

CANADA THISTLE *(Cirsium arvense L. Scop.)*

INTRODUCTION

Canada thistle, also known as creeping thistle or field thistle, is native to southern Europe and the eastern Mediterranean. This aggressive perennial has creeping horizontal roots from which arise aerial shoots. It can be found throughout Canada and is locally abundant and widespread in all areas of BC. It grows in cultivated fields, pastures, roadsides, and idle areas, but also thrives in natural areas such as grasslands, forest openings, streambanks and shorelines. This thistle grows best in open, well-drained, sunny sites where soils are deep, moist and loamy clay.

Canada thistle infests crops of all kinds throughout BC. It reduces forage yields of pastures by decreasing moisture and nutrients. This weed may also release toxic chemicals into the soil when it is decaying. These chemicals are believed to inhibit germination and consequently reduce competition.

This ecologically harmful weed is extremely hard to control. Control of this thistle species must be consistent, with emphasis on the destruction of the creeping root system.

IDENTIFICATION

- Creeping rooted perennial
- Grows to 1.2 m
- Stalkless dark green leaves with irregular spiny lobes
- Small spineless flower heads (15-25 mm across)
- Rose-purple to white coloured flowers



BIOLOGY

Canada thistle reproduces by seed and by horizontal roots. Seed spread is facilitated by the production of abundant pappus, or cluster of hairs that aid in wind dispersal. People, animals, water and wind can transport the seeds.

Canada thistle produces an average 1,500 seeds per plant annually. Ripe flower heads contain close to 100 seeds, and have the ability to lie dormant in the soil for almost 20 years and remain viable for four years in fresh water. Ninety percent of all seeds germinate within the first year. Optimum conditions for germination are high temperatures (~30°C) and the presence of seed in the upper 1 cm of the soil. Pollination is dependent on the distance between the two sexes of plants. In fact, the highest seed production is accomplished when female and male plants are almost 17 m apart. When male and female plants are separated by as much as 400 m, virtually no pollination occurs.

Although Canada thistle is a prolific seed producer, it also reproduces vegetatively. New shoots can develop from both original vertical roots and from buds along the horizontal root. These roots are also able to regenerate new plants from fragments 3-6 mm thick and 8 mm long. This growth is due to Canada thistle's high regenerative potential.

INTEGRATED MANAGEMENT

The best overall method of control for Canada thistle is an integrated program. For agricultural lands, a combination of cultivation, herbicides, and competitive crops is effective and for natural areas (limited infestations), pulling, cutting and cautious spot-application with herbicide could be used.

PREVENTION

The most effective way to ensure that your lands do not become infested with Canada thistle is by prevention. Here are some recommendations to prevent Canada thistle invasion on your rangelands/pastures:

- Maintain grasslands in a healthy, vigorous condition to ensure a productive plant community; competitive perennial grasses and forbs utilize water and nutrients that would otherwise be readily available to thistle.
- Follow a well-designed grazing plan; excessive livestock grazing reduces competition and favours weeds.
- Regularly patrol your property for Canada thistle plants and immediately treat new infestations.
- Cooperate with adjacent landowners and encourage them to control Canada thistle.
- Immediately re-vegetate disturbed, bare soils with a suitable seed mix that provides dense, early colonization to prevent weed invasion.
- Clean your vehicles and machinery of plant material and soil before leaving a thistle infestation.

PHYSICAL CONTROL

Being a perennial plant with creeping horizontal roots, Canada thistle is not effectively controlled by pulling or digging out. Aggressive mowing for several years will deplete the root reserves but this strategy requires a long-term commitment.

Cultivation to a depth of 1 cm (0.4 in) in the spring followed by regular cultivation every 21 days is an effective control. This must be done continually with an aggressive and dedicated approach. This cultivation method works on depleting the nutrient reserve in the roots; therefore, if cultivation is delayed, the roots will replenish themselves.

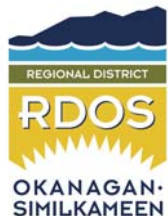
In a crop situation, Canada thistle may be controlled by competition. The seedlings are very sensitive if they are shaded. A good source of competition for thistle would be alfalfa. In addition, grain crops such as barley and fall rye are excellent for this type of competitive control. The late spring growth of thistle allows for crops to have an advantage over the plant, thereby possibly preventing the plant from flowering.

BIOLOGICAL CONTROL

A number of agents have been released in BC with limited to no success. The seed weevil *Larinus planus* and the stem gall fly *Urophora carduii* are being redistributed. The weevil consumes the contents of the flower head, thereby lowering seed production, while the fly burrows into the stem tissue. Localized attack by a non-specific rust fungus and aphid species is occasionally reported.

Effective biological control for this weed is a remote possibility at this time.

For further information on weeds in BC check out the provincial websites at: <http://www.weedsbc.ca> or <http://www.agf.gov.bc.ca/cropprot/weeds.htm>
For more information about the Regional District of Okanagan-Similkameen Noxious Weed Education Program please contact the Regional District at 250-492-0237 or toll free at 1-877-610-3737. Information is also available on our website at: <http://www.rdos.bc.ca>



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