Cave-In-Rock Switchgrass

Panicum virgatum L., Cave-In-Rock Switchgrass is a native warm-season perennial tall bunchgrass selected for pasture, hay, and critical area plantings. Its adaptation and comparative performance in Missouri, Illinois, and Iowa has been determined by field-sized plantings. It also has value as a cover for game birds in shooting preserves and as a wildlife food and cover plant. Its' stiff straw also has value for field borders, wind barriers, biofuels, and on lands subject to overflow or inundation.

The USDA Natural Resources Conservation Service (NRCS) formerly SCS, USDA Department of Agriculture and the University of Missouri Agricultural Experiment Station, Columbia, Missouri released the cultivar Cave-In-Rock switchgrass in March 1973.

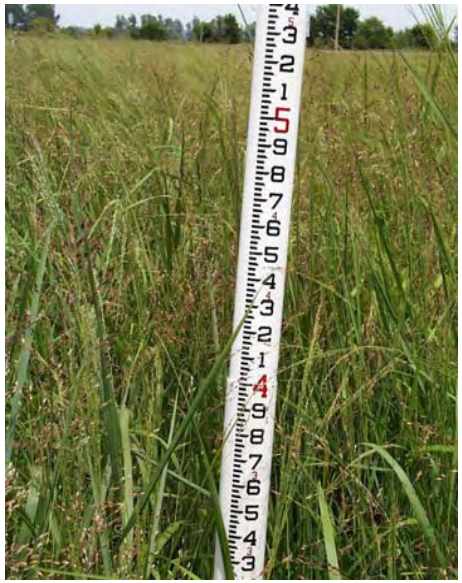
Description

Switchgrass is a tall, cross pollinated warm-season, perennial, native grass with scaly rhizomes; culms erect, to nearly 2 m tall, glabrous, often glaucous; sheaths ciliate to villous at the throat, otherwise glabrous; ligule 2-4 mm long; blades to 15 mm broad, glabrous to pilose near base above, rarely pilose throughout, glabrous below, the margins scabrous; panicle to 10 cm long, 1/3-1/2 as broad, the branches ascending to spreading; spikelets 3.5-6.0 mm long, 1.2-1.5 mm broad, ellipsoid-ovoid, acuminate, glabrous; first glume about 2/3 as long as the spikelet, acuminate to cuspidate, glabrous; second glume and sterile lemma very unequal, the sterile lemma longer than the grain; grain 2-3 mm long, 1.0-1.5 mm broad, narrowly ovoid to ellipsoid.

Seedhead of Cave-In-Rock Switchgrass

Adaptation

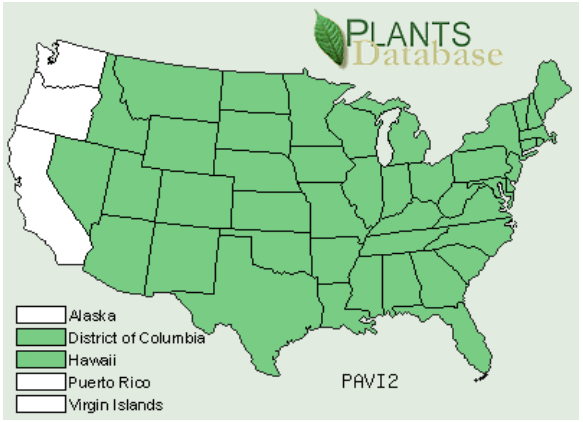
Switchgrass is found growing throughout the bluestem belt of the eastern and central Great Plains and on certain prairie sites in other parts of the United States. Switchgrass is best adapted to lower areas of moist soils, but is winter-hardy and drought resistant, thus found growing under a wide range of soils and climatic conditions. It also grows well on soils acid to alkaline.



Production Field of Cave-In-Rock Switchgrass

Known Distribution

This map shows the adaptation of switchgrass



Area of Intended Use for Cave-In-Rock Switchgrass

Cave-In-Rock's recommended area of intended use is Iowa, Illinois, Missouri and most of the states located in the Midwest.

Establishment

When establishing switchgrass the soil should be firm enough to allow seed to be planted on the surface 1/8 to 1/4 inch deep. The seedbeds should be firmed with a roller prior to the drilling or broadcasting of seed. If the seed is planted using the broadcast method, it also should be rolled after to help cover the seed. No-till seedings in closely-grazed sod also have been successful where control of sod is accomplished with proper herbicides.

Seeding Rate (Forage Production)

Cave-In-Rock switchgass can be seeded in pure stand when used for pasture or hay because it can be managed easier alone than in a mixture. Its shiny, slick, clean, free-flowing seed can be

planted with a drill or a broadcast spreader. It is best planted at a rate of about six pounds of pure live seed (PLS) per acre from late April to mid-June in Central Missouri. Spring seedings should be made in firm seedbeds free of competition.

Seeding Rate (Seed Production)

Planting switchgass for seed production can be accomplished in four different row spacings: 36 inch row spacing, 24, 12, and solid stand. Seeding rate for the 36 in row spacing should be 2.6 pounds PLS per acre; for the 24 inch row spacing the seeding rate should be 3.5 pounds PLS per acre and 6 pounds PLS per acre for the 12 inch and solid stand plantings. For best results seeding should be made in the spring of the year. Seed yield per acre ranges from 100-250 bulk pounds per acre.

Management

If weeds are a problem during the seeding year, Cave-In-Rock switchgrass may be mowed at a four-inch height in May or a six-inch height in June or July. Grazing is not recommended the first year, but a vigorous stand can be grazed late in the year. Switchgrass begins growing late in the spring, making about 70 percent of its production after June 1. This makes its management quite different from cool-season grasses. Established stands of Cave-In-Rock switchgrass may be fertilized in accordance with soil tests. Generally, 60 pounds of nitrogen and 30 pounds each of phosphorus and potassium per acre is adequate for maximum yields. Apply the nitrogen after the switchgrass has begun to leaf out using a single application in mid-to-late May or a split application in both May and early July. Seed smut, if left unchecked, can seriously decrease seed yields of switchgrass. The smut is generally caused by a fungus, *Tilletia maclaganii*. Fields may need to be destroyed or relocated if diseased.

Avoid high rates of nitrogen because carryover could spur cool-season grass growth and compete against young plants the following spring. Switchgrass may benefit from burning of plant residues at the initiation of spring growth. Burning fields once every three to five years decreases other plant competition, eliminates excessive residue and stimulates switchgrass growth. Under continuous grazing management, begin grazing switchgrass after it has reached a height of 14 to 16 inches, usually in mid to late May. Grazing should be stopped when plants are grazed to within four inches of the ground in May, eight inches in June and 12 inches in late August. A rest before frost is needed to allow for carbohydrate storage in the stem bases and crown. This will help produce vigorous plant growth the next year. Switchgrass may be grazed to a height of six to eight inches after frost.

Availability

Foundation seed of Cave-In-Rock switchgrass is being produced in limited supply by the Elsberry Plant Materials Center. It is also readily commercially available.

For More Information

Visit our Plant Materials website at **hhtp://Plant-Materials.nrcs.usda.gov** to find more information on solving conservation problems using plants.

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United States Department of Agriculture
Natural Resources Conservation Service

Cave-In-Rock Switchgrass
Panicum virgatum L.

An Improved Conservation Plant Developed by Elsberry Plant Materials Center Elsberry, Missouri