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SUPPLEMENTAL ENERGY AND PROTEIN AFFECT GAIN OF STEERS GRAZING RYE-RYEGRASS PASTURES

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Background. Self-limiting energy and protein supplements when fed with an ionophore have significantly increased gain of calves grazing rye-ryegrass pastures. The rapidly degradable nature of this high protein (>20%) forage allows for gain responses from certain escape or bypass proteins. This study was a sub-set experiment of a cooperative trial which involved the use of Mexican steers (see following article) on pasture at TAES-Overton and rangeland at TAES-Uvalde.

Research Findings. Mexican steers were received on December 9, 1991, but due to erratic climatic conditions (dry fall), the sod-seeded rye-ryegrass pastures were not available for grazing until late January. Table 1 shows the average daily gains (ADG) for 500-lb steers assigned to each of 5 replicated treatments. The ADG from January 30 to May 8 ranged from 2.5 lbs for pasture only steers to 2.95 lbs for steers receiving a daily ration of 1 lb ground corn plus 1 lb Menhaden fishmeal (2 lbs total) per head per day. All supplements were hand-fed daily and excluded ionophores. The other supplements of 1 lb ground corn, 2 lb ground corn, and 2 lb whole cottonseed per head per day produced nearly identical steer gains of about 2.68 lbs per day. The 1 lb corn plus 1 lb fishmeal ration produced daily gains that were nearly 1/2 lb per steer greater than the pasture only treatment (Table 2). Additionally, the fishmeal ration produced steer gains of approximately .3 lbs/day greater than either the 1 lb or 2 lb/day ration of ground corn. Previous research rations which contained an ionophore (Rumensin) had feed:gain conversions of 2:1 to 4:1. These data would suggest that neither 2 lbs/day of corn or 2 lbs/day of cottonseed affect gains more than the 1 lb/day corn. Further, the fishmeal ration was superior to all of the other supplements in this trial.

Another column of gain data is reported for January 30 to June 2. The depression or lack of gains from May 8 to June 2 was due largely to decreased availability and quality of ryegrass in the pastures. The unseasonably dry fall conditions caused a high mortality of ryegrass. Thus, the primary forage available from May 8 to June 2 was a mixture of the cool-season annual grasses and bermudagrass.

Application. A combination of energy (corn) and a bypass protein (fishmeal) have proved to be viable management alternatives for stocker cattle grazing rye-ryegrass pastures. The inclusion of an ionophore via mineral, salt, etc. would be recommended to further enhance gains.

Although the overall gains from late January to early June were acceptable, the optimum management decision in this case would have been to move the stockers to the feedlot before they were forced to consume the lower quality diets. A primary economic concern with supplemental rations remains to be level of daily ration intake and the additional gain realized from the supplement (feed:gain).

Table 1. Influence of daily hand-fed supplements on steers grazing sod-seeded rye-ryegrass pastures.

Treatment	Average Daily Gains (lbs)	
	1-30-91 to 5-8-92	1-30-91 to 6-2-92
Pasture Only	2.52	2.07
1 lb Corn/hd/day	2.68	2.18
2 lb Corn/hd/day	2.64	2.14
2 lb Cottonseed/hd/day	2.69	2.10
2 lb Fishmeal Ration ¹ /hd/day	2.95	2.39

¹Fishmeal ration was 1:1 (ground corn:fishmeal)

Table 2. Additional gain and feed conversion by steers offered supplement.

Treatment	ADG	Additional Gain due to Supplement	Feed:Gain
	1-30-91 to 5-8-92		
-----lbs-----			
Pasture Only	2.52		
1 lb Corn	2.68	.16	6.3:1
2 lb Corn	2.64	.12	16.7:1
2 lb Cottonseed	2.69	.17	11.8:1
2 lb Fishmeal Ration	2.95	.43	4.7:1