

# Jimmy Carter Plant Materials Center Americus, Georgia

## PLANT SHEET

### Big Bluestem (*Andropogon gerardii*)

*Special Edition: For Farm Bill Implementation*

**Description:** Big bluestem is a native warm season, rhizomatous, perennial bunch grass 4 to 6 feet tall. Leaf blades are long and flat. Seedheads consist of 2 to 3 distinct racemes on top of the stem and resemble the toes of a turkey's foot which suggests another common name, turkey-foot grass. Livestock prefer it to most associated grasses during early stages of growth. The large amount of top growth makes it ideal as a cover and nestling areas for small game and birds.



**Conservation Uses:** Grazing Land  
Wildlife habitat improvement  
Critical area stabilization  
Biofuel/Alternative Fuels  
Streambank Stabilization  
Nutrient Reclamation  
Filter Strip  
Conservation Buffers  
Urban Conservation  
2002 Farm Bill Implementation

**Big Bluestem Assembly – 680 accession xz**

## ESTABLISHMENT OF NATIVE WARM SEASON GRASSES

Native warm season grasses need special attention given during purchasing, planting, and management of established stands. The following features make native warm-season grass planting different from other traditional plantings:

- Planting rates for warm season grasses are based on pure live seed (PLS) lb/acre and **NOT** bulk lb/acre.
- All warm-season grasses require a firm seedbed for best establishment.
- Traditional seeding equipment works well for switchgrass and eastern gamagrass, but fluffy-seeded species such as big bluestem, little bluestem and indiagrass require special equipment and/or techniques for successful seedings.



**Big Bluestem (*Andropogon gerardii*)  
at Jimmy Carter PMC**



## **PURCHASING SEED**

It is best to purchase certified seed of varieties adapted to the region of planting. Certified seed is guaranteed to be true to a variety, and use of certified seed may lead to a more reliable planting. It is best to order different species and varieties separately instead of pre-mixed because seeding and management specification will differ between species.

Warm season grass species should be purchased on a pure live seed (PLS) basis. Do not confuse 12 lb PLS/acre with 12 bulk lb/acre. Failure to recognize PLS when purchasing seed and figuring seeding rates may yield unexpected results.

## **TIME OF SEEDING**

Warm season grasses are best established during March through May. Early planting is critical even though warm season grasses do not germinate until soil temperatures are above 50 to 55 degrees F. Avoid planting after June 1 because moisture and weed competition may delay stand establishment.

Early establishment allows seedlings to develop good root systems before summer drought and greatly increases the ability of the grasses to compete with weeds. Irrigation (if available) should be applied when soil conditions are very dry to enhance seed germination and stand establishment.

Seeding into warm soil in late spring can be helpful in controlling weeds. The first flush of weeds is allowed to germinate and then is killed by final tillage or contact herbicide just prior to planting. Ideally, this practice would result in the shortest period of bare ground and would get grass seedlings up as quickly as possible to compete with other weeds.

## **SEEDBED FERTILITY**

Warm season native grasses can be productive on low fertility soils, but fertilization will increase plant vigor. Soil test the field prior to planting or cultivating. The pH should be adjusted to around 6.0 if needed. Incorporate lime in the fall to allow it time to adjust pH before planting in the spring. Fertility should be up to medium levels for phosphorous (P), and potassium (K). Incorporate P and K into the soil at planting time. Do not apply nitrogen (N) at or before planting time. Nitrogen and phosphorous have been shown to increase productivity. However, nitrogen promotes weed growth, as well. Unless weed competition is low, N should be excluded the first year until a stand becomes established. The only exception for N application is planting critical sites, such as log decks, log roads, skid trails and other impoverished soils.

In addition to the above guidelines, follow the fertilizer and lime recommendation in your state. Consult your Field Office Technical Guide (FOTG) for more specific information based on site and soils.

## **SEEDBED PREPARATION**

Native warm season grasses are best established by creating a tilled, firm seedbed. It is best to remove all vegetative cover through the use of approved herbicides or extensive tillage. Seedbeds should be adequately plowed, disked and packed prior to planting. A cultipacker works well for firming the seedbed. If a prepared hard seedbed is rained on before planting, harrow and cultipack again before planting.

## **EQUIPMENT USED FOR SEEDING**

Ideally seed will be drilled into a prepared seedbed. Switchgrass may be planted with a conventional drill because it has a hard, smooth seed coat. Conventional drills equipped to seed alfalfa work well. Eastern gamagrass seed is about the size of corn seed and is best planted with a corn planter. Big and little bluestem and indiangrass seed have appendages with fine hair and will not pass through conventional equipment unless they can be ordered as "debearded" or brushed seed. Debearded seed may pass through a conventional drill, though it may still be best to use a special drill designed for fluffy seed. Seed drills advertised as "native grass drills", such as a Tye or Truax drill, have special boxes equipped with picker wheels and augers which help prevent seed from sticking together and move the seed to the drilling mechanism. Many native seed drills have multiple boxes, which allow for the sowing of both switchgrass and fluffy seeded species at the same time. Switchgrass, indiangrass, and big and little bluestem should be seeded at 1/4 to 1/2 inch deep. In sandy soils be especially careful not to bury seed too deep! Eastern gamagrass is usually seeded at 1/2 to 3/4 inches deep. Planting native grasses with conservation tillage equipment is not recommended at this time.

If a seed drill is not available, seed may be broadcast over a site. Broadcast fluffy seed (bluestem and indiangrass) with a drop spreader or cyclone spreader and then drag to lightly cover seed. If you are using a cyclone spreader, try mixing seed with inert matter such as kitty litter or sawdust for better spreading. Successful broadcast seeding can be achieved by increasing seeding rate and by rolling or cultipacking before and after seeding. When planting a small area (1/4-acre) in droughty conditions, an optional step to enhance the stand would involve lightly mulching the seeded area.

## **SEEDING RATES**

Warm season grasses species vary in their growth characteristics. This makes it more difficult to manage mixtures for pasture or hay use, so only one species should be seeded per field. In areas planted for wildlife and erosion control the management of mixtures is not as critical. Information is being developed on the use and adaptability on establishing native grasses in mixtures.

Seeding rates for pasture and hay, wildlife, critical area treatment and conservation buffers are found in the tables 1 and 2.

**Table 1: Seeding rate for species planted alone**

Species	Seeds/lb.	Pounds of Pure Live Seed (PLS) per Acre			
		Forage	Wildlife	Buffers	Critical Area
Big bluestem	165,000	7-10	3	7	8
Little bluestem	255,000	7-10	3	7	8
Switchgrass	389,000	6-10	2	8	8
Indiangrass	175,000	7-10	3	8	8
Eastern gamagrass	7,800	8-14	7	10	10

**Table 2: Seeding rate for mixed species plantings**

Species	Seeds/lb.	Pounds of Pure Live Seed (PLS) per Acre			
		Forage	Wildlife	Buffers	Critical Area
Big bluestem	165,000	4	3	4	7
Little bluestem	255,000	3	2	3	7
Switchgrass*	389,000	4	2	3	5
Indiangrass	175,000	4	2	3	7
Eastern gamagrass*	7,800	**	**	4	**
<b>Total lbs PLS / Ac.</b>		<b>15</b>	<b>9</b>	<b>17</b>	<b>26</b>

\* Switchgrass and eastern gamagrass should not be pre-mixed with fluffy-seeded species

\*\* Eastern gamagrass is best when used alone for these applications

### **SEED QUALITY**

Warm season grasses can be quite variable in germination rate and the purity of seed. Pure Live Seed (PLS) should always be used when purchasing seed and to determine the bulk amount of seed necessary for a planting. It may be necessary to increase your seeding rate to provide the recommended rates of pure live seed.

### **Recommended Varieties of Big Bluestem for Use in Georgia**

#### Big bluestem

'Rountree'

Preferred variety for hay production, adapted to the southeast, good seedling vigor and forage productivity. Matures two weeks earlier than 'Kaw'. Origin: Iowa. Recommended for wildlife plantings in a mixture (3 lbs PLS/ac) with other native grasses.

'Kaw'

Preferred pasture variety; adapted in most of the southeast, especially to drought sites. Not recommended as a pure stand but in a mixture (3 lbs PLS/ac) with other native grasses. Origin: Kansas.

## About this publication

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All photos are courtesy of USDA NRCS unless otherwise noted.

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