

GULFHAIRAWN MUHLY

Muhlenbergia filipes M.A.
Curtis
Plant Symbol = MUFI3

Contributed by: USDA NRCS Brooksville Plant Materials Center



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Alternate Names

Sweetgrass, purple muhly, *Muhlenbergia capillaris* (Lam.) Trin. var. *filipes* (M.A.Curtis) Chapm. ex Beal, *Muhlenbergia sericea* (Michx.) P.M. Peterson

Uses

Ethnobotanic: The leaves of this grass are used by the Gullah community, descendants of enslaved Africans in the South Carolina coastal area, as the base material for their coiled basketry. The Gullah is a recognized cultural group with distinctive sociological traditions. The craft of making these baskets came from the slave's African homelands and has been passed down through the generations. The raw materials used were harvested locally and include the leaves of this grass, which they named sweetgrass, longleaf pine (*Pinus palustris* Mill.) needles, and needlegrass or black rush (*Juncus roemerianus* Scheele) stems. Clusters of these base materials were sewn together with narrow strips cut from the leaves of saw palmetto [*Sabal palmetto* (Walter) Lodd. ex Schult. & Schult. f.) plants. The original purpose of these baskets was entirely functional, mainly to carry out rice production activities; however, they are now recognized as an artform and their marketing provides a major source of income for the Gullah

basketmakers. The South Carolina gulfhairawn muhly populations have been seriously impacted by urbanization and remaining populations are located in areas that have no or extremely limited access. Currently, the basketmakers are purchasing the majority of their sweet-grass leaves out of other geographic areas, such as Florida. Establishment of sweetgrass populations in publicly accessible areas to provide a source of basketry material has been recognized as a major cultural need in the coastal South Carolina area.

Ornamental: Gulfhairawn muhly is especially well suited for planting in landscape areas that receive minimal maintenance and is generally marketed by the nursery trade in the southeastern U.S. under the common name purple muhly.

Erosion Control: This species is an important component of the coastal ecological community. Its root system provides structural stability to the soils.

Wildlife Use: There are no documented instances of wildlife using gulfhairawn muhly for food. However, it provides cover, nesting sites, and travel corridors for song birds, water fowl, and small mammals.

Status

Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status (e.g., threatened or endangered species, state noxious status, and wetland indicator values).

Description

General: Gulfhairawn muhly is a clump-forming, perennial, warm-season grass that does not have rhizomes. The erect culms of this grass are usually 2- to 5-feet tall and are mostly unbranched; culms are generally glabrous, but may be minutely pubescent at the internodes and at the sheath. Leaf blades are 13- to 39-inches long and 1- to 3-cm wide, usually involute (rolled inwards), dark green in color, and smooth on the upper surface and rough on the lower. The elongated panicles are 7- to 24-inches long and diffuse or open, with fine branches. Spikelets are 3- to 5-mm long and purplish in color. The glumes of the spikelet are 1- to 2-mm long. Both glumes are awned; the awns of the lower glume are 0.5- to 10-mm long and those of the upper glume are 2 to 25 mm in length. Lemmas are 3- to 5-mm long, lanceolate in shape, and have an awn that ranges from 8 to 35 mm in length. Each lemma has two delicate setaceous (hair-like) teeth, one on either side of the awn, that are 1- to 5-mm long. Paleas are 2- to 4.5-mm long, also lanceolate, and are generally awned (up to 2 mm long). Caryopses are brownish and 2 to 2.5 mm in length.

Muhlenbergia. capillaris (Lam.) Trin. is widely sold in the nursery trade in the Southeast, and its general appearance is similar to this species although it does not naturally occur on the coastal dunes. Besides this habitat difference, other distinguishing characteristics are the awn on the upper glume is shorter or absent, the awn on the lemma is shorter, and the setaceous teeth are either absent or very short for *M. capillaris* compared to *M. filipes*.

Distribution: The native range and distribution of gulfhairawn muhly extends along the coast of North Carolina, south to Florida, and west to Texas. For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

Habitat: In the northern portion of its native range, gulfhairawn muhly is often found growing in association with saltmeadow cordgrass [*Spartina patens* (Aiton) Muhl.] and dune fingergrass [*Eustachys petraea* (Sw.) Desv.]. This community is found in broad grassy swards in the interdune or slack areas of the barrier islands behind the primary dune and in front of the maritime forest; one name given to this ecological community is maritime wet grassland. Farther south into northern Florida, this community type is generally found in narrow bands between dune ridges. In the southern portion of the state, gulfhairawn muhly can be found on the coast in association with another plant community that includes beach creeper (*Ernodea littoralis* Sw.) and seaoats (*Uniola paniculata* L.) and also further inland growing in seasonally wet prairies and pine barrens.

Adaptation

Gulfhairawn muhly can tolerate the harsh coastal environment, which is subject to high temperatures, storm surges, and frequent inundation. The soils on which this grass is often found have a high water table. Long-term survival of native stands may be dependent on this hydroperiod regime, where soils remain wet during all but the driest season of the year. There is generally a much higher soil organic content than is found in the adjacent dunes and pH levels range from 6.0-8.5.

Establishment

Coastal restoration planting sites should be chosen that mimic the sites in which gulfhairawn muhly would be found in nature. Therefore, it should be planted on back dune areas, not on the fore dunes, where plants will be exposed to more sand movement and salt spray. Any necessary reshaping or other mechanical operations should be completed before the planting is installed.

A 3- by 3-foot or 4- by 4-foot spacing mimics its natural spacing. Crowns should be set about 2 inches below the soil surface. A slow-release fertilizer and/or a hydrophilic polymer gel can be placed in the planting hole. In inland cultivation, irrigate the plants weekly. For additional information on planting techniques, refer to the

publication "Native Plants for Coastal Dune Restoration: What, When and How for Florida", located at <http://www.plant-materials.nrcs.usda.gov/pubs/flpmspu7474.pdf>.

Management

Established plants should require little additional fertilizer or pesticide applications. Plants planted on beaches do not need renovation. If plants in landscape settings are to be renovated, the optimum cutting height to maintain plant health and clear out dead leaves is about 6 to 8 inches above the ground surface. A lower mowing height destroys superficial growing points and weakens the plant. Renovation cutting should be done while the plant is dormant prior to the onset of rapid spring growth and is usually done in January in the Charleston area. Gulfhairawn muhly should never be renovated by burning during the dormant season.

Pests and Potential Problems

No serious pests of gulfhairawn muhly have been reported.

Environmental Concerns

An environmental assessment has been conducted for this species and no known serious environmental concerns were found.

Seeds and Plant Production

The seed does not easily shed out of the seedhead at maturity and needs to age on the plant for a time before it is harvested. In South Carolina, gulfhairawn muhly flowers from mid-September to late October and seed can be collected between Thanksgiving and Christmas. Phenological differences between ecotypes of gulfhairawn muhly from different geographic locations have been documented. It is not currently known if this species is cross- or self-pollinated or if it produces seed without fertilization by apomixis. Therefore, in order to maintain genetic purity when producing seed of a specific ecotype or named variety, seed production blocks should be isolated from other ecotypes of this species and possibly from other *Muhlenbergia* species (i.e., *capillaris*) until it can be shown that they will not interbreed. Minimum isolation distances are 150 feet; however, distances of up to a mile may be needed if there are no barriers to prevent pollen movement between blocks. Seed germinates readily without treatment. Due to its small size, seed should be sown on the surface or only lightly covered with potting soil.

In nursery production systems, gulfhairawn muhly plants can also be propagated by division. It is important to not divide the clump into sections that are less than ½ inch in diameter, because survival of smaller sections is poor. Shoots should be trimmed before dividing so that the clumps are easier to handle.

A tray with large, cone-like deep plugs (i.e., 1-inch diameter by 6-inch deep) should be used when producing plants for coastal restoration plantings or 1-gallon nursery containers should be used for ornamental production. The growing medium should allow for ample drainage and should be kept moist, but not wet, to aid root growth of this coastal species. Seedlings and divisions will require fertilization throughout the nursery production period and can be fertilized with a low to medium rate of either slow release fertilizer or a liquid fertilizer solution.

Cultivars, Improved, and Selected Materials (and area of origin)

Sea Islands germplasm sweetgrass (gulfhairawn muhly) was collected by Robert J. Dufault, Professor of Horticulture at Clemson University from the beach fronts on Kiawah Island, SC, and Little St. Simons Island, GA. This selected-class release has not been widely tested outside of South Carolina. The Corps of Engineers, Charleston District is currently using it in coastal restoration plantings to provide a source of material for the local Gullah basketmakers to harvest for base material and for soil stabilization. For more information on the availability and use of Sea Islands germplasm sweetgrass, contact the Natural Resources Conservation Service, Brooksville Plant Materials Center. Or you can contact your local Natural Resources Conservation Service (formerly Soil Conservation Service) office for more information. Look in the phone book under United States Government. The Natural Resources Conservation Service will be listed under the subheading "Department of Agriculture."

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