



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

'Dacotah' Switchgrass

Panicum virgatum L

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



'Dacotah' switchgrass, *Panicum virgatum* L., is a cooperative release by the Natural Resources Conservation Service (NRCS) and the Agricultural Research Service (ARS) of the U.S. Department of Agriculture (USDA) and the North Dakota and Minnesota Agricultural Experiment Stations in 1989.

Description

Switchgrass grows 3 to 5 feet in height. Even as a seedling, it can be distinguished from other native grasses by the dense patch of hairs at the point where the leaf blade attaches to the sheath. The stem is round and usually has a reddish tint. The seedhead (panicle) is spreading and open. The plant spreads vegetatively by short rhizomes. Dacotah is typical of northern ecotypes of switchgrass having shorter stature and finer leaves and stems.

Source

Original Dacotah switchgrass plants were collected on an upland site near Breien in south-central North Dakota. The plants were grown in comparison with other collections at the USDA, ARS Northern Great Plains Research Laboratory, Mandan, ND. After three generations in open-pollinated nurseries, 10 plants were selected for uniform plant type, leafiness, high plant vigor and seed yields, adaptation to northern climates, and uniform green color. It was tested as NDG-965-98.

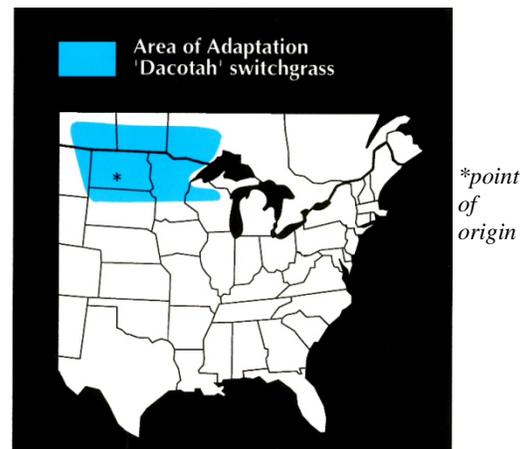
Conservation Uses

Switchgrass is a tall native perennial, warm-season, sod-forming grass of the central and eastern United States. It can be used singly or in mixtures for livestock forage in rangeland, pastureland, and hayland. In addition, switchgrass is excellent for wildlife habitat, critical area

seeding, roadside cover, and erosion control. It can be used in mixtures with other warm-season grasses such as big bluestem, Indiangrass, little bluestem, and sideoats grama. Switchgrass grows rapidly from June 1 until late summer and provides large quantities of high-quality forage for livestock grazing when high temperatures retard the growth of cool-season species. Proper grazing management and fertilization can maintain high performance indefinitely.

Area of Adaptation and Use

Dacotah switchgrass is earlier maturing and adapted farther north than other known switchgrass cultivars. The projected climatic adaptation of Dacotah (shown by the shaded area on the adaptation map below) is North Dakota and the northern half of Minnesota. Precipitation ranges from 15 to 30 inches for the area. Performance outside this area has not been adequately tested. Dacotah is best suited to moderately wet, light or medium-textured soils. It will tolerate light saline or alkaline soils and is more drought tolerant than other currently available switchgrass cultivars recommended for the Northern Great Plains.



Establishment

Switchgrass and other warm-season grasses require a soil temperature above 50 degrees F for satisfactory germination. The optimum time to plant is early May to mid-June. The seed is smooth, free-flowing, and can be planted easily with most grass drills. Recommended seeding rate is 3.5 to 4.5 lb/acre of pure live seed (30 to 40 pure live seeds/ft²). A moist, firm seedbed, free of perennial weeds is essential. Firming the soil with a roller packer prior to seeding ensures good seed-to-soil contact and proper seeding depth. The seed should be placed ¼ to ½ inch deep. Broadcast packer-seeders or drills equipped with disk openers and depth bands provide the best

results. Companion crops are not recommended, and grazing should be deferred during the establishment year. The application of fertilizer at seeding time stimulates weed growth and is not recommended. Herbicides have effectively controlled weeds during the establishment year at the PMC.

Management

Well-established and maintained switchgrass stands are persistent. Weak stands can be revived by controlled grazing, recommended herbicide and fertilizer application, and prescribed burning before spring growth. Fertilizer should be applied according to soil tests. Generally, nitrogen is applied at 50 to 75 lb/acre in the spring when plants are 4 to 6 inches tall. Forage quality remains high until seedhead emergence. If grazing, start in the spring when plants reach 12 to 16 inches in height and stop when stubble height is 8 to 12 inches. Overgrazing can cause stand decline. Adequate stubble at frost allows the plant crown to store carbohydrates needed for vigorous spring growth.

Performance

The phenology, forage quantity, and wildlife habitat potential of Dacotah have been documented in advanced evaluation studies and field plantings under actual use conditions at locations throughout North Dakota, South Dakota, and Minnesota. Dacotah has demonstrated superior winter hardiness, drought tolerance, and seed production yields. Studies conducted on surface-mined lands indicate superior forage production and persistence on droughty sites and coarse-textured soils. Dacotah yielded 3,600 lb/acre of dry matter over 18 evaluation years in trials with 8 other switchgrass cultivars at 5 locations in North Dakota, South Dakota, and Minnesota. Dacotah's forage production was not significantly different from 'Forestburg', Nebraska-28, and 'Cave-In-Rock' at the Fergus Falls, MN, test site. Dacotah is shorter in mature height and has less rank growth than other cultivars tested. At Fergus Falls in west-central Minnesota, Dacotah matured 27 days earlier than Forestburg, 'Sunburst', Nebraska-28, and 'Summer' and 45 to 50 days earlier than the southern cultivars 'Blackwell', Cave-In-Rock, and 'Pathfinder'. Dacotah consistently produces mature seed, which helps maintain productive stands and provides feed for birds in wildlife plantings. Its early maturity, shorter height, and high density of residual vegetation provide an excellent wildlife cover and nesting habitat. Dacotah's sod-forming habit is ideal for erosion control on areas such as waterways, surface mines, and transportation corridors.

Seed Production

Adequate stands are usually established in one growing season. Seed production is expected the second year and continues indefinitely. Row spacing of 30 to 42 inches is



recommended for seed production. Broadleaf weeds and cool-season grasses have been successfully controlled at the PMC with herbicides, and by clipping and cultivating. If irrigating, apply water at the boot stage and immediately after flowering. Fertilizer should be applied according to soil tests. Generally, nitrogen is applied at 60 to 80 lb/acre. The seed, which matures in August, can be harvested by windrowing in the hard dough stage or direct combining when seed is mature. Direct combined seed is often wet and needs immediate drying to prevent heating. The small, heavy, smooth seed makes harvesting and cleaning easier. Seed yields averaged 200 lb/acre under irrigation at the Plant Materials Center, Bismarck, ND. Purity and germination averaged 95% and 70%, respectively.

Availability

For conservation use: For more information on availability and use of Dacotah switchgrass, contact your local NRCS or conservation district office.

For seed increase: The NRCS Plant Materials Center maintains the foundation seed of Dacotah switchgrass.

Citation

Release brochure for Dacotah switchgrass (*Panicum virgatum*). USDA Natural Resources Conservation Service, Plant Materials Center. Bismarck, ND. Published January 1990, revised August 2012.

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

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