



United States Department of Agriculture
Natural Resources Conservation Service
Plant Materials Program

'Nacogdoches' Eastern Gamagrass

Tripsacum dactyloides (L.) L.

A Conservation Plant Release by USDA NRCS East Texas Plant Materials Center, Nacogdoches, TX



Figure 1. 'Nacogdoches' eastern gamagrass in anthesis. Photograph by Melinda Brakie, East Texas Plant Materials Center.

'Nacogdoches' eastern gamagrass (*Tripsacum dactyloides*) is a cultivar released in 2012 by the USDA Natural Resource Conservation Service East Texas Plant Materials Center (ETPMC) in Nacogdoches, TX.

Description

'Nacogdoches' is a long lived, native, warm season, perennial, bunchgrass with excellent seed and forage production potential. In studies comparing eastern gamagrass response to N fertilizer, 'Nacogdoches' produced higher yields than the other accessions at lower fertility rates. It may reach 2.5-3 meters in height under ideal conditions, and reproduces vegetatively from thick, knotty, rhizome like structures called proaxes. Leaves are 3centimeters wide, 110 centimeters long, flat, and keeled with finely serrated margins. Seed are born on 2 to 3 finger like racemes at the terminal end of the primary stem or on 3 to 6 secondary stems with a single raceme. The inflorescence is 12 to 20 centimeters long. Male flowers occupy the upper ¾ of the spike and female flowers the lower ¼ of the spike. Seed ripening is indeterminate and matures from the top down over a long period of time making seed prone to shattering and reducing yields.

Source

'Nacogdoches' is a direct seed increase from a native stand collected in Nacogdoches County Texas. It was initially evaluated with 85 locally collected accessions,

and selected for seed production, forage, and disease resistance.

Conservation Uses

'Nacogdoches' is excellent livestock forage and may be cut for hay or used as native pasture. A primitive relative of corn, it begins growth in the spring, much earlier than other warm season grasses, and continues actively growing after seed production in the summer. Forage quality values are also retained much later in the year than other native, warm season grasses increasing its value as a forage species. It is a facultative wetland plant lending itself for use in prairie restoration and habitat improvement on sites too wet to support other native grasses. Eastern gamagrass may also be used in filter strips along riparian areas to uptake nutrients from agricultural runoff

Area of Adaptation and Use

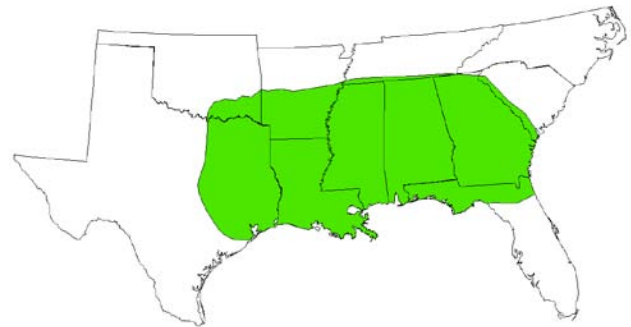


Figure 2. Area of adaptation and use of 'Nacogdoches' eastern gamagrass.

Establishment and Management for Conservation Plantings

Eastern gamagrass is prone to seed dormancy problems. Cold, moist stratification (35-40° F for 6 to 10 weeks) is the most practical way to increase germination. Stratified seed should be planted in early spring. The planting dates for corn are a good guideline to follow; soil temperatures should be above 60° F. Unstratified seed may be planted in the fall and allowed to naturally stratify by over wintering in the soil. Fall plantings with unstratified seed are generally less successful than stratified spring plantings, and are prone to erratic results. Seed should be planted one inch deep in rows on a well prepared, weed free, firm, seedbed. 'Nacogdoches' eastern gamagrass has approximately 4,500 seed units per pound of seed. A seeding rate of 15 pounds of pure live seed (PLS) per acre

is recommended for monotypic stands. Once established, 'Nacogdoches' will tolerate spring burning just before or slightly after the first green shoots begin to reappear. Minimum fertility levels should be maintained based on soil tests. Apply 30 to 60 lb/acre N when the plant begins growth in the spring and 30 to 60 lb/acre after each 45 days cutting except for the last cutting in the fall. Eastern gamagrass thrives under short duration, high intensity rotational grazing programs with adequate rest periods, approximately 40-45 days at least 28 days. Stands should not be cut or grazed below 8 inches to maintain stand health, and must be managed carefully to avoid over grazing. Eastern gamagrass is highly palatable to livestock and selective grazing will reduce or eliminate stands. Optimum forage quality may be obtained by cutting for hay when the grass is in the boot stage, which is approximately April in Nacogdoches, TX. To maintain stand longevity, stop all usage 30 to 45 days before the average first frost date.

Ecological Considerations

Two viruses, "maize dwarf mosaic" and "sugarcane mosaic" virus B" can infect eastern gamagrass. Both viruses are transmitted by aphids and can overwinter on eastern gamagrass plants. Larva of the southern corn stalk borer (*Diatraea crambidoides*) has been identified in the crown tissue of eastern gamagrass. Adult, larval, and pupal stages of the maize billbug (*Sphenophorus maidis*) have been isolated from eastern gamagrass plants. Damage inflicted during the life cycle of the maize billbug will have a negative impact on seed production due to the loss of reproductive tillers. A fungus that persists in soil and crop residue can cause disease of leaves and crown tissue of eastern gamagrass. The fungus (*Gaeumannomyces graminis*) or "take-all" was first diagnosed in Missouri. Ergot has been observed on the inflorescences of 'Highlander' eastern gamagrass in Mississippi. Leaf rust (*Puccinia tripsaci*) was noted on 'Medina' and 'Jackson' 'Medina's' performance was significantly stunted the following growing season due to the severity of infection. 'Nacogdoches' proved to be more resistant to leaf rust when compared to other released cultivars at the ETPMC.

Seed and Plant Production

For seed production, 'Nacogdoches' should be planted on wide rows, 38 inches or more, to allow for expansion of plant crowns as the plants matures. Plantings should produce a harvestable quantity of seed when they reach two years of age. Selective herbicides may be used to control broadleaf weeds. Mowing and cultivation may also be used to control weeds, and should be done before

annual weed species set seed. This will aid in reducing weed pressure the following year. Best harvests are obtained through direct combining. Seed should be air dried to reduce moisture content to prevent molding in storage. Seed is easily cleaned on screen type seed cleaners and purity is easily maintained above 98%. Seed quality can be further increased by removing unfilled seed by the use of specific gravity style cleaners such as air fractionators or gravity tables. Germination of test plot seed at the ETPMC averaged 49% over a 3 year period. Production fields at the ETPMC typically produce seed with 30-40% germination.

Availability

For conservation use: Nacogdoches eastern gamagrass is commercially available from seed vendors.

For seed or plant increase: The East Texas Plant Materials Center maintains breeder and foundation seed.

For more information, contact:
East Texas Plant Materials Center
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(936) 564-4873 FAX (936) 552-7924
<http://www.plant-materials.usda.nrcs.gov>

Citation

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For additional information about this and other plants, please contact your local USDA Service Center, NRCS field office, or Conservation District <<http://www.nrcs.usda.gov/>>, and visit the PLANTS Web site <<http://plants.usda.gov/>> or the Plant Materials Program Web site <<http://www.plant-materials.nrcs.usda.gov/>>

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