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Comparison of feeding calves vs. yearlings

Abstract

Data from the 207 crossbred steers used in this study indicate that when calves are placed in the feedlot on a finishing ration at weaning, they will have better feed efficiencies, greater lifetime ADGs, lighter carcass weights, and equal carcass qualities compared to those placed as yearlings. In recent times, heavy carcass weights have been rather common in the industry. Every over-weight steer had a desirable weight at one time, and this study shows that they would have produced a desirable carcass if managed correctly.

Keywords

Cattlemen's Day, 1992; Kansas Agricultural Experiment Station contribution; no. 92-407-S; Report of progress (Kansas State University. Agricultural Experiment Station and Cooperative Extension Service); 651; Beef; Cattle; Management; Performance; Carcass; Systems

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COMPARISON OF FEEDING CALVES VS. YEARLINGS

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and D.E. Franke¹*

Summary

Data from the 207 crossbred steers used in this study indicate that when calves are placed in the feedlot on a finishing ration at weaning, they will have better feed efficiencies, greater lifetime ADGs, lighter carcass weights, and equal carcass qualities compared to those placed as yearlings. In recent times, heavy carcass weights have been rather common in the industry. Every over-weight steer had a desirable weight at one time, and this study shows that they would have produced a desirable carcass if managed correctly.

(Key Words: Cattle, Management, Performance, Carcass, Systems.)

Introduction

The advent of boxed beef and portion control has placed a premium on uniformity of slaughter weights and caused discrimination against large carcasses. Today's fast growing cattle can meet packer specifications if they are placed in the feedlot as weaning calves. This study was designed to compare feedlot and carcass traits of steers started on a finishing ration as weaning calves (accelerated system) vs. growing calves and placing them on a finishing ration as yearlings (conventional system).

Experimental Procedures

Crossbred steers were produced from 2-, 3-, and 4-breed rotational crossbreeding systems involving Angus, Hereford, Charolais,

and Brahman breeds at Louisiana State University, Baton Rouge. Half of each cow breed group was bred to Gelbvieh bulls as a terminal cross. Calves were born between Jan. 31 and April 14 and weaned at an average age of 185 days. At weaning, steer calves were randomly assigned, within breed groups, to either a calf or yearling management system. After an approximately 3 wk conditioning period, 45 calves were shipped to KSU in 1989 and 64 in 1990 to constitute the calf management system. The 44 steers in 1989 and 54 in 1990 assigned to the yearling management system were grazed during the winter at Baton Rouge on rye grass pasture and shipped to KSU in early May of the following year. Steers in both management groups were group-fed for 18 to 21 days, while the energy density of the ration was increased to 75% concentrate (DM basis). Steers were then sorted into pens of 5 or 6 head and the ration was increased to 90% concentrate (DM basis) over the next 3 wk. Cattle remained on that ration until slaughter. The ration consisted of cracked corn, soybean meal, vitamin and mineral supplement, and sorghum silage. Half of each breed group within each management system was slaughtered when the ultrasound-measured backfat was between .3 and .4 in., and the other half was slaughtered with backfat between .5 and .6 in. Carcass data were collected after 24 hr in the cooler.

Three alternative slaughter end points within management systems were evaluated; 1) constant days on feed, 2) constant adjusted carcass backfat, and 3) constant slaughter weight. Data were analyzed using least

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squares analysis of variance. The model included the fixed effects of year and management group. In addition, the regressions of weaning age; the alternative slaughter point within management; and the percentage Hereford, Charolais, Brahman, and Gelbvieh were included.

Results and Discussion

The calves went on feed at an average age of 228 days. They averaged 224 days on feed, were slaughtered at 1083 lb, and had .43 in. of adjusted carcass backfat. The yearlings were started on feed at an average age of 444 days, were fed for 131 days, and were slaughtered at 1262 lb with .45 in. adjusted carcass fat thickness. The results were very similar when evaluated at all three slaughter end points. Consequently, only the results of a constant adjusted fat thickness are presented in Table 1.

Compared to yearlings, calves gained about 190 lbs in 91 more days on feed. Their ADG on feed was about 0.22 lb/day less than that of yearlings. However, they required 1.8 lb less TDN per lb of gain ($P < .05$), equivalent to 2 lb of corn. That was because of the lighter average weight maintained in the feedlot. The lifetime ADG was greater for the calves, because they were slaughtered an average of 126 days younger with only 178 lbs less weight.

There was no significant difference in dressing percentage, so carcass weight reflected slaughter weight. The yearlings had 1 sq. in. more ribeye area than the calves, again reflecting heavier weights. The calves tended to have more marbling and higher quality grades than the yearlings, but the differences were not statistically significant. Actual backfat, yield grade, and percentage of kidney, pelvic, and heart fat were not different between management systems.

Table 1. Feedlot and Carcass Merit of Calves vs. Yearlings at the Same Adjusted Carcass Backfat^a

Trait	Management System	
	Calf	Yearling
Slaughter wt, lb	1083 ^z	1262 ^y
Gain, lb	536 ^y	384 ^z
Age, days	452.2 ^z	578.0 ^y
Fed, days	223.9 ^y	133.0 ^z
Feedlot ADG, lb	2.45 ^z	2.67 ^y
TDN during finishing, lb	3120 ^y	2523 ^z
Feed/gain	5.92 ^z	7.687 ^y
Lifetime ADG, lb	2.23 ^y	2.04 ^z
Carcass wt, lb	671 ^y	776 ^z
Dressing percent	61.90 ^z	61.47 ^z
Ribeye area, sq. in.	12.5 ^z	13.5 ^y
Marbling score ^b	319.6 ^z	310.5 ^z
Actual carcass backfat, in.	.38 ^z	.40 ^y
Kidney, pelvic, heart fat, %	2.6 ^z	2.6 ^z
Yield grade	2.64 ^z	2.76 ^y

^aAdjusted Backfat means were .43 in. for the calf management group and .45 in. for the yearling management group. ^bSlight = 200, Small = 300, and Modest = 400, etc..

^{y,z}Means in the same row with different superscripts are different ($P < .05$).