow From Financing Activities</u>		
Money borrowed (intermediate & long term)	\$ 553,041	
+ Money borrowed (short-term)	3,091	
+ Increase in operating debt	52,542	
+ Cash from nonfarm capital used in business	57,670	
+ Money borrowed - nonfarm	<u>145</u>	
= Cash inflow from financing		\$ 666,488
Principal payments (intermediate & long-term)	\$ 465,411	
+ Principal payments (short-term)	7,168	
+ Decrease in operating debt	<u>0</u>	
- Cash outflow for financing		<u>\$ 472,578</u>
= Net Provided by Financing Activities		\$ 193,910
<u>Cash Flow From Business</u>		
Beginning farm cash, checking & savings		\$ 105,462
- Ending farm cash, checking & savings		<u>133,209</u>
= Net Provided from Reserves		<u>\$ -27,747</u>
Imbalance (error)		\$ 1,065

ANNUAL CASH FLOW STATEMENT
22 Top 20% Large Herd Dairy Farms, 2014

Item	Average Top 20% Farms		
<u>Cash Flow from Operating Activities</u>			
Cash farm receipts	\$7,932,687		
- Cash farm expenses	5,960,898		
- Extraordinary expense	<u>7,670</u>		
= Net cash farm income		\$ 1,964,119	
Personal withdrawals/family expenses including nonfarm debt payments	\$ 348,691		
- Nonfarm income	<u>1,026</u>		
- Net cash withdrawals from the farm		<u>\$ 347,665</u>	
= Net Provided by Operating Activities			\$ 1,616,454
<u>Cash Flow From Investing Activities</u>			
Sale of Assets: Machinery	\$ 1,926		
+ real estate	10,169		
+ other stock & certificate	<u>6,806</u>		
= Total asset sales		\$ 18,900	
Capital purchases: expansion livestock	\$ 118,905		
+ machinery	522,937		
+ real estate	982,461		
+ other stock & certificate	<u>16,182</u>		
- Total invested in farm assets		<u>\$ 1,640,486</u>	
= Net Provided by Investment Activities			\$ -1,621,585
<u>Cash Flow From Financing Activities</u>			
Money borrowed (intermediate & long term)	\$ 423,079		
+ Money borrowed (short-term)	0		
+ Increase in operating debt	0		
+ Cash from nonfarm capital used in business	47,089		
+ Money borrowed - nonfarm	<u>0</u>		
= Cash inflow from financing		\$ 470,168	
Principal payments (intermediate & long-term)	\$ 342,633		
+ Principal payments (short-term)	1,727		
+ Decrease in operating debt	<u>24,631</u>		
- Cash outflow for financing		<u>\$ 368,991</u>	
= Net Provided by Financing Activities			\$ 101,177
<u>Cash Flow From Business</u>			
Beginning farm cash, checking & savings		\$ 174,576	
- Ending farm cash, checking & savings		<u>281,399</u>	
= Net Provided from Reserves			\$ -106,823
<u>Imbalance (error)</u>			\$ -10,777

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 2015. The cash flow projection worksheet on the next page can be used to estimate repayment ability, which can then be compared to planned 2015 debt payments shown below.

FARM DEBT PAYMENTS PLANNED

Large Herd Dairy Farms, 2013 & 2014

Debt Payments	Same 109 Dairy Farms			Same 22 Top 20% Farms		
	2014 Payments		Planned 2015	2014 Payments		Planned 2015
	Planned	Made		Planned	Made	
Long-term	\$ 144,612	\$ 183,231	\$ 156,461	\$ 118,395	\$ 151,854	\$ 127,136
Intermediate-term	347,566	394,202	353,128	246,487	263,791	280,449
Short-term	2,345	7,375	1,036	0	1,819	0
Operating (net reduction)	30,337	74,257	17,330	96,098	150,468	0
Accounts payable (net reduction)	725	38,443	3,491	0	31,485	0
Total	\$ 525,584	\$ 697,507	\$ 531,446	\$ 460,981	\$ 599,416	\$ 407,586
Per cow	\$ 529	\$ 702		\$ 408	\$ 531	
Per cwt. 2014 milk	\$ 2.05	\$ 2.72		\$ 1.55	\$ 2.02	
Percent of total 2014 receipts	7.6%	9.5%		5.8%	7.0%	
Percent of 2014 milk receipts	8.4%	10.7%		6.3%	7.9%	

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 2014 (as of December 31, 2013) that could have been made with the amount available for debt service in 2014. Farmers who did not participate in DFBS in 2013 have their 2014 cash flow coverage ratio based on planned debt payments for 2015.

COVERAGE RATIOS

Same 109 Large Herd Dairy Farms, 2013 & 2014

Item	Average	Item	Average
<u>Cash Flow Coverage Ratio</u>		<u>Debt Coverage Ratio</u>	
Cash farm receipts	\$ 6,918,233	Net farm income (without appreciation)	\$1,698,381
- Cash farm expenses	5,500,996	+ Depreciation	421,411
+ Interest paid (cash)	109,989	+ Interest paid (accrual)	109,546
- Net personal withdrawals from farm ¹⁶	<u>303,724</u>	- Net personal withdrawals from farm ¹⁶	<u>303,724</u>
(A) = Amount Available for Debt Service	\$ 1223,502	(A') = Repayment Capacity	\$1,925,615
(B) = Debt Payments Planned for 2014 (as of December 31, 2013)	\$ 525,584	(B) = Debt Payments Planned for 2014 (as of December 31, 2013)	\$ 525,584
(A/B) = Cash Flow Coverage Ratio for 2014	2.33	(A'/B) = Debt Coverage Ratio for 2014	3.66

Same 22 Top 20% Dairy Farms, 2013 & 2014			
(A) = Amount Available for Debt Service	\$ 1,698,217	(A') = Repayment Capacity	\$2,673,003
(B) = Debt Payments Planned for 2014	\$ 460,981	(B) = Debt Payments Planned for 2014	\$ 460,981
(A/B) = Cash Flow Coverage Ratio for 2014	3.68	(A'/B) = Debt Coverage Ratio for 2014	5.80

¹⁶Personal 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
110 Large Herd Dairy Farms, 2014

Item	Average 110 farms		Total
	Per Cow	Per Cwt.	
Number cows and cwt. Milk	992	255,809	
<u>Accrual Operating Receipts</u>			
Milk	\$6,556	\$25.43	\$6,505,873
Dairy cattle	496	1.93	492,579
Dairy calves	73	0.28	72,738
Other livestock	15	0.06	15,137
Crops	167	0.65	166,133
Misc. receipts	118	0.46	116,836
Total Operating Receipts	\$7,426	\$28.81	\$7,369,296
<u>Accrual Operating Expenses</u>			
Hired labor	\$ 775	\$ 3.01	\$ 769,111
Dairy grain & concentrate	1,887	7.32	1,872,795
Dairy roughage	102	0.40	101,450
Nondairy feed	0	0.00	31
Professional nutritional services	1	0.00	964
Machinery hire/rent/lease	127	0.49	126,166
Machinery repair & farm vehicle expense	285	1.10	282,532
Fuel, oil & grease	225	0.87	222,900
Replacement livestock	14	0.05	13,904
Breeding	57	0.22	56,461
Veterinary & medicine	178	0.69	177,031
Milk marketing	235	0.91	233,587
Bedding	100	0.39	98,951
Milking supplies	99	0.38	97,850
Cattle lease	5	0.02	4,485
Custom boarding	106	0.41	105,524
bST expense	52	0.20	51,951
Livestock professional fees	18	0.07	17,447
Other livestock expense	26	0.10	25,713
Fertilizer & lime	140	0.54	138,771
Seeds & plants	136	0.53	134,564
Spray/other crop expenses	72	0.28	71,370
Crop professional fees	5	0.02	5,363
Land, building, fence repair	119	0.46	117,839
Taxes	62	0.24	61,526
Real estate rent/lease	79	0.31	78,488
Insurance	49	0.19	48,906
Utilities	118	0.46	117,419
Other professional fees	32	0.12	31,769
Miscellaneous	38	0.15	37,886
Total Less Interest Paid	\$5,142	\$19.95	\$5,102,753
<u>Net Accrual Operating Income</u>			
(without interest paid)	\$2,284	\$ 8.86	\$2,266,543
- Change in livestock/crop inventory ¹⁷	227	0.88	224,961
- Change in accounts receivable	234	0.91	232,565
- Change in feed/supply inventory ¹⁸	267	1.04	265,058
+ Change in accounts payable ¹⁹	-22	-0.08	-21,483
NET CASH FLOW	\$1,534	\$ 5.95	\$1,522,476
- Net personal withdrawals from farm (see footnote on page 22)	304	1.18	301,527
Available for Farm Debt Payments & Investments	\$1,230	\$ 4.77	\$1,220,949
- Farm debt payments	702	2.72	696,709
Available for Farm Investment	\$ 528	\$ 2.05	\$ 524,240
- Capital purchases: cattle, machinery & improvements	1,327	5.15	1,316,406
Additional Capital Needed	\$ -798	\$ -3.10	\$ -792,166

¹⁷Includes change in advance government receipts.

¹⁸Includes change in prepaid expenses.

¹⁹Excludes change in interest account payable.

ANNUAL CASH FLOW WORKSHEET
22 Top 20% Large Herd Dairy Farms, 2014

Item	Average Top 20% Farms		
	Per Cow	Per Cwt.	Total
No. cows or cwt. milk	1,130	297,120	
<u>Accrual Operating Receipts</u>			
Milk	\$6,712	\$25.52	\$7,581,705
Dairy cattle	509	1.94	575,541
Dairy calves	77	0.29	86,442
Other livestock	16	0.06	18,075
Crops	240	0.91	271,004
Misc. receipts	<u>84</u>	<u>0.32</u>	<u>94,737</u>
Total Operating Receipts	\$7,637	\$29.04	\$8,627,503
<u>Accrual Operating Expenses</u>			
Hired labor	\$ 674	\$ 2.56	\$ 761,147
Dairy grain & concentrate	1,873	7.12	2,115,391
Dairy roughage	124	0.47	139,690
Nondairy feed	0	0.00	0
Professional nutritional services	1	0.00	1,123
Mach. hire/rent/lease	92	0.35	103,999
Mach. repair & farm vehicle expense	251	0.95	283,096
Fuel, oil & grease	204	0.78	230,465
Replacement livestock	15	0.06	16,965
Breeding	53	0.20	60,019
Veterinary & medicine	178	0.68	201,346
Milk marketing	257	0.98	290,829
Bedding	108	0.41	121,845
Milking supplies	81	0.31	91,764
Cattle lease	1	0.00	1,276
Custom boarding	79	0.30	89,060
bST expense	63	0.24	70,909
Livestock professional fees	15	0.06	16,572
Other livestock expense	20	0.07	22,132
Fertilizer & lime	124	0.47	140,298
Seeds & plants	134	0.51	151,180
Spray/other crop expenses	58	0.22	65,593
Crop professional fees	3	0.01	3,814
Land, building, fence repair	102	0.39	115,315
Taxes	61	0.23	69,282
Real estate rent/lease	58	0.22	65,938
Insurance	43	0.16	48,085
Utilities	118	0.45	132,825
Other professional fees	22	0.08	24,946
Miscellaneous	<u>40</u>	<u>0.15</u>	<u>45,358</u>
Total Less Interest Paid	\$4,851	\$18.44	\$5,480,260
<u>Net Accrual Operating Income</u>			
(without interest paid)	\$2,786	\$10.59	\$3,147,244
- Change in livestock/crop inventory ²⁰	393	1.49	443,415
- Change in accounts receivable	223	0.85	251,401
- Change in feed/supply inventory ²¹	347	1.32	391,990
+ Change in accounts payable ²²	<u>-13</u>	<u>-0.05</u>	<u>-14,715</u>
NET CASH FLOW	\$1,811	\$ 6.89	\$2,045,722
- Net personal withdrawals from farm(see footnote page 22)	<u>308</u>	<u>1.17</u>	<u>347,665</u>
Available for Farm Debt Payments & Investments	\$1,503	\$ 5.72	\$1,698,056
- Farm debt payments	<u>531</u>	<u>2.02</u>	<u>599,416</u>
Available for Farm Investment	\$ 973	\$ 3.70	\$1,098,640
- Capital purchases: cattle, machinery & improvements	<u>1,452</u>	<u>5.52</u>	<u>1,640,486</u>
Additional Capital Needed	\$ -480	\$ -1.82	\$ -541,846

²⁰Includes change in advance government receipts.

²¹Includes change in prepaid expenses.

²²Excludes 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

110 Large Herd Dairy Farms, 2014

Average 110 farms				Average Top 20% Farms		
Item	<u>Owned</u>	<u>Rented</u>	<u>Total</u>	<u>Owned</u>	<u>Rented</u>	<u>Total</u>
Land						
Tillable	1,001	982	1,983	981	1,018	1,999
Nontillable	26	10	36	11	4	15
Other nontillable	<u>191</u>	<u>6</u>	<u>197</u>	<u>95</u>	<u>0</u>	<u>95</u>
Total	1,217	999	2,216	1,087	1,022	2,109
<u>Crop Yields</u>	<u>Farms</u>	<u>Acres</u> ²³	<u>Prod/Acre</u>	<u>Farms</u>	<u>Acres</u>	<u>Prod/Acre</u>
Hay crop	109	817	3.50 tn DM	21	874	3.45 tn DM
Corn silage	107	823	19.21 tn	21	928	19.51 tn
Other forage	30	239	4.05 tn DM	8	285	4.99 tn DM
Total forage	109	1,691	4.95 tn DM	21	1,911	5.05 tn DM
Corn grain	60	334	140 bu	11	282	1147 bu
Oats	6	150	38 bu	1	22	50 bu
Wheat	31	151	59 bu	5	123	58 bu
Other crops	34	200		5	58	
Tillable pasture	6	286		0	0	
Idle tillable	32	93		6	67	
Total Tillable Acres	110	1,983		22	1,999	

²³this column represents the average acreage for the farms producing that crop. Average acreages including those farms not producing were corn grain 182, oats 8, wheat 43, tillable pasture 16, and idle 27.

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

109 Large Herd Dairy Farms, 2014 ²⁴

Item	Average 109 Farms	Average Top 20% Farms
Total tillable acres per cow	2.02	1.84
Total forage acres per cow	1.70	1.68
Harvested forage dry matter, tons per cow	8.43	8.48

²⁴ 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, 2014

Item	Total Per Till. Acre	All Corn Per Acre	Corn Silage Per Ton DM	Corn Grain Per Dry Sh. Bu.	Hay Crop	
					Per Acre	Per Ton DM
No. of farms reporting	109 ²⁵	4			4	
Ave. number of acres	2,001	784			648	
Fertilizer/lime	\$ 73.67	\$ 56.41	\$ 8.09	\$ 0.41	\$ 54.18	\$ 14.12
Seed/plants	69.09	86.08	12.33	0.56	31.00	8.39
Spray/other crop exp.	38.40	60.31	8.51	0.38	39.92	9.45
TOTAL	\$ 179.09	\$ 202.80	\$ 28.93	\$ 1.35	\$ 115.12	\$ 29.59
Average Top 20% Farms:						
No. of farms reporting	21 ²⁴					
Ave. number of acres	2,094					
Fertilizer/lime	\$ 71.02					
Seeds/plants	72.21					
Spray/other crop exp.	38.17					
TOTAL	\$ 181.40					

²⁵ 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 ²⁶

109 Large Herd Dairy Farms, 2014

Machinery Expense Item	Average 109 Farms		Average Top 20% Farms	
	Total Expenses	Per Tillable Acre	Total Expenses	Per Tillable Acre
Fuel, oil & grease	\$223,954	\$111.91	\$236,298	\$112.85
Machinery repairs & farm vehicle exp.	284,064	141.95	291,076	139.01
Machine hire, rent & lease	127,324	63.62	108,951	52.03
Interest (5%)	96,414	48.18	86,599	41.36
Depreciation	260,909	130.38	239,831	114.54
Total	\$992,664	\$496.04	\$962,756	\$459.79

²⁶ 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
110 Large Herd Dairy Farms, 2014

	Dairy Cows				Heifers			
			Bred		Open		Calves	
Item	No.	Value	No.	Value	No.	Value	No.	Value
<u>Average 110 farms:</u>								
Beginning year (owned)	944	\$1,353,432	306	\$427,544	278	\$245,079	242	\$119,322
+ Change w/o appreciation		91,502		14,191		12,800		7,790
+ Appreciation		<u>30,340</u>		<u>10,087</u>		<u>5,547</u>		<u>2,558</u>
End year (owned)	1,005	\$1,475,274	316	\$451,822	292	\$263,426	257	\$129,670
End including leased	996							
Average number	992		830 (all age groups)					
<u>Average Top 20% Farms:</u>								
Beginning year (owned)	1,054	\$1,496,684	318	\$443,470	309	\$268,094	268	\$136,984
+ Change w/o appreciation		169,943		37,665		12,942		13,884
+ Appreciation		<u>37,441</u>		<u>7,384</u>		<u>3,714</u>		<u>1,286</u>
End of year (owned)	1,173	\$1,704,068	345	\$488,519	324	\$284,749	294	\$152,155
End including leased	1,116							
Average number	1,130		886 (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
110 Large Herd Dairy Farms, 2014

Item	Average 110 farms	Average Top 20% Farms
Total milk sold, lbs.	25,580,851	29,712,039
Milk sold per cow, lbs.	25,777	26,302
Butterfat per cow, lbs.	966 ²⁷	1,007
Protein per cow, lbs.	784 ²⁷	819
Total butterfat and protein per cow, lbs	1,750 ²⁷	1,826
Other solids per cow, lbs.	1,468 ²⁷	1,534
Total components per cow, lbs.	3,219 ²⁷	3,360

²⁷ This data is an average for the 107 farms that provided the data.

ANIMALS LEAVING THE HERD
110 Large Herd Dairy Farms, 2014

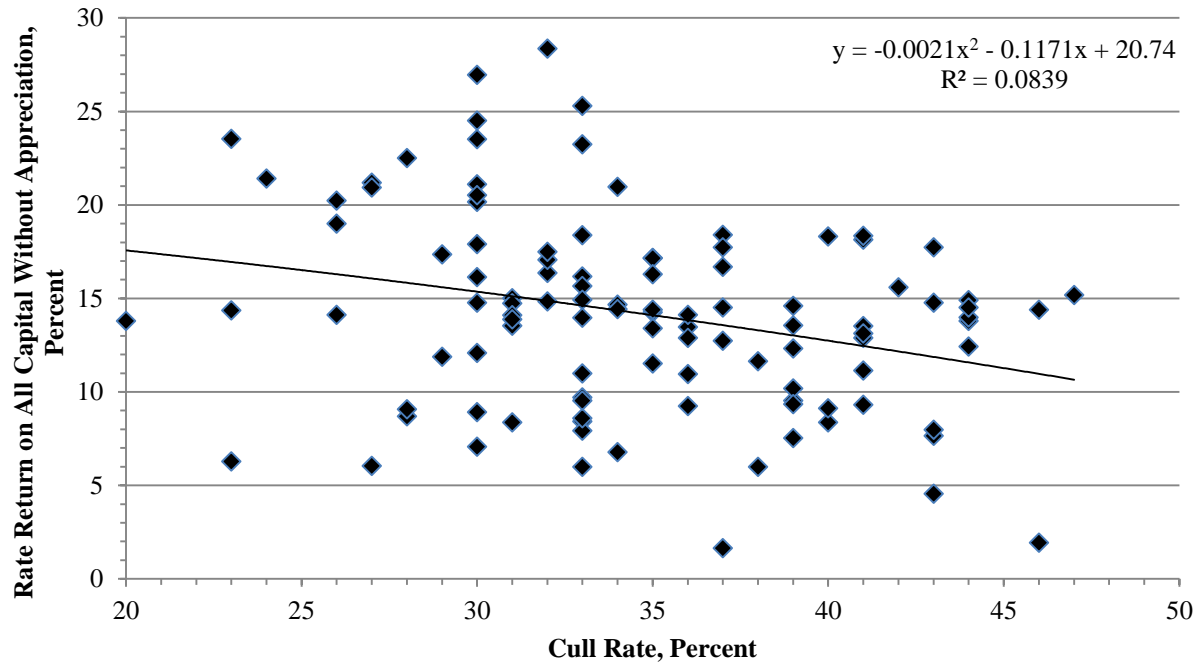
	Average 110 farms		Average Top 20% Farms	
	Number	Percent ²⁸	Number	Percent ²⁸
Cows sold for beef	281	28.3	284	25.1
Cows sold for dairy	7	0.7	3	0.3
Cows died	59	5.9	70	6.2
Culling rate ²⁹	---	34.2	---	31.3

²⁸Percent of average number of cows in the herd.

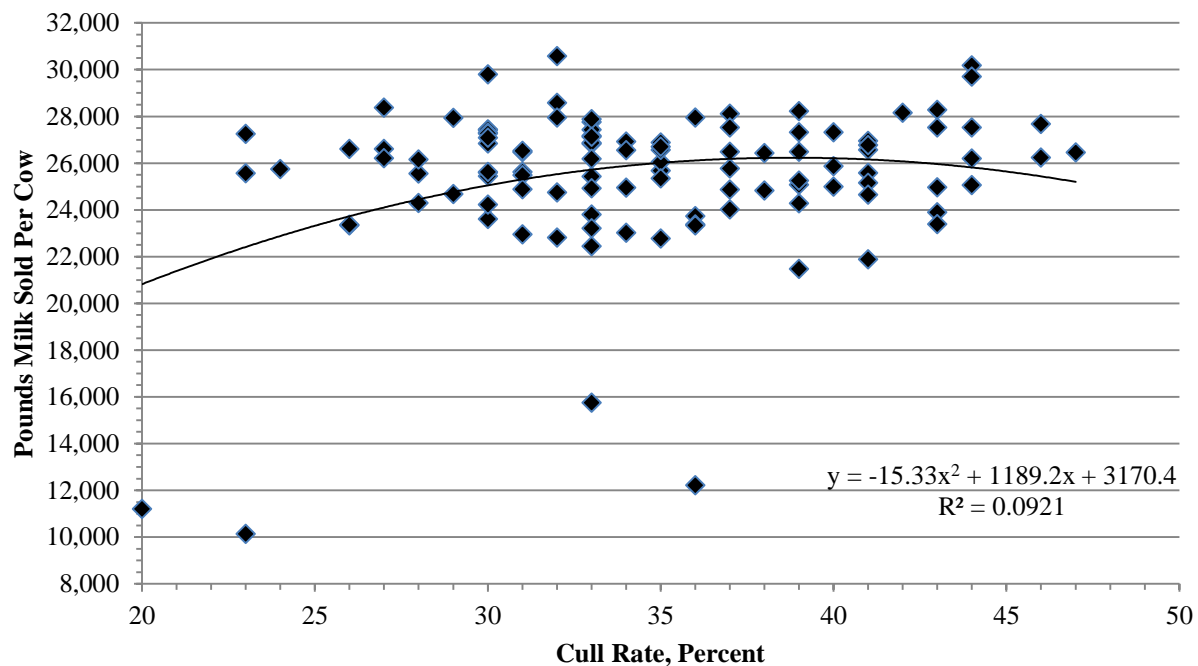
²⁹Cows sold for beef plus cows died.

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 2014.

RETURN TO ALL CAPITAL WITHOUT APPRECIATION VERSUS CULL RATE
108 Large Herd Dairy Farms, 2014



MILK SOLD PER COW VERSUS CULL RATE
108 Large Herd Dairy Farms, 2014



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

110 Large Herd Dairy Farms, 2014

Item	Average 110 farms			Average Top 20% Farms		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
<u>Accrual Costs of Producing Milk</u>						
Operating costs	\$ 4,395,267	\$ 4,429	\$ 17.18	\$ 4,627,138	\$ 4,096	\$ 15.57
Purchased inputs costs	\$ 4,817,424	\$ 4,854	\$ 18.83	\$ 5,030,205	\$ 4,453	\$ 16.93
Total Costs	\$ 5,393,496	\$ 5,435	\$ 21.08	\$ 5,656,263	\$ 5,007	\$ 19.04
<u>Accrual Receipts From Milk</u>						
Net Milk Receipts	\$ 6,505,873	\$ 6,556	\$ 25.43	\$ 7,581,705	\$ 6,712	\$ 25.52
Net Farm Income	\$ 6,272,286	\$ 6,320	\$ 24.52	\$ 7,290,876	\$ 6,454	\$ 24.54
without appreciation	\$ 1,688,449	\$ 1,701	\$ 6.60	\$ 2,551,500	\$ 2,259	\$ 8.59
Net Farm Income with appreciation	\$ 2,028,009	\$ 2,044	\$ 7.93	\$ 2,792,493	\$ 2,472	\$ 9.40

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

110 Large Herd Dairy Farms, 2014

Item	Average 110 farms		Average Top 20% Farms	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	\$ 1,887	\$ 7.32	\$1,873	\$7.12
Purchased dairy roughage	102	0.40	124	0.47
Total Purchased Dairy Feed	\$ 1,989	\$ 7.72	\$1,996	\$7.59
Purchased grain & concentrate as % of milk receipts		29%		27%
Purchased feed & crop expense	\$ 2,342	\$ 9.09	\$ 2,316	\$ 8.80
Purchased feed & crop expense as % of milk receipts		36%		34%
Breeding	\$ 57	\$ 0.22	\$ 53	\$ 0.20
Veterinary & medicine	178	0.69	178	0.68
Milk marketing	235	0.91	257	0.98
Bedding	100	0.39	108	0.41
Milking supplies	99	0.38	81	0.31
Cattle lease	5	0.02	1	0.00
Custom boarding	106	0.41	79	0.30
bST expense	52	0.20	63	0.24
Livestock professional fees	18	0.07	15	0.06
Other livestock expenses	26	0.10	20	0.07

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.

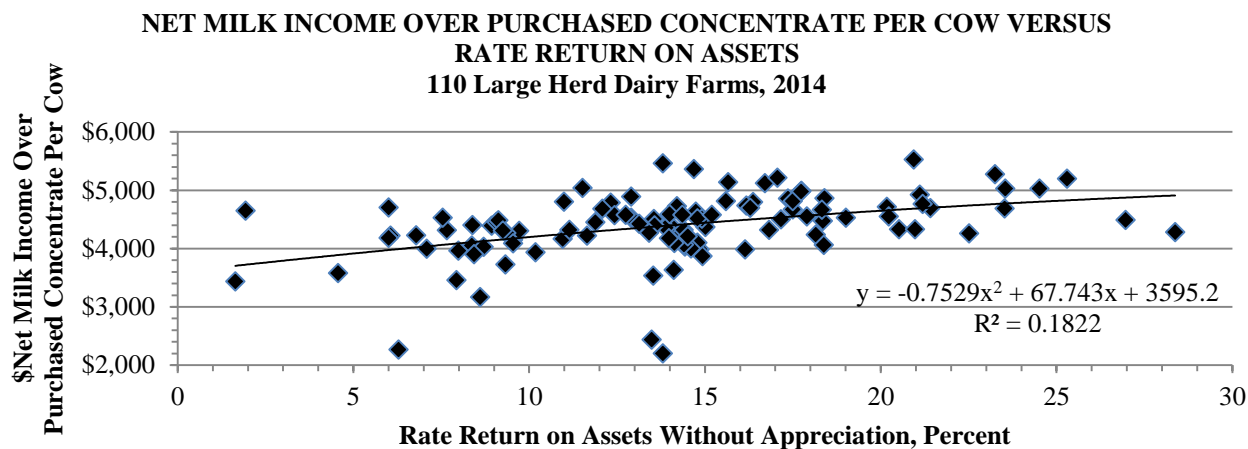
1. The cost of expansion livestock is added to total accrual operating expenses to offset any related inventory increase included in accrual receipts.
2. Accrual milk sales are deducted from total accrual receipts to get total accrual nonmilk receipts which are used to represent total nonmilk operating 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

110 Large Herd Dairy Farms, 2014

Item	Average 110 farms		Average Top 20% Farms	
Total Accrual Operating Expenses	\$	5,212,457	\$	5,554,032
Expansion Livestock, Accrual	+	<u>46,232</u>	+	<u>118,905</u>
1. Total Accrual Operating Expenses, Including Expansion Livestock		\$ 5,258,689		\$ 5,672,937
Total Accrual Receipts	\$	7,369,296	\$	8,627,503
Milk Sales, Accrual	-	<u>6,505,873</u>	-	<u>7,581,705</u>
2. Total Accrual Nonmilk Receipts		- 863,423		- 1,045,799
3. Operating Costs of Producing Milk		\$ 4,395,267		\$ 4,627,138
Cwt. of Milk Sold	÷	255,809	÷	297,120
Operating Costs/Cwt.	=	\$17.18	=	\$15.57
Machinery Depreciation	+	259,477	+	233,632
Building Depreciation	+	161,078	+	161,764
Extraordinary Expenses	+	<u>1,602</u>	+	<u>7,670</u>
4. Purchased Inputs Cost of Producing Milk		\$ 4,817,424		\$ 5,030,205
Cwt. of Milk Sold	÷	255,809	÷	297,120
Purchased Inputs Cost/Cwt.	=	\$18.83	=	\$16.93
Family Labor Unpaid (\$2,600/month)	+	1,300	+	1,383
Real Interest on Equity Capital	+	395,429	+	435,403
Value of Operators' Labor & Management	+	<u>179,343</u>	+	<u>189,273</u>
5. Total Costs of Producing Milk		\$ 5,393,496		\$ 5,656,263
Cwt. Milk Sold	÷	255,809	÷	297,120
Total Costs/Cwt.	=	\$21.08	=	\$19.04

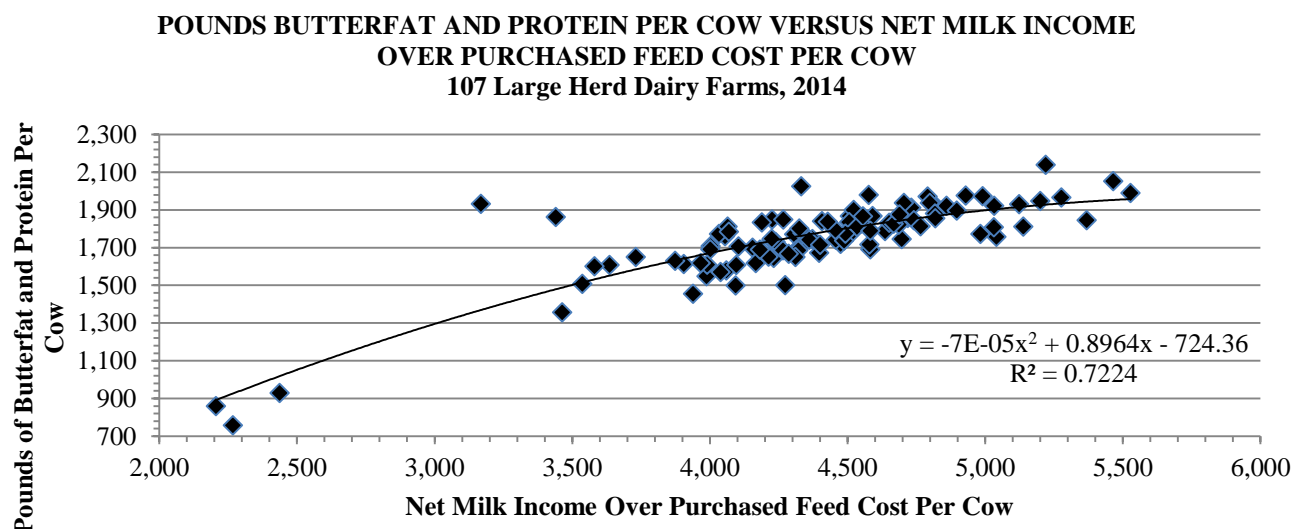
Net milk income over purchased feed cost per cow is a measure that incorporates the cost of purchased grain and concentrates along with the milk produced per cow and the price received for the component production. It is one of the key measures used to evaluate the effectiveness of the feeding program. 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
107 Large Herd Dairy Farms, 2014**

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.
\$ 5,220	27,832	1,069	855	\$ 6.64	\$ 16.25	\$ 25.03
4,860	27,593	1,047	856	7.65	16.67	25.01
4,691	26,800	1,016	827	7.90	17.68	24.90
4,556	26,884	1,003	823	7.68	17.32	24.41
4,456	25,785	984	792	7.61	17.20	24.63
4,331	25,557	968	793	7.82	16.56	24.24
4,240	25,331	947	771	8.23	17.30	24.43
4,104	24,580	922	753	7.89	18.26	24.42
3,974	23,792	896	725	8.21	18.27	24.48
3,146	19,686	782	624	8.03	17.77	24.47



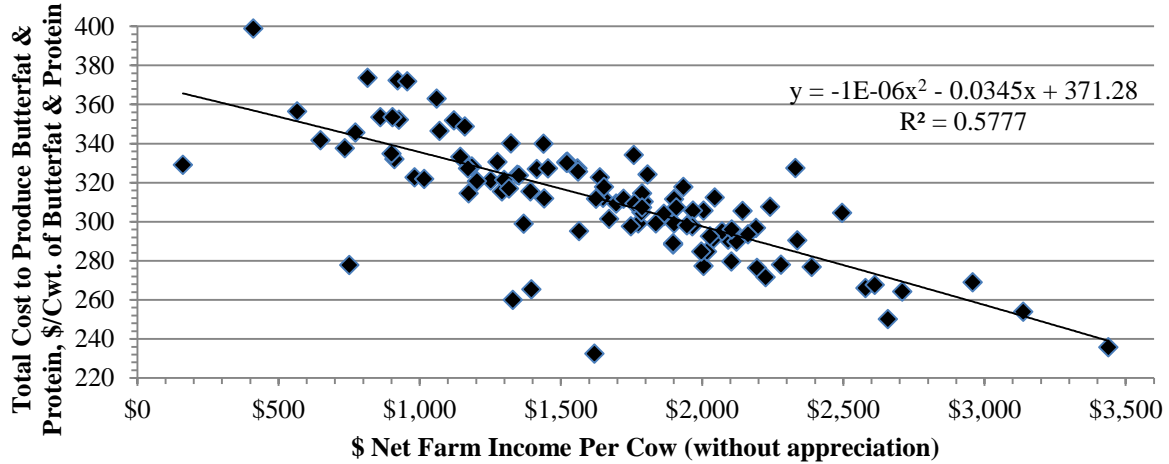
RECEIPTS AND EXPENSES PER HUNDREDWEIGHT OF BUTTERFAT AND PROTEIN³⁰

Same 106 Large Herd Dairy Farms, 2013 & 2014

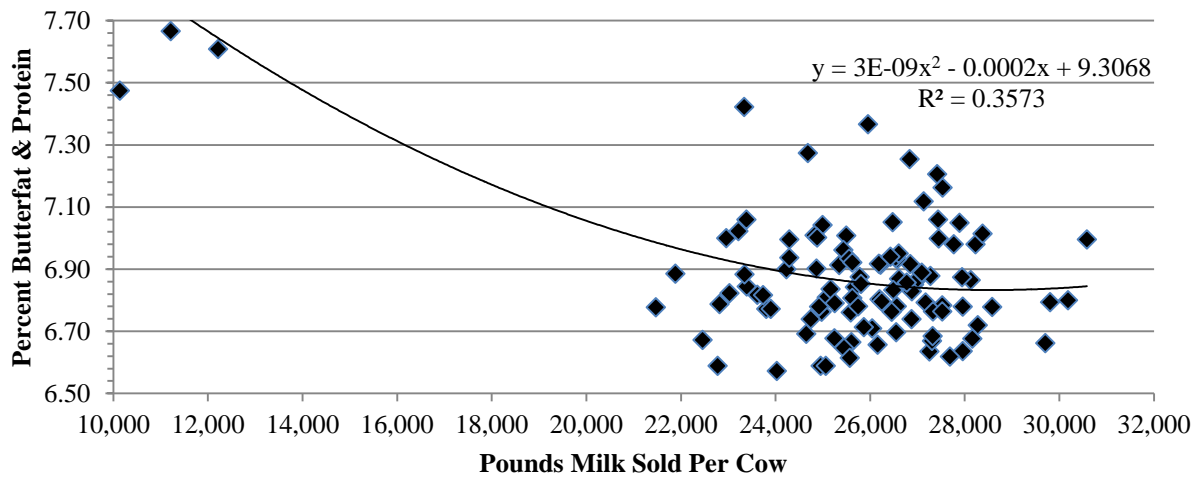
Item	Average Same 106 Large Herd Dairy Farms		Average Top 20% Farms	
	<u>2013</u>	<u>2014</u>	<u>2013</u>	<u>2014</u>
Cwt. of butterfat and protein sold	17,105	17,597	19,883	21,224
<u>Accrual Operating Receipts</u>				
Milk	\$311.00	\$372.81	\$295.86	\$357.22
Dairy cattle	21.83	28.20	19.93	27.12
Dairy calves	2.31	4.22	1.92	4.07
Other livestock	0.61	0.89	0.27	0.85
Crops	9.89	9.26	6.99	12.77
Miscellaneous receipts	<u>10.24</u>	<u>6.82</u>	<u>7.61</u>	<u>4.46</u>
Total Operating Receipts	\$355.88	\$422.20	\$332.58	\$406.50
<u>Accrual Operating Expenses</u>				
Hired labor	\$ 40.66	\$ 44.14	\$ 33.15	\$ 35.86
Dairy grain & concentrate	101.45	107.56	95.98	99.67
Dairy roughage	5.84	5.92	6.44	6.58
Nondairy feed	0.00	0.00	0.00	0.00
Professional nutritional services	0.06	0.06	0.16	0.05
Machine hire, rent & lease	5.99	7.29	4.90	4.90
Machine repair & vehicle expense	14.48	16.25	13.76	13.34
Fuel, oil & grease	12.32	12.70	10.95	10.86
Replacement livestock	1.14	0.82	1.39	0.80
Breeding	2.92	3.25	2.59	2.83
Veterinary & medicine	9.86	10.11	9.72	9.49
Milk marketing	12.19	13.36	12.02	13.70
Bedding	5.68	5.61	5.82	5.74
Milking supplies	5.51	5.61	4.02	4.32
Cattle lease	0.20	0.26	0.18	0.06
Custom boarding	5.40	6.17	2.83	4.20
bST expense	2.64	2.89	3.32	3.34
Livestock professional fees	1.08	0.98	1.02	0.78
Other livestock expense	1.15	1.50	1.05	1.04
Fertilizer & lime	8.81	7.83	7.85	6.61
Seeds & plants	7.30	7.68	5.65	7.12
Spray & other crop expense	3.26	4.09	2.88	3.09
Crop professional fees	0.52	0.32	0.17	0.18
Land, building & fence repair	5.24	6.76	5.02	5.43
Taxes	3.28	3.58	2.92	3.26
Real estate rent/lease	4.45	4.35	3.07	3.11
Insurance	2.44	2.80	2.01	2.27
Utilities	5.63	6.71	5.15	6.26
Interest paid	6.73	6.29	4.05	3.48
Other professional fees	1.66	1.80	1.26	1.18
Miscellaneous	<u>1.88</u>	<u>2.19</u>	<u>1.32</u>	<u>2.14</u>
Total Operating Expenses	\$279.80	\$298.86	\$250.62	\$261.69
Expansion livestock	1.34	2.62	2.10	5.60
Extraordinary expense	0.05	0.09	0.00	0.36
Machinery depreciation	13.32	14.88	10.15	11.01
Real Estate depreciation	<u>8.63</u>	<u>9.19</u>	<u>7.25</u>	<u>7.62</u>
Total Expenses	\$303.13	\$325.64	\$270.11	\$286.28
Net Farm Income without appreciation	\$ 52.79	\$ 96.56	\$ 62.47	\$120.22

³⁰Average data for farms that provided complete milk component data for 2013 – 2014.

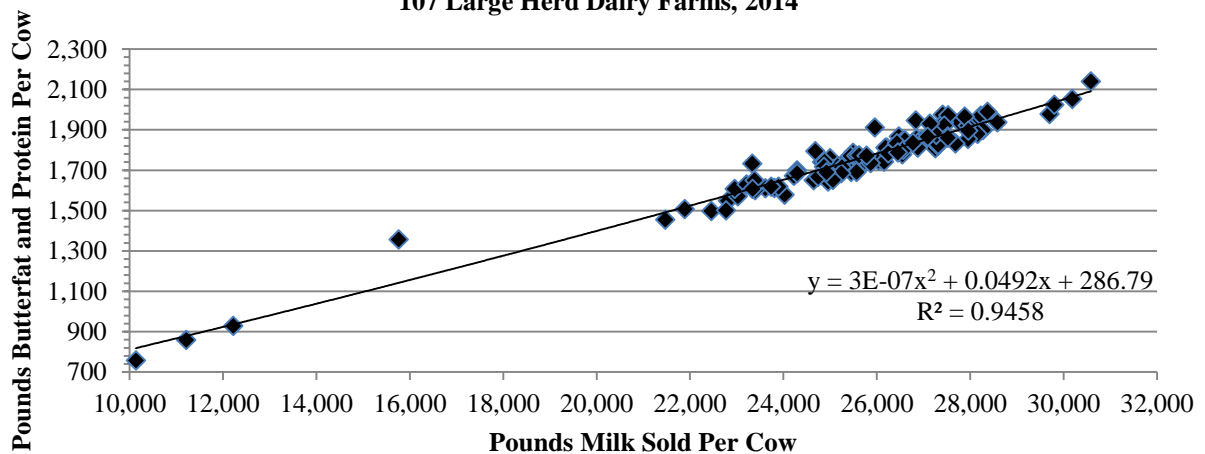
**TOTAL COST TO PRODUCE BUTTERFAT & PROTEIN VERSUS
NET FARM INCOME PER COW
107 Large Herd Dairy Farms, 2014**



**POUNDS MILK SOLD PER COW VERSUS PERCENT BUTTERFAT & PROTEIN
107 Large Herd Dairy Farms, 2014**



**POUNDS OF BUTTERFAT AND PROTEIN PER COW VERSUS
POUNDS MILK SOLD PER COW
107 Large Herd Dairy Farms, 2014**



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
110 Large Herd Dairy Farms, 2014

Item	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
<u>Average 110 farms:</u>				
Farm capital	\$ 515,771	\$ 11,413	\$ 5,712	\$ 11,320
Real estate		4,573		4,536
Machinery & equipment	87,286	1,931	967	
<u>Ratios</u>				
Asset turnover ratio	Operating Expense	Interest Expense	Depreciation Expense	
0.68	0.70	0.01	0.06	
<u>Average Top 20% Farms:</u>				
Farm capital	\$ 477,813	\$ 10,113	\$ 5,716	\$ 11,647
Real estate		3,852		4,436
Machinery & equipment	70,408	1,490	842	
<u>Ratios</u>				
Asset turnover ratio	Operating Expense	Interest Expense	Depreciation Expense	
0.78	0.65	0.01	0.05	

LABOR FORCE INVENTORY AND ANALYSIS

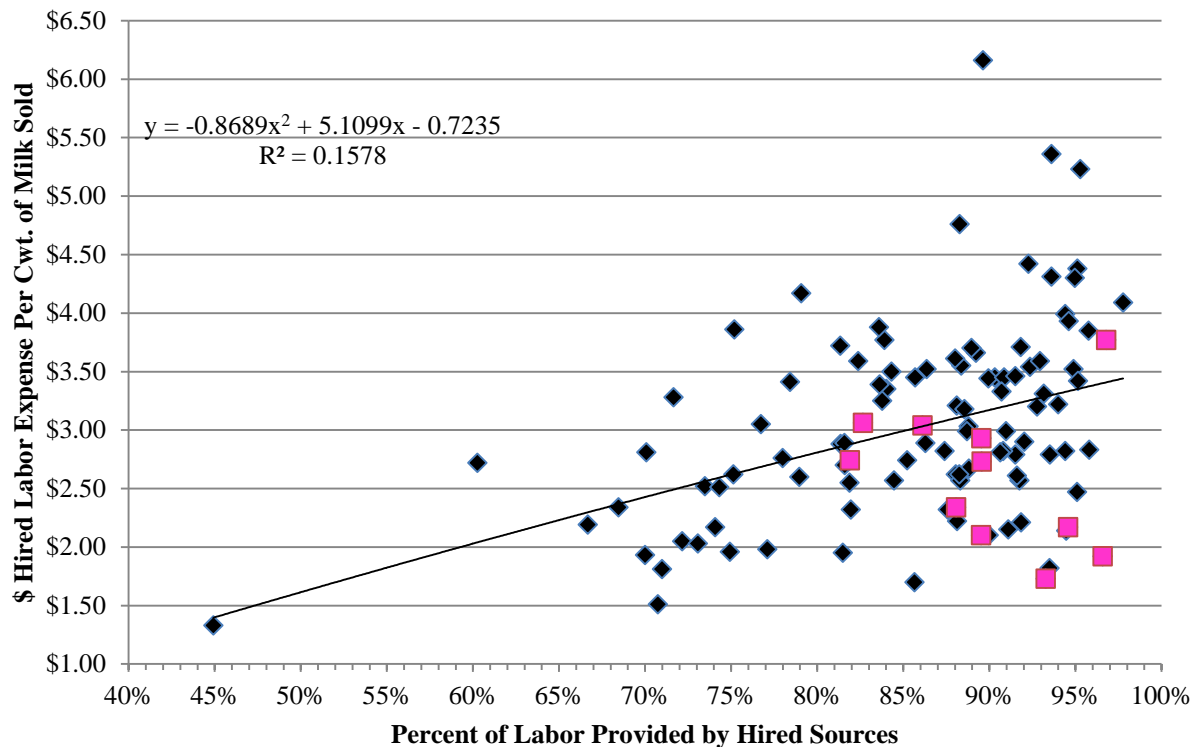
110 Large Herd Dairy Farms, 2014

110 Large Herd Dairy Farms, 2017						
Labor Force	Months	Age	Years of Education	Value of Labor & Mgmt.		
Operator number 1	12.35	57	14	\$ 76,593		
Operator number 2	9.36	49	14	56,698		
Operator number 3	5.49	41	16	29,399		
Operator number 4	3.25	50	16	16,654		
Family paid	1.82					
Family unpaid	0.50					
Hired	<u>230.77</u>					
Total	263.54/	12 = 21.96 Worker Equivalent 2.31Operator/Manager Equivalent				
<u>Average Top 20% Farms:</u>						
Total	286.89/	12 = 23.91 Worker Equivalent				
Operator's		2.32 Operator/Manager Equivalent				
Labor	Average 110 farms		Average Top 20% Farms			
Efficiency	Total	Per Worker	Total	Per Worker		
Cows, average number	992	45	1,130	47		
Milk sold, pounds	25,580,851	1,164,796	29,712,039	1,242,792		
Tillable acres	1,983	90	1,999	84		
	Average 110 farms			Average Top 20% Farms		
Labor Costs	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Value of operator(s) labor (\$2,600/month)	\$ 79,170	\$ 80	\$ 0.31	\$ 79,742	\$ 71	\$ 0.27
Family unpaid (\$2,600/month)	1,300	1	0.01	1,378	1	0.00
Hired	<u>769,111</u>	<u>775</u>	<u>3.01</u>	<u>761,147</u>	<u>674</u>	<u>2.56</u>
Total Labor	\$ 849,581	\$ 856	\$ 3.32	\$ 842,267	\$ 746	\$ 2.83
Machinery Cost	<u>986,914</u>	<u>994</u>	<u>3.86</u>	<u>935,365</u>	<u>828</u>	<u>3.15</u>
Total Labor & Machinery	\$1,836,495	\$ 1,851	\$ 7.18	\$1,777,632	\$ 1,574	\$ 5.98
Hired labor expense per hired worker equiv.	\$ 39,681			\$ 35,722		
Hired labor expense as % of milk sales	11.8%			10.0%		

Labor Cost Evaluation

Labor costs have been the second largest expense on large dairy farms in New York over multiple 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 farm's expense compares to other farms. To calculate percent of labor provided by hired sources use the worksheet below.

**HIRED LABOR EXPENSE PER CWT OF MILK SOLD VERSUS
PERCENT OF LABOR PROVIDED BY HIRED SOURCES
110 Large Herd Dairy Farms, 2014**



Top 10% by Rate of Return on All Capital without appreciation

Worksheet for Determining Percent of Labor From Hired Sources

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

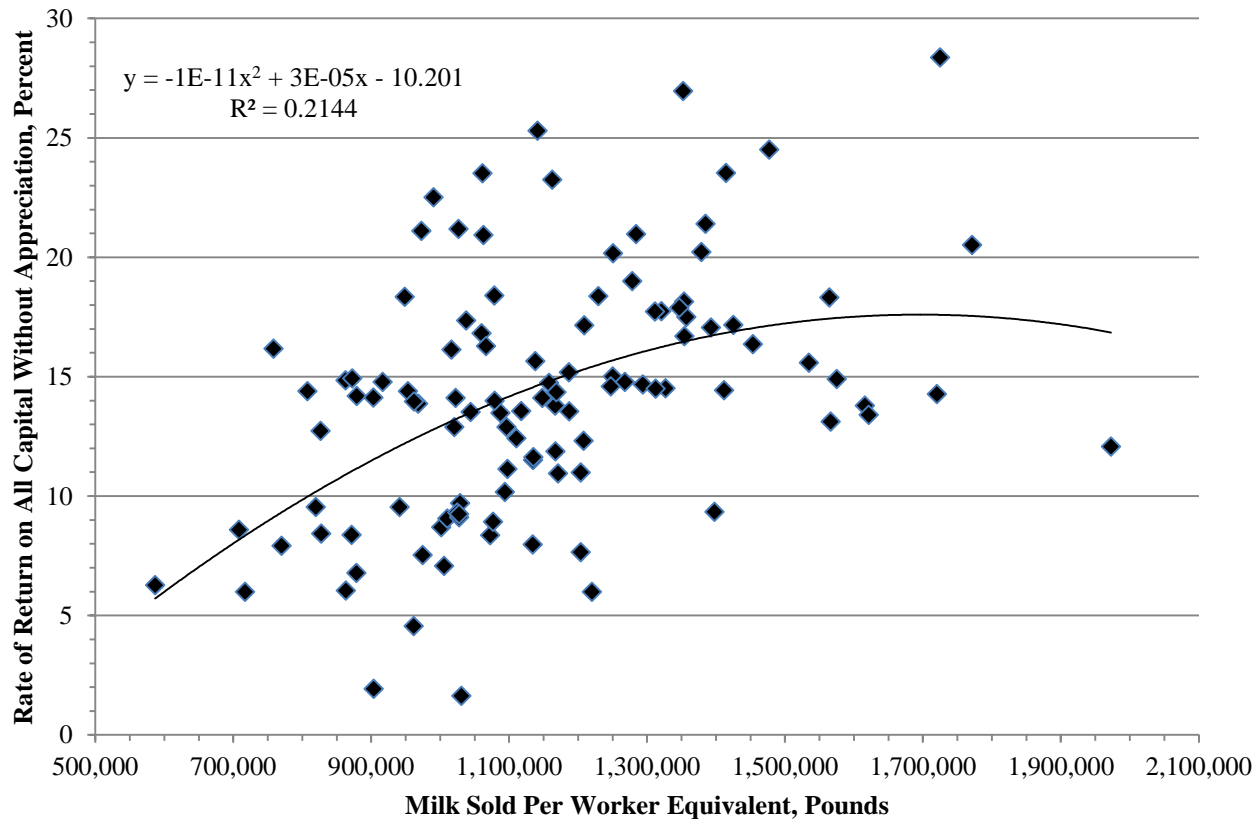
Months of hired labor		_____
Months of family paid labor	+	_____
Total hired labor	=	_____
Total Labor Months	÷	_____
Percent of labor from hired sources	x 100 =	_____ %

The table below is the business chart for labor costs on a per worker and per hour basis and shows the range of costs for these farms. Hired labor expenses are all expenses that are associated with labor, and are not just payroll. The chart below shows the relationship between labor efficiency and return on all capital without appreciation. Labor efficiency improvements are one method that is used to allow the business to reward their employees while maintaining their labor costs per 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
110 Large Herd Dairy Farms, 2014

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	\$1.79	7%	\$30,271	\$10.97
	2.14	9	32,226	11.71
	2.46	10	34,085	12.45
	2.67	10	35,723	13.20
	2.82	11	37,205	13.72
	3.02	12	38,576	14.15
	3.33	13	40,001	14.70
	3.51	14	41,969	15.41
	3.77	15	46,396	17.02
Average of Highest Decile	4.65	18	52,441	19.89

**RATE OF RETURN ON ALL CAPITAL WITHOUT APPRECIATION VERSUS
MILK SOLD PER WORKER EQUIVALENT**
110 Large Herd Dairy Farms, 2014



CONDENSED SUMMARY & SELECTED BUSINESS FACTORS

CONDENSED FARM BUSINESS SUMMARY FOR THREE LARGE HERD GROUPS

110 Large Herd Dairy Farms, 2014

Item	28 Farms with 300-599 Cows		28 Farms with 600-899 Cows		54 Farms with ≥900 Cows	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
ACCRUAL EXPENSES						
Hired labor	\$ 709	\$ 2.88	\$ 709	\$ 2.82	803	3.07
Dairy grain & concentrate	1,806	7.35	1,884	7.50	1,901	7.27
Dairy roughage	110	0.45	95	0.38	107	0.41
Nondairy feed	0	0.00	0	0.00	0	0.00
Professional nutritional services	2	0.01	1	0.00	1	0.00
Machine hire, rent & lease	231	0.94	154	0.61	103	0.39
Machine repairs & farm vehicle expense	267	1.09	279	1.11	289	1.11
Fuel, oil & grease	219	0.89	226	0.90	225	0.86
Replacement livestock	55	0.22	8	0.03	9	0.03
Breeding	57	0.23	60	0.24	56	0.21
Veterinary & medicine	155	0.63	179	0.71	182	0.70
Milk marketing	226	0.92	222	0.88	240	0.92
Bedding	110	0.45	100	0.40	98	0.37
Milking supplies	94	0.38	95	0.38	100	0.38
Cattle lease & rent	0	0.00	3	0.01	6	0.02
Custom boarding	55	0.22	157	0.62	102	0.39
bST expense	31	0.13	40	0.16	59	0.23
Livestock professional fees	21	0.09	14	0.06	18	0.07
Other livestock expense	19	0.08	19	0.08	29	0.11
Fertilizer & lime	147	0.60	164	0.65	132	0.51
Seeds & plants	120	0.49	137	0.54	137	0.53
Spray & other crop expense	77	0.31	76	0.30	70	0.27
Crop professional fees	7	0.03	6	0.02	5	0.02
Land, building & fence repair	88	0.36	112	0.45	125	0.48
Taxes & rent	131	0.53	146	0.58	141	0.54
Utilities	112	0.46	114	0.46	120	0.46
Interest paid	102	0.41	124	0.50	108	0.41
Other professional fees	34	0.14	28	0.11	33	0.12
Misc. (including insurance)	87	0.36	72	0.29	92	0.35
Total Operating Expenses	\$5,073	\$20.64	\$5,225	\$20.81	\$5,293	\$20.24
Expansion livestock	12	0.05	18	0.07	60	0.23
Extraordinary expense	1	0.00	0	0.00	2	0.01
Machinery depreciation	267	1.08	249	0.99	264	1.01
Building depreciation	171	0.70	169	0.67	159	0.61
Total Accrual Expenses	\$5,524	\$22.47	\$5,661	\$22.54	\$5,778	\$22.10
ACCRUAL RECEIPTS						
Milk sales	\$6,246	\$25.41	\$6,485	\$25.82	\$6,625	\$25.34
Dairy cattle	426	1.73	427	1.70	526	2.01
Dairy calves	85	0.34	72	0.29	72	0.27
Other livestock	35	0.14	18	0.07	11	0.04
Crops	206	0.84	149	0.59	166	0.63
Miscellaneous receipts	93	0.38	138	0.55	117	0.45
Total Accrual Receipts	\$7,090	\$28.84	\$7,288	\$29.02	\$7,517	\$28.75
PROFITABILITY ANALYSIS (Total)						
Net farm income (without appreciation)	\$705,197		\$1,168,933		\$2,462,893	
Net farm income (with appreciation)	\$857,270		\$1,475,556		\$2,916,748	
Labor & management income	\$512,852		\$890,611		\$1,898,910	
Number of operators	2.03		2.26		2.47	
Labor & management income/operator	\$252,636		\$394,076		\$768,790	
Rates of return on: Equity capital w/o apprec.	15.5%		18.3%		19.9%	
Equity capital w/ apprec.	19.5%		23.9%		23.9%	
All capital w/o apprec.	12.3%		13.5%		14.8%	
All capital w/ apprec.	15.2%		17.3%		17.6%	

SELECTED BUSINESS FACTORS FOR THREE LARGE HERD GROUPS

110 Large Herd Dairy Farms, 2014

Item	28 Farms with 300-599 Cows	28 Farms with 600-899 Cows	54 Farms with ≥ 900 Cows
<u>Cropping Program Analysis</u>			
Total Tillable acres	950	1,475	2,757
Tillable acres rented ³¹	463	798	1,323
Hay crop acres ³¹	479	611	1,076
Corn silage acres ³¹	330	591	1,137
Hay crop, tons DM/acre	3.6	3.3	3.6
Corn silage, tons/acre	19.4	19.5	19.1
Forage DM per cow, tons	8.8	8.3	8.3
Tillable acres/cow	2.1	2.1	2.0
Fertilizer & lime expense/tillable acre	\$72.67	\$85.56	\$68.44
Machinery cost/tillable acre	\$517	\$488	\$499
<u>Dairy Analysis</u>			
Number of cows	450	718	1,416
Number of heifers	363	618	1,182
Milk sold, lbs.	11,068,986	18,039,205	37,016,005
Butterfat & protein, lbs./cow	1,713	1,745	1,788
Milk sold/cow, lbs.	24,584	25,114	26,148
Operating cost of prod. milk/cwt.	\$17.25	\$17.68	\$17.06
Total cost of prod. milk/cwt.	\$21.81	\$21.74	\$20.82
Price/cwt. milk sold	\$25.41	\$25.82	\$25.34
Purchased dairy feed/cow	\$1,917	\$1,978	\$2,008
Purchased dairy feed/cwt. milk	\$7.80	\$7.88	\$7.68
Purchased grain & concentrate as % of milk receipts	29%	29%	29%
Purchased feed & crop expense/cwt. milk	\$9.22	\$9.40	\$9.00
Net milk income over purchased feed costs per cow	\$4,214	\$4,379	\$4,484
<u>Capital Efficiency</u>			
Farm capital/worker	\$470,248	\$495,182	\$529,851
Farm capital/cow	\$11,457	\$11,327	\$11,427
Real estate/cow	\$4,602	\$4,581	\$4,566
Machinery investment/cow	\$2,140	\$1,877	\$1,911
Asset turnover ratio	0.65	0.68	0.69
<u>Labor Efficiency</u>			
Worker equivalent	10.97	16.42	30.53
Operator/manager equivalent	2.03	2.26	2.47
Milk sold/worker, lbs.	1,008,640	1,098,333	1,212,381
Cows/worker	41	44	46
Labor cost/cow	\$867	\$816	\$865
<u>Financial Measures</u>			
Percent equity	76%	69%	71%
Debt/asset ratio - long term	0.27	0.34	0.24
Debt/asset ratio - intermediate & current	0.23	0.29	0.31
Change in net worth with appreciation	\$659,451	\$1,102,043	\$2,289,299
Total farm debt per cow	\$2,976	\$3,689	\$3,515
Debt payments made per cow	\$657	\$777	\$690
Debt payments as % of milk sales	11%	12%	10%
Amount available for debt service	\$488,185	\$879,576	\$1,776,741
Debt coverage ratio for 2014	4.07	3.63	3.61

³¹Average 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 row 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 row 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 28 Large Herd Dairy Farms with 300 – 599 Cows, 2014

Item	QUINTILE				
	1	2	3	4	5
<u>Accrual Operating Receipts</u>					
Milk	\$7,213	\$6,853	\$6,476	\$6,197	\$4,774
Dairy cattle	762	465	396	329	251
Dairy calves	165	116	90	54	22
Other livestock	163	10	0	0	-5
Crops	614	278	204	100	-29
Miscellaneous receipts	256	112	78	47	14
Total Operating Receipts	\$8,191	\$7,768	\$7,393	\$7,034	\$5,442
<u>Accrual Operating Expenses</u>					
Hired labor	\$ 436	\$ 620	\$ 727	\$ 840	\$ 1,038
Dairy grain & concentrate	1,244	1,743	1,880	2,021	2,237
Dairy roughage	0	8	33	107	457
Nondairy feed	0	0	0	0	0
Professional nutritional services	0	0	0	0	8
Machinery hire/rent/lease	43	130	208	309	509
Mach. repair & farm vehicle exp.	104	193	279	378	451
Fuel, oil & grease	125	186	218	273	334
Replacement livestock	0	0	0	4	307
Breeding	11	39	56	77	116
Veterinary & medicine	78	141	167	182	218
Milk marketing	122	169	186	265	413
Bedding	27	75	101	150	245
Milking supplies	51	74	89	114	163
Cattle lease	0	0	0	0	0
Custom boarding	0	0	0	9	324
bST expense	0	0	0	48	113
Livestock professional fees	1	15	22	26	51
Other livestock expense	0	6	18	31	43
Fertilizer & lime	35	112	146	189	259
Seeds & plants	40	103	125	157	195
Spray/other crop expenses	13	50	78	103	146
Crop professional fees	0	0	3	12	27
Land, building, fence repair	24	50	85	108	179
Taxes	30	50	60	72	107
Real estate rent/lease	19	47	69	96	125
Insurance	28	41	56	70	97
Utilities	62	101	119	133	153
Interest	14	62	99	153	213
Other professional fees	7	18	29	45	76
Miscellaneous	8	15	26	39	75
Total Operating Expenses	\$3,818	\$4,820	\$5,195	\$5,564	\$6,255
Expansion livestock	0	0	0	0	58
Extraordinary expense	0	0	0	0	3
Machinery depreciation	122	219	281	341	444
Building depreciation	78	137	173	199	287
Net Farm Income w/o Appreciation	\$ 2,271	\$ 1,886	\$ 1,699	\$ 1,315	\$ 887

RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD
 28 Large Herd Dairy Farms with 300 – 599 Cows, 2014

Item	QUINTILE				
	1	2	3	4	5
<u>Accrual Operating Receipts</u>					
Milk	\$27.16	\$26.01	\$25.39	\$25.15	\$24.12
Dairy cattle	3.14	1.93	1.67	1.37	1.02
Dairy calves	0.76	0.47	0.39	0.22	0.08
Other livestock	0.85	0.04	0.00	0.00	-0.03
Crops	2.33	1.10	0.78	0.42	-0.11
Miscellaneous receipts	0.98	0.50	0.32	0.18	0.06
Total Operating Receipts	\$31.61	\$29.56	\$28.80	\$28.17	\$27.48
<u>Accrual Operating Expenses</u>					
Hired labor	\$ 1.85	\$ 2.59	\$ 2.90	\$ 3.39	\$ 4.54
Dairy grain & concentrate	5.69	7.02	7.43	7.82	8.59
Dairy roughage	0.00	0.03	0.13	0.43	2.23
Nondairy feed	0.00	0.00	0.00	0.00	0.00
Professional nutritional services	0.00	0.00	0.00	0.00	0.04
Machinery hire/rent/lease	0.17	0.54	0.89	1.39	2.06
Mach. repair & farm vehicle exp.	0.45	0.79	1.16	1.50	1.76
Fuel, oil & grease	0.54	0.73	0.89	1.10	1.44
Replacement livestock	0.00	0.00	0.00	0.02	1.22
Breeding	0.05	0.15	0.22	0.31	0.44
Veterinary & medicine	0.36	0.55	0.64	0.70	0.91
Milk marketing	0.54	0.68	0.86	1.06	1.54
Bedding	0.13	0.28	0.42	0.57	0.97
Milking supplies	0.21	0.31	0.36	0.48	0.66
Cattle lease	0.00	0.00	0.00	0.00	0.00
Custom boarding	0.00	0.00	0.00	0.05	1.30
bST expense	0.00	0.00	0.00	0.18	0.43
Livestock professional fees	0.00	0.06	0.08	0.11	0.22
Other livestock expense	0.00	0.03	0.08	0.13	0.18
Fertilizer & lime	0.16	0.43	0.57	0.76	1.26
Seeds & plants	0.16	0.40	0.49	0.60	0.77
Spray/other crop expenses	0.06	0.20	0.30	0.40	0.56
Crop professional fees	0.00	0.00	0.01	0.05	0.11
Land, building, fence repair	0.11	0.22	0.34	0.44	0.69
Taxes	0.13	0.19	0.23	0.28	0.56
Real estate rent/lease	0.08	0.20	0.27	0.36	0.62
Insurance	0.12	0.17	0.23	0.28	0.39
Utilities	0.31	0.42	0.47	0.51	0.59
Interest	0.05	0.26	0.46	0.64	0.82
Other professional fees	0.03	0.08	0.12	0.19	0.32
Miscellaneous	0.03	0.06	0.12	0.16	0.29
Total Operating Expenses	\$18.09	\$19.56	\$20.61	\$22.07	\$24.10
Expansion livestock	0.00	0.00	0.00	0.00	0.24
Extraordinary expense	0.00	0.00	0.00	0.00	0.01
Machinery depreciation	0.53	0.88	1.11	1.42	1.93
Building depreciation	0.33	0.56	0.71	0.89	1.20
Net Farm Income w/o Appreciation	\$ 8.56	\$ 7.20	\$6.72	\$5.81	\$4.17

RECEIPTS AND EXPENSES PER COW
28 Large Herd Dairy Farms with 600 – 899 Cows, 2014

Item	QUINTILE				
	1	2	3	4	5
<u>Accrual Operating Receipts</u>					
Milk	\$7,449	\$6,929	\$6,630	\$6,224	\$5,293
Dairy cattle	604	511	449	364	252
Dairy calves	154	96	71	56	4
Other livestock	113	1	0	0	-1
Crops	522	287	103	38	-102
Miscellaneous receipts	411	147	84	68	28
Total Operating Receipts	\$8,359	\$7,811	\$7,350	\$7,064	\$6,023
<u>Accrual Operating Expenses</u>					
Hired labor	\$ 483	\$ 606	\$ 708	\$ 833	\$ 962
Dairy grain & concentrate	1,362	1,762	1,937	2,087	2,383
Dairy roughage	4	17	49	111	316
Nondairy feed	0	0	0	0	1
Professional nutritional services	0	0	0	0	5
Machinery hire/rent/lease	11	80	156	234	352
Mach. repair & farm vehicle exp.	145	219	294	343	437
Fuel, oil & grease	147	199	227	253	319
Replacement livestock	0	0	0	0	49
Breeding	20	50	66	77	95
Veterinary & medicine	102	149	180	208	273
Milk marketing	122	170	226	276	326
Bedding	32	81	106	123	170
Milking supplies	40	68	95	118	169
Cattle lease	0	0	0	0	15
Custom boarding	0	1	101	174	578
bST expense	0	0	1	84	129
Livestock professional fees	0	10	15	18	33
Other livestock expense	0	1	11	31	61
Fertilizer & lime	67	122	153	209	311
Seeds & plants	70	116	138	174	206
Spray/other crop expenses	19	51	81	107	139
Crop professional fees	0	0	3	10	21
Land, building, fence repair	33	61	85	124	275
Taxes	21	39	61	76	107
Real estate rent/lease	20	45	69	121	217
Insurance	19	31	45	53	75
Utilities	71	96	117	131	165
Interest	34	83	137	162	225
Other professional fees	9	20	28	34	59
Miscellaneous	11	19	26	35	61
Total Operating Expenses	\$4,121	\$4,928	\$5,183	\$5,644	\$6,473
Expansion livestock	0	0	0	3	101
Extraordinary expense	0	0	0	0	0
Machinery depreciation	123	184	245	324	397
Building depreciation	63	122	170	214	295
Net Farm Income w/o Appreciation	\$ 2,455	\$ 1,933	\$ 1,626	\$ 1,359	\$ 922

RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD
 28 Large Herd Dairy Farms with 600 – 899 Cows, 2014

Item	QUINTILE				
	1	2	3	4	5
<u>Accrual Operating Receipts</u>					
Milk	\$27.86	\$26.22	\$25.73	\$25.35	\$24.76
Dairy cattle	2.50	2.03	1.77	1.59	0.98
Dairy calves	0.58	0.39	0.27	0.22	0.02
Other livestock	0.77	0.01	0.00	0.00	0.00
Crops	2.12	1.23	0.41	0.15	-0.41
Miscellaneous receipts	1.70	0.59	0.40	0.25	0.10
Total Operating Receipts	\$32.33	\$30.19	\$29.10	\$28.23	\$27.12
<u>Accrual Operating Expenses</u>					
Hired labor	\$ 1.93	\$ 2.39	\$ 2.84	\$ 3.51	\$ 3.99
Dairy grain & concentrate	6.01	7.04	7.78	8.21	8.86
Dairy roughage	0.01	0.07	0.21	0.46	1.17
Nondairy feed	0.00	0.00	0.00	0.00	0.00
Professional nutritional services	0.00	0.00	0.00	0.00	0.02
Machinery hire/rent/lease	0.04	0.33	0.63	1.01	1.44
Mach. repair & farm vehicle exp.	0.62	0.82	1.16	1.38	1.86
Fuel, oil & grease	0.61	0.77	0.90	1.02	1.27
Replacement livestock	0.00	0.00	0.00	0.00	0.18
Breeding	0.08	0.19	0.26	0.30	0.40
Veterinary & medicine	0.45	0.59	0.69	0.85	1.09
Milk marketing	0.51	0.73	0.92	1.07	1.25
Bedding	0.14	0.32	0.41	0.48	0.72
Milking supplies	0.17	0.27	0.39	0.46	0.64
Cattle lease	0.00	0.00	0.00	0.00	0.07
Custom boarding	0.00	0.00	0.40	0.67	2.20
bST expense	0.00	0.00	0.01	0.33	0.48
Livestock professional fees	0.00	0.04	0.05	0.07	0.14
Other livestock expense	0.00	0.00	0.05	0.13	0.24
Fertilizer & lime	0.28	0.47	0.59	0.79	1.47
Seeds & plants	0.28	0.44	0.55	0.68	0.83
Spray/other crop expenses	0.08	0.22	0.32	0.40	0.54
Crop professional fees	0.00	0.00	0.01	0.04	0.10
Land, building, fence repair	0.15	0.25	0.33	0.50	1.06
Taxes	0.08	0.15	0.23	0.30	0.54
Real estate rent/lease	0.09	0.17	0.28	0.52	0.86
Insurance	0.07	0.12	0.18	0.22	0.31
Utilities	0.31	0.39	0.46	0.50	0.65
Interest	0.13	0.34	0.57	0.69	0.90
Other professional fees	0.03	0.08	0.12	0.14	0.33
Miscellaneous	0.05	0.08	0.10	0.14	0.23
Total Operating Expenses	\$17.93	\$19.59	\$20.95	\$22.51	\$24.61
Expansion livestock	0.00	0.00	0.00	0.01	0.38
Extraordinary expense	0.00	0.00	0.00	0.00	0.00
Machinery depreciation	0.53	0.71	0.96	1.34	1.59
Building depreciation	0.25	0.51	0.66	0.88	1.21
Net Farm Income w/o Appreciation	\$ 10.15	\$7.68	\$6.59	\$5.38	\$3.89

RECEIPTS AND EXPENSES PER COW
54 Large Herd Dairy Farms with 900 or More Cows, 2014

Item	QUINTILE				
	1	2	3	4	5
<u>Accrual Operating Receipts</u>					
Milk	\$7,350	\$6,909	\$6,634	\$6,394	\$5,873
Dairy cattle	777	590	510	457	297
Dairy calves	135	103	79	54	22
Other livestock	70	1	0	0	-6
Crops	687	263	141	46	-80
Miscellaneous receipts	298	126	94	64	23
Total Operating Receipts	\$8,573	\$7,886	\$7,525	\$7,180	\$6,682
<u>Accrual Operating Expenses</u>					
Hired labor	\$ 555	\$ 704	\$ 798	\$ 905	\$ 1,112
Dairy grain & concentrate	1,473	1,800	1,948	2,061	2,247
Dairy roughage	4	25	66	128	378
Nondairy feed	0	0	0	0	0
Professional nutritional services	0	0	0	0	5
Machinery hire/rent/lease	4	26	60	163	290
Mach. repair & farm vehicle exp.	170	241	281	338	470
Fuel, oil & grease	152	184	212	256	350
Replacement livestock	0	0	0	0	42
Breeding	25	43	52	68	106
Veterinary & medicine	121	159	183	205	253
Milk marketing	124	182	227	285	386
Bedding	27	69	97	125	170
Milking supplies	41	67	92	126	198
Cattle lease	0	0	0	0	26
Custom boarding	0	0	2	83	432
bST expense	0	0	19	106	151
Livestock professional fees	1	10	15	19	40
Other livestock expense	0	0	13	34	104
Fertilizer & lime	34	92	133	173	279
Seeds & plants	66	106	139	162	227
Spray/other crop expenses	15	44	68	90	162
Crop professional fees	0	0	0	6	21
Land, building, fence repair	40	81	114	158	228
Taxes	32	53	60	69	104
Real estate rent/lease	17	45	68	100	203
Insurance	22	39	50	63	98
Utilities	62	104	124	142	189
Interest	24	75	122	158	203
Other professional fees	6	16	30	45	76
Miscellaneous	9	26	41	54	87
Total Operating Expenses	\$4,425	\$4,971	\$5,303	\$5,704	\$6,382
Expansion livestock	0	0	0	29	271
Extraordinary expense	0	0	0	0	7
Machinery depreciation	140	220	267	318	424
Building depreciation	77	124	156	194	265
Net Farm Income w/o Appreciation	\$ 2,578	\$ 2,056	\$ 1,826	\$ 1,400	\$ 832

RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD
54 Large Herd Dairy Farms with 900 or More Cows, 2014

Item	QUINTILE				
	1	2	3	4	5
<u>Accrual Operating Receipts</u>					
Milk	\$26.71	\$25.02	\$25.37	\$25.02	\$23.77
Dairy cattle	2.98	2.25	1.98	1.71	1.17
Dairy calves	0.52	0.40	0.30	0.20	0.08
Other livestock	0.26	0.00	0.00	0.00	-0.02
Crops	2.69	0.99	0.55	0.17	-0.31
Miscellaneous receipts	1.13	0.49	0.36	0.24	0.09
Total Operating Receipts	\$31.95	\$29.70	\$28.68	\$28.01	\$26.40
<u>Accrual Operating Expenses</u>					
Hired labor	\$ 2.11	\$ 2.69	\$ 3.08	\$ 3.49	\$ 4.26
Dairy grain & concentrate	5.94	6.86	7.39	7.75	8.40
Dairy roughage	0.01	0.10	0.25	0.49	1.40
Nondairy feed	0.00	0.00	0.00	0.00	0.00
Professional nutritional services	0.00	0.00	0.00	0.00	0.02
Machinery hire/rent/lease	0.01	0.10	0.23	0.62	1.15
Mach. repair & farm vehicle exp.	0.64	0.92	1.07	1.29	1.85
Fuel, oil & grease	0.56	0.71	0.82	1.00	1.35
Replacement livestock	0.00	0.00	0.00	0.00	0.16
Breeding	0.10	0.16	0.21	0.26	0.40
Veterinary & medicine	0.47	0.61	0.70	0.76	0.99
Milk marketing	0.49	0.69	0.86	1.10	1.46
Bedding	0.10	0.26	0.38	0.47	0.67
Milking supplies	0.16	0.25	0.35	0.49	0.76
Cattle lease	0.00	0.00	0.00	0.00	0.10
Custom boarding	0.00	0.00	0.01	0.32	1.67
bST expense	0.00	0.00	0.07	0.40	0.55
Livestock professional fees	0.01	0.04	0.06	0.07	0.15
Other livestock expense	0.00	0.00	0.05	0.13	0.40
Fertilizer & lime	0.13	0.35	0.52	0.67	1.07
Seeds & plants	0.26	0.41	0.54	0.60	0.88
Spray/other crop expenses	0.06	0.17	0.26	0.36	0.61
Crop professional fees	0.00	0.00	0.00	0.02	0.08
Land, building, fence repair	0.16	0.31	0.42	0.60	0.89
Taxes	0.12	0.20	0.23	0.27	0.39
Real estate rent/lease	0.06	0.18	0.26	0.38	0.78
Insurance	0.08	0.15	0.19	0.24	0.38
Utilities	0.24	0.38	0.48	0.56	0.73
Interest	0.09	0.30	0.45	0.59	0.81
Other professional fees	0.03	0.06	0.12	0.17	0.29
Miscellaneous	0.04	0.10	0.15	0.21	0.34
Total Operating Expenses	\$17.46	\$18.87	\$20.29	\$21.60	\$24.24
Expansion livestock	0.00	0.00	0.00	0.11	1.08
Extraordinary expense	0.00	0.00	0.00	0.00	0.03
Machinery depreciation	0.54	0.85	1.02	1.18	1.67
Building depreciation	0.31	0.47	0.59	0.75	0.98
Net Farm Income w/o Appreciation	\$ 9.80	\$ 7.78	\$ 6.89	\$ 5.53	\$ 3.23

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

110 Large Herd Dairy Farms, 2014

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalent	Number of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(14) ³²	(12)	(12)	(12)	(11)	(11)	(14)	(14)
47.9	2,328	61,125,462	28,906	5.6	26	70	1,649,367
32.3	1,467	37,830,635	27,646	4.6	23	54	1,393,018
28.0	1,214	32,453,662	27,149	4.3	21	51	1,304,098
24.2	1,076	27,980,556	26,679	3.9	20	48	1,210,506
20.8	944	24,805,753	26,307	3.6	20	45	1,150,321
18.2	781	20,408,799	25,689	3.4	19	43	1,088,671
15.7	686	17,204,226	25,226	3.2	18	41	1,039,301
13.9	591	14,564,863	24,666	2.9	17	39	994,944
10.9	475	11,402,743	23,555	2.7	16	37	911,838
7.6	361	8,031,812	18,790	1.9	11	32	777,114

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)
\$1,107	21%	\$5,220	\$590	\$1,193	\$1,512	\$7.10
1,631	24	4,791	817	1,507	2,001	8.09
1,725	27	4,705	868	1,677	2,149	8.45
1,796	28	4,577	927	1,794	2,229	8.77
1,883	29	4,428	983	1,867	2,342	9.04
1,935	29	4,356	1,047	1,946	2,408	9.24
2,016	30	4,268	1,105	1,996	2,474	9.53
2,082	31	4,064	1,177	2,074	2,568	9.91
2,159	32	3,998	1,250	2,190	2,703	10.35
2,373	36	3,212	1,511	2,643	2,997	11.18

³²() = 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)
\$1.79	\$30,271	7%	\$0.42	\$0.36	\$0.00
2.14	32,226	9	0.59	0.49	0.00
2.46	34,085	10	0.64	0.55	0.00
2.67	35,723	10	0.72	0.61	0.01
2.82	37,205	11	0.80	0.65	0.04
3.02	38,576	12	0.91	0.69	0.06
3.33	40,001	13	1.02	0.73	0.10
3.51	41,969	14	1.11	0.77	0.13
3.77	46,396	15	1.21	0.87	0.19
4.65	52,441	18	1.59	1.12	0.41

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)
\$462	\$113	\$2,973	\$13.50	\$3,960	\$18.02
559	126	3,779	15.25	4,876	19.26
612	140	4,014	15.86	5,094	20.09
641	149	4,162	16.27	5,206	20.50
672	160	4,280	16.65	5,388	21.09
711	173	4,464	17.38	5,536	21.64
742	180	4,646	18.21	5,639	21.92
793	187	4,853	18.95	5,859	22.34
873	202	5,155	19.38	6,124	23.32
1,094	314	5,581	21.13	6,582	25.55

bST Expense Per Cow	bST Expense Per Cwt.	Culling Rate	Expense Ratios		
			Operating	Depreciation	Interest
(12)	(12)	(12)	(14)	(14)	(14)
\$0	\$0.00	20%	0.59	0.03	0.00
0	0.00	29	0.63	0.04	0.00
0	0.00	30	0.66	0.05	0.01
0	0.00	32	0.67	0.05	0.01
0	0.00	33	0.68	0.06	0.01
4	0.02	35	0.70	0.06	0.02
53	0.21	37	0.73	0.07	0.02
102	0.38	39	0.75	0.07	0.02
120	0.46	41	0.77	0.08	0.03
152	0.55	44	0.83	0.09	0.03

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)
\$27.63	\$26.50	\$7,485	\$838	\$168
26.48	25.39	7,158	630	122
26.05	24.98	6,960	549	109
25.77	24.80	6,764	509	96
25.54	24.62	6,645	484	82
25.33	24.51	6,481	451	68
25.18	24.41	6,372	403	58
25.05	24.24	6,177	355	48
24.71	23.99	5,951	302	32
23.39	22.65	4,843	220	0
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)
\$481	\$105	2.3%	\$70	\$0.30
1,614	899	3.0	212	0.84
2,379	1,462	3.0	305	1.23
2,666	2,028	3.9	392	1.51
3,194	2,507	4.0	476	1.93
3,747	3,031	4.0	548	2.16
4,120	3,383	4.0	600	2.46
4,604	3,670	4.0	706	2.83
5,216	4,070	4.3	805	3.07
6,046	4,842	6.8	983	3.83
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.	
(16)	(16)	(CALC)	(CALC)	(10)
\$2,402	\$9.20	\$787	\$3.08	8.19
2,013	7.79	576	2.28	4.68
1,756	6.81	390	1.60	3.38
1,607	6.38	309	1.21	2.92
1,511	6.00	251	0.95	2.44
1,427	5.67	208	0.81	2.11
1,345	5.27	168	0.70	1.79
1,244	4.89	143	0.56	1.56
1,010	4.06	112	0.45	1.33
585	2.35	67	0.27	0.47
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)
\$7,171	\$1,946	\$711	\$30,400	1.03
8,885	2,934	1,243	32,065	0.86
9,701	3,435	1,474	33,560	0.78
10,318	3,796	1,646	34,761	0.74
10,885	4,156	1,847	36,227	0.70
11,701	4,556	2,052	37,741	0.67
12,648	5,024	2,320	39,098	0.63
13,271	5,638	2,507	40,738	0.59
14,046	6,391	2,754	43,972	0.55
15,796	7,612	3,491	50,405	0.48

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)
96%	0.04	0.04	0.03	0.00	69%	32.34
87	0.15	0.13	0.13	0.01	48	8.46
81	0.24	0.19	0.17	0.08	40	5.58
76	0.31	0.24	0.23	0.15	34	4.20
71	0.41	0.29	0.27	0.27	31	3.32
66	0.52	0.34	0.30	0.34	28	2.83
63	0.58	0.37	0.34	0.39	24	2.41
60	0.65	0.40	0.39	0.45	18	2.06
57	0.76	0.43	0.46	0.52	12	1.55
50	1.01	0.50	0.60	0.62	3	0.99

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)
1,811,817	33.68%	42.73%	23.79%	27.11%
1,081,686	27.93	33.16	19.40	23.06
849,905	25.81	30.14	17.23	20.67
648,485	23.20	28.22	15.41	19.11
530,728	20.66	25.19	14.52	18.05
427,067	17.91	21.63	13.93	16.51
329,934	15.40	19.63	12.93	14.41
259,586	13.11	16.44	10.35	13.16
212,445	11.20	14.37	8.61	11.42
69,090	6.54	9.52	5.59	7.63

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)
\$2,710	\$10.55	35%	29%
2,190	8.42	29	20
2,021	7.70	27	15
1,903	7.26	25	13
1,778	6.92	24	11
1,614	6.43	22	10
1,422	5.81	20	9
1,269	5.09	17	8
1,027	4.39	16	6
684	2.84	10	5

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

Worksheet for Setting Goals (Continued)

II. Goals

[illegible]

Summarize Your Business Performance

The Farm Business Charts on pages 45–48 can be used to help identify strengths and weaknesses of your farm business. Identify three major strengths and three areas of your farm business that need improvement.

[illegible]

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).

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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