DEPARTMENT OF TRANSPORTATION

Office of Environmental Stewardship
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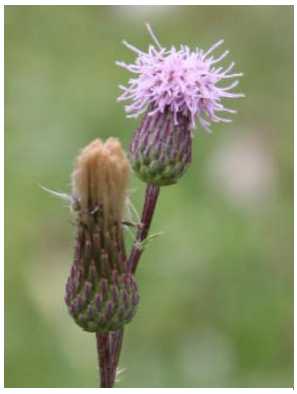
Prioritizing Canada Thistle Control on State Highways



Canada thistle flower

On managed farmlands and in highly managed landscapes it not only makes sense to control Canada thistle, but more intensive management is possible in those settings.

However, while roadside vegetation is important for many reasons, intensive management is not feasible. In particular, Canada thistle is so widespread across Minnesota and along roads managed by the Minnesota Department of Transportation (MnDOT) that it isn't feasible or possible to manage every infestation.

Canada thistles easily identifiable purple flowers show up every July on roadsides. Unlike other nonnative thistles, Canada thistle is a perennial plant which spreads aggressively via its root system and less so by seed. Research, in fact, found Canada thistle roots can "increase the width of a thistle patch 6-10 feet in a season" [(1)]. On the other hand, 80% of the "fluff" leaving a thistle patch does not carry seed [(2)]! Yet, this combination of root spread and seed production requires an integrated management approach for successful Canada thistle control.

Integrated Management Approach

Canada thistle's root system is very extensive and holds a good deal of reserves. These reserves allow plants to recover from control efforts. Because of this, Canada thistle is difficult to control and requires the use of multiple control methods and multiple applications for effective control of infestations.

Calendar of Management Options for Canada Thistle

		April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.-Mar
	Burn									
Herbicide	Foliar									
	Cut stem									
	Mow									
	Don't mow				Do not mow while seed is present					
Flowering Period										

Mowing

Mowing to control Canada thistle should be done just as buds are formed on plants. Additional buds will be produced, so mowing must be repeated as additional buds are formed. New non-flowering shoots will be produced in late summer and mowing should be timed to control these shoots as well. Mowing after plants have gone to seed (fluff stage) can assist spread by propelling seed into the air. Research from University of Minnesota, states that once the fluff appears, management through mowing or herbicide is not recommended due to limited effectiveness and increased possibility to spread[(2)]. At this stage it is best to leave it alone until proper timing for autumn herbicide applications.

Herbicide Use

Herbicide application to Canada thistle should be done when the plant is most susceptible. This includes times when shoots are young and succulent in early summer (before bud stage), in late autumn (targeting secondary growth), or following mowing when regrowth reaches 8-12 inches in height. Herbicides containing clopyralid, aminopyralid, and metsulfron-methyl have proven to be effective for Canada thistle control.

Strategic Control

Canada thistle is so common in Minnesota that it would be impossible to eradicate it. Realistically, it can only be managed. Therefore, control efforts seek to reduce its spread and limit its ecological harm. For MnDOT this means removing Canada thistle from road shoulders, rest areas, and maintenance facilities; as well as keeping it out of remnant native plant communities on and adjacent to roadsides. Another MnDOT priority is to control Canada thistle on roadsides where adjacent landowners are also controlling it.

A prioritized approach such as this, frees up resources to manage higher priority invasive species such as oriental bittersweet, common and cut-leaf teasels, phragmites, and other new invasive species such as Palmer amaranth.

Additional Resources and References

Minnesota Thistles, MN Board of Water and Soil Resources

(1) Managing Canada Thistle Factsheet 1, Penn State Department of Agricultural Sciences

(2) Production and Wind Dispersal of Canada Thistle (Cirsium arvense L.) Achenes, University of Minnesota, Becker, RL, Haar, M J, Kinkaid, BD, Klossner, L D, Forcella;

For More Information

Visit MnDOT's Roadside Vegetation Management website or contact Tina Markeson, MnDOT Office of Environmental Stewardship, 651-366-3619