



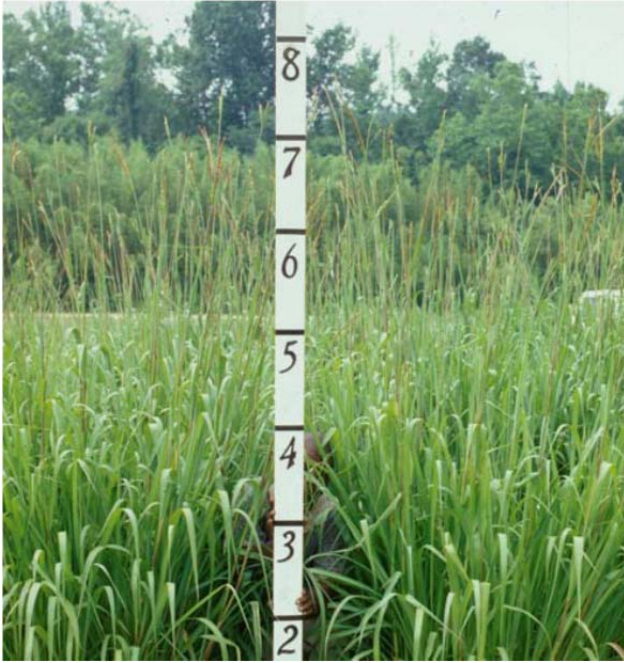
United States Department of Agriculture
Natural Resources Conservation Service
Plant Materials Program

'Highlander'

Eastern Gamagrass

Tripsacum dactyloides (L.) L.

A Conservation Plant Release by USDA NRCS Jamie L. Whitten Plant Materials Center, Coffeerville, Mississippi



'Highlander' eastern gamagrass [*Tripsacum dactyloides* (L.)L.] is a cultivar released in 2003 by the USDA-NRCS Jamie L. Whitten Plant Materials Center, Coffeerville, 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 5-9 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 fruitcase.

Source

'Highlander' was collected in 1990 by Gregg Brann in Montgomery County, Tennessee. Seeds were collected from plants on the Fort Campbell Army Base along Woodlawn Road at 36°32' latitude and 88°30' longitude. It was growing on a southern exposure on a Dickson silt loam with a 3 % slope. Collection site elevation was 182 meters (600 feet) and average annual precipitation for this location is 1016 millimeters (40 inches). 'Highlander' was initially evaluated at the USDA-NRCS Jamie L. Whitten Plant Materials Center, Coffeerville, Mississippi, from 1992 through 1994.

A total of 73 accessions, collected from nine states in the Southeast and southern Great Plains of the United States, were included in the study. From these initial evaluations, Highlander was determined to have superior vigor, growth form and development, and disease resistance.

Conservation Uses

'Highlander' is recommended for forage production and is best used as a hay crop; however, 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, such as buffers and vegetative barriers.

Area of Adaptation and Use

'Highlander' is well adapted for use in the eastern portions of USDA Hardiness Zones 6b to 8a, using Interstate 35 as its western limit. Current testing has not completely substantiated Zone 6b as the northern limit of its range of adaptation, so it may be adapted in more northern zones. 'Highlander' grows best on well-drained, fertile soils; however, it will tolerate heavier, more poorly-drained soils. It has fairly good flood and drought tolerance. It tolerates a wide range of soil pH levels, from fairly acidic to moderately alkaline.

Establishment and Management for Conservation Plantings

For spring planting, seeds should be given a 6 to 10 week cold, moist treatment (stratification) before planting. To stratify seeds, soak them in water for 24 hours, drain, and store them in a refrigerator or cooler set at 35 to 45° F. For fall planting, unstratified seed should be planted. In this situation, germination will be determined by ground temperatures and moisture.

The stale seedbed practice of fall cultivation coupled with spring burn down most often provides the best chance of successfully establishing a 'Highlander' stand. Pasture land is "hard" for the most part and with seeding depth and soil moisture being critical factors in establishment, fall seedbed preparation seems to be the best fit. Pure no-till can be done, but can be risky because dry conditions cannot be forecast and the use of stratified seed locks the planter into a certain planting window that is short. Planting no-till may be more risky after mid-May because of normally dryer weather (i.e., hard ground).

Broadcast seed on exposed mud flats or disk dry land and then broadcast seed 25 lbs/acre or 15 lbs/acre drilled. Seeds should not be covered by water while germinating; but after growth starts, the plants will tolerate flooding $\frac{1}{4}$ - $\frac{1}{2}$ their height. Fertilizer requirements are moderate. Apply 13-13-13, or similar fertilizer, at rates of 100 to 200 lbs/acre. Do not fertilize when seed is broadcast on exposed mud.

Burndown herbicides can aid in keeping fields or plots clean up until emergence. Broadleaf weeds can be controlled with labeled herbicides. Shallow flooding can aid in reducing weed germination once stand is established.

On grazing land, rotational grazing should be practiced. The producer should strive to maintain a stubble height of 8-10 inches to keep plants vigorous. Avoid grazing when the soil is excessively wet.

For hay production, a 45-day clipping frequency is recommended for sustainable yields. This typically represents two to three harvests per growing season in the lower southern states. At this frequency, stands have produced an average dry matter yield of 12,400 lb/ac over three years with no significant variation between years. Clipping on a 30-day frequency has been found to reduce stand vigor, allowing weeds to invade.

Ecological Considerations

An Environmental Evaluation of Plant Materials Releases was completed using guidelines established by NRCS (USDA-NRCS, 2000), and the best available information for this species. Results of this evaluation determined that 'Highlander' was suitable for release based on the criterion contained in this document. This conclusion is mainly due to the fact that eastern gamagrass is a naturally occurring species in the southeastern United States and planting 'Highlander' would therefore not constitute an introduction of a foreign species into local ecosystems. Any negative impacts on other native plant species would likely be minimal to non-existent. Also, in addition to the substantial evidence that 'Highlander' provides excellent forage for livestock, it also provides critical wildlife and pollinator habitat.

Seed and Plant Production

Seed harvest is achieved with conventional combining. Harvest timing is critical in achieving quality seed and adequate yields. Delaying harvest time until the ripening of the secondary tillers is important to insure the highest yields possible.

Availability

For conservation use: Available only from specialized growers.

For seed or plant increase: MSPMC maintains all breeder seed. Interested seed growers can obtain foundation seed from MAFES Foundation Seed Stocks at Mississippi State, MS. Phone: (662) 325-2390
Email: Rvaughan@pss.msstate.edu

For more information, contact:

Jamie L. Whitten Plant Materials Center,
2533 County Road 65,
Coffeerville, MS 38922
ph. (662) 675-2588, fax (662) 675-2369
<http://plant-materials.nrcs.usda.gov/mspmc/>

Citation

Release brochure for 'Highlander' eastern gamagrass (*Tripsacum dactyloides* [L.] L.). USDA-Natural Resources Conservation Service, Jamie L. Whitten PMC. Coffeerville, Mississippi 38922. Updated August, 2012.

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/>>

Helping People Help The Land

USDA IS AN EQUAL OPPORTUNITY PROVIDER AND EMPLOYER