PASTURE COSTS FOR COWS AND CALVES GRAZING RYEGRASS + NITROGEN OR CLOVER + POTASSIUM

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Background. Both common (CM) and Coastal (CS) bermudagrass pastures have been grazed with cows and calves at 3 stocking rates (SR) at TAMU-Overton since 1969. From 1969 through 1984, annual fertilization for all pastures was 200-100-100 lbs/ac N-P_2O_5-K_2O, and both CM and CS were overseeded with ryegrass and clovers. As a component of nutrient cycling research in the fall of 1984, all SR pastures were subdivided into two additional treatments: ryegrass + N (RYG) or clover + K_2O (CLV). From fall 1984-1989, annual N rate/ac was 408-0-0 and K_2O was 0-0-114. From 1990-1996, annual N rate/ac was reduced to 253-0-0 and K_2O was 0-0-117. Cows and calves were continuously stocked from early February to late September, and all pastures were overseeded in mid- to late October. The objective of this research was to quantify pasture-animal performance from various SR x fertility regimens. This report documents pasture costs/lb suckling calf gain from each SR for a 12-year period which includes 1984-89 and 1990-96.

Research Findings. Cow-calf performance for SR of CM and CS has been reported previously (RCTR 98-1). Stocking rates have been expressed as cow-calf units (one pair = 1500 lbs). Table 1 shows the annual fertilization and seeding rates and estimates of costs per acre. Lime rate was prorated to an annual basis, but was applied at about 3-year intervals. However, from 1990-96, no additional lime was required on CLV pastures. Fertilizer and seed costs for RYG were $150/ac (1984-89) and $104.40/ac (1990-96). These costs for CLV were $57.10/ac (1984-89) and $37.55 (1990-96). Suckling calf gain for each SR pasture combination of CM and CS with either RYG or CLV ranged from 229 to 1011 lbs/ac during the 12-year period (Table 2). Cost/lb calf gain was lower on all CLV compared to RYG. However, at the high SR of CM pastures, cost/lb gain was similar between CLV and RYG. Across the 12-year period, costs/lb gain ranged from lows of $.07 to highs of $.31.

Application. Before selecting pasture-fertility systems, management decisions must also include associated risk and level of production required. Long-term research at TAMU-Overton has shown annual ryegrass to be more reliable (less risk) and more productive than annual clovers. In general, CS pastures result in lower cost/lb calf gain due to forage productivity during the summer. However, with a non-N pasture system, low or medium stocked CM + CLV pastures are competitive with CS pastures.

Table 1. Annual seed and fertilizer costs for bermudagrass pastures overseeded with either clover + K or ryegrass + N.

ITEM	Appl. Rate (lbs/ac)	Cost/Unit ($)	1984-89	1990-96
			----------$/ac----------	
Ryegrass	25	40/cwt	10	10
34-0-0	1200	200/ton	120	
34-0-0	744	200/ton		74.40
Lime	1300	30/ton	20	20
Total Ryegrass + N			**$150**	**$104.40**
Clover	20	100/cwt	20	20
0-0-60	190	180/ton	17.10	
0-0-60	195	180/ton		17.55
Lime	1300	30/ton	20	0
Total Clover + K			**$57.10**	**$37.55**

Table 2. Bermudagrass (BG) pasture costs/lb gain for suckling calves when grazed by cow-calf pair at three stocking rates (SR).

1984 through 1989 **CLV + K Costs/Ac = $57.10; RYG + N = $150**						
ITEM	LOW SR		MED SR		HIGH SR	
Common BG	CLV+K	RYG+N	CLV+K	RYG+N	CLV+K	RYG+N
SR (1500 lbs)	.83	.88	1.40	1.45	1.92	2.15
Calf gain/ac (lbs)	371	482	568	664	279	624
Cost/lb gain ($)	.154	.311	.101	.226	.205	.240
Coastal BG						
SR (1500 lbs)	.92	1.19	1.50	1.98	2.82	3.21
Calf gain/ac (lbs)	446	631	653	897	709	1011
Cost/lb gain ($)	.128	.238	.087	.167	.081	.148
1990 through 1996 **CLV + K Costs/Ac = $37.55; RYG + N = $104.40**						
Common BG						
SR (1500 lbs)	.70	.80	1.23	1.32	1.97	2.18
Calf gain/ac (lbs)	304	390	446	564	229	563
Cost/lb gain ($)	.124	.268	.084	.185	.164	.185
Coastal BG						
SR (1500 lbs)	.79	.98	1.23	1.61	2.35	2.76
Calf gain/ac (lbs)	390	494	490	716	514	645
Cost/lb gain ($)	.096	.211	.077	.146	.073	.162