

DAIRY FARM BUSINESS SUMMARY

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NEW YORK LARGE HERD FARMS, 300 COWS OR LARGER, 2015



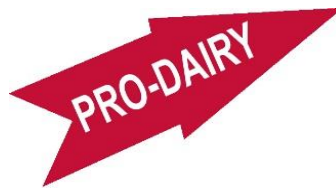
*You can't manage what you can't measure
but if you measure it you can improve it!*

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**2015 DAIRY FARM BUSINESS SUMMARY
LARGE HERD DAIRY FARMS
300 Cows or Larger**

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2015 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 699 cows, 700 to 1,099 cows, and 1,100 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 twelve 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 2014 to 2015 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 116 large herd farms that participated in the 2015 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 116 large herd farms that participated in the 2015 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 300-699 cows, 700-1,099 cows, and farms with 1,100 and more cows.

The fifth section contains the income and expense profiles for the 300-699 cow farms, 700-1,099 cow farms, and 1,100 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 2015. 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 2015 business year for the New York State dairy industry was quite different than 2014, continuing the trend of large variations in earnings from one year to the next. A large decrease in milk prices led to a significant drop in revenues. Costs also reversed trends from 2014 and decreased. Herd size continued to grow and along with a small increase in milk production per cow, led to increase milk marketed off the farm. With the combination of changes during the year, a significant decrease in profits occurred, resulting in slightly negative to no change in the financial position of the average farm over 300 cows in New York.

For both 2014 and 2015, 112 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 112 farms that participated in the DFBS project each of the last two years.

Milk Income. Gross milk prices decreased 28.1 percent to \$18.29 per hundredweight, a decrease of \$7.13 resulting in the lowest gross milk price received on farm since 2010. Milk marketing expenses increased by \$0.05 per hundredweight, leading to a decrease of \$7.18 in net milk price received on farms. Milk production per cow increased 0.2 percent to 25,728 pounds per cow. Gross milk revenue per cow decreased 27.9 percent from the previous year. Average herd size for the participating farms increased by 4.5 percent to 1,040 cows. With both herd size and milk per cow increasing, total milk pounds shipped per farm increased by 4.8 percent. 2015 presented different growing conditions than 2014, with hay yields unchanged but corn silage yields decreasing 6.3 percent. Cattle prices remained strong, with cattle sales per cow unchanged and dairy calf sales per cow increasing 52.7 percent.

Cost Control. Costs reversed trend from the last few years and decreased on the participating farms. Purchased grain led the decrease, decreasing \$0.78 per hundredweight to \$6.90 per cwt. Fuel decreased 29 cents per cwt. Machinery repair and land, building, fence repair both declined 9 cents per cwt. However, not all costs decreased, with hired labor costs continuing to increase, increasing by \$0.08 per hundredweight to \$3.07. Custom hire and lease, milk marketing, fertilizer & lime and insurance also increased.

Worker equivalents increased 3.7 percent, about equal to the increase in cow numbers, resulting in cows per worker increasing slightly to 45.8 cows per worker. With both cows per worker and milk sold per cow increasing slightly, milk sold per worker equivalent increased just 0.9 percent to 1,180,165. This increase in milk sold per worker was lower than the increase in the average cost per hired worker of 3.3 percent, leading to an increase of 2.7 percent in the hired labor cost per cwt.

The combination of these changes led to a decrease in farm operating costs of \$1.24, or 6.1 percent, to \$19.03 per hundredweight.

Capital Investment. The average investment in the farm increased 5.1 percent to \$11,906 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 \$0.02 cents per hundredweight to \$1.64 per cwt.

Decrease in Earnings. Profits fell in 2015, ending the recent trend of increasing earnings. The 28.3 percent decline in milk price was only partially offset by the 6.1 percent decrease in costs. This decrease in margin resulted in low to negative earnings for the year. Net farm income without appreciation fell to \$240,078. Net farm income with appreciation decreased to \$579,371.

- Labor and management income per operator/manager decreased 114.5 percent, from \$563,395 in 2014 to -\$81,653 in 2015.
- Rate of return to all capital without appreciation decreased to 1.39 percent, from 14.36 percent in 2014. Rate of return on equity capital without appreciation fell to 0.61 percent.
- Farm net worth increased by 1.3 percent.
- Debt to asset ratio increased from 0.29 to 0.31, reflecting the increased borrowings for capital investment that is reflected in the 8.2 percent increase in debt per cow.

Overall, 2015 was a year of very low to slightly negative earnings and is the lowest earnings since 2009 for the average dairy farm over 300 cows in New York. While, on average, farms showed little earnings in 2015, the changes on individual farms varied, with some farms still reporting strong earnings, with changes to operating costs, milk production, and growing conditions offsetting much of the decrease 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 112 Large Herd Dairy Farms, 2014 & 2015

| Selected Factors | Average of 112 Farms | | Percent Change |
|---|----------------------|-------------|----------------|
| | 2014 | 2015 | |
| <u>Size of Business</u> | | | |
| Average number of cows | 995 | 1,040 | 4.5 |
| Average number of heifers | 848 | 907 | 7.0 |
| Milk sold, lbs. | 25,546,636 | 26,766,150 | 4.8 |
| Worker equivalent | 21.9 | 22.7 | 3.7 |
| Total tillable acres | 1,947 | 2,043 | 4.9 |
| <u>Rates of Production</u> | | | |
| Milk sold per cow, lbs. | 25,678 | 25,728 | 0.2 |
| Butterfat per cow, lbs. ² | 975 | 978 | 0.3 |
| Protein per cow, lbs. ² | 797 | 795 | -0.3 |
| Hay DM per acre, tons | 3.5 | 3.5 | 0.0 |
| Corn silage per acre, tons | 19.2 | 18.0 | -6.3 |
| <u>Labor Efficiency & Costs</u> | | | |
| Cows per worker | 45.4 | 45.8 | 0.1 |
| Milk sold per worker, lbs. | 1,169,182 | 1,180,165 | 0.9 |
| Hired labor cost per cwt. | \$2.99 | \$3.07 | 2.7 |
| Hired labor cost per worker | \$39,678 | \$40,999 | 3.3 |
| Hired labor cost as % of milk sales | 11.8% | 16.8% | 42.4 |
| <u>Cost Control</u> | | | |
| Grain & concentrate purchased as % of milk sales | 29% | 36% | 24.1 |
| Grain & concentrate per cwt. milk | \$7.68 | \$6.90 | -10.2 |
| Dairy feed & crop expense per cwt. milk | \$9.02 | \$8.23 | -8.8 |
| Labor & machinery costs per cow | \$1,830 | \$1,761 | -3.8 |
| Total farm operating costs per cwt. sold | \$20.27 | \$19.03 | -6.1 |
| Interest costs per cwt. milk | \$0.44 | \$0.45 | 2.3 |
| Operating cost of producing cwt. of milk | \$17.20 | \$15.75 | -8.4 |
| Net milk income over purchased feed costs per cow | \$4,412 | \$2,765 | -37.3 |
| <u>Capital Efficiency</u> (average for the year) | | | |
| Farm capital per cow | \$11,324 | \$11,906 | 5.1 |
| Machinery & equipment per cow | \$1,875 | \$1,989 | 6.1 |
| Asset turnover ratio | 0.68 | 0.50 | -26.5 |
| <u>Income Generation</u> | | | |
| Gross milk sales per cow | \$6,528 | \$4,707 | -27.9 |
| Gross milk sales per cwt. | \$25.42 | \$18.29 | -28.1 |
| Net milk sales per cwt. | \$24.51 | \$17.33 | -29.3 |
| Dairy cattle sales per cow | \$486 | \$488 | 0.4 |
| Dairy calf sales per cow | \$74 | \$113 | 52.7 |
| <u>Profitability</u> | | | |
| Net farm income without appreciation | \$1,683,091 | \$240,078 | -85.7 |
| Net farm income with appreciation | \$2,020,275 | \$579,371 | -71.3 |
| Labor & mgt. income per operator/manager | \$563,395 | \$-81,653 | -114.5 |
| Rate of return on equity capital w/o appreciation | 19.24% | 0.61% | -96.8 |
| Rate of return on all capital without appreciation | 14.36% | 1.39% | -90.3 |
| <u>Financial Summary (excluding deferred taxes)</u> | | | |
| Farm net worth, end year | \$8,612,096 | \$8,727,747 | 1.3 |
| Debt to asset ratio | 0.29 | 0.31 | 6.9 |
| Farm debt per cow | \$3,520 | \$3,810 | 8.2 |

²Average of 107 large herd dairy farms that provided this data for both years.

RECEIPTS AND EXPENSES PER COW AND PER HUNDREDWEIGHT

Same 112 Large Herd Dairy Farms, 2014 & 2015

| Item | 2014 | | 2015 | |
|--|------------|-------------|------------|-------------|
| | Per Cow | Per Cwt. | Per Cow | Per Cwt. |
| Average number of cows | 995 | | 1,040 | |
| Cwt. of milk sold | | 255,466 | | 267,661 |
| <u>ACCRUAL OPERATING RECEIPTS</u> | | | | |
| Milk | \$6,528 | \$25.42 | \$4,707 | \$18.29 |
| Dairy cattle | 486 | 1.89 | 488 | 1.90 |
| Dairy calves | 74 | 0.29 | 113 | 0.44 |
| Other livestock | 13 | 0.05 | 16 | 0.06 |
| Crops | 137 | 0.53 | 97 | 0.38 |
| Miscellaneous receipts | <u>116</u> | <u>0.45</u> | <u>151</u> | <u>0.59</u> |
| Total Receipts | \$7,354 | \$28.64 | \$5,572 | \$21.66 |
| <u>ACCRUAL OPERATING EXPENSES</u> | | | | |
| Hired labor | \$ 769 | \$ 2.99 | \$ 789 | \$ 3.07 |
| Dairy grain & concentrate | 1,881 | 7.33 | 1,694 | 6.59 |
| Dairy roughage | 89 | 0.35 | 81 | 0.31 |
| Nondairy feed | 0 | 0.00 | 0 | 0.00 |
| Professional nutritional services | 1 | 0.00 | 1 | 0.00 |
| Machine hire, rent & lease | 124 | 0.48 | 130 | 0.51 |
| Machine repair & vehicle expense | 283 | 1.10 | 259 | 1.01 |
| Fuel, oil & grease | 223 | 0.87 | 149 | 0.58 |
| Replacement livestock | 14 | 0.05 | 10 | 0.04 |
| Breeding | 58 | 0.23 | 56 | 0.22 |
| Veterinary & medicine | 179 | 0.70 | 177 | 0.69 |
| Milk marketing | 234 | 0.91 | 247 | 0.96 |
| Bedding | 99 | 0.39 | 99 | 0.38 |
| Milking supplies | 97 | 0.38 | 102 | 0.39 |
| Cattle lease | 4 | 0.02 | 3 | 0.01 |
| Custom boarding | 105 | 0.41 | 105 | 0.41 |
| bST expense | 52 | 0.20 | 47 | 0.18 |
| Livestock professional fees | 15 | 0.06 | 15 | 0.06 |
| Other livestock expense | 24 | 0.09 | 21 | 0.08 |
| Fertilizer & lime | 135 | 0.53 | 146 | 0.57 |
| Seeds & plants | 135 | 0.52 | 130 | 0.50 |
| Spray & other crop expense | 69 | 0.27 | 61 | 0.24 |
| Crop professional fees | 5 | 0.02 | 6 | 0.02 |
| Land, building, fence repair | 117 | 0.46 | 94 | 0.37 |
| Taxes | 63 | 0.25 | 63 | 0.25 |
| Real estate rent/lease | 77 | 0.30 | 76 | 0.30 |
| Insurance | 50 | 0.19 | 59 | 0.23 |
| Utilities | 118 | 0.46 | 99 | 0.38 |
| Interest paid | 112 | 0.44 | 115 | 0.45 |
| Other professional fees | 31 | 0.12 | 32 | 0.12 |
| Miscellaneous | <u>38</u> | <u>0.15</u> | <u>32</u> | <u>0.13</u> |
| Total Operating Expenses | \$5,205 | \$20.27 | \$4,896 | \$19.03 |
| Expansion livestock | 39 | 0.15 | 22 | 0.08 |
| Extraordinary expense | 2 | 0.01 | 1 | 0.00 |
| Machinery depreciation | 256 | 1.00 | 248 | 0.96 |
| Real estate depreciation | <u>160</u> | <u>0.62</u> | <u>174</u> | <u>0.68</u> |
| Total Expenses | \$5,662 | \$22.05 | \$5,341 | \$ 3.07 |
| Net Farm Income Without Appreciation | \$1,692 | \$ 6.59 | \$ 231 | \$ 0.90 |

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

In 2015, 33 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 33 farms and only represents these 33 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 116 Farms over 300 cows that participated in the DFBS project in 2015. 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 three farms that were in the top 20 percent in 2015 were also in the summary in 2014. The table on page 7 shows income and expenses for these farms for both 2014 and 2015. 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

33 Dairy Farms, 2015

| Milking System Only | | | |
|-----------------------------|--|---|---|
| Quintile | Pounds of Milk Harvested Per Hour of Milking Labor | Total Cows Milked Per Hour of Milking Labor Per Day | Pounds of Milk Harvested per Machine Per Year |
| Average of Highest Quintile | 2,952 | 39.6 | 1,113,830 |
| ↓ | 1,956 | 26.2 | 905,967 |
| ↓ | 1,528 | 21.6 | 717,373 |
| ↓ | 1,285 | 19.1 | 516,389 |
| Average of Lowest Quintile | 922 | 14.4 | 337,909 |
| Overall Average | 1,729 | 24.3 | 718,725 |
| Dairy Enterprise Only | | | |
| Quintile | Worker Equivalents | Cows per Worker Equivalent | Pounds Sold per Worker Equivalent |
| Average of Highest Quintile | 13.8 | 165 | 4,528,226 |
| ↓ | 8.8 | 112 | 2,964,014 |
| ↓ | 7.0 | 97 | 2,400,902 |
| ↓ | 5.1 | 78 | 1,987,708 |
| Average of Lowest Quintile | 2.8 | 59 | 1,444,735 |
| Overall Average | 7.5 | 103 | 2,674,951 |

TOP 20 PERCENT VERSUS AVERAGE
116 Large Herd Dairy Farms, 2015

| Selected Factors | Average 116 Farms | Average Top 20% Farms ⁴ | Percent Difference |
|---|----------------------|---------------------------------------|-----------------------|
| <u>Size of Business</u> | | | |
| Average number of cows | 1,027 | 1,262 | 22.9 |
| Average number of heifers | 894 | 1,136 | 27.1 |
| Milk sold, lbs. | 26,383,510 | 32,287,815 | 22.4 |
| Worker equivalent | 22.5 | 24.8 | 10.2 |
| Total tillable acres | 2,011 | 2,370 | 17.9 |
| <u>Rates of Production</u> | | | |
| Milk sold per cow, lbs. | 25,700 | 25,594 | -0.4 |
| Butterfat per cow, lbs. ³ | 974 | 962 | -1.2 |
| Protein per cow, lbs. ³ | 791 | 796 | 0.6 |
| Hay DM per acre, tons | 3.5 | 3.6 | 2.9 |
| Corn silage per acre, tons | 18.0 | 18.9 | 5.0 |
| <u>Labor Efficiency & Costs</u> | | | |
| Cows per worker | 46 | 51 | 10.9 |
| Milk sold/worker, lbs. | 1,173,513 | 1,302,322 | 11.0 |
| Hired labor cost/cwt. | \$3.07 | \$2.64 | -14.0 |
| Hired labor cost/hired worker | \$40,838 | \$38,343 | -6.1 |
| Hired labor cost as % of milk sales | 16.8% | 14.5% | -13.7 |
| <u>Cost Control</u> | | | |
| Grain & concentrate purchased as % of milk sales | 36% | 34% | -5.6 |
| Grain & concentrate per cwt. milk | \$6.60 | \$6.62 | 0.3 |
| Dairy feed & crop expense per cwt. milk | \$8.24 | \$7.75 | -6.0 |
| Labor & machinery costs/cow | \$1,757 | \$1,550 | -11.8 |
| Total farm operating costs per cwt. sold | \$19.05 | \$17.20 | -9.7 |
| Interest costs per cwt. milk | \$0.45 | \$0.23 | -48.9 |
| Milk marketing costs per cwt. milk sold | \$0.96 | \$0.97 | 1.0 |
| Operating cost of producing cwt. of milk | \$15.80 | \$13.74 | -13.0 |
| Net milk income over purchased feed costs per cow | \$2,764 | \$2,823 | 2.1 |
| <u>Capital Efficiency</u> (average for the year) | | | |
| Farm capital per cow | \$11,839 | \$11,693 | -1.2 |
| Machinery & equipment per cow | \$1,980 | \$1,850 | -6.6 |
| Asset turnover ratio | 0.50 | 0.50 | 0.0 |
| <u>Income Generation</u> | | | |
| Gross milk sales per cow | \$4,707 | \$4,666 | -0.9 |
| Gross milk sales per cwt. | \$18.31 | \$18.23 | -0.4 |
| Net milk sales per cwt. | \$17.35 | \$17.26 | -0.5 |
| Dairy cattle sales per cow | \$787 | \$503 | -36.1 |
| Dairy calf sales per cow | \$112 | \$111 | -0.9 |
| <u>Profitability</u> | | | |
| Net farm income without appreciation | \$233,367 | \$938,147 | 302.0 |
| Net farm income with appreciation | \$562,466 | \$1,289,736 | 129.3 |
| Labor & management income per operator/manager | \$-80,605 | \$144,829 | -279.7 |
| Rate of return on equity capital without appreciation | 0.6% | 6.0% | 900.0 |
| Rate of return on all capital without appreciation | 1.4% | 5.4% | 285.7 |
| <u>Financial Summary</u> (excluding deferred taxes) | | | |
| Farm net worth, end of year | \$8,539,433 | \$12,272,029 | 43.7 |
| Debt to asset ratio | 0.31 | 0.18 | -41.9 |
| Farm debt per cow | \$3,810 | \$2,182 | -42.7 |

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 23 Top 20% Large Herd Dairy Farms, 2014 & 2015

| Item | 2014 | | 2015 | |
|--------------------------------------|------------|-------------|------------|-------------|
| | Per Cow | Per Cwt. | Per Cow | Per Cwt. |
| Average Number of Cows | 1,192 | | 1,262 | |
| Cwt. of Milk Sold | | 305,742 | | 322,878 |
| <u>Accrual Operating Receipts</u> | | | | |
| Milk | \$6,489 | \$25.29 | \$4,666 | \$18.23 |
| Dairy cattle | 489 | 1.91 | 503 | 1.97 |
| Dairy calves | 72 | 0.28 | 111 | 0.43 |
| Other livestock | 12 | 0.05 | 29 | 0.11 |
| Crops | 124 | 0.48 | 131 | 0.51 |
| Miscellaneous receipts | <u>135</u> | <u>0.53</u> | <u>145</u> | <u>0.57</u> |
| Total | \$7,321 | \$28.53 | \$5,584 | \$21.82 |
| <u>Accrual Operating Expenses</u> | | | | |
| Hired labor | \$ 664 | \$ 2.59 | \$ 676 | \$ 2.64 |
| Dairy grain & concentrate | 1,805 | 7.04 | 1,596 | 6.23 |
| Dairy roughage | 113 | 0.44 | 99 | 0.38 |
| Nondairy feed | 0 | 0.00 | 0 | 0.00 |
| Professional nutritional services | 2 | 0.01 | 2 | 0.01 |
| Machine hire, rent & lease | 122 | 0.48 | 127 | 0.50 |
| Machine repair & vehicle expense | 225 | 0.88 | 221 | 0.86 |
| Fuel, oil & grease | 197 | 0.77 | 134 | 0.52 |
| Replacement livestock | 4 | 0.01 | 1 | 0.00 |
| Breeding | 42 | 0.17 | 42 | 0.16 |
| Veterinary & medicine | 152 | 0.59 | 159 | 0.62 |
| Milk marketing | 236 | 0.92 | 247 | 0.97 |
| Bedding | 103 | 0.40 | 98 | 0.38 |
| Milking supplies | 72 | 0.28 | 88 | 0.35 |
| Cattle lease | 1 | 0.00 | 0 | 0.00 |
| Custom boarding | 74 | 0.29 | 91 | 0.36 |
| bST expense | 57 | 0.22 | 48 | 0.19 |
| Livestock professional fees | 16 | 0.06 | 14 | 0.06 |
| Other livestock expense | 23 | 0.09 | 18 | 0.07 |
| Fertilizer & lime | 134 | 0.52 | 134 | 0.52 |
| Seeds & plants | 124 | 0.48 | 104 | 0.41 |
| Spray & other crop expense | 44 | 0.17 | 47 | 0.18 |
| Crop professional fees | 4 | 0.02 | 4 | 0.01 |
| Land, building & fence repair | 100 | 0.39 | 80 | 0.31 |
| Taxes | 65 | 0.25 | 62 | 0.24 |
| Real estate rent/lease | 53 | 0.21 | 61 | 0.24 |
| Insurance | 43 | 0.17 | 46 | 0.18 |
| Utilities | 120 | 0.47 | 92 | 0.36 |
| Interest paid | 57 | 0.22 | 60 | 0.23 |
| Other professional fees | 23 | 0.09 | 26 | 0.10 |
| Miscellaneous | <u>35</u> | <u>0.14</u> | <u>27</u> | <u>0.11</u> |
| Total Operating Expenses | \$4,712 | \$18.37 | \$4,403 | \$17.20 |
| Expansion livestock | 74 | 0.29 | 31 | 0.12 |
| Extraordinary Expense | 6 | 0.02 | 0 | 0.00 |
| Machinery depreciation | 224 | 0.87 | 231 | 0.90 |
| Real Estate depreciation | <u>166</u> | <u>0.65</u> | <u>176</u> | <u>0.69</u> |
| Total Expenses | \$5,182 | \$20.20 | \$4,841 | \$18.91 |
| Net Farm Income without appreciation | \$2,138 | \$ 8.33 | \$ 744 | \$ 2.91 |

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

33 Dairy Farms, 2015

| <u>Animals Entering Herd</u> | Average |
|--|---------|
| Number calving in 2015 for first time | 276 |
| Animals purchased, % ⁵ | 4.2 |
| Animals raised by farm, % ⁶ | 95.8 |
| <u>Current Heifer Inventory</u> | |
| Raised on dairy, % | 87.2 |
| Raised by a custom grower, % | 12.8 |

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, 276 animals calved for the first time in 2015. The breakdown on the source of these animals was 4.2 percent purchased and 95.8 percent raised on the farm. Of the current heifer inventory, 87.2 percent were raised on the dairy and 12.8 percent were raised by a custom grower. There is increased interest in evaluating the dairy replacement enterprise.

Milk Income and Marketing Expense Breakdown

Starting January 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, 2015


| | Pounds | Percent | Price/Pound | Total | \$/Cwt of Milk |
|---|------------|---------|-------------|-------------|-----------------|
| BASE FARM PRICE | | | | | |
| Butterfat | 997,725 | 3.78% | \$2.30 | \$2,295,926 | \$ 8.70 |
| Protein | 815,611 | 3.09% | \$2.23 | \$1,822,085 | \$ 6.91 |
| Solids | 1,521,536 | 5.77% | \$0.19 | \$281,938 | \$ 1.07 |
| Total Component Contribution | | | | | \$ 16.68 |
| PPD | 26,385,426 | | | \$139,221 | \$ 0.53 |
| Base Farm Price | | | | | \$ 17.20 |
| Premiums | | | | | |
| Quality | | | | \$72,305 | \$ 0.27 |
| Volume | | | | \$59,401 | \$ 0.23 |
| Market Premiums | | | | \$100,980 | \$ 0.38 |
| Total Premiums | | | | | \$ 0.88 |
| BASE FARM PRICE + PREMIUM | | | | | \$ 18.09 |
| <hr style="border-top: 1px dashed black;"/> | | | | | |
| Deductions | | | | | |
| Promo | | | | \$39,450 | \$ 0.15 |
| Hauling & Coop Dues | | | | \$213,031 | \$ 0.81 |
| Total Deductions | | | | \$252,481 | \$ 0.96 |
| BASE FARM PRICE + PREMIUMS – DEDUCTIONS | | | | | \$ 17.13 |
| Marketing Programs | | | | | |
| Futures Contracts, Forward Contracting, Etc. | | | | \$24,663 | \$ 0.09 |
| Total Marketing Income | | | | | \$ 0.09 |
| Patronage Dividends | | | | \$34,542 | \$ 0.13 |
| NET PRICE RECEIVED ON FARM, ALL SOURCES | | | | | \$ 17.35 |
| | | | | | |
| Net Marketing Value (PPD + Total Premiums – Total Deductions), \$ per cwt. | | | | | \$ 0.45 |

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, 2015

| | Lowest Quintile |  | | | Highest Quintile |
|---|--------------------|--|-----------------|-----------------|---------------------|
| Butterfat, % | 3.64 | 3.73 | 3.79 | 3.86 | 4.06 |
| Protein, % | 2.99 | 3.05 | 3.08 | 3.12 | 3.21 |
| Other Solids, % | 5.71 | 5.75 | 5.77 | 5.78 | 5.80 |
| Butterfat, \$ per Cwt. | 8.31 | 8.57 | 8.72 | 8.89 | 9.42 |
| Protein, \$ per Cwt. | 6.68 | 6.81 | 6.88 | 6.96 | 7.20 |
| Other solids, \$ per Cwt. | 1.02 | 1.06 | 1.07 | 1.08 | 1.10 |
| Total Component Value per Cwt. | \$ 16.17 | \$ 16.45 | \$ 16.66 | \$ 16.89 | \$ 17.59 |
| PPD, \$ per Cwt. | 0.27 | 0.38 | 0.48 | 0.59 | 0.92 |
| Base Farm Price per Cwt. | \$ 16.60 | \$ 16.93 | \$ 17.19 | \$ 17.48 | \$ 18.19 |
| Quality, \$ per Cwt. | 0.04 | 0.18 | 0.27 | 0.38 | 0.55 |
| Volume, \$ per Cwt. | 0.00 | 0.02 | 0.22 | 0.31 | 0.55 |
| Market premium, \$ per Cwt. | 0.02 | 0.15 | 0.32 | 0.51 | 0.95 |
| Total Premium, \$ per Cwt. | 0.42 | 0.65 | 0.85 | 1.05 | 1.47 |
| Base Farm Price + Premiums per Cwt. | \$ 17.39 | \$17.66 | \$ 18.09 | \$ 18.45 | \$ 19.21 |
| Promotion, \$ per Cwt. | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 |
| Hauling & Coop Dues \$ per Cwt. | 0.41 | 0.60 | 0.86 | 1.00 | 1.29 |
| Total Deductions per Cwt. | \$ 0.56 | \$ 0.75 | \$ 1.01 | \$1.15 | \$ 1.44 |
| Base + Premiums – Deductions per Cwt. | \$ 16.46 | \$ 16.80 | \$ 17.04 | \$ 17.43 | \$ 18.19 |
| Futures contract, forward contracting, \$ per Cwt. | -0.02 | 0.00 | 0.00 | 0.00 | 0.42 |
| Total Marketing Income, \$ per Cwt. | \$-0.02 | \$ 0.00 | \$ 0.00 | \$ 0.00 | \$ 0.42 |
| Patronage Dividends, \$ per Cwt. | \$-0.03 | \$ 0.00 | \$ 0.00 | \$ 0.06 | \$ 0.80 |
| Net Price Received From All Sources, \$ per Cwt. | \$ 16.48 | \$ 16.93 | \$ 17.36 | \$ 17.75 | \$ 18.52 |
| Net Marketing Value (PPD + Total Premiums – Total Deductions), \$ per cwt. | \$-0.12 | \$ 0.19 | \$ 0.41 | \$ 0.63 | \$ 1.08 |

⁸Each calculation of an average is independent of all others. Therefore, math operations on the detail will not result in the totals.

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.

116 Large Herd Dairy Farms, 2015

Income Statement

Cash paid is the actual cash outlay during the year and does not necessarily represent the cost of goods and services actually used in 2015.

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
116 Large Herd Dairy Farms, 2015

| Expense Item | Cash Paid | - | Change in Inventory or Prepaid Expense | + | Change in Accounts Payable | = | Accrual Expenses |
|-----------------------------------|--------------|---|---|---|----------------------------------|---|---------------------|
| <u>Hired Labor</u> | \$806,947 | | \$-2,798 | | \$-474 | | \$809,271 |
| <u>Feed</u> | | | | | | | |
| Dairy grain & concentrate | 1,582,166 | | -140,449 | | 17,617 | | 1,740,232 |
| Dairy roughage | 94,769 | | 5,318 | | -4,042 | | 85,409 |
| Nondairy | 51 | | 0 | | 0 | | 51 |
| Professional nutritional services | 889 | | 0 | | 40 | | 930 |
| <u>Machinery</u> | | | | | | | |
| Machinery hire, rent/lease | 128,571 | | 307 | | 4,452 | | 132,716 |
| Mach. repair & farm vehicle exp. | 265,603 | | 1,076 | | 1,210 | | 265,736 |
| Fuel, oil & grease | 148,457 | | -3,744 | | -287 | | 151,913 |
| <u>Livestock</u> | | | | | | | |
| Replacement livestock | 10,251 | | 0 | | 0 | | 10,251 |
| Breeding | 55,510 | | -699 | | 395 | | 56,604 |
| Vet & medicine | 178,194 | | -1,934 | | 1,018 | | 181,146 |
| Milk marketing | 260,344 | | 0 | | -5,908 | | 254,437 |
| Bedding | 102,149 | | 1,557 | | 1,045 | | 101,637 |
| Milk supplies | 103,278 | | -232 | | 917 | | 104,427 |
| Cattle lease/rent | 4,045 | | 0 | | 42 | | 4,087 |
| Custom boarding | 104,270 | | -3,640 | | 423 | | 108,332 |
| bST expense | 47,703 | | -480 | | 109 | | 48,292 |
| Livestock professional fees | 14,869 | | -155 | | 113 | | 15,137 |
| Other livestock expense | 22,293 | | -229 | | -122 | | 22,400 |
| <u>Crops</u> | | | | | | | |
| Fertilizer & lime | 133,617 | | -10,061 | | 5,527 | | 149,205 |
| Seeds & plants | 98,053 | | -33,939 | | 339 | | 132,331 |
| Spray, other crop exp. | 59,758 | | 454 | | 2,351 | | 61,655 |
| Crop professional fees | 5,826 | | -277 | | 12 | | 6,114 |
| <u>Real Estate</u> | | | | | | | |
| Land/bldg./fence repair | 93,508 | | -36 | | 2,448 | | 95,992 |
| Taxes | 63,202 | | -1,290 | | -59 | | 64,434 |
| Rent & lease | 76,828 | | -1,252 | | 24 | | 78,104 |
| <u>Other</u> | | | | | | | |
| Insurance | 54,674 | | -5,816 | | -101 | | 60,389 |
| Utilities (farm share) | 101,692 | | -178 | | -134 | | 101,735 |
| Interest paid | 117,854 | | -123 | | 300 | | 118,278 |
| Other professional fees | 32,188 | | -71 | | 315 | | 32,574 |
| Miscellaneous | 32,419 | | 11 | | 647 | | 33,055 |
| Total Operating Expenses | \$4,799,977 | | \$-198,680 | | \$28,218 | | \$5,026,875 |
| Expansion livestock | 24,655 | | 0 | | 0 | | 24,655 |
| Extraordinary expense | 546 | | 0 | | 0 | | 546 |
| Machinery depreciation | | | | | | | 252,391 |
| Building depreciation | | | | | | | 176,702 |
| Total Accrual Expenses | | | | | | | \$5,481,169 |

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 2015 funds used to prepay 2016 leases exceed the amount of 2015 leases prepaid in 2014, the amount of this excess is subtracted to exclude it from 2015 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 2015 but not paid for. A decrease is subtracted because the resource was used before 2015.

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
116 Large Herd Dairy Farms, 2015

| Receipt Item | Cash Receipts | + | Change in Inventory | + | Change in Accounts Receivable | = | Accrual Receipts |
|---------------------------|------------------|---|------------------------|---|-------------------------------------|---|---------------------|
| Milk sales | \$5,080,977 | | | | \$-249,234 | | \$4,831,743 |
| Dairy cattle | 404,806 | | 97,022 | | -1,944 | | 499,883 |
| Dairy calves | 109,869 | | 6,490 | | -904 | | 115,455 |
| Other livestock | 15,845 | | -851 | | 1,236 | | 16,231 |
| Crops | 60,813 | | 42,094 | | -4,116 | | 98,791 |
| Government receipts | 43,774 | | -2 ⁹ | | -234 | | 43,539 |
| Custom machine work | 17,639 | | | | 21 | | 17,660 |
| Gas tax refund | 1,022 | | | | 0 | | 1,022 |
| Other | <u>98,133</u> | | | | <u>-7,812</u> | | 90,320 |
| Less nonfarm noncash cap. | | | <u>0¹⁰</u> | | | | <u>0</u> |
| Total Receipts | \$5,832,878 | | \$144,753 | | \$-262,987 | | \$5,714,644 |

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 2015 for the 2016 crop year in excess of funds earned for 2015. Likewise, a decrease is added to cash government receipts because it represents funds earned for 2015 but received in 2014.

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.

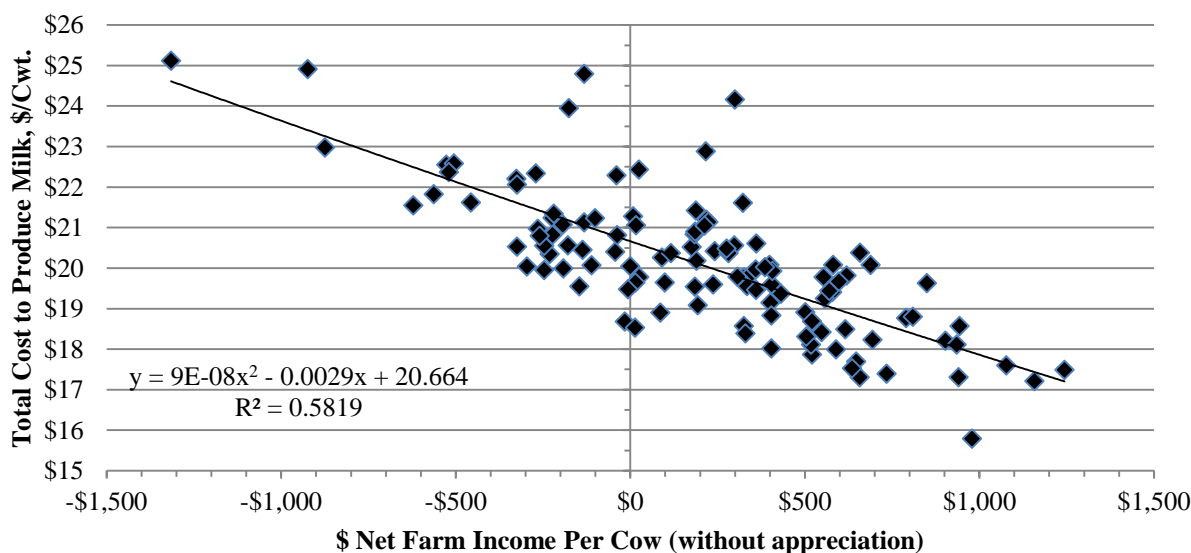
Net farm income is the return to the farm operators and other unpaid family members for their labor, management, and equity capital. It is the farm family's net annual return from working, managing, financing, and owning the farm business. This is not a measure of cash available from the year's business 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 116 Large Herd Dairy Farms, 2015

| Item | Average 116 Farms | | Average Top 20% ¹² Farms | |
|--|-------------------|---------|-------------------------------------|---------|
| | Total | Per Cow | Total | Per Cow |
| Total accrual receipts | \$ 5,714,644 | | \$ 7,044,379 | |
| Appreciation: Livestock | 15,854 | | 14,822 | |
| Machinery | 33,648 | | 75,533 | |
| Real Estate | 253,662 | | 227,941 | |
| Other Stock/Certificates | 25,934 | | 33,294 | |
| Total Including Appreciation | \$ 6,043,742 | | \$ 7,395,969 | |
| Total accrual expenses | 5,481,169 | | 6,106,232 | |
| Net Farm Income (with appreciation) | \$ 562,574 | \$548 | \$ 1,289,736 | \$1,022 |
| Net Farm Income (without appreciation) | \$ 233,475 | \$227 | \$ 938,147 | \$744 |

TOTAL COST TO PRODUCE MILK VS. NET FARM INCOME PER COW 116 Large Herd Dairy Farms, 2015



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

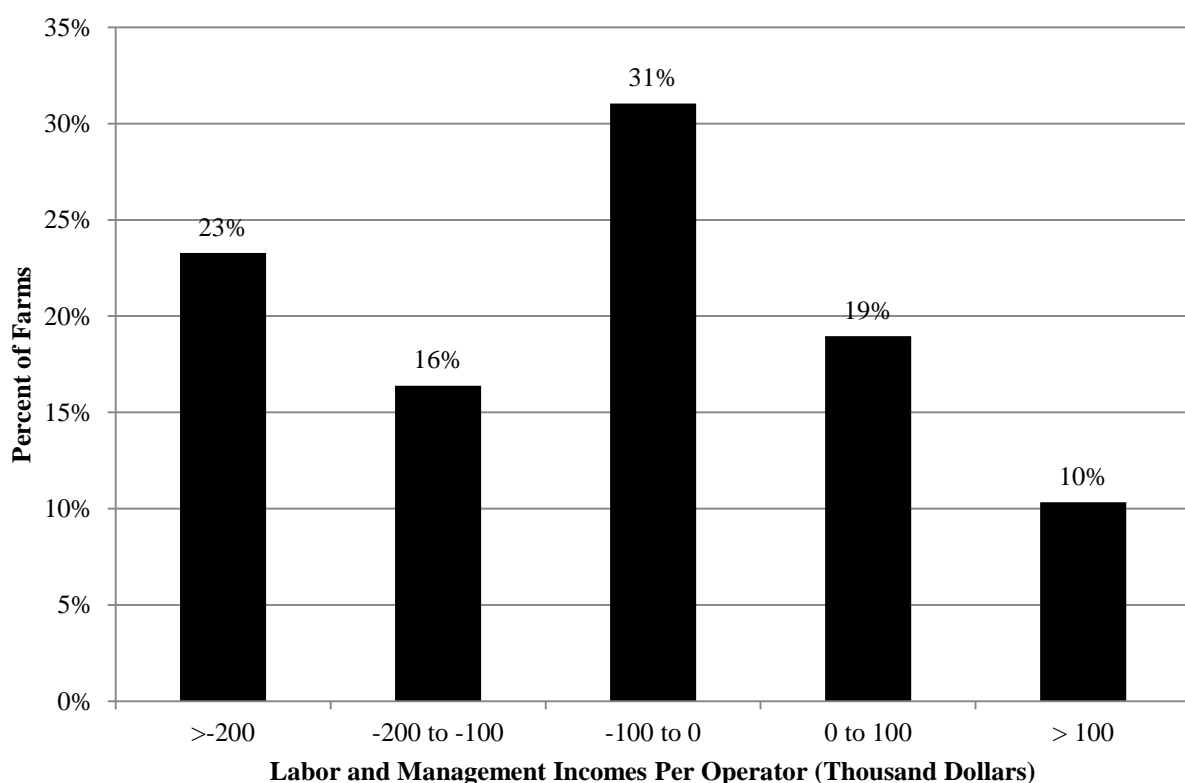
116 Large Herd Dairy Farms, 2015

| Item | Average 116 Farms | Average Top 20% Farms |
|--|----------------------|--------------------------|
| Net farm income without appreciation | \$ 233,475 | \$ 938,147 |
| Family labor unpaid @ \$2,600 per month | - 722 | - 610 |
| Interest on \$8,505,947 (\$12,030,687 for top 20%) average equity capital @ 5% real rate | - 425,399 | - 601,534 |
| Labor & Management Income per Farm (2.39 operators/farm; 2.32 operators for top 20%) | \$ -192,646 | \$ 336,002 |
| Labor & Management Income per Operator/Manager | \$ -80,605 | \$ 144,829 |

Labor and management income per operator averaged \$-80,605 on these 116 Farms in 2015. Returns to labor and management were less than \$-100,000 on 39 percent of the farms, with 23% of the farms showing a return to labor & management less than \$-200,000. Labor and management income per operator ranged from \$-100,000 to \$0 on 31 percent of the farms while 29 percent showed labor and management incomes per operator greater than \$0, with only 10% of the farms showing a return to labor & management greater \$100,000 this year.

DISTRIBUTION OF LABOR & MANAGEMENT INCOMES PER OPERATOR

116 Large Herd Dairy Farms, 2015



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

116 Large Herd Dairy Farms, 2015

| Item | Average 116 Farms | Average Top 20% Farms |
|---|----------------------|--------------------------|
| Net farm income with appreciation | \$ 562,574 | \$ 1,289,736 |
| Family labor unpaid @ \$2,600 per month | - 722 | - 610 |
| Value of operators' labor & management | - 185,143 | - 215,300 |
| Return on equity capital with appreciation | \$ 376,709 | \$ 1,073,826 |
| Interest paid | + 118,278 | + 75,253 |
| Return on total capital with appreciation | \$ 494,987 | \$ 1,149,080 |
| Return on equity capital without appreciation | \$ 47,610 | \$ 722,237 |
| Return on total capital without appreciation | \$ 165,888 | \$ 797,490 |
| Rate of return on average equity capital: | | |
| with appreciation | 4.4% | 8.9% |
| without appreciation | 0.6% | 6.0% |
| Rate of return on average total capital: | | |
| with appreciation | 4.1% | 7.8% |
| without appreciation | 1.4% | 5.4% |
| Net farm income from operations ratio | 0.04 | 0.13 |

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 2015, leases were discounted by 7 percent.

Advanced government receipts are included as current liabilities. Government payments received in 2015 that are for participation in the 2016 program are the end year balance and payments received in 2014 for participation in the 2015 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.

2015 FARM BUSINESS & NONFARM MARKET VALUE BALANCE SHEET

116 Large Herd Dairy Farms, 2015

| Farm Assets | Jan. 1 | Dec. 31 | Farm Liabilities & Net Worth | Jan. 1 | Dec. 31 |
|----------------------------------|--------------|--------------|---------------------------------|--------------|--------------|
| <u>Current</u> | | | <u>Current</u> | | |
| Farm cash, checking & savings | \$ 114,694 | \$ 85,084 | Accounts payable | \$ 74,709 | \$ 102,926 |
| Accounts receivable | 793,535 | 530,548 | Operating debt | 358,696 | 339,575 |
| Prepaid expenses | 27,722 | 12,429 | Short Term | 3,802 | 6,566 |
| Feed & supplies | 1,576,745 | 1,435,453 | Advanced govt. receipts | 0 | 2 |
| | | | Current Portion: | | |
| | | | Intermediate | 278,622 | 284,798 |
| | | | Long Term | 100,178 | 112,369 |
| Total Current | \$ 2,512,696 | \$ 2,063,513 | Total Current | \$ 816,007 | \$ 846,237 |
| <u>Intermediate</u> | | | <u>Intermediate</u> | | |
| Dairy cows: | | | Structured debt | | |
| owned | \$ 1,440,558 | \$ 1,514,474 | 1-10 years | \$ 1,450,795 | \$ 1,450,591 |
| leased | 0 | 0 | Financial lease | | |
| Heifers | 824,777 | 870,976 | (cattle/machinery) | 14,478 | 11,486 |
| Bulls/other livestock | 32,676 | 30,969 | Farm Credit stock | 1,387 | 2,229 |
| Mach./equipment owned | 1,959,407 | 2,080,818 | Total Intermediate | \$ 1,466,660 | \$ 1,464,306 |
| Mach./equipment leased | 14,478 | 11,486 | | | |
| Farm Credit stock | 1,387 | 2,229 | | | |
| Other stock/certificate | 370,124 | 413,715 | | | |
| Total Intermediate | \$ 4,643,407 | \$ 4,924,666 | | | |
| <u>Long Term</u> | | | <u>Long Term</u> | | |
| Land/buildings: | | | Structured debt | | |
| owned | \$ 4,747,760 | \$ 5,413,239 | >10 years | \$ 1,286,654 | \$ 1,551,443 |
| leased | 1,266 | 655 | Financial lease | | |
| Total Long Term | \$ 4,749,026 | \$ 5,413,894 | (structures) | 1,266 | 655 |
| | | | Total Long Term | \$ 1,287,920 | \$ 1,552,098 |
| | | | | | |
| Total Farm Assets | \$11,905,129 | \$12,402,073 | Total Farm Liab. | \$ 3,570,587 | \$ 3,862,641 |
| | | | FARM NET WORTH | \$ 8,334,542 | \$ 8,539,433 |

Nonfarm Assets, Liabilities & Net Worth (Average of 35 farms reporting)

| Assets | Jan. 1 | Dec. 31 | Liabilities & Net Worth | Jan. 1 | Dec. 31 |
|--------------------------------------|-----------|-----------|-------------------------|-----------|-----------|
| Personal cash, checking & savings | \$ 5,929 | \$ 6,355 | Nonfarm Liabilities | \$3,444 | \$0 |
| Cash value life insurance | 92,859 | 96,365 | | | |
| Nonfarm real estate | 117,714 | 120,286 | | | |
| Auto (personal share) | 4,583 | 6,126 | | | |
| Stocks & bonds | 345,000 | 369,928 | | | |
| Household furnishings | 2,571 | 2,571 | | | |
| All other nonfarm assets | 342,488 | 347,873 | | | |
| Total Nonfarm Assets | \$911,145 | \$949,503 | NONFARM NET WORTH | \$907,701 | \$949,503 |

| Farm & Nonfarm Assets, Liabilities, and Net Worth ¹³ | Jan. 1 | Dec. 31 |
|---|--------------|--------------|
| Total Assets | \$12,816,274 | \$13,351,576 |
| Total Liabilities | 3,574,031 | 3,862,641 |
| TOTAL FARM & NONFARM NET WORTH | \$ 9,242,243 | \$ 9,488,935 |

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

116 Large Herd Dairy Farms, 2015

| Item | Average 116 Farms | Average Top 20% Farms |
|---|-----------------------------|------------------------------|
| <u>Financial Ratios - Farm:</u> | | |
| Percent equity | 69% | 82% |
| Debt/asset ratio: total | 0.31 | 0.18 |
| long-term | 0.29 | 0.15 |
| intermediate/current | 0.33 | 0.21 |
| Leverage Ratio | 0.45 | 0.22 |
| Current Ratio | 2.44 | 3.69 |
| Working Capital: \$1,217,277 | as % of Total Expenses: 22% | \$2,108,920 35% |
| <u>Farm Debt Analysis:</u> | | |
| Accounts payable as % of total debt | 3% | 3% |
| Long-term liabilities as a % of total debt | 40% | 34% |
| Current & intermediate liabilities as a % of total debt | 60% | 66% |
| Cost of term debt (weighted average) | 3.98% | 3.43% |
| | <u>Average 116 Farms</u> | <u>Average Top 20% Farms</u> |
| | Per Cow | Per Tillable Acre Owned |
| <u>Farm Debt Levels:</u> | | |
| Total farm debt | \$3,810 | \$3,649 |
| Long-term debt | 1,531 | 746 |
| Long-term & intermediate | 2,975 | 1,560 |
| Intermediate & current debt | 2,279 | 1,436 |
| | | Per Tillable Acre Owned |
| | | \$2,140 |
| | | 732 |
| | | 1,530 |
| | | 1,409 |

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

116 Large Herd Dairy Farms, 2015

| Item | Average of 116 Farms | |
|-------------------------|--------------------------|----------------------------------|
| | <u>Real Estate</u> | <u>Machinery & Equipment</u> |
| Value beginning of year | \$ 4,747,760 | \$ 1,959,407 |
| Purchases | \$ 846,682 ¹⁴ | \$ 353,231 |
| Gift/inheritance | + 0 | + 0 |
| Lost capital | - 238,365 | |
| Sales | - 19,798 | - 13,077 |
| Depreciation | - 176,702 | - 252,391 |
| Net investment | = 411,817 | = 87,762 |
| Appreciation | + 253,662 | + 33,648 |
| Value end of year | \$ 5,413,239 | \$ 2,080,818 |

¹⁴ \$304,449 land and \$542,233 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)

116 Large Herd Dairy Farms, 2015

| Item | Average 116 Farms | | Average Top 20% Farms | |
|---|-------------------|----------------|-----------------------|----------------|
| Beginning of year farm net worth | | \$ 8,472,461 | | \$11,789,345 |
| Net farm income without appreciation | \$ 233,367 | | \$ 938,147 | |
| + Nonfarm cash income | + 3,290 | | + 1,246 | |
| - Personal withdrawals & family expenditures excluding nonfarm borrowings | - \$ 345,133 | | - \$ 588,574 | |
| Retained Earnings | | +\$ -108,475 | | + \$350,819 |
| Nonfarm noncash transfers to farm | \$ 0 | | \$ 0 | |
| + Cash used in business from nonfarm capital | + 83,745 | | + 51,866 | |
| - Note/mortgage from farm real estate sold (nonfarm) | - 0 | | - 0 | |
| Contributed/Withdrawn Capital | = | +\$ 83,745 | | + \$ 51,866 |
| Appreciation | \$ 329,099 | | \$ 351,589 | |
| - Lost capital | - 238,365 | | - 269,770 | |
| Change in Valuation Equity | | +\$ 90,733 | | + \$ 81,819 |
| Imbalance/Error | | - -970 | | - 1,820 |
| End of year farm net worth ¹⁵ | | = \$ 8,539,433 | | = \$12,272,029 |
| Change in net worth with appreciation | | \$ 66,972 | | \$ 482,684 |
| <u>Change in Net Worth</u> | | | | |
| Without appreciation | | \$ -262,127 | | \$131,095 |
| With appreciation | | \$ 66,972 | | \$482,684 |

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
116 Large Herd Dairy Farms, 2015

| Item | Average 116 Farms | | |
|--|-------------------|---------------------|------------------|
| <u>Cash Flow from Operating Activities</u> | | | |
| Cash farm receipts | \$ 5,832,878 | | |
| - Cash farm expenses | 4,799,977 | | |
| - Extraordinary expense | 546 | | |
| = Net cash farm income | | \$ 1,032,355 | |
| Personal withdrawals/family expenses including nonfarm debt payments | \$ 344,362 | | |
| - Nonfarm income | <u>3,290</u> | | |
| - Net cash withdrawals from the farm | | <u>\$ 341,072</u> | |
| = Net Provided by Operating Activities | | | \$ 691,283 |
| <u>Cash Flow From Investing Activities</u> | | | |
| Sale of Assets: Machinery | \$ 13,077 | | |
| + real estate | 19,798 | | |
| + other stock & certificates | <u>4,149</u> | | |
| = Total asset sales | | \$ 37,024 | |
| Capital purchases: expansion livestock | \$ 24,655 | | |
| + machinery | 353,231 | | |
| + real estate | 846,682 | | |
| + other stock & certificates | <u>21,806</u> | | |
| - Total invested in farm assets | | <u>\$ 1,246,374</u> | |
| = Net Provided by Investment Activities | | | \$-1,209,350 |
| <u>Cash Flow From Financing Activities</u> | | | |
| Money borrowed (intermediate & long term) | \$ 831,220 | | |
| + Money borrowed (short-term) | 6,004 | | |
| + Increase in operating debt | 0 | | |
| + Cash from nonfarm capital used in business | 83,745 | | |
| + Money borrowed - nonfarm | <u>-771</u> | | |
| = Cash inflow from financing | | \$ 920,197 | |
| Principal payments (intermediate & long-term) | \$ 410,348 | | |
| + Principal payments (short-term) | 3,240 | | |
| + Decrease in operating debt | <u>19,122</u> | | |
| - Cash outflow for financing | | <u>\$ 432,709</u> | |
| = Net Provided by Financing Activities | | | \$ 487,487 |
| <u>Cash Flow From Business</u> | | | |
| Beginning farm cash, checking & savings | | \$ 114,694 | |
| - Ending farm cash, checking & savings | | <u>85,084</u> | |
| = Net Provided from Reserves | | | <u>\$ 29,610</u> |
| <u>Imbalance (error)</u> | | | \$ -970 |

ANNUAL CASH FLOW STATEMENT
23 Top 20% Large Herd Dairy Farms, 2015

| Item | Average Top 20% Farms | | |
|--|-----------------------|---------------------|---------------|
| <u>Cash Flow from Operating Activities</u> | | | |
| Cash farm receipts | \$7,164,810 | | |
| - Cash farm expenses | 5,333,800 | | |
| - Extraordinary expense | <u>0</u> | | |
| = Net cash farm income | | \$ 1,831,010 | |
| Personal withdrawals/family expenses including nonfarm debt payments | \$ 588,574 | | |
| - Nonfarm income | <u>1,246</u> | | |
| - Net cash withdrawals from the farm | | <u>\$ 587,328</u> | |
| = Net Provided by Operating Activities | | | \$ 1,243,682 |
| <u>Cash Flow From Investing Activities</u> | | | |
| Sale of Assets: Machinery | \$ 11,727 | | |
| + real estate | 9,486 | | |
| + other stock & certificate | <u>5,053</u> | | |
| = Total asset sales | | \$ 26,266 | |
| Capital purchases: expansion livestock | \$ 38,605 | | |
| + machinery | 467,211 | | |
| + real estate | 964,731 | | |
| + other stock & certificate | <u>17,192</u> | | |
| - Total invested in farm assets | | <u>\$ 1,487,739</u> | |
| = Net Provided by Investment Activities | | | \$ -1,461,473 |
| <u>Cash Flow From Financing Activities</u> | | | |
| Money borrowed (intermediate & long term) | \$ 499,249 | | |
| + Money borrowed (short-term) | 1,413 | | |
| + Increase in operating debt | 0 | | |
| + Cash from nonfarm capital used in business | 51,866 | | |
| + Money borrowed - nonfarm | <u>0</u> | | |
| = Cash inflow from financing | | \$ 552,527 | |
| Principal payments (intermediate & long-term) | \$ 398,995 | | |
| + Principal payments (short-term) | 0 | | |
| + Decrease in operating debt | <u>70,168</u> | | |
| - Cash outflow for financing | | <u>\$ 469,163</u> | |
| = Net Provided by Financing Activities | | | \$ 83,365 |
| <u>Cash Flow From Business</u> | | | |
| Beginning farm cash, checking & savings | | \$ 275,877 | |
| - Ending farm cash, checking & savings | | <u>139,631</u> | |
| = Net Provided from Reserves | | | \$ 136,246 |
| <u>Imbalance (error)</u> | | | \$ 1,820 |

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 2016. The cash flow projection worksheet on the next page can be used to estimate repayment ability, which can then be compared to planned 2016 debt payments shown below.

FARM DEBT PAYMENTS PLANNED

Large Herd Dairy Farms, 2014 & 2015

| Debt Payments | Same 112 Dairy Farms | | | Same 23 Top 20% Farms | | |
|----------------------------------|----------------------|------------|-----------------|-----------------------|------------|-----------------|
| | 2015 Payments | | Planned 2016 | 2015 Payments | | Planned 2016 |
| | Planned | Made | | Planned | Made | |
| Long-term | \$ 160,313 | \$ 174,681 | \$ 181,094 | \$ 123,448 | \$ 130,530 | \$ 113,297 |
| Intermediate-term | 349,351 | 354,822 | 345,814 | 227,125 | 340,697 | 247,763 |
| Short-term | 1,009 | 3,515 | 2,027 | 0 | 0 | 1,413 |
| Operating (net reduction) | 15,714 | 110,946 | 22,777 | 16,304 | 179,203 | 4,348 |
| Accounts payable (net reduction) | 3,397 | 14,864 | 3,773 | 0 | 9,407 | 2,174 |
| Total | \$ 529,784 | \$ 658,828 | \$ 555,485 | \$ 366,877 | \$ 659,837 | \$ 368,995 |
| Per cow | \$ 509 | \$ 633 | | \$ 291 | \$ 523 | |
| Per cwt. 2015 milk | \$ 1.98 | \$ 2.46 | | \$ 1.14 | \$ 2.04 | |
| Percent of total 2015 receipts | 9.0% | 11.4% | | 5.1% | 9.4% | |
| Percent of 2015 milk receipts | 10.3% | 13.5% | | 5.8% | 11.2% | |

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 2015 (as of December 31, 2014) that could have been made with the amount available for debt service in 2015. Farmers who did not participate in DFBS in 2014 have their 2015 cash flow coverage ratio based on planned debt payments for 2016.

COVERAGE RATIOS

Same 112 Large Herd Dairy Farms, 2014 & 2015

| Item | Average | Item | Average |
|---|--------------|---|------------|
| <u>Cash Flow Coverage Ratio</u> | | <u>Debt Coverage Ratio</u> | |
| Cash farm receipts | \$ 5,920,889 | Net farm income (without appreciation) | \$ 240,078 |
| - Cash farm expenses | 4,862,092 | + Depreciation | 439,486 |
| + Interest paid (cash) | 119,364 | + Interest paid (accrual) | 119,803 |
| - Net personal withdrawals from farm ¹⁶ | 349,589 | - Net personal withdrawals from farm ¹⁶ | 349,589 |
| (A) = Amount Available for Debt Service | \$ 828,572 | (A') = Repayment Capacity | \$ 449,778 |
| (B) = Debt Payments Planned for 2015 (as of December 31, 2014) | \$ 529,784 | (B) = Debt Payments Planned for 2015 (as of December 31, 2014) | \$ 529,784 |
| (A/B) = Cash Flow Coverage Ratio for 2015 | 1.56 | (A'/B) = Debt Coverage Ratio for 2015 | 0.85 |
| ----- | | | |
| Same 23 Top 20% Dairy Farms, 2014 & 2015 | | | |
| (A) = Amount Available for Debt Service | \$ 1,318,547 | (A') = Repayment Capacity | \$ 938,919 |
| (B) = Debt Payments Planned for 2015 | \$ 366,877 | (B) = Debt Payments Planned for 2015 | \$ 366,877 |
| (A/B) = Cash Flow Coverage Ratio for 2015 | 3.59 | (A'/B) = Debt Coverage Ratio for 2015 | 2.56 |

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
116 Large Herd Dairy Farms, 2015

| Item | Average 116 Farms | | Total |
|--|-------------------|----------|--------------|
| | Per Cow | Per Cwt. | |
| Number cows and cwt. Milk | 1,027 | 263,835 | |
| <u>Accrual Operating Receipts</u> | | | |
| Milk | \$ 4,707 | \$18.31 | \$ 4,831,743 |
| Dairy cattle | 487 | 1.89 | 499,883 |
| Dairy calves | 112 | 0.44 | 115,455 |
| Other livestock | 16 | 0.06 | 16,231 |
| Crops | 96 | 0.37 | 98,791 |
| Misc. receipts | 149 | 0.58 | 152,541 |
| Total Operating Receipts | \$ 5,567 | \$21.66 | \$ 5,714,644 |
| <u>Accrual Operating Expenses</u> | | | |
| Hired labor | \$ 788 | \$ 3.07 | \$ 809,271 |
| Dairy grain & concentrate | 1,695 | 6.60 | 1,740,232 |
| Dairy roughage | 83 | 0.32 | 85,409 |
| Nondairy feed | 0 | 0.00 | 51 |
| Professional nutritional services | 1 | 0.00 | 930 |
| Machinery hire/rent/lease | 129 | 0.50 | 132,716 |
| Machinery repair & farm vehicle expense | 259 | 1.01 | 265,736 |
| Fuel, oil & grease | 148 | 0.58 | 151,913 |
| Replacement livestock | 10 | 0.04 | 10,251 |
| Breeding | 55 | 0.21 | 56,604 |
| Veterinary & medicine | 176 | 0.69 | 181,146 |
| Milk marketing | 248 | 0.96 | 254,437 |
| Bedding | 99 | 0.39 | 101,637 |
| Milking supplies | 102 | 0.40 | 104,427 |
| Cattle lease | 4 | 0.02 | 4,087 |
| Custom boarding | 106 | 0.41 | 108,332 |
| bST expense | 47 | 0.18 | 48,292 |
| Livestock professional fees | 15 | 0.06 | 15,137 |
| Other livestock expense | 22 | 0.08 | 22,400 |
| Fertilizer & lime | 145 | 0.57 | 149,205 |
| Seeds & plants | 129 | 0.50 | 132,331 |
| Spray/other crop expenses | 60 | 0.23 | 61,655 |
| Crop professional fees | 6 | 0.02 | 6,114 |
| Land, building, fence repair | 94 | 0.36 | 95,992 |
| Taxes | 63 | 0.24 | 64,434 |
| Real estate rent/lease | 76 | 0.30 | 78,104 |
| Insurance | 59 | 0.23 | 60,388 |
| Utilities | 99 | 0.39 | 101,735 |
| Other professional fees | 32 | 0.12 | 32,574 |
| Miscellaneous | 32 | 0.13 | 33,055 |
| Total Less Interest Paid | \$ 4,781 | \$18.60 | \$ 4,908,597 |
| <u>Net Accrual Operating Income</u> | | | |
| (without interest paid) | \$ 785 | \$ 3.06 | \$ 806,047 |
| - Change in livestock/crop inventory ¹⁷ | 141 | 0.55 | 144,645 |
| - Change in accounts receivable | -256 | -1.00 | -262,987 |
| - Change in feed/supply inventory ¹⁸ | -194 | -0.75 | -198,680 |
| + Change in accounts payable ¹⁹ | 27 | 0.11 | 27,918 |
| NET CASH FLOW | \$ 1,121 | \$ 4.36 | \$ 1,150,986 |
| - Net personal withdrawals from farm (see footnote on page 22) | 333 | 1.30 | 341,843 |
| Available for Farm Debt Payments & Investments | \$ 788 | \$ 3.07 | \$ 809,143 |
| - Farm debt payments | 632 | 2.46 | 648,704 |
| Available for Farm Investment | \$ 156 | \$ 0.61 | \$ 160,439 |
| - Capital purchases: cattle, machinery & improvements | 1,214 | 4.72 | 1,246,374 |
| Additional Capital Needed | \$-1,058 | \$ -4.12 | \$-1,085,935 |

¹⁷Includes change in advance government receipts.

¹⁸Includes change in prepaid expenses.

¹⁹Excludes change in interest account payable.

ANNUAL CASH FLOW WORKSHEET
23 Top 20% Large Herd Dairy Farms, 2015

| Item | Average Top 20% Farms | | |
|--|-----------------------|-------------|------------------|
| | Per Cow | Per Cwt. | Total |
| No. cows or cwt. milk | 1,262 | 322,878 | |
| <u>Accrual Operating Receipts</u> | | | |
| Milk | \$4,666 | \$18.23 | \$5,885,847 |
| Dairy cattle | 503 | 1.97 | 634,644 |
| Dairy calves | 111 | 0.43 | 139,886 |
| Other livestock | 29 | 0.11 | 36,398 |
| Crops | 131 | 0.51 | 165,103 |
| Misc. receipts | <u>145</u> | <u>0.57</u> | <u>182,501</u> |
| Total Operating Receipts | \$5,584 | \$21.82 | \$7,044,379 |
| <u>Accrual Operating Expenses</u> | | | |
| Hired labor | \$ 676 | \$ 2.64 | \$ 852,754 |
| Dairy grain & concentrate | 1,596 | 6.23 | 2,013,016 |
| Dairy roughage | 99 | 0.38 | 124,264 |
| Nondairy feed | 0 | 0.00 | 4 |
| Professional nutritional services | 2 | 0.01 | 2,367 |
| Mach. hire/rent/lease | 127 | 0.50 | 160,568 |
| Mach. repair & farm vehicle expense | 221 | 0.86 | 278,708 |
| Fuel, oil & grease | 134 | 0.52 | 168,811 |
| Replacement livestock | 1 | 0.00 | 776 |
| Breeding | 42 | 0.16 | 52,660 |
| Veterinary & medicine | 159 | 0.62 | 200,891 |
| Milk marketing | 247 | 0.97 | 311,607 |
| Bedding | 98 | 0.38 | 123,490 |
| Milking supplies | 88 | 0.35 | 111,638 |
| Cattle lease | 0 | 0.00 | 276 |
| Custom boarding | 91 | 0.36 | 114,697 |
| bST expense | 48 | 0.19 | 60,780 |
| Livestock professional fees | 14 | 0.06 | 17,972 |
| Other livestock expense | 18 | 0.07 | 22,795 |
| Fertilizer & lime | 134 | 0.52 | 168,773 |
| Seeds & plants | 104 | 0.41 | 131,170 |
| Spray/other crop expenses | 47 | 0.18 | 59,571 |
| Crop professional fees | 4 | 0.01 | 4,534 |
| Land, building, fence repair | 80 | 0.31 | 101,168 |
| Taxes | 62 | 0.24 | 78,541 |
| Real estate rent/lease | 61 | 0.24 | 76,953 |
| Insurance | 46 | 0.18 | 58,525 |
| Utilities | 92 | 0.36 | 115,620 |
| Other professional fees | 26 | 0.10 | 32,673 |
| Miscellaneous | <u>27</u> | <u>0.11</u> | <u>33,926</u> |
| Total Less Interest Paid | \$4,344 | \$16.97 | \$5,479,528 |
| <u>Net Accrual Operating Income</u> | | | |
| (without interest paid) | \$1,240 | \$ 4.85 | \$1,564,852 |
| - Change in livestock/crop inventory ²⁰ | 235 | 0.92 | 296,512 |
| - Change in accounts receivable | -331 | -1.29 | -416,943 |
| - Change in feed/supply inventory ²¹ | -155 | -0.61 | -195,944 |
| + Change in accounts payable ²² | <u>20</u> | <u>0.08</u> | <u>24,649</u> |
| NET CASH FLOW | \$1,511 | \$ 5.90 | \$1,905,875 |
| - Net personal withdrawals from farm(see footnote page 22) | <u>466</u> | <u>1.82</u> | <u>587,328</u> |
| Available for Farm Debt Payments & Investments | \$1,045 | \$ 4.08 | \$1,318,547 |
| - Farm debt payments | <u>523</u> | <u>2.04</u> | <u>659,837</u> |
| Available for Farm Investment | \$ 522 | \$ 2.04 | \$ 658,710 |
| - Capital purchases: cattle, machinery & improvements | <u>1,179</u> | <u>4.61</u> | <u>1,487,739</u> |
| Additional Capital Needed | \$ 657 | \$ 2.57 | \$ 829,029 |

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

116 Large Herd Dairy Farms, 2015

| Item | Average 116 Farms | | | Average Top 20% Farms | | |
|----------------------|-------------------|----------------------------|------------------|-----------------------|---------------|------------------|
| <u>Land</u> | <u>Owned</u> | <u>Rented</u> | <u>Total</u> | <u>Owned</u> | <u>Rented</u> | <u>Total</u> |
| Tillable | 1,059 | 953 | 2,011 | 1,284 | 1,086 | 2,370 |
| Nontillable | 25 | 7 | 32 | 8 | 3 | 10 |
| Other nontillable | <u>208</u> | <u>6</u> | <u>214</u> | <u>123</u> | <u>18</u> | <u>141</u> |
| Total | 1,291 | 966 | 2,257 | 1,415 | 1,106 | 2,521 |
| <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 | 114 | 870 | 3.45 tn DM | 22 | 1,133 | 3.55 tn DM |
| Corn silage | 113 | 841 | 18.02 tn | 22 | 1,046 | 18.87 tn |
| Other forage | 23 | 179 | 6.28 tn DM | 3 | 91 | 1.37 tn DM |
| Total forage | 114 | 1,740 | 4.85 tn DM | 22 | 2,191 | 5.06 tn DM |
| Corn grain | 66 | 304 | 144 bu | 13 | 274 | 152 bu |
| Oats | 5 | 103 | 88 bu | 0 | 0 | 0 bu |
| Wheat | 28 | 164 | 63 bu | 6 | 211 | 70 bu |
| Other crops | 32 | 182 | | 4 | 74 | |
| Tillable pasture | 8 | 240 | | 2 | 376 | |
| Idle tillable | 40 | 122 | | 8 | 80 | |
| Total Tillable Acres | 116 | 2,011 | | 23 | 2,370 | |

²³This column represents the average acreage for the farms producing that crop. Average acreages including those farms not producing were corn grain 173, oats 4, wheat 40, tillable pasture 17, and idle 42.

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

114 Large Herd Dairy Farms, 2015 ²⁴

| Item | Average 114 Farms | Average Top 20% Farms |
|---|-------------------|-----------------------|
| Total tillable acres per cow | 1.99 | 1.95 |
| Total forage acres per cow | 1.69 | 1.72 |
| Harvested forage dry matter, tons per cow | 8.21 | 8.72 |

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, 2015

| 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 | 114 ²⁵ | 4 | | | 4 | |
| Ave. number of acres | 2,046 | 945 | | | 849 | |
| Fertilizer/lime | \$ 76.83 | \$ 90.39 | \$ 17.86 | \$ 0.24 | \$ 40.57 | \$ 13.19 |
| Seed/plants | 66.12 | 79.45 | 14.83 | 0.14 | 27.50 | 9.15 |
| Spray/other crop exp. | 31.73 | 41.49 | 7.01 | 0.18 | 9.89 | 3.30 |
| TOTAL | \$ 174.68 | \$ 211.32 | \$ 39.70 | \$ 0.56 | \$ 77.95 | \$ 25.63 |
| Average Top 20% Farms: | | | | | | |
| No. of farms reporting | 22 ²⁴ | | | | | |
| Ave. number of acres | 2,478 | | | | | |
| Fertilizer/lime | \$ 73.37 | | | | | |
| Seeds/plants | 51.97 | | | | | |
| Spray/other crop exp. | 26.57 | | | | | |
| TOTAL | \$ 151.91 | | | | | |

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

114 Large Herd Dairy Farms, 2015

| Machinery Expense Item | Average 114 Farms | | Average Top 20% Farms | |
|---------------------------------------|-------------------|----------------------|-----------------------|----------------------|
| | Total Expenses | Per Tillable Acre | Total Expenses | Per Tillable Acre |
| Fuel, oil & grease | \$153,600 | \$ 75.08 | \$ 172,828 | \$ 69.76 |
| Machinery repairs & farm vehicle exp. | 268,294 | 131.15 | 283,077 | 114.26 |
| Machine hire, rent & lease | 133,084 | 65.06 | 167,283 | 67.52 |
| Interest (5%) | 103,062 | 50.38 | 120,716 | 48.72 |
| Depreciation | 255,473 | 124.88 | 298,468 | 120.47 |
| Total | \$913,512 | \$446.55 | \$1,042,370 | \$420.73 |

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
116 Large Herd Dairy Farms, 2015

| | Dairy Cows | | | | Heifers | | | |
|-------------------------------|------------|---------------|------------------------|---------------|---------|---------------|-----|-----------------|
| Item | No. | Value | No. | Bred Value | No. | Open Value | No. | Calves Value |
| <u>Average 116 Farms:</u> | | | | | | | | |
| Beginning year (owned) | 991 | \$1,440,558 | 310 | \$442,644 | 285 | \$254,483 | 254 | \$127,650 |
| + Change w/o appreciation | | 60,276 | | 20,992 | | 15,755 | | 6,490 |
| + Appreciation | | <u>13,640</u> | | <u>1,222</u> | | <u>318</u> | | <u>1,423</u> |
| End year (owned) | 1,030 | \$1,514,474 | 323 | \$464,857 | 300 | \$270,556 | 268 | \$135,562 |
| End including leased | 1,014 | | | | | | | |
| Average number | 1,027 | | 894 (all age groups) | | | | | |
| <u>Average Top 20% Farms:</u> | | | | | | | | |
| Beginning year (owned) | 1,217 | \$1,756,491 | 380 | \$550,949 | 323 | \$282,126 | 330 | \$170,304 |
| + Change w/o appreciation | | 108,391 | | 33,037 | | 12,723 | | 5,241 |
| + Appreciation | | <u>13,348</u> | | <u>4,057</u> | | <u>0</u> | | <u>-2,583</u> |
| End of year (owned) | 1,288 | \$1,878,230 | 402 | \$588,043 | 336 | \$294,850 | 342 | \$172,962 |
| End including leased | 1,259 | | | | | | | |
| Average number | 1,262 | | 1,136 (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
116 Large Herd Dairy Farms, 2015

| Item | Average 116 Farms | Average Top 20% Farms |
|---|---------------------|-----------------------|
| Total milk sold, lbs. | 26,383,510 | 32,287,815 |
| Milk sold per cow, lbs. | 25,700 | 25,594 |
| Butterfat per cow, lbs. | 974 ²⁷ | 962 |
| Protein per cow, lbs. | 791 ²⁷ | 796 |
| Total butterfat and protein per cow, lbs. | 1,765 ²⁷ | 1,758 |
| Other solids per cow, lbs. | 1,477 ²⁷ | 1,454 |
| Total components per cow, lbs. | 3,242 ²⁷ | 3,211 |

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

ANIMALS LEAVING THE HERD
116 Large Herd Dairy Farms, 2015

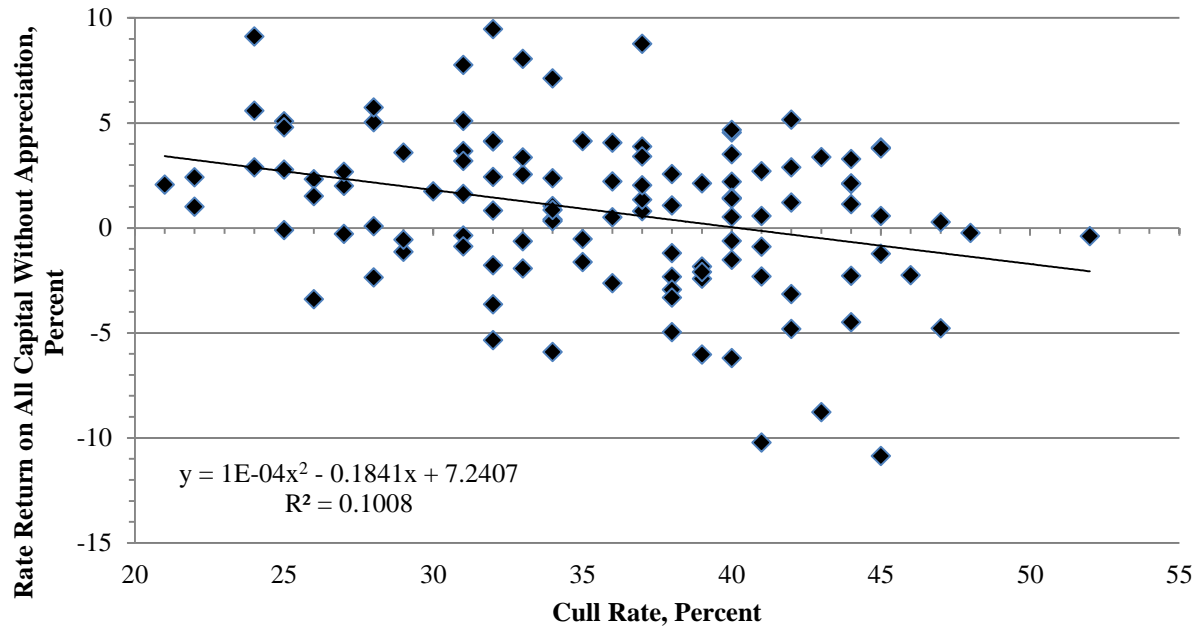
| | Average 116 Farms | | Average Top 20% Farms | |
|----------------------------|-------------------|-----------------------|-----------------------|-----------------------|
| | Number | Percent ²⁸ | Number | Percent ²⁸ |
| Cows sold for beef | 300 | 28.2 | 346 | 27.4 |
| Cows sold for dairy | 11 | 1.1 | 8 | 0.7 |
| Cows died | 60 | 5.8 | 71 | 5.6 |
| Culling rate ²⁹ | --- | 35.1 | --- | 33.7 |

²⁸Percent of average number of cows in the herd.

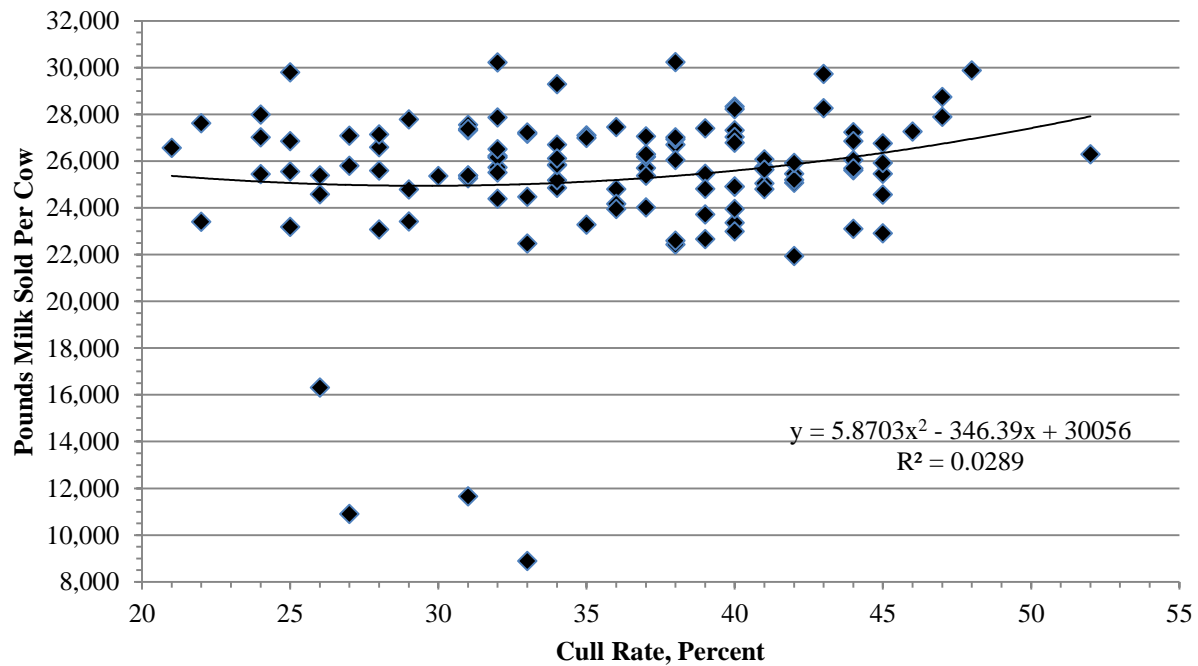
²⁹Cows sold for beef plus cows died.

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 2015.

RETURN TO ALL CAPITAL WITHOUT APPRECIATION VERSUS CULL RATE
114 Large Herd Dairy Farms, 2015



MILK SOLD PER COW VERSUS CULL RATE
114 Large Herd Dairy Farms, 2015



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

116 Large Herd Dairy Farms, 2015

| Item | Average 116 Farms | | | Average Top 20% Farms | | |
|--|-------------------|----------|----------|-----------------------|----------|----------|
| | Total | Per Cow | Per Cwt. | Total | Per Cow | Per Cwt. |
| <u>Accrual Costs of Producing Milk</u> | | | | | | |
| Operating costs | \$ 4,168,737 | \$ 4,061 | \$ 15.80 | \$ 4,434,854 | \$ 3,515 | \$ 13.74 |
| Purchased inputs costs | \$ 4,598,376 | \$ 4,479 | \$ 17.43 | \$ 4,947,700 | \$ 3,922 | \$ 15.32 |
| Total Costs | \$ 5,209,640 | \$ 5,075 | \$ 19.75 | \$ 5,765,145 | \$ 4,570 | \$ 17.86 |
| <u>Accrual Receipts From Milk</u> | | | | | | |
| Net Milk Receipts | \$ 4,831,743 | \$ 4,707 | \$ 18.31 | \$ 5,885,847 | \$ 4,666 | \$ 18.23 |
| Net Farm Income | \$ 4,577,306 | \$ 4,459 | \$ 17.35 | \$ 5,574,240 | \$ 4,419 | \$ 17.26 |
| without appreciation | \$ 233,367 | \$ 227 | \$ 0.88 | \$ 938,147 | \$ 744 | \$ 2.91 |
| Net Farm Income with appreciation | \$ 562,466 | \$ 548 | \$ 2.13 | \$ 1,289,736 | \$ 1,022 | \$ 3.99 |

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

116 Large Herd Dairy Farms, 2015

| Item | Average 116 Farms | | Average Top 20% Farms | |
|---|-------------------|----------|-----------------------|----------|
| | Per Cow | Per Cwt. | Per Cow | Per Cwt. |
| Purchased dairy grain & concentrate | \$ 1,695 | \$ 6.60 | \$ 1,596 | \$ 6.23 |
| Purchased dairy roughage | 83 | 0.32 | 99 | 0.38 |
| Total Purchased Dairy Feed | \$ 1,778 | \$ 6.92 | \$ 1,694 | \$ 6.62 |
| Purchased grain & concentrate as % of milk receipts | | 36% | | 34% |
| Purchased feed & crop expense | \$ 2,119 | \$ 8.24 | \$ 1,983 | \$ 7.75 |
| Purchased feed & crop expense as % of milk receipts | | 45% | | 43% |
| Breeding | \$ 55 | \$ 0.21 | \$ 42 | \$ 0.16 |
| Veterinary & medicine | 176 | 0.69 | 159 | 0.62 |
| Milk marketing | 248 | 0.96 | 247 | 0.97 |
| Bedding | 99 | 0.39 | 98 | 0.38 |
| Milking supplies | 102 | 0.40 | 88 | 0.35 |
| Cattle lease | 4 | 0.02 | 0 | 0.00 |
| Custom boarding | 106 | 0.41 | 91 | 0.36 |
| bST expense | 47 | 0.18 | 48 | 0.19 |
| Livestock professional fees | 15 | 0.06 | 14 | 0.06 |
| Other livestock expenses | 22 | 0.08 | 18 | 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.

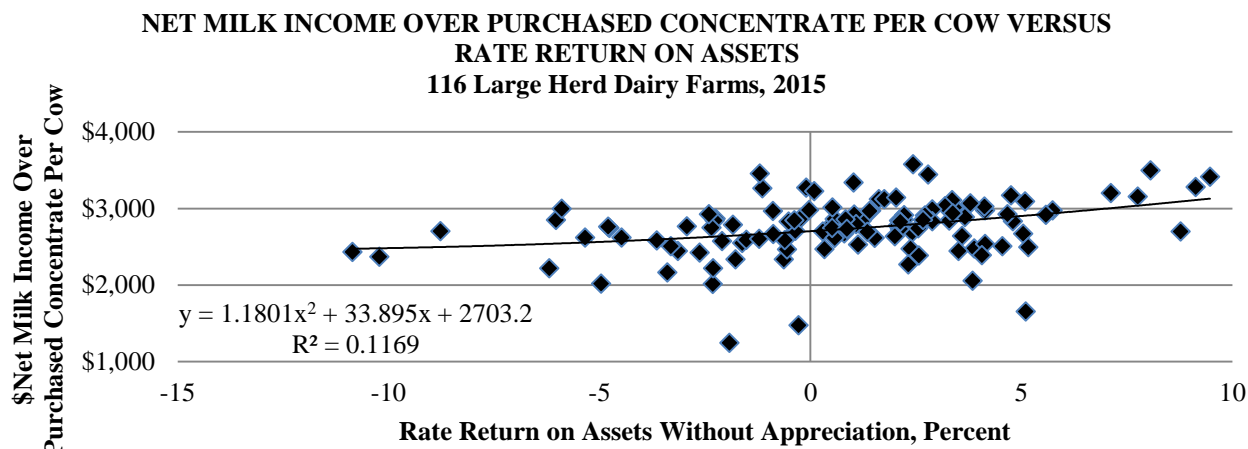
1. The cost of expansion livestock is added to total accrual operating expenses to offset any related inventory increase included in accrual receipts.
2. Accrual milk sales are deducted from total accrual receipts to get total accrual nonmilk receipts which are used to represent total nonmilk operating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

116 Large Herd Dairy Farms, 2015

| Item | Average 116 Farms | | Average Top 20% Farms | |
|---|-------------------|--------------|-----------------------|--------------|
| Total Accrual Operating Expenses | \$ | 5,026,875 | \$ | 5,554,781 |
| Expansion Livestock, Accrual | + | 24,655 | + | 38,605 |
| 1. Total Accrual Operating Expenses, Including Expansion Livestock | | \$ 5,051,530 | | \$ 5,593,386 |
| Total Accrual Receipts | \$ | 5,714,644 | \$ | 7,044,379 |
| Milk Sales, Accrual | - | 4,831,743 | - | 5,885,847 |
| 2. Total Accrual Nonmilk Receipts | | - 882,901 | | - 1,158,532 |
| 3. Operating Costs of Producing Milk | | \$ 4,168,629 | | \$ 4,434,854 |
| Cwt. of Milk Sold | ÷ | 263,835 | ÷ | 322,878 |
| Operating Costs/Cwt. | = | \$15.80 | = | \$13.74 |
| Machinery Depreciation | + | 252,391 | + | 291,289 |
| Building Depreciation | + | 176,702 | + | 221,557 |
| Extraordinary Expenses | + | 546 | + | 0 |
| 4. Purchased Inputs Cost of Producing Milk | | \$ 4,598,268 | | \$ 4,947,700 |
| Cwt. of Milk Sold | ÷ | 263,835 | ÷ | 322,878 |
| Purchased Inputs Cost/Cwt. | = | \$17.43 | = | \$15.32 |
| Family Labor Unpaid (\$2,600/month) | + | 722 | + | 610 |
| Real Interest on Equity Capital | + | 425,399 | + | 601,534 |
| Value of Operators' Labor & Management | + | 185,143 | + | 215,300 |
| 5. Total Costs of Producing Milk | | \$ 5,209,532 | | \$ 5,765,144 |
| Cwt. Milk Sold | ÷ | 263,835 | ÷ | 322,878 |
| Total Costs/Cwt. | = | \$19.75 | = | \$17.86 |

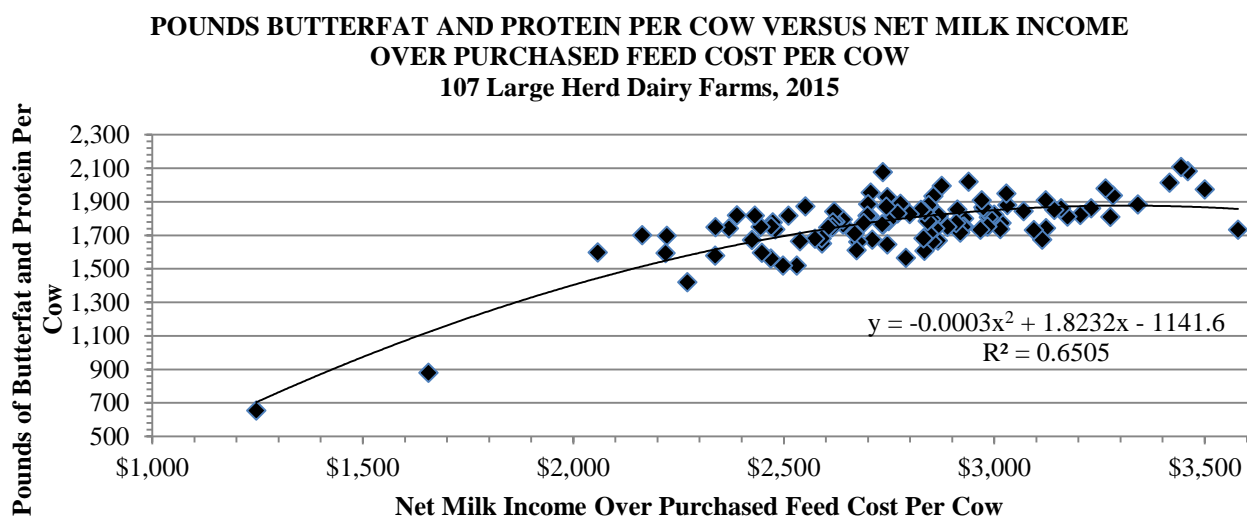
Net milk income over purchased feed cost per cow is a measure that incorporates the cost of purchased grain and concentrates along with the milk produced per cow and the price received for the component production. It is one of the key measures used to evaluate the effectiveness of the feeding program. 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, 2015**

| Net Milk Income Over Purchased Feed Cost Per Cow | Milk Production Per Cow | Butterfat pounds Per Cow | Protein Pounds Per Cow | Purchased Feed Costs Per Cwt. | Operating Cost of Producing Milk | Net Milk Price Per Cwt. |
|---|-------------------------------|--------------------------------|------------------------------|-------------------------------------|---|-------------------------------|
| \$ 3,363 | 27,928 | 1,067 | 861 | \$ 6.17 | \$ 14.94 | \$ 17.68 |
| 3,098 | 26,442 | 1,003 | 818 | 6.29 | 14.83 | 17.81 |
| 2,970 | 26,715 | 1,009 | 815 | 6.55 | 15.85 | 17.50 |
| 2,885 | 26,220 | 985 | 803 | 6.59 | 15.54 | 17.49 |
| 2,831 | 25,597 | 973 | 793 | 6.69 | 15.51 | 17.51 |
| 2,741 | 26,804 | 1,008 | 827 | 6.97 | 16.23 | 16.95 |
| 2,667 | 25,373 | 977 | 792 | 7.32 | 16.44 | 17.53 |
| 2,572 | 25,231 | 947 | 769 | 6.80 | 15.80 | 16.80 |
| 2,453 | 24,742 | 936 | 764 | 7.43 | 15.95 | 17.05 |
| 2,088 | 20,622 | 816 | 646 | 7.45 | 17.42 | 17.77 |



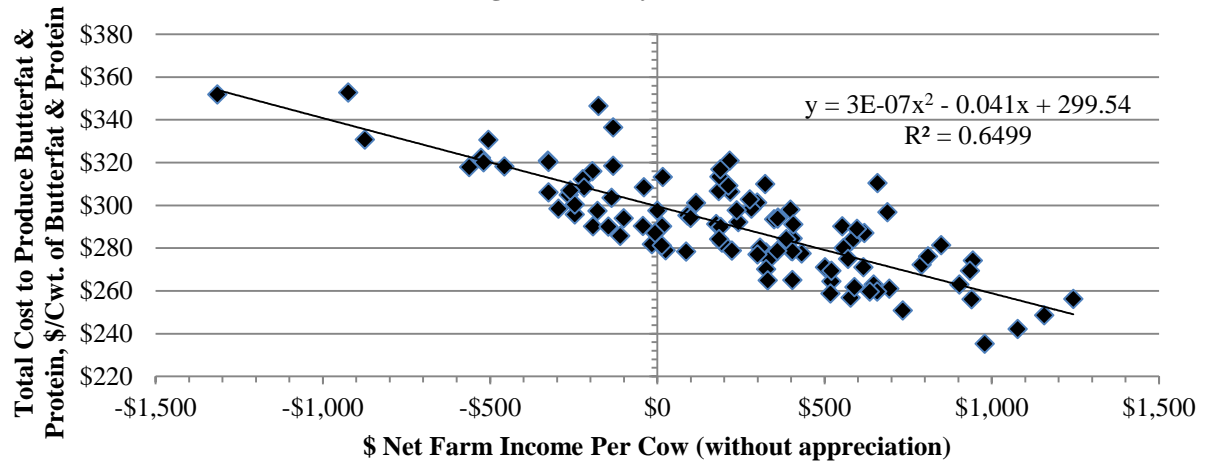
RECEIPTS AND EXPENSES PER HUNDREDWEIGHT OF BUTTERFAT AND PROTEIN³⁰

Same 105 Large Herd Dairy Farms, 2014 & 2015

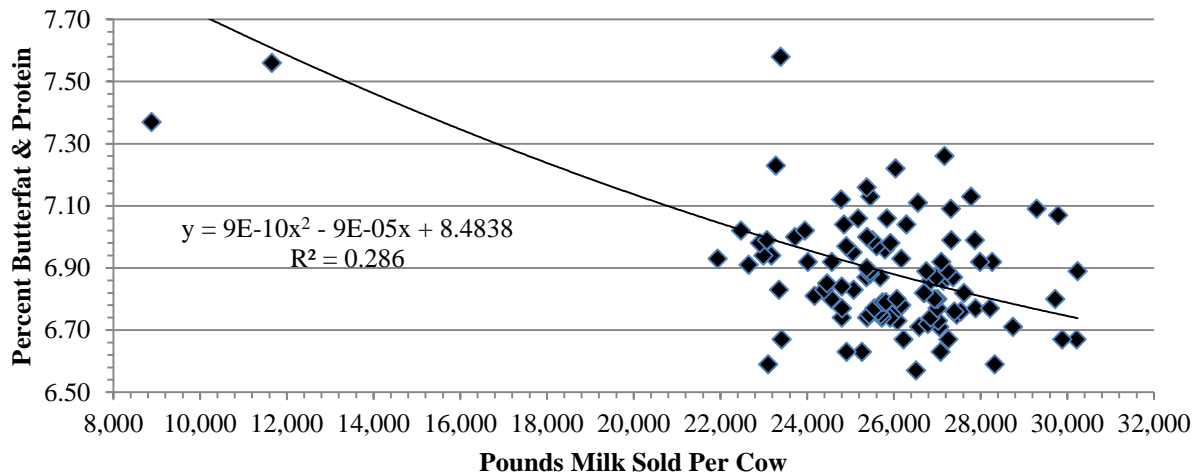
| Item | Average Same 105 Large Herd Dairy Farms | | Average Top 20% Farms | |
|--------------------------------------|--|-------------|--------------------------|-------------|
| | <u>2014</u> | <u>2015</u> | <u>2014</u> | <u>2015</u> |
| Cwt. of butterfat and protein sold | 17,515 | 18,784 | 22,200 | 24,099 |
| <u>Accrual Operating Receipts</u> | | | | |
| Milk | \$370.77 | \$260.68 | \$348.27 | \$244.24 |
| Dairy cattle | 27.59 | 27.04 | 26.25 | 26.33 |
| Dairy calves | 4.22 | 6.24 | 3.87 | 5.80 |
| Other livestock | 0.75 | 0.89 | 0.64 | 1.51 |
| Crops | 7.79 | 5.37 | 6.65 | 6.85 |
| Miscellaneous receipts | <u>6.58</u> | <u>8.36</u> | <u>7.25</u> | <u>7.57</u> |
| Total Operating Receipts | \$417.71 | \$308.59 | \$392.95 | \$292.31 |
| <u>Accrual Operating Expenses</u> | | | | |
| Hired labor | \$ 43.67 | \$ 43.69 | \$35.64 | \$35.39 |
| Dairy grain & concentrate | 106.87 | 93.84 | 96.90 | 83.53 |
| Dairy roughage | 5.08 | 4.46 | 6.07 | 5.16 |
| Nondairy feed | 0.00 | 0.00 | 0.00 | 0.00 |
| Professional nutritional services | 0.05 | 0.05 | 0.10 | 0.10 |
| Machine hire, rent & lease | 7.05 | 7.20 | 6.57 | 6.66 |
| Machine repair & vehicle expense | 16.09 | 14.36 | 12.06 | 11.57 |
| Fuel, oil & grease | 12.69 | 8.23 | 10.57 | 7.00 |
| Replacement livestock | 0.78 | 0.53 | 0.20 | 0.03 |
| Breeding | 3.28 | 3.08 | 2.27 | 2.19 |
| Veterinary & medicine | 10.16 | 9.81 | 8.16 | 8.34 |
| Milk marketing | 13.31 | 13.68 | 12.68 | 12.93 |
| Bedding | 5.65 | 5.48 | 5.53 | 5.12 |
| Milking supplies | 5.54 | 5.62 | 3.88 | 4.63 |
| Cattle lease | 0.25 | 0.18 | 0.06 | 0.01 |
| Custom boarding | 5.98 | 5.82 | 3.99 | 4.76 |
| bST expense | 2.95 | 2.60 | 3.08 | 2.52 |
| Livestock professional fees | 0.88 | 0.81 | 0.87 | 0.75 |
| Other livestock expense | 1.38 | 1.18 | 1.21 | 0.95 |
| Fertilizer & lime | 7.69 | 8.06 | 7.18 | 7.00 |
| Seeds & plants | 7.64 | 7.18 | 6.64 | 5.44 |
| Spray & other crop expense | 3.91 | 3.38 | 2.38 | 2.47 |
| Crop professional fees | 0.30 | 0.32 | 0.24 | 0.19 |
| Land, building & fence repair | 6.66 | 5.22 | 5.38 | 4.20 |
| Taxes | 3.58 | 3.51 | 3.50 | 3.26 |
| Real estate rent/lease | 4.36 | 4.22 | 2.87 | 3.19 |
| Insurance | 2.82 | 3.26 | 2.30 | 2.43 |
| Utilities | 6.72 | 5.46 | 6.46 | 4.80 |
| Interest paid | 6.37 | 6.38 | 3.03 | 3.12 |
| Other professional fees | 1.77 | 1.77 | 1.21 | 1.36 |
| Miscellaneous | <u>2.15</u> | <u>1.79</u> | <u>1.90</u> | <u>1.41</u> |
| Total Operating Expenses | \$295.65 | \$271.19 | \$252.94 | \$230.50 |
| Expansion livestock | 2.21 | 1.19 | 3.98 | 1.60 |
| Extraordinary expense | 0.09 | 0.03 | 0.33 | 0.00 |
| Machinery depreciation | 14.56 | 13.75 | 12.03 | 12.09 |
| Real Estate depreciation | <u>9.11</u> | <u>9.65</u> | <u>8.92</u> | <u>9.19</u> |
| Total Expenses | \$321.61 | \$295.80 | \$278.20 | \$253.38 |
| Net Farm Income without appreciation | \$ 96.09 | \$ 12.78 | \$114.75 | \$38.93 |

³⁰Average data for farms that provided complete milk component data for 2014 – 2015.

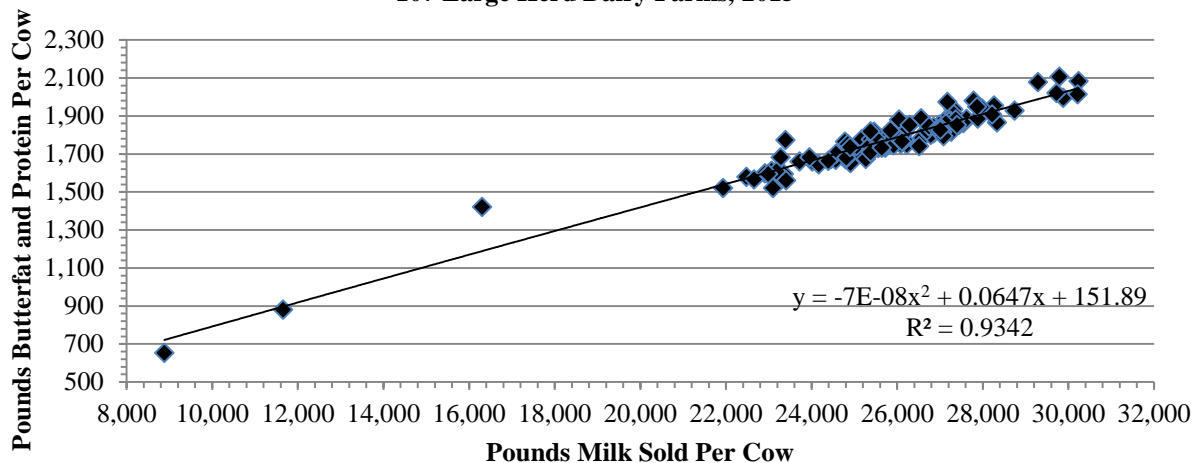
**TOTAL COST TO PRODUCE BUTTERFAT & PROTEIN VERSUS
NET FARM INCOME PER COW
107 Large Herd Dairy Farms, 2015**



**POUNDS MILK SOLD PER COW VERSUS PERCENT BUTTERFAT & PROTEIN
107 Large Herd Dairy Farms, 2015**



**POUNDS OF BUTTERFAT AND PROTEIN PER COW VERSUS
POUNDS MILK SOLD PER COW
107 Large Herd Dairy Farms, 2015**



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
116 Large Herd Dairy Farms, 2015

| 116 Large Herd Dairy Farms, 2015 | | | | |
|----------------------------------|-------------------|------------------|----------------------|-------------------------|
| Item | Per Worker | Per Cow | Per Tillable Acre | Per Tillable Acre Owned |
| <u>Average 116 Farms:</u> | | | | |
| Farm capital | \$ 540,641 | \$ 11,839 | \$ 6,043 | \$ 11,480 |
| Real estate | | 4,950 | | 4,800 |
| Machinery & equipment | 90,440 | 1,980 | 1,011 | |
| <u>Ratios</u> | | | | |
| Asset turnover ratio | Operating Expense | Interest Expense | Depreciation Expense | |
| 0.50 | 0.86 | 0.02 | 0.08 | |
| <u>Average Top 20% Farms:</u> | | | | |
| Farm capital | \$ 595,044 | \$ 11,693 | \$ 6,224 | \$ 11,486 |
| Real estate | | 4,794 | | 4,709 |
| Machinery & equipment | 94,144 | 1,850 | 985 | |
| <u>Ratios</u> | | | | |
| Asset turnover ratio | Operating Expense | Interest Expense | Depreciation Expense | |
| 0.50 | 0.78 | 0.01 | 0.07 | |

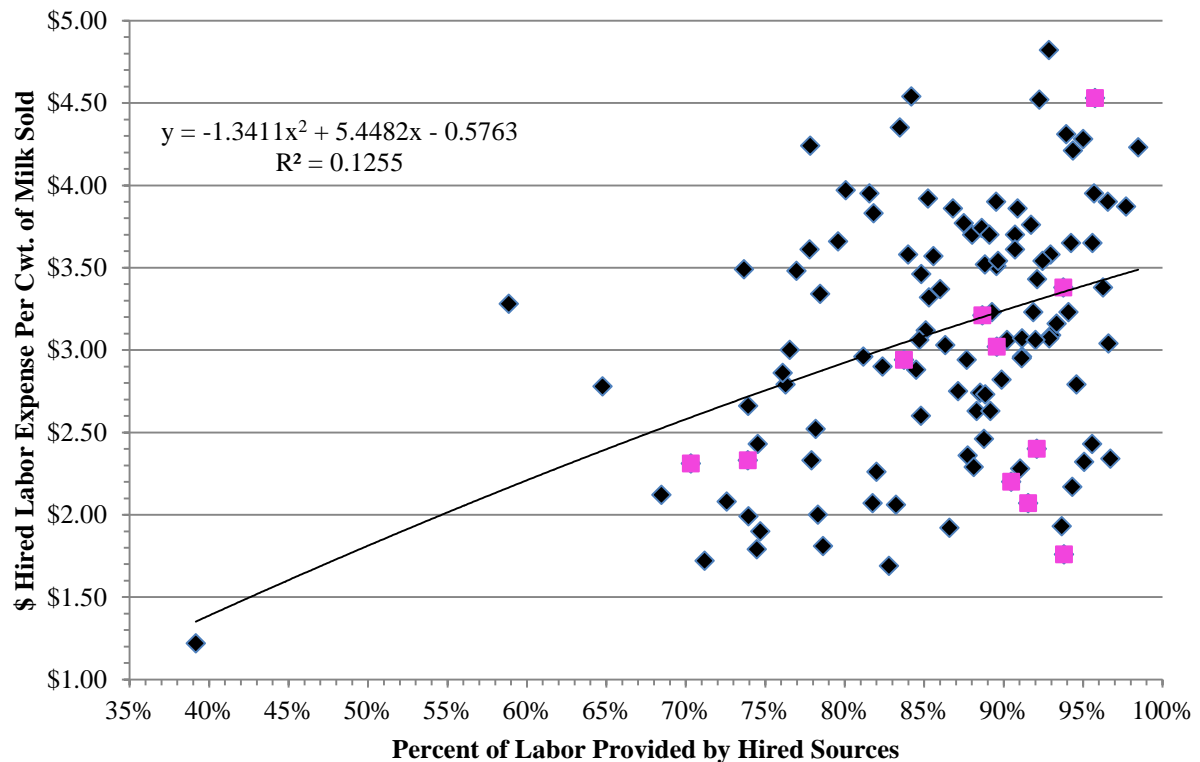
LABOR FORCE INVENTORY AND ANALYSIS
116 Large Herd Dairy Farms, 2015

| 116 Large Herd Dairy Farms, 2015 | | | | | | |
|---|-------------------|--|-----------------------|------------------------|------------|-------------|
| Labor Force | Months | Age | Years of Education | Value of Labor & Mgmt. | | |
| Operator number 1 | 12.42 | 57 | 15 | \$ 76,908 | | |
| Operator number 2 | 9.45 | 50 | 14 | 56,748 | | |
| Operator number 3 | 5.69 | 40 | 15 | 30,548 | | |
| Operator number 4 | 4.15 | 51 | 16 | 20,939 | | |
| Family paid | 1.46 | | | | | |
| Family unpaid | 0.28 | | | | | |
| Hired | <u>236.34</u> | | | | | |
| Total | 269.79/ | 12 = 22.48 Worker Equivalent 2.39Operator/Manager Equivalent | | | | |
| <u>Average Top 20% Farms:</u> | | | | | | |
| Total | 297.51/ | 12 = 24.79 Worker Equivalent 2.32 Operator/Manager Equivalent | | | | |
| Operator's | | | | | | |
| Labor | Average 116 Farms | | Average Top 20% Farms | | | |
| Efficiency | Total | Per Worker | Total | Per Worker | | |
| Cows, average number | 1,027 | 46 | 1,262 | 51 | | |
| Milk sold, pounds | 26,383,510 | 1,173,513 | 32,287,815 | 1,302,322 | | |
| Tillable acres | 2,011 | 89 | 2,370 | 96 | | |
| | | | | | | |
| Labor Costs | Average 116 Farms | | | Average Top 20% Farms | | |
| | Total | Per Cow | Per Cwt. | Total | Per Cow | Per Cwt. |
| Value of operator(s) labor (\$2,600/month) | \$ 89,320 | \$ 87 | \$ 0.34 | \$ 85,563 | \$ 68 | \$ 0.27 |
| Family unpaid (\$2,600/month) | 728 | 1 | 0.00 | 598 | 0 | 0.00 |
| Hired | <u>809,271</u> | <u>788</u> | <u>3.07</u> | <u>852,754</u> | <u>676</u> | <u>2.64</u> |
| Total Labor | \$ 899,319 | \$ 876 | \$ 3.41 | \$ 938,915 | \$ 744 | \$ 2.91 |
| Machinery Cost | <u>904,412</u> | <u>881</u> | <u>3.43</u> | <u>1,016,068</u> | <u>805</u> | <u>3.15</u> |
| Total Labor & Machinery | \$1,803,731 | \$ 1,757 | \$ 6.84 | \$1,954,983 | \$ 1,550 | \$ 6.05 |
| | | | | | | |
| Hired labor expense per hired worker equiv. | \$ 40,838 | | | \$ 38,343 | | |
| Hired labor expense as % of milk sales | 16.8% | | | 14.5% | | |

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
116 Large Herd Dairy Farms, 2015**



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.

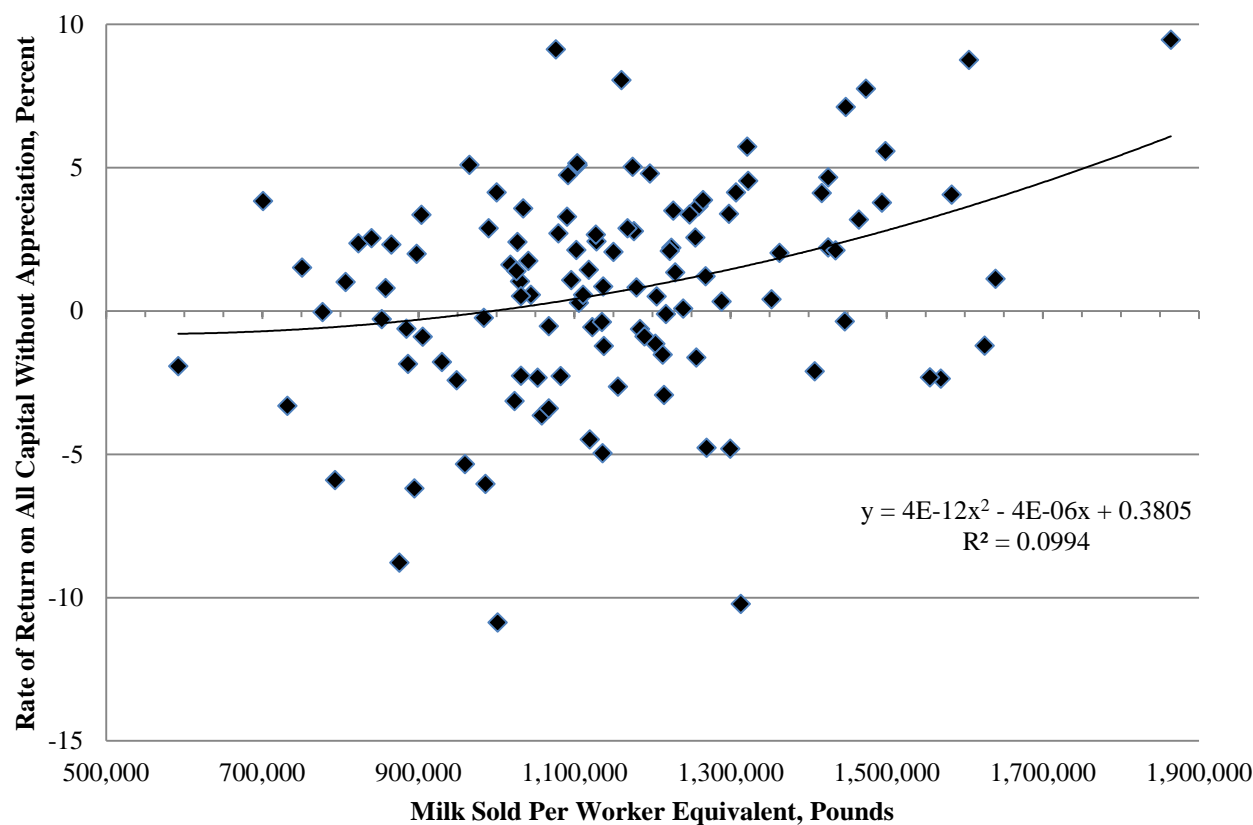
HIRED LABOR EXPENSE BUSINESS CHARTS

116 Large Herd Dairy Farms, 2015

| 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 | \$1.82 | 10% | \$30,128 | \$10.92 |
| | 2.21 | 12 | 33,218 | 12.04 |
| | 2.48 | 14 | 35,300 | 12.79 |
| | 2.83 | 15 | 36,934 | 13.38 |
| | 3.02 | 16 | 38,782 | 14.05 |
| | 3.25 | 18 | 40,259 | 14.59 |
| | 3.50 | 19 | 41,793 | 15.14 |
| | 3.67 | 20 | 43,926 | 15.92 |
| | 3.89 | 21 | 47,810 | 17.32 |
| Average of Highest Decile | 4.65 | 25 | 54,800 | 19.86 |

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

116 Large Herd Dairy Farms, 2015



CONDENSED SUMMARY & SELECTED BUSINESS FACTORS

CONDENSED FARM BUSINESS SUMMARY FOR THREE LARGE HERD GROUPS

116 Large Herd Dairy Farms, 2015

| Item | 40 Farms with 300-699 Cows | | 35 Farms with 700-1,099 Cows | | 41 Farms with ≥1,100 Cows | |
|--|-------------------------------|-------------|---------------------------------|-------------|------------------------------|-------------|
| | Per Cow | Per Cwt. | Per Cow | Per Cwt. | Per Cow | Per Cwt. |
| ACCRUAL EXPENSES | | | | | | |
| Hired labor | \$ 733 | \$ 3.02 | \$ 793 | \$ 3.03 | \$ 802 | \$ 3.10 |
| Dairy grain & concentrate | 1,620 | 6.68 | 1,725 | 6.58 | 1,704 | 6.58 |
| Dairy roughage | 68 | 0.28 | 135 | 0.51 | 64 | 0.25 |
| Nondairy feed | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| Professional nutritional services | 1 | 0.01 | 1 | 0.00 | 1 | 0.00 |
| Machine hire, rent & lease | 222 | 0.92 | 117 | 0.45 | 108 | 0.42 |
| Machine repairs & farm vehicle expense | 246 | 1.01 | 250 | 0.95 | 267 | 1.03 |
| Fuel, oil & grease | 150 | 0.62 | 153 | 0.58 | 145 | 0.56 |
| Replacement livestock | 40 | 0.17 | 9 | 0.03 | 2 | 0.01 |
| Breeding | 59 | 0.24 | 54 | 0.21 | 55 | 0.21 |
| Veterinary & medicine | 156 | 0.64 | 178 | 0.68 | 182 | 0.70 |
| Milk marketing | 238 | 0.98 | 264 | 1.01 | 243 | 0.94 |
| Bedding | 105 | 0.43 | 113 | 0.43 | 91 | 0.35 |
| Milking supplies | 105 | 0.43 | 101 | 0.39 | 101 | 0.39 |
| Cattle lease & rent | 0 | 0.00 | 5 | 0.02 | 5 | 0.02 |
| Custom boarding | 114 | 0.47 | 150 | 0.57 | 82 | 0.32 |
| bST expense | 23 | 0.09 | 54 | 0.21 | 51 | 0.20 |
| Livestock professional fees | 19 | 0.08 | 14 | 0.05 | 14 | 0.05 |
| Other livestock expense | 18 | 0.07 | 22 | 0.08 | 23 | 0.09 |
| Fertilizer & lime | 169 | 0.70 | 152 | 0.58 | 135 | 0.52 |
| Seeds & plants | 128 | 0.53 | 129 | 0.49 | 129 | 0.50 |
| Spray & other crop expense | 73 | 0.30 | 61 | 0.23 | 56 | 0.22 |
| Crop professional fees | 5 | 0.02 | 10 | 0.04 | 4 | 0.02 |
| Land, building & fence repair | 72 | 0.30 | 107 | 0.41 | 94 | 0.36 |
| Taxes & rent | 66 | 0.27 | 61 | 0.23 | 62 | 0.24 |
| Utilities | 82 | 0.34 | 69 | 0.26 | 78 | 0.30 |
| Interest paid | 122 | 0.50 | 132 | 0.51 | 105 | 0.41 |
| Other professional fees | 27 | 0.11 | 29 | 0.11 | 34 | 0.13 |
| Misc. (including insurance) | 93 | 0.38 | 92 | 0.35 | 90 | 0.35 |
| Total Operating Expenses | \$4,851 | \$19.99 | \$5,088 | \$19.42 | \$4,821 | \$18.62 |
| Expansion livestock | 30 | 0.12 | 31 | 0.12 | 19 | 0.07 |
| Extraordinary expense | 2 | 0.01 | 1 | 0.00 | 0 | 0.00 |
| Machinery depreciation | 235 | 0.97 | 247 | 0.94 | 249 | 0.96 |
| Building depreciation | 166 | 0.68 | 166 | 0.64 | 177 | 0.68 |
| Total Accrual Expenses | \$5,283 | \$21.77 | \$5,533 | \$21.12 | \$5,265 | \$20.34 |
| ACCRUAL RECEIPTS | | | | | | |
| Milk sales | \$4,456 | \$18.36 | \$4,842 | \$18.48 | \$4,717 | \$18.22 |
| Dairy cattle | 494 | 2.04 | 506 | 1.93 | 476 | 1.84 |
| Dairy calves | 119 | 0.49 | 110 | 0.42 | 112 | 0.43 |
| Other livestock | 62 | 0.25 | 11 | 0.04 | 5 | 0.02 |
| Crops | 133 | 0.55 | 131 | 0.50 | 69 | 0.27 |
| Miscellaneous receipts | 139 | 0.57 | 166 | 0.63 | 143 | 0.55 |
| Total Accrual Receipts | \$5,403 | \$22.27 | \$5,766 | \$22.01 | \$5,522 | \$21.33 |
| PROFITABILITY ANALYSIS (Total) | | | | | | |
| Net farm income (without appreciation) | \$59,582 | | \$209,187 | | \$423,816 | |
| Net farm income (with appreciation) | \$211,664 | | \$430,860 | | \$1,017,953 | |
| Labor & management income | -\$161,736 | | -\$148,465 | | -\$260,518 | |
| Number of operators | 2.11 | | 2.43 | | 2.64 | |
| Labor & management income/operator | -\$76,652 | | -\$61,097 | | -\$98,681 | |
| Rates of return on: Equity capital w/o apprec. | -1.6% | | 0.6% | | 1.22% | |
| Equity capital w/ apprec. | 1.9% | | 3.7% | | 5.56% | |
| All capital w/o apprec. | -0.1% | | 1.5% | | 1.76% | |
| All capital w/ apprec. | 2.4% | | 3.6% | | 4.83% | |

SELECTED BUSINESS FACTORS FOR THREE LARGE HERD GROUPS

116 Large Herd Dairy Farms, 2015

| Item | 40 Farms with 300-699 Cows | 35 Farms with 700-1,099 Cows | 41 Farms with ≥ 1,100 Cows |
|---|-------------------------------|---------------------------------|-------------------------------|
| <u>Cropping Program Analysis</u> | | | |
| Total Tillable acres | 1,098 | 1,739 | 3,135 |
| Tillable acres rented ³¹ | 563 | 909 | 1,370 |
| Hay crop acres ³¹ | 536 | 725 | 1,278 |
| Corn silage acres ³¹ | 377 | 689 | 1,362 |
| Hay crop, tons DM/acre | 3.3 | 3.3 | 3.6 |
| Corn silage, tons/acre | 18.0 | 18.5 | 17.8 |
| Forage DM per cow, tons | 8.4 | 8.0 | 8.3 |
| Tillable acres/cow | 2.1 | 2.1 | 1.9 |
| Fertilizer & lime expense/tillable acre | \$77.09 | \$80.51 | \$73.61 |
| Machinery cost/tillable acre | \$436 | \$438 | \$454 |
| <u>Dairy Analysis</u> | | | |
| Number of cows | 499 | 900 | 1,649 |
| Number of heifers | 416 | 759 | 1,425 |
| Milk sold, lbs. | 12,101,745 | 23,588,481 | 42,702,938 |
| Butterfat & protein, lbs./cow | 1,686 | 1,815 | 1,776 |
| Milk sold/cow, lbs. | 24,265 | 26,200 | 25,890 |
| Operating cost of prod. milk/cwt. | \$16.21 | \$16.01 | \$15.59 |
| Total cost of prod. milk/cwt. | \$20.75 | \$19.82 | \$19.43 |
| Price/cwt. milk sold | \$18.36 | \$18.48 | \$18.22 |
| Purchased dairy feed/cow | \$1,688 | \$1,859 | \$1,767 |
| Purchased dairy feed/cwt. milk | \$6.96 | \$7.10 | \$6.83 |
| Purchased grain & concentrate as % of milk receipts | 35% | 35% | 36% |
| Purchased feed & crop expense/cwt. milk | \$8.50 | \$8.44 | \$8.08 |
| Net milk income over purchased feed costs per cow | \$2,598 | \$2,853 | \$2,770 |
| <u>Capital Efficiency</u> | | | |
| Farm capital/worker | \$509,927 | \$522,882 | \$559,961 |
| Farm capital/cow | \$12,188 | \$11,888 | \$11,712 |
| Real estate/cow | \$5,104 | \$5,011 | \$4,876 |
| Machinery investment/cow | \$2,156 | \$2,076 | \$1,884 |
| Asset turnover ratio | 0.47 | 0.51 | 0.50 |
| <u>Labor Efficiency</u> | | | |
| Worker equivalent | 11.92 | 20.47 | 34.51 |
| Operator/manager equivalent | 2.11 | 2.43 | 2.64 |
| Milk sold/worker, lbs. | 1,015,176 | 1,152,485 | 1,237,587 |
| Cows/worker | 42 | 44 | 48 |
| Labor cost/cow | \$890 | \$893 | \$864 |
| <u>Financial Measures</u> | | | |
| Percent equity | 71% | 65% | 70% |
| Debt/asset ratio - long term | 0.31 | 0.37 | 0.24 |
| Debt/asset ratio - intermediate & current | 0.28 | 0.34 | 0.34 |
| Change in net worth with appreciation | \$-30,001 | \$41,680 | \$183,170 |
| Total farm debt per cow | \$3,843 | \$4,244 | \$3,595 |
| Debt payments made per cow | \$661 | \$609 | \$635 |
| Debt payments as % of milk sales | 15% | 13% | 13% |
| Amount available for debt service | \$314,980 | \$631,686 | \$1,463,054 |
| Debt coverage ratio for 2015 | 0.65 | 0.75 | 0.96 |

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 699 cows. The second two tables are of farms with 700 to 1,099 cows. The third set of tables is of farms with 1,100 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 40 Large Herd Dairy Farms with 300 – 699 Cows, 2015

| Item | QUINTILE | | | | |
|--|----------|---------|---------|---------|----------|
| | 1 | 2 | 3 | 4 | 5 |
| <u>Accrual Operating Receipts</u> | | | | | |
| Milk | \$5,160 | \$4,817 | \$4,683 | \$4,409 | \$3,324 |
| Dairy cattle | 773 | 538 | 457 | 379 | 257 |
| Dairy calves | 228 | 157 | 122 | 75 | 28 |
| Other livestock | 256 | 1 | 0 | 0 | -1 |
| Crops | 481 | 198 | 73 | 11 | -103 |
| Miscellaneous receipts | 275 | 143 | 109 | 80 | 28 |
| Total Operating Receipts | \$6,251 | \$5,829 | \$5,528 | \$5,256 | \$4,091 |
| <u>Accrual Operating Expenses</u> | | | | | |
| Hired labor | \$ 460 | \$ 620 | \$ 755 | \$ 850 | \$ 1,013 |
| Dairy grain & concentrate | 974 | 1,539 | 1,725 | 1,822 | 1,981 |
| Dairy roughage | 0 | 4 | 23 | 65 | 258 |
| Nondairy feed | 0 | 0 | 0 | 0 | 1 |
| Professional nutritional services | 0 | 0 | 0 | 0 | 6 |
| Machinery hire/rent/lease | 15 | 103 | 203 | 304 | 462 |
| Mach. repair & farm vehicle exp. | 92 | 190 | 253 | 306 | 406 |
| Fuel, oil & grease | 81 | 133 | 152 | 173 | 215 |
| Replacement livestock | 0 | 0 | 0 | 0 | 205 |
| Breeding | 16 | 40 | 56 | 75 | 105 |
| Veterinary & medicine | 72 | 129 | 165 | 186 | 230 |
| Milk marketing | 130 | 171 | 229 | 293 | 833 |
| Bedding | 24 | 69 | 103 | 136 | 207 |
| Milking supplies | 46 | 77 | 101 | 115 | 208 |
| Cattle lease | 0 | 0 | 0 | 0 | 1 |
| Custom boarding | 0 | 0 | 0 | 51 | 467 |
| bST expense | 0 | 0 | 0 | 16 | 100 |
| Livestock professional fees | 0 | 6 | 16 | 23 | 53 |
| Other livestock expense | 0 | 1 | 16 | 25 | 50 |
| Fertilizer & lime | 44 | 103 | 146 | 194 | 321 |
| Seeds & plants | 47 | 99 | 134 | 160 | 211 |
| Spray/other crop expenses | 10 | 40 | 65 | 96 | 147 |
| Crop professional fees | 0 | 0 | 0 | 8 | 17 |
| Land, building, fence repair | 15 | 37 | 65 | 94 | 139 |
| Taxes | 25 | 46 | 57 | 76 | 134 |
| Real estate rent/lease | 23 | 53 | 72 | 94 | 150 |
| Insurance | 29 | 45 | 62 | 77 | 111 |
| Utilities | 56 | 80 | 93 | 109 | 130 |
| Interest | 19 | 74 | 114 | 147 | 235 |
| Other professional fees | 7 | 13 | 23 | 39 | 58 |
| Miscellaneous | 6 | 17 | 25 | 36 | 66 |
| Total Operating Expenses | \$3,601 | \$4,621 | \$4,918 | \$5,208 | \$5,821 |
| Expansion livestock | 0 | 0 | 0 | 0 | 122 |
| Extraordinary expense | 0 | 0 | 0 | 0 | 11 |
| Machinery depreciation | 96 | 176 | 231 | 300 | 383 |
| Building depreciation | 61 | 119 | 162 | 201 | 280 |
| Net Farm Income w/o Appreciation | \$ 762 | \$ 420 | \$ 182 | \$ -120 | \$ -599 |

RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD
 40 Large Herd Dairy Farms with 300 – 699 Cows, 2015

| Item | QUINTILE | | | | |
|-----------------------------------|----------|---------|---------|----------|----------|
| | 1 | 2 | 3 | 4 | 5 |
| <u>Accrual Operating Receipts</u> | | | | | |
| Milk | \$19.33 | \$18.75 | \$18.51 | \$18.09 | \$17.40 |
| Dairy cattle | 3.16 | 2.33 | 1.90 | 1.60 | 1.09 |
| Dairy calves | 0.91 | 0.62 | 0.47 | 0.31 | 0.14 |
| Other livestock | 1.88 | 0.00 | 0.00 | 0.00 | 0.00 |
| Crops | 1.90 | 0.78 | 0.28 | 0.04 | -0.54 |
| Miscellaneous receipts | 1.19 | 0.60 | 0.45 | 0.32 | 0.13 |
| Total Operating Receipts | \$25.90 | \$22.33 | \$21.71 | \$21.21 | \$20.50 |
| <u>Accrual Operating Expenses</u> | | | | | |
| Hired labor | \$ 1.91 | \$ 2.63 | \$ 3.07 | \$ 3.54 | \$ 4.57 |
| Dairy grain & concentrate | 4.76 | 6.11 | 6.75 | 7.12 | 7.73 |
| Dairy roughage | 0.00 | 0.02 | 0.09 | 0.26 | 1.41 |
| 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 | 0.06 | 0.41 | 0.90 | 1.35 | 1.92 |
| Mach. repair & farm vehicle exp. | 0.46 | 0.76 | 1.00 | 1.22 | 1.61 |
| Fuel, oil & grease | 0.36 | 0.51 | 0.61 | 0.71 | 0.96 |
| Replacement livestock | 0.00 | 0.00 | 0.00 | 0.00 | 0.82 |
| Breeding | 0.08 | 0.17 | 0.23 | 0.29 | 0.41 |
| Veterinary & medicine | 0.37 | 0.51 | 0.65 | 0.73 | 0.89 |
| Milk marketing | 0.57 | 0.72 | 1.02 | 1.21 | 1.47 |
| Bedding | 0.11 | 0.27 | 0.40 | 0.53 | 0.81 |
| Milking supplies | 0.21 | 0.32 | 0.40 | 0.49 | 0.87 |
| Cattle lease | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Custom boarding | 0.00 | 0.00 | 0.00 | 0.20 | 2.28 |
| bST expense | 0.00 | 0.00 | 0.00 | 0.06 | 0.38 |
| Livestock professional fees | 0.00 | 0.03 | 0.06 | 0.09 | 0.20 |
| Other livestock expense | 0.00 | 0.00 | 0.07 | 0.11 | 0.20 |
| Fertilizer & lime | 0.18 | 0.41 | 0.57 | 0.80 | 1.55 |
| Seeds & plants | 0.22 | 0.39 | 0.51 | 0.62 | 0.86 |
| Spray/other crop expenses | 0.04 | 0.16 | 0.26 | 0.37 | 0.60 |
| Crop professional fees | 0.00 | 0.00 | 0.00 | 0.03 | 0.07 |
| Land, building, fence repair | 0.08 | 0.16 | 0.27 | 0.38 | 0.55 |
| Taxes | 0.11 | 0.18 | 0.22 | 0.30 | 0.66 |
| Real estate rent/lease | 0.10 | 0.22 | 0.30 | 0.38 | 0.68 |
| Insurance | 0.12 | 0.19 | 0.25 | 0.32 | 0.50 |
| Utilities | 0.26 | 0.33 | 0.40 | 0.44 | 0.51 |
| Interest | 0.08 | 0.30 | 0.52 | 0.64 | 1.00 |
| Other professional fees | 0.03 | 0.06 | 0.10 | 0.15 | 0.23 |
| Miscellaneous | 0.03 | 0.07 | 0.10 | 0.15 | 0.29 |
| Total Operating Expenses | \$17.04 | \$18.48 | \$19.71 | \$20.98 | \$24.07 |
| Expansion livestock | 0.00 | 0.00 | 0.00 | 0.00 | 0.47 |
| Extraordinary expense | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 |
| Machinery depreciation | 0.45 | 0.73 | 0.93 | 1.17 | 1.60 |
| Building depreciation | 0.25 | 0.48 | 0.67 | 0.83 | 1.14 |
| Net Farm Income w/o Appreciation | \$ 3.23 | \$ 1.64 | \$ 0.71 | \$ -0.55 | \$ -2.42 |

RECEIPTS AND EXPENSES PER COW
35 Large Herd Dairy Farms with 700 – 1,099 Cows, 2015

| Item | QUINTILE | | | | |
|-----------------------------------|----------|---------|---------|---------|----------|
| | 1 | 2 | 3 | 4 | 5 |
| <u>Accrual Operating Receipts</u> | | | | | |
| Milk | \$5,306 | \$4,988 | \$4,842 | \$4,842 | \$4,315 |
| Dairy cattle | 820 | 545 | 453 | 395 | 319 |
| Dairy calves | 192 | 138 | 110 | 74 | 37 |
| Other livestock | 55 | 2 | 0 | 0 | -7 |
| Crops | 343 | 169 | 120 | 54 | -27 |
| Miscellaneous receipts | 383 | 178 | 131 | 99 | 59 |
| Total Operating Receipts | \$6,428 | \$6,049 | \$5,723 | \$5,537 | \$5,089 |
| <u>Accrual Operating Expenses</u> | | | | | |
| Hired labor | \$ 507 | \$ 644 | \$ 776 | \$ 923 | \$ 1,090 |
| Dairy grain & concentrate | 1,311 | 1,629 | 1,748 | 1,859 | 2,056 |
| Dairy roughage | 0 | 18 | 56 | 132 | 440 |
| Nondairy feed | 0 | 0 | 0 | 0 | 1 |
| Professional nutritional services | 0 | 0 | 0 | 0 | 6 |
| Machinery hire/rent/lease | 9 | 35 | 90 | 176 | 284 |
| Mach. repair & farm vehicle exp. | 130 | 217 | 269 | 299 | 341 |
| Fuel, oil & grease | 94 | 132 | 154 | 180 | 204 |
| Replacement livestock | 0 | 0 | 0 | 1 | 44 |
| Breeding | 18 | 36 | 49 | 68 | 103 |
| Veterinary & medicine | 115 | 150 | 176 | 207 | 243 |
| Milk marketing | 148 | 215 | 262 | 316 | 377 |
| Bedding | 46 | 86 | 104 | 128 | 192 |
| Milking supplies | 45 | 73 | 93 | 126 | 169 |
| Cattle lease | 0 | 0 | 0 | 0 | 25 |
| Custom boarding | 0 | 0 | 69 | 187 | 478 |
| bST expense | 0 | 0 | 15 | 101 | 157 |
| Livestock professional fees | 2 | 10 | 15 | 16 | 27 |
| Other livestock expense | 0 | 0 | 7 | 25 | 73 |
| Fertilizer & lime | 34 | 93 | 151 | 205 | 296 |
| Seeds & plants | 42 | 97 | 129 | 162 | 215 |
| Spray/other crop expenses | 9 | 34 | 54 | 75 | 134 |
| Crop professional fees | 0 | 0 | 3 | 11 | 37 |
| Land, building, fence repair | 40 | 72 | 92 | 131 | 195 |
| Taxes | 24 | 45 | 61 | 75 | 105 |
| Real estate rent/lease | 14 | 46 | 62 | 85 | 134 |
| Insurance | 31 | 41 | 55 | 72 | 102 |
| Utilities | 70 | 93 | 106 | 120 | 166 |
| Interest | 35 | 91 | 130 | 171 | 229 |
| Other professional fees | 5 | 18 | 27 | 36 | 62 |
| Miscellaneous | 7 | 22 | 24 | 36 | 62 |
| Total Operating Expenses | \$4,228 | \$4,767 | \$5,092 | \$5,436 | \$5,852 |
| Expansion livestock | 0 | 0 | 0 | 11 | 151 |
| Extraordinary expense | 0 | 0 | 0 | 0 | 4 |
| Machinery depreciation | 97 | 192 | 238 | 310 | 402 |
| Building depreciation | 57 | 115 | 174 | 216 | 274 |
| Net Farm Income w/o Appreciation | \$ 719 | \$ 488 | \$ 262 | \$ 8 | \$ -270 |

RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD
35 Large Herd Dairy Farms with 700 – 1,099 Cows, 2015

| Item | QUINTILE | | | | |
|-----------------------------------|----------|---------|---------|---------|----------|
| | 1 | 2 | 3 | 4 | 5 |
| <u>Accrual Operating Receipts</u> | | | | | |
| Milk | \$19.83 | \$18.72 | \$18.41 | \$18.06 | \$17.63 |
| Dairy cattle | 3.10 | 2.09 | 1.76 | 1.51 | 1.25 |
| Dairy calves | 0.73 | 0.52 | 0.41 | 0.29 | 0.15 |
| Other livestock | 0.22 | 0.01 | 0.00 | 0.00 | -0.03 |
| Crops | 1.32 | 0.65 | 0.45 | 0.20 | -0.11 |
| Miscellaneous receipts | 1.53 | 0.68 | 0.50 | 0.37 | 0.23 |
| Total Operating Receipts | \$25.03 | \$22.35 | \$21.54 | \$21.06 | \$20.49 |
| <u>Accrual Operating Expenses</u> | | | | | |
| Hired labor | \$ 1.97 | \$ 2.40 | \$ 3.03 | \$ 3.68 | \$ 4.02 |
| Dairy grain & concentrate | 5.13 | 6.20 | 6.64 | 7.11 | 7.88 |
| Dairy roughage | 0.00 | 0.07 | 0.22 | 0.52 | 1.56 |
| 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 | 0.03 | 0.13 | 0.38 | 0.67 | 1.06 |
| Mach. repair & farm vehicle exp. | 0.48 | 0.85 | 1.01 | 1.13 | 1.36 |
| Fuel, oil & grease | 0.36 | 0.51 | 0.61 | 0.69 | 0.77 |
| Replacement livestock | 0.00 | 0.00 | 0.00 | 0.00 | 0.16 |
| Breeding | 0.07 | 0.13 | 0.19 | 0.26 | 0.39 |
| Veterinary & medicine | 0.44 | 0.58 | 0.68 | 0.78 | 0.93 |
| Milk marketing | 0.59 | 0.84 | 1.00 | 1.17 | 1.44 |
| Bedding | 0.18 | 0.33 | 0.40 | 0.50 | 0.72 |
| Milking supplies | 0.18 | 0.28 | 0.35 | 0.47 | 0.65 |
| Cattle lease | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 |
| Custom boarding | 0.00 | 0.00 | 0.26 | 0.71 | 1.80 |
| bST expense | 0.00 | 0.00 | 0.07 | 0.38 | 0.57 |
| Livestock professional fees | 0.01 | 0.04 | 0.06 | 0.06 | 0.11 |
| Other livestock expense | 0.00 | 0.00 | 0.03 | 0.10 | 0.27 |
| Fertilizer & lime | 0.13 | 0.36 | 0.58 | 0.79 | 1.13 |
| Seeds & plants | 0.18 | 0.37 | 0.49 | 0.59 | 0.83 |
| Spray/other crop expenses | 0.04 | 0.13 | 0.21 | 0.29 | 0.51 |
| Crop professional fees | 0.00 | 0.00 | 0.01 | 0.04 | 0.14 |
| Land, building, fence repair | 0.16 | 0.29 | 0.35 | 0.49 | 0.75 |
| Taxes | 0.09 | 0.17 | 0.23 | 0.29 | 0.43 |
| Real estate rent/lease | 0.05 | 0.17 | 0.23 | 0.34 | 0.53 |
| Insurance | 0.12 | 0.16 | 0.21 | 0.28 | 0.38 |
| Utilities | 0.28 | 0.34 | 0.40 | 0.46 | 0.64 |
| Interest | 0.13 | 0.33 | 0.51 | 0.70 | 0.88 |
| Other professional fees | 0.02 | 0.07 | 0.10 | 0.14 | 0.23 |
| Miscellaneous | 0.03 | 0.08 | 0.10 | 0.13 | 0.24 |
| Total Operating Expenses | \$16.85 | \$18.20 | \$19.61 | \$20.50 | \$21.97 |
| Expansion livestock | 0.00 | 0.00 | 0.00 | 0.04 | 0.58 |
| Extraordinary expense | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| Machinery depreciation | 0.35 | 0.76 | 0.88 | 1.22 | 1.58 |
| Building depreciation | 0.22 | 0.42 | 0.67 | 0.82 | 1.12 |
| Net Farm Income w/o Appreciation | \$ 2.75 | \$ 1.86 | \$ 1.06 | \$ 0.01 | \$ -1.01 |

RECEIPTS AND EXPENSES PER COW
 41 Large Herd Dairy Farms with 1,100 or More Cows, 2015

| Item | QUINTILE | | | | |
|-----------------------------------|----------|---------|---------|---------|----------|
| | 1 | 2 | 3 | 4 | 5 |
| <u>Accrual Operating Receipts</u> | | | | | |
| Milk | \$5,160 | \$4,926 | \$4,751 | \$4,578 | \$4,243 |
| Dairy cattle | 709 | 535 | 463 | 387 | 311 |
| Dairy calves | 182 | 144 | 119 | 88 | 41 |
| Other livestock | 32 | 0 | 0 | 0 | -2 |
| Crops | 338 | 155 | 62 | 4 | -162 |
| Miscellaneous receipts | 395 | 190 | 134 | 106 | -8 |
| Total Operating Receipts | \$6,227 | \$5,849 | \$5,570 | \$5,294 | \$4,883 |
| <u>Accrual Operating Expenses</u> | | | | | |
| Hired labor | \$ 568 | \$ 734 | \$ 824 | \$ 906 | \$ 1,040 |
| Dairy grain & concentrate | 1,386 | 1,579 | 1,691 | 1,773 | 2,085 |
| Dairy roughage | 2 | 19 | 35 | 63 | 204 |
| Nondairy feed | 0 | 0 | 0 | 0 | 0 |
| Professional nutritional services | 0 | 0 | 0 | 0 | 3 |
| Machinery hire/rent/lease | 10 | 34 | 88 | 154 | 272 |
| Mach. repair & farm vehicle exp. | 156 | 221 | 259 | 319 | 430 |
| Fuel, oil & grease | 107 | 128 | 140 | 160 | 207 |
| Replacement livestock | 0 | 0 | 0 | 0 | 12 |
| Breeding | 23 | 41 | 55 | 72 | 97 |
| Veterinary & medicine | 114 | 167 | 187 | 210 | 258 |
| Milk marketing | 136 | 187 | 266 | 307 | 360 |
| Bedding | 26 | 65 | 85 | 122 | 152 |
| Milking supplies | 44 | 66 | 88 | 114 | 198 |
| Cattle lease | 0 | 0 | 0 | 0 | 18 |
| Custom boarding | 0 | 0 | 2 | 32 | 319 |
| bST expense | 0 | 0 | 10 | 188 | 143 |
| Livestock professional fees | 0 | 11 | 16 | 19 | 27 |
| Other livestock expense | 0 | 0 | 14 | 33 | 72 |
| Fertilizer & lime | 76 | 100 | 132 | 168 | 258 |
| Seeds & plants | 75 | 110 | 129 | 154 | 198 |
| Spray/other crop expenses | 19 | 40 | 55 | 70 | 108 |
| Crop professional fees | 0 | 0 | 0 | 4 | 17 |
| Land, building, fence repair | 29 | 62 | 87 | 115 | 179 |
| Taxes | 33 | 54 | 62 | 74 | 104 |
| Real estate rent/lease | 19 | 44 | 71 | 112 | 185 |
| Insurance | 30 | 43 | 53 | 71 | 103 |
| Utilities | 53 | 78 | 101 | 117 | 142 |
| Interest | 16 | 83 | 127 | 153 | 192 |
| Other professional fees | 9 | 21 | 33 | 46 | 70 |
| Miscellaneous | 11 | 20 | 29 | 43 | 77 |
| Total Operating Expenses | \$4,113 | \$4,504 | \$4,927 | \$5,232 | \$5,593 |
| Expansion livestock | 0 | 0 | 0 | 6 | 92 |
| Extraordinary expense | 0 | 0 | 0 | 0 | 0 |
| Machinery depreciation | 157 | 217 | 257 | 297 | 373 |
| Building depreciation | 91 | 136 | 180 | 218 | 299 |
| Net Farm Income w/o Appreciation | \$ 897 | \$ 453 | \$ 256 | \$ 11 | \$ -373 |

RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD
 41 Large Herd Dairy Farms with 1,100 or More Cows, 2015

| Item | QUINTILE | | | | |
|-----------------------------------|----------|---------|---------|---------|---------|
| | 1 | 2 | 3 | 4 | 5 |
| <u>Accrual Operating Receipts</u> | | | | | |
| Milk | \$19.22 | \$18.58 | \$18.25 | \$17.82 | \$17.52 |
| Dairy cattle | 2.72 | 2.06 | 1.79 | 1.52 | 1.22 |
| Dairy calves | 0.72 | 0.57 | 0.46 | 0.33 | 0.16 |
| Other livestock | 0.12 | 0.00 | 0.00 | 0.00 | -0.01 |
| Crops | 1.34 | 0.58 | 0.25 | 0.02 | -0.63 |
| Miscellaneous receipts | 1.50 | 0.75 | 0.52 | 0.40 | -0.04 |
| Total Operating Receipts | \$23.28 | \$22.04 | \$21.40 | \$20.73 | \$20.02 |
| <u>Accrual Operating Expenses</u> | | | | | |
| Hired labor | \$ 2.20 | \$ 2.90 | \$ 3.14 | \$ 3.46 | \$ 4.10 |
| Dairy grain & concentrate | 5.71 | 6.15 | 6.47 | 6.78 | 7.72 |
| Dairy roughage | 0.01 | 0.07 | 0.14 | 0.25 | 0.80 |
| Nondairy feed | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Professional nutritional services | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| Machinery hire/rent/lease | 0.04 | 0.13 | 0.34 | 0.60 | 1.08 |
| Mach. repair & farm vehicle exp. | 0.58 | 0.87 | 0.99 | 1.26 | 1.69 |
| Fuel, oil & grease | 0.42 | 0.49 | 0.53 | 0.63 | 0.81 |
| Replacement livestock | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 |
| Breeding | 0.09 | 0.16 | 0.21 | 0.27 | 0.38 |
| Veterinary & medicine | 0.46 | 0.65 | 0.71 | 0.80 | 1.00 |
| Milk marketing | 0.54 | 0.74 | 1.03 | 1.14 | 1.40 |
| Bedding | 0.10 | 0.25 | 0.33 | 0.47 | 0.58 |
| Milking supplies | 0.17 | 0.26 | 0.33 | 0.45 | 0.76 |
| Cattle lease | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 |
| Custom boarding | 0.00 | 0.00 | 0.01 | 0.12 | 1.24 |
| bST expense | 0.00 | 0.00 | 0.04 | 0.33 | 0.53 |
| Livestock professional fees | 0.00 | 0.04 | 0.06 | 0.07 | 0.11 |
| Other livestock expense | 0.00 | 0.00 | 0.06 | 0.13 | 0.28 |
| Fertilizer & lime | 0.29 | 0.39 | 0.51 | 0.67 | 0.98 |
| Seeds & plants | 0.28 | 0.42 | 0.50 | 0.62 | 0.77 |
| Spray/other crop expenses | 0.07 | 0.15 | 0.21 | 0.29 | 0.42 |
| Crop professional fees | 0.00 | 0.00 | 0.00 | 0.02 | 0.06 |
| Land, building, fence repair | 0.12 | 0.24 | 0.34 | 0.45 | 0.70 |
| Taxes | 0.13 | 0.21 | 0.24 | 0.29 | 0.39 |
| Real estate rent/lease | 0.07 | 0.17 | 0.28 | 0.44 | 0.72 |
| Insurance | 0.12 | 0.17 | 0.20 | 0.27 | 0.40 |
| Utilities | 0.20 | 0.30 | 0.39 | 0.46 | 0.55 |
| Interest | 0.06 | 0.33 | 0.50 | 0.59 | 0.72 |
| Other professional fees | 0.03 | 0.08 | 0.12 | 0.18 | 0.27 |
| Miscellaneous | 0.04 | 0.08 | 0.11 | 0.16 | 0.31 |
| Total Operating Expenses | \$16.44 | \$17.64 | \$18.72 | \$20.13 | \$21.31 |
| Expansion livestock | 0.00 | 0.00 | 0.00 | 0.02 | 0.36 |
| Extraordinary expense | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |
| Machinery depreciation | 0.60 | 0.87 | 0.99 | 1.12 | 1.47 |
| Building depreciation | 0.36 | 0.55 | 0.70 | 0.82 | 1.11 |
| Net Farm Income w/o Appreciation | \$ 3.42 | \$ 1.78 | \$ 1.01 | \$ 0.03 | \$-1.45 |

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

116 Large Herd Dairy Farms, 2015

| Size of Business | | | Rates of Production | | | Labor Efficiency | |
|--------------------|----------------|---------------------|--------------------------|-----------------------|---------------------------|------------------|-----------------------------|
| Worker Equivalent | Number of Cows | Pounds of Milk Sold | Pounds Milk Sold Per Cow | Tons Hay Crop DM/Acre | Tons Corn Silage Per Acre | Cows Per Worker | Pounds Milk Sold Per Worker |
| (14) ³² | (12) | (12) | (12) | (11) | (11) | (14) | (14) |
| 48.9 | 2,423 | 64,200,444 | 29,153 | 5.4 | 25 | 66 | 1,579,317 |
| 33.1 | 1,623 | 39,941,592 | 27,528 | 4.5 | 22 | 54 | 1,396,495 |
| 29.6 | 1,278 | 33,839,382 | 27,093 | 4.1 | 20 | 51 | 1,279,714 |
| 26.1 | 1,117 | 29,515,188 | 26,682 | 3.8 | 19 | 49 | 1,222,006 |
| 22.5 | 1,021 | 26,364,964 | 26,098 | 3.6 | 18 | 46 | 1,167,358 |
| 19.1 | 843 | 22,690,992 | 25,683 | 3.4 | 18 | 43 | 1,117,782 |
| 16.4 | 724 | 18,345,720 | 25,359 | 3.2 | 17 | 42 | 1,070,378 |
| 14.0 | 611 | 14,658,570 | 24,797 | 2.9 | 16 | 40 | 1,016,488 |
| 11.0 | 468 | 11,699,906 | 23,659 | 2.5 | 15 | 37 | 919,704 |
| 7.9 | 354 | 7,741,885 | 19,065 | 1.7 | 10 | 32 | 782,708 |

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) |
| \$1,018 | 26% | \$3,348 | \$545 | \$1,177 | \$1,425 | \$6.43 |
| 1,432 | 31 | 3,076 | 731 | 1,467 | 1,788 | 7.32 |
| 1,529 | 33 | 2,956 | 795 | 1,642 | 1,923 | 7.64 |
| 1,637 | 34 | 2,869 | 852 | 1,720 | 2,030 | 7.90 |
| 1,702 | 35 | 2,813 | 888 | 1,803 | 2,119 | 8.13 |
| 1,745 | 37 | 2,726 | 940 | 1,866 | 2,185 | 8.35 |
| 1,798 | 38 | 2,643 | 968 | 1,925 | 2,258 | 8.70 |
| 1,864 | 38 | 2,541 | 1,009 | 1,983 | 2,334 | 8.94 |
| 1,944 | 40 | 2,423 | 1,127 | 2,136 | 2,473 | 9.44 |
| 2,149 | 45 | 1,971 | 1,307 | 2,370 | 2,701 | 10.44 |

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) |
| \$1.82 | \$30,128 | 10% | \$0.50 | \$0.37 | \$0.00 |
| 2.21 | 33,218 | 12 | 0.62 | 0.46 | 0.00 |
| 2.48 | 35,300 | 14 | 0.70 | 0.54 | 0.00 |
| 2.83 | 36,934 | 15 | 0.85 | 0.62 | 0.00 |
| 3.02 | 38,782 | 16 | 0.97 | 0.67 | 0.04 |
| 3.25 | 40,259 | 18 | 1.09 | 0.71 | 0.07 |
| 3.50 | 41,793 | 19 | 1.14 | 0.75 | 0.10 |
| 3.67 | 43,926 | 20 | 1.22 | 0.81 | 0.13 |
| 3.89 | 47,810 | 21 | 1.35 | 0.87 | 0.18 |
| 4.65 | 54,800 | 25 | 1.55 | 1.03 | 0.33 |

| 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) |
| \$406 | \$104 | \$2,797 | \$12.72 | \$3,729 | \$17.43 |
| 505 | 118 | 3,467 | 13.83 | 4,678 | 18.39 |
| 555 | 133 | 3,698 | 14.77 | 4,867 | 19.05 |
| 588 | 145 | 3,912 | 15.33 | 5,022 | 19.60 |
| 632 | 154 | 4,050 | 15.75 | 5,115 | 19.92 |
| 654 | 164 | 4,182 | 16.19 | 5,226 | 20.25 |
| 676 | 172 | 4,330 | 16.78 | 5,321 | 20.61 |
| 725 | 184 | 4,486 | 17.39 | 5,462 | 21.07 |
| 795 | 201 | 4,708 | 17.95 | 5,678 | 21.78 |
| 1,316 | 326 | 5,085 | 19.52 | 6,055 | 23.52 |

| bST Expense Per Cow | bST Expense Per Cwt. | Culling Rate | Expense Ratios | | |
|---------------------|----------------------|--------------|----------------|--------------|----------|
| (12) | (12) | (12) | Operating | Depreciation | Interest |
| (12) | (12) | (12) | (14) | (14) | (14) |
| \$0 | \$0.00 | 21% | 0.74 | 0.03 | 0.00 |
| 0 | 0.00 | 27 | 0.79 | 0.05 | 0.01 |
| 0 | 0.00 | 31 | 0.82 | 0.06 | 0.01 |
| 0 | 0.00 | 33 | 0.83 | 0.07 | 0.02 |
| 0 | 0.00 | 35 | 0.85 | 0.08 | 0.02 |
| 4 | 0.02 | 38 | 0.87 | 0.08 | 0.03 |
| 52 | 0.20 | 39 | 0.90 | 0.09 | 0.03 |
| 92 | 0.35 | 41 | 0.94 | 0.09 | 0.03 |
| 130 | 0.48 | 43 | 0.96 | 0.10 | 0.03 |
| 155 | 0.58 | 46 | 1.02 | 0.12 | 0.04 |

| Income Generation | | | | |
|--|--------------------------------------|---|--|--------------------------------|
| Milk Receipts Per Cwt. | Net Milk Receipts Per Cwt. | Milk Receipts Per Cow | Dairy Cattle Sales Per Cow | Dairy Calf Sales Per Cow |
| (12) | (12) | (12) | (12) | (12) |
| \$19.93 | \$18.91 | \$5,343 | \$884 | \$235 |
| 19.01 | 18.11 | 5,089 | 663 | 173 |
| 18.80 | 17.86 | 4,982 | 573 | 155 |
| 18.64 | 17.69 | 4,892 | 519 | 142 |
| 18.50 | 17.51 | 4,788 | 479 | 126 |
| 18.31 | 17.28 | 4,740 | 446 | 110 |
| 18.14 | 17.03 | 4,663 | 406 | 93 |
| 17.85 | 16.87 | 4,504 | 371 | 68 |
| 17.63 | 16.62 | 4,321 | 333 | 47 |
| 17.38 | 16.45 | 3,531 | 256 | 22 |
| 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) |
| \$421 | \$197 | 1.9% | \$43 | \$0.00 |
| 1,602 | 1,025 | 3.5 | 203 | 1.00 |
| 2,498 | 1,645 | 4.0 | 295 | 1.00 |
| 3,119 | 2,347 | 4.0 | 402 | 1.50 |
| 3,707 | 3,015 | 4.0 | 485 | 2.00 |
| 4,121 | 3,389 | 4.0 | 558 | 2.00 |
| 4,527 | 3,735 | 4.0 | 623 | 2.45 |
| 5,230 | 4,001 | 4.0 | 697 | 3.00 |
| 5,835 | 4,520 | 4.5 | 819 | 3.36 |
| 7,229 | 6,074 | 6.1 | 1,064 | 4.55 |
| 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) |
| \$2,023 | \$8.57 | \$1,022 | \$4.46 | 15.08 |
| 1,679 | 6.51 | 548 | 2.18 | 3.86 |
| 1,518 | 5.81 | 384 | 1.58 | 2.44 |
| 1,338 | 5.18 | 298 | 1.23 | 1.83 |
| 1,140 | 4.45 | 254 | 0.98 | 1.33 |
| 958 | 3.87 | 221 | 0.83 | 1.09 |
| 823 | 3.31 | 180 | 0.71 | 0.88 |
| 644 | 2.64 | 160 | 0.61 | 0.69 |
| 463 | 1.87 | 121 | 0.46 | 0.37 |
| 174 | 0.69 | 53 | 0.21 | -1.16 |
| 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) |
| \$7,161 | \$2,191 | \$684 | \$30,757 | 0.82 |
| 9,342 | 3,353 | 1,264 | 33,306 | 0.63 |
| 10,268 | 3,811 | 1,521 | 34,947 | 0.58 |
| 10,748 | 4,049 | 1,737 | 36,329 | 0.55 |
| 11,533 | 4,549 | 1,959 | 38,180 | 0.53 |
| 12,602 | 5,021 | 2,242 | 39,505 | 0.50 |
| 13,279 | 5,637 | 2,567 | 40,761 | 0.45 |
| 13,998 | 6,098 | 2,717 | 42,963 | 0.42 |
| 14,979 | 7,151 | 2,955 | 45,911 | 0.39 |
| 17,155 | 9,011 | 3,386 | 51,820 | 0.33 |

| 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) |
| 97% | -0.88 | 0.04 | 0.04 | 0.00 | 60% | 43.99 |
| 88 | 0.15 | 0.13 | 0.13 | 0.02 | 42 | 8.65 |
| 81 | 0.25 | 0.21 | 0.19 | 0.10 | 35 | 4.96 |
| 75 | 0.35 | 0.26 | 0.25 | 0.19 | 29 | 3.84 |
| 70 | 0.46 | 0.32 | 0.29 | 0.29 | 23 | 3.08 |
| 65 | 0.58 | 0.37 | 0.36 | 0.36 | 18 | 2.30 |
| 60 | 0.70 | 0.42 | 0.41 | 0.43 | 15 | 1.91 |
| 56 | 0.79 | 0.45 | 0.47 | 0.49 | 12 | 1.58 |
| 52 | 0.92 | 0.48 | 0.52 | 0.55 | 5 | 1.23 |
| 39 | 1.35 | 0.62 | 0.76 | 1.21 | -5 | 0.82 |

| 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) |
| \$257,549 | 7.93% | 16.16% | 7.00% | 12.01% |
| 62,601 | 4.85 | 10.56 | 4.36 | 7.95 |
| 13,977 | 3.54 | 7.46 | 3.36 | 6.16 |
| -7,936 | 2.36 | 5.68 | 2.48 | 5.12 |
| -40,295 | 1.23 | 4.26 | 1.79 | 3.98 |
| -81,545 | -0.23 | 2.81 | 0.85 | 2.91 |
| -126,145 | -2.05 | 1.17 | -0.11 | 1.92 |
| -188,069 | -3.75 | -0.44 | -1.27 | 0.76 |
| -263,450 | -6.13 | -3.30 | -2.62 | -0.93 |
| -711,437 | -14.40 | -10.55 | -6.33 | -4.25 |

| 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) |
| \$966 | \$3.82 | 17% | 10% |
| 649 | 2.57 | 12 | 7 |
| 541 | 2.08 | 9 | 5 |
| 392 | 1.54 | 7 | 4 |
| 307 | 1.22 | 5 | 3 |
| 201 | 0.80 | 4 | 2 |
| 40 | 0.15 | 1 | 1 |
| -104 | -0.42 | -2 | 0 |
| -239 | -0.98 | -5 | -1 |
| -607 | -2.40 | -11 | -6 |

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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