

## 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 bugs	Spiders and harvestmen	Shield or soldier bugs
Aphids	✓	✓	✓	✓	✓	
Moth caterpillars and/or eggs	✓ small caterpillars	✓ small caterpillars	✓ small caterpillars	✓ small caterpillars	✓	✓



1. A Tasmanian brown lacewing larva (*Micromus tasmaniae*) attacking an aphid.

2. The eleven-spotted ladybird (*Coccinella undecimpunctata*) is known to attack aphids.

3: An adult damsel bug (*Nabis kinbergii*) attacking an aphid.



4. A Tasmanian brown lacewing adult (*Micromus tasmaniae*) with its distinctive lace-like wings.

5. An eleven-spotted ladybird (*Coccinella undecimpunctata*) larva.

6. Harvestman spiders may attack small caterpillars in brassicas.



7. A hover fly larva (*Melanostoma fasciatum*) feeding on a currant-lettuce aphid.

8. Predatory soldier bug, *Oechalia schellenbergii*, attacking a caterpillar.

9. 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)	<i>Diadegma semiclausum</i> , <i>Diadromus collaris</i>
White butterfly	<i>Cotesia rubecula</i> , <i>Cotesia glomerata</i>
Heliothis (tomato fruitworm)	<i>Cotesia kazak</i> , <i>Meteorus pulchricornis</i> , <i>Microplitis croceipes</i>
Soybean looper	<i>Copidosoma floridanum</i> , <i>Cotesia ruficrus</i> , <i>Meteorus pulchricornis</i>
Aphids	Various <i>Aphidius</i> and <i>Aphelinus</i> 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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