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ROTATIONAL GRAZING OF COASTAL BERMUDAGRASS USING ONE HERD VS. TWO HERDS

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Background. Optimum utilization of Coastal bermudagrass in the humid southeast often presents management problems due to dry matter production fluctuations with climactic conditions and fertility level. Management systems that include multiple pastures with hay harvests taken from excess pasture production are most likely to make optimum use of bermudagrass. Those systems that depend exclusively on livestock to utilize bermudagrass are likely to be over- or under-stocked during the course of the year unless animal numbers fluctuate with forage production. In the search for alternative grazing-utilization systems, some form of rotational grazing has been used for the past 400 years. Approximately 150 years ago, it was suggested that more than one herd be used to rotationally graze pastures with the "fattening herd" to graze first and the "maintenance herd" to graze second. Previous rotational grazing research with bermudagrass pastures has shown little to no improvement in individual animal performance, but some minor improvement in gain per acre.

Research Findings. The objective of this two-year study was to measure live weight gains of stocker cattle grazing Coastal bermudagrass as follows: (1) continuous; (2) one-herd rotation; (3) two-herd rotation (first-last grazing). A moderate stocking rate of about three 650-lb calves per acre was used each year. In year 1, 1/2 Simmental-1/4 Brahman-1/4 Hereford (SimX) heifers were used; whereas, in year 2, SimX steers and Brahman steers were used as test animals. A 6-paddock rotation system was used for both the 1-herd and 2-herd treatments. On the 1-herd system, animals were rotated based on forage availability (approximately 2 to 3 day residence and 10 to 15 day rest). In the 2-herd system, the first grazers were rotated on the same schedule as the comparative 1-herd, and the second grazers followed in the adjacent paddock. Thus, the second grazers were always grazing forage that remained or was refused by the first grazers; whereas, the first grazers always had access to 10- to 15-day regrowth forage. In our study, stocker calves were used as both first and second grazers because they are more responsive to forage quality changes than mature cattle. The grazing period in each year was 90 to 100 days from late June to early October.

In year 1, SimX heifers (650 lbs) had an average daily gain (ADG) of 1.19 lbs on the continuously grazed bermudagrass pastures (Table 1). On the rotationally grazed pastures, the 1-herd system had an ADG of .98 lbs; whereas, the 2-herd system produced an ADG of 1.38 lbs

for the first grazers and 0.66 lbs for the second (last) grazers. In this trial, there was about a 20% gain advantage for the continuously grazed system over the 1-herd, 6-paddock system; however, the first grazers of the 2-herd, 6-paddock system had about a 16% gain advantage over the continuous and a 40% gain advantage over the 1-herd system. The second grazers were forced to consume more stems and a lower quality forage in the lower strata of the forage canopy. Previous research has shown that the upper one-third of bermudagrass canopy is significantly higher in percent leaf and overall quality.

In year 2, yearling Brahman steers (675 lbs) gained more on every treatment than the 10-month-old SimX steers (600 lbs). The ADG of both breed types was 1.07 lbs from continuously grazed and 1.01 lbs from the 1-herd system. The first grazers, however, gained about 50% more than animals grazing either continuously or in the 1-herd rotational system. In both years, the combined ADG of first and second grazers in the 2-herd system was similar to the 1-herd system.

Application. Multiple pastures are necessary to make optimum utilization of forage by livestock. Individual animal performance from rotationally grazed systems may not exceed performance from a continuously grazed system if the rotation schedule forces animals to utilize 50% or more of the available forage. However, ADG of stocker cattle can be dramatically improved provided that the animals are allowed *ad libitum* selection of the high quality leaf portions of bermudagrass. Thus, with warm-season perennial grasses such as bermudagrass, the degree of pasture utilization in a rotational grazing system will dramatically affect animal gain. The 2-herd system actually allows one to visualize the impact of stocking rate between the first and second grazers. In a 2-herd rotation system, the second or last grazers should be mature, dry cows rather than young, actively growing stocker calves. Animal health precautions for internal parasites and coccidiosis should be considered before initiating intensive forage utilization schemes for stocker cattle.

Table 1. Average daily gain from Simmental crossbred (SimX) and Brahman (Brah) calves during the two-year trial.

Grazing Method	Heifers (SimX)	Steers			Overall 2-Year Avg.
		(SimX)	(Brah)	Avg.	
		-----lbs/day-----			
Continuous	1.19	0.65	1.22	0.94	1.07
Rotational, 1-herd	0.98	1.56	1.51	1.04	1.01
Rotational, 2-herd					
First Grazers	1.38	1.35	1.91	1.63	1.51
Second Grazers	0.66	0.48	1.04	0.76	0.71