



Beneficial Insects Monitoring



Beneficial insects can be monitored and recorded either while sampling for potential pest insects in crops, where sweep net sampling or counts of insects per plant are used, or monitored separately. Beneficial insect assessments can be done in a variety of crops, non-crop areas (such as field borders), flowering strips, etc. Levels and diversity can be compared between different crops and habitats. Aside from potentially impacting management decisions, these estimates of levels and stages of beneficial insects can become part of a larger dataset, enabling levels and trends to be compared, reports prepared on abundance and stages in different regions, etc.

Beneficial insect counts can also be used to assess the ecosystem impacts and recovery from disturbances such as pesticide use, habitat alteration, etc. Collecting baseline data prior to the disturbance, if possible, is helpful for assessing impact.

Purpose – To assess the species, levels and stages of some common beneficial insects in crops.

Methods:

(1) Sweep net sampling

- Record information on date, crop or habitat, plant stage, location, etc. on data sheet.
- Take 10 sweeps in a crop or habitat (or whatever is required if using a protocol for a specific pest), using a 38 cm (15 inch) diameter sweep net. Sweeps should be roughly a 180 degree arc from side to side. Sweep at a height where the top of the vegetation is just below the upper rim of the net as it passes through the crop. Multiple sets of sweeps can be taken in a crop if desired or for increased accuracy.
- After the final sweep of each set, swing the net through the air to knock any insects to the bottom of the net. Quickly clasp the net above where the insects are contained (so you have them trapped in a few inches of netting).
- Invert the netting through the rim and empty it into a cage or bag where they can easily be viewed. A more detailed protocol for using a sweep net to monitor insects, with photos showing some of the steps, can be found at: <https://www.gov.mb.ca/agriculture/crops/insects/pubs/monitoring-with-sweepnet-factsheet-april2026.pdf>
- Count levels of beneficial insects listed on the data sheet, noting whether adults or larvae /nymphs are present where applicable. Refer to the Beneficial Insect Identification pages in this protocol, or the additional resources listed, for help in identifying beneficial insects.

(2) Counting Insect Levels per Plant / Branch

- Record information on date, crop, crop stage, location, etc. on data sheet.
- Avoid field edges and select 10 areas of the field in a random pattern.
- Each sampling site should be a minimum of 20 metres apart.
- At each of the 10 sampling sites, select 1 plant to assess for beneficial insects, and targeted pest insect(s).
- Assess the whole plant, going from the top to bottom, turning leaves, inspecting the stems/stalks, flowers/tassels, and fruit/ear/pod of the plant for beneficial insects.
- Record the number of each beneficial type and stage (nymphs, larvae and adults) found per plant.
- For tree crops, use the same protocol inspecting a roughly 90 cm (3 foot) section of a single branch, rather than a plant.

Beneficial Insect Identification - Predators



Multicoloured Asian lady beetle
 - Variable in colour and number of spots
 - 5 black spots forming an “M” shaped marking behind head



Sevenspotted lady beetle
 - 7 black spots on elytra
 - 2 white marks behind head that look like large eyes



Thirteenspotted lady beetle
 - 13 black spots on elytra.
 - Somewhat elongated.
 - White border around black spot behind head



Multicoloured Asian lady beetle larva
 - Black with orange stripes and rows of small orange spines



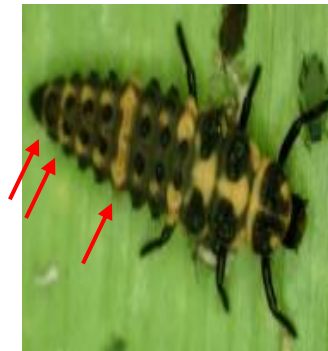
Sevenspotted lady beetle larva
 - Grey with orange markings on abdominal segments 1 and 4



Thirteenspotted lady beetle larva
 - Black with white markings
 - Solid white stripe on 4th abdominal segment



Spotted pink lady beetle
 - Somewhat elongate
 - 2 black spots behind head, 10 black spots on elytra



Spotted pink lady beetle larva
 - Dark brown to black
 - Orange stripe on abdominal segments 4, 7, and 8



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

Beneficial Insect Identification - Predators



Green lacewings

- Pale yellow to bright green in colour
- Long, slender antennae
- Two pairs of large clear, lace-like wings that fold like a tent over the body



Hover flies

- Many species resemble bees or wasps, but size and appearance can vary.
- Have short antennae and only two wings, not four.
- Often around flowers; may do a lot of hovering.



Hover fly larvae

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



Minute pirate bug adult

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



Minute pirate bug nymph

- Small (2-4mm)
- Wingless
- Yellowish-pink to reddish-brown in colour



Damsel bug

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

Predators



Spiders

- Have eight legs, two body segments and lack antennae.

Beneficial Insect Identification – Parasitoids



Aphid mummies

- Swollen, dead aphids that have been tanned and hardened due to aphid mummy wasps (subfamily Aphidiinae).

Beneficial Insect Identification – Pollinators



Honey bees

- Head nearly all black; more heart-shaped face compared to many other bees.
- Yellow bands on abdomen.
- Less hair on abdomen than bumble bees.



Bumble bees

- Large, generally black and yellow.
- Have long, thick hair (an adaptation for colder weather).

Additional resources to help identify beneficial insects:

Field Heroes Pests and Predators Guide: <https://fieldheroes.ca/fieldguide/>

Beneficial Insect Monitoring Data from Sweep Net Samples

Sampler(s):

Temperature:

Date:

am pm

Crop (or habitat, such as field border, etc.):

Plant stage (vegetative, early- full- or late- flowering, podding, etc.):

Location- Nearest town:

Province:

*Latitude-

Longitude-

*Record Latitude and Longitude where first set of sweeps is done

Was an **insecticide applied** recently? If so, provide date and product used if known:

Set	1		2		3	
Number of sweeps per set =						
Species	Adults	Larvae*	Adults	Larvae*	Adults	Larvae*
Lady Beetles						
Multicoloured Asian Lady Beetle						
Sevenspotted						
Thirteenspotted						
Pink spotted						
Others						
Green Lacewings						
Hover flies						
Minute pirate bugs						
Damsel bugs						
Spiders (adult or young)						
Honey bees						
Bumble bees						
Other (Insect: _____)						

*Record juveniles present; larvae, nymphs for minute pirate bugs and damsel bugs. Spider totals can be included under adults, rather than separating into adults and young spiders (spiderlings). Only adult honey bees and bumble bees would be encountered taking sweep samples.

Notes and Observations:

Beneficial Insect Monitoring Data from Counts of Insects per Plant / Branch

Sampler(s):

Temperature:

Date:

am pm

Crop:

Plant stage (vegetative, early- full- or late- flowering, podding, etc.):

Location- Nearest town:

Province:

Latitude-

Longitude-

*Record Latitude and Longitude where first count is done

Was an **insecticide applied** recently? If so, provide date and product used if known:

Record the following beneficial insects from each of 10 plants (or branches if tree)

Species	Adults										Larvae / Nymphs									
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
Lady Beetles																				
Multicoloured Asian																				
Sevenspotted																				
Thirteenspotted																				
Pink spotted																				
Others																				
Green Lacewings																				
Hover flies																				
Minute pirate bugs																				
Damsel bugs																				
Spiders (adult or young)																				
Aphid mummies																				
Other (Insect: _____)																				

Notes and Observations: