# **Canada Thistle Management in Pastures**

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anada thistle has been identified as the #1 enemy in pastures in the Midwest. It is important to remember Canada thistle is a perennial, unlike other thistles which are biennial (e.g., plumeless, musk, bull thistle). Intensive management is required to eliminate infestations. Management for this species focuses on depleting reserves from the creeping perennial root system. Thus, multiple years are needed to see a substantial change in an infestation, unless herbicides are used. A range of management options are highlighted below. Remember, these options have costs and benefits, so read each section carefully and evaluate which technique is most appropriate. Also remember that no single practice will produce or maintain thistle-free pastures. Effective plans typically combine the appropriate method(s) described below with proper pasture management.

## Grazing

The optimal time for grazing to suppress Canada thistle is when plants have produced flower buds, however, animals may avoid Canada thistle at this stage due to its spiny leaves. Rotational grazing can reduce avoidance and increase impact, especially with higher stocking densities. If animals eat most of the Canada thistle shoots for 2-3 years, populations can be eliminated, but if utilization is low populations can persist.

#### Mowing

Mow when plants have flower buds. Repeat when plants again produce flower buds or 7–10 leaves. This can result in 3-5 mowings/ year depending on regrowth and will need to be implemented for many years to eliminate populations. If eradication is desired, other techniques should be selected or integrated with mowing.

## **Biological Control**

Several natural and introduced pests suppress Canada thistle. These control agents never eradicate infestations, but can reduce density and population size. Suppression from insects released as biological control agents have been variable, depending on environmental conditions. Check with state Department of Agriculture officials if interested in these insects as some states require permits before releasing. A bacteria that turns the tips of Canada thistle white (*Pseudomonas syringae pv. tagetis*), however, is unregulated and common on the landscape. While Canada thistle can be heavily suppressed in wet years, rarely does this bacteria result in perennial root mortality. If symptoms are visible, this bacteria can be spread by mowing plants when moisture is present on foliage. Expect good suppression in wet years and poor suppression in dry years. Additional management will be required to eradicate populations.

#### Herbicides

Effective and economical herbicides are available to suppress Canada thistle in pastures for multiple years. The key to effective control with herbicides lies in making the application at the correct stage of development. Applications should be applied to plants that have flower buds present, but few fully developed flowers (<50% flowering). Applications before or after this stage of growth in the summer will have reduced control. Alternatively, applications can be made to Canada thistle rosettes in the fall (plants should be mowed or grazed previously). Research has shown fall applications through October can provide equivalent control to applications at the flower bud stage. While several herbicides have an impact on Canada thistle, applications with products that contain aminopyralid (Milestone<sup>®</sup>, ForeFront<sup>®</sup>) or clopyralid (Stinger<sup>®</sup>, Transline<sup>®</sup>) are the most effective. If one of these active ingredients is applied at the labeled rate and at recommended timing, one can expect >90% control for up to two years. While these herbicides are safe to established pasture grasses, they will kill/injure legumes, potentially reducing pasture productivity. Additionally, it is not recommended to replant legumes into pasture for one year after application unless reduced stands can be tolerated. Due to this, avoid broadcasting these herbicides if absence of legumes for 1-2 years is not acceptable. Applying the herbicide to individual plants (spot treatment) can allow for legumes to persist, but if the infestation is extensive this is not recommended. When making these applications be sure to apply at label rates, as higher rates can injure grasses. Another option that avoids injury to desirable legumes is to use a weed wiper and wipe concentrated glyphosate (e.g., Roundup<sup>®</sup>) onto the leaves and stems of Canada thistle that is growing above the desirable forage. This method is effective if thistles are at least 1' taller than desirable forage. If this is not the case, injury or death of desirable forage may occur.