

EFFECT OF PASTURE STOCKING RATE, BREED TYPES, SEX OF CALF AND FEEDLOT PERFORMANCE ON CARCASS TRAITS

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Background. A cooperative experiment between TAMU-Overton and Texas Tech University addressed the effect of stocking rate (SR), breed type, and sex of calf on feedlot performance (companion paper). This experiment was an extension of that study and evaluated SR, breed types (BRM, AAB, and AHB), sex of calf, and feedlot performance on carcass traits. Animals were harvested at approximately 0.4 inch backfat, and were marketed at the Excel facility in Plainview, Texas. The Animal Science meat science staff with Texas Tech University collected carcass data.

Research Findings. After 113 to 132 days on feed, there were no differences in hot carcass weights (HCW) for steers or heifers across pasture SR treatments (Table 1). For all calves, average HCW ranged from 737 to 796 lbs. Final backfat (FAT) exceeded 0.4 inch for all cattle, and for LO SR heifers FAT was nearly double the target. The initial feedlot weight was 850 to 950 lbs for certain breed types x sex x SR. Thus, most of these heavy weight cattle could have been fed for 90 days or less to reach 0.4-inch backfat. Since packer bids for cattle are often dependent upon a minimum number days on feed, the intent was to feed for at least 100 days. All groups averaged USDA Choice, and quality grade was similar across SR. Yield grade (YG) showed the impact of FAT, and YG may have diminished biological and economic efficiency. Without specific information, the lower Grid Price of \$ 97.13 for the LO-RTN heifers may have been due to discounts associated with FAT and YG of carcass. A comparison of breed types and sex of calf showed differences ($P < .05$) for every carcass trait for steers (Table 2). The BRM steers had lighter HCW, smaller REA, less FAT, and lower Value compared to either AAB or AHB. However, due to lower initial weight and body condition score upon entering the feedlot, BRM steers were the only group that approached the targeted FAT of 0.4 inch. The average quality grade was USDA Choice for all breed types. The BRM steers received a lower Grid Price compared to AHB, and with lighter HCW, the overall Value of BRM steers was \$ 100 to \$ 170 per hd less than AHB or AAB steers. The two heifer breed types were different in HCW, REA, Grid Price, and hence, Value. High growth-rate Angus sires of the A x B dams, as well as the growth-rate sires of both the AAB and AHB calves, resulted in heavier heifers with larger REA. There was a decrease in Grid Price for the AHB heifers compared to the AAB which resulted in a \$ 160 per hd difference between breed types.

Application. Compensating growth in feedlot often masks pre-feedlot, pasture growth rates of cattle. In addition, when cattle are fed to a common back fat endpoint, pre-feedlot performance may have only slight impacts on carcass traits. In this experiment, pre-feedlot stocking rates on pasture had only minor effects on carcass characteristics. Certainly, severe stocking rates which drastically retard calf growth on pasture for a prolonged period lengthens the days on feed to reach a packer-acceptable end-point. Under these conditions, opportunities for profit rapidly diminish for those who have continuous ownership from time of stockering to time of feedlot finish. Breed type of cattle remains as one of the most influential factors affecting carcass characteristics, bid price, and hence total receipts per head. Knowledge of regional pricing disparities for breed types, etc. prior to selecting a feedlot location may enhance the potential to merchandize feedlot pens of cattle.

Table 1. Effect of pasture stocking rate and sex of calf on carcass traits.

PASTURE SR ¹	CALF SEX	HCW (lbs)	REA (in ²)	MARB ₃	FAT (in)	YG	GRID PRICE \$/wt	VALUE \$/hd
HI-CON	M	779	12.2 a ²	519	0.61 a	3.6 b	104.78	819.68
HI-RTN	M	737	11.1 bc	496	0.72 b	4.1 a	104.88	774.93
LO-CON	M	763	12.0 ac	499	0.62 a	3.6 b	103.34	788.61
LO-RTN	M	750	11.5 c	492	0.62 a	3.7 ab	104.83	787.81
HI-CON	F	746	11.6 bc	517	0.68	3.8 a	105.50 a	788.71
HI-RTN	F	746	12.8 ac	481	0.67	3.2 b	102.20 b	768.21
LO-CON	F	781	11.6 bc	471	0.78	4.2 a	100.88 b	787.79
LO-RTN	F	796	12.3 c	461	0.85	4.1 a	97.13 b	769.99

¹Pasture SR were high (HI) and low (LO) at both continuous (CON) and rotational (RTN) stocked.

²Means followed by different letters within a column are different (P<.05).

³Marbling (MARB) scores of 400 to 499 are USDA Choice minus; scores of 500 to 599 are USDA Choice.

Table 2. Effect of breed type and sex of calf on carcass traits.

BREED TYPE	CALF SEX	HCW (lbs)	REA (in ²)	MARB ₂	FAT (in)	YG	GRID PRICE \$/wt	VALUE \$/hd
AAB	M	834 a ¹	12.3 a	489 b	0.71 a	4.0 a	104.67 ab	872.82 a
AHB	M	750 b	12.2 a	549 a	0.68 a	3.6 b	107.20 a	804.93 b
BRM	M	689 c	10.6 b	466 b	0.56 b	3.6 b	101.54 b	700.53 c
AAB	F	821 a	12.5 a	505	0.69	3.7	104.45 a	858.54 a
AHB	F	713 b	11.7 b	460	0.79	3.9	98.40 b	698.81 b

¹Means followed by different letters within a column are different (P<.05).

²Marbling (MARB) scores of 400 to 499 are USDA Choice minus; scores of 500 to 599 are USDA Choice.