Supplemental Value of MHA for Range Cows

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Story in Brief

A winter trial was conducted to evaluate the supplemental value of methionine-hydroxy-analogue (MHA) for beef cows grazing dry native range grass.

Pregnant-lactating crossbred cows were fed a 30 percent natural protein supplement with or without MHA. Among the cows that calved before MHA feeding began, those fed MHA lost more weight and condition than those fed no MHA. Calves of winter MHA supplemented cows gained faster during the subsequent summer and were 12 lb. heavier at weaning.

Among cows that calved after MHA feeding began, those supplemented with MHA had calves that gained faster during the winter and weighed 18 lb. more at weaning.

Introduction

In Oklahoma, many beef cows subsist on dry range grass during the winter months and supplementation with protein is needed for satisfactory performance. In research at other locations MHA has improved milk production in both beef cows and dairy cows. Beef cows wintered on low quality forage are subjected to stress and lose weight in a pattern similar to that of high producing dairy cows.

The objective of this study was to evaluate MHA for lactating beef cows fed a natural protein supplement while grazing dry native range grass.

Procedure

This trial was conducted at the Lake Carl Blackwell Range located 10 miles west of Stillwater. The predominant forage is of the tall-grass prairie type with climax species consisting of little bluestem, big bluestem, Indian grass and switch grass.

Forty-seven mature Angus x Holstein cows were randomly allotted to two treatment groups for a 134-day wintering trial. Treatment 1 consisted of a 30% natural protein supplement. Treatment 2 consisted of the same supplement with MHA added. Ingredient makeup of the supplements is shown in Table 1.

Table 1. Ingredient Makeup of Protein Supplements (Percent).

Ingredient	Supplement	
	Natural 30	Natural 30 + MHA
Corn	27.77	27.77
Soybean meal, sol (44%)	58.25	58.24
Ground alfalfa hay	5.00	5.00
Molasses	5.00	5.00
Monosodium phosphate	2.50	2.50
Dicalcium phosphate	0.75	0.75
Sodium sulfate[1]	0.68	0.68
Trace mineral mix	0.05	0.05
Vitamin A[2]	+	+
MHA[3] premix	---	0.01

[1] Formulated to supply 12:1 nitrogen: sulfur ratio.
[2] 10,000 IU per pound of supplement.
[3] Methionine-hydroxy-analogue.

Supplements were fed at the rate of 3.43 pounds per cow daily for 40 days and 4.29 pounds for the remaining 94 days of the trial. Intake of MHA was 14 and 18 grams per cow daily, respectively, for the two periods. Initial and final condition of cows was estimated by scoring each cow on a scale of 1 to 9, with 1 being the thinnest and 9 the fattest. The cattle were rotated between pastures at 28-day intervals.

For purposes of analysis, each treatment group was divided into two subclasses to study the effects of calving date relative to initiation of MHA feeding. Cows that calved before treatment began had an average calving date of October 27; cows that calved after treatment began had an average calving date of December 25. The calving dates ranged from September 28 to February 11 for all cows. Calving was completed before the trial was ended.

Results and Discussion

Performance of cows and calves is shown in Table 2. Among cows that calved before treatment began, those supplemented with MHA lost more weight and condition than those without MHA. This was apparently not due to greater milk production because daily gain calves was identical during the winter supplementation period.

During the subsequent summer period calves of winter-MHA-supplemented cows gained significantly more and consequently were heavier at weaning; the difference in weaning weight was not significantly different.

Among cows that calved after treatment began, supplementation with MHA did not affect weight or condition of cows. Calves of MHA sup-

Table 2. Performance of Cows and Calves.

Item	Supplement	
	Natural 30	Natural 30 + MHA
	Cows calving before trial	
No. Cows	13	13
Average daily supplmeent, lb.	4.0	4.0
Cow		
Initial weight, lb.	1018	1050
Weight loss, lb.	110[1]	167[2]
Score change[3]	—1.8	—2.5
Calf		
Daily gain during winter, lb.	1.45	1.45
Daily gain during summer, lb.	2.22[1]	2.57[2]
Weaning weight, lb.	455	467
	Cows calving during trial	
No. cows	11	10
Average daily supplement, lb.	4.0	4.0
Cow		
Initial weight, lb.	1185	1152
Weight loss, lb.	245	237
Score change	—2.5	—2.6
Calf		
Daily gain during winter, lb.	1.72	1.94
Daily gain during summer, lb.	2.44	2.44
Weaning weight, lb.	507	525

[1-2] Values with different superscripts differ significantly ($P<.05$).
[3] Difference between initial and final condition based on a scale of 1 to 9, 1 the thinnest and 9 the fattest.

plemented cows gained slightly faster during the winter supplementation period, but summer gains of calves were identical. Calves of MHA supplemented calves were heavier at weaning.

MHA had no apparent affect on palatability of the supplement in this trial. In a previous trial at this station MHA decreased the palatability of NPN-containing supplements when individually fed cows had a limited time to consume supplements. No improvement in cattle performance was noted in the previous trial when MHA was added to NPN containing supplements. It is possible that an increase in milk production and calf gain from MHA supplementation is contingent upon a higher level of energy intake than that provided by dry range grass. It is also possible that the differences in calf gain and weaning weight were real differences, and feeding MHA for a longer period to more cows before calving would have had a greater advantage. It is also possible, based on other research that a smaller daily allowance of MHA (such as 10 grams per cow daily) would have been desirable.