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Limit versus full creep for calves grazing late summer bluestem

Abstract

Limit-feeding a soybean meal/milo creep supplement (1696 crude protein, average 3.096 salt) was compared with ad libitum consumption of the same supplement without salt or with no supplementation. Little difference was evident in average daily gain of calves among treatments. However, poor supplement consumption may have affected results.

Keywords

Kansas Agricultural Experiment Station contribution; no. 88-363-S; Cattlemen's Day, 1988; Report of progress (Kansas State University. Agricultural Experiment Station and Cooperative Extension Service); 539; Beef; Calves; Bluestem; Soybean/milo; Average daily gain

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Limit Versus Full Creep for Calves Grazing Late Summer Bluestem¹

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Larry Corah, and Eric Vanzant

Summary

Limit-feeding a soybean meal/milo creep supplement (16% crude protein, average 3.0% salt) was compared with ad libitum consumption of the same supplement without salt or with no supplementation. Little difference was evident in average daily gain of calves among treatments. However, poor supplement consumption may have affected results.

Introduction

Reduced quality of late-summer pasture and declining milk production in cows represent significant nutritional challenges to the suckling calf. Offering supplemental creep feed to calves, on an ad libitum basis, has been one approach to improving performance during this difficult period. However, the efficiency with which creep feed is converted to additional gain appears to be reduced at high levels of creep consumption. Therefore, the objective of this study was to compare ad libitum consumption of creep feed with a limit-creep system, in which salt was used to limit creep consumption.

Experimental Procedures

Ninety Angus x Hereford calves were randomly assigned to three treatments: 1) Limit-creep: salt used to limit consumption of a soybean meal/milo supplement available free-choice in a creep feeder; 2) Full-creep: the same soybean meal/milo supplement without salt, offered free-choice in a creep feeder and; 3) Control: no supplementation. The supplement was comprised of approximately 79.5% rolled milo, 19.5% soybean meal, and 1% soybean oil (to reduce dust) and contained 16% crude protein (CP). Desired level of consumption for the limit-creep group was 1.5 lb/day for each calf. Both supplemented groups were initially exposed to the basal supplement without salt for 2 to 3 days. Salt was then mixed with the supplement offered to the limit-creep group. Concentration of salt in the limit-fed supplement averaged 3% for the duration of the trial.

The three treatment groups grazed three separate bluestem pastures. Stocking rates were similar among treatment groups. Groups were rotated twice during the study, so that each group was exposed to all pastures. Calf weights were taken at trial initiation (August 12, 1987) and termination (October 12, 1987). Before each weigh day, cow/calf pairs were held overnight without feed or water (calves were allowed to suckle their dams).

¹ Appreciation is expressed to Mr. Gary Ritter and Mr. Wayne Adolph for their expert assistance during the data collection.

Results and Discussion

Little difference was observed among treatment groups in average daily gain (Table 17.1). However, the full-creep group tended ($P=.10$) to have greater daily gains. Lack of substantial difference among treatments probably reflects poor consumption of creep feed by both supplemented groups. Daily supplement consumption averaged 1.5 lb/day for the full creep group and .8 lb/day for the limit-creep group (approximately .76 lb/day of basal supplement) over the duration of the trial. Creep consumption was highest during the initial 15 to 20 days of the trial but dropped dramatically thereafter. Given the initial willingness to consume supplement, palatability was not considered to be a problem. Altering placement of creep feeders was not successful in encouraging increased creep consumption.

In contrast to our expectations, the low levels of creep feed consumed in this study were not used efficiently for producing additional gain. For the full-creep treatment, consuming 1.5 lb/day of supplement only increased gains by .11 lb/day; 13 lb of supplement were required to produce an additional pound of gain. The additional .76 lb of supplement consumed by the limited group did not promote any additional gain. A possible explanation for the lack of response may lie in the low CP concentration in the supplement (16% CP). Previous research at K-State suggests that utilization of poor quality forage is optimized when supplements contain moderate (26% CP) to high (39% CP) levels of CP. Since CP would be expected to be the first limiting nutrient in late-summer bluestem, using a supplement with higher CP might have improved response to supplementation.

Table 17.1. Initial Weight, Final Weight, and Average Daily Gains of Calves on Different Creep Treatments

Item	No Supplement	Full Creep	Limited Creep
Initial Wt (lb)	393.4	391.0	382.4
Final Wt (lb)	499.1	502.9	485.6
Daily Gain (lb/day)	1.73	1.84	1.69
Supplement consumed (lb/day)	-----	1.50	.76