

SAND DROPSEED

Sporobolus cryptandrus (Torr.) A. Gray

Plant Symbol = SPCR

Alternative Names

Scientific Names: *Agrostis cryptandra* Torr. And *Vilfa cryptandra* (Torr.) Trin.

Description

General: Grass Family (Poaceae). Sand dropseed is a long-lived perennial warm-season bunchgrass, native throughout North America (Monsen et al., 2004; Ogle et al., 2009). The scientific name, *Sporobolus*, comes from the Greek *sporos* (seed) and *bolos* (a throw), and the common name, dropseed, both refer to the seeds which fall or may be ejected from the inflorescence when the mucilaginous fruit wall dries (Peterson et al., 2003). Mature plants range from 11 to 40 inches tall. Plants are typically erect but may also be decumbent. The collar is a conspicuous tuft of white hairs which may be up to 0.16 inches long. Leaf blades are 0.08 to 0.25 inches wide and 3 to 10 inches long. The inflorescence is a panicle, 6 to 16 inches long and 1 to 5 inches wide, initially contracted and spike-like, but opening with maturity into a pyramidal shape as the inflorescence escapes the subtending sheath (Welsh et al., 2003). Spikelets contain a small, single brown to purplish floret, 0.06 to 0.1 inches long. The glumes, lemmas, and paleas are membranous (Peterson et al., 2003) and contain a 0.04 inches long caryopsis (Welsh et al., 2003).

This species produces a dense, sand binding network of roots which can spread up to 2 feet laterally and over 8 feet deep (Coupland and Johnson, 1965).

Sand dropseed is a prolific seed producer. In one study, a single panicle yielded approximately 10,000 seeds (Brown, 1943). Seeds are very small, there are approximately 5.6 million seeds/lb, and 67 pounds of seed per bushel.

Distribution: Sand dropseed is native throughout North America but is most important as a rangeland species in the Southwest and certain parts of the Snake, Salmon, and Clearwater River drainages in Idaho and Oregon (USDA, 1937). For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

Habitat: In the Intermountain West, sand dropseed is commonly associated with Indian ricegrass [*Achnatherum hymenoides* (Roem. & Schult.) Barkworth], bluebunch wheatgrass [*Pseudoroegneria spicata* (Pursh) Á. Löve] and galletta grass (*Pleuraphis jamesii* Torr.) in sagebrush, desert shrub, and pinyon-juniper plant communities. In its southern range, it is often found growing with sideoats grama [*Bouteloua curtipendula* (Michx.) Torr] and *Muhlenbergia* species. It is common in the short-grass prairies and chaparral communities. It also can be found in a variety of habitats in South Texas, from deep sands where it is a member of the climax plant community, to heavier soils where it is an early successional colonizer.

Adaptation

Sand dropseed is extremely drought tolerant and is adapted to sites receiving 7 to 16 inches annual precipitation (Ogle et al., 2009; USDA 2009). Its fine root system allows sand dropseed to extract water at depths between 0 and 12 inches more



Sand dropseed © Robert Soreng USDA-NRCS

effectively than broom snakeweed (*Gutierrezia sarothrae* (Pursh) Britton & Rusby) (Wan et al., 1993). During periods of summer drought, the leaves roll up to reduce surface area and evapotranspiration (Wan et al., 1993). It is considered one of the most drought resistant species in short-grass prairie (Wan et al., 1993).

Sand dropseed is most common at lower elevations in sandy soils but can also be found on coarse soils at upper elevations to 8,000 ft (Jensen et al., 2001; Ogle et al., 2009). It is adapted to slightly acidic to slightly basic soils and has a salt tolerance of less than 4 mmhos/cm (Dickerson, 1998).

Uses

Erosion control/rehabilitation of disturbed areas: Sand dropseed is widely used in disturbed area plantings in the Southwest, Intermountain West, and short-grass prairies of the Great Plains. The fibrous root system effectively stabilizes sand dunes and hills. Its abundant seed production makes it a pioneer plant in disturbed areas and an invader of sandy soils. It has also been noted as an early native colonizer in sites suffering from water stress (Coupland, 1958).

Ethnobotany

Sand dropseed seed has been used to make bread and porridge by Apache, Hopi, and Navajo tribes (Castetter et al., 1936; Colton, 1974; Vestal, 1952). The plant has also been used to create a cold infusion that is applied to sores and bruises on the legs of horses (Vestal, 1952).

Status

Threatened or Endangered: This species is listed as threatened in Connecticut and New Hampshire (New Hampshire Natural Heritage Bureau, 2006; State of Connecticut, 2004), and rare in Pennsylvania (Commonwealth of PA, 2009). It is not considered a rare plant in the western United States.

Weedy or Invasive: 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, 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

Begin seedbed preparation in advance of planting. Establish a clean, weed-free seedbed by either tillage or herbicides. The site should be firm and have accumulated soil moisture prior to planting.

In some areas, sand dropseed requires overwintering or scarification for successful germination. The seed coat is very hard and impermeable. Seed lots frequently contain up to 50% hard seed; however, the seed can retain high levels of viability for many years under proper seed storage conditions. One seed lot that was twenty-years old recorded 75% viability (USDA, 1937). Older seed generally has better germination and establishment than younger seed (Monsen et al., 2004).

For rangeland plantings, use 0.5 to 1.0 lb pure live seed (PLS)/acre for solid stands (Allison, 1988; Ogle et al., 2009). Drill or broadcast seed onto the surface to $\frac{1}{8}$ -inch depth into lightly prepared sandy and fine soils. Seed can be planted slightly deeper into coarse soils. Follow seeding with a light harrowing or culti-packing. Establishment is dependent upon spring and summer soil moisture. Sand dropseed seedlings have low vigor, but once established the plants withstand severe summer drought periods. Defer grazing for at least two years to ensure good establishment.

Management

This species spreads naturally from seed once established (Plummer et al., 1955) and increases on depleted rangelands and wastelands (Welsh et al., 2003). Sand dropseed plants are able to withstand heavy use due to their protected root crown, late maturity, and because they are less preferred than other species (Monsen et al., 2004). However, plants can be killed by overgrazing. When grazed properly, sand dropseed increases on poor condition, low seral ecological sites (USDA, 1937).

Pests and Potential Problems

There are no potential problems or pests associated with sand dropseed.

Environmental Concerns

There are no potential problems or pests associated with sand dropseed.

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.

Seeds and Plant Production

For seed production fields, plant sand dropseed at a rate of 0.5 PLS lb/acre in 20-to-36-inch row spacing in a firm, weed-free seedbed. In the Southwest, it is possible to have multiple harvests in a single growing season using a flail-vac seed harvester (Ag. Renewal, Weatherford, OK) (USDA-NRCS, 2006). Seed shatters readily; however, portions of the mature inflorescence are held in the sheath preventing some seed loss (Majerus 2009). Seed yields range from 250 to 1,000 lb/acre with an average of 90% PLS. Fields will produce good seed yields for two to three years before needing to be re-established.

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

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.

Borden County Germplasm sand dropseed was released in 2000 by the James E. "Bud" Smith Plant Materials Center, Knox City, Texas. The original collection was made near Gail, Texas in MLRA 78B. Its primary intended use is for rangeland seeding for livestock and wildlife. It is recommended for use in central and western Texas and western Oklahoma in MLRAs 42, 77, 78, 80A, 80B, 81A, 81B and 84B. Generation 0 seed is maintained by the Plant Materials Center and is available in limited quantities for seed increase (Houck, 1999).

Nueces Germplasm sand dropseed was cooperatively released in 2016 by the E. "Kika" de la Garza Plant Material Center, Kingsville, Texas and the *South Texas Natives* project of the Caesar Kleberg Wildlife Research Institute at Texas A&M-Kingsville, Kingsville, Texas. It was selected for its vigor, forage production, and seed quality throughout the intended area of use. Nueces Germplasm is recommended for critical site revegetation, and range seeding mixes in the Rio Grande Plains (MLRA 83 A-E), the Gulf Coast Prairies and Marshes of Texas (MLRA 150A and B). Nueces Germplasm is adapted to a wide variety of soil types throughout the Rio Grande Plains. Sand dropseed is widely distributed throughout North America; however, Nueces Germplasm has not been tested outside of the recommended area of use.

Taylor Germplasm sand dropseed was cooperatively released in 2022 by the *Texas Natives Seeds* project of the Caesar Kleberg Wildlife Research Institute at Texas A&M-Kingsville, Kingsville, Texas, and the USDA NRCS James E. "Bud" Smith Plant Materials Center, Knox City, Texas. This release is recommended for wildlife plantings, critical site revegetation, erosion control, and right-of-way plantings; has shown excellent foliage density and good seed production, and performed best in sand, sandy loam, or clay loam soils. Taylor Germplasm is recommended for use in the Central Rolling Red Plains (MLRA 78C), West Cross Timbers (MLRA 84B), Rolling Limestone Prairies (MLRA 78A), and Texas Central Basin (MLRA 82A) ecoregions. Adaptation of this release has not been tested beyond the recommended area of use.

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