NEW YORK
LARGE HERD
FARMS,
300 COWS
OR LARGER
1999

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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 400 cows, 400 to 600 cows, and 600 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, 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. Sixty of the large herd farms participated in the summary the last two years. The averages of selected business factors are presented for these farms and the changes that occurred from 1998 to 1999 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 70 large herd farms that participated in the 1999 DFBS program. Also presented is information concerning dairy enterprise efficiency, and milk parlor efficiency.

The summary and analysis section lists the average data for the 70 large herd farms that participated in the 1999 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% large farms.

The fourth section presents a condensed summary and selected business factors for farms with 300-400 cows, 400-600 cows, and farms with more than 600 cows.

The fifth section contains the income and expense profiles for the 300-400 cow farms, 400-600 cow farms, and 600 and more cow farms on a per cow and per cwt. of milk basis.

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

---

1 The large herd summary is comprised of farms with 300 or more cows. Cayuga, Chautauqua, Chenango, Clinton, Cortland, Erie, Genesee, Jefferson, Livingston, Niagara, Ontario, St. Lawrence, Saratoga, Schuyler, Tioga, Washington, Wayne and Wyoming counties had farms of this size in 1999. This report was written by Jason Karszes, Senior Extension Associate, Pro-Dairy and Wayne A. Knoblauch, Professor, Farm Management. Linda Putnam was in charge of data preparation. Faye Butts prepared the publication. Data were collected by Cornell Cooperative Extension educators across the state.
PROGRESS OF THE FARM BUSINESS

A combination of changes in three major areas impacting dairy farms made 1999 a very similar year to 1998. While milk price and growing conditions decreased from 1998, feed costs also decreased from 1998. The combination of these factors generated profitability levels that were slightly lower than 1998. Profit generation and net worth growth were the second largest to occur in the 90s, behind the 1998 business year, and many farms continued to make significant financial progress towards their individual goals.

For both 1998 and 1999, 60 farms that averaged more than 300 cows in New York participated in the Dairy Farm Business Summary Program (DFBS), administered by Cornell Cooperative Extension and Cornell University. The table on the following page shows selected factors from the 60 farms that participated in the DFBS project each of the last two years.

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

Milk price and labor costs. Milk prices decreased 3.7 percent, or $.57 per cwt., from 1998 to 1999. While milk price decreased, the increase in milk sold per cow of 2.9 percent led to a decrease of less than 1 percent in milk income per cow. This increase in production per cow coupled with a 4.8 percent increase in cow numbers led to a strong 7.9 percent increase in milk marketed off the farm. To support the increase in cow numbers, tillable land increased by 5.2% to 1,146 acres. Worker equivalents necessary to work the farm also increased to 13.43, an increase of 4.9 percent over the previous year. With both herd size and worker equivalents increasing at the same rate, cows per worker remained stable at 45. Milk sold per worker, however, did increase 2.9 percent due to the increase in milk sold per cow.

Even though labor efficiency did increase, labor costs increased at a faster rate. Labor cost per hundredweight of milk sold increased 3.7 percent, and hired labor cost per worker equivalent increased 4.9 percent to a level of $31,684 per worker equivalent. Continued low unemployment and the ability of dairy producers to pay more are two reasons behind the increases.

Lower feed costs. The average 300 cow and larger farm spent $3.76 per cwt. for purchased grain and concentrates in 1999, a decrease of 35 cents from the previous year. This decrease of 8.5 percent in purchased concentrates offset the decrease in milk price and maintained the grain and concentrated purchased as a percent of milk sales at 25 percent. Total feed and crop input costs decreased 32 cents, or 6.4 percent. These decreases in feed costs were partially offset by increases in the costs of labor, crop inputs, and machinery and the combination of changes led to a 1.4 percent decrease in total farm operating costs, and a 3.1 percent decrease in the operating cost of producing milk.

Forage yields decreased 4.8 percent for hay dry matter yields and 11.8 percent for as-fed corn silage yields, primarily due to the dryer growing conditions experienced in 1999. Of course, not every region of New York was impacted the same by the dryer conditions and the impact in yields ranged from none to over 40% decrease.

Continued strong earnings picture. The combination of decreased feed costs, increased production per cow, and increase in cow numbers coupled with the decrease in milk price led to only a slight decrease in profits from 1998. Net farm income without appreciation decreased 1.6 percent to $339,862. Net farm income with appreciation decreased 2.7 percent to $409,124.

- Labor and management income per operator/manager decreased 5 percent to $116,438.
- Rate of return to all capital without appreciation decreased 12.7 percent to 10.3 percent. Rate of return on equity capital without appreciation decreased 15.3 percent to 13.8 percent.
- Farm net worth increased 11.6 percent from the previous year.
- Debt per cow increased slightly. And the debt to asset ratio stayed at the same level of 0.47.

Overall, 1999 was a very good year for the 300 cow and larger farms. While there was continuation of strong profitability, the changes on individual farms varied, with some farms actually doing worse in 1999 than 1998.

The challenge in 1999 was to maximize milk production while maintaining cost control, wisely managing the excess cash flow, and working around the dryer growing conditions. Farms that took advantage of 1999 most profitably were those that have improved their ability to produce milk at a lower cost and to manage through low- cash price cycles.

The importance of trend analysis is to identify what areas changed, ask why they changed, and look at what you can do differently in the future to influence that change. If you would like help in developing and looking at the trends in your business, contact your local extension service and become involved in a financial management educational program.
### PROGRESS OF THE FARM BUSINESS
Same 60 Large Herd Dairy Farms, 1998 & 1999

<table>
<thead>
<tr>
<th>Selected Factors</th>
<th>Average of 60 Farms</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1998</td>
<td>1999</td>
</tr>
<tr>
<td><strong>Size of Business</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average number of cows</td>
<td>580</td>
<td>608</td>
</tr>
<tr>
<td>Average number of heifers</td>
<td>428</td>
<td>444</td>
</tr>
<tr>
<td>Milk sold, lbs.</td>
<td>12,826,444</td>
<td>13,844,419</td>
</tr>
<tr>
<td>Worker equivalent</td>
<td>12.80</td>
<td>13.43</td>
</tr>
<tr>
<td>Total tillable acres</td>
<td>1,089</td>
<td>1,146</td>
</tr>
<tr>
<td><strong>Rates of Production</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk sold per cow, lbs.</td>
<td>22,133</td>
<td>22,767</td>
</tr>
<tr>
<td>Hay DM per acre, tons</td>
<td>3.72</td>
<td>3.54</td>
</tr>
<tr>
<td>Corn silage per acre, tons</td>
<td>19.70</td>
<td>17.38</td>
</tr>
<tr>
<td><strong>Labor Efficiency &amp; Costs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cows per worker</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>Milk sold/worker, lbs.</td>
<td>1,002,066</td>
<td>1,030,858</td>
</tr>
<tr>
<td>Hired labor cost/cwt.</td>
<td>$2.46</td>
<td>$2.55</td>
</tr>
<tr>
<td>Hired labor cost/worker</td>
<td>$30,207</td>
<td>$31,684</td>
</tr>
<tr>
<td>Hired labor cost as % of milk sales</td>
<td>15.9%</td>
<td>17.1%</td>
</tr>
<tr>
<td><strong>Cost Control</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grain &amp; conc. purchased as % of milk sales</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>Grain &amp; conc. per cwt. milk</td>
<td>$4.11</td>
<td>$3.76</td>
</tr>
<tr>
<td>Dairy feed &amp; crop expense per cwt. milk</td>
<td>$5.03</td>
<td>$4.71</td>
</tr>
<tr>
<td>Labor &amp; mach. costs/cow</td>
<td>$1,052</td>
<td>$1,136</td>
</tr>
<tr>
<td>Total farm operating costs per cwt. sold</td>
<td>$13.29</td>
<td>$13.10</td>
</tr>
<tr>
<td>Interest costs per cwt. milk</td>
<td>$0.90</td>
<td>$0.78</td>
</tr>
<tr>
<td>Milk marketing costs per cwt. milk sold</td>
<td>$0.46</td>
<td>$0.44</td>
</tr>
<tr>
<td>Operating cost of producing cwt. of milk</td>
<td>$11.79</td>
<td>$11.43</td>
</tr>
<tr>
<td><strong>Capital Efficiency (average for the year)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farm capital per cow</td>
<td>$5,598</td>
<td>$5,879</td>
</tr>
<tr>
<td>Mach. &amp; equip. per cow</td>
<td>$928</td>
<td>$980</td>
</tr>
<tr>
<td>Asset turnover ratio</td>
<td>0.70</td>
<td>0.67</td>
</tr>
<tr>
<td><strong>Income Generation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross milk sales per cow</td>
<td>$3,427</td>
<td>$3,399</td>
</tr>
<tr>
<td>Gross milk sales per cwt.</td>
<td>$15.50</td>
<td>$14.93</td>
</tr>
<tr>
<td>Net milk sales per cwt.</td>
<td>$15.03</td>
<td>$14.49</td>
</tr>
<tr>
<td>Dairy cattle sales per cow</td>
<td>$205</td>
<td>$202</td>
</tr>
<tr>
<td>Dairy calf sales per cow</td>
<td>$23</td>
<td>$27</td>
</tr>
<tr>
<td><strong>Profitability</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net farm income w/o apprec.</td>
<td>$345,477</td>
<td>$339,862</td>
</tr>
<tr>
<td>Net farm income w/apprec.</td>
<td>$420,279</td>
<td>$409,124</td>
</tr>
<tr>
<td>Labor &amp; mgmt. income per oper./manager</td>
<td>$122,583</td>
<td>$116,438</td>
</tr>
<tr>
<td>Rate of return on equity capital w/o apprec.</td>
<td>16.3%</td>
<td>13.8%</td>
</tr>
<tr>
<td>Rate of return on all capital w/o apprec.</td>
<td>11.8%</td>
<td>10.3%</td>
</tr>
<tr>
<td><strong>Financial Summary</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farm net worth, end year</td>
<td>$1,797,673</td>
<td>$2,005,613</td>
</tr>
<tr>
<td>Debt to asset ratio</td>
<td>0.47</td>
<td>0.47</td>
</tr>
<tr>
<td>Farm debt per cow</td>
<td>$2,685</td>
<td>$2,790</td>
</tr>
<tr>
<td>Item</td>
<td>Per Cow 1998</td>
<td>Per Cwt. 1998</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>--------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Average Number of Cows</td>
<td>580</td>
<td>128,264</td>
</tr>
<tr>
<td>Cwt. of Milk Sold</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accrual Operating Receipts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk</td>
<td>$3,427</td>
<td>$15.50</td>
</tr>
<tr>
<td>Dairy cattle</td>
<td>205</td>
<td>0.93</td>
</tr>
<tr>
<td>Dairy calves</td>
<td>23</td>
<td>0.10</td>
</tr>
<tr>
<td>Other livestock</td>
<td>3</td>
<td>0.02</td>
</tr>
<tr>
<td>Crops</td>
<td>61</td>
<td>0.27</td>
</tr>
<tr>
<td>Miscellaneous receipts</td>
<td>89</td>
<td>0.40</td>
</tr>
<tr>
<td>Total accrual receipts</td>
<td>$3,808</td>
<td>$17.22</td>
</tr>
<tr>
<td>Accrual Operating Expenses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hired labor</td>
<td>$544</td>
<td>$2.46</td>
</tr>
<tr>
<td>Dairy grain &amp; concentrate</td>
<td>908</td>
<td>4.11</td>
</tr>
<tr>
<td>Dairy roughage</td>
<td>46</td>
<td>0.21</td>
</tr>
<tr>
<td>Nondairy feed</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Machine hire, rent &amp; lease</td>
<td>79</td>
<td>0.36</td>
</tr>
<tr>
<td>Machine repairs &amp; vehicle expense</td>
<td>146</td>
<td>0.66</td>
</tr>
<tr>
<td>Fuel, oil &amp; grease</td>
<td>48</td>
<td>0.22</td>
</tr>
<tr>
<td>Replacement livestock</td>
<td>49</td>
<td>0.22</td>
</tr>
<tr>
<td>Breeding</td>
<td>33</td>
<td>0.15</td>
</tr>
<tr>
<td>Veterinary &amp; medicine</td>
<td>104</td>
<td>0.47</td>
</tr>
<tr>
<td>Milk marketing</td>
<td>103</td>
<td>0.46</td>
</tr>
<tr>
<td>Bedding</td>
<td>47</td>
<td>0.21</td>
</tr>
<tr>
<td>Milking supplies</td>
<td>71</td>
<td>0.32</td>
</tr>
<tr>
<td>Cattle lease</td>
<td>15</td>
<td>0.07</td>
</tr>
<tr>
<td>Custom boarding</td>
<td>42</td>
<td>0.19</td>
</tr>
<tr>
<td>bST expense</td>
<td>63</td>
<td>0.28</td>
</tr>
<tr>
<td>Other livestock expense</td>
<td>27</td>
<td>0.12</td>
</tr>
<tr>
<td>Fertilizer &amp; lime</td>
<td>65</td>
<td>0.30</td>
</tr>
<tr>
<td>Seeds &amp; plants</td>
<td>42</td>
<td>0.19</td>
</tr>
<tr>
<td>Spray &amp; other crop expense</td>
<td>50</td>
<td>0.23</td>
</tr>
<tr>
<td>Land, building &amp; fence repair</td>
<td>54</td>
<td>0.24</td>
</tr>
<tr>
<td>Taxes</td>
<td>31</td>
<td>0.14</td>
</tr>
<tr>
<td>Real estate rent/lease</td>
<td>58</td>
<td>0.26</td>
</tr>
<tr>
<td>Insurance</td>
<td>29</td>
<td>0.13</td>
</tr>
<tr>
<td>Utilities</td>
<td>57</td>
<td>0.26</td>
</tr>
<tr>
<td>Interest paid</td>
<td>199</td>
<td>0.90</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>30</td>
<td>0.13</td>
</tr>
<tr>
<td>Total Operating Expenses</td>
<td>$2,939</td>
<td>$13.29</td>
</tr>
<tr>
<td>Expansion livestock</td>
<td>49</td>
<td>0.22</td>
</tr>
<tr>
<td>Machinery depreciation</td>
<td>112</td>
<td>0.50</td>
</tr>
<tr>
<td>Real Estate depreciation</td>
<td>112</td>
<td>0.51</td>
</tr>
<tr>
<td>Total Expenses</td>
<td>$3,212</td>
<td>$14.53</td>
</tr>
<tr>
<td>Net Farm Income without appreciation</td>
<td>596</td>
<td>2.69</td>
</tr>
</tbody>
</table>
TOP 20 PERCENT COMPARISON TO AVERAGE AND FACTORS CONCERNING DAIRY ENTERPRISE AND PARLOR EFFICIENCY

On the following page selected factors for the top 20% 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 70 farms over 300 cows that participated in the DFBS project in 1999. 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.

In 1999, 31 of the 70 farms over 300 cows filled out a supplementary data collection form that dealt with some additional management concerns of 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 31 farms and only represents these 31 farms. See the Glossary beginning on page 46 for definitions of the factors in the table below.

Ten farms that were in the top 20 percent in 1999 were also in the summary in 1998. The table on page 7 shows income and expenses for these farms for both 1998 and 1999. 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
31 Large Herd Farms, 1999

<table>
<thead>
<tr>
<th>Pounds of Milk Harvested Per Hour of Milking Labor</th>
<th>Total Cows Milked Per Hour of Milking Labor Per Day</th>
<th>Pounds of Milk Harvested Per Machine Per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,767</td>
<td>42</td>
<td>782,840</td>
</tr>
<tr>
<td>1,870</td>
<td>30</td>
<td>639,123</td>
</tr>
<tr>
<td>1,477</td>
<td>25</td>
<td>514,090</td>
</tr>
<tr>
<td>1,284</td>
<td>22</td>
<td>430,682</td>
</tr>
<tr>
<td>980</td>
<td>16</td>
<td>365,220</td>
</tr>
<tr>
<td>Average</td>
<td>1,669</td>
<td>545,349</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Worker Equivalents</th>
<th>Cows per Worker Equivalent</th>
<th>Pounds Sold per Worker Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.55</td>
<td>160</td>
<td>3,715,879</td>
</tr>
<tr>
<td>6.50</td>
<td>141</td>
<td>3,218,143</td>
</tr>
<tr>
<td>4.95</td>
<td>115</td>
<td>2,624,300</td>
</tr>
<tr>
<td>3.66</td>
<td>90</td>
<td>2,051,996</td>
</tr>
<tr>
<td>2.98</td>
<td>70</td>
<td>1,454,091</td>
</tr>
<tr>
<td>Average</td>
<td>5.51</td>
<td>2,613,250</td>
</tr>
</tbody>
</table>
# TOP 20 PERCENT VS. AVERAGE

70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Selected Factors</th>
<th>Average 1999</th>
<th>Top 20% 1999</th>
<th>Percent Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Size of Business</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average number of cows</td>
<td>594</td>
<td>823</td>
<td>38.6</td>
</tr>
<tr>
<td>Average number of heifers</td>
<td>435</td>
<td>611</td>
<td>40.5</td>
</tr>
<tr>
<td>Milk sold, lbs.</td>
<td>13,442,582</td>
<td>19,284,373</td>
<td>43.5</td>
</tr>
<tr>
<td>Worker equivalent</td>
<td>13.18</td>
<td>17.15</td>
<td>30.1</td>
</tr>
<tr>
<td>Total tillable acres</td>
<td>1,127</td>
<td>1,439</td>
<td>27.7</td>
</tr>
<tr>
<td><strong>Rates of Production</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk sold per cow, lbs.</td>
<td>22,638</td>
<td>23,428</td>
<td>3.5</td>
</tr>
<tr>
<td>Hay DM per acre, tons</td>
<td>3.59</td>
<td>4.07</td>
<td>13.4</td>
</tr>
<tr>
<td>Corn silage per acre, tons</td>
<td>17.38</td>
<td>17.59</td>
<td>1.2</td>
</tr>
<tr>
<td><strong>Labor Efficiency &amp; Costs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cows per worker</td>
<td>45</td>
<td>48</td>
<td>6.7</td>
</tr>
<tr>
<td>Milk sold/worker, lbs.</td>
<td>1,019,923</td>
<td>1,124,453</td>
<td>10.2</td>
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<tr>
<td>Hired labor cost/cwt.</td>
<td>$2.50</td>
<td>$2.55</td>
<td>2.0</td>
</tr>
<tr>
<td>Hired labor cost/hired worker</td>
<td>$31,081</td>
<td>$32,496</td>
<td>4.6</td>
</tr>
<tr>
<td>Hired labor cost as % of milk sales</td>
<td>16.7%</td>
<td>17.1%</td>
<td>2.4</td>
</tr>
<tr>
<td><strong>Cost Control</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grain &amp; conc. purchased as % of milk sales</td>
<td>25%</td>
<td>25%</td>
<td>0.0</td>
</tr>
<tr>
<td>Grain &amp; conc. per cwt. milk</td>
<td>$3.78</td>
<td>$3.69</td>
<td>-2.4</td>
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<tr>
<td>Dairy feed &amp; crop expense per cwt. milk</td>
<td>$4.74</td>
<td>$4.52</td>
<td>-4.6</td>
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<tr>
<td>Labor &amp; mach. costs/cow</td>
<td>$1,126</td>
<td>$1,057</td>
<td>-6.1</td>
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<tr>
<td>Total farm operating costs per cwt. sold</td>
<td>$13.06</td>
<td>$12.13</td>
<td>-7.1</td>
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<tr>
<td>Interest costs per cwt. milk</td>
<td>$0.81</td>
<td>$0.54</td>
<td>-33.3</td>
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<tr>
<td>Milk marketing costs per cwt. milk sold</td>
<td>$0.43</td>
<td>$0.32</td>
<td>-25.6</td>
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<tr>
<td>Operating cost of producing cwt. of milk</td>
<td>$11.35</td>
<td>$10.63</td>
<td>-6.3</td>
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<td><strong>Capital Efficiency (average for the year)</strong></td>
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<tr>
<td>Farm capital per cow</td>
<td>$5,872</td>
<td>$4,971</td>
<td>-15.3</td>
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<tr>
<td>Mach. &amp; equip. per cow</td>
<td>$993</td>
<td>$886</td>
<td>-10.8</td>
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<tr>
<td>Asset turnover ratio</td>
<td>0.67</td>
<td>0.80</td>
<td>19.4</td>
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<tr>
<td><strong>Income Generation</strong></td>
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<tr>
<td>Gross milk sales per cow</td>
<td>$3,373</td>
<td>$3,491</td>
<td>3.5</td>
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<tr>
<td>Gross milk sales per cwt.</td>
<td>$14.90</td>
<td>$14.90</td>
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<tr>
<td>Net milk sales per cwt.</td>
<td>$14.47</td>
<td>$14.58</td>
<td>0.8</td>
</tr>
<tr>
<td>Dairy cattle sales per cow</td>
<td>$207</td>
<td>$250</td>
<td>21.8</td>
</tr>
<tr>
<td>Dairy calf sales per cow</td>
<td>$26</td>
<td>$24</td>
<td>7.7</td>
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<td><strong>Profitability</strong></td>
<td></td>
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<tr>
<td>Net farm income without appreciation</td>
<td>$333,148</td>
<td>$664,645</td>
<td>99.5</td>
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<tr>
<td>Net farm income with appreciation</td>
<td>$403,614</td>
<td>$705,530</td>
<td>74.8</td>
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<td>Labor &amp; mgt. income per oper./manager</td>
<td>$111,811</td>
<td>$320,469</td>
<td>186.6</td>
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<tr>
<td>Rate of return on equity capital w/o apprec.</td>
<td>13.8%</td>
<td>25.2%</td>
<td>82.6</td>
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<tr>
<td>Rate of return on all capital w/o apprec.</td>
<td>10.4%</td>
<td>17.0%</td>
<td>63.5</td>
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<tr>
<td><strong>Financial Summary</strong></td>
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<td></td>
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<tr>
<td>Farm net worth, end of year</td>
<td>$1,931,028</td>
<td>$2,549,691</td>
<td>32.0</td>
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<td>Debt to asset ratio</td>
<td>0.47</td>
<td>0.42</td>
<td>10.6</td>
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<td>Farm debt per cow</td>
<td>$2,834</td>
<td>$2,135</td>
<td>-24.7</td>
</tr>
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## RECEIPTS AND EXPENSES PER COW AND PER HUNDREDWEIGHT

Same 10 Top 20% Large Herd Dairy Farms, 1998 & 1999

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<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Average Number of Cows</td>
<td>918</td>
<td>210,997</td>
<td>958</td>
<td>225,391</td>
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<tr>
<td>Cwt. Of Milk Sold</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Accrual Operating Receipts</td>
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<td></td>
<td></td>
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<tr>
<td>Milk</td>
<td>$3,525</td>
<td>$15.34</td>
<td>$3,524</td>
<td>$14.98</td>
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<tr>
<td>Dairy cattle</td>
<td>172</td>
<td>0.75</td>
<td>222</td>
<td>0.94</td>
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<tr>
<td>Dairy calves</td>
<td>17</td>
<td>0.07</td>
<td>24</td>
<td>0.10</td>
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<tr>
<td>Other livestock</td>
<td>3</td>
<td>0.02</td>
<td>3</td>
<td>0.01</td>
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<tr>
<td>Crops</td>
<td>68</td>
<td>0.30</td>
<td>113</td>
<td>0.48</td>
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<tr>
<td>Miscellaneous receipts</td>
<td>61</td>
<td>0.27</td>
<td>67</td>
<td>0.29</td>
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<tr>
<td>Total</td>
<td>$3,847</td>
<td>$16.74</td>
<td>$3,953</td>
<td>$16.80</td>
</tr>
</tbody>
</table>

| Accrual Operating Expenses  |              |               |              |               |
| Hired labor                 | $630         | $2.74         | $627         | $2.67         |
| Dairy grain & concentrate   | 924          | 4.02          | 872          | 3.71          |
| Dairy roughage              | 71           | 0.31          | 50           | 0.21          |
| Nondairy feed               | 0            | 0.00          | 0            | 0.00          |
| Machine hire, rent & lease  | 80           | 0.35          | 78           | 0.33          |
| Machine repairs & vehicle expense | 135 | 0.59 | 144 | 0.61 |
| Fuel, oil & grease          | 45           | 0.19          | 42           | 0.18          |
| Replacement livestock       | 33           | 0.14          | 21           | 0.09          |
| Breeding                    | 29           | 0.13          | 36           | 0.16          |
| Veterinary & medicine       | 104          | 0.45          | 117          | 0.50          |
| Milk marketing              | 91           | 0.40          | 80           | 0.34          |
| Bedding                     | 52           | 0.23          | 58           | 0.25          |
| Milking supplies            | 66           | 0.29          | 59           | 0.25          |
| Cattle lease                | 29           | 0.13          | 30           | 0.13          |
| Custom boarding             | 65           | 0.28          | 79           | 0.34          |
| bST expense                 | 75           | 0.33          | 72           | 0.31          |
| Other livestock expense     | 25           | 0.11          | 22           | 0.10          |
| Fertilizer & lime           | 56           | 0.25          | 72           | 0.31          |
| Seeds & plants              | 34           | 0.15          | 30           | 0.13          |
| Spray & other crop expense  | 41           | 0.18          | 27           | 0.12          |
| Land, building & fence repair | 52  | 0.23 | 56 | 0.24 |
| Taxes                       | 30           | 0.13          | 30           | 0.13          |
| Real estate rent/lease      | 63           | 0.28          | 72           | 0.31          |
| Insurance                   | 22           | 0.09          | 19           | 0.08          |
| Utilities                   | 50           | 0.22          | 52           | 0.22          |
| Interest paid               | 145          | 0.63          | 128          | 0.55          |
| Miscellaneous               | 30           | 0.13          | 35           | 0.15          |
| Total Operating Expenses    | $2,979       | $12.96        | $2,910       | $12.37        |
| Expansion livestock         | 50           | 0.22          | 69           | 0.29          |
| Machinery depreciation      | 71           | 0.31          | 106          | 0.45          |
| Real Estate Depreciation    | 106          | 0.46          | 80           | 0.34          |
| Total Expenses              | $3,207       | $13.95        | $3,165       | $13.45        |

Net Farm Income without apprec.

640 2.79 788 3.35
SUMMARY AND ANALYSIS OF THE FARM BUSINESS

Business Characteristics

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

<table>
<thead>
<tr>
<th>BUSINESS CHARACTERISTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>70 Large Herd Dairy Farms, 1999</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of Farm</th>
<th>Number</th>
<th>Type of Barn</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dairy</td>
<td>70</td>
<td>Stanchion/Tie-Stall</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Freestall</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Combination</td>
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</table>

<table>
<thead>
<tr>
<th>Type of Ownership</th>
<th>Number</th>
<th>Type of Milking System</th>
<th>Number</th>
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</thead>
<tbody>
<tr>
<td>Owner</td>
<td>66</td>
<td>Pipeline</td>
<td>0</td>
</tr>
<tr>
<td>Renter</td>
<td>4</td>
<td>Herringbone Conventional</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Herringbone Rapid Exit</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Parallel</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Parabone</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rotary</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of Business</th>
<th>Number</th>
<th>Milking Frequency</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single proprietorship</td>
<td>19</td>
<td>2x/day</td>
<td>10</td>
</tr>
<tr>
<td>Partnership</td>
<td>21</td>
<td>3x/day</td>
<td>49</td>
</tr>
<tr>
<td>Limited Liability Corporation</td>
<td>11</td>
<td>Other</td>
<td>11</td>
</tr>
<tr>
<td>Subchapter S Corporation</td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subchapter C Corporation</td>
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</table>

<table>
<thead>
<tr>
<th>Business Record System</th>
<th>Number</th>
<th>Production Records</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Account Book</td>
<td>5</td>
<td>Testing Service</td>
<td>61</td>
</tr>
<tr>
<td>Accounting Service</td>
<td>7</td>
<td>On-Farm System</td>
<td>7</td>
</tr>
<tr>
<td>On-Farm Computer</td>
<td>55</td>
<td>Other</td>
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<tr>
<td>Other</td>
<td>3</td>
<td>None</td>
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</table>

<table>
<thead>
<tr>
<th>BST Usage</th>
<th>Number</th>
<th>Production Records</th>
<th>Number</th>
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</thead>
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<tr>
<td>&lt;25%</td>
<td>7</td>
<td>Testing Service</td>
<td>61</td>
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<tr>
<td>25-75%</td>
<td>49</td>
<td>On-Farm System</td>
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<tr>
<td>&gt;75%</td>
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<td>Other</td>
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<tr>
<td>Stopped Use in 1999</td>
<td>1</td>
<td>None</td>
<td>1</td>
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<tr>
<td>Not Used</td>
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</tr>
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</table>

Income Statement

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

Cash paid is the actual cash outlay during the year and does not necessarily represent the cost of goods and services actually used in 1999.

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
70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Expense Item</th>
<th>Cash Paid</th>
<th>-</th>
<th>Change in Inventory or Prepaid Expense</th>
<th>+</th>
<th>Change in Accounts Payable</th>
<th>=</th>
<th>Accrual Expenses</th>
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</thead>
<tbody>
<tr>
<td><strong>Hired Labor</strong></td>
<td>$335,729</td>
<td></td>
<td>$1,059 &lt;&lt;</td>
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<td>$749</td>
<td></td>
<td>$335,419</td>
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<tr>
<td><strong>Feed</strong></td>
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<tr>
<td>Dairy grain &amp; concentrate</td>
<td>558,363</td>
<td>46,581</td>
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<td></td>
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<td>508,727</td>
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<td>Dairy roughage</td>
<td>33,462</td>
<td>1,670</td>
<td>-615</td>
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<td></td>
<td></td>
<td>31,178</td>
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<td>Nondairy</td>
<td>5</td>
<td>0</td>
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<td>5</td>
</tr>
<tr>
<td><strong>Machinery</strong></td>
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<td></td>
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<td>Mach. hire, rent/lease</td>
<td>54,046</td>
<td>821 &lt;&lt;</td>
<td>275</td>
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<td></td>
<td></td>
<td>53,499</td>
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<td>Mach. rep. &amp; farm veh. exp</td>
<td>92,878</td>
<td>976</td>
<td>663</td>
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<td>92,565</td>
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<td>Fuel, oil &amp; grease</td>
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<td>-101</td>
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<td>Replacement livestock</td>
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<td>30,938</td>
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<td>Breeding</td>
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<td>20,924</td>
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<td>Vet &amp; medicine</td>
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<td>Milk marketing</td>
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<td>Bedding</td>
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<td>Milk supplies</td>
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<td>Cattle lease/rent</td>
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<td>9,212</td>
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<td>Custom boarding</td>
<td>23,093</td>
<td>513 &lt;&lt;</td>
<td>134</td>
<td></td>
<td></td>
<td></td>
<td>22,714</td>
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<td>159</td>
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<td>38,839</td>
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<td>Other livestock expense</td>
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<td>16,426</td>
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<td><strong>Crops</strong></td>
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<tr>
<td>Fertilizer &amp; lime</td>
<td>43,838</td>
<td>1,793</td>
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<td>Seeds &amp; plants</td>
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<td>Spray, other crop exp.</td>
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<td></td>
<td>30,584</td>
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<td><strong>Real Estate</strong></td>
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<td></td>
</tr>
<tr>
<td>Land/bldg./fence repair</td>
<td>31,644</td>
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<td>18,919</td>
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<td>Rent &amp; lease</td>
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<td>37,607</td>
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<tr>
<td><strong>Other</strong></td>
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</tr>
<tr>
<td>Insurance</td>
<td>17,002</td>
<td>570 &lt;&lt;</td>
<td>-29</td>
<td></td>
<td></td>
<td></td>
<td>16,403</td>
</tr>
<tr>
<td>Utilities (farm share)</td>
<td>34,837</td>
<td>-65 &lt;&lt;</td>
<td>-166</td>
<td></td>
<td></td>
<td></td>
<td>34,735</td>
</tr>
<tr>
<td>Interest paid</td>
<td>109,446</td>
<td>217 &lt;&lt;</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td>109,329</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>21,759</td>
<td>285</td>
<td>231</td>
<td></td>
<td></td>
<td></td>
<td>21,705</td>
</tr>
<tr>
<td><strong>Total Operating Expenses</strong></td>
<td>$1,827,708</td>
<td>70,445</td>
<td>$ -1,899</td>
<td></td>
<td></td>
<td></td>
<td>$1,755,365</td>
</tr>
<tr>
<td>Expansion livestock</td>
<td>$40,742</td>
<td>0 &lt;&lt;</td>
<td>$ -1,186</td>
<td></td>
<td></td>
<td></td>
<td>$39,556</td>
</tr>
<tr>
<td>Machinery depreciation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$77,794</td>
</tr>
<tr>
<td>Building depreciation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$66,721</td>
</tr>
<tr>
<td><strong>Total Accrual Expenses</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$1,939,436</td>
</tr>
</tbody>
</table>

**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 1998 funds used to prepay 1999 leases exceed the amount of 1998 leases prepaid in 1997, the amount of this excess is subtracted to exclude it from 1998 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 1999 but not paid for. A decrease is subtracted because the resource was used before 1999.

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**
70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Receipt Item</th>
<th>Cash Receipts</th>
<th>+ Change in Inventory</th>
<th>+ Change in Accounts Receivable</th>
<th>= Accrual Receipts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk sales</td>
<td>$2,031,975</td>
<td>$-28,705</td>
<td>$2,003,269</td>
<td></td>
</tr>
<tr>
<td>Dairy cattle</td>
<td>71,082</td>
<td>$51,924</td>
<td>123,156</td>
<td></td>
</tr>
<tr>
<td>Dairy calves</td>
<td>15,604</td>
<td>-6</td>
<td>15,598</td>
<td></td>
</tr>
<tr>
<td>Other livestock</td>
<td>2,878</td>
<td>0</td>
<td>2,740</td>
<td></td>
</tr>
<tr>
<td>Crops</td>
<td>11,921</td>
<td>45,131</td>
<td>56,849</td>
<td></td>
</tr>
<tr>
<td>Government receipts</td>
<td>39,300</td>
<td>336 ²</td>
<td>39,251</td>
<td></td>
</tr>
<tr>
<td>Custom machine work</td>
<td>5,381</td>
<td>-121</td>
<td>5,259</td>
<td></td>
</tr>
<tr>
<td>Gas tax refund</td>
<td>328</td>
<td>-61</td>
<td>267</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>26,241</td>
<td>-46</td>
<td>26,195</td>
<td></td>
</tr>
<tr>
<td>Less nonfarm noncash cap.</td>
<td>0 ³</td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Total Receipts</td>
<td>$2,204,708</td>
<td>$97,253</td>
<td>$2,272,584</td>
<td></td>
</tr>
</tbody>
</table>

² Change in advanced government receipts.
³ 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 1999 for the 2000 crop year in excess of funds earned for 1999. Likewise, a decrease is added to cash government receipts because it represents funds earned for 1999 but received in 1998.

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

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

Farm operators\(^4\) 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**

70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Item</th>
<th>Average 70 Farms</th>
<th>Average Top 20(^5) Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Per Cow</td>
</tr>
<tr>
<td>Total accrual receipts</td>
<td>$2,272,584</td>
<td>$3,241,877</td>
</tr>
<tr>
<td>Appreciation: Livestock</td>
<td>16,142</td>
<td>1,222</td>
</tr>
<tr>
<td>Machinery</td>
<td>11,488</td>
<td>6,163</td>
</tr>
<tr>
<td>Real Estate</td>
<td>39,523</td>
<td>34,137</td>
</tr>
<tr>
<td>Other Stock/Certificates</td>
<td>3,313</td>
<td></td>
</tr>
<tr>
<td>Total Including Appreciation</td>
<td>$2,343,050</td>
<td>$3,282,762</td>
</tr>
<tr>
<td>Total accrual expenses</td>
<td>1,939,436</td>
<td></td>
</tr>
<tr>
<td>Net Farm Income (with appreciation)</td>
<td>$403,614</td>
<td>$679</td>
</tr>
<tr>
<td>Net Farm Income (w/o appreciation)</td>
<td>$333,148</td>
<td>$561</td>
</tr>
</tbody>
</table>

\(^4\) Operators are the individuals who are integrally involved in the operation and management of the farm business. They are not limited to those who own the farm or are formal members of the partnership or corporation.

\(^5\) Top 20% of large herd farms by rate of return on all assets without appreciation.
Labor and management income is the return which farm operators receive for their labor and management used in operating the farm business. Appreciation is not included as part of the return to labor and management because it results from ownership of assets rather than management of the farm business. Labor and management income is calculated by deducting a charge for unpaid family labor and the opportunity cost of using equity capital, at a real interest rate of five percent, from net farm income excluding appreciation. The interest charge of five percent reflects the long-term average rate of return above inflation that a farmer might expect to earn in comparable risk investments.

### LABOR AND MANAGEMENT INCOME
70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Item</th>
<th>Average 70 Farms</th>
<th>Average Top 20% Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net farm income without appreciation</td>
<td>$ 333,148</td>
<td>$ 664,645</td>
</tr>
<tr>
<td>Family labor unpaid @ $1,800 per month</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Interest on $1,819,839 ($2,346,550 for top 20%) average equity capital @ 5% real rate</td>
<td>- 90,992</td>
<td>- 117,328</td>
</tr>
<tr>
<td>Labor &amp; Management Income per Farm (2.14 operators/farm; 1.70 operators for top 20%)</td>
<td>$ 239,276</td>
<td>$ 544,797</td>
</tr>
<tr>
<td>Labor &amp; Management Income per Operator/Manager</td>
<td>$ 111,811</td>
<td>$ 320,469</td>
</tr>
</tbody>
</table>

Labor and management income per operator averaged $111,811 on these 70 farms in 1999. Returns to labor and management were less than $60,000 on 36 percent of the farms. Labor and management income per operator ranged from $60,000 to $140,000 on 33 percent of the farms while 31 percent showed labor and management incomes of $140,000 or more per operator.

### DISTRIBUTION OF LABOR & MANAGEMENT INCOME PER OPERATOR
70 Large Herd Dairy Farms, 1999

![Distribution of Labor and Management Income per Operator](image-url)
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

**70 Large Herd Dairy Farms, 1999**

<table>
<thead>
<tr>
<th>Item</th>
<th>Average 70 Farms</th>
<th>Average Top 20% Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net farm income with appreciation</td>
<td>$ 403,614</td>
<td>$ 705,530</td>
</tr>
<tr>
<td>Family labor unpaid @ $1,800 per month</td>
<td>- 2,880</td>
<td>- 2,520</td>
</tr>
<tr>
<td>Value of operators' labor &amp; management</td>
<td>- 78,606</td>
<td>- 71,214</td>
</tr>
<tr>
<td>Return on equity capital with appreciation</td>
<td>$ 322,128</td>
<td>$ 631,796</td>
</tr>
<tr>
<td>Interest paid</td>
<td>+ 109,329</td>
<td>+ 103,806</td>
</tr>
<tr>
<td>Return on total capital with appreciation</td>
<td>$ 431,457</td>
<td>$ 735,602</td>
</tr>
<tr>
<td>Return on equity capital without appreciation</td>
<td>$ 251,662</td>
<td>$ 590,911</td>
</tr>
<tr>
<td>Return on total capital without appreciation</td>
<td>$ 360,991</td>
<td>$ 694,717</td>
</tr>
<tr>
<td>Rate of return on average equity capital:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>with appreciation</td>
<td>17.7%</td>
<td>26.9%</td>
</tr>
<tr>
<td>without appreciation</td>
<td>13.8%</td>
<td>25.2%</td>
</tr>
<tr>
<td>Rate of return on average total capital:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>with appreciation</td>
<td>12.4%</td>
<td>18.0%</td>
</tr>
<tr>
<td>without appreciation</td>
<td>10.4%</td>
<td>17.0%</td>
</tr>
<tr>
<td>Net farm income from operations ratio</td>
<td>0.15</td>
<td>0.21</td>
</tr>
</tbody>
</table>

### 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 1999, leases were discounted by 8.5 percent.

Advanced government receipts are included as current liabilities. Government payments received in 1999 that are for participation in the 1998 program are the end year balance and payments received in 1998 for participation in the 1999 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.
### 1999 Farm Business & Nonfarm Balance Sheet

#### 70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Farm Assets</th>
<th>Jan. 1</th>
<th>Dec. 31</th>
<th>Farm Liabilities &amp; Net Worth</th>
<th>Jan. 1</th>
<th>Dec. 31</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td></td>
<td></td>
<td>Current</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farm cash, checking</td>
<td>$ 8,369</td>
<td>$ 22,805</td>
<td>Accounts payable</td>
<td>$ 39,357</td>
<td>$ 36,273</td>
</tr>
<tr>
<td>&amp; savings</td>
<td></td>
<td></td>
<td>Operating debt</td>
<td>121,449</td>
<td>180,930</td>
</tr>
<tr>
<td>Accounts receivable</td>
<td>149,907</td>
<td>120,531</td>
<td>Short Term</td>
<td>15,685</td>
<td>16,768</td>
</tr>
<tr>
<td>Prepaid expenses</td>
<td>5,104</td>
<td>8,061</td>
<td>Advanced govt. receipts</td>
<td>380</td>
<td>44</td>
</tr>
<tr>
<td>Feed &amp; supplies</td>
<td>373,282</td>
<td>485,900</td>
<td>Current Portion:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Intermediate</td>
<td>100,179</td>
<td>118,976</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Long Term</td>
<td>41,284</td>
<td>57,926</td>
</tr>
<tr>
<td>Total Current</td>
<td>$ 536,662</td>
<td>$ 637,297</td>
<td>Total Current</td>
<td>$ 318,334</td>
<td>$ 410,917</td>
</tr>
<tr>
<td>Intermediate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dairy cows:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>owned</td>
<td>$ 583,448</td>
<td>$ 626,705</td>
<td>1-10 years</td>
<td>$ 541,040</td>
<td>$ 623,476</td>
</tr>
<tr>
<td>leased</td>
<td>17,890</td>
<td>11,970</td>
<td>Financial lease</td>
<td>69,732</td>
<td>52,088</td>
</tr>
<tr>
<td>Heifers</td>
<td>259,432</td>
<td>284,168</td>
<td>(cattle/machinery)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulls/other livestock</td>
<td>4,275</td>
<td>4,212</td>
<td>Farm Credit stock</td>
<td>15,908</td>
<td>16,687</td>
</tr>
<tr>
<td>Mach./equipment owned</td>
<td>504,003</td>
<td>583,663</td>
<td>Total Intermediate</td>
<td>$ 626,680</td>
<td>$ 692,251</td>
</tr>
<tr>
<td>Mach./equipment leased</td>
<td>51,842</td>
<td>40,118</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farm Credit stock</td>
<td>15,908</td>
<td>16,687</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other stock/certificate</td>
<td>75,743</td>
<td>92,670</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Intermediate</td>
<td>$1,512,541</td>
<td>$1,660,193</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long Term</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land/buildings:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>owned</td>
<td>$1,246,723</td>
<td>$1,368,337</td>
<td>Financial lease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>leased</td>
<td>8,925</td>
<td>5,405</td>
<td>(structures)</td>
<td>8,925</td>
<td>5,405</td>
</tr>
<tr>
<td>Total Long Term</td>
<td>$1,255,648</td>
<td>$1,373,742</td>
<td>Total Long Term</td>
<td>$ 651,188</td>
<td>$ 637,036</td>
</tr>
<tr>
<td>Total Farm Assets</td>
<td>$3,304,851</td>
<td>$3,671,232</td>
<td>Total Farm Liab.</td>
<td>$1,596,202</td>
<td>$1,740,204</td>
</tr>
<tr>
<td>Nonfarm Assets</td>
<td></td>
<td></td>
<td>FARM NET WORTH</td>
<td>$1,708,649</td>
<td>$1,931,028</td>
</tr>
</tbody>
</table>

### Nonfarm Assets, Liabilities & Net Worth (Average of 26 farms reporting)

<table>
<thead>
<tr>
<th>Assets</th>
<th>Jan. 1</th>
<th>Dec. 31</th>
<th>Liabilities &amp; Net Worth</th>
<th>Jan. 1</th>
<th>Dec. 31</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal cash, checking &amp; savings</td>
<td>$ 1,248</td>
<td>$ 1,589</td>
<td>Nonfarm Liabilities</td>
<td>$ 9,110</td>
<td>$ 5,129</td>
</tr>
<tr>
<td>Cash value life insurance</td>
<td>17,384</td>
<td>22,251</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonfarm real estate</td>
<td>18,635</td>
<td>19,038</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auto (personal share)</td>
<td>2,658</td>
<td>3,769</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stocks &amp; bonds</td>
<td>8,236</td>
<td>18,635</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household furnishings</td>
<td>4,154</td>
<td>4,923</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All other nonfarm assets</td>
<td>0</td>
<td>1,192</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Nonfarm Assets</td>
<td>$ 52,315</td>
<td>$ 71,397</td>
<td>NONFARM NET WORTH</td>
<td>$ 43,205</td>
<td>$ 66,268</td>
</tr>
</tbody>
</table>

### Farm & Nonfarm Assets, Liabilities, and Net Worth

<table>
<thead>
<tr>
<th>Farm &amp; Nonfarm Assets, Liabilities, and Net Worth</th>
<th>Jan. 1</th>
<th>Dec. 31</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Assets</td>
<td>$3,357,166</td>
<td>$3,742,629</td>
</tr>
<tr>
<td>Total Liabilities</td>
<td>1,605,312</td>
<td>1,745,333</td>
</tr>
<tr>
<td>TOTAL FARM &amp; NONFARM NET WORTH</td>
<td>$1,751,854</td>
<td>$1,997,296</td>
</tr>
</tbody>
</table>

*Assumes that average nonfarm assets and liabilities for the nonreporting farms were the same as for those reporting.*
The following condensed balance sheet, including deferred taxes, contains average data from only those farmers who elected to provide the additional information required to compute deferred taxes. Deferred taxes represent an estimate of the taxes that would be paid if the farm were sold at year end fair market values on the date of the balance sheet. Accuracy is dependent on the accuracy of the market values and the tax basis data provided. Any tax liability for assets other than livestock, machinery, land, buildings and nonfarm assets is excluded. It is assumed that all gain on purchased livestock and machinery is ordinary gain and that listed market values are net of selling costs. The effects of investment tax credit carryover and recapture, carryover of operating losses, alternative minimum taxes and other than average exemptions and deductions are excluded because they have only minor influence on the taxes of most farms. The dramatic impact of including deferred taxes is clear. Total liabilities were increased 67 percent on these 5 farms by including deferred taxes.

Deferred taxes on these five farms totaled an average of $349,387, roughly one-third of the pretax net worth. Percent equity decreased from 70 percent to 50 percent when deferred taxes are included on these farms. When examining net worth, especially as a source of cash for retirement or other purposes, deferred taxes become an important consideration. Deferred taxes in this calculation specify that all assets were sold during one tax year. Therefore, tax management strategies such as making sales in more than one year or installment sales warrant careful consideration to reduce income tax liabilities.

**CONDENSED BALANCE SHEET INCLUDING DEFERRED TAXES**  
December 31, 1999  
Average of 5 New York Dairy Farms Reporting Data, 1999

<table>
<thead>
<tr>
<th>ASSETS</th>
<th>LIABILITIES &amp; NET WORTH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Current debts &amp; payables</td>
</tr>
<tr>
<td></td>
<td>Current deferred taxes</td>
</tr>
<tr>
<td><strong>Total Current Assets</strong></td>
<td></td>
</tr>
<tr>
<td>$241,196</td>
<td>$111,832 $74,919</td>
</tr>
<tr>
<td><strong>Total Current Liabilities</strong></td>
<td>$186,751</td>
</tr>
<tr>
<td></td>
<td>Intermediate debts &amp; leases</td>
</tr>
<tr>
<td></td>
<td>Intermediate deferred taxes</td>
</tr>
<tr>
<td><strong>Total Intermediate Assets</strong></td>
<td></td>
</tr>
<tr>
<td>$798,467</td>
<td>$223,610 $180,386</td>
</tr>
<tr>
<td><strong>Total Intermediate Liabilities</strong></td>
<td></td>
</tr>
<tr>
<td>$403,996</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Long term debts &amp; leases</td>
</tr>
<tr>
<td></td>
<td>Long term deferred taxes</td>
</tr>
<tr>
<td><strong>Total Long Term Assets</strong></td>
<td></td>
</tr>
<tr>
<td>$571,360</td>
<td>$186,845 $88,976</td>
</tr>
<tr>
<td><strong>Total Long Term Liabilities</strong></td>
<td></td>
</tr>
<tr>
<td>$275,821</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL FARM ASSETS</strong></td>
<td></td>
</tr>
<tr>
<td>$1,611,023</td>
<td>$866,568 $744,455 $46%</td>
</tr>
<tr>
<td><strong>Farm Net Worth</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Percent Equity (Farm)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total Nonfarm Assets</strong></td>
<td></td>
</tr>
<tr>
<td>$122,027</td>
<td>$0 $5,106</td>
</tr>
<tr>
<td><strong>Total Nonfarm Liabilities</strong></td>
<td></td>
</tr>
<tr>
<td>$5,106</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL ASSETS</strong></td>
<td></td>
</tr>
<tr>
<td>$1,733,050</td>
<td>$871,674 $861,376 $50%</td>
</tr>
<tr>
<td><strong>Total Liabilities</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total Net Worth</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Percent Equity (Total)</strong></td>
<td></td>
</tr>
</tbody>
</table>
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**
70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Item</th>
<th>Average 70 Farms</th>
<th>Average Top 20% Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Ratios - Farm:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent equity</td>
<td>53%</td>
<td>58%</td>
</tr>
<tr>
<td>Debt/asset ratio:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>total</td>
<td>0.47</td>
<td>0.42</td>
</tr>
<tr>
<td>long-term</td>
<td>0.46</td>
<td>0.37</td>
</tr>
<tr>
<td>intermediate/current</td>
<td>0.48</td>
<td>0.44</td>
</tr>
<tr>
<td>Leverage Ratio</td>
<td>0.90</td>
<td>0.72</td>
</tr>
<tr>
<td>Current Ratio</td>
<td>1.55</td>
<td>1.79</td>
</tr>
<tr>
<td>Working Capital:</td>
<td>$226,380</td>
<td>$383,911</td>
</tr>
<tr>
<td>as % of Total Expenses:</td>
<td>12%</td>
<td>15%</td>
</tr>
</tbody>
</table>

**Farm Debt Analysis:**

- Accounts payable as % of total debt: 2%
- Long-term liabilities as a % of total debt: 37%
- Current & intermediate liabilities as a % of total debt: 63%
- Cost of term debt (weighted average): 7.7%

**Average 70 Farms** | **Average Top 20% Farms**

<table>
<thead>
<tr>
<th>Farm Debt Levels:</th>
<th>Per Cow</th>
<th>Per Tillable</th>
<th>Acre Owned</th>
<th>Per Cow</th>
<th>Per Tillable</th>
<th>Acre Owned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total farm debt</td>
<td>$2,834</td>
<td>$2,960</td>
<td>$2,135</td>
<td>$2,286</td>
<td>$2,286</td>
<td></td>
</tr>
<tr>
<td>Long-term debt</td>
<td>1,038</td>
<td>1,083</td>
<td>637</td>
<td>682</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-term &amp; intermediate</td>
<td>2,165</td>
<td>2,261</td>
<td>1,571</td>
<td>1,682</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intermediate &amp; current debt</td>
<td>1,797</td>
<td>1,876</td>
<td>1,498</td>
<td>1,604</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FARM INVENTORY BALANCE**
70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Item</th>
<th>Real Estate</th>
<th>Machinery &amp; Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value beginning of year</td>
<td>$1,246,723</td>
<td>$504,003</td>
</tr>
<tr>
<td>Purchases</td>
<td>$227,154</td>
<td>$150,813</td>
</tr>
<tr>
<td>Gift/inheritance</td>
<td>+ 0</td>
<td>+ 56</td>
</tr>
<tr>
<td>Lost capital</td>
<td>- 71,761</td>
<td></td>
</tr>
<tr>
<td>Sales</td>
<td>- 6,581</td>
<td>- 4,902</td>
</tr>
<tr>
<td>Depreciation</td>
<td>- 66,721</td>
<td>- 77,794</td>
</tr>
<tr>
<td>Net investment</td>
<td>= 82,091</td>
<td>= 68,172</td>
</tr>
<tr>
<td>Appreciation</td>
<td>+ 39,523</td>
<td>+ 11,488</td>
</tr>
<tr>
<td>Value end of year</td>
<td>$1,368,337</td>
<td>$583,663</td>
</tr>
</tbody>
</table>

^39,807 land and $187,347 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)
70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Item</th>
<th>Average 70 Farms</th>
<th>Average Top 20% Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning of year farm net worth</td>
<td>$ 1,708,649</td>
<td>$ 2,143,409</td>
</tr>
<tr>
<td>Net farm income w/o appreciation</td>
<td>$ 333,148</td>
<td>$ 664,645</td>
</tr>
<tr>
<td>+ Nonfarm cash income</td>
<td>+ 7,158</td>
<td>+ 8,358</td>
</tr>
<tr>
<td>- Personal withdrawals &amp; family expenditures excluding nonfarm borrowings</td>
<td>- 123,717</td>
<td>- 223,928</td>
</tr>
<tr>
<td>Retained Earnings</td>
<td>+ 216,589</td>
<td>+ 449,075</td>
</tr>
<tr>
<td>Nonfarm noncash transfers to farm</td>
<td>$ 56</td>
<td>$ 0</td>
</tr>
<tr>
<td>+ Cash used in business from nonfarm capital</td>
<td>+ 8,380</td>
<td>+ 8,339</td>
</tr>
<tr>
<td>- Note/mortgage from farm real estate sold (nonfarm)</td>
<td>- 0</td>
<td>- 0</td>
</tr>
<tr>
<td>Contributed/Withdrawn Capital</td>
<td>= +$ 8,436</td>
<td>+ 8,339</td>
</tr>
<tr>
<td>Appreciation</td>
<td>$ 70,466</td>
<td>$ 40,885</td>
</tr>
<tr>
<td>- Lost capital</td>
<td>- 71,761</td>
<td>- 93,411</td>
</tr>
<tr>
<td>Change in Valuation Equity</td>
<td>+$ -1,295</td>
<td>+ -52,526</td>
</tr>
<tr>
<td>Imbalance/Error</td>
<td>- 1,351</td>
<td>- 1,394</td>
</tr>
<tr>
<td>End of year farm net worth(^8)</td>
<td>=$ 1,931,028</td>
<td>=$ 2,549,691</td>
</tr>
<tr>
<td>Change in net worth w/apprec.</td>
<td>$ 222,379</td>
<td>$ 406,282</td>
</tr>
</tbody>
</table>

**Change in Net Worth**

| Without appreciation | $ 151,913 | $ 365,397 |
| With appreciation    | $ 222,379 | $ 406,282 |

\(^8\)May not add due to rounding.
Cash Flow Statement

Completing an annual cash flow statement is an important step in understanding the sources and uses of funds for the business. Understanding last year’s cash flow is the first step toward planning and managing cash flow for the current and future years.

The annual cash flow statement is structured to show net cash provided by operating activities, investing activities, financing activities and from reserves. All cash inflows and outflows, including beginning and end balances, are included. Therefore, the sum of net cash provided from all four activities should be zero. Any imbalance is the error from incorrect accounting of cash inflows/outflows.

### ANNUAL CASH FLOW STATEMENT

70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Item</th>
<th>Average 70 Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cash Flow from Operating Activities</strong></td>
<td></td>
</tr>
<tr>
<td>Cash farm receipts</td>
<td>$ 2,204,708</td>
</tr>
<tr>
<td>- Cash farm expenses</td>
<td>1,827,708</td>
</tr>
<tr>
<td>= Net cash farm income</td>
<td>$ 377,000</td>
</tr>
<tr>
<td>Personal withdrawals/family expenses including nonfarm debt payments</td>
<td>$ 122,222</td>
</tr>
<tr>
<td>- Nonfarm income</td>
<td>7,158</td>
</tr>
<tr>
<td>- Net cash withdrawals from the farm</td>
<td>$ 115,064</td>
</tr>
<tr>
<td>= Net Provided by Operating Activities</td>
<td>$ 261,936</td>
</tr>
</tbody>
</table>

| Cash Flow From Investing Activities |               |
| Sale of Assets: Machinery | $ 4,902 |
| + real estate | 6,581 |
| + other stock/cert. | 5,629 |
| = Total asset sales | $ 17,112 |
| Capital purchases: expansion livestock | $ 40,742 |
| + machinery | 150,813 |
| + real estate | 227,154 |
| + other stock/cert. | 19,243 |
| = Total invested in farm assets | $ 437,952 |
| = Net Provided by Investment Activities | $ -420,840 |

| Cash Flow From Financing Activities |               |
| Money borrowed (inter. & long term) | $ 328,305 |
| + Money borrowed (short-term) | 7,848 |
| + Increase in operating debt | 59,481 |
| + Cash from nonfarm cap. used in business | 8,380 |
| + Money borrowed - nonfarm | -1,495 |
| = Cash inflow from financing | $ 402,519 |
| Principal payments (inter. & long-term) | $ 221,063 |
| + Principal payments (short-term) | 6,765 |
| + Decrease in operating debt | 0 |
| - Cash outflow for financing | $ 227,828 |
| = Net Provided by Financing Activities | $ 174,691 |

| Cash Flow From Business |               |
| Beginning farm cash, checking & savings | $ 8,369 |
| - Ending farm cash, checking & savings | 22,805 |
| = Net Provided from Reserves | $ -14,436 |

**Imbalance (error)** | $ 1,351
## ANNUAL CASH FLOW STATEMENT
### 14 Top 20% Large Herd Dairy Farms, 1999

### Cash Flow from Operating Activities

<table>
<thead>
<tr>
<th>Item</th>
<th>Average Top 20% Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash farm receipts</td>
<td>$3,103,636</td>
</tr>
<tr>
<td>- Cash farm expenses</td>
<td>2,474,542</td>
</tr>
<tr>
<td>= Net cash farm income</td>
<td>$ 629,094</td>
</tr>
<tr>
<td>Personal withdrawals/family expenses including</td>
<td>$ 223,570</td>
</tr>
<tr>
<td>nonfarm debt payments</td>
<td></td>
</tr>
<tr>
<td>- Nonfarm income</td>
<td>8,358</td>
</tr>
<tr>
<td>- Net cash withdrawals from the farm</td>
<td>$ 215,212</td>
</tr>
<tr>
<td>= Net Provided by Operating Activities</td>
<td>$ 413,882</td>
</tr>
</tbody>
</table>

### Cash Flow From Investing Activities

| Sale of Assets: Machinery                      | $ 3,907               |
| + real estate                                  | 0                     |
| + other stock/cert.                            | 6,238                 |
| = Total asset sales                            | $ 10,145              |
| Capital purchases: expansion livestock         | $ 84,429              |
| + machinery                                    | 182,185               |
| + real estate                                  | 319,036               |
| + other stock/cert.                            | 11,323                |
| = Total invested in farm assets                | $ 596,973             |

### Cash Flow From Financing Activities

| Money borrowed (inter. & long term)            | $ 295,445             |
| + Money borrowed (short-term)                  | 886                   |
| + Increase in operating debt                   | 110,130               |
| + Cash from nonfarm cap. used in business      | 8,339                 |
| + Money borrowed - nonfarm                     | -358                  |
| = Cash inflow from financing                   | $ 414,442             |
| Principal payments (inter. & long-term)        | $ 166,506             |
| + Principal payments (short-term)              | 421                   |
| + Decrease in operating debt                   | 0                     |
| - Cash outflow for financing                   | $ 166,927             |
| = Net Provided by Financing Activities         | $ 247,515             |

### Cash Flow From Business

| Beginning farm cash, checking & savings        | $ -24,377             |
| - Ending farm cash, checking & savings         | 51,584                |
| = Net Provided from Reserves                   | $ -75,961             |

### Imbalance (error)

| Imbalance (error)                              | $ -1,392              |
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 2000. The cash flow projection worksheet on the next page can be used to estimate repayment ability, which can then be compared to planned 2000 debt payments shown below.

FARM DEBT PAYMENTS PLANNED
Large Herd Dairy Farms, 1998 & 1999

<table>
<thead>
<tr>
<th>Debt Payments</th>
<th>Same 60 Dairy Farms</th>
<th>Same 10 Top 20% Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Planned Made</td>
<td></td>
</tr>
<tr>
<td>Long-term</td>
<td>$ 96,282 $ 160,273</td>
<td>$ 114,174 $ 123,774</td>
</tr>
<tr>
<td>Intermediate-term</td>
<td>149,410 178,700</td>
<td>176,623 170,778</td>
</tr>
<tr>
<td>Short-term</td>
<td>5,807 6,005</td>
<td>4,625 589</td>
</tr>
<tr>
<td>Operating (net</td>
<td>15,696 0</td>
<td>23,824 55,329</td>
</tr>
<tr>
<td>reduction)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounts payable</td>
<td>1,065 6,937</td>
<td>1,946 0</td>
</tr>
<tr>
<td>(net reduction)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$ 268,260 $ 351,915</td>
<td>$ 321,192 $ 302,871</td>
</tr>
</tbody>
</table>

Per cow
- $ 441 $ 579
- $ 1.94 $ 2.54

Percent of total
- 11% 15%
- 11%

Percent of 1999
- 13% 17%
- 9%

The cash flow coverage ratio and debt coverage ratio measure the ability of the farm business to meet its planned debt payments schedule. The ratios show the percentage of payments planned for 1999 (as of December 31, 1998) that could have been made with the amount available for debt service in 1999. Farmers who did not participate in DFBS in 1998 have their 1999 cash flow coverage ratio based on planned debt payments for 2000.

**COVERAGE RATIOS**
Large Herd Dairy Farms, 1998 & 1999

<table>
<thead>
<tr>
<th>Item</th>
<th>Average</th>
<th>Item</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash Flow Coverage Ratio</td>
<td></td>
<td>Debt Coverage Ratio</td>
<td></td>
</tr>
<tr>
<td>Cash farm receipts</td>
<td>$2,271,291</td>
<td>Net farm income (w/o apprec.)</td>
<td>$339,862</td>
</tr>
<tr>
<td>- Cash farm expenses</td>
<td>1,895,478</td>
<td>+ Depreciation</td>
<td>144,720</td>
</tr>
<tr>
<td>+ Interest paid (cash)</td>
<td>108,342</td>
<td>+ Interest paid (accrual)</td>
<td>108,206</td>
</tr>
<tr>
<td>- Net personal withdrawals from farm⁹</td>
<td>119,237</td>
<td>- Net personal withdrawals from farm⁹</td>
<td>119,237</td>
</tr>
<tr>
<td>(A) = Amount Available for Debt Service</td>
<td>$ 364,918</td>
<td>(A’) = Repayment Capacity</td>
<td>$473,551</td>
</tr>
<tr>
<td>(B) = Debt Payments Planned for 1999 (as of December 31, 1998)</td>
<td>$ 268,260</td>
<td>(B) = Debt Payments Planned for 1999 (as of December 31, 1998)</td>
<td>$268,260</td>
</tr>
<tr>
<td>(A/B)= Cash Flow Coverage Ratio for 1999</td>
<td>1.36</td>
<td>(A’/B)= Debt Coverage Ratio for 1999</td>
<td>1.77</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Average</th>
<th>Item</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same 10 Top 20% Dairy Farms, 1998 &amp; 1999</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(A) = Amount Available for Debt Service</td>
<td>$ 558,232</td>
<td>(A’) = Repayment Capacity</td>
<td>$794,799</td>
</tr>
<tr>
<td>(B) = Debt Payments Planned for 1999</td>
<td>312,111</td>
<td>(B) = Debt Payments Planned for 1999</td>
<td>312,111</td>
</tr>
</tbody>
</table>

⁹Personal 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
70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Item</th>
<th>Per Cow</th>
<th>Per Cwt.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number cows and cwt. milk</strong></td>
<td>594</td>
<td>134,426</td>
<td>2,003,269</td>
</tr>
<tr>
<td><strong>Accrual Operating Receipts</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk</td>
<td>3,373</td>
<td>14.90</td>
<td>2,003,269</td>
</tr>
<tr>
<td>Dairy cattle</td>
<td>207</td>
<td>0.92</td>
<td>123,156</td>
</tr>
<tr>
<td>Dairy calves</td>
<td>26</td>
<td>0.12</td>
<td>15,598</td>
</tr>
<tr>
<td>Other livestock</td>
<td>5</td>
<td>0.02</td>
<td>2,740</td>
</tr>
<tr>
<td>Crops</td>
<td>96</td>
<td>0.42</td>
<td>56,849</td>
</tr>
<tr>
<td>Misc. receipts</td>
<td>119</td>
<td>0.53</td>
<td>70,972</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>3,826</td>
<td>16.91</td>
<td>2,272,584</td>
</tr>
<tr>
<td><strong>Accrual Operating Expenses</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hired labor</td>
<td>565</td>
<td>2.50</td>
<td>335,419</td>
</tr>
<tr>
<td>Dairy grain &amp; concentrate</td>
<td>856</td>
<td>3.78</td>
<td>508,727</td>
</tr>
<tr>
<td>Dairy roughage</td>
<td>52</td>
<td>0.23</td>
<td>31,178</td>
</tr>
<tr>
<td>Nondairy feed</td>
<td>0</td>
<td>0.00</td>
<td>5</td>
</tr>
<tr>
<td>Mach. hire/rent/lease</td>
<td>90</td>
<td>0.40</td>
<td>33,803</td>
</tr>
<tr>
<td>Mach. repair &amp; farm vehicle expense</td>
<td>156</td>
<td>0.69</td>
<td>92,565</td>
</tr>
<tr>
<td>Fuel, oil &amp; grease</td>
<td>48</td>
<td>0.21</td>
<td>28,305</td>
</tr>
<tr>
<td>Replacement livestock</td>
<td>52</td>
<td>0.23</td>
<td>30,938</td>
</tr>
<tr>
<td>Breeding</td>
<td>35</td>
<td>0.16</td>
<td>20,924</td>
</tr>
<tr>
<td>Vet &amp; medicine</td>
<td>115</td>
<td>0.51</td>
<td>68,062</td>
</tr>
<tr>
<td>Milk marketing</td>
<td>97</td>
<td>0.43</td>
<td>41,761</td>
</tr>
<tr>
<td>Bedding</td>
<td>52</td>
<td>0.23</td>
<td>30,872</td>
</tr>
<tr>
<td>Milking supplies</td>
<td>70</td>
<td>0.31</td>
<td>41,604</td>
</tr>
<tr>
<td>Cattle lease</td>
<td>16</td>
<td>0.07</td>
<td>9,212</td>
</tr>
<tr>
<td>Custom boarding</td>
<td>38</td>
<td>0.17</td>
<td>22,714</td>
</tr>
<tr>
<td>bST expense</td>
<td>65</td>
<td>0.29</td>
<td>38,839</td>
</tr>
<tr>
<td>Other livestock expense</td>
<td>28</td>
<td>0.12</td>
<td>16,426</td>
</tr>
<tr>
<td>Fertilizer &amp; lime</td>
<td>70</td>
<td>0.31</td>
<td>41,554</td>
</tr>
<tr>
<td>Seeds &amp; plants</td>
<td>43</td>
<td>0.19</td>
<td>25,399</td>
</tr>
<tr>
<td>Spray/other crop expenses</td>
<td>51</td>
<td>0.23</td>
<td>30,584</td>
</tr>
<tr>
<td>Land, building, fence repair</td>
<td>54</td>
<td>0.24</td>
<td>32,080</td>
</tr>
<tr>
<td>Taxes</td>
<td>32</td>
<td>0.14</td>
<td>18,919</td>
</tr>
<tr>
<td>Real estate rent/lease</td>
<td>63</td>
<td>0.28</td>
<td>17,607</td>
</tr>
<tr>
<td>Insurance</td>
<td>28</td>
<td>0.12</td>
<td>16,403</td>
</tr>
<tr>
<td>Utilities</td>
<td>58</td>
<td>0.26</td>
<td>34,735</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>37</td>
<td>0.16</td>
<td>21,705</td>
</tr>
<tr>
<td><strong>Total Less Interest Paid</strong></td>
<td>2,771</td>
<td>12.24</td>
<td>1,646,036</td>
</tr>
<tr>
<td><strong>Net Accrual Operating Income</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(without interest paid)</td>
<td>1,055</td>
<td>4.66</td>
<td>626,548</td>
</tr>
<tr>
<td>- Change in livestock/crop inventory(^{10})</td>
<td>164</td>
<td>0.72</td>
<td>97,253</td>
</tr>
<tr>
<td>- Change in accounts receivable</td>
<td>-49</td>
<td>-0.22</td>
<td>-29,377</td>
</tr>
<tr>
<td>- Change in feed/supply inventory(^{11})</td>
<td>119</td>
<td>0.52</td>
<td>70,445</td>
</tr>
<tr>
<td>+ Change in accts. Payable(^{12})</td>
<td>-3</td>
<td>-0.01</td>
<td>-1,999</td>
</tr>
<tr>
<td><strong>NET CASH FLOW</strong></td>
<td>819</td>
<td>3.62</td>
<td>486,446</td>
</tr>
<tr>
<td>- Net personal withdrawals from farm (see footnote on p. 16)</td>
<td>196</td>
<td>0.87</td>
<td>116,559</td>
</tr>
<tr>
<td>Available for Farm Debt Payments &amp; Investments</td>
<td>623</td>
<td>2.75</td>
<td>369,887</td>
</tr>
<tr>
<td>- Farm debt payments</td>
<td>569</td>
<td>2.52</td>
<td>338,140</td>
</tr>
<tr>
<td>Available for Farm Investment</td>
<td>53</td>
<td>0.24</td>
<td>31,747</td>
</tr>
<tr>
<td>- Capital purchases: cattle, machinery &amp; improvements</td>
<td>737</td>
<td>3.26</td>
<td>437,952</td>
</tr>
</tbody>
</table>

\(^{10}\)Includes change in advance government receipts.  \(^{11}\)Includes change in prepaid expenses.  \(^{12}\)Excludes change in interest account payable.
### ANNUAL CASH FLOW WORKSHEET
#### 14 Top 20% Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Item</th>
<th>Per Cow</th>
<th>Per Cwt.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. cows or cwt. milk</td>
<td>823</td>
<td>192,844</td>
<td></td>
</tr>
<tr>
<td><strong>Accrual Operating Receipts</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk</td>
<td>$3,491</td>
<td>$14.90</td>
<td>$2,873,097</td>
</tr>
<tr>
<td>Dairy cattle</td>
<td>250</td>
<td>1.07</td>
<td>205,608</td>
</tr>
<tr>
<td>Dairy calves</td>
<td>24</td>
<td>0.10</td>
<td>19,537</td>
</tr>
<tr>
<td>Other livestock</td>
<td>7</td>
<td>0.03</td>
<td>5,402</td>
</tr>
<tr>
<td>Crops</td>
<td>106</td>
<td>0.45</td>
<td>87,138</td>
</tr>
<tr>
<td>Misc. receipts</td>
<td>62</td>
<td>0.26</td>
<td>51,096</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$3,939</td>
<td>$16.81</td>
<td>$3,241,877</td>
</tr>
<tr>
<td><strong>Accrual Operating Expenses</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hired labor</td>
<td>$599</td>
<td>2.55</td>
<td>492,584</td>
</tr>
<tr>
<td>Dairy grain &amp; concentrate</td>
<td>864</td>
<td>3.69</td>
<td>711,477</td>
</tr>
<tr>
<td>Dairy roughage</td>
<td>61</td>
<td>0.26</td>
<td>49,884</td>
</tr>
<tr>
<td>Nondairy feed</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>Mach. hire/rent/lease</td>
<td>68</td>
<td>0.29</td>
<td>56,203</td>
</tr>
<tr>
<td>Mach. repair &amp; farm vehicle expense</td>
<td>141</td>
<td>0.60</td>
<td>115,641</td>
</tr>
<tr>
<td>Fuel, oil &amp; grease</td>
<td>41</td>
<td>0.18</td>
<td>33,942</td>
</tr>
<tr>
<td>Replacement livestock</td>
<td>22</td>
<td>0.10</td>
<td>18,517</td>
</tr>
<tr>
<td>Breeding</td>
<td>35</td>
<td>0.15</td>
<td>28,543</td>
</tr>
<tr>
<td>Vet &amp; medicine</td>
<td>112</td>
<td>0.48</td>
<td>91,795</td>
</tr>
<tr>
<td>Milk marketing</td>
<td>75</td>
<td>0.32</td>
<td>61,780</td>
</tr>
<tr>
<td>Bedding</td>
<td>55</td>
<td>0.23</td>
<td>44,927</td>
</tr>
<tr>
<td>Milking supplies</td>
<td>62</td>
<td>0.27</td>
<td>51,374</td>
</tr>
<tr>
<td>Cattle lease</td>
<td>27</td>
<td>0.12</td>
<td>22,627</td>
</tr>
<tr>
<td>Custom boarding</td>
<td>70</td>
<td>0.30</td>
<td>57,215</td>
</tr>
<tr>
<td>bST expense</td>
<td>69</td>
<td>0.29</td>
<td>56,466</td>
</tr>
<tr>
<td>Other livestock expense</td>
<td>20</td>
<td>0.09</td>
<td>16,858</td>
</tr>
<tr>
<td>Fertilizer &amp; lime</td>
<td>71</td>
<td>0.30</td>
<td>58,155</td>
</tr>
<tr>
<td>Seeds &amp; plants</td>
<td>32</td>
<td>0.14</td>
<td>26,118</td>
</tr>
<tr>
<td>Spray/other crop expenses</td>
<td>32</td>
<td>0.14</td>
<td>26,556</td>
</tr>
<tr>
<td>Land, building, fence repair</td>
<td>55</td>
<td>0.24</td>
<td>45,348</td>
</tr>
<tr>
<td>Taxes</td>
<td>28</td>
<td>0.12</td>
<td>23,138</td>
</tr>
<tr>
<td>Real estate rent/lease</td>
<td>66</td>
<td>0.28</td>
<td>53,959</td>
</tr>
<tr>
<td>Insurance</td>
<td>21</td>
<td>0.09</td>
<td>17,196</td>
</tr>
<tr>
<td>Utilities</td>
<td>52</td>
<td>0.22</td>
<td>43,088</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>39</td>
<td>0.16</td>
<td>31,738</td>
</tr>
<tr>
<td><strong>Total Less Interest Paid</strong></td>
<td>$2,716</td>
<td>$11.59</td>
<td>$2,235,127</td>
</tr>
<tr>
<td><strong>Net Accrual Operating Income</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(without interest paid)</td>
<td>$1,223</td>
<td>$5.22</td>
<td>$1,006,750</td>
</tr>
<tr>
<td>- Change in livestock/crop inventory</td>
<td>208</td>
<td>0.89</td>
<td>170,791</td>
</tr>
<tr>
<td>- Change in accounts receivable</td>
<td>-40</td>
<td>-0.17</td>
<td>-32,550</td>
</tr>
<tr>
<td>- Change in feed/supply inventory</td>
<td>166</td>
<td>0.71</td>
<td>136,406</td>
</tr>
<tr>
<td>+ Change in accounts payable</td>
<td>1</td>
<td>0.00</td>
<td>441</td>
</tr>
<tr>
<td><strong>NET CASH FLOW</strong></td>
<td>$890</td>
<td>$3.80</td>
<td>$732,545</td>
</tr>
<tr>
<td>- Net personal withdrawals from farm</td>
<td>$262</td>
<td>$1.12</td>
<td>$215,570</td>
</tr>
<tr>
<td>Available for Farm Debt Payments &amp; Investments</td>
<td>$628</td>
<td>$2.68</td>
<td>$516,975</td>
</tr>
<tr>
<td>- Farm debt payments</td>
<td>327</td>
<td>1.40</td>
<td>269,431</td>
</tr>
<tr>
<td>Available for Farm Investment</td>
<td>$301</td>
<td>1.28</td>
<td>247,544</td>
</tr>
<tr>
<td>- Capital purchases: cattle, machinery &amp; improvements</td>
<td>$725</td>
<td>3.10</td>
<td>596,973</td>
</tr>
</tbody>
</table>

---

13Includes change in advance government receipts.  
14Includes change in prepaid expenses.  
15Excludes 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
70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Item</th>
<th>Average 70 Farms</th>
<th>Average Top 20% Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>Owned</td>
<td>Rented</td>
</tr>
<tr>
<td>Tillable</td>
<td>588</td>
<td>539</td>
</tr>
<tr>
<td>Nontillable</td>
<td>34</td>
<td>22</td>
</tr>
<tr>
<td>Other nontillable</td>
<td>170</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>792</td>
<td>573</td>
</tr>
<tr>
<td>Crop Yields</td>
<td>Farms</td>
<td>Acres</td>
</tr>
<tr>
<td>Hay crop</td>
<td>67</td>
<td>500</td>
</tr>
<tr>
<td>Corn silage</td>
<td>67</td>
<td>524</td>
</tr>
<tr>
<td>Other forage</td>
<td>2</td>
<td>128</td>
</tr>
<tr>
<td>Total forage</td>
<td>67</td>
<td>1,028</td>
</tr>
<tr>
<td>Corn grain</td>
<td>24</td>
<td>188</td>
</tr>
<tr>
<td>Oats</td>
<td>2</td>
<td>33</td>
</tr>
<tr>
<td>Wheat</td>
<td>9</td>
<td>112</td>
</tr>
<tr>
<td>Other crops</td>
<td>24</td>
<td>137</td>
</tr>
<tr>
<td>Tillable pasture</td>
<td>6</td>
<td>69</td>
</tr>
<tr>
<td>Idle</td>
<td>9</td>
<td>84</td>
</tr>
<tr>
<td>Total Tillable Acres</td>
<td>70</td>
<td>1,127</td>
</tr>
</tbody>
</table>

\[This\ column\ represents\ the\ average\ acreage\ for\ the\ farms\ producing\ that\ crop.\ Average\ acreages\ including\ those\ farms\ not\ producing\ were\ corn\ grain\ 64,\ oats\ 1,\ wheat\ 14,\ tillable\ pasture\ 6,\ and\ idle\ 11.\]

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
70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Item</th>
<th>Average 70 Farms</th>
<th>Average Top 20% Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total tillable acres per cow</td>
<td>1.90</td>
<td>1.75</td>
</tr>
<tr>
<td>Total forage acres per cow</td>
<td>1.66</td>
<td>1.52</td>
</tr>
<tr>
<td>Harvested forage dry matter, tons per cow</td>
<td>7.88</td>
<td>7.69</td>
</tr>
</tbody>
</table>
Cropping Analysis (continued)

A number of cooperators have allocated crop expenses among the hay crop, corn, and other crops produced. Fertilizer and lime, seeds and plants, and spray and other crop expenses have been computed per acre and per production unit for hay and corn. Additional expense items such as fuels, labor, and machinery repairs are not included. Rotational grazing was used on one farm.

CROP RELATED ACCRUAL EXPENSES
Large Herd Dairy Farms Reporting, 1999

<table>
<thead>
<tr>
<th>Item</th>
<th>Total</th>
<th>All</th>
<th>Corn Silage</th>
<th>Corn Grain</th>
<th>Hay Crop</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Per</td>
<td></td>
<td>Per Acre</td>
<td>Per Ton DM</td>
<td>Per Sh. Bu.</td>
</tr>
<tr>
<td>No. of farms reporting</td>
<td>70</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Ave. number of acres</td>
<td>1,127</td>
<td>442</td>
<td>424</td>
<td>424</td>
<td></td>
</tr>
<tr>
<td>Fertilizer/lime</td>
<td>$36.87</td>
<td>43.08</td>
<td>7.13</td>
<td>0.39</td>
<td>$21.16</td>
</tr>
<tr>
<td>Seed/plants</td>
<td>22.54</td>
<td>38.13</td>
<td>6.31</td>
<td>0.35</td>
<td>13.51</td>
</tr>
<tr>
<td>Spray/other crop exp.</td>
<td>27.14</td>
<td>58.35</td>
<td>9.66</td>
<td>0.53</td>
<td>14.85</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$86.55</td>
<td>$139.56</td>
<td>$23.10</td>
<td>1.27</td>
<td>$49.52</td>
</tr>
</tbody>
</table>

Average Top 20% Farms:
No. of farms reporting | 14
Ave. number of acres | 1,439
Fertilizer/lime     | $40.41
Seeds/plants        | 18.15
Spray/other crop exp. | 18.45
TOTAL               | $77.01

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

ACCRUAL MACHINERY EXPENSES
70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Machinery Expense Item</th>
<th>Average 70 Farms</th>
<th>Average Top 20% Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Expenses</td>
<td>Per Till. Acre</td>
</tr>
<tr>
<td>Fuel, oil &amp; grease</td>
<td>$28,305</td>
<td>$25.12</td>
</tr>
<tr>
<td>Mach. repairs &amp; farm veh. exp.</td>
<td>92,565</td>
<td>82.13</td>
</tr>
<tr>
<td>Machine hire, rent &amp; lease</td>
<td>53,499</td>
<td>47.47</td>
</tr>
<tr>
<td>Interest (5%)</td>
<td>29,491</td>
<td>26.17</td>
</tr>
<tr>
<td>Depreciation</td>
<td>77,794</td>
<td>69.03</td>
</tr>
<tr>
<td>Total</td>
<td>$281,654</td>
<td>$249.91</td>
</tr>
</tbody>
</table>
Dairy Analysis

Analysis of the dairy enterprise can reveal a great deal about the strengths and weaknesses of the dairy farm business. Information on this page 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 9 and 10.

**DAIRY HERD INVENTORY**
70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Item</th>
<th>Dairy Cows</th>
<th>Bred</th>
<th>Open</th>
<th>Calves</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Value</td>
<td>No.</td>
<td>Value</td>
</tr>
<tr>
<td>Average 70 Farms:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beginning year (owned)</td>
<td>560</td>
<td>$583,448</td>
<td>156</td>
<td>$142,644</td>
</tr>
<tr>
<td>+ Change w/o apprec.</td>
<td>34,289</td>
<td>11,814</td>
<td>1,509</td>
<td>4,312</td>
</tr>
<tr>
<td>+ Appreciation</td>
<td>8,968</td>
<td>3,469</td>
<td>2,413</td>
<td>1,218</td>
</tr>
<tr>
<td>End year (owned)</td>
<td>592</td>
<td>$626,705</td>
<td>167</td>
<td>$157,927</td>
</tr>
<tr>
<td>End including leased</td>
<td>614</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average number</td>
<td>594</td>
<td>435 (all age groups)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Average Top 20% Farms: | | | | | | | | |
| Beginning year (owned) | 741 | $719,299 | 242 | $198,636 | 198 | $96,707 | 124 | $34,070 |
| + Change w/o apprec. | 67,406 | 25,706 | -5,629 | 18,466 |
| + Appreciation | 0 | 372 | 743 | 108 |
| End of year (owned) | 806 | $786,705 | 268 | $224,714 | 172 | $91,821 | 186 | $52,644 |
| End including leased | 864 | | | | | | |
| Average number | 823 | 611 (all age groups) |

Total milk sold and milk sold per cow 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**
70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Item</th>
<th>Average 70 Farms</th>
<th>Average Top 20% Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total milk sold, lbs.</td>
<td>13,442,582</td>
<td>19,284,373</td>
</tr>
<tr>
<td>Milk sold per cow, lbs.</td>
<td>22,638</td>
<td>23,428</td>
</tr>
<tr>
<td>Average milk plant test, percent butterfat</td>
<td>3.65 %</td>
<td>3.64 %</td>
</tr>
</tbody>
</table>

**ANIMALS LEAVING THE HERD**
70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Item</th>
<th>Average 70 Farms</th>
<th>Average Top 20% Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Percent[1]</td>
<td>Number</td>
</tr>
<tr>
<td>Cows sold for beef</td>
<td>174</td>
<td>29.3</td>
</tr>
<tr>
<td>Cows sold for dairy</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td>Cows died</td>
<td>29</td>
<td>4.9</td>
</tr>
<tr>
<td>Culling rate[18]</td>
<td>---</td>
<td>34.2</td>
</tr>
</tbody>
</table>

\[1\]Percent of average number of cows in the herd.
\[18\]Cows sold for beef plus cows died.
Cull rate measures the turnover of cows within the dairy herd and is comprised of both animals that die on the farm and animals that are sold as beef. Cull rates are impacted by the herd management skills of the farm owners and where the business is in terms of growth cycles and cow life cycles. The following two charts look at the relationship between percent cull rates and milk production and profit levels. While there is no significant relationship between cull rate and these two measures, it is interesting to note that out of the top 11 farms that averaged over 15% return to all capital without appreciation, 8 of them averaged less than a 35% cull rate.
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
#### 70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Item</th>
<th>Average 70 Farms</th>
<th>Average Top 20% Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Per Cow</td>
<td>Per Cwt.</td>
</tr>
<tr>
<td><strong>Accrual Costs of Producing Milk</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating costs</td>
<td>$1,525,606</td>
<td>$2,568</td>
</tr>
<tr>
<td>Purchased inputs costs</td>
<td>$1,670,121</td>
<td>$2,812</td>
</tr>
<tr>
<td>Total Costs</td>
<td>$1,842,599</td>
<td>$3,102</td>
</tr>
<tr>
<td><strong>Accrual Receipts From Milk</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Milk Receipts</td>
<td>$2,003,269</td>
<td>$3,373</td>
</tr>
<tr>
<td>Net Farm Income w/o appreciation</td>
<td>$333,148</td>
<td>$561</td>
</tr>
<tr>
<td>Net Farm Income with appreciation</td>
<td>$403,614</td>
<td>$679</td>
</tr>
</tbody>
</table>

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
#### 70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Item</th>
<th>Average 70 Farms</th>
<th>Average Top 20% Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Per Cow</td>
<td>Per Cwt.</td>
</tr>
<tr>
<td>Purchased dairy grain &amp; concentrate</td>
<td>$ 856</td>
<td>$3.78</td>
</tr>
<tr>
<td>Purchased dairy roughage</td>
<td>$ 52</td>
<td>0.23</td>
</tr>
<tr>
<td>Total Purchased Dairy Feed</td>
<td>$ 908</td>
<td>$4.01</td>
</tr>
<tr>
<td>Purchased grain &amp; concentrate as % of milk receipts</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>Purchased feed &amp; crop expense</td>
<td>$ 1,073</td>
<td>$4.74</td>
</tr>
<tr>
<td>Purchased feed &amp; crop expense as % of milk receipts</td>
<td>32%</td>
<td>30%</td>
</tr>
<tr>
<td>Breeding</td>
<td>$ 35</td>
<td>$0.16</td>
</tr>
<tr>
<td>Veterinary &amp; medicine</td>
<td>115</td>
<td>0.51</td>
</tr>
<tr>
<td>Milk marketing</td>
<td>97</td>
<td>0.43</td>
</tr>
<tr>
<td>Bedding</td>
<td>52</td>
<td>0.23</td>
</tr>
<tr>
<td>Milking supplies</td>
<td>70</td>
<td>0.31</td>
</tr>
<tr>
<td>Cattle lease</td>
<td>16</td>
<td>0.07</td>
</tr>
<tr>
<td>Custom boarding</td>
<td>38</td>
<td>0.17</td>
</tr>
<tr>
<td>bST expense</td>
<td>65</td>
<td>0.29</td>
</tr>
<tr>
<td>Other livestock expenses</td>
<td>28</td>
<td>0.12</td>
</tr>
</tbody>
</table>
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

70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Item</th>
<th>Average 70 Farms</th>
<th>Average Top 20% Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Accrual Operating Expenses</td>
<td>$ 1,755,365</td>
<td>$ 2,338,933</td>
</tr>
<tr>
<td>Expansion Livestock, Accrual</td>
<td>+ 39,556</td>
<td>+ 79,358</td>
</tr>
<tr>
<td>1. Total Accrual Operating Expenses,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Including Expansion Livestock</td>
<td>$ 1,794,921</td>
<td>$ 2,418,291</td>
</tr>
<tr>
<td>Total Accrual Receipts</td>
<td>$ 2,272,584</td>
<td>$ 3,241,877</td>
</tr>
<tr>
<td>Milk Sales, Accrual</td>
<td>- 2,003,269</td>
<td>- 2,873,097</td>
</tr>
<tr>
<td>2. Total Accrual Nonmilk Receipts</td>
<td>- 269,315</td>
<td>- 368,780</td>
</tr>
<tr>
<td>3. Operating Costs of Producing Milk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cwt. of Milk Sold</td>
<td>$ 1,525,606</td>
<td>$ 2,049,511</td>
</tr>
<tr>
<td>Operating Costs/Cwt.</td>
<td>÷ 134,425.8</td>
<td>÷ 192,843.7</td>
</tr>
<tr>
<td>Machinery Depreciation</td>
<td>+ 77,794</td>
<td>+ 91,933</td>
</tr>
<tr>
<td>Building Depreciation</td>
<td>+ 66,721</td>
<td>+ 67,008</td>
</tr>
<tr>
<td>4. Purchased Inputs Cost of Producing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk</td>
<td>$ 1,670,121</td>
<td>$ 2,208,452</td>
</tr>
<tr>
<td>Cwt. of Milk Sold</td>
<td>÷ 134,425.8</td>
<td>÷ 192,843.7</td>
</tr>
<tr>
<td>Purchased Inputs Cost/Cwt.</td>
<td>= $12.42</td>
<td>= $11.45</td>
</tr>
<tr>
<td>Family Labor Unpaid ($1,800/month)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>+ 2,880</td>
<td>+ 2,520</td>
</tr>
<tr>
<td>Real Interest on Equity Cap.</td>
<td>+ 90,992</td>
<td>+ 117,328</td>
</tr>
<tr>
<td>Value of Operators’ Labor &amp; Management</td>
<td>+ 78,606</td>
<td>+ 71,214</td>
</tr>
<tr>
<td>5. Total Costs of Producing Milk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cwt. Milk Sold</td>
<td>$ 1,842,599</td>
<td>$ 2,399,514</td>
</tr>
<tr>
<td>Total Costs/Cwt.</td>
<td>÷ 134,425.8</td>
<td>÷ 192,843.7</td>
</tr>
<tr>
<td></td>
<td>= $13.71</td>
<td>= $12.44</td>
</tr>
</tbody>
</table>
**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

70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Item</th>
<th>Per Worker</th>
<th>Per Cow</th>
<th>Per Tillable Acre</th>
<th>Per Tillable Acre Owned</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average 70 Farms:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farm capital</td>
<td>$ 264,647</td>
<td>$ 5,872</td>
<td>$ 3,095</td>
<td>$ 5,932</td>
</tr>
<tr>
<td>Real estate</td>
<td>2,213</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machinery &amp; equipment</td>
<td>44,751</td>
<td>993</td>
<td>523</td>
<td></td>
</tr>
<tr>
<td>Ratios</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asset turnover ratio</td>
<td>0.67</td>
<td>0.74</td>
<td>0.05</td>
<td>0.06</td>
</tr>
<tr>
<td><strong>Average Top 20% Farms:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farm capital</td>
<td>$ 238,544</td>
<td>$ 4,971</td>
<td>$ 2,843</td>
<td>$ 5,069</td>
</tr>
<tr>
<td>Real estate</td>
<td>1,681</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machinery &amp; equipment</td>
<td>42,511</td>
<td>886</td>
<td>507</td>
<td></td>
</tr>
<tr>
<td>Ratios</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asset turnover ratio</td>
<td>0.80</td>
<td>0.71</td>
<td>0.03</td>
<td>0.05</td>
</tr>
</tbody>
</table>

### LABOR FORCE INVENTORY AND ANALYSIS

70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Labor Force</th>
<th>Months</th>
<th>Age</th>
<th>Years of Education</th>
<th>Value of Labor &amp; Mgmt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operator number 1</td>
<td>13.7</td>
<td>44</td>
<td>14</td>
<td>$41,062</td>
</tr>
<tr>
<td>Operator number 2</td>
<td>8.1</td>
<td>39</td>
<td>13</td>
<td>22,778</td>
</tr>
<tr>
<td>Operator number 3</td>
<td>3.6</td>
<td>36</td>
<td>13</td>
<td>10,086</td>
</tr>
<tr>
<td>Operator number 4</td>
<td>1.6</td>
<td>30</td>
<td>11</td>
<td>4,543</td>
</tr>
<tr>
<td>Family paid</td>
<td>6.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family unpaid</td>
<td>1.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hired</td>
<td>123.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>158.1</td>
<td></td>
<td>/ 12 = 13.18 Worker Equivalent</td>
<td>2.14 Operator/Manager Equivalent</td>
</tr>
</tbody>
</table>

**Average Top 20% Farms:**

<table>
<thead>
<tr>
<th>Labor Force</th>
<th>Months</th>
<th>Age</th>
<th>Years of Education</th>
<th>Value of Labor &amp; Mgmt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operator's</td>
<td>205.7</td>
<td></td>
<td>/ 12 = 17.15 Worker Equivalent</td>
<td>1.70 Operator/Manager Equivalent</td>
</tr>
</tbody>
</table>

**Labor Efficiency**

<table>
<thead>
<tr>
<th>Efficiency</th>
<th>Total 70 Farms</th>
<th>Per Worker</th>
<th>Total 70 Farms</th>
<th>Per Worker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cows, average number</td>
<td>594</td>
<td>45</td>
<td>823</td>
<td>48</td>
</tr>
<tr>
<td>Milk sold, pounds</td>
<td>13,442,582</td>
<td>1,019,923</td>
<td>19,284,373</td>
<td>1,124,453</td>
</tr>
<tr>
<td>Tillable acres</td>
<td>1,127</td>
<td>86</td>
<td>1,439</td>
<td>84</td>
</tr>
<tr>
<td>Work units</td>
<td>5,797</td>
<td>440</td>
<td>7,953</td>
<td>464</td>
</tr>
</tbody>
</table>

**Value of operator(s) labor ($1,800/mo.)**

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Per Cow</th>
<th>Per Cwt.</th>
<th>Total</th>
<th>Per Cow</th>
<th>Per Cwt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operator(s)</td>
<td>$ 48,600</td>
<td>$ 82</td>
<td>$0.36</td>
<td>$ 40,500</td>
<td>$ 49</td>
<td>$ 0.21</td>
</tr>
<tr>
<td>Family unpaid</td>
<td>2,880</td>
<td>5</td>
<td>0.02</td>
<td>2,520</td>
<td>3</td>
<td>0.01</td>
</tr>
<tr>
<td>Hired</td>
<td>335,419</td>
<td>565</td>
<td>2.50</td>
<td>492,584</td>
<td>599</td>
<td>2.55</td>
</tr>
<tr>
<td>Total Labor</td>
<td>$ 386,899</td>
<td>$ 651</td>
<td>$2.88</td>
<td>$ 535,604</td>
<td>$ 651</td>
<td>2.77</td>
</tr>
<tr>
<td>Machinery Cost</td>
<td>281,654</td>
<td>474</td>
<td>2.10</td>
<td>334,172</td>
<td>406</td>
<td>1.73</td>
</tr>
<tr>
<td>Total Labor &amp; Mach.</td>
<td>$ 668,553</td>
<td>$ 1,126</td>
<td>$4.98</td>
<td>$ 869,776</td>
<td>$ 1,057</td>
<td>4.50</td>
</tr>
</tbody>
</table>

**Hired labor expense per hired worker equiv.:**

<table>
<thead>
<tr>
<th></th>
<th>$ 31,081</th>
<th>$ 32,496</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hired labor expense as % of milk sales</td>
<td>16.7%</td>
<td>17.1%</td>
</tr>
</tbody>
</table>
Labor Cost Evaluation

Labor costs have been the first or second largest expense on large dairy farms in New York the last two 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 services and can be used to see how your farms’ expense compares to other farms. To calculate percent of labor provided by hired sources use the worksheet below.

### Hired Labor Expense per Cwt of Milk Sold Versus Percent of Labor Provided by Hired Sources

70 Large Herd Dairy Farms, 1999

![Graph showing the relationship between hired labor expense per cwt of milk sold and percent of labor provided by hired sources.]

y = 3.6695x - 0.4454

R² = 0.4113

### 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 11 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

\[
\text{Percent of labor from hired sources} = \left( \frac{\text{Total hired labor}}{\text{Total Labor Months}} \right) \times 100
\]

\[
\text{Percent of labor from hired sources} = \left( \frac{\text{Total hired labor}}{\text{Total Labor Months}} \right) \times 100
\]

\[
\text{Percent of labor from hired sources} = \left( \frac{\text{Total hired labor}}{\text{Total Labor Months}} \right) \times 100
\]
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. The chart below shows the relationship between labor efficiency and return on all capital without appreciation. Labor efficiency improvements are one method that is used to allow the business to reward their employees while maintaining their labor costs per cwt. of milk produced. A second area is improved cost control of day to day activities, which is one reason why some farms can generate higher than average profits while having some of the higher labor costs per cwt. of milk sold.

### Hired Labor Expense Business Charts
70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Hired Labor Expense per Cwt</th>
<th>Hired Labor Expense as % of Milk Sales</th>
<th>Hired Labor Expense per Hired Worker Equivalent</th>
<th>Hired Labor Expense per Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1.34</td>
<td>9%</td>
<td>$18,503</td>
<td>$6.70</td>
</tr>
<tr>
<td>1.55</td>
<td>11%</td>
<td>25,185</td>
<td>9.12</td>
</tr>
<tr>
<td>2.00</td>
<td>13%</td>
<td>26,278</td>
<td>9.52</td>
</tr>
<tr>
<td>2.21</td>
<td>15%</td>
<td>27,695</td>
<td>10.03</td>
</tr>
<tr>
<td>2.36</td>
<td>16%</td>
<td>28,304</td>
<td>10.26</td>
</tr>
<tr>
<td>2.51</td>
<td>17%</td>
<td>29,769</td>
<td>10.79</td>
</tr>
<tr>
<td>2.64</td>
<td>18%</td>
<td>31,318</td>
<td>11.35</td>
</tr>
<tr>
<td>2.80</td>
<td>19%</td>
<td>33,610</td>
<td>12.18</td>
</tr>
<tr>
<td>2.98</td>
<td>20%</td>
<td>35,822</td>
<td>12.98</td>
</tr>
<tr>
<td>3.42</td>
<td>22%</td>
<td>39,853</td>
<td>14.44</td>
</tr>
</tbody>
</table>

### Rate of Return on All Capital without Appreciation versus Milk Sold per Worker Equivalent
70 Large Herd Dairy Farms, 1999

\[
y = 1E-05x - 1.6441 \\
R^2 = 0.2232
\]
## CONDENSED SUMMARY & SELECTED BUSINESS FACTORS

**CONDENSED FARM BUSINESS SUMMARY FOR THREE LARGE HERD GROUPS**

70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Item</th>
<th>23 Farms with 300-400 Cows</th>
<th>25 Farms with 400-600 Cows</th>
<th>22 Farms with ≥600 Cows</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Per Cow</td>
<td>Per Cwt.</td>
<td>Per Cow</td>
</tr>
<tr>
<td><strong>ACCRUAL EXPENSES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hired labor</td>
<td>$468</td>
<td>$2.20</td>
<td>$534</td>
</tr>
<tr>
<td>Dairy grain &amp; concentrate</td>
<td>755</td>
<td>3.55</td>
<td>841</td>
</tr>
<tr>
<td>Dairy roughage</td>
<td>93</td>
<td>0.44</td>
<td>55</td>
</tr>
<tr>
<td>Nondairy feed</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>Machine hire, rent &amp; lease</td>
<td>75</td>
<td>0.35</td>
<td>80</td>
</tr>
<tr>
<td>Machine repairs &amp; farm vehicle expense</td>
<td>160</td>
<td>0.75</td>
<td>159</td>
</tr>
<tr>
<td>Fuel, oil &amp; grease</td>
<td>48</td>
<td>0.23</td>
<td>49</td>
</tr>
<tr>
<td>Replacement livestock</td>
<td>78</td>
<td>0.37</td>
<td>53</td>
</tr>
<tr>
<td>Breeding</td>
<td>28</td>
<td>0.13</td>
<td>38</td>
</tr>
<tr>
<td>Veterinary &amp; medicine</td>
<td>95</td>
<td>0.45</td>
<td>115</td>
</tr>
<tr>
<td>Milk marketing</td>
<td>109</td>
<td>0.51</td>
<td>106</td>
</tr>
<tr>
<td>Bedding</td>
<td>38</td>
<td>0.18</td>
<td>48</td>
</tr>
<tr>
<td>Milking supplies</td>
<td>74</td>
<td>0.35</td>
<td>60</td>
</tr>
<tr>
<td>Cattle lease &amp; rent</td>
<td>8</td>
<td>0.04</td>
<td>4</td>
</tr>
<tr>
<td>Custom boarding</td>
<td>32</td>
<td>0.15</td>
<td>31</td>
</tr>
<tr>
<td>bST expense</td>
<td>55</td>
<td>0.26</td>
<td>58</td>
</tr>
<tr>
<td>Other livestock expense</td>
<td>35</td>
<td>0.16</td>
<td>42</td>
</tr>
<tr>
<td>Fertilizer &amp; lime</td>
<td>61</td>
<td>0.29</td>
<td>70</td>
</tr>
<tr>
<td>Seeds &amp; plants</td>
<td>47</td>
<td>0.22</td>
<td>47</td>
</tr>
<tr>
<td>Spray &amp; other crop expense</td>
<td>49</td>
<td>0.23</td>
<td>61</td>
</tr>
<tr>
<td>Land, building &amp; fence repair</td>
<td>56</td>
<td>0.26</td>
<td>47</td>
</tr>
<tr>
<td>Taxes &amp; rent</td>
<td>95</td>
<td>0.44</td>
<td>91</td>
</tr>
<tr>
<td>Utilities</td>
<td>63</td>
<td>0.30</td>
<td>56</td>
</tr>
<tr>
<td>Interest paid</td>
<td>177</td>
<td>0.83</td>
<td>216</td>
</tr>
<tr>
<td>Misc. (including insurance)</td>
<td>59</td>
<td>0.27</td>
<td>73</td>
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<tr>
<td><strong>Total Operating Expenses</strong></td>
<td>$2,757</td>
<td>$12.96</td>
<td>$2,934</td>
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<tr>
<td>Expansion livestock</td>
<td>91</td>
<td>0.43</td>
<td>96</td>
</tr>
<tr>
<td>Machinery depreciation</td>
<td>123</td>
<td>0.58</td>
<td>146</td>
</tr>
<tr>
<td>Building depreciation</td>
<td>80</td>
<td>0.38</td>
<td>130</td>
</tr>
<tr>
<td><strong>Total Accrual Expenses</strong></td>
<td>$3,051</td>
<td>$14.35</td>
<td>$3,306</td>
</tr>
<tr>
<td><strong>ACCRUAL RECEIPTS</strong></td>
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<td></td>
</tr>
<tr>
<td>Dairy cattle</td>
<td>213</td>
<td>1.00</td>
<td>226</td>
</tr>
<tr>
<td>Dairy calves</td>
<td>28</td>
<td>0.13</td>
<td>27</td>
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<tr>
<td>Other livestock</td>
<td>8</td>
<td>0.04</td>
<td>4</td>
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<tr>
<td>Crops</td>
<td>60</td>
<td>0.28</td>
<td>99</td>
</tr>
<tr>
<td>Miscellaneous receipts</td>
<td>123</td>
<td>0.58</td>
<td>117</td>
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<td><strong>Total Accrual Receipts</strong></td>
<td>$3,562</td>
<td>$16.74</td>
<td>$3,769</td>
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<tr>
<td><strong>PROFITABILITY ANALYSIS (Total)</strong></td>
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</tr>
<tr>
<td>Net farm income (without appreciation)</td>
<td>$182,753</td>
<td>$222,039</td>
<td>$290,496</td>
</tr>
<tr>
<td>Net farm income (with appreciation)</td>
<td>$224,034</td>
<td>290,496</td>
<td>$719,900</td>
</tr>
<tr>
<td>Labor &amp; management income</td>
<td>$131,946</td>
<td>136,446</td>
<td>$468,445</td>
</tr>
<tr>
<td>Number of operators</td>
<td>1.88</td>
<td>2.06</td>
<td>2.48</td>
</tr>
<tr>
<td>Labor &amp; management income/operator</td>
<td>$70,184</td>
<td>$66,236</td>
<td>$188,889</td>
</tr>
<tr>
<td>Rates of return on:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equity capital w/o apprec.</td>
<td>12.5%</td>
<td>9.1%</td>
<td>17.3%</td>
</tr>
<tr>
<td>Equity capital w/ apprec.</td>
<td>16.8%</td>
<td>13.2%</td>
<td>20.9%</td>
</tr>
<tr>
<td>All capital w/o apprec.</td>
<td>9.9%</td>
<td>8.2%</td>
<td>11.9%</td>
</tr>
<tr>
<td>All capital w/ apprec.</td>
<td>12.1%</td>
<td>10.4%</td>
<td>13.7%</td>
</tr>
</tbody>
</table>
## Selected Business Factors for Three Large Herd Groups

### 70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Item</th>
<th>23 Farms with 300-400 Cows</th>
<th>25 Farms with 400-600 Cows</th>
<th>22 Farms with &gt; 600 Cows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cropping Program Analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Tillable acres</td>
<td>695</td>
<td>984</td>
<td>1,742</td>
</tr>
<tr>
<td>Tillable acres rented&lt;sup&gt;19&lt;/sup&gt;</td>
<td>382</td>
<td>412</td>
<td>846</td>
</tr>
<tr>
<td>Hay crop acres&lt;sup&gt;19&lt;/sup&gt;</td>
<td>277</td>
<td>440</td>
<td>733</td>
</tr>
<tr>
<td>Corn silage acres&lt;sup&gt;19&lt;/sup&gt;</td>
<td>281</td>
<td>438</td>
<td>804</td>
</tr>
<tr>
<td>Hay crop, tons DM/acre</td>
<td>3.1</td>
<td>3.3</td>
<td>4.0</td>
</tr>
<tr>
<td>Corn silage, tons/acre</td>
<td>17.0</td>
<td>16.8</td>
<td>18.0</td>
</tr>
<tr>
<td>Forage DM per cow, tons</td>
<td>6.9</td>
<td>8.2</td>
<td>8.1</td>
</tr>
<tr>
<td>Tillable acres/cow</td>
<td>1.9</td>
<td>2.1</td>
<td>1.8</td>
</tr>
<tr>
<td>Fertilizer &amp; lime expense/tillable acre</td>
<td>$31.56</td>
<td>$34.41</td>
<td>$40.64</td>
</tr>
<tr>
<td>Machinery cost/tillable acre</td>
<td>$231</td>
<td>$240</td>
<td>$264</td>
</tr>
</tbody>
</table>

### Dairy Analysis

<table>
<thead>
<tr>
<th>Item</th>
<th>23 Farms with 300-400 Cows</th>
<th>25 Farms with 400-600 Cows</th>
<th>22 Farms with &gt; 600 Cows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of cows</td>
<td>358</td>
<td>481</td>
<td>969</td>
</tr>
<tr>
<td>Number of heifers</td>
<td>227</td>
<td>361</td>
<td>736</td>
</tr>
<tr>
<td>Milk sold, lbs.</td>
<td>7,617,926</td>
<td>10,593,119</td>
<td>22,770,022</td>
</tr>
<tr>
<td>Milk sold/cow, lbs.</td>
<td>21,292</td>
<td>22,038</td>
<td>23,496</td>
</tr>
<tr>
<td>Operating cost of prod. milk/cwt.</td>
<td>$11.35</td>
<td>$11.62</td>
<td>$11.21</td>
</tr>
<tr>
<td>Total cost of prod. milk/cwt.</td>
<td>$13.75</td>
<td>$14.34</td>
<td>$13.36</td>
</tr>
<tr>
<td>Purchased dairy feed/cow</td>
<td>$848</td>
<td>896</td>
<td>$940</td>
</tr>
<tr>
<td>Purchased dairy feed/cwt. milk</td>
<td>$3.99</td>
<td>4.07</td>
<td>$4.00</td>
</tr>
<tr>
<td>Purchased grain &amp; concentrate as % of milk receipts</td>
<td>24%</td>
<td>26%</td>
<td>26%</td>
</tr>
<tr>
<td>Purchased feed &amp; crop expense/cwt. milk</td>
<td>$4.73</td>
<td>$4.88</td>
<td>$4.68</td>
</tr>
</tbody>
</table>

### Capital Efficiency

<table>
<thead>
<tr>
<th>Item</th>
<th>23 Farms with 300-400 Cows</th>
<th>25 Farms with 400-600 Cows</th>
<th>22 Farms with &gt; 600 Cows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm capital/worker</td>
<td>$224,477</td>
<td>$275,835</td>
<td>$274,808</td>
</tr>
<tr>
<td>Farm capital/cow</td>
<td>$5,217</td>
<td>6,406</td>
<td>$5,825</td>
</tr>
<tr>
<td>Real estate/cow</td>
<td>$1,924</td>
<td>2,552</td>
<td>$2,134</td>
</tr>
<tr>
<td>Machinery investment/cow</td>
<td>$862</td>
<td>1,121</td>
<td>$972</td>
</tr>
<tr>
<td>Asset turnover ratio</td>
<td>0.70</td>
<td>0.61</td>
<td>0.70</td>
</tr>
</tbody>
</table>

### Labor Efficiency

<table>
<thead>
<tr>
<th>Item</th>
<th>23 Farms with 300-400 Cows</th>
<th>25 Farms with 400-600 Cows</th>
<th>22 Farms with &gt; 600 Cows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worker equivalent</td>
<td>8.32</td>
<td>11.17</td>
<td>20.54</td>
</tr>
<tr>
<td>Operator/manager equivalent</td>
<td>1.88</td>
<td>2.06</td>
<td>2.48</td>
</tr>
<tr>
<td>Milk sold/worker, lbs.</td>
<td>915,616</td>
<td>948,354</td>
<td>1,108,570</td>
</tr>
<tr>
<td>Cows/worker</td>
<td>43</td>
<td>43</td>
<td>47</td>
</tr>
<tr>
<td>Labor cost/cow</td>
<td>$592</td>
<td>$643</td>
<td>$680</td>
</tr>
</tbody>
</table>

### Financial Measures

<table>
<thead>
<tr>
<th>Item</th>
<th>23 Farms with 300-400 Cows</th>
<th>25 Farms with 400-600 Cows</th>
<th>22 Farms with &gt; 600 Cows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent equity</td>
<td>52%</td>
<td>53%</td>
<td>53%</td>
</tr>
<tr>
<td>Debt/asset ratio - long term</td>
<td>0.46</td>
<td>0.48</td>
<td>0.45</td>
</tr>
<tr>
<td>Debt/asset ratio - intermediate &amp; current</td>
<td>0.49</td>
<td>0.46</td>
<td>0.49</td>
</tr>
<tr>
<td>Change in net worth with appreciation</td>
<td>$117,433</td>
<td>$134,994</td>
<td>$431,388</td>
</tr>
<tr>
<td>Total farm debt per cow</td>
<td>$2,566</td>
<td>$3,010</td>
<td>$2,835</td>
</tr>
<tr>
<td>Debt payments made per cow</td>
<td>$641</td>
<td>$875</td>
<td>$400</td>
</tr>
<tr>
<td>Debt payments as % of milk sales</td>
<td>20%</td>
<td>26%</td>
<td>11%</td>
</tr>
<tr>
<td>Amount available for debt service</td>
<td>$199,345</td>
<td>$307,974</td>
<td>$602,146</td>
</tr>
<tr>
<td>Debt coverage ratio for 1999</td>
<td>1.19</td>
<td>1.51</td>
<td>2.26</td>
</tr>
</tbody>
</table>

<sup>19</sup>Average of all farms, not only those reporting data.
INCOME AND EXPENSE PROFILES BY HERD SIZE

Use two of the following six tables to make an income and expense profile for your dairy farm business. The first two tables represent farms with 300 to 400 cows. The second two tables are of farms with 400-600 cows. The third set of tables are of farms with 600 or more cows. The figures in the quintile columns represent the average of the top 20 percent to the bottom 20 percent for each receipt and expenditure category. Each line is computed independently. The farms that comprise the top 20 percent in milk sales do not necessarily make up the top 20 percent of any other category. On each line circle the income and cost measures closest to the one for your farm. Then draw a vertical line connecting your circles on each table. The strongest profile will be a relatively straight line on the left side of the table.

### RECEIPTS AND EXPENSES PER COW
23 Large Herd Dairy Farms with 300 – 400 Cows, 1999

<table>
<thead>
<tr>
<th>Item</th>
<th>Quintile 1</th>
<th>Quintile 2</th>
<th>Quintile 3</th>
<th>Quintile 4</th>
<th>Quintile 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accrual Operating Receipts</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk</td>
<td>$3,600</td>
<td>$3,338</td>
<td>$3,160</td>
<td>$2,982</td>
<td>$2,658</td>
</tr>
<tr>
<td>Dairy cattle</td>
<td>538</td>
<td>267</td>
<td>184</td>
<td>102</td>
<td>29</td>
</tr>
<tr>
<td>Dairy calves</td>
<td>62</td>
<td>36</td>
<td>25</td>
<td>17</td>
<td>8</td>
</tr>
<tr>
<td>Other livestock</td>
<td>41</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>-2</td>
</tr>
<tr>
<td>Crops</td>
<td>232</td>
<td>116</td>
<td>53</td>
<td>11</td>
<td>-61</td>
</tr>
<tr>
<td>Misc. receipts</td>
<td>225</td>
<td>156</td>
<td>121</td>
<td>97</td>
<td>42</td>
</tr>
<tr>
<td><strong>Total Operating Receipts</strong></td>
<td>$4,162</td>
<td>$3,813</td>
<td>$3,593</td>
<td>$3,367</td>
<td>$2,979</td>
</tr>
<tr>
<td><strong>Accrual Operating Expenses</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hired labor</td>
<td>$254</td>
<td>$341</td>
<td>$525</td>
<td>$593</td>
<td>$665</td>
</tr>
<tr>
<td>Dairy grain &amp; concentrate</td>
<td>609</td>
<td>683</td>
<td>751</td>
<td>832</td>
<td>960</td>
</tr>
<tr>
<td>Dairy roughage</td>
<td>0</td>
<td>0</td>
<td>34</td>
<td>114</td>
<td>378</td>
</tr>
<tr>
<td>Nondairy feed</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mach. hire/rent/lease</td>
<td>3</td>
<td>26</td>
<td>65</td>
<td>97</td>
<td>208</td>
</tr>
<tr>
<td>Mach. repair &amp; farm veh. exp.</td>
<td>51</td>
<td>111</td>
<td>153</td>
<td>216</td>
<td>309</td>
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<tr>
<td>Fuel, oil &amp; grease</td>
<td>18</td>
<td>42</td>
<td>52</td>
<td>59</td>
<td>77</td>
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<tr>
<td>Replacement livestock</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>145</td>
<td>290</td>
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<tr>
<td>Breeding</td>
<td>7</td>
<td>19</td>
<td>29</td>
<td>43</td>
<td>55</td>
</tr>
<tr>
<td>Vet &amp; medicine</td>
<td>48</td>
<td>69</td>
<td>85</td>
<td>108</td>
<td>190</td>
</tr>
<tr>
<td>Milk marketing</td>
<td>54</td>
<td>94</td>
<td>115</td>
<td>134</td>
<td>166</td>
</tr>
<tr>
<td>Bedding</td>
<td>11</td>
<td>21</td>
<td>33</td>
<td>51</td>
<td>86</td>
</tr>
<tr>
<td>Milking supplies</td>
<td>36</td>
<td>50</td>
<td>62</td>
<td>89</td>
<td>149</td>
</tr>
<tr>
<td>Cattle lease</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>42</td>
</tr>
<tr>
<td>Custom boarding</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>54</td>
<td>129</td>
</tr>
<tr>
<td>bST expense</td>
<td>2</td>
<td>30</td>
<td>62</td>
<td>80</td>
<td>116</td>
</tr>
<tr>
<td>Other livestock expense</td>
<td>8</td>
<td>20</td>
<td>32</td>
<td>53</td>
<td>74</td>
</tr>
<tr>
<td>Fertilizer &amp; lime</td>
<td>8</td>
<td>43</td>
<td>69</td>
<td>92</td>
<td>116</td>
</tr>
<tr>
<td>Seeds &amp; plants</td>
<td>9</td>
<td>29</td>
<td>50</td>
<td>65</td>
<td>95</td>
</tr>
<tr>
<td>Spray/other crop expenses</td>
<td>3</td>
<td>28</td>
<td>55</td>
<td>73</td>
<td>103</td>
</tr>
<tr>
<td>Land, building, fence repair</td>
<td>5</td>
<td>37</td>
<td>58</td>
<td>68</td>
<td>124</td>
</tr>
<tr>
<td>Taxes</td>
<td>7</td>
<td>22</td>
<td>28</td>
<td>42</td>
<td>63</td>
</tr>
<tr>
<td>Real estate rent/lease</td>
<td>5</td>
<td>19</td>
<td>38</td>
<td>80</td>
<td>206</td>
</tr>
<tr>
<td>Insurance</td>
<td>13</td>
<td>20</td>
<td>25</td>
<td>35</td>
<td>60</td>
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<tr>
<td>Utilities</td>
<td>44</td>
<td>56</td>
<td>61</td>
<td>75</td>
<td>86</td>
</tr>
<tr>
<td>Interest</td>
<td>83</td>
<td>141</td>
<td>165</td>
<td>222</td>
<td>306</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>6</td>
<td>16</td>
<td>29</td>
<td>39</td>
<td>73</td>
</tr>
<tr>
<td><strong>Total Operating Expenses</strong></td>
<td>$2,322</td>
<td>$2,612</td>
<td>$2,762</td>
<td>$2,938</td>
<td>$3,254</td>
</tr>
<tr>
<td>Expansion Livestock</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>50</td>
<td>454</td>
</tr>
<tr>
<td>Machinery Depreciation</td>
<td>47</td>
<td>95</td>
<td>116</td>
<td>157</td>
<td>225</td>
</tr>
<tr>
<td>Building Depreciation</td>
<td>12</td>
<td>70</td>
<td>84</td>
<td>109</td>
<td>136</td>
</tr>
<tr>
<td>Net Farm Income w/o Apprec.</td>
<td>$883</td>
<td>$700</td>
<td>$581</td>
<td>$346</td>
<td>$148</td>
</tr>
</tbody>
</table>
### RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD

**23 Large Herd Dairy Farms With 300 – 400 Cows, 1999**

<table>
<thead>
<tr>
<th>Item</th>
<th>Quintile 1</th>
<th>Quintile 2</th>
<th>Quintile 3</th>
<th>Quintile 4</th>
<th>Quintile 5</th>
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| **Accrual Operating Expenses**|            |            |            |            |            |
| Hired labor                   | $1.29      | $1.64      | $2.51      | $2.77      | $2.94      |
| Dairy grain & concentrate     | 2.89       | 3.24       | 3.56       | 4.00       | 4.57       |
| Dairy roughage                | .00        | .00        | .17        | .49        | 1.75       |
| Nondairy feed                 | .00        | .00        | .00        | .00        | .00        |
| Mach. hire/rent/lease         | .01        | .13        | .31        | .50        | .95        |
| Mach. repair & farm veh. exp. | .24        | .56        | .74        | .96        | 1.44       |
| Fuel, oil & grease            | .09        | .21        | .25        | .27        | .36        |
| Replacement livestock         | .00        | .00        | .03        | .69        | 1.37       |
| Breeding                      | .03        | .09        | .14        | .22        | .25        |
| Vet & medicine                | .22        | .34        | .41        | .52        | .86        |
| Milk marketing                | .26        | .42        | .57        | .63        | .80        |
| Bedding                       | .05        | .10        | .17        | .25        | .40        |
| Milking supplies              | .16        | .25        | .30        | .41        | .68        |
| Cattle lease                  | .00        | .00        | .00        | .01        | .20        |
| Custom boarding               | .00        | .00        | .00        | .24        | .61        |
| bST expense                   | .01        | .14        | .28        | .37        | .54        |
| Other livestock expense       | .03        | .11        | .16        | .25        | .33        |
| Fertilizer & lime             | .04        | .20        | .35        | .44        | .60        |
| Seeds & plants                | .04        | .14        | .24        | .32        | .46        |
| Spray/other crop expenses     | .02        | .13        | .26        | .37        | .51        |
| Land, building, fence repair  | .02        | .18        | .28        | .33        | .54        |
| Taxes                         | .03        | .10        | .14        | .23        | .30        |
| Real estate rent/lease        | .03        | .09        | .18        | .37        | 1.03       |
| Insurance                     | .06        | .09        | .11        | .16        | .34        |
| Utilities                     | .22        | .26        | .29        | .35        | .41        |
| Interest                      | .39        | .66        | .80        | 1.14       | 1.40       |
| Miscellaneous                 | .02        | .07        | .13        | .18        | .36        |
| **Total Operating Expenses**  | $11.03     | $12.66     | $13.31     | $13.89     | $14.90     |

| Expansion Livestock           | .00        | .00        | .00        | .21        | 2.10       |
| Machinery Depreciation        | .23        | .44        | .55        | .75        | 1.17       |
| Building Depreciation         | .07        | .34        | .41        | .50        | .62        |
| **Net Farm Income w/o Apprec.**| $3.81     | $3.31     | $2.58     | $1.82     | $0.74     |
## RECEIPTS AND EXPENSES PER COW
### 25 Large Herd Dairy Farms With 400 – 600 Cows, 1999

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## RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD

25 Large Herd Dairy Farms With 400 – 600 Cows, 1999

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### RECEIPTS AND EXPENSES PER COW
22 Large Herd Dairy Farms With 600 or More Cows, 1999

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### RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD

22 Large Herd Dairy Farms With 600 or More Cows, 1999

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<td>$12.69</td>
<td>$13.19</td>
<td>$13.78</td>
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<td>.00</td>
<td>.01</td>
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<td>.35</td>
<td>.46</td>
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<td>.94</td>
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<tr>
<td><strong>Net Farm Income w/o Apprec.</strong></td>
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<td>$3.19</td>
<td>$2.74</td>
<td>$2.04</td>
<td>$1.35</td>
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</table>
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
70 Large Herd Dairy Farms, 1999

<table>
<thead>
<tr>
<th>Size of Business</th>
<th>Rates of Production</th>
<th>Labor Efficiency</th>
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<tr>
<td>Worker Equivalent</td>
<td>Number of Cows</td>
<td>Pounds Milk Sold Per Cow</td>
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<td>7,354,759</td>
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Cost Control

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<tr>
<th>Grain Bought Per Cow</th>
<th>% Grain is of Milk Receipts</th>
<th>Machinery Costs Per Cow</th>
<th>Labor &amp; Machinery Costs Per Cow</th>
<th>Feed &amp; Crop Expenses Per Cow</th>
<th>Feed &amp; Crop Expenses Per Cwt. Milk</th>
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<tbody>
<tr>
<td>(10)</td>
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<td>(11)</td>
<td>(11)</td>
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<tr>
<td>$617</td>
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<td>1,303</td>
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20 ( ) = 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

<table>
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<tr>
<th>Per Cwt.</th>
<th>Per Hired Worker Equiv.</th>
<th>As % of Milk Sales</th>
<th>Expenses Per Cwt.</th>
<th>Expenses Per Cow</th>
<th>Expenses Per Cwt.</th>
<th>Other Expenses Per Cwt.</th>
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<tr>
<td>(11)</td>
<td>(11)</td>
<td>(11)</td>
<td>(10)</td>
<td>(10)</td>
<td>(10)</td>
<td>(10)</td>
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<tr>
<td>$1.34</td>
<td>$18,503</td>
<td>9%</td>
<td>$0.18</td>
<td>$0.21</td>
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<tr>
<td>1.55</td>
<td>25,185</td>
<td>11</td>
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<td>0.32</td>
<td>0.04</td>
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<td>28,304</td>
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<td>17</td>
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### Machinery & Crop Expense

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<th>Per Tillable Acre</th>
<th>Per Ton Dry Matter</th>
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<th>Total Cost</th>
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<td>(CALC)</td>
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<tr>
<td>(10)</td>
<td>(10)</td>
<td>(10)</td>
<td>(10)</td>
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### bST Expense Ratios

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<th>Percent Herd On bST</th>
<th>Culling Rate</th>
<th>Operating Expense Ratios</th>
<th>Depreciation Expense Ratios</th>
<th>Interest Expense Ratios</th>
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<td>$11</td>
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<td>63%</td>
<td>2%</td>
<td>1%</td>
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## Income Generation

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<th>Net Milk Receipts Per Cwt.</th>
<th>Milk Receipts Per Cow</th>
<th>Dairy Cattle Sales Per Cow</th>
<th>Dairy Calf Sales Per Cow</th>
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## Debt Management

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<td>(5)</td>
<td>(5)</td>
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<tr>
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<td>1,508</td>
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## Cash Flow Analysis

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<th>Amount Available for Family Living, Debt Service &amp; Investment</th>
<th>Personal Withdrawals &amp; Family Expenditures</th>
<th>Cash Flow Coverage</th>
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<tr>
<td></td>
<td>Per Cow</td>
<td>Per Cwt.</td>
<td>(Optional Page 12)</td>
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## Capital Efficiency

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### Profitability

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IDENTIFY AND SET GOALS

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

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

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

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

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

a. Begin with a mission statement which describes why the business exists based on the preferences and values of the owners.

b. Identify 4-6 objectives.

c. Identify SMART goals.

Worksheet for Setting Goals

I. Mission and Objectives

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## II. Goals

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**Summarize Your Business Performance**

The Farm Business Charts on pages 40-43 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.

Strengths: ________________________________  Needs improvement: ________________________________

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GLOSSARY AND LOCATION OF COMMON TERMS

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

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

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

**Accrual Expenses** - (defined on page 10).

**Accrual Receipts** - (defined on page 10).

**Annual Cash Flow Statement** - (defined on page 18).

**Appreciation** - (defined on page 11).

**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 20).

**Cash Paid** - (defined on page 6).

**Cash Receipts** - (defined on page 8).

**Change in Accounts Payable** - (defined on page 8).

**Change in Accounts Receivable** - (defined on page 8).

**Change in Inventory** - (defined on page 6).

**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 8 & 9 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 11).
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.

Debt Coverage Ratio – (defined on page 20).

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

Debt to Asset Ratios - (defined on page 16).

Deferred Taxes - (defined on page 15).

Depreciation Expense Ratio - The percentage of Total Accrual Receipts that is charged to depreciation expense. Machinery Depreciation (DFBS p. 2) plus Building Depreciation (p. 2) 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 18.

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 (p. 2) by number of hired plus family paid worker equivalents (p. 11).

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 (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 (p. 2) divided by Total Accrual Receipts (p. 3) times 100.

Labor and Management Income - (defined on page 12).

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 (p. 2) and total machinery expenses (p. 9), then divide by number of tillable acres, owned & rented (p. 9).
**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 (p. 2) and total machinery expenses (p. 9), then divide by total forage, production, tons DM (p. 9).

**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.

**Net Farm Income** - (defined on page 11).

**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 (p. 3) 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 (p. 3) by number of cwt. of milk sold, which is total milk sold (p. 10) 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 (p. 3) by average number of cows for the year (p. 10).

**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 (p. 3), plus Accrual Interest Paid (p. 2), divided by number of operators (p. 3), divided by Total Accrual Receipts (p. 3) times 100.

**Net Milk Receipts per Cwt.** - The mailbox price received by farmers before any farmer authorized assignments or deductions. Accrual Receipts from milk, per cwt. (p. 10) minus accrual milk marketing expense per cwt. (p. 10).

**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 27).

**Operating Expense Ratio** - The percentage of Total Accrual Receipts that is used for operating expenses, excluding interest & depreciation. Total Accrual Expenses (p. 2) minus Machinery Depreciation (p. 2), minus Building Depreciation (p. 2), minus Accrual Interest Expense (p. 2), divided by Total Accrual Receipts (p. 3) times 100.

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

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

**Percent Herd on bST** – Calculated by taking the accrual bST expense for the year and dividing by an average price of $5.25 per dose, then dividing by 26, then dividing by the average number of milking and dry cows in the herd.

**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 (p. 7) divided by pounds milk sold (p. 10) 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 (p. 7) divided by average number of cows (p. 10).

**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 1 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 27).

**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 13).

**Return on Total Capital** - (defined on page 13).

**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 27).

**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. 11) divided by number of worker equivalents (p. 11).

**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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