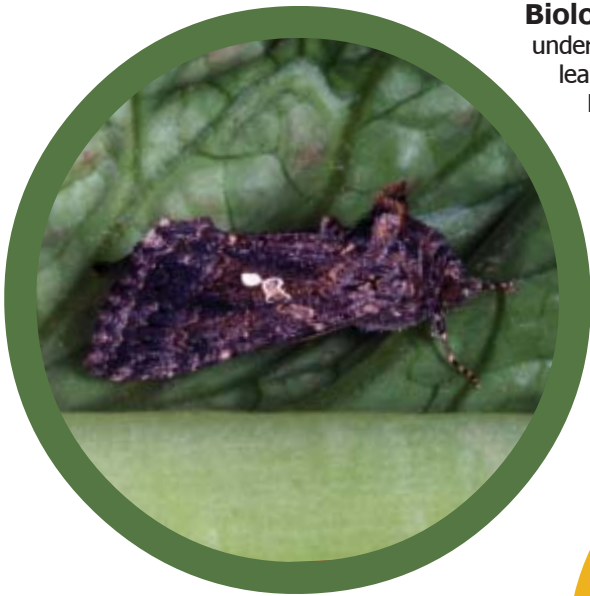




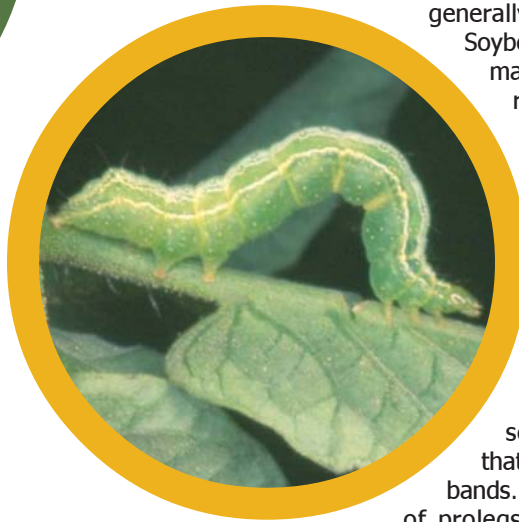
Cabbage Looper: *Trichoplusia ni* Soybean Looper: *Pseudoplusia includens*



Biology & Lifecycle: Females lay flattened, finely ridged eggs singly on the undersides of leaves. Young larvae feed underneath leaves, leaving the upper leaf epidermis intact to form "windows." Older larvae chew irregular holes. Larvae usually pupate underneath leaves in a loose silk cocoon (**Figure 4**). The number of larval stages varies from 5-7 and the egg to adult period lasts about 2-4 weeks for the cabbage looper and 4-5 weeks for the soybean looper.

Environmental Factors: Loopers are present year round in south Florida, but are usually more active from August-October and April-June. Adults migrate to northern areas in the spring.

Adult: Large moths with wingspans of about 1-1/4 to 1-3/4 inches. Forewings are generally dark with lighter patches. Soybean looper moths have silvery markings on the forewings that resemble a "dog leg" with detached "foot." The silvery markings on the forewing of the cabbage looper are "U"-shaped and a circle or dot that often are connected (**Figure 1**).



Larvae: Pale green with distinct white stripes down the sides (**Figure 2**). On the top surface there are several smaller white stripes that are clustered into two broad bands. Larvae only have three pairs of prolegs and crawl by sequentially

arching then straightening, giving them the appearance of "looping" along.

Host range: The two looper species have wide host ranges including tomato and pepper. The cabbage looper appears to prefer crucifer crops while the soybean looper prefers soybean. The insects over summer on a variety of weeds including dock (*Rumex* spp.), lambsquarters (*Chenopodium album*) and wild lettuce (*Lactuca* spp.) for the cabbage looper; and dock, pigweed (*Amaranthus* spp.), cocklebur (*Xanthium* spp.), wild sunflower (*Helianthus* spp.) and pepperweed (*Lepidium virginicum*) for the soybean looper.

Damage to Tomato: Larvae damage plants by consuming foliage, but usually do not inflict extensive defoliation to tomato or pepper. Sometimes fruit are attacked and, when this occurs in Florida, the soybean looper is often the culprit (**Figure 3**).



Figure 1. Cabbage looper adult. Photograph by: Lyle Buss.

Figure 2. Looper larva on tomato leaflet. Photograph by: Dave Schuster.

Figure 3. Fruit damage by looper larva. Photograph by: Dave Schuster.

Actual Size:



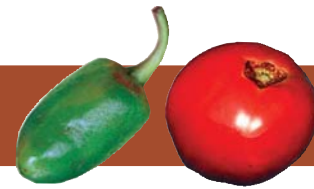
Late instar larvae
about 1 1/4 inch

Monitoring:

Scouting: Black light and pheromone baited traps can be used to monitor adult activity. Whole plants are inspected season long for larvae, concentrating on foliage with fresh feeding.

Action Thresholds: 1 larva per 6 plants

Cabbage Looper: *Trichoplusia ni* Soybean Looper: *Pseudoplusia includens*



CULTURAL CONTROLS:

Field Manipulations: Weeds and old crops can be reservoirs of migrating adults.

Tomato and pepper crops should not be planted near or adjacent to soybean or crucifer fields or fields with the weeds indicated on pg. 53.

NATURAL ENEMIES:

- Parasitic wasps attack looper eggs (*Trichogramma* spp.) and larvae, especially *Copidosoma floridanum*.
- Parasitic flies and a nuclear polyhedrosis virus attack larvae.
- Generalist predators, including big-eyed bugs (*Geocoris* spp.), damsel bugs (*Nabis* spp.) and minute pirate bugs (*Orius* spp.) are known to feed on loopers.
- Timed insecticide applications and the use of selective insecticides can enhance biological control.



Figure 4. Cabbage looper pupa. Photograph by: James Castner.

Figure 5. Mature larva. Photograph by: James Castner.



CHEMICAL CONTROLS:

- Insecticides should be applied when the action threshold is reached.
- Products containing *Bacillus thuringiensis* have been particularly useful and conserve natural enemies.

RESISTANCE MANAGEMENT:

- Products containing *B. thuringiensis* var. *kurstaki* (11B2) and *B. thuringiensis* var. *aizawai* (11B1) should be rotated with each other and with conventional insecticides of different chemical classes.

CONTACT INFORMATION:

Dr. David Schuster
UF/IFAS GREC- Balm
14625 CR 672
Wimauma, FL 33598
dschust@ufl.edu
813-633-4124

References:

Capinera, J.L. 1999. Cabbage looper: *Trichoplusia ni* (Hübner) (Insecta: Lepidoptera: Noctuidae) UF/IFAS EENY-116, http://creatures.ifas.ufl.edu/veg/leaf/cabbage_looper.htm.

Schuster, D.J., J.E. Funderburk and P. A. Stansly. 1996. IPM in tomatoes, pp. 387-411. *In* D. Rosen, F. D. Bennett and J. L. Capinera [eds.], *Pest Management in the Subtropics, Integrated Pest Management – A Florida Perspective*. Intercept, Andover, Hants UK.

Stewart, S. 2002. Soybean Looper: Biology and Approaches for Improved Management. MS State Univ. Ext. Serv., Information Sheet 1400, <http://msucares.com/pubs/infosheets/is1400.htm>.