Abstract Title: Behavior and Blood Urea Nitrogen in Cattle Grazing Meadow Bromegrass and Supplemented with Condensed and Hydrolizable Tannins

ABSTRACT PREVIEW: BEHAVIOR AND BLOOD UREA NITROGEN IN CATTLE GRAZING MEADOW BROMEGRASS AND SUPPLEMENTED WITH CONDENSED AND HYDROLIZABLE TANNINS

Behavior and Blood Urea Nitrogen in Cattle Grazing Meadow Bromegrass and Supplemented with Condensed and Hydrolizable Tannins

Abstract ID: **1796918**

Abstract Category: **FORAGES AND PASTURES**

Abstract Type: **POSTER**

Abstract Status: **Complete**

Abstract Submission

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Abstract

The nutritional value of grasslands declines as the season progresses, negatively impacting cattle nutrition. Protein supplementation may reverse this trend, although high rates of ruminal proteolysis reduce the efficiency of N utilization. Tannins decrease protein degradability in the rumen, although they are also plant defenses with potential to influence animal behavior. The objective of this study was to determine in protein-supplemented cows grazing meadow bromegrass (MB) the influence of tannins on BUN, and on behavioral levels of activity. Twenty-four Black Angus cow (614±20 kg)-calf (244±4 Kg) pairs were allotted to six 9-acre paddocks (4 pairs/paddock); animals in the Control (Ctrl; n=3) and Tannin treatments (TT; n=3) grazed MB and had a supplement of DDGS (1 Kg/cow/day), with the addition of a mix of condensed(2/3):hydrolizable tannins(1/3) (SilvaTeam) at 0.4% of the diet for TT. Grazing occurred from July to September, 2023 with four experimental periods of 15 d each, the first being the adaptation period (no tannins; Baseline). Data was analyzed as a mixed-effects model with repeated measures and paddock as the experimental unit. Cows were fitted with accelerometers on their left back leg to determine activity, and blood samples were collected from all animals at the end of each period to estimate BUN. Representative samples of grass and supplement were collected from each period and paddock and analyzed for CP and fiber content. Herbage availability (DM basis) in each paddock was assessed before and post-grazing during each period using a rising plate meter and calibration curves. NDF (62.9 to 65.1±0.5%) and ADF (38.7 to 43.9±0.3%) increased, whereas CP (6.8 to 3.9± 0.1%) declined from Period 1 to 4 ($P < 0.05$). Initial biomass was 5,272±211 Kg/ha and

it declined after grazing (Period 4) to 2,319±94 Kg/ha (P < 0.05) with no differences between treatments (P > 0.05). No differences between treatments were observed on motion index, number of steps taken per day, and the proportional percentage of time cows spent standing (9,379±740, 2,611±300, and 54.9±0.02%, respectively; P > 0.05), suggesting that cows in TT did not invest extra time in searching activities or resting relative to Ctrl. It was only detected a greater percentage of transitions from lying to standing in TT than in Ctrl (7 to 3.4±0.003%; P < 0.001). Values for BUN did not differ between treatments (P > 0.05), although they declined from Baseline to Period 4 by 28 % (8.2 to 5.9±0.2mg/dL) in TT and by 2.6 % (5.75 to 5.6±0.01 mg/dL) in Ctrl (P < 0.05). These results suggest that the addition of low levels of tannins to a protein supplement in cows grazing a low-quality grass diet reduces ruminal proteolysis without adversely influencing biomass removal or animals' levels of activity.

Keywords

Grazing, Cattle activity, Steps, DDGS

Author(s)

IM

Iddy Muzzo (he/him/his)

Position:
PhD Student

Organization:
Utah State University

Role:

Author

HB

Horacio Blanchard (he/him/his)

Position:
MS Student

Organization:
Utah State University

Role:

Author

CC

Claudio Cabral (he/him/his)

Organization:
Silvateam

Role:

Author

JV

Juan Villalba (he/him/his)

Position:
Professor

Organization:
Utah State University

Role:

Presenting Author