

## Canada thistle

Canada thistle (*Cirsium arvense*) is a weed in the Aster family that has become more challenging in specialty crop systems, pastures and disturbed sites. Reduced tillage cropping systems struggle with Canada thistle because it spreads through seeds and underground root systems that can extend 20 feet deep and 17 feet across. It is found throughout the northern half of the United States and southern Canada. A single large seed head can produce up to 5000 seeds, and a new plant can sprout from as little as a single inch of root segment.



Canada thistle cotyledons and early leaves. Photo from “Weed Identification, Biology and Management”, by Alan Watson and Antonio DiTommaso.

Mature plants have 1'-4' slender, upright stems that are grooved with very few hairs and branch at the top. Plants tend to grow in patches in the field. Leaves are alternate, egg- to lance-shaped with irregular lobes, no petiole, and spiny edges. The base of each leaf surrounds the stem.

Flowers are present from June through August, with multiple flowers per stem. Flower heads are about an inch wide, and flowers are pink to purple surrounded by spineless bracts. Male and female flowers are produced on separate plants. Seeds are about 1/10 of an inch long and have a feather similar to dandelion 'seeds' which helps disperse the seeds.

Seedlings have dull green, relatively thick, oval to oblong cotyledon leaves. Many new plants are sprouts from root fragments and lack cotyledon leaves. Young plant leaves are thick, egg-shaped to spear-shaped with wavy-lobed, spiny edges; the whole leaf is covered with short, bristly hairs. Young plants form a basal rosette and then vertically elongate later in the season.



Canada thistle seedlings. Photo from “Weed Identification, Biology and Management”, by Alan Watson and Antonio DiTommaso.



Canada thistle flowers. Photo from “Weed Identification, Biology and Management”, by Alan Watson and Antonio DiTommaso.

There are currently no reports of herbicide resistance of Canada thistle in the US.

Management of Canada thistle is especially difficult. Vegetative reproduction from the extensive root system can occur whenever it is stressed as well as in the spring and fall. Seeds can persist over twenty years in the soil. Reproduction from the root system means any treatment that does not affect the roots is largely ineffective. Any treatment, chemical or mechanical, will need to be repeated for several years. Canada thistle can be suppressed by crops that create

substantial shade in the spring, such as alfalfa and winter wheat. A mixture of cultural, mechanical, and chemical control methods is often most effective.

There are some pre-emergence herbicides with efficacy against Canada thistle seedlings including dichlobenil and rimsulfuron (Matrix, WSSA Group 2). Clopyralid (Stinger, WSSA Group 4) is an excellent post-emergent material for control of mature thistle. Stinger should be applied to Canada thistle from rosette to bud stage although it cannot be applied during apple bloom. Clopyralid should also be applied to thistle postharvest, but prior to the first frost while the plant is still actively growing and healthy. 2,4-D (another WSSA Group 4) will also provide partial control when used at similar timings. Contact products such as glufosinate (Rely, WSSA Group 10), and group 14 products like pyraflufen-ethyl (Venue) and saflufenacil (Treevix) will also burn down emerged foliage. These contact-only herbicides are not translocated to roots and will only result in shoot death.

Mowing while the plant is flowering will keep Canada thistle from setting new seeds, but no mowing should be done for at least ten days following a systemic herbicide application to ensure chemical movement out of the treated tissues.

This information was edited from [Cornell University Weed Profiles](#) project. Additional resource for the article was [Strategies for Dealing with Pesky Perennial Weeds](#), Mike Basedow, ENYCHP and Lynn Sosnoskie, Cornell School of Integrated Plant Science.