Plant Fact Sheet

SWITCHGRASS

Panicum virgatum L.

Plant Symbol = PAVI2

Contributed by: USDA NRCS Plant Materials Program

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From the Southern Wetland Flora (1991)
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Uses

Livestock: Switchgrass is noted for its heavy growth during late spring and early summer. It provides good warm-season pasture and high quality hay for livestock.

Erosion Control: Switchgrass is perhaps our most valuable native grass on a wide range of sites. It is a valuable soil stabilization plant on strip-mine spoils, sand dunes, dikes, and other critical areas. It is also suitable for low windbreak plantings in truck crop fields.

Wildlife: Switchgrass provides excellent nesting and fall and winter cover for pheasants, quail, and rabbits. It holds up well in heavy snow (particularly 'Shelter' and 'Kanlow' cultivars) and is useful on shooting preserves. The seeds provide food for pheasants, quail, turkeys, doves, and songbirds.

Biofuel Source: Interest in switchgrass as a renewable biofuel resource has been increasing in recent years, primarily in the Southern United States. The Booneville, Arkansas, Plant Materials Center (PMC) and the Plant and Soil Science Department of Oklahoma State University (OSU) are cooperating to evaluate several upland types of switchgrass for use as a biomass energy resource. Selections of upland types of switchgrass have been evaluated by OSU for several years. The development of hybrid progeny with substantial heterosis for increased biomass yield will ultimately result in improved hybrid cultivars for the Central and Southern United States. The PMC is in the process of assessing several improved lines along with commercially available cultivars for dry-matter potential and environmental adaptation. Results of this study may contribute to producers cashing in on a growing demand for renewable fuels and a decrease on our dependency on fossil fuels.

Status

Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status (e.g. threatened or endangered species, state noxious status, and wetland indicator values).

Weediness

This plant may become weedy or invasive in some regions or habitats and may displace desirable vegetation if not properly managed. Please consult with your local NRCS Field Office, Cooperative Extension Service office, or state natural resource or agriculture department regarding its status and use. Weed information is also available from the PLANTS Web site at plants.usda.gov.

Description

Panicum virgatum L., switchgrass, is native to all of the United States except California and the Pacific Northwest. It is a perennial sod-forming grass that grows 3 to 5 feet tall and can be distinguished from other warm-season grasses, even when plants are young, by the white patch of hair at the point where the leaf attaches to the stem. The stem is round and usually has a reddish tint. The seed head is an open, spreading panicle.

Adaptation and Distributions

On suitable soils, switchgrass is climatically adapted throughout the most of the United States. Moderately deep to deep, somewhat dry to poorly drained, sandy to clay loam soils are best. It does poorly on heavy soils. In the East, it performs well on shallow and droughty soil.

Switchgrass is distributed throughout the majority of the United States, excluding the far west states. For a

current distribution map, please consult the Plant Profile page for this species on the PLANTS Website.

Establishment
Switchgrass should be seeded in a pure stand when used for pasture or hay because it can be managed better alone than in a mixture. Its slick, free-flowing seed can be planted with most seed drills or with a broadcast spreader. In the Southeast, a planting rate of approximately 10 pounds PLS per acre is recommended. Seedbeds should be firmed with a roller prior to the drilling or broadcasting of seed. If seeds are planted using the broadcast method, the area should be rolled afterward to help cover the seed. When drilled, seeds should be planted 1/4 inch deep. No-tillage seedings in closely grazed or burned sod also have been successful, where control of sod is accomplished with clipping, grazing, or proper herbicides.

Phosphorus and potassium should be applied according to soil tests before or at seeding. Nitrogen, however, should not be used at seeding time because it will stimulate weed growth.

Management
To control weeds during establishment, mow switchgrass to a height of 4 inches in May or 6 inches in June or July. Grazing is generally not recommended the first year, but a vigorous stand can be grazed late in the year if grazing periods are short with at least 30 days of rest provided between grazings. Switchgrass is the earliest maturing of the common native warm-season grasses and it is ready to graze in early summer.

Established stands of switchgrass may be fertilized in accordance with soil tests. Phosphorus and potassium may not be needed if the field is grazed since these elements will be recycled back to the soil by the grazing animal. Apply nitrogen after switchgrass has begun to produce 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 carry-over could spur cool-season grass growth and harm young plants the following spring.

Switchgrass will benefit from burning of plant residues just prior to initiation of spring growth. Burning fields once every 3 to 5 years decreases weed competition, eliminates excessive residue and stimulates switch grass growth. Switchgrass used for wildlife food and cover should be burned once every 3 to 4 years to reduce mulch accumulations that inhibit movement of hatchlings and attract nest predators.

Under continuous grazing management, begin grazing switchgrass after it has reached a height of 14 to 16 inches, and stop when plants are grazed to within 4 inches of the ground during late spring, 8 inches in early summer, and 12 inches in late summer. A rest before frost is needed to allow plants to store carbohydrates in the stem bases and crown. Plants may be grazed to a height of 6 to 8 inches after frost. The winter stubble is needed to provide insulation.

With management intensive systems, grazing can begin in the first paddocks when plants reach a height of 10 inches and should not be grazed below a stubble height of 6 to 8 inches. Grazed paddocks need to be rested 30-60 days before being grazed again.

Pests and Potential Problems
Grasshoppers and leafhoppers can be major pests in new seedings. Some stands are impacted by damping off and seedling blight. Leaf rust occasionally affects forage quality.

Cultivars, Improved, and Selected Materials (and area of origin)
‘Alamo’ (TX), ‘Blackwell’ (OK), ‘Cave-In-Rock’ (IL), ‘Dacotah’ (ND), ‘Forestburg’ (SD), ‘Kanlow’ (OK), ‘Nebraska 28’ (NE), ‘Shawnee,’ ‘Shelter’ (WV) (cultivars); Grenville (NM) (informal release); Miami (Dade Co, FL), Stuart (Stuart, FL), Wabasso (Wabasso, FL) (source identified releases). Seeds are available from most commercial sources and through large agricultural supply firms.

Control
Please contact your local agricultural extension specialist or county weed specialist to learn what works best in your area and how to use it safely. Always read label and safety instructions for each control method. Trade names and control measures appear in this document only to provide specific information. USDA, NRCS does not guarantee or warranty the products and control methods named, and other products may be equally effective.

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For more information about this and other plants, please contact your local NRCS field office or Conservation District, and visit the

PLANTS Web site<http://plants.usda.gov> or the Plant Materials Program Web site <http://Plant-Materials.nrcs.usda.gov>

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