

Massive root systems give some weeds a lift

By Barb Glen

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Invasive weed specialist Kelley Cooley has a visual aid to show just how long the roots of leafy spurge can be. He spoke about invasive weeds and their control at a July 25 Farming Smarter field event. | Barb Glen photo

A better understanding of what goes on underground can help fight weeds such as Canada thistle and leafy spurge

Farmers are battling a vast underground network of villains intent on expanding their foothold.

It sounds melodramatic, but that's pretty much the situation in fields with Canada thistle and leafy spurge.

Those two weeds have massive root systems that can stretch hundreds of feet and reproduce from tiny root fragments.

Kelly Cooley, environmental consultant and invasive species specialist, dropped a few facts that surprised participants in the July 25 plot hop organized by Farming Smarter, the Lethbridge-based applied research group.

“Right along the ... lateral root systems underground from (Canada thistle), all you need is a half inch of root segment that’s got a viable bud on it and that little half-inch segment of root from Canada thistle can regenerate up to an eighth of a mile in one season,” said Cooley.

And from the it-seemed-like-a-good-idea-at-the-time file came his opinion that early advice on thistle control did more harm than good.

“The main way (Canada) thistle reproduces is through its creeping root system and in the old days when people were farming even the best experts recommended that people control this species by continual tillage.

“What they found out after about 15, 20 years of that practice, (is) that all they were doing was spreading the problem around their field. And a lot of fields got infested strictly from the recommendation of continual tillage.”

Canada thistle is a creeping, rooted perennial. It requires warm soil to start growing in spring but by the time haying usually begins, it is in the bud or early-flower stage.

“At that point, that big root system underground has expended a ton of energy to put up those flowering plants,” said Cooley.

Cutting off those buds and flowers forces the plants’ efforts into replenishing the root system by putting forth small rosettes, all of them connected underground.

“That process accelerates in the fall, so when it comes to perennial species, a very under-looked management strategy is fall application of herbicides.”

A broadleaf herbicide application in fall, when thistles and other weeds are translocating energy to their root systems, can be effective, said Cooley.

Leafy spurge is another invasive weed with an extensive root system. Once well established, it is almost impossible to eradicate.

“I cannot stress enough with this leafy spurge, if you have this in your field or in your pasture, or on adjacent land, do not let it go. Get some help ... get on top of it because once you have established leafy spurge, you have established leafy spurge for good,” Cooley said.

The weed is thought to have arrived in Canada in the mid-1800s aboard infested hay. It has a system of creeping roots that will reproduce from small fragments, just as Canada thistle does. But leafy spurge also reproduces by active seed dispersal.

Cooley said leafy spurge plants can expel seeds up to 4.5 metres (15 feet) from their source plant.

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“It’s like standing in a popcorn maker,” he said about patches of mature leafy spurge.

Beneficial insects have shown some success in controlling the weed, though that process requires patience. Crop rotation and timely mowing can also help with control. Goat and sheep grazing can be successful if done for three to five years in a row, putting continual pressure on the plants’ root system. A single year of grazing is likely to result in an eruption of shoots the following year.

Chemical control options are limited but available. Cooley said a pre-season and a post-season application of a mixture of systemic glyphosate, 2,4-D and dicamba can help. Spring application suppresses the weed and an application after cutting can further weaken the plants.

“You’re like a boxer trying to soften up your opponent as much as possible before you deliver a knock-out blow.”