Worm Your Way Out of Cabbage and Broccoli

By Ray Novitske, Fairfax Master Gardener

From Europe we import many fine wines, cheeses, chocolates, olive oil and truffles. Once in the later half of the 1800s, eastern Canada also accidentally imported a pest that spread throughout North America in later decades — the imported cabbage worm (*Pieris rapae*). Also known as the white cabbage butterfly, it is the caterpillar or larva phase of the insect that causes damage to cabbage... or broccoli, Brussels sprouts, Chinese cabbage, cauliflower, kale or collards.

You have most likely seen the small white cabbage butterflies drifting among flowers in the spring and summer sipping on nectar. They are about 1 inch in size with white wings with a black spot on the wings, or two on females’ wings. They often get confused with other species similar in appearance to other cabbage white butterflies, like the Southern cabbage butterfly (checkered white wings) and the mustard white (green veined wings.) The larvae of both can cause similar damage, too.

We are not helpless, as there are a few controls for such a pest. First, they can be physically removed from the underside of leaves, but sometimes they are hard to locate given their color and blending in with the plant’s leaf and leaf rib structure. We can use row covers to protect our plants and prevent the butterflies from laying eggs on our plants. It was also found that red cabbage is not as attractive to the egg-laying butterflies.

The caterpillars can be parasitized or preyed upon by biological enemies. There are parasitic wasps and tachinid flies that lay their eggs on the cabbage worms. A few lethal insect pathogens and viruses are known to attack both the worms’ eggs and larvae.

Bt, *Bacillus thuringiensis* is a bacteria that lives in soil and produces crystal–like toxic proteins that kill mostly caterpillars when eaten. It can be purchased in stores and comes in powder or liquid form. Its toxin paralyzes the insect’s digestive tract which causes it to stop feeding. Death occurs in one to four days. It
does not harm mature insects or natural enemies, is not toxic to pets or animals and does not kill parasitoids.

Bt does have some drawbacks. It has reduced toxicity on older more mature caterpillars, so we need to use it when the larvae are young. It also needs to be applied correctly so the caterpillars eat it; incomplete coverage can be a problem. It can break down in ultraviolet light quickly, making it effective for only a short period of time. Tests done at Ohio State University show that the rate (amount) of application had little bearing on test outcomes, while the frequency of application produced the most effective control. Reports from various sources indicate reapplication is needed every 6 to 10 days, but pesticide labels must be followed for applications.

I always see the imported cabbage worm on the cabbage (I love fresh cole slaw) and broccoli I grow. It is a very common pest of the cabbage family of plants, but it can be controlled in the home garden without the use of pesticides toxic to beneficial insects, animals, or us.

References
The Pest Caterpillars of Cole Crops in Virginia, Virginia Cooperative Extension
Cabbage Insects, University of Kentucky College of Agriculture Food and Environment
Cole Crop "Worms", University of Connecticut Integrated Pest Management
Imported Cabbageworm, John L. Capinera, University of Florida Institute of Food and Agricultural Sciences
Caterpillar Pests of the Cabbage Family, Arthur L. Antonelli, Washington State University Extension
Using B.t. to Manage Caterpillars on Cole Crops, Celeste Welty, Ohio State University