

Organic Solutions for Cabbage Loopers and Cabbage Worms

A Factsheet from Toxic Free NC

About Cabbage Loopers and Cabbage Worms

The Cabbage Looper and the Imported Cabbage Worm are both common pests of the brassica family of plants, which includes cabbages, kale, collards, broccoli, cauliflower, and turnips. The Cabbage looper is the larvae of a moth, and the Cabbage Worm, the larvae of a butterfly. The adult moths and butterflies don't do any damage, but the caterpillars chew ragged holes in the leaves of the plants.

Cabbage worms may also tunnel into the head of a cabbage, broccoli, or cauliflower. You can still eat these damaged heads, but no one enjoys finding a caterpillar (or its poop) in their broccoli! Brassica plants may be killed by a big infestation of these pests, especially when they're young. Cabbage loopers can also attack tomatoes, spinach, lettuce, and other garden crops.

The tips below are designed to help you manage Cabbage Loopers and Cabbage Worms in your garden. Sustainable pest management strategies usually work best when used together. Think about your garden, your resources, and your time, and put several of these tips together into a plan that works for you.

Identifying Cabbage Loopers and Cabbage Worms

The adult Cabbage Looper moth is dusty gray with a silver spot in the middle of each wing. The caterpillar or larva is green, with four white lines running down the body. It may grow to 1.5" long. They move with a "looping" motion like an inch worm. Eggs are light green, dome shaped, and laid one by one on the undersides of leaves, usually only one or two on each plant.

The adult Imported Cabbage Worm butterfly is white to yellowish-white with black wing tips and 2 – 3 black spots on each wing. The caterpillar or larva is green with faint yellow stripes down its back, and is covered in tiny hairs. They are slow moving. Eggs are whitish yellow, cone-shaped, and laid on the undersides of leaves.



Cabbage looper larva and damage.

Photo credit: R.J. Reynolds Tobacco Company Slide Set, R.J. Reynolds Tobacco Company.



Cabbage looper moth.

Photo credit: Mark Dreiling, Bugwood.org

Life Cycle

Adults of both types spend the winter as pupae, then come out throughout the spring. They mate, and then lay their eggs on the undersides of leaves. Eggs hatch in about 6 days, and the caterpillars eat for 2 - 4 weeks before pupating in silky cocoons on leaves and stems. There are several generations per year in North Carolina. The fall generation pupates in winter on leftover dead plants and other garden debris.

Prevention

1) **Grow healthy organic plants.** Strong plants can handle some damage from cabbage loopers and worms better than weak, struggling plants. Make sure that your crops are getting enough sunlight and water, and that the soil is well-drained and rich in nutrients and organic matter.

2) **Remove or till in old plants.** Because pupae of both these caterpillars spend the winter on dead plants and garden litter, it is important to remove that stuff from the field and compost it or till it into the soil. This works best in fall, and must be done before adult moths and butterflies emerge in spring.

3) **Use row covers.** Keep the moths and butterflies from finding your crop by covering your plants with a lightweight "floating" row cover such as Reemay. These materials (as opposed to plastic or heavier fabrics) allow water, air, and sunlight to get through. You can get them at garden supply stores or order them from seed catalogs.

The covers can lie right on the plants (the plants will lift the cover as they grow), or you can support the covers with wire hoops. Broccoli, cabbage, and other Brassica crops do not need pollination by flying insects to produce, so you can leave the covers on all season.

Getting Rid of Cabbage Loopers and Cabbage Worms Without Toxic Chemicals

1). **Scout and hand pick.** Keep a close eye on your plants, scouting every few days for caterpillars, eggs, or signs of damage. The eggs are easy to miss, but if you do find them simply crush them with your thumb. Caterpillars are hard to see because they are the same green color as your plants, but pay close attention to the undersides of leaves. Often, the first clue to the caterpillars' presence is frass (caterpillar poop). Look for piles of round, moist, dark green frass on leaf stems and in the head or growing tip of the plant. If you find frass, or see leaf damage, there's a caterpillar there somewhere! When you find it simply crush it with your fingers, snip it in half with scissors, or drop it into a pail of soapy water.



Cabbage looper and frass.

Photo credit: Alton N. Sparks, Jr., University of Georgia.



Cabbage worm.

Photo credit: Russ Ottens, University of Georgia.



Cabbage worm eggs.

Photo credit: David Capeart, Michigan State University.

2) **Attract natural enemies.** Attract predators and parasitic flies and wasps to your garden by making a nice home for these beneficial insects. Pollen and nectar plants with small flowers such as wildflowers and herbs will attract parasitic wasps and flies. Birds, spiders, and predatory beetles will make a home in perennial herb and flower beds and small shrubs near the garden. [top]

3) **Bring in predators.** Parasitic wasps of the *Trichogramma* species can be bought and released into the garden. Check garden and seed catalogs for information and instructions. [top]

4) **Bioinsecticide BTK.** BTK (*Bacillus thuringiensis*, var. *kurstaki*) is a type of bacteria. When eaten by the pest, it makes a poison in the caterpillar's gut. This causes the pest to stop eating and eventually die. It is somewhat selective: it kills many caterpillar pests but won't hurt most other creatures. However, BTK can also kill the caterpillars of good butterflies and moths that you want to keep in your garden, so use as little as you can. To work, the caterpillars must eat it, so spray it on the leaves of your plants when you see damage. It washes away so it should be reapplied after a heavy rain.

Check gardening and seed catalogs for availability, and make sure to cross-check any BTK product on the Organic Materials Review Institute's list of products approved for certified organic farms to avoid any toxic ingredients. BTK can be expensive, and since hand picking and natural enemies can work so well, BTK should be used only as a last resort for caterpillar control.

5) **Other organically acceptable insecticides.** As a last resort, you might choose to apply an insecticide that is OMRI approved, such as spinosad or pyrethrin. Even though these sprays are approved for organic farms, they can be hazardous, so be sure to follow instructions on the labels very carefully

Keep in mind, too, that **these sprays can kill pollinators and natural predators** you want to keep in your garden, so you should use as little as possible, and spray only in the early morning or late evening when beneficial insects are less active. Obviously, even "organic" sprays come with risks and problems, so hopefully you can use the other tips listed here to design a control strategy that allows you to skip the sprays altogether.

Sources

Ellis, Barbara and Bradley, Fern Marshall, editors. *The Organic Gardener's Handbook of Natural Insect and Disease Control: A Complete Problem-Solving Guide to Keeping Your Garden and Yard Healthy Without Chemicals*. Rodale Press, 1996.

Flint, Mary Louise. *Pests of the Garden and Small Farm: A Grower's Guide to Using Less Pesticide*, 2nd Edition. University of California Press, 1998.

"Cabbage Looper." North Carolina State University Cooperative Extension, Extension Integrated Pest Management Program. Viewed March, 2012: [link]



Cabbage worm pupae.

Photo credit: Russ Ottens, University of Georgia.



Cabbage worm butterfly.

Photo credit: Russ Ottens, University of Georgia.

“Cabbage Looper.” Updated December, 2009. UC IPM Online Statewide Integrated Pest Management Program, University of California Agriculture & Natural Resources. Viewed March, 2012: [link]

“Imported Cabbage Worm.” North Carolina State University Cooperative Extension, Extension Integrated Pest Management Program. Viewed March, 2012: [link]

 *This factsheet was written with the needs of non-commercial home, school and community gardeners in mind. Certified Organic growers, or those seeking a certification, should check with their certifying agency before using ANY insecticide. Some organically acceptable insecticides are approved for use in Certified Organic systems only against certain pests or in certain situations.*
