PUBLICATIONS
2004

GRAZING GROWTH RATE EFFECTS ON SUBSEQUENT FEEDLOT AND CARCASS TRAITS IN BRAUNVIEH CROSS STEERS

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Background. A cooperative experiment between TAMU-Overton (OVT), TAMU-Uvalde (UVL), TAMU-Vernon (VRN), and Texas Tech University (TTU) addressed the effect of pre-feedlot growth rates on feedlot and carcass traits in cattle. Braunvieh cross steers (n = 91) were assigned to various stocking rates at OVT, UVL, and VRN to create different growth rates. Steers were stocked on 'TAM 90' annual ryegrass (RG) at UVL, 'Maton' rye and RG at OVT, or 'TAM 202' wheat at VRN from January to May 2002. Cattle were placed on feed at the TTU Alltech research feedlot at termination of the grazing period to determine the influence of grazing growth rate (GGR) on feedlot and carcass traits. Steers were assigned to pens within location, stocking rate, and weight with 4 to 6 animals per pen. Animals were shipped to a commercial packing facility in Plainview, Texas when they reached approximately 0.4-inch of backfat and carcass data was collected by Texas Tech University personnel. Weight gain and feed intake were measured at 28 d intervals throughout the finishing period. Based on pasture ADG, steers were classified into five groups as very low (VL), low (LO), moderate (MD), moderately high (MH), and high (HI). Grazing period ADG was different (P < 0.05) between the VL, LO, MD, MH, and HI GGR groups (-0.02, 1.21, 1.70, 1.98, and 2.25 lbs/d). The statistical model included GGR and location with initial grazing weight as a covariate.

Research Findings. Initial feedlot weights were different (P < 0.01) between VL, LO, MD, MH, and HI steers (696, 806, 844, 874, and 894 lbs, respectively; Figure 1). Feedlot ADG was similar among the GGR groups with the exception of a difference (P = 0.02) between the LO and MD steers (VL = 3.8, LO = 3.9, MD = 3.6, MH = 3.8, HI = 3.7 lbs/d; Table 1). The VL steers had lighter hot carcass weights (HCW) than LO, MD, MH, and HI steers (665 vs. 744, 749, 780, 773 lbs, respectively; P < 0.01). The LO steers had lighter HCW than MH and HI steers (P < 0.05) and MD steers had lighter HCW than MH and HI steers (P < 0.05). The VL steers were on feed longer than LO, MD, MH, and HI steers (113 vs. 111 d; P < 0.05). Animal weights during the finishing period are illustrated in Figure 1. Adjusted fat thickness, kidney pelvic heart fat, and yield grades were similar among the GGR groups. The VL steers had smaller ribeye areas than the LO, MD, MH, and HI steers (12.4 vs. 13.8, 13.8, 13.7, and 13.9 in^2, respectively; P < 0.01). Lower GGR steers had lighter HCW due to failure to fully compensate for differences in initial feedlot weight. Stocking rate on pasture affected GGR, but had modest influence on animal performance in the feedlot.

Application. It is a common perception that cattle with high gains during the stocker phase enter the feedlot with additional body condition and exhibit lower performance during the finishing phase. In this study utilizing moderate to high growth rate genotypes, steers that performed well during the stocker phase continued to gain well in the feedlot. Producers that retain ownership in cattle after the grazing period may consider programming cattle to gain more during grazing period where cost of gains are typically more economical than in the feedlot.

Figure 1. Effect of grazing growth rate on body weight during the finishing period.
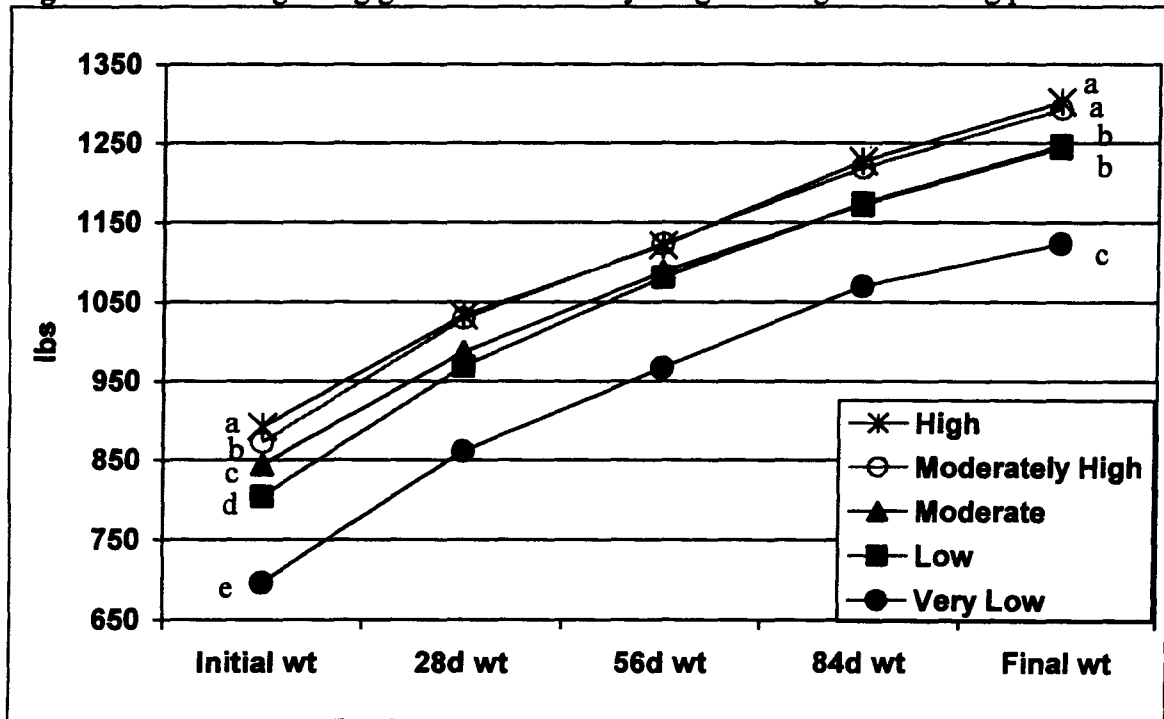
abcdeMeans within a weight lacking common letters differ (P < 0.05)

Table 1. Effect of grazing growth rate on feedlot performance and carcass traits.

Grazing Growth Rate	Grazing Period ADG	Final Feedlot ADG	Hot Carcass Weight	Ribeye Area	Adjusted Fat Thickness	Yield Grade	Marbling Score
	(lbs/d)	(lbs/d)	(lbs)	(in²)	(in)		
High	2.3a[1]	3.7ab[1]	773a[1]	13.9b[1]	0.42	2.7ab[1]	427ab[1,2]
Moderately High	2.0b	3.8ab	780a	13.7b	0.48	2.9b	414ab
Moderate	1.7c	3.6a	749b	13.8b	0.42	2.6a	397ab
Low	1.2d	3.9b	744b	13.8b	0.45	2.7ab	437a
Very Low	0.0e	3.8ab	665c	12.4c	0.42	2.7ab	377b

[1]Means within a column lacking common superscripts differ (P < 0.05).
[2]350-399 = Select+, 400-499 = Choice-