SOUTH DAKOTA AGRICULTURAL EXPERIMENT STATION
SOUTH DAKOTA STATE UNIVERSITY
DEPARTMENT OF PLANT SCIENCE

AND

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

# ANNOUNCE THE RELEASE OF SUNNYVIEW BIG BLUESTEM

'Sunnyview' big bluestem (*Andropogon gerardii* Vitman) was developed by the South Dakota Agricultural Experiment Station, Brookings, South Dakota, and released in cooperation with the USDA-NRCS, Plant Materials Center, Bismarck, North Dakota.

Sunnyview originated from seed collections made from native prairies in southeastern (Union County) South Dakota. It was formed by one cycle of phenotypic selection followed by a cycle of family selection. Sunnyview is comprised of about 30 plants from each of 15 half-sib families. Nine of those familes are from open-pollinated spaced plants that were selected for vigor, leafiness, seed yield, and fertility of the pedicellate spikelet. The others are from a 6-genotype polycross comprised of parents selected for the same criteria. The entire nursery of about 450 plants was harvested in bulk to produce breeder's seed.

Sunnyview is later maturing than cultivars of more northern origin (e.g. 'Bison' and 'Bonilla'), but reaches anthesis about 12 days before 'Pawnee' and about 25 days before 'Kaw' at Brookings, South Dakota. The same phenological relationships among these cultivars have also been observed at other locations in the northern Great Plains.

Sunnyview is vigorous, leafy, and winterhardy. It demonstrated excellent forage production and persistence in six trials conducted in South Dakota, North Dakota, and Minnesota from 1983 through 1989. Averaged across 24 location-years, Sunnyview produced 4732 $\pm$ 604 kg ha$^{-1}$ compared with 3308 $\pm$ 461 kg ha$^{-1}$ for Bison, 3385 $\pm$ 454 kg ha$^{-1}$ for Bonilla, and 4108 $\pm$ 469 kg ha$^{-1}$ for Pawnee. Mean concentration of total N in herbage of Sunnyview ranged from 19 g kg$^{-1}$ prior to heading to < 10 g kg$^{-1}$ at the dough stage of seed development. This was similar to N levels in herbage of 'Sunburst' switchgrass, but less than for "Oahe' intermediate wheatgrass [*Thinopryrum intermedium* (Host) Barkworth & D.R. Dewey], 'Regar' meadow bromegrass (*Bromus* *riparius* Roem), which had total N concentrations of approximately 30 g $kg^{-1}$ and 12 g $kg^{-1}$ at those same stages of development, respectively.

The morphological characteristic that separates Sunnyview from other big bluestem cultivars is a high percentage of partially to completely hermaphroditic plants. In clonal nurseries of eight randomly-selected genotypes planted in good seed production environments, seed set in pedicellate spikelets was about 70% compared to 80% in sessile spikelets. However, in more xeric environments, seed set was about 40% in sessile and only about 23% in pedicellate spikelets. Caryopses produced in pedicellate spikelets are lighter than those from sessile spikelets of the same plant. The difference is genotype dependent and ranged from 24 to 92% heavier for caryopses from sessile spikelets.

The primary area of adaptation for Sunnyview is USDA Plant Hardiness Zones 3 and 4 between 42° and 49° N latitude and 95° and 100° W longitude. This area includes parts of the major Land Resource Areas: (1) Central Black Glaciated Plains, (2) Southern Black Glaciated Plains, (3) Red River Valley of the North, (4) Rolling Till Prairie, (5) Loess Uplands and Till Plains, (6) Central Iowa and Minnesota Till Prairies, and (7) Iowa and Missouri Deep Loess Hills.

Breeder seed of Sunnyview will be maintained at the South Dakota Agricultural Experiment Station. Foundation seed will be maintained and distributed by the Foundation Seed Stocks Division, South Dakota State University. Certified seed will be grown exclusively from the foundation generation.

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