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CONTINUOUS *VS* ROTATIONAL GRAZING OF SOD-SEEDED COWPEAS

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Background. Livestock producers in the humid southeastern U.S. have traditionally relied upon warm-season perennial grasses as the basic forage unit during summer months. The warm-season perennial grasses, such as bermudagrass, are noted for increased levels of dry matter production although nutritive value of these perennials is normally less than that of annual forages.

Research Findings. A grazing trial was conducted at the Texas A&M University Agricultural Research and Extension Center at Overton during the summer and fall of 1991 to determine the effect of a continuous *vs* rotational grazing method on stand maintenance of sod-seeded cowpeas (*Vigna unguiculata*) and animal performance. 'Iron & Clay' cowpeas were drilled into an established sod of 'Tifton 44' bermudagrass. The Tifton 44 bermudagrass pastures were shredded to a 2-inch stubble height and lightly disked (1/2 to 1") immediately prior to drilling 100 lbs/ac cowpea seed. Steer calves that weighed an average of 726 lbs were pre-conditioned to grazing cowpeas by being placed in adjacent cowpea pastures for 1 week prior to the beginning of the trial (August 19). Previous research has indicated that cowpeas are not readily acceptable to stocker cattle. Apparently, cattle must attain some tolerance to an unpalatable substance before refusals are minimized.

Animals spent 2 to 3 days per paddock in the 6-paddock rotational system. This allowed for a 12- to 15-day rest period prior to regrazing. Plants were defoliated at 60-80% at the termination of each rotational grazing as indicated by quadrate sampling. Cowpeas in the continuously grazed pasture were almost completely defoliated at the end of the trial (October 4). As a result of the constant defoliation, there was more bermudagrass leaf apparent in the animals diet in the continuously grazed pasture than in the rotational paddocks. Bermudagrass in the rotational paddocks was partially shaded by the dense canopy of the cowpeas. Thus, the bermudagrass sod was not thinned; however, quality of the Tifton 44 bermudagrass was dramatically reduced because of a high stem:leaf ratio and senesced leaf material. Cowpea response with regard to stand maintenance was best in the rotationally grazed paddocks. At the end of the 46-day grazing trial, steers that had been in the continuously grazed pasture had an average daily gain (ADG) of 2.48 lb/day; whereas, steers in the 6-paddock rotational system had an ADG of 1.19 lb/day (Table 1). The dramatic difference in ADG between the two grazing systems is primarily a result of forcing animals to make more efficient use of available forage in the rotationally grazed paddocks. Thus, steers consumed more cowpea stems as well as a lower

quality bermudagrass than steers on the continuously grazed pasture. Steers grazing continuously stocked pasture had *ad libitum* selection of both cowpea and bermudagrass leaves.

Data from a continuously and rotationally grazed Coastal bermudagrass trial were used to compare animal performance and gain per acre. Steers assigned to the continuously grazed pastures had an ADG of 0.91 lb/day; whereas, steers assigned to the 6-paddock rotationally grazed system had an ADG of 1.04 lb (Table 1). Although the bermudagrass pastures were stocked at a higher rate than the sod-seeded cowpeas, forage availability on both systems provided *ad libitum* intake of forage.

Table 1. Animal performance and pasture productivity of sod-seeded cowpeas and Coastal bermudagrass.

	Grazing System	
Treatment	Continuous	6-paddock Rotation
Sod-seeded cowpeas		
Total grazing days	46	46
ADG, lbs	2.48	1.19
Animals/acre	1.60	1.60
Total gain/acre, lbs	183	87
Coastal bermudagrass		
Total grazing days	89	89
ADG, lbs	0.91	1.04
Animals/acre	3.00	3.00
Total gain/acre, lbs	243	278

Application. Cowpeas may be successfully sod-seeded into an existing bermudagrass pasture without the use of desiccating herbicides by lightly disking the sod. Cowpeas are a reliable summer annual forage in East Texas, however, with their apparent sensitivity to defoliation, cowpeas should be regarded as a special purpose crop. Thus, cowpeas may fit best as a green manure crop in a crop rotation system or as a forage source for wildlife. Cowpeas may be useful to a stocker operation provided that stocking rates are low and length of grazing days does not have to extend beyond approximately two months.