

Beet webworm (345)

Common Name

Beet webworm, Hawaiian beet webworm

Scientific Name

Spolodea recurvalis; previously known as *Hymenia recurvalis*. It is a member of Crambidae.

Distribution

Asia, Africa, North, South and Central America, the Caribbean, Europe (restricted), Oceania. It is recorded from Australia, Cook Islands, Fiji¹, New Caledonia, New Zealand, Samoa, Solomon Islands, Tonga, Tuvalu, Tonga, Wallis and Futuna.

Hosts

Mainly plants in the following families: Amaranthaceae (*Amaranthus*), Fabaceae (beans, peanut, mung bean, soybean), Chenopodiaceae (beet, spinach), and Solanaceae (eggplant), and some weeds - *Amaranthus* (pigweed) and *Chenopodium* (lamb's quarters), and ornamentals (e.g., cockscomb).

Symptoms & Life Cycle

The larvae do the damage, and when numerous can defoliate crops rapidly. They also attack flowers and pods. At first, it feeds only on the lower surface, leaving the upper surface as clear 'windows'; later, it eats inside a tube formed by rolling leaves or drawing adjacent leaves together with the aid of silken threads.

Eggs are laid singly or in groups near the midrib on the undersides of leaves, and hatch to produce a creamy-white larva with numerous hairs (Photo 1). Mature larvae are up to 25 mm long, greyish-green, with a dark line down the middle of the back; they become reddish-pink before pupating in the soil inside a cocoon covered with soil particles. The adult is 10 mm long with a wingspan of 22-24 mm and characteristic white bands across the abdomen and wings (Photos 2&3). The life cycle is about 30 days.

Spread is by flight on the wing; the moth is famous for long distance migrations. Spread may also occur associated with the international trade in plants.

Impact

The larva is especially important on Indian spinach (*Amaranthus*) in Fiji, and in beet plantations in Australia. The damage can be serious in leguminous crops if it coincides with the time of pod filling. Economic damage is recorded on the ornamental cockscomb as the flowers can be easily damaged by just a few larvae.

Detection & inspection

Look for the larvae rolled in silken cocoons in the folds of leaves: they have a distinctive dark line along the back. Look for the adults that shelter beneath leaves and take flight when disturbed; they are brown with white markings. The adults are attracted to light.



Photo 1. Larva of beet webworm, *Spolodea recurvalis*.



Photo 2. Adult beet webworm, *Spolodea recurvalis*, showing white bands on wings and abdomen.



Photo 3. As in Photo 2, adult beet webworm, *Spolodea recurvalis*, showing white bands on wings and abdomen

Management

NATURAL ENEMIES

There are many larval parasitoids, but there does not appear to have been programs to multiply and release them.

CULTURAL CONTROL

Before planting:

- Do not plant next to crops that are infested with beet webworm.

During growth:

- Weed; especially remove wild amaranth and *Chenopodium* species.
- Alternately, only remove the webbed leaves or press folded rolled leaves with finger and thumb to kill the larvae.

After harvest:

- Collect and destroy crop debris after harvest.

CHEMICAL CONTROL

If pesticides are necessary, use botanical (plant-derived pesticides) sprays first, as these may cause less harm to natural enemies, and cost less than synthetic commercial products.

- Use neem, derris, pyrethrum or chilli. If these are used, add soap to help the chemical reach the caterpillars within the rolled leaves.
- Alternatively, use commercial biopesticides, e.g., spinosad (the product is called Success) or Bt - *Bacillus thuringiensis* var. *kurstaki*.
- If using Bt, note the following:
 - Ensure that Bt covers the plants: caterpillars will only die if they eat the Bt crystal proteins.
 - Eggs are not susceptible to Bt.
 - Bt should be used as soon as damage is seen.
 - Small larvae are more susceptible to Bt than fully grown ones.
- Synthetic pyrethroids are likely to be effective, but will also kill natural enemies, and should be avoided if possible.

When using a pesticide, always wear protective clothing and follow the instructions on the product label, such as dosage, timing of application, and pre-harvest interval. Recommendations will vary with the crop and system of cultivation. Expert advice on the most appropriate pesticides to use should always be sought from local agricultural authorities.

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¹Information from Swaine G (1971) *Agricultural Zoology in Fiji*. Her Majesty's Stationery Office, London; and CABI (2017) *Spodoptera recurvalis* (Hawaiian beet webworm) Crop Protection Compendium. (<https://www.cabi.org/cpc/datasheet/28245>); and Beet webworm - *Spodoptera recurvalis*. (https://www.brisbaneinsects.com/brisbane_pyralidmoths/BeetWebworm.htm); and from McCaffrey S, Harding C (2009) (*Spodoptera recurvalis*): PaDIL - (<http://www.padil.gov.au>). Photo 1 Alton N. Sparks, Jr., University of Georgia, Bugwood.org. Photo 2 Mark Dreiling, Bugwood.org. Photo 3 McCormack, Gerald (2007) Cook Islands Biodiversity Database, Version 2007.2. Cook Islands Natural Heritage Trust, Rarotonga. Online at: (<http://cookislands.bishopmuseum.org>).

Produced with support from the Australian Centre for International Agricultural Research under project PC/2010/090: *Strengthening integrated crop management research in the Pacific Islands in support of sustainable intensification of high-value crop production*, implemented by the University of Queensland and the Secretariat of the Pacific Community.

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