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Pea leaf weevils: The danger comes from below

by Sarah Redekop



A pea plant with foliage damage from the pea leaf weevil is viewed at Farming Smarter's 'plot hop.' Photo: Sarah Redekop

Adults chomping on leaves aren't the problem with these pests — it's their offspring feeding on root nodules

Pea leaf weevils are on the move and are now being reported in crops as far north as Edmonton.

The pest first appeared in Alberta in 2000 and they have become a huge threat to fababeans and field pea growers in the province. Originally nesting in the south, they have migrated and are now appearing in high numbers in south-central Alberta.

All it takes is one adult female, and in one shot, thousands of pea leaf weevils are dispersed into a crop waiting to wreak havoc. Once these critters come out of their shell, the real damage begins to occur. It is the larvae of the pea leaf weevil that cause the greatest damage by feeding on the nodules of the plant.

Adult pea leaf weevils feed on leaves, which can greatly affect the appearance of a crop as they can consume as much as 20 per cent of the foliage.

But looks can be deceiving, said Hector Carcamo, an entomologist at Agriculture and Agri-Food Canada's Lethbridge centre.

"The damage caused by the adults is very rarely an issue in terms of yield," Carcamo said at Farming Smarter's 'plot hop' last month.

Rather, growers need to be concerned about the larvae, which can eat up to 70 to 80 per cent of the nodules, he said. Without the nodules to provide the nitrogen fixation to the plant, growth and yield will suffer.

Growers who have used seed treatments on their pea crops will still see foliage damage. The insecticide only kills about 30 per cent of the adults and Carcamo said studies have found they provide only a 50 per cent reduction in foliage damage. But the primary way insecticide works is by reducing the amount of eggs.

Fababeans seem to respond better to seed treatment than peas and Carcamo said seed-treated fababean crops saw very little damage and had consistent yield responses. Seed treatment remains the best method in preventing yield loss in both pea and fababean crops, he said.

Growers who have not used a seed treatment, and are experiencing extreme seedling damage, may have an alternative. Carcamo has been experimenting on test plots by adding nitrogen to the soil. Although this method defeats the purpose of growing a pulse crop, he said it is a last resort.

"If the pea leaf weevil is having a major impact on the field, and it's mediated through the nitrogen relationship, then you don't have any other option," he said. "It's a desperate measure, basically you want to protect your crop and have some yield."

No results from insecticides

Using foliar sprays on fababean and pea crops is something Carcamo recommends against. He has compared several chemicals and the results of foliar insecticides did not produce significant results.

"None of the foliar insecticides actually had an impact on protecting the yield in peas," he said.

Foliar insecticides also kill natural predators such as the carabid beetle, which feeds on the pea leaf weevils' larvae.

New management strategies for pea leaf weevil prevention are continually being researched and analyzed by Carcamo and his team. In areas where compost has been added to the field, the larvae will starve because the crop will not produce many nodules. The damage from the adults will still be visible, but if there is a good level of nitrogen in the soil, the pea leaf weevil larvae will not be a threat.

"That might be a way to control the weevil in the future," he said.

Trap crops are another method of control Carcamo is hoping to test.

"I have this crazy idea," he said.

The idea is to add fertilizer along the border of a fababean or pea crop in hopes pea leaf weevils would lay eggs there. The extra nitrogen would result in fewer nodules and that, in turn, would deprive larvae of their food source and result in higher mortality rates.

Growing winter peas could also be another solution.

"If you had winter peas, that would be an ideal crop in terms of managing the pea leaf weevil, because you would actually escape the insect in time," said Carcamo.