Research Facts
Research & Technology Development for the Canadian Beef Industry

Biological Control of Common Tansy

by Alberta Beef Producers

Project Title:	
Development of a biological control program for common tansy	
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Background:

Common tansy is an invasive, toxic, perennial, European plant that grows in uncultivated land (pastures, riparian areas, rights of way, parks, and natural areas). It reduces pasture quality and productivity and displaces native plant communities. In recent years it has also been spreading rapidly into the forested areas of northern Alberta. Chemical control options for common tansy are limited because it often grows near water bodies and in remote locations that are difficult and expensive to access.

Objectives:

To investigate whether insects can be used to control common tansy without herbicides or cultivation.

What They Did:

Previous research showed that there are potential biological control agents for common tansy. Several European insects were collected, identified and subjected to studies to test how well they controlled common tansy. These tests also examined how likely the insects were to consume only common tansy as compared to other related plants. The insects studied included *Longitarsus noricus* (a type of root-feeding flea beetle), *Cassida stigmatica* (a leaf-feeding tortoise beetle), *Isophrictis striatella* (a stem-feeding moth), and *Microplontus millefolii* (a stem-feeding weevil). Data was collected on the biology of all the above insects, how specific they remained to their host (common tansy), and other potential effects to support regulatory submissions for the field release of these insects against common tansy in Canada.

What They Learned:

Isophrictis striatella lays eggs in the flower heads but the larvae complete their life cycle mainly in dry stems. This means that this

insect would have little effect on the growth and development of common tansy, but may decrease seed production. Many *Longitarsus n* *Longitarsus noricus* eggs were obtained for the larval tests; however, one of the test gardens was infested by another *Longitarsus* species. All the *Longitarsus* species are quite similar, so DNA tests must be used to differentiate between them, as adults emerged out of plants that were not exposed to *L. noricus*. Results are still pending for this insect. *Cassida stigmatica* was able to develop on a few related species, but common tansy seems to be its preferred host. *Microplontus millefolii* is sometimes difficult to rear, however results are improving and it showed promising host-specificity. Stringent requirements regarding the usage of biological control agents means that many milestones have to be met before a new agent of biological control can be released in Canada, which requires a great deal of time and effort on behalf of the research team.

What It Means:

Continued studies will primarily focus on *L. noricus* and *M. millefolii* with further host-specificity tests. In addition, protocols are being established for collecting tansy population data at various sites to evaluate the impact of these insects after they are released. If these insects continue to show promise in future studies, they could be an effective biological control for common tansy in pastures and haylands near water, or on lands that cannot be exposed to broadleaf herbicides.

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