
Minimizing Transitional Stress For Close-up Dry Cows

Field Experiences and Applications

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Transitional stress in cows going from the close-up dry cow period into early lactation can have a tremendous impact on their subsequent lactation. The primary transition period for cows comprises the last 21 days prior to calving through the first 21 days after calving. Obviously, minimizing problems at calving is one way to reduce transitional stress in cows. However, our single most important goal in attempting to minimize transitional stress should be to freshen cows with excellent appetites. When we can get fresh cows eating well immediately after calving, everything else is much easier.

Feeding programs for cows during the transition period need not be complex or changed frequently. The challenge is to avoid freshening problems and to get cows eating as much as possible as soon as possible. How we manage cows during these critical six weeks of the transition period, to a very large extent, determines a cow's health, reproductive performance, milk production and profitability for the entire lactation.

Transition Period Feeding Strategies

Various approaches to feeding the transition cow exist in our industry. Some of these approaches work better than others, but overall we have found that simplicity on our behalf and close attention to cows by the producer is always the best general approach. Although some of the current concepts and technologies used in feeding the transition cow can be extremely effective and beneficial, if the producer becomes confused or gets caught up in trying to micro-manage too many details, success may be short-lived.

We have experimented with many types of feed-stuffs, additives, ration manipulations, management strategies, etc. Through personal experience we have gained the most success with the use of the following:

- Anionic salts (when used properly) accompanied with elevated levels of both calcium and magnesium.
- Direct-fed microbials (when scrutinized closely for concentration of colony forming units or CFU's, host specificity, types of bacteria present, and cost).

- Niacin (at 6-12 grams per day) to help prevent ketosis, increase microbial protein synthesis, and increase blood glucose levels.

- Bypass protein to balance protein requirements and to assist in intake of bypass protein sources post-calving.

- Adequate effective fiber from long-stemmed forage (minimum of 8-12 lbs. per day).

- Similar ingredients as contained in the fresh cow ration to minimize ruminal adaptation time.

- Heavily fortified vitamin and mineral levels.

Although anionic salts (anions) were used initially to control milk fever in problem herds, we have found their use to be beneficial in other areas as well, such as reduction in retained placenta, improved feed intake immediately after calving, and enhanced start-up milk production. Various sources of anions are available, but we have experienced the most success with calcium sulfate, magnesium chloride, calcium chloride, and magnesium sulfate. A more pronounced palatability problem has been observed with the use of ammonium chloride and ammonium sulfate, and we also have more difficulty balancing rumen bypass protein needs in close-up dry cows when using the ammonium salts.

We will typically use from .25-.75 lb. of anions in most rations to attain a DCAD (dietary cation-anion difference) of -10 to 0 milliequivalents per 100 grams of diet dry matter. Our results with anions have also been much better when combined with 150-200 grams of calcium and 40-60 grams of magnesium in the daily ration.

The single most important lesson we have learned from the use of anions is that this concept of feeding close-up dry cows is certainly not for everybody. We recommend the use of anions only in very well-managed herds under the following criteria:

1. All forages will be analyzed for mineral content.
2. Changes in forages fed to close-up cows will be minimal.
3. Cows will receive the anions for a minimum of 10 days and a maximum of 30 days.
4. Cows will not be pastured during the close-up period.

5. The nutritionist will be notified of any deviations from the above criteria in a timely manner.

The use of direct-fed microbials (DFMs) has increased over the past few years but many questions remain concerning their use. We have found that the transition cow is a good candidate for the use of DFMs due to the stress from pre-freshening to freshening, and the subsequent limitations on feed intake during this time. To replenish depleted gut microflora we recommend that our herds use a highly concentrated, bovine-specific DFM containing viable lactobacillus acidophilus and streptococcus faecium bacteria. Best results have occurred by inoculating cows approximately 21 days prior to calving, feeding the DFM daily during the close-up period, and inoculating fresh cows on days 0, 3 and 7 post-calving combined with feeding the DFM daily during the initial 21 days after freshening.

Use of DFMs after the transition period depends upon level of production, type of feeding program, environmental conditions, and overall cost effectiveness in the ration. We have observed obvious benefits from the use of DFMs including increased feed consumption before and after calving, increased start-up milk production, and reduced incidence of bloat and acidosis. Hopefully, more research with DFMs will be done in the future to determine optimum conditions for their use; why responses in the past have been somewhat inconsistent; which bacteria are most important in a variety of feeding programs; and what levels of bacteria are required for maximum benefit.

The B-vitamin niacin has been used for several years to help prevent ketosis in problem herds. We recommend niacin in close-up dry cow programs at a level of 6-12 grams per day and fresh cow rations at a level of 6 grams per day. In addition to prevention of ketosis, niacin can also improve feed intake and microbial protein production. We have also seen evidence of niacin elevating milk protein synthesis when used in high fat diets during early lactation.

Nutrient Guidelines For Close-up Dry Cows And Fresh Cows

<u>nutrient</u>	<u>close-ups</u>	<u>fresh cows</u>
crude protein	14-15%	19-20%
undegradable protein	35-38%	38-40%
N.E. lactation (Mcal/lb)	.68-.70	.80-.84
calcium	.40-1.80%*	.8-1.0%
phosphorus	.4-.5%	.5-.6%
magnesium	.3-.5%*	.3-.4%
potassium	.8-1.2%	1.0-1.4%
sulfur	.25-.45%	.25-.30%
copper	25ppm	25ppm
zinc	80ppm	80ppm
manganese	60pp	60ppm
iron	100ppm	100ppm
selenium	.3ppm	.3ppm
Vitamin A (IUs/day)	160,000	200,000
Vitamin D(IUs/day)	40,000	50,000
Vitamin E(IUs/day)	1,000	1,000
niacin (g/day)	6-12	6

*: Calcium, magnesium and sulfur must be elevated when feeding anionic salts

The incorporation of rumen bypass protein in close-up dry cow rations is usually necessary to balance protein requirements and to assist in consumption of bypass protein sources after calving. We formulate close-up dry cow rations to contain a minimum of 35% high quality rumen bypass protein, and fresh cow rations to contain a minimum of 38% high quality rumen bypass protein. Since many bypass protein sources are not very palatable, it is even more critical that they are present in the close-up dry cow ration to facilitate maximum consumption in early lactation cows.

Adequate effective fiber (that fiber which stimulates cud chewing) from long-stemmed forage is a must in close-up dry cow rations in attempting to minimize abomasal displacements and maximize appetite after calving. We recommend a minimum level of 8-12 lbs. of long-stemmed forage and a maximum of 20-25 lbs. of silage in close-up rations.

Avoiding abrupt ration changes by feeding similar ingredients as contained in the fresh cow ration is critical in close-up dry cow rations to shorten ruminal adaptation time and to enhance appetite

after calving. A portion of the fresh or high group ration (approximately $\frac{1}{3}$ to $\frac{1}{2}$ of the diet dry matter) without rumen buffer works extremely well.

Heavily fortified (yet balanced) vitamins and mineral levels during the close-up period can certainly minimize transitional stress by alleviating problems such as retained placenta, uterine infection, droopy cow syndrome, etc. Adequate levels of vitamins and trace minerals are also necessary for maintenance of a healthy immune system, normal colostrum quality, and good reproductive efficiency.

Summary

In assessing whether a particular producer is successfully minimizing transitional stress in close-up dry cows a few questions come to mind:

- Do your cows freshen in high gear and eat like there is no tomorrow?
- Does their milk production jump rapidly without significant loss of body condition?
- Do you have a minimum incidence of freshening problems, i.e. displaced abomasum, ketosis, off-feed, retained placenta, milk fever, etc.?

A good transition feeding program can help any producer respond with a confident "yes" to each of these questions.

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