USDA United States Department of Agriculture

Natural Resources Conservation Service Plant Guide

CALEY PEA

Lathyrus hirsutus L.

Plant Symbol = LAHI2

Common Names: Singletary pea, rough pea, Singletary vetchling (Diggs et al., 1999) or wild winterpea (Wolff, 1951)

Figure 1. Caley pea foliage and bloom. Photo credit: Dr. Robin R. Buckallew, hosted by the USDA-NRCS PLANTS Database.

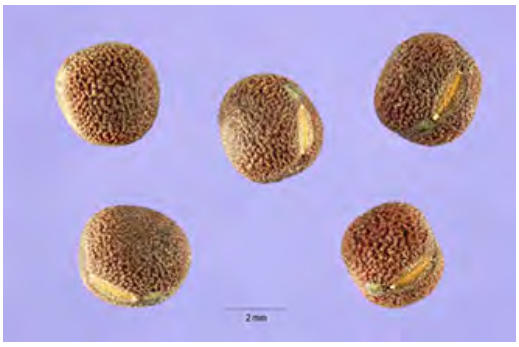

Figure 2. Caley pea seeds. Photo credit: Steve Hurst, hosted by the USDA-NRCS PLANTS Database.

Description

General: The name caley pea is credited to A.F. Caley, an Alabama farmer, who showed special interest in the plant (Baker, 1946). Caley pea is an introduced cool season annual legume in the Fabaceae/Leguminosae or pea family. The plant grows 1 to 3 feet tall (0.35 to 0.91 meters) and is a sprawling, climbing vine with glabrous flattened stems that branch occasionally (Fig. 1). Alternate compound leaves consist of a leaflet pair and climbing tendril. Leaflets are up to 3.5 inches long by 1 inch across (8.9 cm by 2.5 cm) and are ovate to oblong-ovate, glabrous with entire margins. Caley pea blooms in spring or summer depending on location. Flowers are up to 0.5 inch (1.3 cm) across and consist of two lateral petals and a keel. The petals vary in color from purple, pink, or white. Seedpods are flat sided, oblong, and covered with hairs. They progress from green to brown when mature. Mature seedpods split open to release circular, flattened, brown seeds about 0.08-inch-wide (2mm) (Fig.2) (Eason, 2018; Illinois Wildflowers 2020).

Distribution: The *Lathyrus* genus contains 160 species from the north temperate zone, South America, and east Africa (Diggs, 1999). This genus is characterized by climbing growth habit and branched tendrils. Caley pea is native to the Mediterranean region and is naturalized in the United States (Diggs, 1999). It is found in the eastern half of Texas, lower Midwest, and southeastern U.S. (Eason, 2018; USDA NRCS Jimmy Carter Plant Materials Center, 2019). For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

Habitat: Caley pea was originally grown in the U.S. as a forage or cover crop but escaped cultivation and is also found in thickets, savannas, roadsides, railroad right of ways, and field edges (Texas A&M University, 2020a; Illinois Wildflowers, 2020).

Adaptation

Caley pea prefers sites with partial to full sun. It is adapted to mildly acidic, heavy clay soils and calcareous clays with pH of 5.8 or higher. Caley pea is adapted to areas with 35 inches or greater annual precipitation and tolerates soils too wet for annual clovers (USDA, NRCS, 2020; USDA NRCS Jimmy Carter PMC, 2019).

Uses

Caley pea is grown for green manure crop, cover crop, organic nitrogen source, and livestock forage (Baker, 1946; USDA NRCS Jimmy Carter Plant Materials Center, 2019). Padgett et al. (2012) noted that Caley pea produced 2,704 to 7,666 lb/ac (3,028 kg/ha to 8,588 kg/ha) biomass as a cool season cover with an average yield of 3,968 lb/acre (4,447 kg/ha) and 135 lb.

N/acre (151kg/ha) in Louisiana. Caley pea is utilized by wildlife. The foliage is browsed by whitetail deer and a food source for blister beetle (*Epicauta fabricii*) and caterpillars of the Oithona tiger moth (*Grammia oithona*). Bumblebees and long tongued bees pollinate the flowers (Illinois Wildflowers, 2020). Quail and other birds consume the seeds (Noble Research Institute, 2020).

Status

Threatened or Endangered: Caley pea is not threatened or endangered (US Fish and Wildlife Service, 2020)

Wetland Indicator: Caley pea is a facultative (FAC) plant in the Atlantic and Gulf Coastal Plain, Arid west, Eastern mountains and Piedmont, Great Plains, and Western mountains, Valleys, and Coast regions and a facultative upland (FACU) plant in the Midwest and Northcentral and Northeast regions of the U.S. Facultative plants occur in wetlands and non-wetlands while facultative upland plants usually occur in non-wetlands (US Army Corps of Engineers, 2020).

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

Recommended seeding date is Sept. 15 to Nov. 30 and seeding rate 35 PLS lb/acre in east Texas (USDA NRCS, 2018). There are approximately 18,000 seeds/lb (Mason et al., 2019). Consult your local USDA NRCS Field Office for recommended planting dates and rates in your area. Take soil samples to determine soil pH and fertility level before planting. Amend soil pH to at least 5.8 and apply nutrients according to soil test recommendations (USDA NRCS Jimmy Carter Plant Materials Center, 2019). Scarify and inoculate seed with appropriate pea/vetch rhizobium before planting.

Prepare the site by mowing and applying a broad-spectrum herbicide for no till planting. Plant seed ½ to 1 inch deep using a no-till drill equipped with depth bands to control seed placement. For conventional planting, prepare a weed free seedbed using light tillage and a cultipacker to smooth and firm the seedbed prior to planting. Allow rain or irrigate to germinate weed seed and then apply a broad-spectrum herbicide to eliminate weed seedlings. Plant seed with a conventional seed drill after herbicide application. For broadcast seeding, prepare a conventional seedbed and control weeds. Broadcast the seed directly on the site and cover the seed to create a good seed-to-soil contact. Increase seeding rates 10-25% for broadcast seeding.

Management

Cool season legume cover crops provide biomass to protect the soil in winter and early spring and nitrogen for a subsequent crop. Terminate Caley pea cover crops in late spring to maximize these benefits. Allow cover crop residue to dry out or desiccate for at least two weeks before planting the spring crop to reduce number of surviving insects and diseases (Padgett et al., 2012).

Caley pea vegetation is nutritious but toxic amino acids and nitriles are concentrated in their seeds (Texas A&M University, 2020a). Domestic livestock consuming maturing plants and seedpods with these amino acids and nitriles may experience a toxic reaction known as Lathyrism poisoning (Holbrook et al., 2015). Horses are affected by the amino acid β-ODAP (3 β-N-oxalyl-L-α, β-diaminopropionic) in Caley pea and should not graze it or eat hay contaminated with dried plants or seedpods (HorseDVM, 2020; Holbrook et al., 2015). Cattle are typically poisoned when they graze pastures with an abundance of mature plants (Texas A&M University, 2020a). Chickens and pigs are also sensitive to the toxin (Baker, 1946). Poisoning symptoms include incoordination or paralysis of rear legs, exaggerated stepping, and reluctance to rise or stand (Texas A&M University, 2020a). Monitor livestock pastures for caley pea abundance and plant maturity. Remove livestock before Caley pea begins blooming or if the threat of poisoning is a concern. Consult your local livestock extension specialist for assistance with grazing Caley pea.

Pests and Potential Problems

Pests include root knot nematode (*Meloidogyne* sp.) and dodder (*Cuscuta* sp.). Root knot nematodes create root galls and dodder is a parasitic plant which wraps around and inserts adventitious roots into a host plant. The adventitious roots extract water, minerals, and nutrients from the host (Missouri Botanical Garden, 2020). Seedlings are subject to damping off caused by *Rhizoctonia solani*, *Pythium* sp., or *Fusarium* sp. soil fungi. Anthracnose (*Colletotrichum pisi*), scab, (*Cladosporium herbarum*), and powdery mildew, (*Erysiphe polygoni*) are other diseases affecting Caley pea (Texas A&M University, 2020).

Environmental Concerns

Caley pea has no known detrimental effects on the environment.

Control
Control Caley pea by mechanical means such as mowing or applying a broad-spectrum herbicide. 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. 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.

Seed Production
Refer to *Planting Guidelines* for appropriate seeding rates, dates, and planting methods. Caley pea begins blooming in late April to May and develops seedpods in late May or June in the Western Gulf Region (Wolff, 1951). Seedpods do not ripen uniformly. Do not wait until all seedpods are mature before harvesting as they shatter during the warmest part of the day (Wolff, 1951). Harvest the seed crop with a combine when about 90% of the seedpods are brown. Use a low harvest height, a wide cylinder and concave spacing, and a cylinder speed below 1000 RPM.

If not dried properly, seed will heat if stored in sacks or a bin. Instead, stir and air-dry harvested seed until danger of heating is over then partially clean the seed using a seed scalper. Use a seed cleaner with air adjustments and separation screens to remove chaff and unfilled seed. For 3 screen cleaners, recommended top screen size is 3/8 inch, the middle screen should have holes large enough for seeds to fall through, and the third or bottom screen holes smaller than the seeds to remove any small chaff. Screen sizes may differ each year depending on harvested seed size (Wolff, 1951).

Cleaned seed yields averaged about 800 lb/acre (896 kg/ha) with fertile fields yielding 2000 lb/acre (2,241 kg/ha) in the Western Gulf Region (Wolff, 1951). Seed purity was 96% with 40% germination and 42% hard seed. Store cleaned seed in a temperature and humidity-controlled environment. Wolff (1951) noted cleaned seed was usually not stored more than two years before planting.

Cultivars, Improved, and Selected Materials (and area of origin)
'AU GroundCover' Caley pea is a composite of five best performing accessions chosen from evaluations at the USDA Jimmy Carter Plant Materials Center in Americus, Georgia. This variety was released jointly by Auburn University, Alabama Agricultural Experiment Station, and USDA NRCS Jimmy Carter Plant Materials Center in 1994. 'AU GroundCover' is adapted primarily to Alabama and Georgia and used for cool season cover crops and cattle forage. In clipping trials, it produced as much dry matter yield as common hairy vetch (*Vicia* spp.) and contained about 20% crude protein at flowering (Mosjidis et al., 1996).

Select cultivars 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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http://plant-materials.nrcs.usda.gov.

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