

# Beneficial insects in New Zealand brassica crops

Beneficial insects can assist with pollination, decomposition, and pest control in Integrated Pest Management (IPM). A range of natural enemies are known to attack vegetable pests in New Zealand, including both predators and parasitoids.

## Generalist predators of insect pests in New Zealand brassica crops

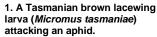
Generalist predators are usually quite active and feed directly on a range of pest insects at various life stages. Predators in brassica crops that are also commonly found in other vegetable crops include: the Tasmanian or brown lacewing (*Micromus tasmaniae*), the eleven-spotted ladybird (*Coccinella undecimpunctata*), the small hover fly (*Melanostoma fasciatum*) and the Pacific damsel bug (*Nabis kinbergii*). Several spiders and harvestmen are also known to attack a variety of vegetable pests.

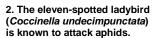
| Pest                          | Predators          |                    |                    |                    |                        |                        |
|-------------------------------|--------------------|--------------------|--------------------|--------------------|------------------------|------------------------|
|                               | Lacewings          | Ladybirds          | Hover flies        | Damsel<br>bugs     | Spiders and harvestmen | Shield or solider bugs |
| Aphids                        | <b>~</b>           | <b>✓</b>           | ~                  | ~                  | <b>~</b>               |                        |
| Moth caterpillars and/or eggs | small caterpillars | small caterpillars | small caterpillars | small caterpillars | ~                      | ~                      |

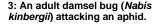






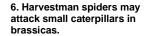


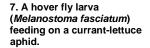






- 4. A Tasmanian brown lacewing adult (*Micromus tasmaniae*) with its distinctive lace-like wings.
- 5. An eleven-spotted ladybird (Coccinella undecimpunctata) larva.





- 8. Predatory soldier bug, Oechalia schellenbergii, attacking a caterpillar.
- Sheetweb spiders are frequently found in vegetable crops.





## Parasitoids of insect pests in New Zealand brassicas crops

Insect parasitoids lay their eggs on or in their host, and the immature life stage develops within the other organism, eventually killing it. Most parasitoids found in New Zealand lettuce crops are tiny wasps (Hymenoptera) and are generally specific to certain pest species.

| Pest                         | Parasitoids   |  |  |
|------------------------------|---|--|--|
| Diamondback moth (DBM)       | Diadegma semiclausum, Diadromus collaris                        |  |  |
| White butterfly              | Cotesia rubecula, Cotesia glomerata                             |  |  |
| Heliothis (tomato fruitworm) | Cotesia kazak, Meteorus pulchricornis, Microplitis croceipes    |  |  |
| Soybean looper               | Copidosoma floridanum, Cotesia ruficrus, Meteorus pulchricornis |  |  |
| Aphids                       | Various Aphidius and Aphelinus species                          |  |  |



Meteorus pulchricornis adult parasitoid ready to parasitise a Heliothis caterpillar.



A *Cotesia rubecula* cocoon from a white butterfly caterpillar.



An empty aphid mummy, parasitised by an *Aphidius* parasitoid.

#### Summary

- Various natural enemies can be found in New Zealand vegetable crops (including brassicas).
- It is important to recognise and monitor these natural enemies in an IPM cropping system.
- It is also important to understand how these natural enemies can be utilised, conserved, and enhanced in an IPM cropping system.
- Selective insecticides and biodiverse plantings can provide shelter, nectar, alternative food, and pollen (SNAP) to conserve and enhance these beneficial insect populations.

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