Cabbage Looper

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Description

Cabbage looper (Lepidoptera: Noctuidae: *Trichoplusia ni* Hübner) is a pale-green caterpillar with thin white stirpes its down back and sides. They are relatively smooth-skinned, and have a few long hairs along their backs. They can be up to 1 ½ inches long. This caterpillar doubles-up, or "loops", when it crawls. Cabbage loopers have two pairs of abdominal prolegs (small, fleshy stubs found on the bottom surface, near the posterior end of the body) on the 5th and 6th abdominal segments, which distinguish them from the imported cabbageworm, which have four pairs.

Figure 1. Cabbage looper larva. (Alton N. Sparks Jr., University of Georgia, Bugwood.org)

Common Host Plants

Cabbage loopers have a wide potential host range, but most commonly act as pest of cole crops such as cabbage, lettuce, cauliflower, kohlrabi, collards, Brussels sprout, turnip, mustard, broccoli and kale. Other hosts can include alfalfa, soybeans, and cotton, and other vegetable hosts include pepper, potato, tomato, and others.

Damage

Early instars feed on the undersides of leaves, but typically do not chew through the leaf (Figure 2); fourth and fifth instars will chew holes through leaves, and may even burrow into cabbage heads. Look for sticky frass around feeding sites.

Figure 2. Cabbage looper feeding and feeding injury. (Whitney Cranshaw, Colorado State University, Bugwood.org)

Life History

Cabbage loopers overwinter as pupae. In spring, adult moths (Figure 3) emerge from their cocoons and mate. Eggs are laid during the night on upper leaf surfaces of brassicae plants. Larvae hatch several days later and begin feeding on leaves for about one month, going through several instars. Mature larvae spin a silk cocoon and pupate. Unless overwintering, pupation takes about 13 days. In Virginia, cabbage loopers can undergo several generations per year, since the animal's life cycle takes roughly one month.

Figure 3. Adult cabbage looper moth. (Keith Naylor, Bugwood.org)

Management and Thresholds

Cabbage looper has many natural enemies, which can keep populations in check. Several parasitic wasps (*Hyposoter*, *Copidosoma*, *Trichogramma*, and others) attack cabbage looper as do general predators and viral diseases.

There are several caterpillar pests aside from cabbage looper that often occur simultaneously on crucifers, therefore all must be considered when applying thresholds. The following thresholds therefore consider the combined levels of the following cole crop caterpillar pests: diamondback moth, imported cabbageworm, cross-striped cabbageworm, and cabbage looper. The thresholds in Table 1 are for fresh market-quality cabbage, broccoli, and cauliflower. If more damage is economically acceptable, a 75% infestation may be tolerated before treating plants.

Table 1. Treatment thresholds for fresh market cabbage, broccoli, and cauliflower infested with caterpillar pests.

Plant Stage	Treatment advised if:
Seedbed	≥ 10% plants infested
Transplant to cupping (cabbage)	≥ 30% plants infested
Cupping to early heading (cabbage)	≥ 20% plants infested
Early heading to mature (cabbage)	≥ 10% plants infested
Transplant to first flower (broccoli and cauliflower)	≥ 50% plants infested
Flowering to mature head (broccoli and cauliflower)	≥ 10% plants infested

Cultural Management

Handpick caterpillars off of plants. Plow under crop remnants in spring to bury overwintering pupae before emergence of adults.

Organics and Biologicals

Mix *Bacillus thuringiensis*, or Bt, (Bactur, Dipel, Thuricide) at 2.0 – 3.0 tbsp/gallon of water and apply to plants. This will work, but results are not quickly observable. *Bacillus thuringiensis* must be ingested by the insect; loopers (and other caterpillars) get sick the first day and die later. It is not necessary to wait to harvest after an application of Bt. Biological insecticides like Bt also have the advantage of being minimally affective to natural enemy populations.

Cabbage loopers are attractive targets for natural enemies including parasitic wasps, tachinid flies, and many other predators. They are also highly susceptible to a nuclear polyhedrosis virus called *Trichoplusia ni* NPV.

Synthetic Chemicals

Look for cabbage loopers to meet or exceed thresholds by late-summer (late-August to

September). Once thresholds are met, treat with a registered insecticide every 4 days after the first true leaves appear until harvest, for as long as worms are still present. Direct foliar insecticide applications to the undersides of leaves. If treating preventatively, consider using selective chemistries. Insecticides in the diamide class, such as those containing the active ingredient cyantraniliprole for example, have been shown to provide weeks of effectiveness when transplants were treated. Most insecticides that are applied for other cole crop pests, such as diamondback moth, are likely to provide control of cabbage looper as well. Always follow the label!

Also, keep in mind that since cabbage loopers are targets for a diversity of natural enemies, treatment with insecticides is likely to affect natural enemy populations. If natural enemies are reduced, this may require an ongoing reliance on insecticides to achieve acceptable levels of control. This should be economically considered when deciding whether to apply a spray.

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2022 3104-1544 (ENTO-519NP)