

AN INTEGRATED APPROACH TO PEA LEAF WEEVIL MANAGEMENT

After two years of study, the outline of a pea leaf weevil defence strategy is taking shape for field peas.

Pea leaf weevil is a challenging pest to handle, and could be more so in the future. Active in both field pea and faba beans, its populations can fluctuate significantly from year to year, meaning an insecticide seed treatment could be a help or an unnecessary expense. The available seed treatment is also a neonic, with an uncertain lifespan ahead of it. Research has shown that insecticides applied to the foliage are not very effective.

“Pea leaf weevil management is complicated, and insecticides are not always as effective as expected, so there is a need for alternatives,” said Dr. Meghan Vankosky, Field Crop Entomologist with Agriculture and Agri-Food Canada in Saskatoon.

Since the establishment of pea leaf weevil on the Prairies, Vankosky and colleagues have been working to build the foundations of an Integrated Pest Management approach to pea leaf weevil.

Now, with funding from the Canadian Agricultural Partnership AgriScience Program, Vankosky is building on existing knowledge to add new approaches to the pea leaf weevil management toolbox. Here’s a summary.

Beneficial insects. A class of ground beetles are potential predators of pea leaf weevil. “Of those beetles, we wanted to choose the ones that are most common and work on some bioassays in the lab to determine whether they actually eat pea leaf weevil or not,” Vankosky

said. “In the last two years we’ve sampled extensively in Alberta and Saskatchewan for the ground beetles present in those two primary host crops of pea leaf weevil.” Bioassays are scheduled for summer 2020.

Trap crops. Currently, pea leaf weevil populations are low in most of Alberta and Saskatchewan. About the only place with a consistent population is the Lacombe area, where more of Vankosky’s work has been taking place.

“In 2019, we planted plots of peas and faba beans next to each other and looked to see if weevils were more attracted to one crop than the other during their spring migration,” Vankosky said. “We did the same later in the season in late-July to observe food preferences of new-generation adult weevils.”

It appears that weevils prefer faba beans over field peas, suggesting that a strip of faba beans planted around a pea crop could collect weevils.

“What we’re finding is really positive,” said Vankosky. “We can attract weevils to a crop in the spring and in the fall.” These aggregated weevils could then be controlled by one or more methods: by ground beetles, by insecticides or by a third approach Vankosky is studying.

Trap and kill using pheromone-baited pitfall traps. Research led by Dr. Maya Evenden, an Entomologist at the University of Alberta, has demonstrated that pheromone-baited pitfall traps can be used to monitor pea leaf weevil. Vankosky and Evenden are now working to determine if these traps can be used to reduce weevil populations in field pea crops. Pitfall traps are dug into the soil, with the opening of the trap level with the soil surface. As weevils fall into the traps due to their attraction to the pheromone, they can be controlled by a reservoir of soapy water, antifreeze or some other agent. Placing these devices in a trap crop could give growers an additional option for killing adult weevils.

“The idea is to trap and kill adults in the late-summer and fall,” Vankosky said. “In 2019, we put pitfall traps into our pea and faba bean plots at Lacombe, and we’re now assessing how well they catch pea leaf weevils and differences between the two host crops. Some of these ideas for managing pea leaf weevil look promising, but there’s more work needed to validate them at field scale.”



Adult pea leaf weevils can be difficult to find. If you notice notching on your pea seedlings check out the crown region of the plant right at the soil surface.

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