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## Performance of Heifers Grazing Coastal Bermudagrass Fertilized With Nitrogen or Overseeded With Clovers

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### Summary

A grazing study comparing Yuchi arrowleaf and Woogenellup subterranean clover overseeded into Coastal bermudagrass has been carried out since fall 1983. These overseeded pastures were compared to Coastal pastures fertilized with 50 to 60 lb of N applied in February and August. All pastures received 100 lb/A of 0-46-0 each year in October. Due to the dry and cold 1983-84 clover growing season, poor stands and production followed. Small differences occurred in animal performance in spring 1984, with a trend toward higher gains in the clover pastures. In the 1984-85 season, rainfall was higher than normal and the clovers performed well. For the period from March 12 through June 20, ADG's were 2.42, 1.97, and 1.17 lb for arrowleaf clover, subclover, and N-fertilized Coastal, respectively. The 1985-86 grazing season is in progress, and animal performance through April 16 shows similar trends.

### Introduction

Coastal bermudagrass is one of the most widely used improved pasture grasses in the South. However, it

requires rather large amounts of N fertilizer to realize its production potential. Even with high rates of N fertilizer, gains often do not exceed the 1.0 to 1.5 lb/day range. Furthermore, weight losses often occur during the winter months if cattle are not fed a supplement while grazing Coastal bermudagrass. From research at other locations where Coastal bermudagrass is grown, we know that if clovers will grow they will have a positive effect on cattle performance. The objectives of this research were to determine if: 1) these clovers can be productive and replace the need for N fertilizer; 2) these clovers can improve the distribution and quality of the forage available without having a detrimental effect on the bermudagrass sod.

### Procedures

In the fall of each year, all pastures were grazed short followed by shredding of the weeds and ungrazed spots. In October, 100 lb/A of 0-46-0 was applied uniformly. The N-fertilized Coastal pastures received 50 to 60 lb of N in February and again in August. Clover seedings were made in October of the first two years (poor stands from the first year resulted in poor reseeding stands). Seedings during the second year were done with a "Tye" no-till drill with 10-inch row spacing. The seed was inoculated with the appropriate rhizobia in the form of "Pelinoc" just prior to seeding. About 10 lb/A of seed was used. Cattle were utilized as needed after seeding to maintain the sod in a short condition until after the seedlings had germinated. No seedings were made in fall 1985, as all clovers had produced sufficient seed for natural reseeding.

Grazing started March 3 for the 1983-84 season; February 21 (for clover pastures) and March 12 (for N-fertilized Coastal pastures) for the 1984-85 season; and October 30, 1985 for the 1985-86 season. In spring 1985, stocking as based on forage available; hence, cattle were added and removed from time to time to maintain uniform forage available per animal. All other grazing has been set stocked. Available forage was monitored biweekly, and cattle were weighed every 28 days after an overnight fast.

### Results and Discussion

During 1984, small differences were evident among all treatments. The 1983-84 clover growing season was very cold and dry, resulting in generally poor and erratic stands of clover. One pasture each of arrowleaf and subclover had fair stands of clover and resulted in improved liveweight gains. The average daily gain for the period from March 27 to June 26, 1984 were slightly better for arrowleaf and subclover, than for N-fertilized Coastal (Table 1). Due to extremely dry conditions, all cattle were removed after the June 26 weigh day. All pastures were stocked uniformly in 1984 with one heifer per acre.

The 1984-85 clover growing season was a good one, except for the snow and associated cold weather that occurred in mid-January. The clover pastures were first stocked on February 21 while the N-fertilized Coastal was stocked on March 12. The number of animals required to maintain uniform forage available per animal was generally from 50 percent to 100 percent higher for the clover

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**TABLE 1. SUMMARY OF CATTLE PERFORMANCE (ADG) BY GRAZING PERIOD OF HEIFERS GRAZING COASTAL BERMUDAGRASS PASTURES OVERSEEDED WITH YUCHI ARROWLEAF CLOVER, OVERSEEDED WITH WOOGENELLUP SUBTERRANEAN CLOVER, AND RECEIVING N FERTILIZER**

Pasture Treatment	Grazing Period			
	3-27-84 thru 6-26-84	3-21-85 thru 6-20-85	6-20-85 thru 9-12-85	10-30-85 thru 4-16-86
	Pounds			
Arrowleaf	1.57	2.42	1.23	1.39
Subclover	1.46	1.97	1.48	0.98
N-Fert. Coastal	1.35	1.17	1.41	0.89

pastures than for the N-fertilized Coastal from the February to March starting date through June 20 when a new set of cattle were assigned to the pastures. During the summer season, pastures were set stocked at one animal (750 lb bred heifer) per acre.

Gains for the spring grazing season in 1985 averaged 2.42, 1.97, and 1.17 lb per day from March 21 through June 20, for arrowleaf, subclover, and N-fertilized Coastal, respectively. Gains per acre during the above period were 263, 184, and 74 lb for arrowleaf clover, subclover, and N-fertilized Coastal, respectively. For the period from March 21 through May 16, cattle on all clover

pastures gained equally. However, since subclover flowers, sets seed, and dies about one month before arrowleaf clover, cattle on the arrowleaf clover pastures continued to gain at a higher rate for another 35 days or so.

Cattle gains during the 84-day grazing period in the summer of 1985 are given in Table 1. The lower gains for the cattle grazing the arrowleaf pastures were due to a shortage of forage in one pasture. This shortage of forage (Coastal) appeared to be caused by the excess production of arrowleaf clover during the late spring when the Coastal was initiating rapid growth. Ground cover readings taken from permanently marked locations in each field documented this reduction in Coastal stands. Summer annual weeds were also more evident in the arrowleaf pastures during summer 1985.

A positive aspect of the somewhat weakened Coastal stands was that it reduced the competition for the re-establishment of clover in fall 1985. Good stands of clover were evident in all clover pastures in early fall 1985. Due to the warm and moist conditions that prevailed in fall 1985, grazing was initiated on October 30, 1985. The clover plants were small and the stands were dense, but the Coastal had continued rapid growth. The mild weather permitted continuous grazing through the winter. Stocking has been maintained at 0.5 to 0.8 animals/A (500-600 lb heifer). One replication was more productive than the other. Animal gains for the first 168 days of the 1985-86 season were 1.39, 0.98, and 0.89 lb for arrowleaf, subclover, and N-fertilized Coastal, respectively.