

Invasive Plants of Wisconsin



Canada Thistle (*Cirsium arvense*)

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2-6' herbaceous, creeping, perennial. Slender, upright, grooved stems that branch only at the top. Stems slightly hairy when young and progressively more hairy as the plant matures.

Legal Classification in WI: Restricted

Leaves: Alternate, attached directly to stem (sessile), simple, oblong. Irregularly lobed, tapering, with spiny, toothed margins. Amount of spininess and lobing varies between plants.

Flowers: July-September. Numerous, small (0.5-0.75" wide), purple to pink (rarely white) flower heads. Most plants are either male or female (dioecious).

Fruits & seeds: Seed are small, light-brown, slightly tapered, and loosely attached to a feathery tuft of hair. Seed seldom remain attached to these hairs.

Roots: Reproduces clonally by creeping roots that grow laterally in soil, up to 10-12' per year. Also produces taproots that may grow more than 6' deep. Readily regenerates from root fragments.

Similar species: Canada thistle is distinguished from all other thistles by (1) creeping lateral roots; (2) dense clonal growth; and (3) small dioecious flower heads.

Ecological threat:

- Invades open natural areas such as prairies, savannas, glades, dunes, streambanks, sedge meadows, and forest openings. It also invades croplands, pastures, forest openings, lawns and gardens, roadsides, ditches, and waste sites.
- Canada thistle is prevalent in preserves, such as Conservation Reserve Program (CRP) land.

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CONTROL METHODS:**Non-Chemical control**

Removal – Pull or cut 3-4 times a year. The first removal should take place when buds are fully developed, then repeat at 4 week intervals as re-sprouts occur until the plant goes dormant in fall. Pulling or cutting when plant is drought stressed can increase effectiveness. Removal is required for 3-5 years to eradicate perennial plants, but seeds can persist and reinvade areas for up to 20 years. If flowers present, bag material and dispose of in a landfill or burn to avoid potential for seed spread.

Mowing – Mow when plant has produced flower buds. Then mow a second time when plant again produces flower buds or when the plant has 7-10 leaves. Late summer/fall mowing will not be as effective as early mowing as plants remain as rosettes. Mowing when plants are drought stressed can increase effectiveness. Mowing will suppress thistle growth, but not control it.

Prescribed burning – Spring burns can kill germinating seedlings and can suppress above ground growth of established plant depending on fire intensity. After the fire, established plants will quickly re-sprout and reinvade areas; this management method is not recommended unless integrated with other techniques. Fire may benefit other species well adapted to this management (e.g. prairie grasses), resulting in improved competition with Canada thistle. A hand-held propane torch can be effective for treating seedlings.

Grazing – The optimal time for grazing is similar to hand pulling. Sheep, goats, and cattle may graze Canada thistle before bud stage to reduce flower production, but grazing is more effective when plants are treated with salt or animals are trained to eat these spiny plants. High intensity short duration grazing of plants for 2-3 years in grass-based pastures can reduce stem densities to low levels. Avoid over-grazing a site as it can suppress other vegetation competing with Canada thistle and result in enhancing thistle populations.

Biological control - *Pseudomonas syringae* pv. *tagetis* (PST) bacterium infects thistles in non-disturbed habitat. Plant mortality rarely occurs as a result of infection and infections do not persist in plants and must be re-infected annually. Infections are increased by mowing or other physical disturbances when moisture is present on foliage. There are a number of other introduced agents that have been used to suppress Canada thistle, but these species are generalist feeders and would not be approved for release in Wisconsin.

Manipulation of the environment – Inter-seeding with competitive grasses can suppress Canada thistle, if grasses successfully establish. This method has been shown to be most effective when paired with other control measures.

Chemical control²

<p>Foliar – Apply directly to individual plants or broadcast across an infested area. Broadcasted foliar applications are typically the most cost effective treatment in dense infestations. Use lower rates on smaller plants and less dense populations, use higher rates on larger plants and denser populations. Spring fertilization can increase the effectiveness of herbicides.</p>	
<p>Active Ingredient (A.I.): 2,4-D</p> <p>Common product name: Many</p>	<p>Rate – <i>broadcast</i>: 0.95 - 1.9 lb a.e./A <i>spot</i>: 0.5-0.8% (0.019-0.03 lb a.e./gal)</p> <p>Timing – Flower-bud to early flowering stage or in the fall to rosettes as long as leaves are green.</p> <p>Remarks – This technique will eradicate new, small infestations, but will only suppress well established populations unless multiple applications are made.</p> <p>Caution – Overspray or drift to desirable plants should be avoided, as even minute quantities of the spray may cause severe injury.</p>
<p>Active Ingredient (A.I.): aminopyralid</p> <p>Common product name: Milestone</p>	<p>Rate – <i>broadcast</i>: 5-7 fl oz/A (0.08-0.11 lb a.e./A) <i>spot</i>: Equivalent to broadcast rates.</p> <p>Timing – Flower-bud to early flowering stage or in the fall to rosettes as long as leaves are green.</p> <p>Remarks – 14 fl oz/A can be used as long as < ½ of the area is treated. Depending on the volume of solution applied per acre, typical mixtures are 2-8mL milestone per gallon of water.</p> <p>Caution – Persists in soil for up to one year, especially active on legumes. Do not compost treated plants as herbicide can persist through composting process. Overspray or drift to desirable plants should be avoided, as even minute quantities of the spray may cause severe injury.</p>

² Herbicide information is based on label rates and reports by researchers and land managers. Products known to provide effective control or in common use are included. Those that do not provide sufficient control or lack information for effectiveness on target species have been omitted. References to pesticide products in this publication are for your convenience and not an endorsement of one product over a similar product. You are responsible for using pesticides in accordance with the label directions. *Read the label before any application.*

<p>Active Ingredient (A.I.): clopyralid</p> <p>Common product name: Transline</p>	<p>Rate – <i>broadcast</i>: 9-21 fl oz/A (0.19-0.50 lb a.e./A) <i>spot</i>: 0.2-0.4% (0.005-0.011 lb a.e./gal)</p> <p>Timing – Flower-bud to early flowering stage or in the fall to rosettes as long as leaves are green.</p> <p>Remarks – Wick application is effective when target plants are taller than desirable plants with 2% product in water.</p> <p>Caution – Do not apply where soils have a rapid to very rapid permeability (loamy sand to sand) and the water table is shallow, or to soils containing sinkholes, severely fractured surfaces, and soils which would allow direct introduction to a aquifer. Persists in soil for up to one year, especially active on legumes. Do not compost treated plants as herbicide can persist through composting process. Overspray or drift to desirable plants should be avoided, as even minute quantities of the spray may cause severe injury.</p>
<p>Active Ingredient (A.I.): dicamba</p> <p>Common product name: Banvel</p>	<p>Rate – <i>broadcast</i>: 16-64 fl oz/A (0.5-2.0 lb a.e./A) <i>spot</i>: Equivalent to broadcast rates.</p> <p>Timing – Flower-bud to early flowering stage or in the fall to rosettes as long as leaves are green.</p> <p>Caution – Rates > 16oz/A (0.5 lb a.e./A) may cause stunting and discoloration of sensitive grasses, such as smooth brome. Overspray or drift to desirable plants should be avoided, as even minute quantities of the spray may cause severe injury.</p>
<p>Active Ingredient (A.I.): glyphosate</p> <p>Common product name: Roundup</p>	<p>Rate – <i>broadcast</i>: 0.75-1.5 lb a.e./A <i>spot</i>: 1-2% (0.045-0.09 lb a.e./gal)</p> <p>Timing – Flower-bud to early flowering stage or in the fall to rosettes as long as leaves are green.</p> <p>Caution – Applications can result in bare ground as glyphosate is not selective. Use aquatically labeled product if potential exists for solution to contact open waters.</p>
<p>Active Ingredient (A.I.): picloram</p> <p>Common product name: Tordon</p> <p>Some products containing picloram are restricted use in Wisconsin.</p>	<p>Rate – <i>broadcast</i>: 64-96 fl oz/A (1-1.5 lb a.e./A) <i>spot</i>: Equivalent to broadcast rates.</p> <p>Timing – Flower-bud to early flowering stage or in the fall to rosettes as long as leaves are green.</p> <p>Caution – Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination. Persists in soil for up to one year, especially active on legumes. Do not compost treated plants as herbicide can persist through composting process. Overspray or drift to desirable plants should be avoided, as even minute quantities of the spray may cause severe injury.</p>

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