

# 'Lutana'

## cicer milkvetch

*Astragalus cicer* L.

A Conservation Plant Release by the USDA-NRCS Bridger Plant Materials Center, Bridger, Montana



Figure 1. Cicer milkvetch

'Lutana' cicer milkvetch (*Astragalus cicer* L.), also called chickpea milkvetch, is a cultivar released by the USDA-NRCS Plant Materials Center (PMC), Bridger, Montana, in 1970 in cooperation with the Montana and Wyoming Agricultural Experiment Stations.

### Description

Lutana is a long-lived perennial legume with a vigorous creeping root system and a short, stout taproot. Hollow stems reach a length of 4 feet at the flower stage. The leaves are 4 to 8 inches long; consisting of 10 to 13 pairs of leaflets attached to a midrib, and have sparse hairs on the underside. There are 15 to 60 pale yellow to white flowers on 4- to 8-inch long flower stalks called racemes. Pollination is accomplished primarily by bumblebees. After pollination occurs, inflated, bladder-shaped seed pods form. Immature pods are green or reddish-green, turning black as they mature. Lutana's seeds become detached when ripe and sound like a rattlesnake when the pod is shaken. The seed does not shatter easily and may be retained in the pod throughout the winter. Seeds are bright yellow, flat, egg-shaped and about twice the size of alfalfa seed.



Figure 2. Cicer milkvetch seed

There are approximately 122,000 seeds per pound. Due to the hard seed coat, little damage is done to the seed during threshing. No occurrence of bloat has been reported from livestock grazing. It recovers more slowly than alfalfa after cutting and more rapidly than alfalfa after grazing.

### Source

Seed of cicer milkvetch, P.I.-66515, was introduced into the United States (US) from Sweden in 1926. Plant material centers in the western US received seed of this accession in 1935. In 1966, 252 plants were established at the Bridger PMC. Plants were evaluated for earliness of spring growth, rapidity of cutting recovery, rate of rhizome spread, and uniformity of seed maturation. Of these, 127 were retained, harvested, and used as the Breeder population.

### Conservation Uses

Lutana is of proven value in controlling erosion and improving soil quality on infertile, disturbed, or critical areas. It may also be used in wildlife food plantings, hay production, pastures, and as the legume component of a Conservation Reserve Program (CRP) planting.

### Area of Adaptation and Use

Lutana grows well on soil textures ranging from clay to sand, but performs best on moderately coarse-textured soils. It performs better than alfalfa in wet areas with a short growing season of 50 days or less. Lutana has been established on dryland sites in Montana and Wyoming receiving less than 14 inches of annual precipitation. It tolerates slightly acidic to moderately alkaline soil conditions (pH 6.1 to 8.4) and grows at elevations from 2,000 to over 7,000 feet.

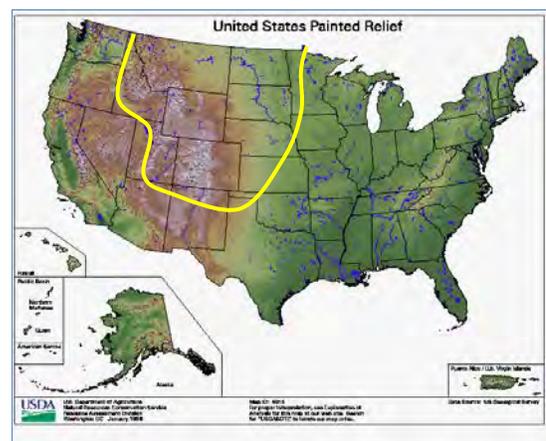


Figure 3. Area of adaptation of *Lutana* cicer milkvetch.

## Establishment and Management

Moderate mechanical scarification of the seed, within a week prior to planting, is normally required. Un-scarified seeds only have a germination of 1% to 25%, resulting in unsatisfactory stand establishment. Avoid embryo damage by over-scarification. Sowing into a firmly packed, weed-free seedbed amended with a 3-year supply of phosphorous (based on a soil analysis) is recommended. Inoculate the seed with an *Astragalus* Rhizobium and plant the seed ½- to ¾-inch deep. Avoid planting a companion or nurse crop with Lutana. The seeding rate for pure stands is 8 pounds pure live seed (PLS) per acre. In grass mixtures, reduce the rate to 3 to 4 pounds PLS per acre (see Figure 4). The most compatible grasses for an alternate-row planting are creeping foxtail (*Alopecurus arundinaceus*), orchardgrass (*Dactylis glomerata* L.), meadow brome (*Bromus biebersteinii* Roem. and Schult.), and tall fescue [*Schedonorus arundinaceus* (Schreb.) Dumort., nom. cons.]. Lutana's seedling vigor is good with slow initial growth, but as temperatures rise in late June through August, the growth rate exceeds that of alfalfa. Cicer milkvetch is best harvested for hay at the 10% bloom stage. Forage yields of Lutana cut two times are generally equal to alfalfa cut three times. Protein content equals or exceeds that of other legumes due to the high leaf:stem ratio and its ability to hold its leaves during drying and baling. Lutana stands increase in density with age due to new shoot growth from the base of the lower leaves, as well as from crown and rhizome buds. Close grazing or clipping stimulates the new growth from all three locations.



Figure 4. Cicer milkvetch in a grass mix

## Ecological Considerations

Cicer milkvetch seed is long lived and may persist in the soil seed bank for many years. It is susceptible to root-, crown-, and stem-rot (*Sclerotinia trifoliorum*) during hot, humid weather. Recovery of diseased cicer milkvetch plants is common, the result of rapid regeneration of new plants via prolific rhizomes. Insect pests include aphids, thrips, seed chalcids, and grasshoppers. Only grasshoppers, however, cause measurable damage by mainly eating only the flower buds and pods in seed production fields. When grasshopper concentrations reach 30 insects per square yard, grazing or haying is suggested, as insecticides applied at that time are more likely to

impact all pollinators. A pre-plant incorporation of trifluralin can be used for pre-emergent control of broadleaf and grassy weeds in new Lutana plantings. Control post-emergent grassy weeds by applying sethoxydim. All label instructions should be followed, including those for time restrictions concerning grazing or feeding hay. Under irrigated conditions at the Bridger PMC, Lutana became weedy along fence lines and irrigation ditches.

## Seed Production

Average bulk seed yields for Lutana range from 400 to 600 pounds per acre under irrigation and 100 to 200 pounds per acre under dryland conditions. Between-row spacing from 20 to 36 inches are recommended. For adequate pollination, plant within one-quarter mile of native bumblebee habitat (undisturbed grasslands). Total moisture should not exceed 16 to 20 acre-inches per season. Swathing the crop, allowing one week of curing, and then combining is the preferred method of harvesting. Re-threshing the tailings increases seed harvest yield by up to 30%.

## Availability

*For conservation use:* Lutana cicer milkvetch is available on the commercial seed market (see USDA-NRCS Montana Technical Note 57 for a list of vendors). Breeder and Foundation seed of Lutana is maintained by the USDA-NRCS PMC in Bridger, Montana. It is available to commercial growers by contacting the Montana Foundation Seed Program at MSU-Bozeman or the University of Wyoming Foundation Seed Service in Powell, Wyoming. Foundation, Registered, and Certified seed classes are recognized.

## Citations

Release Brochure for Lutana cicer milkvetch (*Astragalus cicer* L.). USDA-Natural Resources Conservation Service, Bridger PMC. Bridger, Montana 59014. Revised February 2013.

*For more information, contact:*

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For additional information about this and other plants, please contact your local USDA Service Center, NRCS field office, or Conservation District <<http://www.nrcs.usda.gov/>>, and visit the PLANTS Web site <<http://plants.usda.gov/>> or the Plant Materials Program Web site <<http://www.plant-materials.nrcs.usda.gov/>>

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