

FIELD DAY REPORT - 1993

Texas A&M University Agricultural Research and Extension Center at Overton

**Texas Agricultural Experiment Station
Texas Agricultural Extension Service**

Overton, Texas

May 28, 1993

Research Center Technical Report 93-1

All Programs and information of the Texas Agricultural Experiment Station and Texas Agricultural Extension Service are available to everyone without regard to race, color, religion, sex, age, or national origin.

Mention of trademark of a proprietary product does not constitute a guarantee or a warranty of the product by the Texas Agricultural Experiment Station or Texas Agricultural Extension Service and does not imply its approval to the exclusion of other products that also may be suitable.

USE OF FISHMEAL AND FEATHERMEAL RATIONS TO SUPPLEMENT STEERS GRAZING BERMUDAGRASS

F. M. Rouquette, Jr., M. J. Florence, and W. C. Ellis

Background. Previous grazing research at TAES-Overton has shown positive biological and economic responses from stocker cattle which grazed bermudagrass and received self-limiting protein supplementation. A general recommendation from several of our studies was that small, daily quantities (approximately .25% of body weight) of supplements were the most cost-effective. The objective of this experiment was to ascertain the effect of two protein sources containing high levels of rumen escape protein, fishmeal and feathermeal, on gain of crossbred and purebred Brahman steers. Both protein sources were mixed with ground corn to provide a 34.5% protein ration and were hand-fed daily at the rate of 1.25 lbs per steer without an ionophore. Crossbred steers (n = 54), of which 75% were visually scored as 1/4 to 1/3 Brahman, and 25% as being approximately 1/2 Brahman-influenced cattle, weighed 474 lbs at initiation of the trial. Purebred Brahman steers (n = 18) weighed 468 lbs at initiation of the trial and were stratified across treatments. Two replicate pastures of each of three treatments (Pasture only, Fishmeal ration, Feathermeal ration) were used with each replicate pasture containing 9 crossbred and 3 Brahman steers. All steers received supplements for a 3-week training period prior to initiating weight gain performance on July 20, 1992 and terminating on October 6, 1992.

Research Findings. Average daily gain (ADG) of steers was increased by use of either fishmeal or feathermeal supplements (Table 1). Steers assigned to bermudagrass pastures without supplement gained 1.17 lbs/day. The 1.25 lbs/day fishmeal supplement improved steer ADG by .4 lb and the 1.25 fishmeal supplement increased steer ADG by .65 lbs (1.82 vs 1.17) over the control steers. Crossbred steers gained 1.02 lbs/day; whereas, Brahmans gained 1.61 lbs/day on the bermudagrass pasture without supplementation. Additional gain attributed to the protein sources was about .42 lb/day for crossbred and .36 lb/day for Brahman steers receiving fishmeal ration and .59 lb/day for crossbred and .67 lb/day for Brahman steers receiving the feathermeal ration (Table 2). Feed:extra gain was about 3:1 for fishmeal and about 2:1 for feathermeal.

Application. Both of the rumen escape protein sources, fishmeal and feathermeal, increased steer performance when hand-fed daily at about .25% body weight (1.25 lbs/hd/day). The feed:extra gain of 3.5:1 to 1.9:1 were in the range of previous experimental protein rations which contained an ionophore. With these protein ration costs of approximately \$180 to \$240/ton, the cost of the extra gain ranged from \$.17 to \$.42/lb. Additional costs for labor, troughs, etc.

should be estimated before incorporating such a supplemental program. However, with current 500-lb steer prices, the use of protein supplementation appears to offer viable economic incentives to stocker operators during the summer months when forage quality often restricts performance of this class of livestock.

Table 1. Performance of crossbred and Brahman steers grazing Coastal bermudagrass and supplemental protein.

Treatment	Average Daily Gain (lbs)					
	All Steers	X-bred Only		Brahman Only		
		SE ³	SE	SE	SE	
Pasture Only	1.17	.07	1.02	.06	1.61	.03
Fishmeal Ration ¹	1.57	.07	1.44	.07	1.97	.10
Feathermeal Ration ²	1.82	.09	1.61	.06	2.28	.11

¹Fishmeal ration = 50:50 (corn:fishmeal)

²Feathermeal ration = 64:36 (corn:feathermeal)

³SE = Standard Error of the mean

Table 2. Conversion of supplemental protein to gain by crossbred and Brahman steers grazing bermudagrass.

Treatment	Additional Gain due to Supplement (lbs)		Feed:Extra Gain	
	X-bred	Brahman	X-bred	Brahman
Pasture Only	---	---	---	---
Fishmeal Ration	.42	.36	2.98:1	3.47:1
Feathermeal Ration	.59	.67	2.12:1	1.87:1