Issue 14 – August 22, 2024

Manitoba Crop Pest Update

Seasonal Reports Weekly Weather Maps Insects

Summary

Insects: Soybean aphid levels are high in some areas, with insecticides having been applied to a few soybean fields in the Eastern region. There are reports of a lot of lady beetles in some soybean fields with aphids.

Disease: There have not been many new disease situations to report for this week's issue. The only things of note are related to canola: a field with very high incidence of Verticillium stripe and a curiosity that you might happen across if/when you are scouting or surveying canola prior to harvest – the so-called Bird's-nest fungus.

Entomology

Soybean Aphids

With soybean aphid levels having increased in some areas, this will be something to pay extra attention to when scouting soybeans. Things to consider include aphid levels, whether these levels have been increasing, crop stage, and natural enemy levels.

Scouting tip - When scouting for soybean aphids, and other potential pests, randomly select plants to do counts on. If you look for plants with lots of aphids on them to do your estimates on, your estimates will not reflect the average population in the field. Soybean aphid populations can occur in pockets of higher levels, with many of the surrounding plants having very little or no soybean aphids on them.

Photos by Christine Kilpatrick – Field 2 Field Agronomy

Report compiled by John Gavloski, David Kaminski, Kim Brown
Entomologist, Field Crop Pathologist, Weeds Specialist, Manitoba Agriculture
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Action Threshold: The action threshold for soybean aphids (where insecticide application is recommended to prevent economic loss) is:
• 250 aphids per plant on average,
• and the population is increasing,
• and the plants are in the R1 (beginning bloom) to R5 (beginning seed) growth stages.

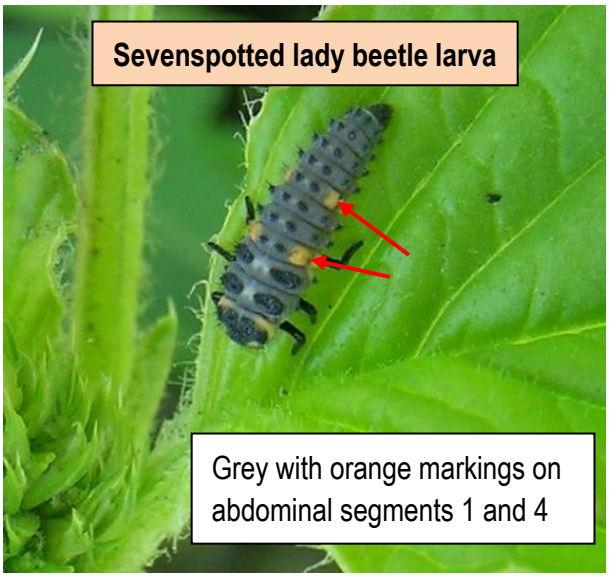
Once soybeans reach full seed set (R6), research has not shown a reliable yield gain from an insecticide treatment.

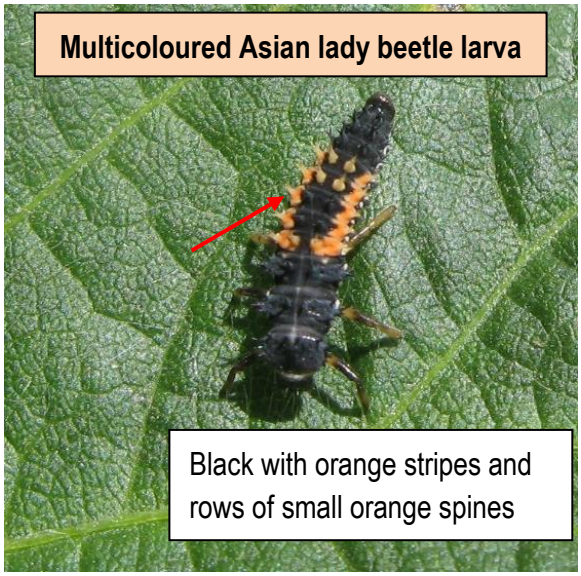
The reason that "and the population is increasing" is part of the threshold is because the actual economic injury level, where control costs will equal yield loss, is actually about 670 aphids per plant. The action threshold, where control is suggested, has been set much lower than 670 to allow time for an insecticide to be applied before increasing populations could potentially reach 670 per plant.

For **more information** on soybean aphid biology, monitoring, thresholds and management, see: Province of Manitoba | agriculture - Soybean Aphids (gov.mb.ca)

Lady Beetle Larvae – Some Common Species You May See

There are a lot of lady beetle larvae, and other predators, in some fields that have a lot of aphids. In Manitoba, we have 66 species of lady beetles, although there are just a few that you will more commonly see in crops. These include the sevenspotted lady beetle, *Coccinella septumpunctata*, the multicoloured Asian lady beetle, *Harmonia axyridis,* and the thirteenspotted lady beetle, *Hippodamia tredecimpunctata*. This year, the sevenspotted and multicoloured Asian seem to be the two dominant species in many fields, at least in fields in the Central region I have been in. Here is a photo key to the more common lady beetle larvae you may see as you are scouting in field crops.





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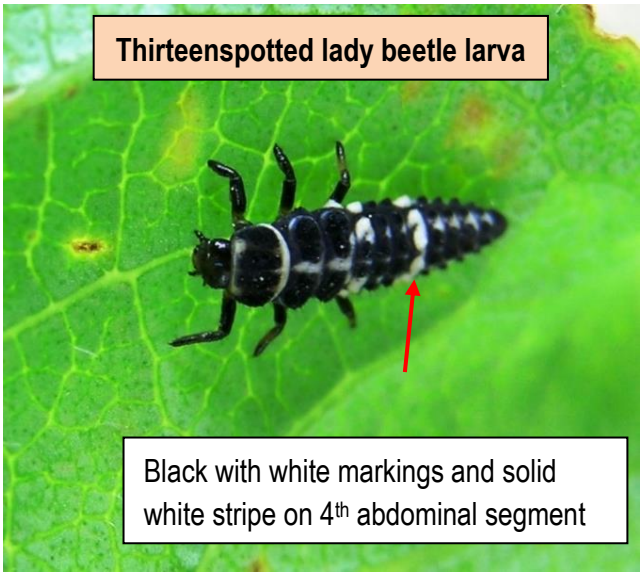
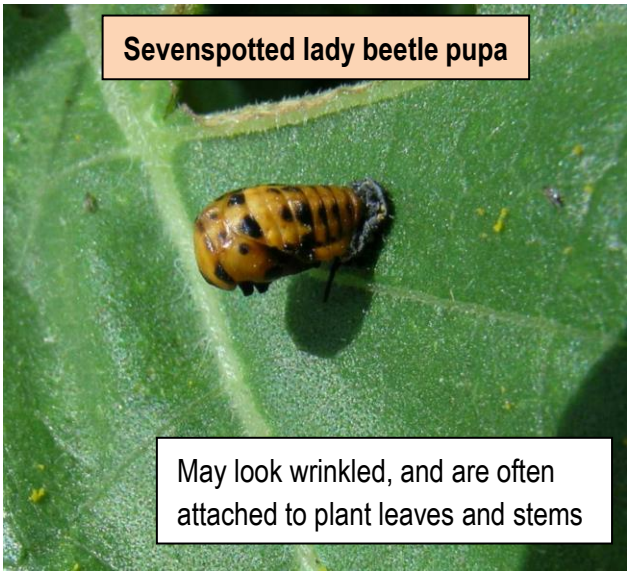




The answer to the question on page 1 – this is a sevenspotted lady beetle larva.

Plant Pathology

Verticillium Stripe in Canola

We are actively tracking the incidence and severity of Verticillium stripe in canola. Knowing the incidence in a field could be correlated to potential yield loss. Such correlation is the subject of research toward understanding a relatively "new" disease. While surveying this week, we came across a field with over 80% incidence of Verticillium stripe. Many other fields have low or zero incidence of Verticillium.

A canola field, nearing harvest timing, with high incidence of Verticillium stripe.

The Bird's-nest Fungus

While looking around within the canopy of canola, you may see some "mushrooms" that are the same size and color as Sclerotinia apothecia. In fact, these spore-producing fungi are "good guys" rather than "bad actors" that threaten crop health. Why? They actually grow on and help to break down old canola stubble. Bird's-nest fungi that are mature have black spore packets that resemble "eggs" within a nest. One that is immature (not yet open) can be mistaken for the spore-producing structures of Sclerotinia. The latter appear much earlier in the growing season while these guys show up towards harvest time.

Two examples of the aptly-named Bird's-nest fungus.
One is open and shows spore packets resembling eggs.
The other is immature. Photo credit: Sheila Elder

Forecast

Grasshopper Survey

Manitoba Agriculture is conducting a grasshopper survey during August, when the majority of grasshoppers are in the adult stage.

Agronomists and farmers who would also be interested are encouraged to participate. The survey involves estimating grasshopper numbers in or around the fields you are in. If interested, see the survey protocol (at the link below) for more details of the survey and where to send data. Your counts would be welcomed.

Data from the survey, along with weather data during the egg laying period of the grasshoppers, will be used to produce a forecast for 2025.

The protocol and data sheet for the grasshopper survey is at: grasshopper-survey-protocol-revised-2024-07.pdf (gov.mb.ca)

Identification Quiz

Question: What is the small orange larva circled in the picture below?

Answer: The orange larva on the leaf looks to be a type of gall midge larva (Cecidomyiidae) and considering it is on a leaf with aphids on it is most likely *Aphidoletes aphidomyza*, which is a predator of over 60 different species of aphids. The gall midge family includes plant pests, decomposers and predators. The adult flies of *Aphidoletes aphidomyza* feed on aphid honeydew. Adult flies are great at locating aphid colonies. Once one is found, a female fly will lay up to 70 eggs amongst the aphids so the hatched larvae will have prey to consume. The larvae are tiny. The oldest larvae reach a length of only 3mm. Although the larva in the picture in orange, they can range in colour from bright orange to red depending on their food source. To feed, the larvae inject a toxin into the aphids' leg joints and paralyze them, then suck out the body content through a hole bitten in the thorax leaving behind a blackened, collapsed aphid on the leaf. A single larva can kill 25 soybean aphids within 24 hours. They will sometimes kill more aphids than they eat.

Other aphid predators:

In addition to *Aphidoletes aphidomyza* and lady beetles, many other insects can also help manage aphid populations Here are some other insects that include aphids in their diets.

Hover Fly Larvae

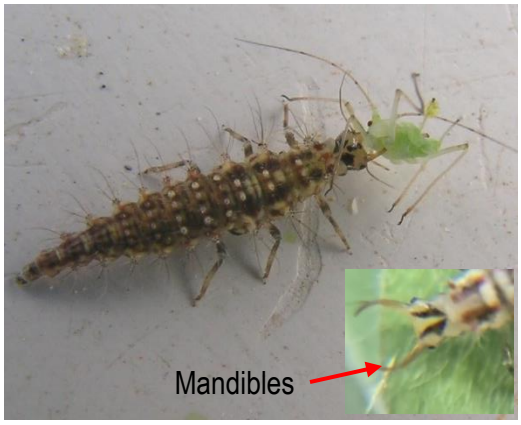
- Slug-like, legless body that tapers towards head.
- Colour varies; commonly brown, greenish, pink, or whitish.

Larvae of most species are predators. Many species are important predators of aphids, and some may also feed on thrips, scale insects or small caterpillars. A single hover fly larva can kill 17 soybean aphids in 24 hours. Adults often feed on nectar and/or pollen. They can be valuable pollinators and are often considered the second-most important group of pollinators after bees.

Damsel Bug

- Body tapers towards head
- Long enlarged front legs for grabbing prey

Once prey is found, damsel bugs use their front legs to capture it, then, with their mouthparts, inject it with enzymes to liquify it's tissues. This toxin used by damsel bugs to subdue their prey will kill, even if the prey is not eaten.



Green Lacewing Larvae

- Yellowish to mottled grey with red, brown, or black markings
- Large sickle-shaped mandibles (mouthparts)

Instead of chewing their prey, lacewing larvae inserts their mandibles into the body of the prey and suck fluids through a channel or groove on the inside of the mandible. During their development, lacewing larvae each consume between 100 to 600 aphids. Within 24 hours, green lacewing larvae can kill 36 soybean aphids.

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Minute Pirate Bug

- Small (2-5mm).
- Black and white with pointed head

After impaling prey with their beak, minute pirate bugs inject an anesthetizing fluid to paralyze the prey, which is then sucked dry. Minute pirate bug nymphs can kill 8 soybean aphids within 24 hours while adult females can kill 11. They may also feed on pollen and plant juices, enabling them to survive in the absence of prey.

For more information on identification and biology of insects theat prey on or parasitize other insects, see: [beneficial-insects-predators-and-parasitoids-revised-june2024.pdf (gov.mb.ca)]

To **report observations** on insects, plant pathogens, or weeds that may be of interest or importance to farmers and agronomists in Manitoba, please send messages to one of the following Manitoba Agriculture Pest Management Specialists.

John Gavloski, Entomologist (204) 750-0594
David Kaminski, Field Crop Pathologist (204) 750-4248
Kim Brown, Weed Specialist (431) 344-0239

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