USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Plant Guide

WHITE PRAIRIE CLOVER

Dalea candida Michx. ex Willd.

Plant Symbol = DACA7

Contributed by: USDA NRCS Plant Materials Center, Manhattan, Kansas

Mike Haddock, Kansas Wildflowers and Grasses, KSU Library Website

Alternate Names

Common Alternate Names: Slender white prairie clover and prairie clover

Uses

This leguminous forb produces palatable and nutritious forage for all classes of livestock and is an important browse species for antelope, deer and upland game birds, particularly sharp-tail grouse. This species will decrease and disappear under persistent overgrazing. It is an important legume in native grasslands because of its nitrogen fixing characteristic. This native legume can be used as the forb component in reclamation of drastically disturbed lands, range renovation and prairie restoration projects. It is also a potentially useful plant for roadside and rest area beautification, park plantings and recreational garden natural area plantings.

Native Americans used the plant for both medicinal purposes and as a food source. Their roots were chewed for their pleasant, sweet taste by many Indian tribes that lived on the prairie (Kindscher 1987). Kindscher (1987) also stated that the leaves were dried and used for making a hot beverage. The pulverized root was boiled, and after the sediment settled, the liquid was consumed to prevent disease (Kindscher 1992).

Status

Please 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).

Description

The Legume family (Fabaceae). *Dalea* is named in honor of Samuel Dale, an English botanist (1659-1739), and *candida* refers to the flower color meaning "of dazzling white" (Kindscher 1992). White prairie clover is a perennial, warm season, herbaceous, native legume common in the Great Plains (Stubbendieck and Conard 1989). Stems, one to several, arise from a thick taproot or superficial or subterranean caudex. Stems are herbaceous and are simple with a few upright branches near the top and are ribbed or ridged longitudinally and glabrous (60 to 90 cm). Leaves have an alternate arrangement on the stem and are odd-pinnately compound and 2 to 6 cm long. Each compound leaf has 5 to 9 leaflets (commonly 7) which are 1 to 3 cm long and 2 to 6 mm wide. Leaflet shape is narrowly oblanceolate to narrowly elliptic with a sharp tip. Leaflets are glandular dotted on their lower surface and folded along the midrib. The inflorescence is a terminal spike that is cylindrical in shape (1 to 5 cm) and lax to densely flowered. The white flower petals are atypical of legume family, having one standard and four narrow petal-like bodies joined with the five stamen bases to form the calyx tube. Flowering occurs from early to mid June and into August. The first flowers to open are at the bottom of the spike and proceed upward as the season progresses. The fruit is a legume 2.5 to 4.5 mm long, glandular and contains one brown, smooth seed that is 1.5 to 2 mm long and kidney shaped. Chromosome number is 2n=14.

Distribution: For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site. According to the Flora of the Great Plains (GP) white prairie clover has two varieties in the GP (Barkley 1986). The var. *candida* occurs in the eastern half of the GP, infrequent in the west. It is located in southeast Saskatchewan, southern Manitoba, southern Ontario, south to Wisconsin, Illinois, Tennessee, eastern half of Kansas and Texas. The var. *oligophylla* occurs in the

western half of the Great Plains infrequent in the southeast and extends from west Texas to Utah and Arizona in the southwest.

Habitat: White prairie clover is common in dry prairies and rocky upland woods. Where the two varieties grow in the same area var. *oligophylla* will be located in the drier site positions. Weaver and Fitzpatrick (1934) indicated that white prairie clover was the third most important legume and the eighth most important forb in upland prairies.

Adaptation

This species is found growing primarily on well drained sandy, gravelly, and silt soils, rarely on clay or lowland sites. It occurs on sites that receive 25 to 45 cm of annual precipitation. Thus it would be found growing most commonly in mid to short grass prairie plant communities. It is found as a minor species in late seral grasslands. However, it has been observed as a pioneering species on disturbed shallow soils or gravels.

Establishment

Stubbendieck and Conard (1989) stated that germination can be improved by scarification. Germination can extend from 3 to 30 days, but most seed will germinate within 6 to 9 days (Platt and Harder 1991). Mechanical scarification using sandpaper or a laboratory scarifier is acceptable. White prairie clover should be planted on a prepared, weed free, firm seedbed. The seedbed should be firm enough to allow planting at a 6 to 12 mm depth. McGraw et al. (2003) found that white prairie clover germinated well in a range of temperatures between 15 and 30 degrees Centigrade. Being able to germinate across a wide range of temperatures may be an advantage in temperate climates where a wide range of soil temperatures may be encountered. Planting using a drill equipped with depth bands and a legume box should provide good seed depth placement and good seed to soil contact. The use of a broadcast seeding method would require a higher overall seeding rate to compensate for a less accurate delivery system. The normal seeding rate of 323 to 388 PLS seeds per meter square would have to be increased to accommodate a broadcast seeding method. Seed should be inoculated with the proper *Rhizobium* strain prior to planting.

Management

Weed control during first year establishment of native forbs is essential to produce healthy plant stands. Mowing at a height that will not affect white prairie clover seedlings is one method of reducing weed competition. McGraw et al. (2004) found that while white prairie clover had good relative forage quality it also suffered from having relatively low forage yields when compared to other native legume species. White prairie clover should improve forage digestibility when planted in pasture situations with native warm season grasses. Native legumes such as white prairie clover fix nitrogen from the atmosphere and make it available to grass species planted in association with the legume.

Pests and Potential Problems

White prairie clover was discovered to be a host for *Megacyllene angulifera* in Carbon County, Montana (Blodgett et al. 2005). A white clover plant was observed to have an unknown die off in the seed production field at the Bridger PMC. Subsequent investigation of the damage revealed that 10 per cent of the root had extensive injury from the feeding of cerambycid larvae. The damaged area had 12 pupae present. The pupae were placed in a Petri dish with moisture and in 1 to 5 days the pupae evolved into adult *M. angulifera*. Plant Pathologists at Kansas State University found that the rust species *Uropyxis petalostemonis* had an increased incidence of disease on white prairie clover under irrigated situations (Ahmed 2002). They also indicated that the rust disease had a profound effect on the relative fitness and fecundity of the *D. candida* population on the Konza Prairie Biological Station.

Environmental Concerns

White prairie clover does not spread aggressively by seed or vegetative means.

Seeds and Plant Production

Seed production of white prairie clover should be accomplished by establishment of the plants in rows with spacing of 45 to 75 cm between rows. This arrangement will allow for cultivation between rows and irrigation. Seed production should not be attempted without supplemental irrigation in areas with less than 380 mm of precipitation. White prairie clover is insect pollinated and up to 18 different wasps and bees and other insect pollinators have been identified in the foundation production field at the Bridger, Montana PMC. Annual warm-season grasses and broadleaf weeds are the biggest problem to establishment and production of this legume. Seed production can be expected the second year. Legume pods can be run through a hammer mill to knock the kidney shaped seed out of its pod. A fanning mill can be used to complete the cleaning process. Seed yields of up to 225 to 450 kg/ha can be expected with irrigation. Rock (1981) reported that division and vegetative propagation of this species was difficult. Stubbendieck and Conard (1989) indicated that branch tip cuttings of this species readily root in a mist bench

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

Contact your local Natural Resources Conservation Service (formerly Soil Conservation Service) office for more information. Look in the phone book under ”United States Government.” The Natural Resources Conservation Service will be listed under the subheading “Department of Agriculture.”

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