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Feedlot performance of Angus and Brahman x Angus steers during cold weather

Abstract

Straightbred Angus steers gained .21 lb/day faster than Brahman x Angus steers during a 184-day winter feeding trial. Angus steers had a higher yield grade, more fat thickness at 12th rib, and graded 90% Choice. Brahman x Angus steers were 40 days younger at slaughter, had more carcass weight/day of age and larger loin eyes, but only graded 10% choice. There was no difference in feed efficiency.

Keywords

Cattlemen's Day, 1984; Kansas Agricultural Experiment Station contribution; no. 84-300-S; Report of progress (Kansas State University, Agricultural Experiment Station and Cooperative Extension Service); 448; Beef; Feedlot performance; Carcass weight; Yield grade

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K**Feedlot Performance of Angus and Brahman x Angus Steers
During Cold Weather****S**

Stephen Boyles, Jack Riley and Ron Pope

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Summary

Straightbred Angus steers gained .21 lb/day faster than Brahman x Angus steers during a 184-day winter feeding trial. Angus steers had a higher yield grade, more fat thickness at 12th rib, and graded 90% Choice. Brahman x Angus steers were 40 days younger at slaughter, had more carcass weight/day of age and larger loin eyes, but only graded 10% choice. There was no difference in feed efficiency.

Introduction

Previous research at other institutions has shown that using Brahman in a crossbreeding program may increase performance. However, before crossbreeding that includes Brahman can be recommended for cold regions, more research must be done to measure that cross' performance during winter. We also need to know the maximum acceptable level of Brahman breeding to withstand cold stress.

Procedure

Ten purebred Angus and 10 Brahman x Angus steers were purchased from the Kerr Foundation Ranch, Poteau, Oklahoma, for use in this trial. Angus averaged 502 lb (279 days of age) and Brahman x Angus 546 lb (239 days of age) when started on test. Steers were allotted by breed to alternate individual feeding pens in an open front building and fed an 85% concentrate finishing diet for 184 days (December 14, 1982 to June 15, 1983). Daily feed records were maintained and individual weights taken at 14-day intervals. Carcass weights, grades and measurements also were obtained for each steer.

Results

Results of the trial are summarized in Table 35.1. Brahman x Angus steers were 44 pound heavier and 40 days younger at the beginning of the trial but both groups weighed the same after 184 days on feed. Angus steers gained .21 lb/day faster. There was no difference in feed efficiency. Angus steers had poorer yield grades, more fat at the 12th rib and graded 90% choice. Brahman x Angus steers had more carcass weight per day of age and larger loin eyes but only graded 10% choice.

Brahman x Angus carcasses were longer than Angus but the same depth at the first and fifth rib. Hair weight and diameter and hide thickness from the neck, side and rump were similar for both groups. Thus, the Brahman cross' poorer performance during winter was not due to differences in insulation.

Table 35.1. Feedlot Performance of Angus and Brahman x Angus Steers During Cold Weather.

Item	Angus	Brahman x Angus	
No.	10	10	
Initial wt, lb	502	546	
Final wt, lb	1112	1116	
Days on feed	184	184	
ADG, lb	3.32	3.11	(P=.15)
Feed to gain	6.3	6.2	(P=.76)
Hip height, in	46.0	50.9	(P=.0001)
Carcass wt lb	701	713	(P=.71)
Carcass wt/day of age, lb	1.43	1.58	(P=.16)
Dressing %	63.0	63.8	(P=.18)
Yield grade	4.03	2.98	(P=.02)
Fat thicknes, in	.67	.46	(P=.01)
Loin eye area, sq in	12.1	12.8	(P=.14)
No Choice	9	1	(P<.01)

Weather Stress

The "Thermoneutral Zone" is a range of temperatures within which cattle are most efficient. Below the thermoneutral zone, they must spend energy to warm the body through shivering or changing their metabolic rate. Above the thermoneutral zone they must spend energy in an attempt to cool the body. But the thermoneutral zone changes with animal and weather conditions. A coat of winter hair acts as an insulator, and moves the bottom of the thermoneutral zone downward. Cattle fed in winter are more comfortable at a lower temperature than if they had their summer coat.

Wind effects cattle just like it does humans. Cattle have their own "wind chill index." A cold rain is especially rough on cattle because it destroys the insulation properties of hair. Combine cold rain with wind, and cattle may not be able to eat enough to meet their maintenance requirements.

Experiment Station scientists are studying weather and the way it influences cattle. Weather graphs, prepared by the Station climatologist, are shown in the final paper of this progress report.
