REGISTRATION OF 'DACOTAH' SWITCHGRASS

'DACOTAH' switchgrass (Panicum virgatum L.) (Reg. no. 132, PI 537588) was collected by the USDA-ARS, Northern Great Plains Research Laboratory (NGPRL), Mandan, ND, and was further developed and evaluated in cooperation with the USDA-SCS, Plant Materials Center (PMC), Bismarck, ND. Dacotah was tested as NDG-965-98 and jointly released in April 1989 by USDA-ARS, USDA-SCS, and the North Dakota and Minnesota Agricultural Experimental Stations. Dacotah was released because of its early maturity. This cultivar extends the latitudinal adaptation of cultivated switchgrass farther north than with presently available cultivars.

Dacotah parentage was derived from open-pollinated progenies of individual plants selected in 1935 at a site near Breien, ND (46° 30' N lat). It was apparent that the selected plants had been growing there for several years. Average annual precipitation in the area is 380 mm. The accessions were grown at the USDA-ARS-NGPRL in Mandan, ND, with other accessions. After 3 generations in open-pollinated nurseries, 10 plants were selected for uniform plant type, leafiness, plant vigor, high seed yields, adaptation to northern climates, and uniform green color. Seed from these 10 plants were bulked to form the accession NDG-965-98, which was much earlier maturing than other accessions and had better adaptation to climates of North Dakota and northern Minnesota. It was not outstanding in forage yield performance, but was placed in seed increase fields by the USDA-SCS and has been evaluated at farm observation sites since its original composition. No further selection has been practiced on Dacotah over the years other than natural selection for hardness and persistence during two generations of bulk increase at the Bismarck PMC. Three hundred plants were chosen at random from a breeder seed increase block at the Bismarck PMC and vegetatively established in a permanent breeder seed block at the USDA-ARS-NGPRL. Chromosome number as determined in meristematic cells from 20 individual plants was 2n = 4x = 36.

Variety trial plots (4.5 by 30.4 m) were grown from 1982 to 1987 at Upham, ND; Fergus Falls, MN; Ft. Pierre, SD; Ft. Sully, SD; Lake Andes, SD; and Rochester, MN. Dacotah averaged 27 d earlier in anthesis than 'Forestburg' at Fergus Falls (46° 20' N lat) for 2 yr and 45 to 50 d earlier than other cultivars. Only Dacotah and three other cultivars produced mature seed at Fergus Falls. At Upham (48° 40' N lat), Dacotah usually had mature seed before other cultivars reached anthesis. The southern cultivars, 'Blackwell', 'Cave-in-Rock', and sometimes 'Pathfinder', seldom reached anthesis before fall frosts at Upham.

Dacotah tended to have a higher stand density at northern locations (Upham and Fergus Falls) than did cultivars originating south of these sites. Dacotah and Forestburg tended to increase in stand density over time while other cultivars decreased at the northern locations. Dacotah was 10- to 15-cm shorter in mature plant height and had less rank growth than other cultivars. While producing adequate forage yields at northern sites (4175 kg ha⁻¹), Dacotah averaged 30 to 45% less forage yield than other cultivars and was usually the lowest at individual locations that were included in 18 location-years of testing.

Dacotah is well adapted to North Dakota and northern parts of Minnesota on sites where switchgrass is recommended. It is able to produce mature seed in these areas, is hardy and persistent, and can reseed itself in low-maintenance stands. The ability of Dacotah to reseed itself is a desirable trait for supplying feed for birds in wildlife plantings and for maintaining productive stands. Dacotah's lower forage yield helps to avoid rank growth and litter buildup that sometimes limit utilization of switchgrass in northern climates. Primary intended uses are in the Conservation Reserve Program, stabilization of critical areas, grass waterways, and as a component of grass mixtures for winter-sown pastures. It may also be used for nature trails, habitat for upland game birds and water fowl, transportation corridors, rural beautification, and other plantings where establishment of native vegetation is an objective.

Breeder seed of Dacotah switchgrass will be maintained at the USDA-ARS-NGPRL, Mandan, ND 58554. Foundation and certified generations of seed increase beyond breeder seed are authorized. Foundation seed will be available from the USDA-SCS-PMC, Bismarck, ND 58502.

R. E. BARKER,* R. J. HAAS, J. D. BERDAHL, AND E. T. JACOBSON (1)

References and Notes


Published in Crop Sci. 30:1157-1158 (1990).