



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

'El Reno' sideoats grama

Bouteloua curtipendula (Michx.) Torr.

A Conservation Plant Release by USDA NRCS Manhattan Plant Materials Center, Manhattan, KS



Figure 1. El Reno sideoats grama inflorescences in flower. Photo by Alan Shadow, ETPMC, Nacogdoches, Texas.

'El Reno' Sideoats Grama (*Bouteloua curtipendula*) is a cultivar released in 1944 cooperatively by the Kansas Agricultural Experiment Station (AES) and the Manhattan Soil Conservation Service (SCS) Plant Materials Center (PMC).

Description

General: Sideoats grama is a deeply rooted (7 feet), perennial grass with good forage potential. The plants crown will spread very slowly by means of extremely short, stout rhizomes. A mid-grass in height, it has rather wide leaves and a very distinct inflorescence consisting of a zigzag stalk with small compressed spikes dangling from it at even intervals. The short spikes dangle from one side of the stalk, thus providing the plant with its common name. In the vegetative state the grass is easily recognized by the long, evenly spaced hairs attached to the margins of the leaf near its base. Sideoats grama possesses the C₄ photosynthetic pathway common to other warm-season grasses.

Source

Field collections made on a native range site in Canadian County, Oklahoma near the town of El Reno in 1934 and were tested at the Manhattan PMC as KG-482. KG-482 was tested against similar collections of sideoats grama at Manhattan. The KG-482 collection was rated outstanding for leafiness, forage production, and vigor. It also ranked well in disease resistance, seed production and winter hardiness. It was subsequently tested in the service area and released in 1944 as El Reno sideoats grama by the PMC and Kansas AES.

Conservation Uses

Forage: Sideoats grama produces high quality, nutritious forage that is relished by all classes of livestock throughout the summer and fall, and it remains moderately palatable into winter. This makes it one of the most important range grass species.

Erosion Control: Weaver and Albertson in 1944 described the role of sideoats grama in the recovery of grasslands following the drought of the 1930's. It was one of the few grasses that covered large areas bared by the loss of other grasses during the drought period. Sideoats grama is recommended in grass mixtures for range and pasture seeding, for earth fill and bank stabilization, for other critical areas and recreational plantings. Successful seeding can be obtained in rocky, stony or shallow soil sites. In fact, sideoats is often found in nearly pure stands on caliche outcrops, stony hillsides, and breaks.

Wildlife: Sideoats provides some forage for antelope and deer when actively growing. Elk will use this grass as forage throughout the year. Seeds of this species are consumed by wild turkeys.

Area of Adaptation and Use

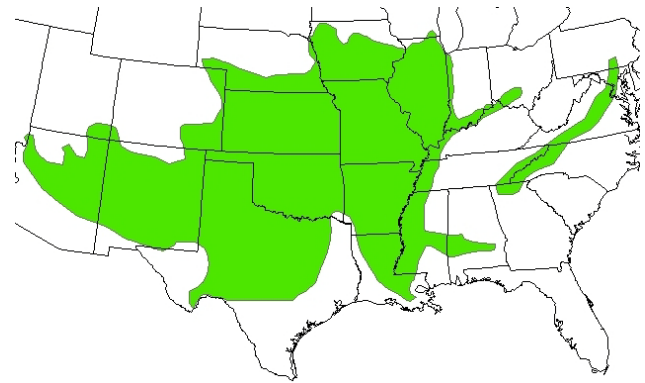


Figure 2. Area of adaptation of El Reno sideoats grama.

Establishment and Management for Conservation Plantings

As a mid-grass, sideoats grama is intermediate in many respects between the tall and short grass species. Sideoats grama is not as resistant to grazing pressure as is blue grama due to its taller growth habit. Sideoats seedlings are vigorous, stands tend to establish quickly, and can often be utilized for forage production the second year after planting. Sideoats grama is usually included in range mixes and should be managed as native rangeland.

Management should include proper livestock stocking rates and correct season of use. Seed production experiments conducted in Nebraska in the 1950's found that sideoats grama's response to nitrogen fertilization was dependent on moisture conditions during critical growth periods. Seed yields measured as whole spikes were substantially increased over unfertilized check plots by all rates of nitrogen applied. Under drought conditions the application of 60 and 90 pounds of nitrogen yielded whole spike yields of approximately equal amounts. Under favorable moisture conditions nitrogen fertilization improved the quality of the caryopsis by increased weight per 1000 caryopsis over unfertilized plots.

The effect of burning on seed yield was studied in 1962 by Newell in fertilized and unfertilized plots. Although the seed yield results were numerically larger from both levels of fertilized plots when burned, the differences were not statistically different. This finding is noteworthy since it demonstrates that proper burning, if not conducted too late in the spring, does not reduce seed yield. Burning is a good method of cleaning the field for the new seed crop year. Burning has also been known to help control cool season weeds and reduce disease inoculums for the new crop. Thus, sideoats grama may be grown for seed in cultivated rows, and will respond to timely fertilization and irrigation applications.

Ecological Considerations

Grasshoppers can be destructive to seedling stands. Some stem and leaf rust occurs in wet years and plant pathologists have noted that several leaf spot and root rot fungi occur on sideoats grama

Seed and Plant Production

Seed El Reno no deeper than ¼ inch on fine textured soils and ¾ inch on coarser textured soils. Planting with a grass seed drill on a firm, weed free seedbed at the rate of 2.5 to 5.0 pounds of pure live seed (PLS) is encouraged. Broadcasting at a higher seeding rate (50 to 100 percent increase) can be utilized on a previously prepared seedbed that will be roller packed to improve seed to soil contact after seeding is completed. Increased seeding rate should also be used on bare areas, harsh sites, or on areas that require denser or quicker stand establishment. Seeding is more likely to be successful if moisture conditions are good and if mulch is used to retain moisture on the seeded site. Most seeds germinate within 7 days under good field conditions. Seedling vigor is good when compared to other warm-season grasses. Field germination, emergence and establishment of this species are better than other

grama grasses. Protection from grazing is encouraged while seedlings are in the juvenile growth stage. Seed of sideoats grama normally found on the open market consists of either whole spikes or individual florets, or mixtures of these, which vary widely in their content of germinable caryopsis. Thus, seeding rates of sideoats must be computed on the basis of purity and viability of the seed lot. Purity analysis of sideoats can be complicated by the inclusion of adhering glumes and spike fragments as part of the seed unit. As long as the seed unit has a germinable caryopsis in the spike it is considered viable and used in the computation of pure live seed by the seed analyst. Thus, a spike may contain several germinable caryopses, but is counted only as one for the purpose of germination percentage.

Availability

For conservation use: El Reno sideoats grama is widely available from a number of commercial vendors.

For seed or plant increase: Breeder and foundation seed of El Reno are maintained by the Manhattan Plant Materials Center. There is no registered class of seed recognized for this cultivar release.

For more information, contact:
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Citation

Release Brochure for El Reno Sideoats Grama (*Bouteloua curtipendula*). USDA-Natural Resources Conservation Service, Manhattan PMC. Manhattan, KS 66502. Published: April 2011

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>>

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