



SOIL INSECTS

WHAT INSECT PESTS SHOULD YOU BE AWARE OF THIS GROWING SEASON?



Pea leaf weevil.

Soil insects attacking pulse crops are like party crashers, uninvited and hard to dislodge once they settle in. Though the impact of soil insects varies by species, the common concern is yield loss due to root damage affecting nutrient uptake by the plant.

“Plant death is a possibility, especially with cutworms that can cut the stem and consume foliage,” said Dr. Meghan Vankosky, Research Scientist - Field Crop Entomology with Agriculture and Agri-Food Canada (AAFC). “There may also be indirect effects where initial damage leads to pathogen infection. The infection causes most of the damage, but it gets in because of an insect feeding on the plant initially.” Like most aspects of farming, the soil insect issue is largely weather dependant.

“The size of insect populations and their feeding rate fluctuates with temperature,” Vankosky said. “In general, you see less damage during cold, wet weather compared to warmer and drier conditions, as insects are more active when it is warmer.”

With soil insects, however, moisture can be helpful as it keeps them from desiccating in the soil. Also, some soil insects tolerate moist conditions better than others, leading to more plant damage.

Pea Leaf Weevil

One pest causing a lot of concern is the pea leaf weevil, an insect with a geographic range that continues to expand across the Prairies.

“When attacking field peas and faba beans, the adults feed on the foliage and the larvae consume the root nodules,” Vankosky said.

“That nodule damage interferes with nitrogen fixation and can be worse than the harm to foliage, especially if the plants are grown in low nitrogen soil to naturally improve soil nitrogen content for subsequent crops.”

To combat pea leaf weevil, most research points to insecticide seed treatments as the best bet for protecting field peas and faba beans. In addition to guarding the foliage against adults, treatment can delay development of the larval population, and may even reduce damage below the ground.

One pest causing a lot of concern is the pea leaf weevil, an insect with a geographic range that continues to expand across the Prairies.

Vankosky explained: “Effectiveness of insecticide seed treatment depends on the population density of the pea leaf weevil and when they arrive. If there are too many of them, they may overcome the protection. However, our preliminary data from an experiment in Swift Current, Saskatchewan showed good yield protection from seed treatment, so that is promising.”

From an economic standpoint, Vankosky noted that the nominal threshold for pea leaf weevil is to consider spraying a foliar insecticide when 30% of plants sampled in a field have feeding damage on the terminal leaves.

Cutworms and Wireworms

Two of the biggest pest threats to pulses are cutworms and wireworms. “Both can lead to stand reductions and if the stand is too thin, yield reductions may occur,” said Scott Meers, Insect Management Specialist - Pest Surveillance Section with Alberta Agriculture and Forestry.

Although cutworms are found throughout the Prairies, wireworms favour the Dark Brown soil zones in the dry, southern parts of Alberta and Saskatchewan. Neither pest is a welcome sight for producers, but cutworms are of greater concern to pulse growers.

“Cutworms usually cut the plant off just below the soil surface,” Meers said. “Wireworms are more likely to target the seed itself, and since pulses tend to be larger-seeded, the damage is often less severe than with cutworms.”

The two pests also differ in the approach needed to address them.

“Wireworms like cereal crops the best, so if there are cereals in a grower’s rotation, they should watch for wireworm damage in one year to predict damage in the next,” explained Dr. Haley Catton, Research Scientist – Cereal Crop Entomology for AAFC.

Seed treatments containing neonic insecticide offer some protection against wireworms and aid in crop establishment.

“The treatments do not kill the wireworms, but stun them for a few weeks or months, giving enough time to get a crop off that year,” Catton said.

On the other hand, no such protection exists for peas plagued by cutworms, though Meers suggests a foliar application of insecticide to manage the cutworm population once it appears.

As for the threshold dilemma, Meers said that decisions should be based on when plant stands fall below acceptable levels. He suggested consulting the Cutworm Pests of Crops on the Canadian Prairies field guide from AAFC for more information on cutworm thresholds.



Wireworms

Two of the biggest pest threats to pulses are cutworms and wireworms. Both pests differ in the approach needed to address them.

Dealing with soil pests is no easy task for pulse growers, yet it is well worth the effort. The longer pests stick around, the more damage they do.

- Courtesy of Saskatchewan Pulse Growers