PUBLICATIONS
2000

STOCKING RATE AND OVERSEEDED BERMUDAGRASS PASTURE EFFECTS ON ANGUS X BRAHMAN (F-1) HEIFER PERFORMANCE

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Background. Common (CM) and Coastal (CS) bermudagrass (BG) pastures used in long-term nutrient cycling experiments were overseeded either with 'Tibbee' crimson clover (CL) or 'TAM 90' ryegrass (RY) during the autumn of both 1997 and 1998. In each year, all pastures received a single, fall fertilization of 0-100-100-22-44-1 lbs/ac N-P_2O_5-K_2O-Mg-S-B. The RY pastures received an additional 150 lbs N/ac (yr 1) and 200 lbs N/ac (yr 2) split applied. Spring-born Angus x Brahman (F-1) heifers were fall-weaned, backgrounded on deferred BG, hay, and supplement until grazing was initiated (2-5-98 and 2-15-99). Stocking was continuous until termination (6-17-98 and 6-11-99). At grazing initiation, heifers weighed 552 lbs in 1998 and 512 lbs in 1999. The objective of this study was to evaluate the influence of stocking rate (SR) on CL *vs* RY pastures on replacement heifer ADG and body condition score (BCS).

Research Findings. Pastures stocked from 1.5 to 4 heifers/ac resulted in ADG of 3.49 to 1.05 lb/d across both years (Table 1). Overall heifer ADG was higher in 1999 (2.56) *vs* 1998 (1.99) which was directly related to forage and climatic conditions. Two-year average final weight of F-1 heifers ranged from about 700 lbs on high SR to 880 lbs on low SR. Forage growth and heifer performance resulted in gain/ac of 430 to 819 lbs/ac in 1998 and 454 to 920 lbs/ac in 1999. The 2-year data (Table 2) showed greater (P = .0001) ADG from CS (2.35 lb/d) compared to CM (2.11 lb/d); slight advantage (P = .08) for ADG from RY (2.28 lb/d) compared to CL (2.18 lb/d) and consistent ADG differences among all SR (P = .0001) of low (2.81 lb/d), medium (2.44 lb/d), and high (1.45 lb/d). Thus, SR significantly affected ADG in both years; whereas, main effects and interactions occurred during 1998. In 1999, the interaction of SR and CL-RY (P = .004) was attributable to a reduction in ADG in RY from the medium (2.99) to the low (2.85) SR (Table 3). The BCS were similar among treatments at grazing initiation. Heifers grazing RY pastures were fatter than those grazing CL pastures (6.45 *vs* 6.10). But, SR had the most dramatic effect on BCS with high, medium, and low SR pastures, respectively at 5.6, 6.4, and 6.9.

Application. Replacement heifers grazed at medium to low SR on CL or RY pastures from Feb to Jun (120 days) can make appropriate ADG and reach weights for breeding on pasture without supplementation. Grazing RY or CL from Feb to June, pasture costs per lb heifer gain ranged from about $.10 to $.25/lb which was equal or less than that for steers grazing small grain-ryegrass pastures.

Table 1. Two-year average daily gain (ADG) and gain/ac of F-1 heifers stocked at three levels (SR) on common (CM) and Coastal (CS) bermudagrass overseeded with ryegrass (RY) or clover (CL).

Forage	1998 SR	1998 ADG	1998 Gain/ac (lbs)	1999 SR	1999 ADG	1999 Gain/ac (lbs)	2-Yr Avg (Feb-Jun) Final Wt	2-Yr Avg (Feb-Jun) ADG
CM-CL	3.5	1.05	441	4.1	1.55	737	685	1.30
CM-RY	3.9	1.16	543	4.2	1.64	799	713	1.40
CM-CL	2.5	1.83	549	2.6	2.72	820	812	2.28
CM-RY	2.5	1.99	597	2.6	2.92	881	835	2.46
CM-CL	1.5	2.39	430	1.5	3.49	607	882	2.94
CM-RY	1.5	2.58	464	1.5	2.61	454	844	2.60
CS-CL	3.5	1.45	609	4.1	1.66	789	724	1.56
CS-RY	3.9	1.75	819	4.4	1.78	909	736	1.77
CS-CL	2.5	2.09	627	2.6	2.92	881	840	2.51
CS-RY	2.5	2.45	735	2.6	3.05	920	864	2.75
CS-CL	1.5	2.53	455	1.5	3.32	578	889	2.93
CS-RY	1.5	2.77	499	1.5	3.09	538	886	2.93

Table 2. Average daily gain (ADG) and body condition score (BCS) for heifers grazing bermudagrass (BG) overseeded with ryegrass (RY) or clover (CL) and stocked (SR) at three levels.

Item	Probability value ADG	Comparisons
Year	.0001	
BG	.0002	1998 = .0001; 1999 = NS
CL-RY	.08	1998 = .0001; 1999 = NS
SR	.0001	1998 = .0001; 1999 = .0001
BG*SR	NS	1998 = NS; 1999 = NS
BG*CL-RY	NS	1998 = .06; 1999 = NS
SR*CL-RY	.04	1998 = NS; 1999 = .004
	BCS	
SR	.0001	
CL-RY	.007	

Table 3. Interaction of stocking and clover-ryegrass for average daily gain (ADG).

1999 Stocking Rate	Clover		Ryegrass	
	ADG (lbs/d)	STD	ADG (lbs/d)	STD
H	1.61	0.19	1.67	0.22
M	2.82	0.22	2.99	0.27
L	3.40	0.27	2.85	0.34