



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

# 'Kaw' big bluestem

## *Andropogon gerardii*

A Conservation Plant Release by USDA NRCS Manhattan Plant Materials Center, Manhattan, Kansas



Figure 1. Kaw big bluestem inflorescences in a field situation. Photo by Alan Shadow, East Texas PMC.

'Kaw' Big Bluestem (*Andropogon gerardii* Vitman.) is a cultivar released in 1950 in cooperation with the Kansas Agricultural Experiment Station.

### Description

Big bluestem is a warm-season native grass species that is located east of the Rocky Mountains in the continental United States. It is one of the primary species of the tallgrass prairie of the Midwest states. It is described as a tall, long-lived, perennial with a C-4 type metabolism and reddish-purple stems that reach 3 to 6 feet tall at maturity. It has thick rhizomes that are 3 to 6 inches long and numerous long basal and stem leaves that are green, tinged with purple. Leaf blades are flat to V-shaped with rough edges and upper surface pimply and hairy on basal leaves. The leaves contain a short, membranous ligule where the leaf blade and sheath meet. Inflorescences consist of 2 to 6 branched racemes shaped like a turkey's foot. Thus, the origin of one of big bluestem's common names "Turkey Foot". This species thrives on deep, fertile silt and clay loam soils in lowlands, draws, and ravines.

### Source

Kaw is a composite of lines selected after four or more generations from progeny of 200 accessions collected in 1935 from the native Flint Hills Prairie south of Manhattan, Kansas. Kaw is tall and more uniformly leafy and later in maturity than field run types. It is somewhat resistant to leaf rust. Forage yields of Kaw were greater in test plots than field run accessions to which it was compared. Kaw's seed yields are relatively high and seed set was rated as good.

### Conservation Uses

Kaw has been seeded for pastures, hay production, native landscaping, prairie restoration, prairie chicken habitat, waterways, and stabilization of disturbed areas. In forage trials in the mid-1980's in Kansas and Oklahoma, Kaw produced 1.6 to 3.3 tons per acre per year. The forage quality measurements were relatively low with a crude protein averaging 4.0 percent and the digestibility below 50 percent. Caterpillars of a number of skipper butterflies use big bluestem as a food source.

### Area of Adaptation and Use

Kaw is a late maturing variety that is recommended for eastern and central Nebraska through Kansas and into southern Oklahoma and the eastern half of the panhandle of Texas. Testing of Kaw in North Dakota, South Dakota and Minnesota determined that the variety produced forage, but was not able to produce seed with the shorter growing season. Kaw was determined to be not adapted to the Northern Great Plains states mentioned. Kaw performs adequately as you move it east into the greater rainfall zones of Iowa, Missouri, and Illinois.

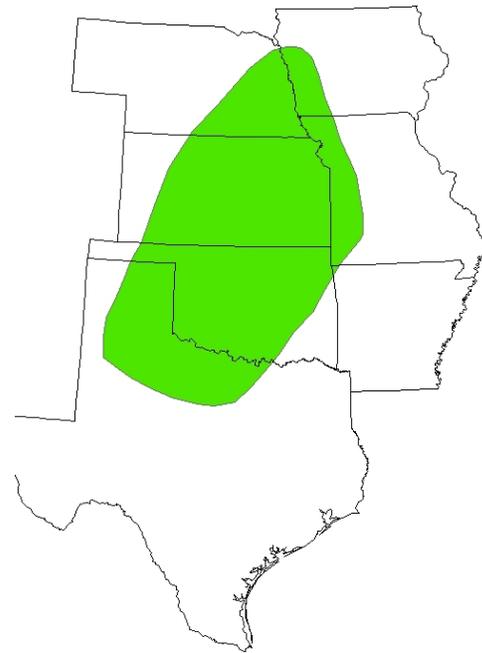


Figure 2. Potential area of adaptation of Kaw big bluestem.

## **Establishment and Management for Conservation Plantings**

Big bluestem is usually seeded directly into field settings in the spring (April-May). The seedbed should be worked and firmly packed to provide good seed to soil contact. Proper attention to weed control in the seeding area will result in better seedling establishment. Big bluestem can be seeded using a grass drill or broadcast onto the surface of a prepared seedbed. Drilled plantings should be set at a depth of ¼ to ½ inch and broadcast plantings should be packed with a packer roller to improve seed to soil contact. Seeding rate standards are 15 to 25 Pure Live Seeds (PLS) per square foot or 5 to 8 PLS pounds per acre. Herbicides, repeated mowing and controlled grazing can help control weeds in new seedings. Mowing and grazing should not be lower than a six inch height in new or established stands. Spring burning will remove the previous year's residue and allow for uniform growth and early green up of the grass. Fertilization with nitrogen can increase productivity and biomass yield on established stands. The application of fertilizer at the time of seeding is not recommended, because it will only stimulate weed growth.

## **Ecological Considerations**

Native stands of big bluestem occur mixed with little bluestem, switchgrass, Indiangrass, and other native forbs, legumes, and shrubs. Grasshopper infestations can destroy entire fields of big bluestem.

Two species of fungi that infect big bluestem are culm smut, *Sorosporium provincial* and kernel smut, *Sphacelothera occidentalis*. Reduction of seed yields in big bluestem due to insect predation was first reported in 1950. An estimated 40% loss in seed production in 'Pawnee' big bluestem was reported in 1988 to be caused by the bluestem seed midge, *Contarinia watti*.

## **Seed and Plant Production**

Stand establishment can normally be accomplished in a single year. A reasonable expectation is that seed can be produced in the second growing season. Seed production fields should be established in 30 to 42 inch rows. Cultivation and the herbicide 2, 4-D can be successfully used to control broad leaf weeds the initial growing season. Herbicides can be used to provide weed control once plant establishment is complete the second year. Nitrogen fertilizer can be applied at a rate of 60 to 100 pounds of actual N per acre and potassium and phosphorus as recommended by the soil test. Irrigation water should be applied as needed to produce the seed crop. A ten year average of Kaw seed production at Manhattan, Kansas yielded 89 pounds of pure live seed (PLS) per acre with an average of 78.6 percent germination and 88.5 percent purity. Seed can be planted in the greenhouse to propagate big bluestem seedlings.

Seed will germinate in 10 to 21 days after planting in containers and can be moved to a field setting in 60 growing days in the greenhouse. Field plants can also be excavated from the ground and physically divided into clonal ramets for genetic studies or for increasing the population of individual plants. This type of work is labor intensive and does not greatly increase the number of individual plants.

## **Availability**

Kaw big bluestem is widely available in the commercial seed trade for conservation, pasture, and prairie renovation projects. This variety has been and continues to be widely used as a forage species for livestock production in the Central and Southern Plains.

*For seed or plant increase:* Foundation seed of Kaw big bluestem is available from the Manhattan Plant Materials Center in Manhattan, Kansas. There is no registered seed class of this variety only breeder, foundation, and certified seed classes are recognized.

*For more information, contact:*  
Manhattan Plant Materials Center,  
3800 South 20<sup>th</sup> Street,  
Manhattan, Kansas 66502  
(785) 539-8761; FAX (785) 539-2034  
<http://www.plant-materials.usda.nrcs.gov/>

## **Citation**

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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/>>

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