

Lessons Learned From Dealing with High Feed Prices

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■ Take Home Messages

- ▶ As feed prices change, position your future for short term and long term flexibility.
- ▶ Key factors when adjusting rations include forage quality, strategic use of by-product feeds, and charting economic feed benchmarks.
- ▶ When making feed changes, do not sacrifice performance, herd health, or reproduction.

■ Introduction

When reviewing the 2009 U.S. dairy industry and economics, no one could image the steep drop in milk price at farm gate (40 percent), the quickness of the drop (less than one month), and the length of the decline (entire year with no breakeven prices occurring). Another interesting fact was in the September 2009 U.S.D.A.; Illinois had a state milk increase (5.1 percent compared to 2008) on the same number of cows (102,000) while other states reported less milk and fewer cows. What may have happened in Illinois that allows us to look back to look ahead or prepare for the next feed price challenge?

■ Providing Economic Flexibility

Illinois dairy managers can have several advantages compared to other dairy managers facing lower milk prices with higher feed prices.

- ▶ Illinois dairy producers had ample supplies of forages and corn produced on the farm which did not have to be purchased. This advantage reflects the agronomic management skills of Illinois dairy producers, but they did

not capture higher market prices if they sold feed. This strategy avoided purchased costs which bankers controlled.

- ▶ Illinois producers had not expanded and had paid down debt. Bank and interest payments could be minimized. Stable land equity allowed credit to be extended compared to dairy farms that lost 25 to 50 percent of livestock equity.
- ▶ Illinois dairy farms (average herd size of 106 cows) use family labor. Dairy farm families did not draw \$50,000 (Minnesota guideline for a dairy farm family with two children) short term, allowing flexibility as this labor source did not have to be paid at the full rate thus improving cash flow.
- ▶ Because the average Illinois herd size is fewer than 150 cows, dairy farm managers could qualify for the government program providing \$1 to \$2 per 45 kg (100 lb) of milk as monthly added income. An rBST payment for not using this technology added 50 to 60 cents per 45 kg income source. One Illinois cooperative provide a dollar advanced patronage per 45 kg payment for several months to assist financially stressed dairy farms.

■ Making Correct Decisions

An important decision was not to make short decisions to save 10 cents while leading to a long term loss of a dollar. Examples of key decision choices are outlined below.

- ▶ Reducing or removing minerals and vitamins can save six cents (heifers) and twenty cents (lactating cows) a day. Because minerals do not immediately reduce milk yield, dairy managers reasoned this may be a prudent move. However, when mineral deficiencies occur three to six months later (reduced immunity, slower growth, and declining fertility), it resulted in large negative economic impacts which were difficult to pinpoint.
- ▶ Holstein heifers must gain over 0.9 kg (1.7 lb) per day if they are expected to calve at 23 to 24 months of age weighing 568 kg (1250 lb) after calving and produce milk yields above your current herd average adjusted for age. The cost of delayed calving is \$2 per day (reflects only added feed costs).
- ▶ An increase in somatic cell count due to reduced immunity and health (removal of organic trace minerals, less vitamin E, and/or energy shortage for example) will lead to a milk loss of 0.9 to 1 kg (2 to 2.2 lb) per increase in linear somatic cell count score.
- ▶ An increase in days open will cost \$2 per day (each day over 120 days open) to \$8 per day (each day over 180 days open) based on Wisconsin

data which could be related to negative energy balance due to lower dry matter intake, removal of fat, and/or effective feed additives.

- ▶ Dropping an accelerated calf feeding approach (increasing dry matter intake up to 1 kg per calf per day during the preweaning period or 8 liters of milk/replacer) can reduce milk yield in the first lactation by 454 to 1405 kg (998 to 3092 lb) due to the impact on mammary gland development. This decision is a long term investment of \$30 to \$50 initially in added feed costs not recovered for nearly two years in higher milk yield and improved growth based on IL and NY data.
- ▶ Feed additives must be purchased (an out-of-pocket cost) which can return 3 to 14 times the cost of the feed additive (for example a buffer returns 30 cents in added milk production for a six cent investment). The feed additives are ranked: 1st choice-- monensin (an ionophore); 2nd choice—silage inoculants; 3rd choice—organic trace minerals; 4th choice—yeast-based products; 5th choice—rumen buffers; and 6th choice—biotin.
- ▶ Shifting from a one group TMR to multiple TMRs may be an alternative to lower feed costs. Feeding a ration higher in forages to lower producing cows can save 75 cents or more per day and can improve metabolic health of late lactation cows based on Michigan research. Keep in mind that low producing cows may consume 1.8 to 2.7 kg (4 to 6 lb) less dry matter which can reduce the estimated savings. High producing cows may need more nutrients to replace lost body weight in late lactation. Heifers may need added nutrients to grow and reach their mature weigh. Another economic consideration is if the one group TMR contains expensive nutrient sources (such as inert fat, amino acids, added fat/oil, or high quality RUP protein sources).

■ Monitoring Feed Changes From Cow Responses

When dairy managers make changes, lactating cows will respond (cows actually “talk” to you). Monitor the following cow measurements to determine if your changes led to lost income or health.

- ▶ MUN or milk urea nitrogen (target 8 to 12 mg /dl to avoid lost nitrogen while maintain milk protein)
- ▶ Milk protein and milk fat test (meet and/or exceed breed averages)
- ▶ Management level milk or 150 day milk (should increase or maintain current herd values)
- ▶ Fecal scores ranging from 2.0 to 3.0 with over 70% of lactating cows at score 3.

- ▶ Changes in feed economic bench marks should be monitored with Illinois target values listed in Table 1.
 - Herd feed efficiency from 1.5 to 1.7 with each change of 0.1 point worth 38 cents per cow per day.
 - Feed cost at 26 cents per kg (12 cents per pound) of dry matter reflects the cost of feed ingredients selected when building and balancing the ration.
 - Feed cost of \$8 to \$9 per 45 kg (100 lb) reflects the cost per unit of dry matter, amount of dry matter offered adjusted for weigh backs, and milk yield. Milk yield is the key factor.
 - Income over feed costs represents margin (dollars available) for fixed, variable, and labor costs, and return to management. Milk price is the key factor in this value.

Table 1. Feed ingredients, levels of intake (dry matter per cow per day), price per unit of dry matter, and total feed values for a Holstein herd producing 31 to 35 kg per cow per day.

| Feed Ingredient | Amount (DM) kg (lb) | Cost (DM) \$/kg (\$ lb) | Cost/day (\$) |
|--------------------|------------------------|----------------------------|------------------|
| Forage | 12.7 (28) | 0.22 (0.10) | 2.80 |
| Grain-energy | 4.5 (10) | 0.23 (0.11) | 1.05 |
| By-products | 2.7 (6.0) | 0.31 (0.14) | 0.84 |
| Protein supplement | 2.3 (5.0) | 0.34 (0.10) | 0.78 |
| Min/vit/additive | 0.45 (1.0) | 1.10 (0.50) | 0.50 |
| Consultant time | na | na | 0.10 |
| Total | 22.7 (50) | | 6.07 |

■ Feeding Strategies That Work

- ▶ Forage quality is a key solution. Consider increasing corn silage levels in your ration as feed cost per cow per day may drop 15 to 30 cents as protein prices remain competitive and stable. Evaluate the use of low lignin forages and forages high in NDFD (neutral detergent fiber digestibility).
- ▶ Use of computer modeling programs allows for fine-tuning rations. Lower levels of protein based on amino acid balancing and rumen microbial estimation can reduce feed costs while optimizing production.
- ▶ Insure starch levels and utilization are optimal. Lower levels of starch (20 to 22 percent) can maintain milk production with high quality forage, rumen fermentable fiber, adding sugar, and/or feeding an ionophore.

Plant or kernel processing of corn silage and processing corn grain can increase starch availability in the rumen and reduce fecal losses of starch. If fecal starch is over 5 to 7 percent, examine sources and processing that are reducing starch utilization.

- By-product feeds can be an excellent nutritional source and economically correct decision. Distillers grain and wet brewers grain can reduce protein costs. Corn gluten feed, beet pulp, soy hulls, and wheat midds can maintain energy levels while reducing feed costs (Table 2).
- Review shrink losses. Managing and monitoring weigh backs can increase profitability. One guideline is to target 1 to 2 percent weigh back per cow per day. Fine tuning feed bunk management may allow feeding to an empty bunk.

Table 2. Breakeven prices for various by-product feeds and recommended levels of inclusion in lactating cow rations. Feed Val 3 was used to calculate breakeven prices with soybean meal entered at \$338 a ton, shelled corn at \$6.00 a bushel, tallow at 30 cents a pound, dicalcium phosphate at \$25 per cwt, and limestone at \$10 per cwt.

| By-product | Breakeven (\$ per ton) | Level (% ration DM) |
|------------------------|---------------------------|---------------------------------|
| Soy hulls | \$208 | 10 |
| Cottonseed, fuzzy | \$341 | 10 |
| Corn gluten feed | \$240 | 25 |
| Brewers grain (30% DM) | \$ 93 | 15 to 20 |
| Corn distillers grain | \$327 | 10 (> 10% oil) 20 (<10% oil) |

■ References

- Allen, M.S. (2009). HOT feeding strategies to maximize milk yield. Four State Dairy Nutr. and Mgmt. Conf. Proc. pp. 8 -13.
- Hutjens, M.F. (2010). Manureology 101. Four State Dairy Nutr. and Mgmt. Conf. Proc. pp. 59-61
- Hutjens, M.F. (2010). Feed economics for 2010. Four State Dairy Nutr. and Mgmt. Conf. Proc. pp. 27-28.
- Hutjens, M.F. (2009). Feeding challenges with today's milk prices. IL Dairy Report. pp. 12-17.
- Oelberg, T. (2010) Improving feeding consistency through TMR audits. Four State Dairy Nutr. and Mgmt. Conf. Proc. pp. 74-83.
- Van Amburgh, M.E., R. Soberon, J. Karzsies, and R.W. Everett. (2011). Taking the long view: treat them nice as babies and they will be better adults. Proc. Western Dairy Mgmt. Conf. pp. 141-157.