



SPIKE DROPSEED

Sporobolus contractus Hitchc.

Plant Symbol = SPCO4

Alternative Names

Common Names: spike dropseed, zacate alcalino espigado

Scientific Names: *Sporobolus cryptandrus* var. *strictus*, *Sporobolus strictus*

Description

General: Spike dropseed is a native, warm season perennial bunchgrass. The name is derived from its appearance with each spikelet holding one flower, which falls to the ground when the seed is ripe. It is 1.15 to 3.94 ft (35 to 120 cm) in height, with erect culms. Leaf sheaths are smooth, with hairy margins especially on the upper portions. The ligules are 0.02 to 0.04 in (0.4 to 1 mm) long with dense hairs. The leaf blades are flat, 0.79 to 13.78 in (2 to 35 cm) long, 0.08 to 0.32 in (2 to 8 mm) wide, hairless below and above, margins whitish, somewhat rough to the touch and tapering to a fine involute point. The inflorescence consists of densely flowered, nearly cylindrical, spikelike compacted panicles that are approximately 5.91 to 19.69 in (15 to 50 cm) long, 0.08 to 0.32 in (2 to 8 mm) wide, terminating at the culm, narrow and somewhat concealed in the sheaths. The spikelet is 0.08 to 0.11 in (2 to 2.8 mm) long, 0.07 to 0.13 in (1.7 to 3.2 mm) wide, whitish to dull gray in color. The glumes are narrow, lance shaped, with the lower glumes 0.03 to 0.07 in (0.7 to 1.7 mm) long, and the upper glumes 0.08 to 0.13 in (2 to 3.2 mm) long, both with pointed tips. The florets are 0.06 to 0.12 in (1.5 to 2.9 mm) long and gray to straw-colored. The lemmas are 0.08 to 0.13 in (2 to 3.2 mm) long and the paleas 0.07 to 0.12 in (1.8 to 3 mm) long. The anthers are 0.01 to 0.02 in (0.3 to 0.5 mm) long and light yellow in color. The seeds are 0.03 to 0.05 in (0.8 to 1.2 mm) long, 0.02 to 0.03 in (0.4 to 0.8 mm) wide, 0.01 to 0.02 in (0.2 to 0.5 mm) thick, opaque, and egg shaped. The caryopses are broad and flattened, approximately 0.04 in (1 mm) long and yellowish in color. Flowers may bloom from July through November, occasionally as early as June (Peterson et al., 2004; Abrams, 1923; Chase et al., 1968; Goodrich et al., 1986; Hitchcock, 1937; Musil, 1963; Allaby, 2006; Garner et al., 2005; USDA, 2012).



Cochise Germplasm spike dropseed (Photo by USDA-NRCS Tucson Plant Materials Center).

Distribution: Spike dropseed is found throughout the southwestern United States, in northern Mexico (Welsh et al., 1987; Peterson et al., 2004) and in the eastern states of Connecticut, Michigan, New York, New Jersey and Maine (Peterson et al.; 2021). It grows in the Central Great Plains, the Southwestern Desert, Southern Plains, Plateaus, and Rocky Mountains and the southern part of the Great Basin Intermontane plant growth area (Thornburg, 1982). It is present in southeastern California, Arizona, from Colorado to Nevada, Arkansas, south to western Texas, and adventive in the Northeast region in Maine (Hitchcock, 1935; Chase et al., 1968; Abrams, 1923). For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

Habitat: Spike dropseed is commonly found among mesas, sandy fields, and dry bluffs (Hitchcock, 1937). Present in desert grasslands, desert shrub-grass, and pinyon-juniper woodland communities below 6,497 feet (1980 meters). It is typically found at altitudes between 985 to 7,546 ft (300 to 2,300 m) (Welsh et al., 1987; Peterson et al., 2004).

Adaptation

Spike dropseed can be found alongside sandy soil plains, washes, and rocky slopes (Warren et al., 1992; USDA, 2012), in dry to moist, sometimes alluvial, calcareous, and saline soils (Goodrich & Neese, 1986; Warnock, 1974).

Uses

The potential uses of spike dropseed include wildlife food/cover, erosion control, disturbed area restoration and rangeland rehabilitation. It has the potential to aid in rangeland reclamation on lands dominated by exotic and introduced perennial grasses such as Lehmann lovegrass (*Eragrostis lehmanniana*) (USDA, 2012; Garner et al., 2005). It is utilized as a food source by various wildlife species. Upland birds feed on the mature seed (Carr, 2009), and it is grazed by lagomorph species including black-tailed jackrabbits, as it is highly favorable in comparison to other species (Dabo et al., 1982; Gibbens et al., 1993). Spike dropseed can establish rapidly on depleted rangeland and is a prolific seed producer (Thornburg, 1982).

Ethnobotany

Spike dropseed has been used by Native Americans primarily for the creation of different food materials. The Apache Tribe used the plant as a cash crop but also used the seeds to make bread, pones, and porridge by grinding and mixing them with corn meal (Reagan, 1929; Winfred, 1986). The Navajo Tribe used the seeds to make bread (Steggerda, 1941). The Zuni Tribe used it to create grass bunches as shelters, and as a household material to cover home entryways (Stevenson, 1915). The Hopi Tribe also used the plant as food and named it “moki-okwa-kwi”, meaning dropseed (Whiting, 1978). The grains can be eaten raw or parched and ground with flour (Warnock, 1974).

Status

Threatened or Endangered: No.

Wetland Indicator: No.

Weedy or Invasive: Spike dropseed can become invasive in some regions or habitats if not managed properly (Carr, 2009). Please consult with your local NRCS Field Office, Cooperative Extension Service office, state natural resource, or state agriculture department regarding its status and use.

Please consult the PLANTS Web site (<http://plants.usda.gov/>) and your state’s Department of Natural Resources for this plant’s current status (e.g., threatened or endangered species, state noxious status, and wetland indicator values).

Planting Guidelines

The recommended seeding rate for Spike dropseed is 1 pound (lb) of pure live seed (PLS) per acre if planted with a drill and approximately 2 PLS lbs per acre if the seed is broadcasted. The seeding rate should be adjusted accordingly when used as part of a mix. Cochise Germplasm spike dropseed has approximately 1,750,000 seeds per pound, as counted at the Tucson Plant Materials Center (USDA, 2012) and Potter County Germplasm spike dropseed has approximately 2,885,000 seeds per pound, as counted by the James E. “Bud” Smith Plant Materials Center (USDA, 2013).

Management

Spike dropseed can reseed itself following periods of drought. Plant stands should be well established before grazing is permitted. In well-established areas, grazing can be permitted the first winter after planting but it should never be grazed or cut below five to six inches (Carr, 2009).

Pests and Potential Problems

None known.

Environmental Concerns

None known.

Seeds and Plant Production

Spike dropseed can be direct seeded at a ¼ inch depth or established with transplants in a weed-free seedbed created by either tillage or herbicides, during late summer to early fall. Fields may be pre-irrigated, and it is essential to irrigate during establishment to maintain a moist surface and prevent soil crusting. Irrigation should be avoided during flowering, but moisture is essential during seed development. Apply nutrients according to soil test results and recommendations. Fertilization is not recommended during establishment although nitrogen can be applied at 40-60 lbs per acre to an established field. Appropriate herbicide can be used after the 3-5 leaf stage for weed control (USDA, 2012). Mechanical seed collection can be completed with a combine, seed stripper or similar type harvester. Harvested seed can be cleaned by processing with an air screen cleaner.

Cultivars, Improved, and Selected Materials (and area of origin)

Plant materials are somewhat available from commercial sources. Two germplasms have been released by the USDA NRCS Plant Materials Program with ranges of adaptation to different Major Land Resource Areas. Potter County Germplasm spike dropseed (Texas) was released from the James E. “Bud” Smith Plant Materials Center in Knox City, Texas. Potter County is a composite of accessions collected in the Canadian River in Amarillo, Potter County, TX. It is adapted to eastern, northern, and central Texas, southern New Mexico, and western Oklahoma (Carr, 2009). Cochise Germplasm spike dropseed

(Arizona) is a selected class release from the Tucson Plant Materials Center in Tucson, Arizona. Cochise is a composite of 44 accessions collected from native spike dropseed stands in Arizona, southern Utah, and Nevada. It is adapted to southern Arizona, within the Sonoran Desert and the southeastern Arizonan grasslands (Garner et al., 2005). Cultivars should be selected based on the local climate, resistance to local pests, and intended use. Consult with your local land grant university, local extension, or local USDA NRCS office for recommendations on adapted cultivars for use in your area.

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