PESTS AND PREDATORS IN PULSES

As pulse growers head into fields to scout this season, it's important to distinguish damaging pests from beneficial insects. Although they may not be readily apparent, there is a host of predaceous and parasitic insects keeping pest populations in check.

Known affectionately as Field Heroes, these hard-working insects have been in the spotlight in recent years thanks to an educational campaign of the same name. Field Heroes is supported by entomologists across the Prairies and funded by the Western Grains Research Foundation.

Nevin Rosaasen, APG Policy and Programs Specialist, is a valuable ambassador for the initiative. "One of my favourite things to talk about is insects," he said. "Every pulse crop has different pests to manage. I feel it's critical for growers to know which beneficial insects are helping them with control."

Rosaasen knows his bugs firsthand – he's a fourth-generation farmer from eastern Saskatchewan. He now calls Alberta home, but he returns to the farm several times each season from planting to harvest to help out his family.

Watch for notching in pea and lentil fields

"Pea leaf weevil and pea aphids are the biggest insect issues for pea and lentil growers in Alberta," Rosaasen said. If populations are high enough, these pests can impact both yield and quality. Fortunately, there are several Field Heroes at work in pulse fields to keep damage to a minimum.

"We definitely know that carabid ground beetles play a role in predation of pea leaf weevil," explained Rosaasen. The small, dark-brown beetles devour pea leaf weevil eggs. This is important work as APG does not recommend any foliar, non-selective insecticides to be used on the pest.

Banchus flavescens. Photo by J. Gavloski.

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"We only suggest a seed treatment if you're in an area that had pea leaf weevil the previous year and the damage was significant," noted Rosaasen.

"Get out and look for notching on the foliage," he said, referring to the characteristic notches on the leaf margins, due to adult weevils feeding. "That will determine if you use a seed treatment the next year."

Rosaasen added that it's great for growers to know there are predators at work. "If they see notching and some carabid ground beetles, they can feel better about not using that foliar insecticide as a revenge spray."

When it comes to pea aphids, lady beetles play a significant role in control. In fact, one lady beetle larva can eat as many as 160 aphids in 24 hours.

The parasitoid wasp known as *Aphidius ervi* is also a natural enemy of the pea aphid. The small, black

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Carabid ground beetle

wasps lay a single egg inside of an aphid, which hatches into a larva that consumes the aphid from the inside out.

Be on the lookout for lygus bugs and bertha armyworm

Lygus bugs and bertha armyworm are two pests that are increasingly a concern in faba beans.

"We haven't seen as much lygus in Alberta, but we do see it from time to time, especially in the south. Lygus bug for me is a big concern. On our farm last year, our faba beans had 15% damage," Rosaasen said, referring to the loss in grade due to the lygus causing pin holes in the seed coat.

Field Heroes that work to keep these pests at bay include damsel bugs, green lacewing and parasitoid wasps. *Peristenus mellipes* and *Peristenus digoneutis* are tiny specialist parasitoids that attack only lygus bugs.

Bertha armyworm is also kept in check with the help of a parasitoid wasp. Known as *Banchus flavescens*, it is more easily recognizable due to its size and colour. An adult is a relatively large, orange wasp with long antennae. Parasitism of bertha armyworm by *Banchus flavescens* can exceed 40% in some years.

Scouting tips and techniques

Growers are encouraged to scout fields weekly during the season to check for the number of insects and species present in the crop. A new resource at fieldheroes.ca – "Pest and Predators Field Guide" – is a great tool to use while scouting. It's full of reference images and helpful tips.

A sweep-net is another useful scouting tool. Videos are posted on FieldHeroes.ca to show the proper technique for sweep-netting. Of course, a key step is evaluating what's in the net – are they pollinators, insect predators, parasitoids or insect pests? Growers don't need to identify everything in their net, but they should get to know the most common beneficial insects. That way they'll be able to protect the insects who are working hard for them.

Lady beetle larva. Photo by J. Gavloski.