

# Top Ways to Tweak Dairy Nutritional Management to Improve Profitability: Part 1



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Well-designed and properly implemented nutritional programs are a cornerstone of the most important aspects of dairy farming: dairy cows milking to their genetic potential, timely rebreeding, minimal health issues, and optimal cow longevity. At the same time, these programs must be cost effective and integrate with other management programs on the farm. Over the years, results from research have expanded our knowledge of how to design and effectively manage nutritional programs. Incorporating these modifications can result in more efficient, productive, and healthier dairy cows that improve profitability for their owners.

Sound nutritional programs for lactating dairy cows must start with correctly and consistently accomplishing the basics as part of daily or seasonal routines. These basics include but are not limited to:

- **Harvesting or purchasing high-quality forages** that are stored correctly to prevent feed shrink. For most forages, the recommended stage of maturity at harvest has changed over the years, with forages harvested at an earlier stage of maturity to improve the amount of nutrients and NDF digestibility which can support an improved milk production.
- **Collecting representative forage samples** on a regular basis, testing these samples for nutrient content, and using these results to rebalance rations.
- **Feeding these rations as designed by your nutritionist.** To account for variations in dry matter content, samples of wet feeds should be dried when changes are detected in dry matter content of feeds being fed or when changes are seen in dry matter intake. These results then are used to adjust amounts of each ingredient fed.
- **Ensuring that lactating cows have access to feed 20 hours or more daily.** Fresh feed should be:
  - available upon return from the milking parlor
  - pushed up between feedings so cows can reach feed
  - distributed evenly throughout the feedbunk with approximately 1% to 2% of delivered feed left after a 24-hour feeding period.
- **Adjusting feeding time** to account for the amount of feed left in the bunk (when the bunk is empty, feed cows earlier than normal).
- **Providing adequate bunk space**, especially for fresh (ideally 30 inches bunk space/cow) and high-producing groups (24 inches/cow) of lactating dairy cows.

Besides routinely implementing these basic concepts, ongoing research has shown that modifying parts of a nutrition and management program can increase milk production and potential profitability. The question to ask becomes, “Can we get a few more pounds of milk by fine-tuning nutritional management without compromising or even improving reproduction, health, or longevity of dairy cows and containing costs?” Here are five areas to consider for fine-tuning nutritional management programs of the milking dairy herd to improve performance.

## Corn Silage-Based Forage Programs

Digestibility of starch within corn silage and high-moisture corn increases with length of time ensiled, maximizing at 4 to 8 months after storage. Rations using these feeds should be evaluated throughout the year and diets adjusted as necessary to ensure adequate energy intake (younger silage) and to prevent ruminal acidosis (older silage).

With the use of kernel-processed corn silage or shredlage, fiber length and digestibility of starch can be increased and sorting of corncobs decreased. Recommendations are to process corn silage so that greater than 95% of kernels are cracked, the cob is broken into more than eight pieces, and approximately 70% of starch passes through a 4.75-mm or 3/16th-inch diameter screen.

During harvest, corn silage should be evaluated and rollers adjusted, if necessary, to ensure that adequate processing of the kernels occurred. With processed corn silage, theoretical length of chop can be lengthened to  $\frac{3}{4}$  inch versus  $\frac{3}{8}$  to  $\frac{1}{2}$  inch without a kernel processor.

## Manage Fresh Cows Separately

Manage fresh cows (first 21 days after calving) in a separate group from other milking cows and especially sick cows. By housing fresh cows in a separate group, additional time and labor can be spent managing these cows. Fresh cows should be fed a specially formulated diet that contains:

1. **high-quality forages** that are highly digestible yet maintain rumen fill
2. **slower ruminally digested starch sources** such as dry ground corn versus high-moisture corn, and
3. **feed additives**, i.e., ruminally protected choline.

Adequate bunk space (30 inches per cow) and resting space (stocking density no greater than 100% or at least 100 square feet per cow) should be provided. Heat stress should be minimized through the use of fans and sprinklers at the feedbunk and holding pen and fans over the resting area. Time in the holding pen should be limited to 2 to 2.5 hours daily. Immunity of fresh cows is naturally depressed during this time frame. Therefore, fresh cows should not be housed with sick cows, and vaccinations should be limited, but your local veterinarian’s recommendations should be followed.

## Specially Formulated Diets for Late-Lactation Cows

Later-lactation cows (greater than 150 days in milk and with a body condition score of 3) should be fed diets formulated to maintain, not increase, body condition but support milk yield. These diets are balanced using greater amounts of forages and slower ruminally digestible starch sources, such as dry ground corn, so that nutrients are used for milk production versus stored as body fat. Ideally, this balance should result in these cows milking better and avoiding

becoming overconditioned. By modifying these diets, nutrients are diverted toward milk production instead of body stores.

### **Minimize Feed Shrink**

Software designed to track feed inventories and feed offered to specific groups of cows has helped identify the amount of ingredients lost because of wind or spillage when loading mixers. In addition, feeding errors or intake problems with a group of cows can be detected early and corrected. Preventing these losses can represent a substantial savings for a dairy.

One area often overlooked is management of forage bunkers and piles. Poorly managed structures can increase dry matter losses by 15% to 30% and decrease palatability of silage at feedout. These structures need to be managed so that they:

- are filled rapidly
- packed to a density of 45 pounds silage per cubic foot
- filled to heights that can be safely packed with equipment (i.e., bunkers should not be filled above the height of the side walls)
- covered with 6-mm plastic or oxygen-limiting film and weighted down with tires that touch each other.

Width of these structures should be such that at least 8 to 12 inches can be removed daily. At time of feeding, silage should be removed from the face using a defacer or from the top down with a tractor or skid steer bucket. These methods minimize “digging” into the silo face and prematurely exposing silage directly behind the face to oxygen. Consultants can use an infrared probe or thermal-sensitive camera to measure the temperature of the silo face and within the first 20 inches to see if the silo face is being properly managed to minimize premature heating of feed. Remember to review feeding protocols with all employees, especially those newly hired.

### **House First-Lactation Cows Separately from Mature Cows**

First-lactation cows may compete better when housed with other first-lactation cows and, as such, milk better when housed separately. Previous studies have shown first-lactation cows rested 20% more, ate 10% to 15% more, and produced 10% more milk when housed separately from mature cows. However, a recent study from Mississippi State University showed no benefit for housing first-lactation cows separately from mature cows and possibly a benefit when they were not separated. Stocking density and amount of feedbunk space probably play a major role in responses seen, and more research is needed before conclusions can be drawn from this newest study.

By fine-tuning these five components, along with continuously implementing the basics, you can improve milk production, reproduction, and health of lactating dairy cows. Besides fine-tuning nutritional management programs for the milking herd, other management considerations affect the success of a nutrition program. These components will be the focus of [the companion piece to this article](#).