

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
BROOKSVILLE, FLORIDA

NOTICE OF RELEASE OF GHOST RIDER GERMPLASM PURPLE BLUESTEM
SELECTED CLASS OF NATURAL GERMPLASM

The U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), announces the naming and release of Ghost Rider purple bluestem [*Andropogon glomeratus* (Walter) B.S.P var. *glaucopsis* (Ell.) Hitchc.] selected germplasm. Ghost Rider purple bluestem has been assigned the NRCS accession number 9060461.

Description: Ghost Rider purple bluestem is a native, warm-season, perennial bunch grass with foliage height ranging from 20 to 50 cm (8 to 20 in) and flowering culms from 76- to 140-cm (3.3- to 4.6-ft) tall. The foliage, especially the lower sheath, is covered with a chalky, glaucous covering and it is smooth to the touch. Internodes of the culms are generally purplish-red. The leaves are mostly basal, blades are folded and keeled at the base and flattened toward the tip, basal leaves 18- to 23-cm (7- to 9- in) long; 2- to 4-mm wide, ligules often ciliate. Inflorescence dense; 45-to 50-cm (18-to 20-in) long; racemes partially enclosed in a purplish spathe, 2 per culm. Spikelet villous, with a long straight awn.

Method of Breeding and Selection: Initial evaluation of purple bluestem was conducted at the USDA, NRCS Plant Materials Center in Brooksville, Florida on an assembly of 91 accessions collected from throughout the state of Florida. Seeds of these accessions were planted in the greenhouse and plants were transplanted to the field in a randomized complete block with three replications. Each accession was evaluated for survival, foliage height, canopy width, basal width, vigor, resistance to drought, diseases, and insects, culm height, seedhead number, seedhead uniformity, and seed maturity date. Excess seed was available for 88 of these accessions and these were direct seeded in the field on both a well-drained irrigated site (Kendrick fine sand) and a poorly drained irrigated site (Blichton loamy fine sand). These were evaluated using the same criteria as for the transplanted plants. The direct seeded plots were evaluated for three years and the transplanted plots for two years. On the well-drained site, 71 direct seeded accessions survived and 67 produced seed. Seed germination rates ranged from 4 to 67% with a mean of 31%. On the poorly drained site, 60 accessions survived and 53 produced seed. Germination rates ranged from 0 to 69% and the mean was 31%. During these initial evaluations, no one accession ranked highest for all evaluation criteria; however, several consistently ranked high in several criteria. Also, there was some variation in performance of individual accessions between years. The ten accessions that ranked highest in the largest number of criteria over all years of testing (Table 1) were selected for planting in an increase block to form a composite (Table 2). Seeds from the original collections were planted in the greenhouse to produce seedlings for the composite polycross planting. This composite was assigned the accession number 9060461.

Table 1. Evaluation ratings for top ten purple bluestem accessions based on performance of transplanted and direct seeded material (poorly drained and well-drained sites) at the USDA-NRCS Plant Materials Center, Brooksville, FL.

Rank	Accession	Transplants			Direct seeded					
					Poorly drained site			Well-drained site		
		Vigor ^a	Seed Prod ^b	Lodge ^c	Vigor	Seed Prod	Lodge	Vigor	Seed Prod	Lodge
1	9060396	3.2	4.3	4.0	4.0	5.0	2.0	4.0	4.5	2.0
2	9060277	4.8	4.5	3.3	3.3	6.0	4.0	3.0	3.0	5.0
3	9060394	3.3	3.8	4.7	4.7	5.0	3.0	5.0	6.0	4.0
4	9060363	4.7	5.5	5.0	5.0	4.0	4.0	4.5	5.0	3.0
5	9060251	4.3	4.5	3.0	3.0	5.5	-----	4.0	4.5	4.0
6	9060331	4.7	5.5	4.0	4.0	5.5	-----	3.5	4.0	5.0
7	9060318	5.0	5.0	4.3	4.3	4.0	6.5	5.0	5.0	4.0
8	9060226	5.2	5.2	3.3	3.3	5.5	-----	4.0	5.0	4.0
9	9060340	5.8	5.5	4.3	4.3	5.5	-----	5.0	4.5	5.0
10	9060347	5.7	5.0	5.0	5.0	3.0	4.0	6.0	7.0	2.0

^{a, b, c} 1 = excellent, 3 = good, 5 = fair, 7 = poor, 9 = very poor.

Table 2. Ten superior accessions used as parent plants in purple bluestem polycross block at the USDA-NRCS Plant Materials Center, Brooksville, FL.

Accession No.	County	Collector
9060226	Orange	Fulfs/Benites/Swims
9060251	Nassau	Gonter/Santucci
9060277	Hardee	Pfaff/Maura
9060318	Brevard	Fulfs
9060331	Sarasota	Deal/Pfaff
9060340	Bay	Gonter/Santucci
9060347	Taylor	Santucci/Gonter
9060363	Citrus	Gonter/Pfaff
9060394	Polk	Sheehan/Baxter
9060396	Polk	Sheehan/Baxter

Ecological Considerations and Evaluation: An environmental evaluation was completed for this release material to assess its potential to adversely impact the environment. Although there is little available literature on ecological aspects of this species, because it is native to the area of intended use, it poses little risk to native ecosystems.

Conservation Use: Ghost Rider purple bluestem is an important plant for erosion control and improving upland water quality. It also produces high quality livestock forage and is considered to be one of the most palatable native grasses on flatwoods sites. Stands will be reduced by overgrazing or frequent fires, so it does require careful management in forage systems. It is a prolific seed producer, which makes it ideal for critical area stabilization on wetter sites. Ghost Rider also provides habitat for wildlife.

Area of Adaptation: The accessions included in the composite originated from all areas of the state except the southernmost counties below Lake Okeechobee, although purple bluestem has been reported to occur in this region. Ghost Rider purple bluestem should be adapted throughout Florida. It has not been tested at locations outside the state. It can be planted on lowland sites, such as wet flatwoods, sloughs, and the margins of ponds or marshes. It will not survive on droughty, upland sites without supplemental irrigation. It is especially well adapted to planting on heavier soil types.

Availability of Plant Materials: A limited supply of Ghost Rider purple bluestem seed will be available in 2006 for commercial producers from the USDA, NRCS Plant Materials Center, 14119 Broad Street, Brooksville, Florida 34601, (352) 796-9600.

References:

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