

Monitoring for Heliothis

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NOTE

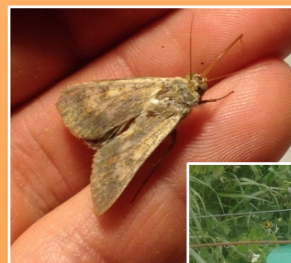
Pheromone traps and direct searching

Pheromone traps and direct searching are two complimentary monitoring methods that help to inform timely and appropriate management decisions for Heliothis (now called *Helicoverpa*).

A pair of pheromone traps can be used to monitor adult populations of the two species (*Helicoverpa armigera* and *Helicoverpa punctigera*). The traps tell us which species are present, and this helps with the selection of suitable insecticides. They also give an early warning of pest pressure.

Pheromone traps are not a substitute for direct searching in the crop.

Weekly monitoring for moth eggs, small caterpillars and beneficials should commence after adult Heliothis have been detected in the traps. By looking at the colour of moth eggs, and predicted weather conditions, it is possible to estimate when the eggs will hatch, allowing for precise timing of sprays to target small vulnerable caterpillars.



A *Heliothis* moth



A funnel trap used for monitoring adult *Heliothis* activity

Things to look for

Heliothis eggs are round and about 1mm diameter. Freshly laid eggs are white. A brown ring appears on the egg as the caterpillar inside develops. Just before the caterpillar hatches, its dark head capsule can be seen through the egg shell.

First instar caterpillars are very small (just 1-3mm long).

A range of beneficials can contribute to Heliothis control in vegetable crops.

Trichogramma wasps parasitise Heliothis eggs (and other moth eggs). Parasitised eggs are easily recognised because they turn black.

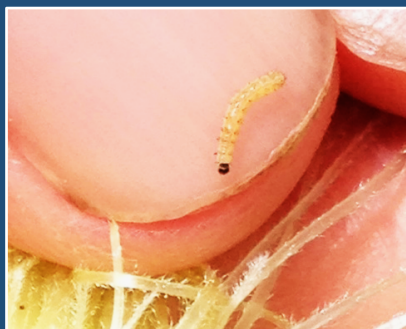
Various generalist predators such as lacewings, ladybirds and predatory bugs feed on Heliothis eggs and caterpillars. The most important predators of this pest in vegetable crops are usually damsel bugs (also called nabid bugs).



Two freshly laid *Heliothis* eggs (1mm)



A maturing *Heliothis* egg (1mm)



A first instar *Heliothis* caterpillar (2mm)



An adult damsel bug (predator, 12mm)