



Invasive Species Council of Manitoba

August 18 2017 - Press Release - Invasive Species Awareness Month

The Invasive Species Council of Manitoba (ISCM) has declared August 2017 as Invasive Species Awareness Month. In an effort to foster awareness of invasive species in Manitoba and to highlight the environmental and economic damage they cause the Council would like to share the below information on an invasive plant which is costing Manitoban's millions of dollars!

"The ISCM is concerned about invasive species and plays a unique and important role in promoting awareness, coordinating cooperation and stimulating action to prevent the introduction and spread of invasive species in Manitoba." Julie Pelc, Chair - ISCM

Leafy spurge – Friend or foe in your pasture?

Leafy spurge is prominent at the First Street site of MBFI. This photo displays the flowering plant in the forage stand. Photo courtesy of Manitoba Beef & Forage Initiatives Inc.



Adapted from an article by Carolynne Kehler, Manitoba Beef Producers Project Coordinator

They say you can't teach an old dog new tricks but a Manitoba researcher is studying whether it's possible to teach cattle to eat leafy spurge, a long-time enemy of pasture productivity.

Leafy spurge has a nasty reputation and for good reason. It is an invasive perennial weed species that infests many areas including roadsides and utility corridors but most prominently affects pastures across the Great Plains of North America.

Leafy spurge was introduced to North America from Europe and Asia. As noted on the government of Manitoba website, leafy spurge plants stand approximately 2 - 2.5 inches (50-60 cm) in height, have yellowish-green flowers, contain milky white latex, and typically are found growing in patches. Unfortunately leafy spurge can be found throughout southern Manitoba, and even reaches into the Interlake. The

highest concentrations have been reported in southwest Manitoba according to information collected by the Rural Development Institute of Brandon University. Infestations generally occur in pastures and rangelands and often render them useless for grazing as the milky latex can cause detrimental effects to some grazing animals..

Leafy spurge is probably the most difficult noxious weed to control in Manitoba. It is regulated as a noxious weed in Manitoba. With a well-developed storage system in its roots, the plant is able to withstand a number of different control methods (i.e. chemical, cultural, and mechanical). Added to the difficulty, is the plants preferred habitat of wooded areas and rough terrain which make it difficult to access via conventional means. For these reasons, a combination of two or more control methods has proven to be a more effective leafy spurge management strategy over the long term.

An economic study conducted by the Leafy Spurge Stakeholder Group in 2010 found that 1.2 million acres of land in Manitoba is impacted by leafy spurge, a number that is 3.5 times as high as their 1999 study. The study also estimated that \$10.2 million dollars' of grazing capacity has been lost; there is a \$5.8 million cost for chemical applications; and, there is a \$24.1 million in other indirect costs due to leafy spurge infestation.¹ That is a cost of more than \$40.1 million dollars a year by just this one weed alone.

According to Michele Ammeter of the Manitoba Weed Supervisors Association and Board member of the Invasive Species Council "Leafy spurge is a difficult plant to control and developing an integrated weed control program combining two or more methods (herbicide, grazing, or non-herbicide options such as cultural or biological control) will provide a successful and cost-effective long-term answer to leafy spurge control. For more information on control of leafy spurge contact your local Manitoba Agriculture Office or Weed District Office."

Heifers on trial at the MBFI First Street Site are fed pellets with leafy spurge in buckets to teach them to incorporate more leafy spurge in their diet. Photo courtesy of Manitoba Beef & Forage Initiatives Inc.



All of that being said is it possible to convert leafy spurge from a foe to a friend of the beef industry? Some local research suggests it may.

Jane Thornton of Manitoba Agriculture is leading a project at Manitoba Beef & Forage Initiatives (MBFI) on that subject. Her project focuses on a method of reducing the presence of leafy spurge by actually teaching the cattle to eat it. If successful this practice could have a number of added benefits such as: reductions in leafy spurge infestation, increased pasture carrying capacity, increased pasture diversity and, possibly increased cattle nutrition.

Contrary to popular belief, leafy spurge may be a very nutritious plant, comparable to alfalfa in quality. According to feed tests conducted at MBFI this summer the leafy spurge (top 6 inches sent for analysis) had values of:

- Crude Protein = 17.4%
- ADF = 22.2%
- NDF = 27.8%
- Total Digestible Nutrients = 74.9%

If cattle can become accustomed to eating leafy spurge it may have nutritional benefits and also bump up pasture quality late into the season when most grasses have dropped in feed value.

The problem is that cattle have an aversion to leafy spurge because of chemicals called dipertenoid euphorbal esters present in the plant. However, one study showed that over the course of six days their initial aversion to the plant can be reduced and their intake of leafy spurge increased after the initial aversion reponse.² One possible explanation is that their capacity to degrade the aversive chemical increases over time, allowing them to eat more without feeling any negative after effects. Alternatively, the severity of the after effects could be reduced by previous exposure. Either way, it is clear that cattle can incorporate leafy spurge as a minor portion of their overall diet, although exactly how much is unknown.

The method of teaching cattle to eat numerous types of weeds has been extensively practiced and taught by Kathy Voth of Arizona. She spent several years working for the US Department of the Interior Bureau of Land Management. Find her website online at <http://www.livestockforlandscapes.com>.

Voth started on her mission to reduce weed species using goats because they are well suited to eating weeds. But they come with their own set of challenges such as added fencing requirements and predator control. For producers not wanting to incorporate multi-species grazing, teaching cattle to eat the spurge is a suitable alternative that may make a foe into a friend in prairie pastures.

The training program takes approximately seven days and conditions the cattle to try new but nutritious foods. Near the end of the training program the cattle are introduced to leafy spurge and on the final day they are just given leafy spurge.

“There are a lot of funny faces as the heifers try the spurge. It is kind of like watching a baby try a pickle for the first time, but some are adventurous and munch it down,” Thornton says. ***“The great thing about cattle is that they teach each other and their offspring how to eat new plants as well. So, over time a small herd of trained animals could teach an entire large herd of animals to incorporate weeds into their diet.”***

Of course this isn't the be all, end all solution. Cattle will still only include leafy spurge as a small portion of their diet unless forced to graze an area at high density, something that is not realistic in expansive pastures such as community pastures. However, this method combined with other biocontrols (such as

some species of beetles and moths) may be able to make a noticeable impact on a pasture infestation with very minimal expense.

It is promising to note that the trained heifers at MBFI have been eating the leafy spurge.

Thornton explains that the cattle, “may not be eating high quantities of leafy spurge, but rather than avoiding the plant altogether there is now evidence that the tops of the plants are chewed off and the leaves are being stripped from the plants. They are also going into areas of the pasture they would have completely avoided prior to the training.”

In her update issued in May 2017, Thornton noted that of the 50 heifers that were taught to eat leafy spurge in June of 2016, 34 with calves returned to a stockpiled pasture at 1st Street on May 19th. She noted it was exciting to find that these young cows with calves are continuing to eat leafy spurge.

Evidence has been found of nipped tops, severe nipping and leaf stripping. While the number of stems consumed is not very high it does indicate that the cattle can and will introduce some spurge in their daily diet.

High consumption rates are not expected in cattle because the toxic component in leafy spurge will cause digestive upset with high dosages. Leafy spurge is not well adapted to grazing and other studies have shown that under sheep and goat grazing the stem density can be reduced by 80 per cent in three years.

So the question remains: what will cattle do over the long-term on a pasture with leafy spurge; will these trained cows teach their calves; and with other bio-controls already on the site can the combination have an economic impact? Twenty five new replacement heifers will be trained in June and grazed with the herd for the remainder of the season.

References

¹Rempel, K. 2010. Economic Impact Assessment of Leafy Spurge in Southern Manitoba, Final Report. Rural Development Institute, Brandon University

²Kronberg, S. 1993. Cattle avoidance of leafy spurge: a case of conditioned aversion. Journal of Rangeland Management 46:364-386.

For more information on Invasive Species visit <http://invasivespeciesmanitoba.com/site/>

Or email us at: invasivespeciescouncilmanitoba@gmail.com

If discovered in your field it is recommended that you contact Manitoba Agriculture for more information