

CANADA THISTLE

(*Cirsium arvense*)

SEEDLING DESCRIPTION

The hypocotyl (stem below the seed leaves) of Canada thistle is pale green. Seed leaves are dull green, elliptical, thick, and $\frac{1}{4}$ to $\frac{3}{8}$ inch (0.6 to 1 cm) long. They come together at the base to form a shallow cup.

The first true leaves—from seed or established root systems—are thick and covered with short, bristly hairs. Margins are wavy and irregularly lobed. Each lobe ends in a sharp prickle.

BIOLOGY

Canada thistle is a perennial broadleaved weed with creeping roots that extend up to 17 feet (5 m) horizontally and 20 feet (6 m) deep. Plants grow 2 to 5 feet (0.6 to 1.5 m) high. The stem is slightly hairy

1. *Emerging seedling with smooth seed leaves.*
2. *Mature seedling.*
3. *Hairy stem without spines.*
4. *Coarse, spiny leaves.*
5. *Mature plant in flower.*



surrounding the stem, giving the impression that the stem is also spiny.

The flower heads of Canada thistle are flask-shaped, measure $\frac{1}{2}$ to $\frac{3}{4}$ inches (1.3 to 1.9 cm) in diameter, and contain many small tubular flowers. Spineless bracts surround each flower head. Male and female flowers are found in separate heads and on different plants (dioecious habit). Flowering occurs from June through October. Flowers are pollinated primarily by wind, but also by insects attracted to the weed's strong honey scent. Flower color varies from white to pale blue to purple. Most flowers are rose-purple.

Each flower head produces about fifty seeds and an average stem bears twelve to fourteen flowers. Seeds are brown, smooth, and slightly tapered at the end. They measure about $\frac{1}{16}$ inch (0.5 cm) long. The seed is attached to a white to brownish tuft of hairs called a *pappus*, which aids in seed distribution by wind. Seeds germinate from late spring through autumn and germinate best at 86° F (30° C).

The age of the seed influences its response to light. Young seeds germinate well in bright daylight, and old seeds respond best to weak light. Germination studies show that seeds stored in wet sand during the first winter germinate better than those stored dry. Seeds may be viable after twenty years in the soil and can germinate after four years of storage in water. Canada thistle also propagates vegetatively. Fragmentation of roots and stems can produce dense stands, and new seedlings can reproduce by runner roots seven to nine weeks after emergence. Roots penetrate as deep as 20 feet (6 m), but most settle in the top 15 inches (0.4 m) of soil.

Canada thistle grows well where summer temperatures are moderate and rainfall is not too heavy. It can survive in many types of soil and under a wide range of moisture conditions. It can also tolerate high salt content but does not thrive on very light, dry soils. Canada thistle is most competitive on deep, productive,

SIMILAR SPECIES

Canada thistle differs from similar species in several respects. One difference is life cycle: Canada thistle is a perennial, whereas most other thistles (e.g., bull and Russian) are biennials. Canada thistle is also distinguished by its almost spineless flower heads and by its green, wingless, slender, spineless stems. In addition, the male and female flowers of Canada thistle are found on separate plants, while those of other thistles are on the same plant.

NATURAL HISTORY

A native of Europe, Canada thistle now grows in about thirty-seven countries around the world and is widespread throughout the United States and Canada. The fine bristles of this plant can irritate the skin, while the pappus can get in the eyes and hair of humans and animals.

Canada thistle is a good pollen plant for the honey industry. It is the food plant for the caterpillars of the beautiful Painted Lady butterfly. In the United States, researchers are investigating control of this weed by insects.

Canada thistle is known by several other common names, including creeping thistle, small-flowered thistle, perennial thistle, and green thistle.

CONTROL

There are two kinds of control methods used for Canada thistle, cultural and chemical, depending on the nature of the infestation. The first step in any control program is to prevent infestation.

A combination of methods is most effective when crop infestation does occur. Seed production and vegetative root propagation should be prevented by depleting the energy reserves in the long, creeping roots. Cutting, plowing, cultivating, and applying herbicides are common practices for depleting the energy reserves of thistle roots.

In pastures and other noncultivated areas, repeated mowing reduces the infestation of Canada thistle by weakening the

to 10 cm) deep. Fields should be disked or cultivated when thistle plants are 2 to 3 inches (5 to 7.5 cm) tall or when the seedling has emerged 4 to 6 inches (10 to 15 cm) in the spring. To eradicate Canada thistle, top growth must be destroyed by cultivating every three weeks for the rest of the season. In many areas, this practice eliminates almost all of the plants; tillage can destroy the remaining plants the following spring.

Perennial forage crops and winter-annual cereal crops compete very effectively with Canada thistle and, therefore, inhibit its emergence.

Large infestations of Canada thistle in small-grain fields, in pastures, and along roadsides and ditchbanks can be controlled by applying 2,4-D, dicamba (Banvel), or MCPA. Annual treatments for two to three years will eliminate most of the thistle. Treatments are most effective in the early bud stage, when the plants are actively growing. Herbicides such as amitrole and picloram are also effective in controlling Canada thistle.

For specific recommendations, consult your county extension agent or the most recent *Weed Control Manual and Herbicide Guide*, available through Meister Publishing Company, 37841 Euclid Avenue, Willoughby, Ohio 44094. Follow label instructions for all herbicides and observe restrictions on grazing and harvesting procedures.

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