

The Occurrence and Severity of Ruminal Acidosis Surrounding Calving

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In modern dairy production, the proportion of concentrates offered in the diet increases drastically after calving. Rapid increases in the proportion of dietary concentrates predispose cows to ruminal acidosis; however, little information is available on the occurrence and severity of ruminal acidosis around calving. Ruminal acidosis negatively impacts animal health and fiber digestibility. The objective of this study was to characterize the occurrence and severity of ruminal acidosis around calving when first lactation heifers were adapted to the lactation diet using two different pre-partum feeding strategies. We speculated that ruminal acidosis would increase following calving but that feeding additional concentrate before calving would lessen the severity.

Eighteen cows were fed one of two experimental diets starting 60 d prior to the expected calving date. The control treatment followed the current recommendations of the NRC (2001), while the high concentrate treatment contained a lower forage:concentrate ratio at the start of the study with the ratio gradually reduced as the expected calving date approached. All cows received the same diet following calving. Ruminal pH was measured continuously from 5 days before to 5 days after calving and for 3 continuous days starting on days 17, 37, and 58.

This study indicates that post-partum ruminal acidosis is not reduced by feeding additional concentrate pre-partum when compared to current NRC recommendations. Furthermore, the occurrence and severity of ruminal acidosis drastically increased following parturition with 68% of cows having ruminal acidosis during the first 5 days of lactation. On average, during the first 5 days of lactation, cows experienced 3.8 hours per day of rumen pH below 5.6.

Implications: In addition to compromising animal health, ruminal acidosis occurring post-partum likely reduces fiber digestibility and thus the supply of nutrients to a cow already in a nutrient deficit. The increase in the occurrence and severity of ruminal acidosis following calving demonstrates a necessity for new feeding strategies that reduce the risk, and ultimately the occurrence, of ruminal acidosis.