

Managing Cost of Production

By Christopher Wolf, Michigan State University

Editor's Note: Following are ways to determine cost of production on your farm and how to use that information to become more profitable. We plan to include similar information and articles in upcoming issues of the Michigan Milk Messenger.

Cost of production is a key indicator of competitiveness. At the farm-level, milk is a commodity with changes in quality mandated by fixed price adjustments. Therefore, other than choosing production level, a dairy farm manager is left with input use efficiency and resulting cost control as the primary means to influence profitability.

There is no single method to calculate cost of milk production. The variation across dairy farms with regard to enterprise mix, production technology, labor use, size, record systems, goals and managerial ability contribute to the variation in cost of production methods. Tight margins and price uncertainty are among the reasons that cost of production is crucial in determining competitiveness and viability of dairy farms.

There are many methods to calculate cost of production from fairly simple—but perhaps less accurate—to more complex—but more accurate. As cash accounting methods are common to agriculture, a standard way to calculate cost of production is to use income tax information

on business expenses (cash and depreciation). This method often ignores operator unpaid labor, management, and capital. With efficiency gains to labor and capital utilization providing the primary reason for an investment decision such as a major farm expansion, ignoring operator capital costs can lead to poor management

decisions. This method also makes the milking herd the residual claimant on all profits or losses from other enterprises (e.g. corn or hay). One implication is that to make certain that adjustments for inventory (from balance sheets), prepaid expenses, and a value of unpaid operator and family labor are added to the Schedule F information.

Once cost of production is known, the manager can use their values to examine operational strengths and weaknesses. Comparison to like farms facilitates understanding your performance. The Michigan Dairy Farm Business Analysis Summary has been published annually since 1995. It includes measures of profitability, solvency and liquidity divided into herd size categories. It also includes cost of production estimates that are comparable in many ways to the Schedule F method with accrual adjustments discussed above.

Table 1 reviews the top ten expense items on Michigan dairy farms from 2002 through 2008 (preliminary). The items are listed in descending order of the

average value. 2007 stands out in terms of rate of a major jump in expense. Purchased feed costs jumped \$1.58/cwt from 2006 and were even higher in 2008. Milk price averaged \$20.21/cwt in 2007 making milk production profitable for many farms and resulting in new purchases of machinery and facilities to avoid excessive income taxes. These purchases show up in the large increase in machinery and building depreciation charges. The increase in energy charges shows up through fuel and oil, utilities, and trucking.

With the cost of production value in hand, a farm manager can consider which costs may be too high and which changes will make the most impact. For example, a 10 percent change in purchased feed cost would be as valuable than eliminating all veterinary and medical expenses (which averaged about \$0.57/cwt in 2008). So, calculating and comparing cost of production tells a manager which expenses might be out-of-line and then the manager can consider which costs can be effectively lowered without compromising revenue.

Table 1. Top 10 Expense Items on Michigan Dairy Farms, 2001-2008

| | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | Avg. |
|------------------------|---------------|------|------|------|------|------|------|------|
| Expense Item | \$/cwt | | | | | | | |
| Purchased Feed | 3.45 | 3.54 | 4.36 | 4.06 | 3.74 | 5.32 | 5.62 | 4.30 |
| Hired Labor | 2.31 | 2.14 | 2.27 | 2.30 | 2.23 | 2.67 | 2.87 | 2.40 |
| Machinery Dep. | 1.11 | 1.29 | 1.53 | 1.67 | 1.19 | 1.90 | 1.16 | 1.41 |
| Repairs | 0.97 | 1.06 | 1.27 | 1.33 | 1.07 | 1.59 | 1.40 | 1.24 |
| Interest | 0.96 | 0.88 | 0.90 | 0.88 | 0.95 | 1.38 | 1.20 | 1.02 |
| Fuel and Oil | 0.42 | 0.54 | 0.66 | 0.84 | 0.89 | 1.22 | 1.19 | 0.82 |
| Live. Supplies | 0.71 | 0.89 | 0.78 | 0.80 | 0.69 | 0.94 | 0.81 | 0.80 |
| Mkting+Trucking | 0.73 | 0.74 | 0.79 | 0.82 | 0.81 | 0.83 | 0.84 | 0.79 |
| Building Dep. | 0.51 | 0.47 | 0.72 | 0.61 | 0.64 | 0.95 | 0.98 | 0.70 |
| Custom Hire | 0.39 | 0.41 | 0.54 | 0.48 | 0.52 | 0.79 | 0.67 | 0.54 |