

# High-total nonstructural carbohydrates timothy enhanced performance of mid-lactation dairy cows.

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We have previously reported that alfalfa cut at sundown [high total nonstructural carbohydrates (TNC)] and harvested as baleage increased milk yield and microbial protein synthesis in late-lactation cows fed only forage. The current study examines the effects of feeding a timothy based high-TNC TMR on performance of mid-lactation cows. Diets contained (% of DM): 1) 40% PM-cut timothy baleage and 25% PM-cut timothy silage (High-TNC diet); or 2) 40% AM-cut timothy baleage and 25% AM-cut timothy silage (Low-TNC diet). Both TMR contained a common concentrate (35%DM basis). The High- and Low-TNC TMR contained respectively (% of DM): 16.8 vs. 16.9 CP, 43.3 vs. 44.1 NDF, and 14.2 vs. 13.3 TNC. Six multiparous (MC) and 10 primiparous cows (PC) were blocked by milk yield and parity and randomly assigned to treatments in a crossover design.

Dry matter intake (19.0 vs. 18.25 Kg/d;  $P = 0.02$ ) and yields of milk fat (0.89 vs. 0.86 Kg/d;  $P = 0.01$ ) and milk protein (0.75 vs. 0.72 Kg/d;  $P = 0.02$ ) were all higher in cows fed the High- vs. the Low-TNC diet. Compared to the Low-TNC diet, the High-TNC diet increased both milk yield (23.0 vs. 22.2 Kg/d;  $P = 0.07$ ) and 4% FCM (22.6 vs. 21.8 kg/d;

$P = 0.03$ ). Although MUN did not differ between treatments, a significant TNC x parity interaction was observed suggesting improved N utilization in PC fed the High-TNC diet. Overall, the high-TNC diet enhanced performance of mid-lactation cows fed 35% of dietary concentrate.

**Implications:** Cutting timothy in the afternoon produces forage with more sugars. Feeding sweet timothy silage increases forage dry matter intake and fat-corrected milk at no extra cost.