



## Natural Enemies of Crop Pests in Hawai'i



### Trichogramma Wasps (parasitoids)

#### What to look for

Trichogramma wasps are used worldwide as highly effective biocontrol agents. Female wasps lay their eggs inside the eggs of a host insect, usually eggs the pest lays on plants; adult wasps emerge 7–10 days later. Pest eggs parasitized by trichogramma wasps turn black. No pest larvae will emerge.



*Trichogramma parasitizing host moth eggs*

#### Appearance

Adults are very small, less than 1/32 inch long; they have a yellow-black, compact body, red eyes, and short antennae.

#### Host types attacked

moth and butterfly eggs

#### Crops protected

Many, including:  
avocado  
tomatoes  
sweet corn  
cole crops

#### Pests attacked

Eggs of caterpillar (worm)  
pests including:  
cabbageworm  
corn earworm  
diamondback moth  
tomato hornworm

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*Sunn hemp*

### Trichogramma Wasps

Trichogramma wasps are attracted to sunn hemp, plants with composite flowers (e.g., daisies, chamomile), and mint family plants (e.g., sage, peppermint, catnip). Plant these among your crops.



*parasitized eggs turn black*

### Parasitoids

Parasitoids are insects that prey on other insects and thus can be of benefit to vegetable growers. Their eggs or larvae are usually found in or on a single insect host. The immature parasitoid develops within or on its host, ultimately killing the pest. Most parasitoids are wasps or flies.



*Photo Credits: Front Top Image - Hymenoptera: Trichogrammatidae by contact@lbamspray.com, Trichogramma parasitizing host moth eggs by denis@graphicsscience.com.au, Sunn hemp by Thomas Potter, parasitized eggs turn black from Natural Enemies of Vegetable Insect Pests, Parasitoids image by Scott Bauer for USDA Agricultural Research Service - Bugwood.org*