

# LITTLE BLUESTEM

## *Schizachyrium scoparium* (Michx.) Nash

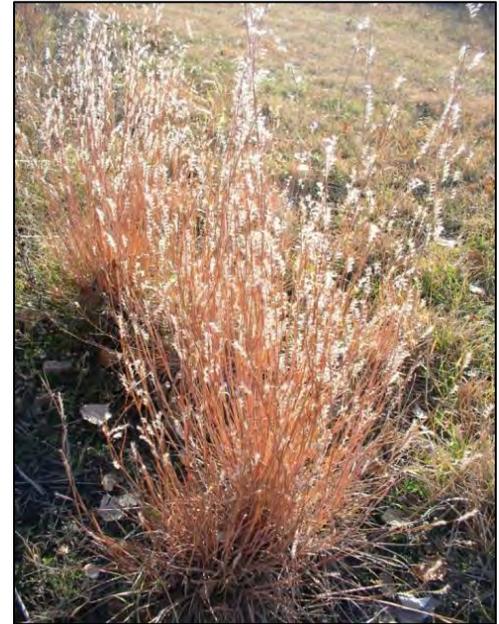
Plant Symbol = SCSC

Common Names: povertygrass, broom bluestem, broom beardgrass, prairie beardgrass, small feathergrass

Scientific Names: *Andropogon scoparius*

### Description

**General:** Little bluestem is a tufted (sometimes with short rhizomes), warm season (C<sub>4</sub>), perennial grass broadly distributed and native to the U.S. and Canada. Because of this broad distribution, little bluestem exhibits significant ecotypic variation. Plants vary in height, color, length of leaves, flowering, and clump diameter (USDA, 1983; Uchytíl, 1989). It grows from 1 to 3 feet tall with culms slightly flattened. The blades are folded, sometimes rolled inward, and smooth to hairy. They are 2 to 12 inches long, 1.5-6 mm wide, pointed with sheaths keeled and usually smooth. The ligule is a fringed membrane 0.5-2.5 mm long. The culms terminate in a single raceme 1-3 inches long. The pediceled spikelets are 3-6 mm long with pedicels flattened. The awns of the fertile lemmas are 9-16 mm long, bent and twisted. The anthers are 2-4 mm long (Sedivec and Barker, 1997). Seed averages 225,000 to 250,000 bearded seeds per pound (Uchytíl, 1989).



*Little bluestem plant*

**Distribution:** Little bluestem is found throughout the lower provinces of Canada and all states of the U.S., except Nevada and Washington. For current distribution, please consult the Plant Profile page for this species on the PLANTS website.

**Habitat:** This midgrass is a tallgrass prairie increaser and mixed prairie decreaser. Little bluestem typically occurs on dry upland sites, especially on ridges, hilltops, and steep slopes. It also occurs on limey sub-irrigated sites and in prairie fens. It is found in areas receiving 10 to 60 inches of mean annual precipitation and plant hardiness zones 3 to 9.

### Adaptation

Little bluestem is adapted to soils ranging from sandy to clay-loam in texture. It begins growth in late spring after cool-season species have already developed (Uchytíl, 1989). It has been observed that little bluestem phenology follows a well-defined pattern. Periods of active growth as well as stage of maturity are directly related to the length of the growing season (Miller, 1967; USDA, 1983).

### Uses

**Pasture/rangeland/prairie restoration:** This species provides fair to good forage while young. It is rated fair for cattle and horses but is usually too coarse for sheep and goats. Ungrazed little bluestem plants with seed stalks often give the false impression of non-use for the plant community; however, shorter plants within a population have usually been grazed quite extensively. Crude protein is 12 to 14 percent in May, dropping off considerably in July through September to less than 4 percent (Sedivec and Barker, 1997). Little bluestem has been used extensively in prairie restoration projects primarily because of its adaptation to a diversity of sites, drought tolerance, growth habit, and wildlife appeal.

**Erosion control:** Little bluestem has moderate drought tolerance and broad adaptation to diverse sites. It can form mats from short rhizomes on wetter sites although this species is usually thought of as a bunchgrass (clumps) on dry, upland sites. It is deep-rooted, and somewhat slow to establish from seed.

**Wildlife:** Little bluestem is one of the best grasses for nesting and roosting habitat. The clump type of growth habit and many fine leaves at the base provide excellent nesting sites. The seeds are consumed by small mammals and birds, including upland

game birds, rosy finches and juncos, as well as chipping, field, and tree sparrows. The seeds are of high value especially as a food source for birds that spend the winter on grasslands, such as prairie chickens and sharp-tailed grouse (Jones, 1963). Meadowlarks nest in areas where little bluestem grows. The dusky skipper butterfly caterpillars overwinter in tube tents above the base of the clumps (Knopf et al., 1997).

**Landscaping:** Little bluestem is becoming more popular for home landscaping because it is a colorful and easy-care addition. New varieties are being developed that don't lodge (falling over at the base) and are more disease resistant. New growth can be bluish, maturing to a reddish-gold color. The seed develops to a fluffy silver-white. The plumes are showy when seed has matured which adds interest to a cut arrangement. Frost accents the plants and the reddish tint provides color during the winter (Mahr, 2007). This is a prairie grass for the garden that is truly exceptional in mass plantings. Use in full sun.

### **Ethnobotany**

Some tribes used little bluestem switches in ceremonial sweat lodges. The Lakota word means "small red grass". Dried leaves and stems were rubbed into soft fiber for moccasin lining and insulation (Johnson and Larson, 1999).

### **Status**

This plant may become weedy or invasive in some regions or habitats and may displace desirable vegetation if not properly managed. Please consult with your local NRCS Field Office, Cooperative Extension Service office, state natural resource, or state agriculture department regarding its status and use.

Please consult the PLANTS website (<http://plants.usda.gov/>) and your state's Department of Natural Resources for this plant's current status (e.g., threatened or endangered species, state noxious status, and wetland indicator values).

### **Planting Guidelines**

Seedbed preparation should begin well in advance of planting. Establish a clean, weed-free seedbed by either tillage or herbicides. Prior to planting, the site should be firm and have accumulated soil moisture. Soil analysis should be performed prior to planting to determine necessary fertilizer applications.

Little bluestem plantings should be scheduled during the spring at a rate of 3.4 - 4.5-pound pure live seed (PLS) per acre using a drill or broadcast seeder. If broadcast seeded, some type of additional coverage such as culti-packing or light dragging is recommended to ensure good seed-to-soil contact. Seed should be planted 1/8 to 1/4 inch deep. It is better to plant too shallow than too deep.

### **Management**

Little bluestem begins growth later in the spring after the cool-season species have already developed. It tolerates glyphosate when dormant, and other herbicides as labeled for grasses. Weed control can be accomplished by mowing, especially the first year when the planted grass is short. It is minimally affected by fire if burned dormant and changes little in frequency of occurrence due to fire. Little bluestem is relatively resistant to fire under moist conditions. The growing points (apical meristem) are slightly more than an inch above the soil surface (Uchytel, 1989). Little bluestem in the immature growth phase is considered a nutritional, palatable grass for all classes of livestock in June and early July in studies in North and South Dakota. Palatability is lower than many other native warm-season grasses, especially when seed stalks are present. Proper grazing management is critical to improve grazing efficiency. Little bluestem is an increaser under season long grazing systems. Higher stock densities such as rotational grazing systems will achieve greater use of more plants. Recommended stubble height of 3 to 4 inches is required to assure stand longevity. Although not usually recommended for hay production, little bluestem can make fair to good hay when part of a native hayland mixture (Sedivec et al., 2008). It is a popular species to include in prairie restoration seedings because of its wide adaptation and high wildlife value. Plants will sometimes die from the center out in the clump if the plants become too dry. Burning at the opportune time can help to reduce the population of cool season competing vegetation, as well as woody species.

### **Pests and Potential Problems**

A leaf spot disease was found to be widespread in a little bluestem nursery established at Mandan, North Dakota, from plants collected in North Dakota, South Dakota, and Minnesota. *Phyllosticta andropogonivora* was consistently isolated from leaves showing leaf spot symptoms. The fungus was also isolated from native prairie plants. The fungus was pathogenic to little bluestem, big bluestem (*Andropogon gerardii*), and sand bluestem (*Andropogon hallii*) (Krupinsky and Tober, 1990).

### **Environmental Concerns**

This grass is primarily a bunchgrass that will spread some by seed. The seed is light and fluffy, and it will move to adjacent areas. Bare soil may allow seed to germinate, but it is usually not a problem. Random plants in a natural landscape are usually not considered undesirable because it is a native species.

### **Control**

Please contact your local agricultural extension specialist or county weed specialist to learn what works best in your area and how to use it safely. Always read label and safety instructions for each control method. Trade names and control measures appear in this document only to provide specific information. USDA NRCS does not guarantee or warranty the products and control methods named, and other products may be equally effective.

### Seeds and Plant Production

Seed into a firm seedbed in early spring for best results. Seed as a solid stand (8 inches or less row spacing) at approximately 3.4-4.5 lb/acre or 30 seeds per linear foot of row, or 2.5 lb/acre for 24-inch rows. Glyphosate may be used for weed control immediately after seeding to kill everything green and growing. Other herbicide weed control options are also available. Consult with the local extension service or Land Grant University for assistance with recommendations on herbicides and application rate. Always read and follow the label directions when applying herbicides. Mention of a trademark or proprietary product does not constitute a guarantee or warranty of the product by the U.S. government and does not imply its approval to the exclusion of other products that may also be suitable.

Seed is best harvested from the plant using a commercial stripper at 600 to 800 rpm at the hard dough or mature seed stage. This is because of the light, fluffy seed, and the uneven maturity. Straight combining is another method of harvest when most of the seed has matured. Average dockage of combined seed is 60 percent. Seed should be air dried for a couple of days. Seed for the bin should be dried to 12 percent or less, and sacked seed should be 15 percent or less. Average yield is 200 to 300 lb/acre irrigated and 75 to 150 lb/acre dryland. Processing the seed is fairly difficult because of the fuzziness of individual spikelets. It should be debearded first. A hammermill works well with a 3/16-inch screen at 550 rpm, and then a debearder at 200 rpm for 45 to 60 minutes. Scalping or final cleaning may be done using a 4-screen fanning mill. Post-harvest management requires rotary mowing, rototilling, or cultivating between rows in the fall or spring; or burning on a regular basis in early spring (Smith et al., 1989).

Plants may be grown in the greenhouse using standard greenhouse procedures. Deeper containers (4 inches or more) are recommended because perennial grasses develop extensive root systems. A critical factor in growing little bluestem is day length. A study in North Dakota required 18 hours of artificial light each day for continued growth of seedling little bluestem plants (USDA, 1983) during the winter months.

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

'Ahring'	2021	OK
Coastal Plains Germplasm	2016	TX
STN-176 Germplasm*	2015	TX
STN-461 Germplasm*	2015	TX
Ozark Germplasm	2010	MO
Suther Germplasm	2008	NC
Prairie View Indiana Germplasm	2005	IN
OK Select Germplasm	2003	OK
Spirit Ecovar (Canada)	2003	SK,MB
Southlow Michigan Germplasm	2001	MI
Itasca Germplasm	2001	ND,SD,MN
Taylor Ecovar (Canada)	2000	MB,SK
Southern Iowa Germplasm	1999	IA
Northern Iowa Germplasm	1999	IA
Northern Missouri Germplasm	1999	IA
Central Iowa Germplasm	1997	IA
Badlands Ecotype	1996	ND,SD
'Cimmaron'	1979	KS,OK
'Camper'	1973	NE,KS
'Blaze'	1967	NE,KS
'Aldous'	1966	KS
'Pastura'	1964	NM

Cultivars should be selected based on the local climate, resistance to local pests, and intended use. Consult with your local land grant university, local extension or local USDA NRCS office for recommendations on adapted cultivars for use in your area.

## Literature Cited

- Johnson, J. and G. Larson. 1999. Grassland plants of South Dakota and the Northern Great Plains. South Dakota State University, Brookings, SD.
- Jones, R. 1963. Identification and analysis of lesser and greater prairie chicken habitat J. Wildl. Manage. 27:757-778.
- Knopf, J., S. Wasowski, J. Boring, G. Keator, J. Scott, E. Glasener. 1997. A guide to natural gardening. Fog City Press, San Francisco, CA.
- Krupinsky, J. and D. Tober. 1990. Leaf spot disease of little bluestem, big bluestem, and sand bluestem caused by *Phyllosticta andropogonivora*. Plant Dis. 74(6):442-445.
- Mahr S. 2007. Little bluestem. Hort. Newsletter, Univ. of Wisconsin, Madison, WI.
- Miller, R. 1967. Ecotypic variation in *Andropogon scoparius* and *Bouteloua gracilis*. Fort Collins, Colorado State University, dissertation. Abstract.
- Sedivec, K. and W. Barker. 1997. Selected North Dakota and Minnesota range plants. EB-69, NDSU Extension Service, Fargo, ND.
- Sedivec, K., D. Tober, W. Duckwitz, D. Dewald, J. Printz, and D. Craig. 2008. Grasses for the northern plains: growth patterns, forage characteristics, and wildlife values, vol. II – warm-season. USDA-NRCS, Bismarck, ND and NDSU, Fargo, ND.
- Smith R. and S. Smith (Ed.). 1989. Native grass seed production manual. Ducks Unlimited Canada, Oak Hammock Marsh, MB, Canada
- Uchytíl, R. 1989. Wildlife, Animals, and Plants *Schizachyrium scoparium*. [Online]. (<http://reference.allrefer.com/wildlife-plants-animals/plants/graminoid/schsco/all.html>).
- USDA-SCS. 1983. Part 1, Annual Technical Report, USDA-SCS Plant Materials Center, Bismarck, ND.

## Citation

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