'Radora' Sweetgrass

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The genus *Hierochloë* (Gmel.) R. Br. contains ≈30 species from temperate and cool regions of the world (Watson and Dallwitz, 1992). Most of the species in this genus occur in the northern hemisphere (Gould and Shaw, 1983). Sweetgrass [*Hierochloë odorata* (L.) Beauv.] is circumboreal, but extends farther south in mountainous regions. In the United States, sweetgrass occurs in wet meadows and prairies north of lat. 40°N and south in the Rocky Mountains to New Mexico and Arizona (Hitchcock, 1950).

Plants of sweetgrass contain coumarin. The sweet vanilla-like odor can be detected from living plants in the field, but it is intensified when the plants are dried. Aware of this, Native Americans have used sweetgrass for centuries for ceremonial and medicinal purposes. The long blades are collected during midsummer, partially dried, and braided or twisted for future use. Sweetgrass is burned to make a "smudge" or smoke for purifying ritual items, areas, or people. The end of the braid is lighted and blown on or waved to produce smoke. It is often burned together with sage (*Artemisia* sp.), and the smoke produced is moved about with a feather fan. The sage is believed to drive away evil, and sweetgrass is used to attract good, sweet, or helpful spirits (Mails, 1991a, 1991b). Sweetgrass collected from natural stands is occasionally sold commercially for sachet, potpourri, incense, and perfume.

'Radora' sweetgrass is intended for ceremonial, braiding, weaving, and perfumery purposes. The long blades that are present from mid-June to the end of the growing season (successive blades are longer) are suitable for these purposes. Because it spreads

rapidly and the living plants emit a pleasant aroma, it may also be useful for ground cover and soil stabilization around dwellings.

Origin

'Radora' sweetgrass was developed by the South Dakota State Agricultural Experiment Station and released in 1998. The source population for 'Radora' was a natural stand in a mesic prairie near Brookings, S.Dak. One hundred fifty seedlings grown from seed collected from the native stand were transplanted to a spaced-plant nursery at Brookings during May 1991. The plants spread rapidly by rhizomes, and by Fall 1992 had formed a uniform, open sod. Data on phenology and morphology of reproductive and vegetative tillers were collected in 1992 and 1993. Since the nursery was visually uniform and individual plants were similar for vigor and vegetative reproduction, the nursery was designated the breeder's block. A foundation block was established in 1997 from tillers obtained from the breeder's block.

Description

'Radora' is a strongly rhizomatous, cool-season, perennial grass with pronounced tiller dimorphism. Reproductive culms and vegetative tillers emerge early in the spring. The culms reach anthesis during early May at Brookings, S.Dak., making 'Radora' the earliest-flowering grass cultivar in the northern Great Plains. Culms of 'Radora' have from two to four leaves with short (10–40 mm) blades. The vegetative tillers, which begin to grow rapidly about the time that the culms head, may produce 10–12 leaves with long (150–400 mm) blades by mid-July. Floral induction and initiation take place in the fall. Panicles are well developed by mid-November, encased within the leaves at the bases of vegetative tillers that emerged during the early part of the growing season.

'Radora' spreads rapidly by rhizomes. Individual vegetative tillers transplanted during May or June will produce numerous rhizomes and form an open sod over more than a square meter by the end of the growing season. New tillers may appear any time during the growing

season, depending on soil moisture and fertility and stand density.

Adaptation

The natural population from which 'Radora' was developed is well adapted to USDA Plant Hardiness zone 4. It should also be adapted to mesic environments in Hardiness zones 2 and 3 in the northern Great Plains of the United States and the Prairie Provinces of Canada. 'Radora' has tolerated drought and heat at Brookings and has exhibited aggressive vegetative reproduction in response to plentiful moisture and fertilization with nitrogen.

Culture

'Radora' is easy to propagate vegetatively. Although it produces abundant panicles, at maturity they are often overtopped by the long blades of the vegetative tillers. Consequently, seed harvest can be difficult. Since the major demand for 'Radora' will probably be for small plantings for personal use, the South Dakota Agricultural Experiment Station will distribute the cultivar as tillers. Tillers can be successfully transplanted during May and June. If moisture is adequate, rhizomes quickly develop from buds on the basal nodes of tillers during this time. Transplanting during mid- to late spring facilitates new tiller and rhizome formation during the transplant year and allows for production of blades long enough for braiding by the end of the growing season. It also ensures vigorous growth of culms and vegetative tillers during the second and subsequent years.

Availability

Foundation blocks of 'Radora' will be maintained by the South Dakota Agricultural Experiment Station, utilizing a mass clonal system. Foundation tillers will be available from South Dakota Foundation Seed Stocks Division from 20 May through 1 July. Purchasing information can be obtained from Jack Ingemansen, South Dakota Foundation Seed Stocks Division, South Dakota State Univ., Brookings, SD 57007 (phone: 605/688-5418).

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