

SAND DROPSEED

Sporobolus cryptandrus (Torr.) A.

Gray

Plant Symbol = SPCR

Contributed by: USDA NRCS Idaho Plant Materials Program

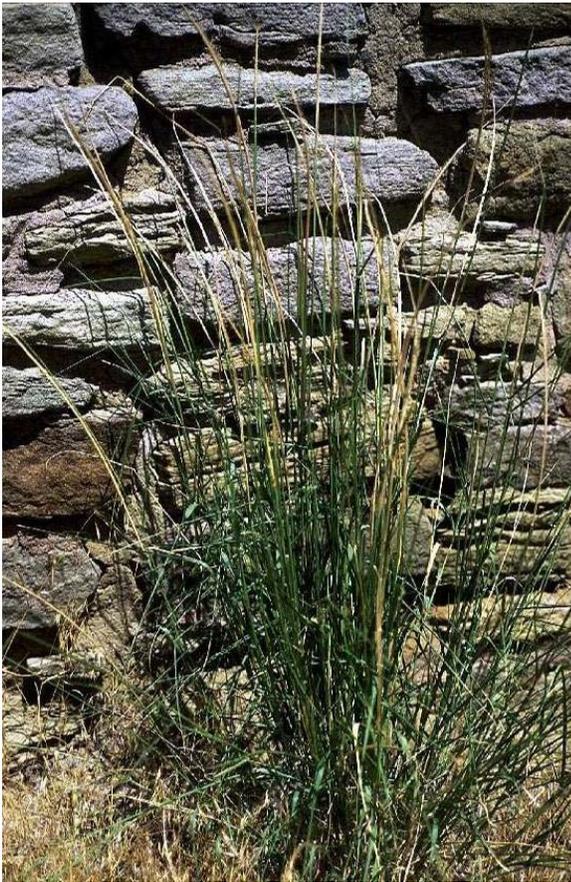


Figure 1. Sand dropseed. Photo by Robert Soreng @ USDA-NRCS

Alternate Names

Agrostis cryptandra Torr.

Vilfa cryptandra (Torr.) Trin.

Uses

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).

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).

Status

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. 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

Sand dropseed may become weedy or invasive in some regions or habitats and may displace more desirable vegetation if not properly managed. Sand dropseed is considered an invader species in the Central and Northern Great Plains where it provides lower quality forage than other native species (Stubbendieck et al., 1994). Consult your local NRCS Field Office, Cooperative Extension Service office, state natural resource, or state agriculture department regarding its status and use. Weed information is available from the PLANTS Web site at plants.usda.gov. Consult the related web sites on the Plant Profile for this species for additional information.

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 1 mm 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.



Figure 2. Sand dropseed florets and seed. Photo by Steve Hurst @ USDA-NRCS PLANTS Database.

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, consult the Plant Profile page for this species on the PLANTS web site.

Habitat:

In the Intermountain West it sand dropseed is commonly associated with Indian ricegrass, bluebunch wheatgrass and Galletta grass in sagebrush, desert shrub and pinyon-juniper plant communities. In its southern range it is often found growing with side-oats grama and muhly species. In other regions it is common in the short-grass prairies and chaparral communities.

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 30 cm more effectively than broom snakeweed (*Gutierrezia sarothrae*) (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 to be 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).

Establishment

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 year old recorded 75% viability (USDA, 1937). Older seed generally has better germination and establishment than younger seed (Monsen et al., 2004).

For rangeland plantings, seed 0.5 to 1.0 lbs pure live seed (PLS)/ac for solid stands (Allison, 1988; Ogle et al., 2009). Drill or broadcast seed onto the surface to 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 cultipacking. Establishment is dependant upon spring and summer soil moisture. Sand dropseed seedlings have low vigor, but once established the plants are able to withstand severe summer drought periods. Due to slow development, grazing should be deferred 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). Plants can be killed by overgrazing as a result of continued close cropping; however, when grazed properly, sand dropseed increases on poor condition low seral ecological sites (USDA, 1937).

Pests and Potential Problems

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

Environmental Concerns

There are no known environmental concerns associated with sand dropseed.

Seeds and Plant Production

For seed production fields, sand dropseed should be seeded at a rate of 3.0 lbs/ac in 20 to 36 inch row spacing in a firm weed-free seedbed. In the Southwest it is possible to have two harvests in one growing season in June and September (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 lbs/ac 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)

Borden County Germplasm sand dropseed was released in 2000 by the James E. 'Bud' Smith Plant Materials Center in 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 (USDA-NRCS, 1999).

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Prepared By

Derek Tilley; USDA NRCS Plant Materials Center, Aberdeen, Idaho.

Loren St. John; USDA NRCS Plant Materials Center, Aberdeen, Idaho.

Dan Ogle; Plant Materials Specialist, USDA NRCS, Boise, Idaho.

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