Tallgrass Prairie
C E N T E R

Forbs Legumes

Canadian milkvetch
Astragalus canadensis L.

Alternate Common Name(s)
Canada milkvetch, Canada milk-vetch, milk-vetch, little rattlepod

Functional Group
legumes

Family
legume and pea family (Fabaceae (Leguminosae))

Description
» **Life cycle/growth form:** Perennial with a taproot, spreading by rhizomes.
» **Height:** 1.5-3.5 ft
» **Leaves and stem:** Leaves alternate, odd-pinnately compound with 15 to 31 elliptical leaflets; stems are stiff, branched above, with some hairs, reddish when exposed to high sunlight.
» **Flower:** Creamy greenish-white, narrow, elongated pea-like flowers, crowded in spikelike racemes 1.5 to 7 in long at tips of leafless stalks arising from leaf axils on upper portion of plant.
» **Fruit/seed head:** Spikelike clusters of erect, tough, dark brown pods, each 1/2 in long, with a sharp tip; pods split open from tips when mature to release seeds.
» **Pollination:** Bumble bees and other long-tongued bees.

Habitat and Range
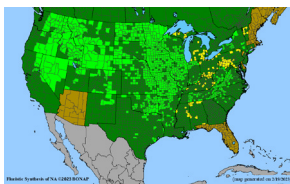
Mesic to wet-mesic soil; full sun; prairies, woodland edges, savannas, shorelines, abandoned fields. Wetland Indicator Status is Facultative (FAC) for the Midwest. Moist, fertile, loamy soils are preferred for seed production.

Conservation Status
Global- G5, secure; District of Columbia- SX, presumed extirpated; Alabama, Georgia, Maryland, Pennsylvania- S1, critically imperiled; Michigan- S1/S2, critically imperiled to imperiled; Mississippi, Ohio, Utah, and Vermont- S2, imperiled; Colorado, North Carolina, Louisiana, and Nevada- S3, vulnerable (NatureServe)

General Comments
Canadian milkvetch is a short-lived species in seed production plots, usually dying out after a few years. It spreads prolifically from rhizomes the second year after establishment. It is usually found as small, somewhat stable colonies in prairies in disturbed areas, over a few years at least. Grazing or clipping prolongs the life-span of the plant, but of course this precludes seed production.

Establishment for Seed Production (Appendix A)
Direct seeding:

» **Row spacing:**	30-38 in rows	7 in rows and solid stand
» **PLS lbs/acre:**	2.1	6.3

» **Seeds/liear foot:** 40
» **Seeding depth:** 1/4-1/2 in
» **Seeding method:** native seed drill
» **Seeding time:** Dormant fall seeding of unscarified seed. Scarify and inoculate seed with *Astragalus* (Spec 1) inoculum for early spring planting.
» **Weed control:** Prepare clean, firm, weed free seedbed prior to seeding.

Greenhouse:
» **Seed pre-treatment:** Scarify seed (see Seed Treatments) and wet stratify 10-14 days at 40° F.
» **Sowing:** Sow seed in greenhouse 2 months before last frost free date.
» **Transplanting:** Transplant mature seedlings into bare soil or weed barrier in rows convenient for tillage equipment after all danger of frost is past. Use a temporary weed barrier such as paper mulch or biodegradable plastic that breaks down or can be removed before the second growing season to accommodate plant spread from rhizomes.

Stand Management
» **Weeds:** Mow stands above seedling height during establishment year. Use tillage and hand-roguing to control weeds.
» **Pests:** Plots may need protection from rabbits and/or deer. Plants infested with black aphids become stunted and produce fewer flowers. Insect seed predators may become a problem.
» **Diseases:** None noted.

Seed Production (Appendix B)
» **First harvest:** Abundant flowering and seed set at end of second growing season from greenhouse grown transplants and well-managed direct seeded stands.
» **Yield:** 30-280 bulk pounds/acre (averages based on 5 plots)
» **Stand life:** Peak harvests in second to third years. Many stems die after flowering and setting seed, usually the second or third year after planting.
» **Flowering date:** mid-July - early August in northern Iowa
» **Seed maturity/Harvest date:** mid-August - early September in northern Iowa
» **Seed retention:** Pods split partially open at maturity, and seeds will shake out of pods if disturbed by strong wind or passing animals.
» **Harvest date range at TPC (2003-2023):** Aug 7 - Sept 25
» **Recommended harvest method:** combine

*data based on 5 plots

Average Yield (pounds/acre)* vs Years Since Establishment (Transplants)

33, 101, 70, 284, 40, 54

NatureServe. 2024. NatureServe Network Biodiversity Location Data accessed through NatureServe Explorer [web application]. NatureServe, Arlington, Virginia. Available https://explorer.natureserve.org/. (Accessed: February 29, 2024).

USDA NRCS National Plant Data Team. (n.d.). *Astragalus canadensis* L.. USDA plants database. https://plants.usda.gov/home/plantProfile?symbol=ASCA11

Species Updated: 2/3/2025

Notes

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Seed Cleaning Process (Appendix C)

Pre-clean air-dried material by scalping thru 1/2 ft and 1/4 in mesh to remove large particles. If hand clipped, break up pods with a brush machine. If combined then simply air-screen to clean (see appendix for settings).

Seed Characteristics (Appendix D)

» **Seeds per ounce:** 17,000 (IA NRCS)
» **Seeds per pound:** 275,000 (IA NRCS)
» **1000 seed weight:** 1.97 g (Seed Information Database)
» **Description:** Fruits are small pods containing several loose seeds. Pods are about 1 cm long (1/2 in), green at first, turning dark brown to black at maturity, splitting partially open. Seeds are a small, flat bean, about 2 mm (1/16 in) in diameter.
» **Seed storage:** cool/dry (33-50° F, 30-50% RH).
» **Typical seed test:**
  PLS: 96% (n = 9)
  Purity: 100% (n = 9)
  Germination: 12% (n = 8)
  Dormant: 85% (n = 8)
  (averages obtained from n tests of purchased seed lots)

Released Germplasm

» **Source Identified material:** Natural Selections/Iowa Ecotype Zones 1, 2, and 3

References

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Kartesz, J.T., The Biota of North America Program (BONAP). 2023. North American Plant Atlas. (http://bonap.net/napa). Chapel Hill, N.C. [maps generated from Kartesz, J.T. 2023. Floristic Synthesis of North America, Version 1.0. Biota of North America Program (BONAP). (in press)]

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