AS WEEVILS SPREAD, MANAGEMENT OPTIONS ARE GROWING

Six years of investigation has expanded the arsenal of detection tools, documented the pest's northward push and opened the door to a predator-assisted defence.

Dr. Maya Evenden and her team are working towards models that can predict pea leaf weevil population levels using pheromone traps in farmers' fields.

As the 2019 growing season kicked off, Entomologist Dr. Maya Evenden figured that pea leaf weevil was due for a down year in terms of population levels in Alberta.

"If you remember, we had that really cold winter in 2018-19, so I thought we might see a real drop-off in the population," said Evenden, a Professor with the University of Alberta's Faculty of Science. "As it turned out, they seemed to be a little bit lower, but my prediction of a major population crash did not happen."

For Evenden, who's studied pea leaf weevil intensely since 2014, this was another sign that this damaging, rice-sized pest of field peas and faba beans is a tricky customer. In 2018 and 2019, the major focus of her work was to continue trapping pea leaf weevil in order to gauge its recent spread beyond its previous range in southern Alberta.

The tool Evenden uses for pea leaf weevil sampling is a pheromone-baited pitfall trap she developed and tested between 2014 and 2017. This cup-shaped trap is dug into the ground to be even with the soil surface, equipped with a mesh to keep larger-sized beneficial insects from falling in.

"We started with traps in the southern part of the province," Evenden said, "and by 2017 we were trapping all through Central and Northern Alberta and even a few sites in the Peace Region. That was the first indication that they had successfully made it to the Peace."

They're here. How can we manage them?

Trapping of pea leaf weevils can take place in the spring as they move into fields and in the fall as they leave the field to overwinter. If fall numbers are significant, that could indicate that an insecticide seed treatment could be warranted for seed planted the following spring.

Beyond insecticide, Evenden aims to broaden grower options for managing pea leaf weevil. Beneficial insects could open another avenue of defence. By-catch of predaceous ground beetles from pitfall trapping should give an indication of which other insects are present at the same time as pea leaf weevil in different regions.

"The prediction you get from the fall count, in addition to knowing what kind of natural enemies are present, might help growers to better estimate whether they need to plant treated seed in the spring," Evenden said.

As her current project wraps up, Evenden is confident that the incidence and potential management of pea leaf weevil in Alberta is now far better understood than before. Growers in Central and Northern Alberta and the Peace know they're part of the story. Meanwhile, Evenden's pitfall trap will continue to be an asset in understanding this important pest, monitoring its spread and managing it.

"The pheromone-based tool has been a good addition," Evenden said. "It's not a replacement for monitoring activity in the field, but it's far more sensitive than just looking at feeding damage, and you can use it for early detection. It's an addition to the arsenal that we have against this insect."