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EFFECT OF RYE-RYEGRASS STOCKING RATE, BREED TYPES, AND SEX OF CALF ON FEEDLOT PERFORMANCE

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Background. A cooperative experiment between TAMU-Overton and Texas Tech University addressed the effect of previous stocking rate (SR) on rye-ryegrass, breed type, and sex on feedlot performance. Steers (n = 43) and heifers (n = 36) born in the Winter of 1999 consisted of 100% Brahman (BRM), 3/4 Angus 1/4 Brahman (AAB), or 1/2 Angus 1/4 Hereford 1/4 Brahman (AHB) breed types. After weaning, calves were randomly assigned to two different SR at TAMU-Overton. Animals were stocked on 'Maton' rye (*Secale cereale*) and 'TAM 90' annual ryegrass (*Lolium multiflorum*) continuous (CON) or rotationally (RTN) at both 1.2 hd/ac (LO) or 2.5 hd/ac (HI) from early December 1999 to mid-May 2000. Upon completion of the grazing portion cattle were shipped to the Texas Tech Alltech Research feedlot in Lubbock, Texas for the finishing. Animals were randomly assigned to pens of 4-7 head according to breed, sex, SR, and weight and remained on feed until a visual assessment of 0.4-inch backfat was attained. Weight gain and feed intake were measured at 28 d intervals throughout the finishing period.

Research Findings. The off-pasture weights by breed type and pasture treatment varied widely from about 675 lbs for H1 stocked BRM to 950 lbs for LO stocked AAB and AHB steers. Using all breed types across SR, there was only moderate ($P<.05$) differences in initial feedlot weight (Table 1). Compensating gains were made in the feedlot with overall ADG of 3.30 and 3.56 lbs/da for steers on LO stocked pastures, and 4.03 and 4.38 lbs/da for steers on HI stocked pastures. Final weight of steers was about 1300 lbs for HI-CON ($P<.05$); whereas the average final weight from the other three pasture treatments was similar at about 1240 lbs. The initial weight, final weight, and ADG for heifers was similar across the four pasture treatments. All groups of AAB and AHB heifers gained 4 lbs/da or more in the feedlot. Feed to gain averaged about 6.6:1 for steers across all breed types and SR, and about 6.8:1 for heifers across breed types and SR. The average cost of gain was similar for all groups at about $0.38 per lb gain. Breed types of steers and heifers differed for all feedlot traits (Table 2). Although the Angus-sired calves were half-sibs, the AxB dams were progeny of growth-type Angus bulls and had larger mature weights and frame compared to the HxB dams. Thus, the AAB steers and heifers had higher ADG and heavier final weights compared to AHB calves. The BRM steers, fed for 113 days, were lighter and had lower feedlot ADG across stocking rates compared to AAB and AHB steers that were fed for 132 days.

Application. Trends for compensatory growth in feedlot appeared to be more evident for steers compared to heifers. Offspring with high growth rate sires often have above-average gains on both pasture and feedlot. Full-blood BRM steers can be fed very cost-effective and competitive with 25% BRM steers when fed on the High Plains of Texas during the summer months. However, variation within a breed type is often as great as or greater than variation among breed types. Therefore, knowledge of pasture gains, feedlot growth, and carcass traits for a specific breed type is essential to optimize returns and/or reduce discounts.

Table 1. Effects of previous pasture stocking rate (SR) on feedlot performance.

PASTURE SR[1]	CALF SEX	INITIAL WT	FINAL WT	ADG	DAYS ON FEED[3]
		(lbs)	(lbs)	(lb/da)	(d)
HI-CON	M	735 ab[2]	1296 a	4.38 a	113-132
HI-RTN	M	708 b	1225 bc	4.03 b	113-132
LO-CON	M	803 a	1258 c	3.56 cd	113-132
LO-RTN	M	814 a	1236 c	3.30 d	113-132
HI-CON	F	748	1254	4.18	132
HI-RTN	F	759	1263	4.18	132
LO-CON	F	851	1302	4.00	113
LO-RTN	F	845	1327	4.18	113

[1]Pasture SR were high (HI), and low (LO) at both continuous (CON) and rotational (RTN) stocked.
[2]Means followed by different letters within a column are different (P<.05).
[3]Brahman steers on feed for 113 days; all AAB and AHB steers on feed for 132 days.

Table 2. Influence of breed types across stocking rates (SR) on feedlot performance.

BREED TYPE	CALF SEX	INITIAL WT	FINAL WT	ADG	DAYS ON FEED[3]	FEED:GAIN	COST/ LB GAIN
		(lbs)	(lbs)	(lb/da)	(d)		($/lb)
AAB	M	857 a[1]	1375 a[1]	4.21 a[1]	132	6.74	0.39
AHB	M	749 a	1218 b	3.81 b	132	6.55	0.38
BRM	M	671 b	1151 c	3.46 c	113	6.45	0.38
AAB	F	845 a[2]	1375 a[1]	4.38 a[1]	113-132	6.67	0.38
AHB	F	757 b	1197 b	3.85 b	113-132	6.84	0.39

[1]Means followed by different letters within a column are different (P<.05)
[2]Means followed by different letters within a column are different (P<.09)
[3]All low SR heifers on feed for 113 days; all high SR heifers on feed for 132 days except for one pen on feed for 113 days.