



Seed production field of 'Cave-in-Rock' switchgrass

Cave-In-Rock Switchgrass

Panicum virgatum L. is a cultivar, released in March 1974 by the USDA-Natural Resources Conservation Service (NRCS)- Elsberry Plant Materials Center, formerly SCS, and the University of Missouri Agricultural Experiment Station, Columbia, Missouri.

Description

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

Source

Cave-In-Rock switchgrass, (*Panicum virgatum* L.) can be traced to a field near Cave-In -Rock, Illinois, where its seed was collected by R. K. Lawson and V. B. Hawk in 1958. The two men provided the seed to the USDA Soil Conservation Service's Elsberry Plant Materials Center at Elsberry, Missouri. There, the plant's performance was compared with other field collections and commercially available varieties of switchgrass. After many years of

testing, Cave-In-Rock switchgrass seed was released in March 1974 from the Elsberry Plant Materials Center for different conservation uses.

Conservation Uses

Cave-in-Rock switchgrass has valuable adaptations that can be used for range and pasture land, wind barriers, biofuel, and protection for lands subject to overflow and inundation. The stiff-stemmed, upright growth is highly rated for wildlife nesting, brood rearing and winter cover habitat. The stiff straw is exceptional as field borders and wind barriers and its extensive root system provides an excellent stabilizing force for soil erosion and control.

Area of Adaptation and Use

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.

Establishment and Management for Conservation Plantings

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 should also 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. If weeds are a problem during the seeding year, Cave-In -Rock switchgrass may be mowed to 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 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 phosphorus and potassium per acre are 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. Avoid high rates of nitrogen because carryover can spur cool-season grass growth which can compete with 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 15 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 13 inches in late August. A rest period 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.



Post 2008 flood, a plot of 'Cave-in-Rock' switchgrass produces seed while surrounding vegetation has died

Ecological Considerations

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.

Seed and Plant Production

Planting switchgrass 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 inch 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.

Availability

For conservation use: Commercial seeds of Cave-In-Rock switchgrass are widely obtainable from seed growers throughout the Midwest region.

For seed or plant increase: Breeder or foundation seeds can be obtained for the purpose of large-scale increase, including any limitations on generations, from the USDA-NRCS Elsberry Plant Materials Center.

For more information, contact:
USDA-NRCS Elsberry Plant Materials
Center, 2803 North Highway *79. Phone #
573-898-2012 Fax # 573-898-5012,
website: <http://plant-materials.nrcs.usda.gov>

Citation

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Additional Information

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

Title: Cave-In-Rock switchgrass, (*Panicum virgatum* L.)
Conservation Plant Release Brochure

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Missouri

Subject: Switchgrass (*Panicum virgatum* L.) is a tall, native prairie, warm-season, perennial grass. Uses include livestock forage, hay, wildlife food and habitat, biofuels, range reseeds wind barriers and lands subject to over flow or inundation.

Keywords: Conservation Plant Release Brochure, Switchgrass, *Panicum*, *Panicum virgatum*, warm-season, perennial, grass, native prairie, forage, hay, wildlife habitat, food, windbarrier, biofuels, lands subject to over flow or inundation.

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