

Top Ways to Tweak Dairy Nutritional Management to Improve Profitability: Part 2



By: Donna M. Amaral-Phillips

Excellent dairy managers are always looking for and *finding* ways to improve the performance and profitability of their dairy herds. Often, the primary emphasis is placed on considering changes to the nutritional program for the milking herd as suggested by current research. In the prior article, some of these potential management areas were explored. Although these areas are extremely important, tweaking the nutritional and management programs for heifers and dry cows is just as important, and sometimes more so. In addition, other components of a herd management program affect the nutrition program and, ultimately, profitability. Here you will find information on some of the areas to consider fine-tuning management programs for dairy heifers, calves, and dry cows and how the nutrition program is affected by other management practices.

Prevention of Subclinical Hypocalcemia (Milk Fever) in Fresh Cows

For many herds, clinical milk fever has been well prevented, with incidence rates of less than 2%. However, subclinical hypocalcemia, where symptoms are not seen and concentration of blood calcium is less than 8.5 mg/dl on day 1 after calving, is seen in over 50% of mature cows and 25% of first-calf heifers. Cows with subclinical hypocalcemia are more at risk for developing metritis, mastitis, displaced abomasum, and fatty liver/ketosis and have longer days open. Any of these diseases or disorders may result in cows eating less, producing less milk, rebreeding later, and being culled from the herd earlier. Preventative nutritional programs for close-up dry cows (within three weeks of expected calving) should include feeding anionic diets to reduce urine and blood pH. In addition, additional oral calcium supplements may be needed within the first day after calving to prevent hypocalcemia, especially in lame cows and cows with higher previous lactation milk production (University of Wisconsin).

Nutrition of Calves during the First Three Months of Life

Nutrition and management programs of calves during the first three months of life affect milk production later in life. Key components of these programs include:

1. **Ensuring consumption of 4 quarts of colostrum** within 6 hours of birth
2. **Feeding pasteurized whole milk at 15% versus 10% to 12% of birth weight** or reconstituted milk replacer (approximately 1.7 to 2 lb powder versus 1 lb powder) to allow a doubling of the birth weight within 60 days of life
3. **Minimizing stresses and the number of nutritional and management changes** at the time around weaning
4. **Designing feeding and management programs** (keep heifers growing but not overconditioned) in order to calve at 85% of mature weight and 96% of mature skeletal size by 22 to 24 months of age.

Studies have shown that feeding 4 quarts versus 2 quarts of high-quality colostrum within 6 hours of life can increase milk production by 2,500 lb in the first lactation. In a survey of 300 small dairy farms in Oregon, Wisconsin, and New York, only 4% of the herds fed the recommended 4 quarts of colostrum to calves at birth. Feeding higher amounts of milk solids to calves has shown increases of 1,000 to 3,000 lb of milk in the first lactation compared to conventional feeding rates.

Intervene Early When Cows Become Lame

Lame cows have reduced feed intake and often have lower milk production. Cows should be [locomotion scored](#) regularly to detect cows as they *become lame*. Cows with a score of 2 (walk with slight arched back but stand with a straight back) or greater on a 5-point scale should have hooves trimmed and be assessed for the cause of lameness. Detecting and providing appropriate early intervention at a score of 2 can help prevent cows from becoming lamers.

Do Not Overfeed Energy to Dry Cows

Dry cow diets should be balanced to contain adequate but not excessive amounts of energy (0.60 Mcal NEL/lb DM calculated using the NRC model). Overfeeding energy to dry cows obviously increases feed costs, but, more importantly, it negatively affects intake before calving. This results in higher losses of body condition after calving, higher incidences of clinical and subclinical fatty liver and ketosis, and lower milk production. With corn silage-based diets, 5 to 10 lb of chopped (2- to 3-inch length) wheat straw or higher NDF grass hay can be added to diets to reduce energy density and maintain rumen fill.

Evaluate and Improve Cow Comfort

Cow comfort affects resting behavior which, in turn, affects milk production. Thus, focusing on cow comfort should include:

1. **Minimizing heat stress** with the use of an adequate number and properly sized fans and sprinklers in the holding pen and at the feedbunk and fans in the resting area. Fans should be on an automatic temperature sensor and come on when the temperature-humidity index reaches no more than 68 (i.e., temperature of 72°F and 45% relative humidity or 80°F and no humidity). In many parts of the United States, fans should be run not only during the spring, summer, and fall but also during some days in winter months.
2. **Properly sizing freestalls** to allow cows to comfortably lie in the stall and have plenty of lunge space when getting up.
3. **Ensuring that stocking rates do not exceed 115% to 120%**, with the fresh pen stocked at no more than 100%.
4. **Providing long day lighting periods** (16 hours of light and 8 hours of darkness) **to the milking herd and virgin heifers** (if possible), and **considering short day lighting periods** (8 hours of light and 16 hours of darkness) **for dry cows**.
5. **Reducing heat stress** for dry cows because this positively affects colostrum quality, calf immune function, and dam performance after calving.

Closely Monitor Reproductive Performance

Closely monitor reproductive performance and evaluate whether established goals are being met. Getting cows rebred in a timely manner (calving interval of less than 13.5 months) is critical for nutritional and management programs to result in higher and generally more profitable milk production. Many different precision technologies are available to detect and track cow activity and determine when cows are in heat. Over the years, estrous synchronization protocols have been refined for improved conception rates. Using such technologies, managers can detect cows in heat by means other than visual detection and inseminate them in a timely manner.

Fine-tuning these areas can help increase performance and health of dairy cows and overall profitability of the dairy herd. Remember that nutritional management not only of the milking herd but also of all the herd affects performance after calving. All components need to come together for profitable production, reproduction, and longevity of cows within the herd.