

SEASONAL GRAZING  
OF  
TRIPSACUM DACTYLOIDES  
IN THE  
SOUTHEASTERN  
USA



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# ***SEASONAL GRAZING OF EASTERN GAMAGRASS (*Tripsacum dactyloides*) IN SW GEORGIA, USA***

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1st frame

**ABSTRACT:** Seasonal utilization of Eastern gamagrass as a forage crop in the Coastal Plains region of the country is being demonstrated at the Jimmy Carter Plant Materials Center in southwest Georgia, USA. Producers in this part of the country often disregard native forages in deference to introduced forage species. A higher level of grazing management is typically required for persistence of native plants in the face of high grazing pressures. This demonstration attempts to show how management of the frequency and severity of defoliation can result in persistence of Eastern gamagrass while providing adequate forage quantity and quality to justify its utilization in a livestock operation. Eastern gamagrass was established on 2.02 ha in the spring of 1994, and in 1995 the pasture was divided into ten, uniform paddocks. Growing cattle were rotationally grazed during the 1997 and 1998 growing seasons. Near infrared reflectance spectroscopy (NIRS) analysis of fecal samples for crude protein and digestibility suggest that forage quality may be adequate for typical livestock operations in southwest Georgia. Vegetation observations suggest that the quantity of forage produced may be adequate for practicable use of Eastern gamagrass as a forage crop in the region.

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2nd frame (Photo z)

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3rd frame

**BACKGROUND:** This demonstration is located on the north side of the town of Americus, Georgia, where the annual precipitation mean is 125 cm. (about 49”), and the annual mean temperature is 18.5 degrees Celsius (about 65.3 degrees Fahrenheit).

In spring of 1993, “Pete” variety of Eastern gamagrass was seeded in a prepared seedbed at a rate of 16 kg/ha (about 14 lbs/ac) pure live seed. An initial application of 691 kg/ha of 10:10:10 (or about 60# actual nitrogen, 60# actual phosphorus, and 60# actual potassium per acre) was followed with approximately 114 kg/ha (roughly 100 lbs/ac) actual nitrogen, applied as ammonium nitrate. Excess plant matter was burned off in January 1998.

It was determined that nutritional monitoring of the livestock would be beneficial. Cattle fecal NIRS (near infrared reflectance spectroscopy) equations have been developed (Stuth, Lyons, and Kreuter) that predict dietary crude protein and digestible organic matter at a similar level of accuracy as standard wet chemistry lab analyses. Prediction of forage quality appeared to be an achievable goal in the context of this demonstration.

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4th frame (Photo z2)

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5th frame

**One-time clippings of top-growth, randomly located, above 3" height on August 7, 1997 prior to grazing yielded 667.6 grams per square meter (air dry weight) and 529.1 grams per square meter (air dry weight) in demonstration paddocks #5 and 6 respectively. The average of these clippings results in an estimate of 5983.5 kg/ha (or 5,331 lbs/ac) growth at that point in the growing season. 59% of the forage clipped was above 17.78 cm (7 inches) and 41% was between 7.62 cm (3 inches) and 17.78 cm (7 inches) height.**

**The demonstration site is mapped as a Lucy loamy sand, 0-5% slope, which is a well drained, upland soil. The surface and subsurface layers are loamy sand to a depth of about 81 cm. The subsoil is sandy loam, and below that is sandy clay loam. The soil is low in natural fertility and organic matter. Reaction in a natural Lucy soil is strongly acid to very strongly acid throughout. This site has had modest applications of dolomite lime in past years.**

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6th frame (Photo z3)

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7th frame (Photo z4)

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8th frame

**METHODS:** The demonstration site is divided into ten paddocks, approximately 0.2 hectares each, by use of a single strand of energized polywire, approximately 90 cm high. Paddocks are slightly longer than wide, with a movement lane through the center. Water was provided in each paddock as needed, with portable, above ground pipe, and two, 226 liter (about 60 gallons) portable water troughs.

In early summer of 1997, fifteen open, yearling heifers weighing about 300 kg (about 660 lbs.) were brought to the plant materials facility. Beginning in early August, the heifers were rotated successively through the 10 paddocks with 3.5 days grazing period in each paddock. Scale facilities were installed in mid-December, 1997. In late April of 1998, 26 young calves were brought to the plant materials center, trained to electric fence, and began rotation through the Eastern gamagrass demonstration paddocks. In June and July of 1998, the calves were utilized for a few days to study grazing performance of Switchgrass (*Panicum virgatum*) and Indiangrass (*Sorghum halepense*). The Indiangrass stand had a significant amount of Bahiagrass (*Paspalum notatum*) inside the plot that was also grazed by the calves. Crude protein (CP) and digestible organic matter (DOM) levels from NIRS analyses are listed in chart #1 below.

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9th frame (CHART 1)

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10th frame (Photo z5)

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11th frame

**DISCUSSION:** With the 1997 group of yearling heifers' 3.5 day rotation cycle, consumption was about as planned for a stubble height that was adequate for stand persistence and forage growth and performance. However, in order to facilitate better performance, the rotation period was shortened to 2 days in each paddock for the 1998 group of weaner calves (See bar graph 1, below).

In the summer of 1998, the 26 weaner calves' diet was supplemented with 2500 kg (2.75 tons) of custom ground feed from corn, cottonseed meal, and cottonseed hulls. The 26 calves average weight on May 5, 1998 (when going onto the Eastern gamagrass demonstration field) was 155.2 kg (342 lbs). On July 31, 1998, they averaged 199.9 kg (441 lbs) and on September 8, when the seasonal Eastern gamagrass grazing demonstration ended, they averaged 222.4 kg (490 lbs).

Eastern gamagrass, Switchgrass, and Indiangrass forages were not readily eaten by either group of cattle when first introduced. Both sets of calves refused significant consumption for at least 2 days. Enticement and/or training for consumption that we used included coating swards with molasses and using economical board "grass frames" to place the novel forages in front of the calves for a few days to get them acquainted with the forage.

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12th frame (BAR GRAPH 1)

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13th frame (Photo z6)

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