USDA United States Department of Agriculture

A Conservation Plant Released by the Natural Resources Conservation Service
Manhattan Plant Materials Center, Manhattan, Kansas

'Centennial' Sand Bluestem

Andropogon hallii Hack.

Figure 1. Photograph of Centennial sand bluestem in full flower. Photograph by R. Alan Shadow, East Texas Plant Materials Center.

'Centennial' sand bluestem (*Andropogon hallii* Hack.) is a cultivar released in 2013 in cooperation with the U.S. Department of Agriculture (USDA) Agriculture Research Service (ARS) Southern Plains Range Research Station, Woodward, Oklahoma; and the Natural Resources Conservation Service (NRCS) Plant Materials Centers located in Manhattan, Kansas; and Knox City, Texas.

Description

Sand bluestem is a native, perennial, warm-season grass species that spreads by seed and elongated creeping, scaly rhizomes. It is commonly found on loamy or sandy textured soils. It forms a sod with its well-developed rhizomes and often forms dense colonies of 15 to 20 feet in diameter. This tall growing species produces seed from August to October on culms that are 3 to 6 feet in height. Leaf blades are up to 12 inches long and 1/8 to 3/8 inches wide. Leaf sheaths are shorter than internodes and hairless. Inflorescences are extremely hairy. The rest of the plant body is glaucous and is described as being blue-green in overall color. It is similar in appearance to big bluestem and the two will occasionally hybridize in nature.

Source

Seeds from the sand bluestem population 'AB-medium Syn-0', that was released as 'Chet' sand bluestem in 2004, were subjected to selection pressure in two cycles of selection at Woodward ARS. The selection pressure was germinating seeds of AB-medium Syn-0 in deionized water having a water potential of approximately -8 bars. The process was repeated to create a third population of sand bluestem named AB-medium Syn-2. This population was field tested at three locations against AB-medium Syn-0 and Syn-1 to determine differences in population seedling emergence, establishment, and forage quantity and quality. The germination and seedling emergence of AB-medium Syn-2 were consistently superior to that of AB-medium Syn-0, and forage dry-matter yield, forage crude protein, and forage digestibility did not differ among the three populations (Syn-0, Syn-1, or Syn-2).

Conservation Uses

Centennial is a warm-season, perennial grass used for forage production in the warm summer months. Average forage yield was greatest at Woodward, Oklahoma (4.8 tons/acre), followed by Manhattan, Kansas (3.8 tons/acre), and least at Knox City, Texas (1.3 tons/acre). This species is also found in conservation plantings, especially on sandy areas where it performs well in preventing soil erosion and dune formation. Wildlife habitat and forage production are important qualities possessed by Centennial sand bluestem. Upland song birds eat the seeds and its upright growth habit provides nesting habitat for birds and small mammals. With the increased popularity of low input and low maintenance landscapes, sand bluestem has grown in use as an accent or unique focus plant in home flower beds.

Area of Adaptation and Use

Centennial is a stable, random mating population improved for increased seed germination and seedling emergence under reduced moisture conditions. It is adapted to USDA Plant Hardiness Zones 5b, 6, and 7a in the Central and Southern Great Plains of the United States. With additional testing, it may be adapted to other parts of the same hardiness zones or different zones as well.

Establishment and Management for Conservation Plantings

Sand bluestem should be seeded in the spring when the soil temperature has warmed sufficiently to enhance germination. The best method to seed sand bluestem is by using a drill with picker wheels to ensure seed flow within the box and depth bands provide correct planting depth for the seed. A press wheel assembly located behind the double-disk openers and depth bands is a plus for ensuring good seed-to-soil contact. The seeding should be completed on a firm, weed-free seed bed for best results. Low nitrogen fertilization is encouraged, since nitrogen would only enhance annual weedy species to compete with the planted species. Control of competitive weedy species may be accomplished by mowing at a height 6 to 8 inches to reduce weed pressure. Prescribed burning in the spring can damage cool-season species and remove previous year's residue and invigorate sand bluestem plants.

Ecological Considerations

Sand bluestem does not pose any known negative concerns for the environment. It can form dense colonies on coarse soils where it is well adapted. This attribute is seen as a positive trait for increasing ground cover which tends to reduce water and wind erosion on fragile soil sites. Grasshopper infestations can cause damage on juvenile seedling stands. Leaf rust is an anti-quality factor when using sand bluestem for livestock forage consumption.

Seed and Plant Production

Seed production of Centennial sand bluestem is the best method of widespread propagation. Planting of seed in the spring or early summer is ideal when the soil temperature has reached at least 50 degrees Fahrenheit (F). The planting site should be firm, weed free, and clean-tilled to enhance seed germination and establishment. Ideally, a site could be fallowed a year prior to planting to ensure no perennial persistent weeds are evident and no herbicide has been used on the site that would inhibit germination or establishment of the grass. A drill equipped with depth bands, press wheels, and picker wheels in the seed box would provide optimum placement of seed units at 1/4 to 1/2 inch depth in the soil. A seeding rate of 30 pure live seeds per linear foot of row and rows spaced at 24 to 36 inches apart will provide a good stand. Application of nitrogen fertilizer to newly planted field is not recommended since annual weed growth would be stimulated by fertility much more than the sand bluestem. Harvest in the fall with a combine and clean with a fanning mill and debearder to produce saleable seed. A 5-year average annual production in non-replicated plots at Woodward, Oklahoma, produced 42 pounds of seed per acre.

Availability

For conservation use: Centennial is not yet available in the commercial seed trade.

For seed or plant increase: Breeder and foundation seed can be obtained from USDA-ARS, Southern Plains Range Research Station at Woodward, Oklahoma, for a period of 10 years after release. Four classes of seed are recognized for Centennial sand bluestem (Breeder, Foundation, Registered, and Certified). Foundation seed will be produced by the Manhattan, Kansas, and Knox City, Texas, Plant Materials Centers.

For more information, contact:
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