United States Department of Agriculture

A Conservation Plant Released by the Natural Resources Conservation Service
Jamie L. Whitten Plant Materials Center, Coffeeville, MS

‘Highlander’ Eastern Gamagrass

Tripsacum dactyloides (L.) L.

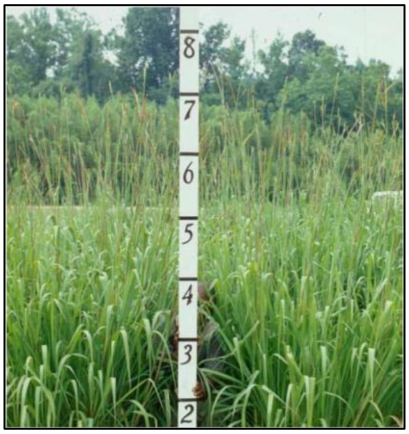

Figure 1. ‘Highlander’ eastern gamagrass seed production field at the Jamie L. Whitten Plant Materials Center

‘Highlander’ eastern gamagrass [*Tripsacum dactyloides* (L.) L.] is a cultivar released in 2003 by the USDA-NRCS Jamie L. Whitten Plant Materials Center (PMC), Coffeeville, MS, in cooperation with Mississippi Agricultural and Forestry Experiment Station (MAFES) and Jimmy Carter PMC, Americus, GA.

Description

‘Highlander’ eastern gamagrass is a native, warm-season perennial grass that forms large clumps, with thick, knotty, rhizomes. Mature foliage height ranges from 1.5 to 5 feet tall and the foliage is bluish-green in color. Flower stalks are from 5 to 9 feet tall and may lodge when seeds mature. Inflorescence spikes are 6 to 10 inches long, with separate male flowers held above the female flowers. The seed grains are contained in a tough fruit-case.

Source

Seed source for ‘Highlander’ was collected in 1990 from a native stand in Montgomery County, TN. A total of 73 accessions, collected from nine states in the Southeast and southern Great Plains of the US, were evaluated at the Jamie L. Whitten PMC, from 1992 through 1994. ‘Highlander’ was determined to have superior vigor, growth and production, and disease resistance.

Conservation Uses

‘Highlander’ is recommended as a forage for livestock and is best managed as a hay crop. It can be grazed if given appropriate management (i.e. rotational grazing) to prevent damage to the plant stand. It also has potential as a perennial silage crop and as a source of biomass for bioenergy production. ‘Highlander’ can be used in many types of conservation plantings including conservation buffers.

Area of Adaptation and Use

‘Highlander’ is well adapted in the eastern portions of USDA Hardiness Zones 6b to 8a, with Interstate 35 as its western limit. Current testing has not substantiated Zone 6b as the northern limit of its range of adaptation, so it might be adapted in more northern zones. ‘Highlander’ grows best on well-drained, fertile soils; however, it can tolerate heavier, more poorly drained soils. It tolerates a wide range of soil pH levels, from acidic to moderately alkaline.

Establishment and Management for Conservation Plantings

Seed dormancy, caused by the hardened fruit-case, adversely affects seed establishment. To help overcome seed dormancy, stratify the seed for 6 to 10 weeks using a cold, moist treatment before planting. Check with seed dealers on availability of pre-stratified seed. Plant stratified seed into a clean, firm, and weed free seedbed, with adequate soil moisture. If stratified seed dries out before germination, the stand will be dramatically reduced. Plant seed April 1 to May 15 at a rate of 20 lb pure live seed (PLS)/acre and at a depth of 1 to 1.5 inches in medium textured soil or slightly deeper in light textured soil. As the plants age, they can become very large in diameter; therefore, drill seed in rows and on a spacing wide enough to minimize traffic over the plants. Broadcast seeding is not recommended.

Fertilization is not recommended the initial year of planting unless the soil test indicates a severe deficiency in soil nutrients. Do not apply nitrogen until the grass is fully established. Applying nitrogen during the establishment year will only promote weeds.

Defer grazing of new plantings for at least one year. Do not graze or cut below 6 inches and allow ample recovery time between hay cuttings or grazing events. Periodic prescribed fire will help maintain stand health and stimulate production.

Contact your local NRCS office for assistance with developing a prescribe grazing plan or burn plan. For herbicide recommendations, contact your local extension office.

For hay production, apply nitrogen fertilizer at a rate of 120 lb/acre in 3 equal split applications in the spring and after each harvest. Allow 6 weeks of regrowth prior to the first killing frost. Three hay cuttings per year is typical for ‘Highlander’ in Mississippi.

Ecological Considerations
No severe foliar diseases have been observed on ‘Highlander’. An ergot (*Claviceps* spp.) has reduced seed yield in some years at Coffeeville.

Seed and Plant Production
Begin field preparation for seed production one year prior to planting. Chemical application and/or tillage can be used to control weeds (contact your local county extension office for chemical recommendations). Ideal row spacing is between 36 to 42 inches. For seed production, apply nitrogen fertilizer at a rate of 50 to 75 lb/acre when spring regrowth is approximately 6 inches. Nitrogen fertilizer is not recommended the initial year of planting. Prescribed burning every 2 to 3 years improves plant vigor and weed control.

Seed is harvested by direct combining. Ground speeds of >1 mph and no more than 2 mph may be necessary for proper harvest. In general, combine settings should be set to a fan speed of 950-1100 rpm, cylinder speed of 480-520 rpm, concave setting of 16-12 (or as tight as possible without choking machine), chaffer at 16, chaffer extension at 14, sieve at 12 and pre-cleaner screen 3 turns open. Allow harvested seed to dry for 2 to 3 weeks in a well-ventilated area before seed cleaning. Average seed yield at Coffeeville is 150 PLS lb/acre. Delaying harvest time until the ripening of the secondary seedhead is important to ensure the highest yields possible. Applying nitrogen fertilizer at a rate of 50-75 lb/acre 2 to 3 weeks after harvest has shown to improve plant vigor and recovery the following spring.

Availability
For seed or plant increase: Jamie L. Whitten PMC maintains breeder seed of ‘Highlander’ eastern gamagrass. Interested seed growers can obtain foundation seed from MAFES Foundation Seed Stocks at Mississippi State, MS 39762.
Phone: (662) 325-2390; Email: rvaughan@pss.msstate.edu

Citation
Release brochure for ‘Highlander’ eastern gamagrass [*Tripsacum dactyloides* (L.) L.]. USDA-Natural Resources Conservation Service, Jamie L. Whitten PMC, Coffeeville, Mississippi 38922. Updated June 2021.

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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