

CORN GLUTEN FEED OR A CONVENTIONAL PROTEIN CUBE FOR STOCKERS ON SUMMER NATIVE RANGE

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Story in Brief

Crossbred beef steers (avg initial wt = 616 lb) grazing tallgrass rangeland, received either no supplement, 7 lb/hd/wk of a 38 percent CP cube (38 percent) or 14 lb/hd/wk of a 19 percent CP cube containing corn gluten feed (CGF). During the 62-day feeding trial (7/20/84 to 9/20/84), unsupplemented steers gained 66 lb/hd, 38 percent steers gained 85 lb/hd and CGF steers gained 65 lb/hd. These results suggest that CGF-protein is not a viable supplement for stockers on summer native range.

(Key words: stocker cattle, summer supplements, corn gluten feed)

Introduction

Past studies at OSU (Lusby and Horn, 1983) demonstrated the benefits of feeding high protein supplements to stocker cattle on summer native range. These studies generally show a supplement conversion rate of 2.0 to 2.5 lb supplement/lb added gain when 6 to 8 lb supplement/hd/wk are fed during the late summer grazing season (mid-July to late September). Recently, several by-product feeds have become relatively inexpensive due to import restrictions in Europe. Corn gluten feed, a by-product of the corn milling industry, is one such feedstuff. CGF contains 23 to 25 percent crude protein. The relatively low protein cost (\$/lb of protein) of CGF would make a 20 percent protein supplement, based on the by-product, competitive with conventional natural protein supplements. However, little is known about CGF as a supplement for medium-to-low quality forages.

Materials and Methods

On July 20, 52 head of crossbred beef steers (avg initial wt = 616 lb) were weighed, allocated to one of three supplement treatments and then placed on one of three native pastures at the Pawhuska Research Station. The steers had been on another grazing study since April, 1984. The supplement groups were 1) control - no supplement 2) 7 lb per head per week of a commercial 38 percent CP cube and 3) 14 lb per head per week of a 19 percent CP supplement containing corn gluten feed as the primary protein source (table 1). Prorated amounts of the supplements were fed three times weekly during the 62-day trial. The treatment groups were kept in separate pastures throughout the trial and pastures were rotated every 10 to 14 days to help remove any effects of location or pasture. The cattle were weighed off pasture on September 20. Both the initial and final weights were taken in the morning following a 12 to 16 hour period without feed or water.

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Table 1. Composition of supplements.

Ingredient, %	19% ¹ cube	38% ¹ cube
Corn gluten feed	76.45	---
Wheat midds	10.00	---
Soybean meal	---	43.00
Cottonseed meal	---	47.00
Dicalcium phosphate	.50	1.00
Molasses	6.97	5.00
Fat	1.00	---
Vitamin A	.08	.16
Binder	5.00	3.84

¹ Produced by A&M feeds, Stillwater, OK.

During the trial one steer died and two steers developed eye problems which reduced performance; therefore, only 49 steers were used in statistical analyses. Analysis of variance and a protected LSD were used to separate treatment means. Least squares procedures were used to adjust for missing values.

Results and Discussion

During the 62-day trial, unsupplemented steers gained 1.06 lb/day for a total gain of 66 lb/head (table 2). Feeding 1 lb daily of the commercial 38 percent CP cube boosted total gain 20 lb/head and ADG about .33 lb/day. Supplement conversion (3.0 lb suppl/lb added gain) was less efficient than noted in previous studies by Lusby and Horn (1983) and Gill et al. (1984). The corn gluten feed (CGF) based cube had no influence on steer performance. Gains were similar to the unsupplemented steers despite a supplemental protein intake similar to the 38 percent CP group. The lack of response to CGF cannot be explained at this time. The form of supplemental crude protein in CGF may have influenced steer response. Data from Van Soest (1984) indicates that in excess of 50 percent of CGF crude protein is present as nonprotein nitrogen. As a rule, NPN supplements (urea-based or biuret-based) are not as beneficial as natural protein supplements for ruminants consuming low-to-medium quality forages. Research is currently underway to define the influences of CGF supplements on digestion and utilization of low-to-medium quality prairie hays.

In summary, supplementation with 38 percent CP cubes increased late summer gains 20 lb/head over unsupplemented controls. In contrast, CGF steers were supplemented at the same protein level as the 38 percent group but gained no more weight than the controls. These results suggest that CGF has no value as a supplement for stockers grazing native range during late summer. However, more research is needed before any definite conclusions can be made.

Table 2. Weights and performance of steers receiving no supplement or a commercial 38% CP cube or a 19% CP corn gluten feed cube.

	Control	38% cube	19% cube	Sig. Level
No. steers	15	18	16	
Weekly supplement, lb/hd/wk	0	7	14	
Initial wt, lb (7/20/84)	614	618	616	
Final wt, lb (8/20/84)	680 ^a	704 ^b	681 ^a	P<.05
62-day gain, lb/hd	66 ^a	86 ^b	65 ^a	P<.05
ADG, lb/hd/day	1.06 ^a	1.39 ^b	1.05 ^a	P<.05
Supplement conversion, lb suppl./lb added gain	---	2.6/1	1/0	

Literature Cited

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