



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

# Bounty Germplasm Big Bluestem

*Andropogon gerardii* Vitman

A Conservation Plant Release by USDA NRCS Bismarck Plant Materials Center, Bismarck, North Dakota



Bounty Germplasm big bluestem (*Andropogon gerardii* Vitman) is a selected class germplasm released in 2012 in cooperation with Agricultural Experiment Stations in North Dakota, South Dakota, and Minnesota.

## Description

Big bluestem is a tall, stout, sod forming, perennial, warm-season native grass. It is a dominant species of the Midwestern tallgrass prairie. Distinguishing characteristics include: long white hairs on the upper leaf surface near the base of the blade, reddish tint at its base, round and usually hairy stem, and a seed head with three fingerlike branches that resemble a turkey's foot. Big bluestem develops rapidly from early June to late summer and typically grows 4 to 6 feet tall in northern climates under normal conditions. It has a spreading root system that can extend to 10 feet deep, with short, scaly rhizomes 1-2 inches below the soil surface. It is a very desirable native, warm-season prairie grass that produces abundant quantities of high quality forage. Bounty Germplasm is typical of the species with regard to these characteristics.

Bounty Germplasm is a leafy, fine-stemmed, early-maturing selection that ranks high in protein and feed value when compared to other varieties adapted to this area. It is a genetically diverse germplasm release that is broadly adapted to Minnesota and the eastern Dakotas.

## Source

Vegetative collections of 326 accessions of naturally occurring big bluestem were made by NRCS field personnel in Minnesota and eastern South Dakota in the fall of 1985. Vegetative crown pieces from the original collections were divided into over 4,000 plantlets. These

were planted to a field evaluation nursery the following spring. The superior, early maturing plants were selected for further study after three years of evaluation. Selected plants were vegetatively propagated and established in replicated crossing blocks in 1991. Additional evaluation and some roguing resulted in a harvest from 82 plants. The seed from this harvest was seeded in June 2010 to establish an increase field at the Bismarck Plant Materials Center. Bounty Germplasm contains a broad representation from superior plants originating from 40 Minnesota and 9 South Dakota counties.

**Figure 1.** Collection area for parent material of Bounty Germplasm big bluestem.



## Conservation Uses

Uses for big bluestem are many, and include: pasture and hayland forage, erosion control, critical area seeding, wildlife habitat, and prairie revegetation. It can be used alone or in mixtures for livestock forage on pasture and hayland. It is becoming more popular as a landscaping plant, and is a host plant to many butterflies and other pollinator species (Tallamy 2009).

## Area of Adaptation and Use

Big bluestem is adapted to a wide range of soils and is commonly found in lowland prairies, wet overflow sites and sandy areas. It performs best on fertile, well drained soils, but can also be found on sites with shallow topsoil, low pH, and low fertility. Bounty Germplasm has a high level of species diversity, and is expected to perform well in a broad spectrum of environmental conditions throughout Minnesota and the eastern Dakotas. It has not been tested in the surrounding regions of the Northern Great Plains and Upper Midwest, but should perform well in those areas.

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

Big bluestem and other warm-season grasses require a soil temperature above 50 degrees F for satisfactory germination. In the area of adaptation, the optimum time to plant is early May to late June. Dormant seedings into clean seedbeds have not been successful. The seed is light and has small awns attached. Debearding the seed removes the awns to produce a free-flowing product. Seeding rate is 6 to 10 pounds per acre. The planting site should be free of perennial or noxious weeds. A moist, firm seedbed is essential. Firming the soil with a roller packer before seeding helps ensure that the seed is placed at the recommended seeding depth of ½ to ¾ inch. Drills equipped with agitators, double disk openers, packer wheels, and depth bands provide the best results for non-debearded seed. Broadcast packer-seeders work well for debearded seed. Companion crops are not recommended. Grazing should be deferred during establishment. The application of fertilizer at seeding time is not recommended because it stimulates weed growth. Clipping and application of a herbicide (consult the local NRCS or Extension office for recommendations) will help to control weeds the first year.

As a warm-season grass, big bluestem is productive and palatable later in the grazing season. It provides quality forage during mid to late summer when predominant cool-season grasses such as brome grass and wheat grasses become dormant and lose quality. It adds to the diversity of the grazing system to ensure forage availability during the heat of the summer. It is best utilized before mid-August, when protein and palatability begin to decline. Grazing management is a critical component of maintaining a big bluestem population in the system. Continual heavy grazing or haying pressure will have an adverse effect on long term viability and productivity.

## **Ecological Considerations**

Big bluestem is relatively easy to establish and competes well with other species. It has been known to establish from seed in smooth brome grass stands over time, especially if the brome grass is mowed or grazed during critical periods, allowing the big bluestem to gain a foothold. Big bluestem is a native species with many desirable traits. Encroachment off site would not generally be considered negative. Seed is spread by birds and other animals, as well as natural events such as flooding and wind storms. Vegetative spread is minimal. Big bluestem is considered non-invasive and is easy to control as a landscape plant.

## **Seed and Plant Production**

Stand establishment usually can be accomplished in one growing season. Seed production can be expected the second year and will continue indefinitely. Row spacings

of 30-42 inches apart have been most successful. Broadleaf weeds can be controlled with cultivation and herbicides (apply according to label directions). Apply irrigation water at the boot and immediately after the flowering stage. Apply fertilizer based on soil test results and production target. Seed matures in September. Harvesting can be done by windrowing when the seed is in the hard-dough stage; direct harvesting can be done when the seed has fully matured. When direct harvesting, seed should be dried as soon as possible to prevent damage from heating. Seed is fluffy due to the presence of awns. Average purity and germination is 85 and 75 percent, respectively. Seed yields average 150 pounds of pure live seed per acre under irrigation at the NRCS Plant Materials Center, Bismarck, North Dakota.

## **Availability**

Bounty Germplasm big bluestem is a selected class release originating from vegetative collections in Minnesota and South Dakota. Generation 1 seed, equivalent to foundation seed, is available for seed increase from the USDA-NRCS Plant Materials Center, Bismarck, North Dakota. Generation 2 seed, equivalent to certified seed, will be available from various commercial growers in the region.

*For more information, contact:*  
Bismarck Plant Materials Center  
3308 University Drive  
Bismarck, ND 58504  
Phone: (701) 250-4330  
Fax: (701) 250-4334  
<http://www.plant-materials.nrcs.usda.gov/ndpmc/>

## **Citation**

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For additional information about this and other plants, please contact your local USDA Service Center, NRCS field office ([www.nrcs.usda.gov](http://www.nrcs.usda.gov)) or Conservation District and visit the PLANTS Web site ([www.plants.usda.gov](http://www.plants.usda.gov)) or the Plant Materials Program Web site ([www.plant-materials.nrcs.usda.gov](http://www.plant-materials.nrcs.usda.gov)).

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