

Texas Dairy Matters

Higher Education Supporting the Industry

Shorter Dry Periods – Yeah or Nay?

Ellen Jordan, Ph.D.

Extension Dairy Specialist

Texas A&M AgriLife Extension Service

The Texas A&M University System

For many years the standard recommendation had been to dry cows off so that they had a period of 50-60 days to rest and recover prior to the next lactation. The general management strategy included an abrupt change from the lactating diet to a high forage, low energy diet. Then cows were put on a close-up diet for the last three to four weeks before the expected calving date.

In the last twenty years a number of researchers have evaluated shortening the dry period. Postpartum energy balance was improved in many of the studies; which may have been the result of the decreased milk production or increased dry matter intake in the next lactation. Another positive outcome was that the risk of ketosis in early lactation declined.

Recently, Canadian and New Hampshire researchers evaluated whether decreasing the number of ration changes before calving could improve the ability of the rumen and its microbial population to adapt to the milking herd ration. Enhanced ruminal function could lead to greater dry matter intake and improved energy balance.

This was a relatively small study with only six animals on the conventional (average 63 days dry) and six on the short dry period (35 days dry) rations. Cows on the conventional dry period were fed a far-off diet until 28 days prior to their expected calving interval and then were fed a prepartum ration. Cows in the short dry period group were fed the same prepartum ration for their entire dry period.

When the two groups of cows were being fed the same prepartum ration, dry matter intake was similar. In addition there were no differences in plasma concentrations of β -hydroxybutyrate (BHBA), nonesterified fatty acids (NEFA) or glucose; all measures of energy metabolism. The cows with the conventional dry period tended to have lower ruminal pH and higher ruminal concentrations of volatile fatty acids (VFA) than cows with the short dry period.

As shown in Table 1, dry period length did not affect yield of milk, fat, protein, lactose or energy-corrected milk; however dry matter intake after calving was greater in the cows with the

short dry period than those with a conventional dry period. As a result of the difference in dry matter intake, cows with the short dry period suffered less body weight loss after calving, particularly during the first two or three weeks, than cows with a conventional dry period. In addition, the cows on the short dry period tended to increase their body condition score more quickly following calving.

Table 1: Effect of dry period length on various parameters during the first 60 days of the subsequent lactation.

Item	Short Dry Period	Conventional Dry Period	Significance
Milk Yield, lb/d	85.6	82.3	NS
Fat Yield, lb/d	2.93	3.06	NS
Protein Yield, lb/d	2.68	2.53	NS
Lactose Yield, lb/d	3.92	3.87	NS
Energy-Corrected Milk, lb/d	77.4	77.7	NS
Dry Matter Intake, lb/d	49.1	45.5	P=0.04

One issue that comes up with going to one ration from dry off to calving is whether the cows can be fed a negative dietary anion-cation difference (DCAD) ration throughout the period. Researchers from Georgia and Illinois recently looked at feeding a negative DCAD ration for three, four, or six weeks prepartum. They observed no difference in dry matter intake before or after calving. Nor were there any differences in milk yield or concentration of fat or protein with the varying length of negative DCAD feeding.

In the first study, cows with the shorter dry period seemed to have an improved energy balance after calving due to the increase in dry matter intake after calving. Based on the second study, feeding negative DCAD rations for an extended period does not impact the health or milk production of the cows. Although not directly tested it appears these two strategies could be combined in dry cow management.

References

Jolicoeur, M.S., A.F. Brito, D.E. Santschi, D. Pellerin, D. Lefebvre, R. Berthiaume, and C.L. Girard. 2014. Short dry period management improves perpartum ruminal adaptation in dairy cows. *J. Dairy Sci.* 97:7655-7677.

Wu, Z., J.K. Bernard, K.P. Zanzalari, and J.D. Chapman. 2014. Effect of feeding a negative dietary cation-anion difference diet for an extended time prepartum on postpartum serum and urine metabolites and performance. *J. Dairy Sci.* 97:7133-7143.