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THE DISTRICT'S STOCKER PROGRAM

In 1998, The Lamar District, along with several producers toured the Jimmy Carter Plant Materials Center in Americus to look at the work being conducted with native grasses.

This visit added to the interest in native grasses among the group. The questions and discussions led to the district's partnership with the plant materials center in evaluating native grasses for grazing. One of the grasses in particular sparked the most interest because of the amount of dry material produced and the possibilities of utilization as forage. That grass is Eastern gamagrass.

WHAT IS EASTERN GAMAGRASS?

Eastern gamagrass (*Tripsacum dactyloides* (L.) L.) is an erect, 6 to 9 feet tall, perennial, warm-season bunch grass native to the North American tallgrass prairie. It is widely distributed from south Florida to Massachusetts and west to a line from Texas to Nebraska. The grass grows in large clumps from 1 to 4 feet in diameter, that spread by thick, knotty rhizomes and from seeds. It grows best on poorly drained soils of streambeds and bottomlands. Interest in eastern gamagrass has increased since the mid-1980's because of its long-lived reputation of being one of the most productive and palatable warm-season grasses in the eastern United States. It is also reported to have one of the highest photosynthetic rates (fastest growing) among warm-season grasses. Another unique characteristic is its ability to green up earlier in the spring and exhibit faster first year seedling growth than other common warm-season bunchgrasses. The leaves are flat, three eighths to three fourths inches wide, 12 to 24 inches long and have a pronounced midrib.

Eastern gamagrass can be developed into an important component of forage and beef cattle production systems. It produces forage earlier in the spring than most other warm-season grasses and can be used early allowing deferment

from other grazing lands at this critical growth period. Its high potential for green-chop, hay or silage production or for intensively managed pastures makes gamagrass a useful component for inclusion into drought and other emergency feeding systems and for supplemental feeding to increase beef production.

Gamagrass flourishes under dryland conditions in the south-central U.S. where annual precipitation exceeds 35 to 40 inches. In this region, gamagrass should be a good substitute for forage sorghums, sudan's, and millet's. The perennially of gamagrass offers advantages over these annual forages due to lower cultural energy requirements, less erosion potential, and lower production costs once established.

In an effort to find a selection of eastern gamagrass that would be productive in a large part of the southern U.S., an intercenter evaluation study was developed between several plant materials centers (PMC's) in the southeast to determine the regional environmental adaptation of this grass species. The study that was initiated was a cooperative effort among the PMCs from Booneville, AR, Knox City, TX, Nacogdoches, TX, Brooksville, FL, Coffeerville, MS, Americus, GA, and Los Lunas, NM. Each one of these seven PMCs selected their best eastern gamagrass plants and sent vegetative propagules to the other PMCs to be evaluated on plant vigor, leafiness, seasonal and total dry-matter production, and protein content.

The accessions were harvested three times during the growing season. Fifty pounds of nitrogen was applied after the plants broke dormancy in the spring, and after the first and second harvests. Phosphorus and potassium levels were brought up to a medium to high level.

Dry-matter production and protein content were the two primary criteria by which the accessions were evaluated. The two highest producing accessions were from KC and NM with 15,554 and 16,087 lbs. per acre, respectively. Data obtained from clip samples show that Eastern gamagrass can produce up to 20,000 pounds of dry matter per acre per year.

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In the spring of 1993, a 4.5 acre field of Eastern gamagrass, (variety "Pete"), was planted in 36 inch rows using a corn planter at Americus. This 4.5 acre pasture was allowed to establish through 1994 and into 1995.

The demonstration site is divided into ten paddocks, approximately .45 acres each, using a single strand of electric fence wire about 90 cm high. Water was provided in each paddock using one inch black plastic pipe and a 60 gallon portable water trough. The water source is pumped from a nearby creek.

HOW IS THE DISTRICT INVOLVED?

Because of the field tour, the district supervisors were extremely interested in seeing how the grass would perform in Georgia under grazing.

On April 1, 1999 twelve steers, provided by the Lamar County Soil and Water Conservation District, weighing about 575 pounds each, were brought to the the plant materials center. On April 22, 1999 the steers were weighed, vaccinated, wormed, fly control applied, and ear tags attached.

	Date	Weight	Total gain
Beginning wt	April 1 st	573 lbs	---
Ending wt	Sept 15 th	866 lbs	293 lbs

On May 5, 1999 the steers moved into the first eastern gamagrass paddock to begin a 3.5 day grazing period in each paddock. Approximately 150 pounds of 34-0-0 ammonium nitrate was applied to each paddock after the cattle completed grazing each paddock. Manure samples were taken on a periodic basis to determine crude protein and digestible organic matter of the eastern gamagrass consumed by the animals.

Cattle were rotated successively through the ten paddocks with the 3.5 days grazing period in each paddock. The cattle were rotated through the entire ten paddocks three times and then on the fourth cycle, the grazing time in the paddocks was shortened to 2 days per paddock. The exact number of

days per paddock is not concrete, but determined by the amount of grass available.

The steers showed a total average gain of 293 pounds in 168 days of grazing the eastern gamagrass at the Jimmy Carter Plant Materials Center in Americus. The average daily gain was 1.74 lbs/day.

While grazing on the gamagrass, the cattle were supplemented with 12% protein conditioner and a mineral block. The protein conditioner was given to move cattle to the next paddock.

WHERE IS IT GOING?

The project will be continued again this year. The district will provide 12 more steers to use in the grazing trial. United Bank has joined the district as a sponsor of the project. The stockers will be supplied in March and will graze in the trial until September.

The next step in conjunction with the trial at the PMC is developing on-farm trial plantings to see how the gamagrass will perform under typical farm conditions.

The Grazing Animal Nutrition Laboratory at Texas A&M University was utilized to determine crude protein and digestible organic matter consumed by the cattle. The NUTBAL Nutritional Balancer Software was used to predict animal nutritional needs. The results from the manure samples taken from the steers were as follows:

DATE	CRUDE PROTEIN	DIGESTIBLE ORGANIC MATTER
5-27	8.02	62.62%
6-07	9.55	63%
6-24	10.72	62.02%
7-06	12.65	63.83%
8-23	10.71	62.14%
9-15	10.85	62.84%

The mission of the NRCS Plant Materials Program:
We develop and transfer plant materials and plant technology for the conservation of natural resources. In working with a broad range of plant species, including grasses, forbes, trees, and shrubs, the program seeks to address priority needs of field offices and land managers in both public and private sectors. Emphasis is focused on using native plants as a healthy way to solve conservation problems and protect ecosystems.
<http://Plant-Materials.nrcs.usda.gov>



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