

Does It Pay To Change Your Dairy Ration?

Changing the ration for the milking herd is not a simple matter.

Category: Dairy

Dairy producers are painfully aware that feed costs are usually the highest single cost of producing milk. Figure I shows the top ten Michigan dairy farm cash expenses from 1995-2010. These data were gleaned from about 150 Michigan dairy farms each year (1). Figure I indicates that purchased feed expense over that 16-year period averaged \$4.33/cwt of milk sold. In some years (e.g., 2007) average purchased feed expense has been as high as \$5.82/cwt of milk sold. These data also indicate purchased feed costs account, on average, for 25.1% of total cash farm expenses over this time period. However, purchased feed expense does not account for all feed costs. Most dairy farms in the database produced the vast majority of the forages fed on the farm, therefore, these feed costs are embedded in other accounting line items such as seed, fertilizer, crop chemicals, fuel and oil, labor, custom hire, etc. When forage costs are accounted for they may easily increase total feed costs by another \$2-\$4/cwt of milk produced.

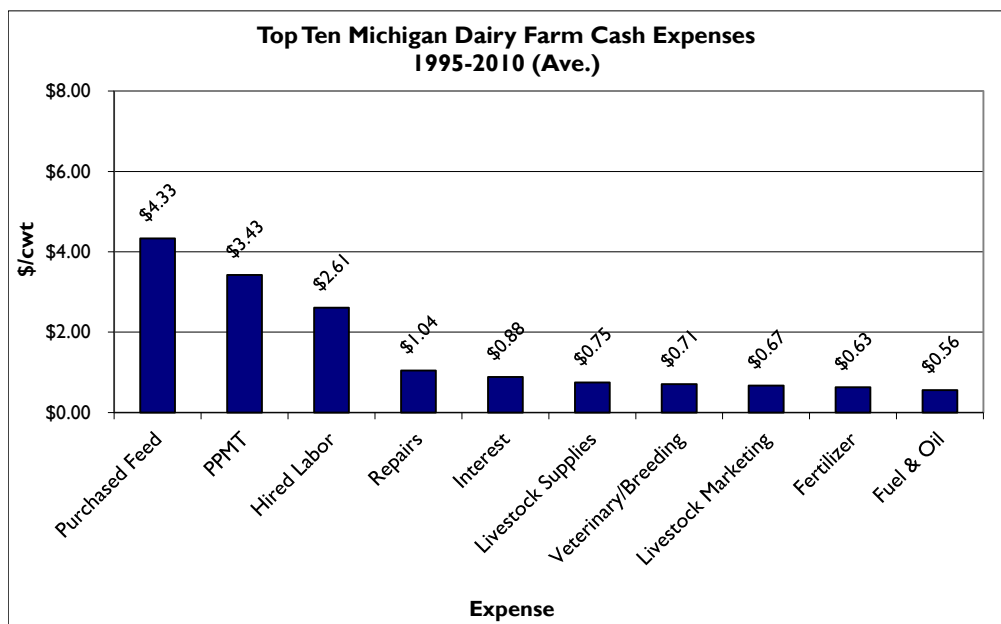


Figure I: Top ten Michigan dairy farm cash expenses (1995-2010).

Thus, when a producer continues the never-ending search to reduce milk production costs, feed costs are the most logical place to start. However, making a ration change is not a decision that can be taken lightly, especially for the milking herd. Some dairy producers evaluate such ration changes simply on how much milk volume changes in the bulk tank. Making the ration change decision solely on this criterion is a big mistake. Ration changes for the milking herd have ramifications far beyond the mere change in milk volume. Two other important changes are changes in milk components (i.e., butterfat, protein and other solids) and feed dry matter intake. Changes in milk components change the value of a hundredweight of milk that transcend the mere change in milk volume. Changes in milk volume also impact such expenses as milk hauling, promotion, co-op dues, utility costs (e.g., milk cooling). Changes in dry matter intake directly affect feed costs. An analysis that fails to take these other items into account could lead to faulty decision making. For example, a ration change may lead to lower milk volume and higher dry matter intake. Evaluating on those criteria alone would lead to returning to the original ration. However, the new ration may increase milk components high enough to still be economically viable when other factors (e.g., milk component value, lower milk cooling utility costs) are taken into account.

To assist dairy producers and their consultants in making informed decisions when changing rations I have created a simple spreadsheet model that takes all these important factors into consideration. Table 1 shows this spreadsheet model entitled, *Dairy Feed Change Evaluator*. The model is very straightforward and compares two rations: 1) current ration and 2) new ration. All cells shaded in green require data to be entered. The required data should be available from farm records or from the dairy producer's milk check. Table 2, *Results Summary*, shows the advantage, or disadvantage, of the new ration versus the current ration. The spreadsheet also contains three other worksheets presenting the analysis on the basis of: 1) net per cow per day, 2) net per herd per day and 3) net per herd per year. The Excel® spreadsheet is in "Excel 97-2003 Workbook" format, so it should work with nearly every version of Excel® or other spreadsheet programs.

It is important for dairy producers and their consultants to remember that this decision model only accounts for economic parameters. There may be other concerns, such as animal health factors, feed availability, feeding logistics, etc., that should be considered before making the final decision. I would advise readers of this article to read another article on this site, "[Can you use alternative feed ingredients to replace corn grain?](#)" before making major ration changes.

Table 1. Inputs to the Dairy Feed Change Evaluator spreadsheet.

Dairy Feed Change Evaluator

Variable	Current Ration	New Ration
Cow Data		
Number of Cows	750	750
Pounds of Milk (per cow/day)	80.0	75.0
Butterfat (%)	3.40%	3.65%
Milk Protein (%)	2.80%	3.00%
Other Solids (%)	5.70%	5.70%
Milk Price Data		
Butterfat Price (\$/lb)	\$2.2511	\$2.2511
Milk Protein Price (\$/lb)	\$3.8292	\$3.8292
Other Solids Price (\$/lb)	\$0.3608	\$0.3608
Approximate Class III Price ¹ (\$/cwt)	\$21.88	\$21.88
PPD ² (\$/cwt)	\$1.48	\$1.48
Volume Premium (\$/cwt)	\$0.40	\$0.40
Quality Premium (\$/cwt)	\$0.10	\$0.10
Other Premium (\$/cwt)	\$0.00	\$0.00
Variable Cost Data		
Milk Hauling (\$/cwt)	\$0.45	\$0.45
Promotion (\$/cwt)	\$0.15	\$0.15
Co-op Dues (\$/cwt)	\$0.01	\$0.01
Other Deductions (\$/cwt)	\$0.10	\$0.10
Utilities ³ (KWh/lb milk)	0.0079	0.0079
Electric cost (\$/KWh)	\$0.10	\$0.10
Ration Variables		
DM ⁴ Intake (lbs./cow/day)	51.0	50.0

¹Approximate Class III price based on the given butterfat, milk protein, and other solids prices.

²PPD equals producer price differential used in federal order minimum pricing.

³Electricity used to cool milk.

⁴DM equals dry matter.

Table 2. Results Summary from the Dairy Feed Change Evaluator spreadsheet.

Results Summary

Measure	New Ration vs. Current
Per cow/day	\$0.085
Herd per day	\$63.98
Herd per week	\$448
Herd per month	\$1,951
Herd per year	\$23,353

References:

I 1995-2010 Michigan Dairy Farm Business Analysis Summary, Mich. State Univ. Agr. Econ. Dept. Staff Papers

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