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STEER PERFORMANCE AFFECTED BY GRAZING METHOD AND STOCKING RATE

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Background. In two consecutive years, 1997-98 and 1998-99, bermudagrass pastures were overseeded from late Sep to early Oct with 'Maton' rye (100 lbs/ac) and 'TAM 90' ryegrass (30 lbs/ac). Pastures were fertilized with 300 lbs/ac 21-8-17 in late Oct-early Nov each year, and with 200 lbs/ac 34-0-0 each on three separate dates (mid-Dec, late Jan-early Feb, and mid-Mar) for a growing season total of 267-24-51 lbs/ac of N-P_2O_5-K_2O. Simmental-sired steers from Angus x Brahman (AxB) and Brahman x Hereford dams, as well as AxB (F-1) steers were grazed from early Dec to mid-May each year. Two replicate pastures of six steers each were stocked either continuously (CONT) or rotationally (ROTN) (8-paddock) each at three stocking rates (SR). The three SR (steer = 600 lbs at initiation) for 1997-98 were 1.7, 2.3, and 2.9 hd/ac; whereas, in 1998-99, SR were 1.5, 2.1, and 2.7 hd/ac. The primary objective of this grazing experiment was to incorporate three SR to quantify steer performance and forage growth on pastures stocked CONT, or ROTN in which residence time in each paddock (n=8) was about 2-3 days and rest-period was about 14-21 days.

Research Findings. Average daily gain (ADG) differed among years which was expected for rye-ryegrass pastures and response to climatic conditions. However, the low (LO) SR steers had ADG of nearly 3 lbs/day for both CONT and ROTN during both years. At the medium (ME) and high (HI)SR, there was an ADG advantage for steers on ROTN stocked pastures. These ADG differences between grazing method were due to increased forage growth and regrowth on deferred paddocks (ROTN). Since all treatment-replicate pastures of ROTN were moved on the same day, the deferment period was the same for all SR, and forage regrowth differences among SR were primarily a function of stubble height and residual leaf area. During 1997-98 in which forage growth conditions exceeded those of 1998-99, a maximum of 900 lbs/ac gain was accomplished on the ME stocked pastures. Responses of gain/ac from ME and HI stocked pastures during 1998-99 were substantially reduced due to forage growth and hence, lower ADG. The 2-year average gain/ac favored the ME and LO stocking rates compared to HI stocked pastures.

Application. Under the planting-fertilization management used in these experiments, rye-ryegrass pastures may be stocked initially with 1.5 to 2.3 (900 to 1380 lbs) 600-weight calves in an attempt to optimize relationships between ADG and gain/acre. With the bimodal growth rate of rye-ryegrass being heavily skewed toward rapid growth during mid-Feb through May, low stocking during Dec-mid-Feb will almost always result in abundant growth during late winter-spring which

can be managed for maximum ADG, by adding other cattle during the last 75-90 days of forage production, or hay harvest in an attempt to optimize efficiency of production. Method of grazing becomes important on moderate to high SR. One of the most important management practices to incorporate in grazing cool-season annual grasses is that there is no "correct" SR for the entire seasons (fall-winter-spring) of forage growth. An approach to achieve the "correct" SR is that of varying land area and/or animal numbers by use of a cow-calf herd or purchase of additional stockers.

Table 1. Stocker steer average daily gain (ADG) from rye-ryegrass pastures stocked continuously (CONT) or rotationally (ROTN) each at three stocking rates.

Grazing[1] System	1997-98[3]		1998-99[3]		2-Year Avg.	
	Stocking[2] Rate	Steer ADG	Stocking[2] Rate	Steer ADG	Stocking Rate	Steer ADG
	(hd/ac)	(lb/da)	(hd/ac)	(lb/da)	(hd/ac)	(lb/da)
CONT-LO	1.7	2.93	1.5	2.96	1.6	2.95
ROTN-LO	1.7	2.78	1.5	3.04	1.6	2.91
CONT-ME	2.3	2.47	2.1	1.76	2.2	2.12
ROTN-ME	2.3	2.58	2.1	2.15	2.2	2.37
CONT-HI	2.9	1.55	2.7	0.37	2.8	0.96
ROTN-HI	2.9	1.75	2.7	0.95	2.8	1.35

[1]Rotational system was 8-paddock; Low = LO; Medium = ME; High = HI
[2]Initial steer weight was 600 lbs
[3]Grazing days for Dec-May in Year 1 = 159 days, and Year 2 = 156 days

Table 2. Stocker steer gain per acre from rye-ryegrass pastures stocked continuously (CONT) or rotationally (ROTN) each at three stocking rates.

Grazing[1] System	1997-98[3]		1998-99[3]		2-Year Avg.	
	Stocking[2] Rate	Gain/ Acre	Stocking[2] Rate	Gain/ Acre	Stocking Rate	Gain/ Acre
	(hd/ac)	(lb/ac)	(hd/ac)	(lb/ac)	(hd/ac)	(lb/ac)
CONT-LO	1.7	792	1.5	693	1.6	743
ROTN-LO	1.7	751	1.5	711	1.6	731
CONT-ME	2.3	903	2.1	577	2.2	740
ROTN-ME	2.3	944	2.1	704	2.2	824
CONT-HI	2.9	715	2.7	156	2.8	436
ROTN-HI	2.9	807	2.7	400	2.8	604

[1]Rotational system was 8-paddock; Low = LO; Medium = ME; High = HI
[2]Initial steer weight was 600 lbs
[3]Grazing days for Dec-May in Year 1 = 159 days, and Year 2 = 156 days