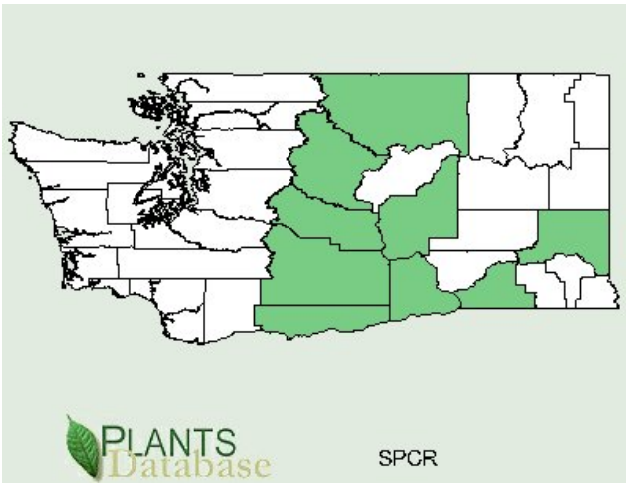
Plant Propagation Protocol for *Sporobolus cryptandrus*
ESRM 412 – Native Plant Production

Source: Sheri Hagwood. Bureau of Land Management. United States, ID, Bureau of Land Management Jarbidge Resource Area. June 28, 2006.

North American Native Distribution Map

Washington State Distribution Map



Source: USDA Plants Database

TAXONOMY	
Family Names	
Family Scientific Name:	Poaceae
Family Common Name:	Grasses
Scientific Names	
Genus:	*Sporobolus*
Species:	*cryptandrus*
Species Authority:	(Torr.) A. Gray
Variety:	

Sub-species:	
Cultivar:	
Authority for Variety/Sub-species:	
Common Synonym(s):	*Agrostis cryptandra* Torr., *Vilfa cryptandra* (Torr.) Trin.,[8]
Common Name(s):	Sand dropseed
Species Code:	SPCR
GENERAL INFORMATION	
Geographical range:	Sand dropseed occurs from southern British Columbia to southern California and New Mexico on the west, and as far as Ontario, Quebec, and Maine to the east. It occurs naturally in most of the U.S. except for the extreme southeast.[3] See Distribution maps above
Ecological 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 drainage basins in Idaho and Oregon.[8]
Climate and elevation range:	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. [8] Specific states and relative elevational ranges where sand dropseed occurs: Arizona 200 to 7000 feet, California 100 to 900 feet, Colorado 3500 to 8000 feet, Utah up to 7,000 feet.[7] (no information provided for Washington State)
Local habitat and abundance:	In the Intermountain West, Sand dropseed is commonly associated with Indian ricegrass, bluebunch wheatgrass and Galletta grass in sagebrush, desert shrub and pinyon-juniper plant communities.[10] 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.[10]
Plant strategy type / successional stage:	Sand dropseed is a native colonizer of disturbed, water stressed, heavily grazed and previously cultivated lands.[4,8] Within semi-arid mixed prairie landscapes, Sand dropseed is one of the 1st to colonize denuded sandy to silty soil rangelands.[4] Invasion and establishment upon previously abandoned cultivated lands in the southern plains has been observed.[8]
Plant characteristics:	Sand dropseed is a warm-season, shallow-rooted, drought resistant, perennial bunch grass (graminoid).[7]

	Mature plants are typically erect and range from 11 to 40 inches tall. Their leaf blades are 0.08 to 0.25 inches wide and 3 to 10 inches long.[8] The inflorescence is a panicle, 6 to 16 inches long and 1 to 5 inches wide. It is initially contracted and spike-like, but opens with maturity as the inflorescence emerges from the sheath.[4] Sand dropseed is a "prolific seed producer", and in one study was known to produce approximately 10,000 seeds from a single panicle.[7] The seeds are very small, with approximately 5.6 million seeds/lb, and 67 pounds of seed per bushel.[8] Sand dropseed produces a dense, "sand binding" network of roots which can spread up to 2 feet laterally and over 8 feet deep.[8]
PROPAGATION DETAILS	
Ecotype:	
Propagation Goal:	Plants and seeds
Propagation Method:	Seed
Product Type:	"Seed Production Fields" (Seed Increase Beds)[7], and germination flat to be transplanted to plugs[1]. In most cases, seeds should be directly sown into outplanting site without prior container growth.[4,7,8,9]
Stock Type:	
Time to Grow:	One study shows 4 - 5 months[6], however, other literature does not necessitate specific requirements for outplanting related to plant maturity.[4,7,8,9]
Target Specifications:	Information not available
Propagule Collection:	Sand dropseed has an extremely high variability of seed collection timing, as the phenology of sand dropseed corresponds directly to water availability. In general, sand dropseed starts growth late spring with seed maturing late summer to early fall.[7] In arid habitats, such as the Chihuahuan desert of New Mexico, flowering was observed to begin in August with fruiting occurring in October.[4] Large amounts of late summer precipitation provide for the possibility of 2 or more reproductive phases.[7]

	The indication that the seeds are ready to be harvested from the plant is when the sheath becomes withered and begins to open, exposing the partially enclosed inflorescence.[4] Harvesting on a large scale can be done with a windrower or swather, which cuts the Sand dropseed and lays it in rows. The grass then dries in the sun and wind for about 5-10 days before being harvested. A combine separates the seed from the straw.[5]
Propagule Processing/Propagule Characteristics:	There are approximately 5.6 million seeds/lb, and 67 pounds of seed per bushel.[10] 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.[8]
Pre-Planting Propagule Treatments:	Sand dropseed requires overwintering (stratification) or scarification for successful germination, because of the impermeability of the seed coat. Older seed generally has better germination and establishment than younger seed.[8] Seeds can be placed in cold moist stratification for 28 days with an alternating temperature cycles. Exposure to light resulted in a higher germination percentage. Pretreatment with potassium nitrate resulted in 47% germination. Mechanical scarification of caryopsis resulted in 71% germination.[1] When directly sewn onto the outplanting site, pricking seeds and scarifying with coarse sand helps germination, which is often done naturally through the trampling of cattle. Excellent results were seen in burned brush areas aerially seeded and then trampled by cattle.[7]
Growing Area Preparation / Annual Practices for Perennial Crops:	For rangeland plantings, sew Sand dropseed 0.5 to 1.0 lbs pure live seed (PLS)/ac to create a solid stand. 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.[8] Insufficient data for container growth preparation.
Establishment Phase:	Timing of germination generally begins in late spring, but is highly variable depending on soil saturation and

	temperature regimes.[7]
Length of Establishment Phase:	Two weeks.[5]
Active Growth Phase:	In general, sand dropseed actively grows from late spring until seeds mature in late summer to early fall. Because of the broad range of natural distribution, there is insufficient data describing the specifics of active growth. This imperception is due to rapid development during periods of abundant moisture, with induced dormancy during periods of drought between rains.[7]
Length of Active Growth Phase:	Information not available
Hardening Phase:	The hardening phase is highly variable, with insufficient information.
Length of Hardening Phase:	Highly variable, specific Information not available.
Harvesting, Storage and Shipping:	Information not available
Length of Storage:	Information not available
Guidelines for Outplanting / Performance on Typical Sites:	Drill or dig holes to approximately ½ - 1 inch depth into lightly prepared sandy and fine soils; can be planted slightly deeper into coarse soils.[8] Sand dropseed seedlings have low vigor, but once established the plants are able to withstand severe summer drought periods.[8] No available data on plant survival rate.
Other Comments:	Compared to other species within the Kansas mixed-grass prairie, Sand dropseed produces larger numbers of seed during periods of water stress.[7] Sand dropseed is considered weedy or invasive in some regions or habitats and may displace more desirable vegetation if not properly managed. Specifically, Sand dropseed is considered an invader species in the Central and Northern Great Plains where it provides lower quality forage than other native species.[8] Sand dropseed has excellent potential for postfire regeneration and seedling establishment, as seeds within burned areas have a high viability rate.[7] In seed production fields, 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.[8] Sand dropseed is widely used in disturbed area restoration in the Southwest, Intermountain West and short-grass prairies of the Great Plains, due to its fibrous root system which effectively stabilizes sand

	dunes and hills.[8]
INFORMATION SOURCES	
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