SOUTH DAKOTA - Additives Benefit Lactating Dairy Cows When Fed Poorly Ensiled Forage

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It is a challenge for dairy farmers and nutritionists to feed high producing dairy cows. Due to yearly feed cost shifts, profit margins are inconsistent. Feed costs represent the largest milk producing cost so prompt decisions help address cow nutrient requirements. Feed additive use has increased in popularity to ensure proper ruminal functioning for improving dairy efficiency. Additives enhance animal performance through modulation of ruminal pH, microbial growth, nutrient digestibility, and/or metabolism modifiers. The objective was to evaluate if there is a benefit to include additives when feeding a poorly ensiled alfalfa haylage to mid-lactation dairy cows.

Figure 1. Feeding cows using Calan Super Data Ranger.

Eighty mid-lactation (164.5 DIM ± 67.5) Holstein cows (56 multiparous and 24 primiparous) were fed a herd ration containing additives Rumensin, Omnigen AF, XP Yeast Culture, and Biotin. The ration contained (DM basis) 35.2% corn silage (CS), 10.5% 1st cutting alfalfa haylage, 6.98% alfalfa hay, and 47.32% concentrate mix. Cows then switched to a ration of 33% CS, 22% 1st cutting alfalfa haylage, and 45% concentrate mix with additives removed. The big change between rations was an increase in 1st cutting alfalfa haylage, confounded with removal of feed additives.

The 1st cutting alfalfa haylage was harvested and ensiled at 74.5% moisture, resulting in high concentrations of butyric acid and ammonia nitrogen (4.49% DM and 79% NH3-N as % of CP, respectively). Alfalfa haylage went through clostridia fermentation resulting in very poor quality forage.

The study was done in 2 blocks of 40 cows each resulting in insufficient 1st cutting alfalfa haylage. During block 2, a 4th alfalfa haylage cutting (0% DM butyric acid and 6.1% NH3-N as % of CP) was used to stretch 1st cutting. The 1st and 4th cutting were evenly split (50/50) on DM basis. Increasing 1st cutting alfalfa haylage and removing additives resulted in a significant milk production drop of 11.5 lbs/cow/day. Evaluating block 1 to block 2, milk production drop was 15.9 and 6.8 lbs/cow/day, respectively.

Results demonstrated that feeding a poorly ensiled, high butyric acid, and ammonia containing alfalfa haylage will dramatically reduce milk production. The use of additives when feeding a poorly ensiled alfalfa haylage has positive beneficial effects on milk production. While feed additives are fed to improve lactational performance when cows are being fed good forages, they can have even greater positive benefits when feeding poorly ensiled forages. This study also demonstrates that while diluting poorly ensiled forage with high quality forage can reduce loss in milk production, milk production will still be lost.