GRAZING EVALUATION OF STARGRASSES, CALLIE BERMUDAGRASS, AND BIGALTA LIMPOGRASS IN PENINSULAR FLORIDA

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SUMMARY

Ona stargrass, Sarasota stargrass, Callie bermudagrass, and Bigalta limagrass were evaluated by year-long grazing with yearling steers. Intensive pasture management included fertilizer rates of 1050 pounds/acre of 16-8-8 fertilizer in three applications and rotational grazing with one week of grazing followed by three weeks of rest. The stargrasses produced more beef per acre (552 and 541 pounds for Sarasota and Ona, respectively) than Bigalta limagrass (475 pounds/acre) or Callie bermudagrass (458 pounds/acre).

INTRODUCTION

The summer-growing perennial grasses provide the base of the beef cattle industry in Peninsular Florida. In addition to the widely used standard forage grass cultivars such as 'Pensacola' bahiagrass and 'Panola' digitgras, several additional varieties of summer grasses are now being used commercially. These newer grass varieties have some specific advantages over some of the widely used cultivars, but they also have distinct limitations and management requirements.

OBJECTIVES

This grazing trial was conducted to evaluate the production potential throughout the year of four perennial grasses currently receiving widespread attention in Peninsular Florida.

PROCEDURE

The grasses, Ona stargrass (Cynodon nlemfuensis var. nlemfuensis), Sarasota stargrass (Cynodon dactylon var. coursii), Callie bermudagrass (Cynodon dactylon var. aridus), and Bigalta limagrass (Hemarthria altissima), were evaluated in an intensively managed grazing trial at Ona, Florida over a three year period. Pastures were established on an Immokalee fine sand with three pastures of each grass grazed during each year of the trial. Each pasture was 5 acres in size. These pastures were divided with electric fencing to provide four 1¼-acre units which were rotationally grazed with one week of grazing and three weeks of rest. All pastures were fertilized three times (March, June, and October) each year with 350 pounds/acre application of 16-8-8 (N-P_{2}O_{5}-K_{2}O) fertilizer.
Grazing began in November of each year with weanling steers averaging 440 pounds per head. Initial stocking rates of one steer per acre were maintained on all pastures through the winter period. No supplemental protein or energy was provided to cattle in this grazing trial. As spring forage growth allowed higher stocking rates, cattle were added according to forage growth to maintain a relatively uniform forage availability. Cattle were weighed every 28 days throughout the grazing year which terminated each October. Average daily gains were determined for the following periods: (1) the winter period (November through mid-March) when forage growth was minimal with dormant plants for an extended period, (2) the warm season (mid-March through October) when stocking rates varied, and (3) year long. Carrying capacity during the warm season and total beef production per acre were also determined.

RESULTS AND DISCUSSION

Average daily gains, pasture carrying capacities during the summer months, and total beef production are shown in Table 1. These data indicate that large differences among pasture grasses in daily animal gains were not obtained. Gains on Callie bermudagrass during the winter period were lower than on the other grasses primarily due to disease and insect problems during the fall. Rust was consistently a problem during the fall on Callie bermudagrass resulting in reduced forage quality, limited fall growth, and more rapid forage deterioration during winter. Spittlebug was also a problem in Callie pastures during late summer and fall.

<table>
<thead>
<tr>
<th>Grass</th>
<th>Average daily gain</th>
<th>Carrying capacity during summer</th>
<th>Total beef production</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Winter</td>
<td>Summer</td>
<td>Year-long</td>
</tr>
<tr>
<td>Ona stargrass</td>
<td>0.53 a</td>
<td>1.12 a</td>
<td>0.90 a</td>
</tr>
<tr>
<td>Sarasota stargrass</td>
<td>0.49 ab</td>
<td>1.06 a</td>
<td>0.86 a</td>
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<tr>
<td>Callie bermudagrass</td>
<td>0.31 c</td>
<td>1.06 a</td>
<td>0.79 a</td>
</tr>
<tr>
<td>Bigalta limpograss</td>
<td>0.46 b</td>
<td>1.12 a</td>
<td>0.88 a</td>
</tr>
</tbody>
</table>

*Values followed by different letters are significantly (P<0.05) different.

The two stargrasses were similar in all measures of animal performance and pasture productivity. Their greater carrying capacities during summer resulted in greater total beef production from the stargrass pastures than from Callie bermudagrass of Bigalta limpograss. Under intensively managed grazing or hay production systems which include high nitrogen fertilizer rates, the stargrasses can be expected to excel in total production. However, high input levels are required every year or stand deterioration can occur.
The failure of Bigalta limpograss pastures to produce greater winter gains than the stargrass pastures is somewhat misleading. The 'winter period' in this grazing trial began in November when growing conditions were still favorable for the stargrasses, and their production was good. However, from the first frost until spring regrowth occurred, performance of steers on the stargrasses and on Callie bermudagrass was considerably less than for cattle grazing Bigalta limpograss. During this period, large amounts of frosted stargrass forage were available, but very little of it was eaten.

Both Ona stargrass and Sarasota stargrass are good fall forage producers, but the forage of the stargrasses is of very little value to grazing cattle following frost. On the other hand, some green color was retained in Bigalta limpograss forage after frost, and Bigalta leaves were readily consumed even after frost. However, very little Bigalta growth occurs during the winter period so that fall growth must be allowed to accumulate and stocking rates must be kept low if winter forage from Bigalta is to last long enough to be of value as a winter feed supply.

Bigalta limpograss pastures were gradually invaded by common bermudagrass, vaseygrass and other weedy plants during this trial. Bigalta is especially sensitive to grazing which reduces its competitive ability with less palatable plants. Both planting site and grazing management are critical for sustained production from Bigalta pastures. Pond edges and other wet areas are the best sites for Bigalta. Short grazing periods followed by extended periods for regrowth favor Bigalta during the growing season. Fortunately, forage quality of Bigalta is retained for longer periods than most other summer grasses to allow this type of grazing management.

Many of the more recently available pasture grasses can contribute to forage systems in Peninsular Florida, but such grasses as the stargrass and limpograss (or Hemarthria) must be given the proper management for sustained productivity.