

# Feeding More Often Can Reduce the Severity of SARA and Increase Milk Fat Yield

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Previous research reported that cows fed the same diet have a large variation in rumen pH, and that cows at a higher risk for developing sub-acute ruminal acidosis (SARA) spend more time on eating following feed delivery, which is also known as slug feeding. The objective of this study was to determine the effects of feeding frequency on productivity of dairy cows and the severity of SARA in higher-risk cows. Eight ruminally cannulated lactating cows were fed a high-grain TMR (35% forage and 65% concentrate) to induce SARA. The study consisted of 2 periods of 21 d each, and half the cows were fed once daily at 0800 h and the other half were fed 3 times daily at 0800, 1500, and 2200 h in the first period, and cows were assigned to the other treatment in the second period. In each period, after 16-d of treatment adaptation, ruminal pH was measured every 30 s over 72 h. Cows were categorized as higher or lower risk to SARA based on an acidosis index (area of pH < 5.8/ kg DMI), which indicates the severity of SARA normalized for intake, measured during the 1x treatment for all cows. Four cows had an acidosis index above 1.0 ( $3.47 \pm 0.36$  pH  $\times$  min/kg) and four cows had an index below 1.0 ( $0.19 \pm 0.33$  pH  $\times$  min/kg), and were categorized as higher-risk and lower-risk cows, respectively. Feeding behaviour (eating, ruminating, drinking, or lying) was recorded every 5-min over the same 72-h, and each behaviour was assumed to last 5-min. Behaviour data was summarized in 3 time periods (0800-1500 h, 1500-2200 h, and 2200-0800 h) to determine when cows spent most of their time eating. The 3x feeding reduced eating time between 0800-1500 h (99 vs. 145 min) and increased eating time between 2200-0800 h (76 vs. 43 min) for both categories of cows. For the higher-risk cows, 3x feeding reduced severity of SARA (the area below pH 5.8; 51 vs. 98 pH  $\times$  min/d) while it did not affect rumen pH for the lower-risk cows. There was no difference in milk yield, however 3x feeding increased milk fat yield (1.22 vs 1.08 kg/d) for both categories of cows.

**Implications:** Increased feeding frequency may reduce slug feeding and increase the distribution of eating throughout the day, leading to reduced severity of SARA in higher risk cows. Our results suggest that frequent feeding may be a beneficial approach to reduce SARA and increase milk fat yield.