



## Imported Cabbageworm *Pieris rapae*



**Figure 1.** Imported cabbage worm damage to cabbage leaves (Whitney Cranshaw, University of Colorado)

**Injury:** The imported cabbageworm is the common velvety green caterpillar seen on the leaves of cabbage, cauliflower, broccoli and other crucifers. The young caterpillars feed on the leaves; older, larger larvae move about freely on the plant and eat out irregular holes on the larger leaves (**Fig. 1**) and often penetrate the head of the cabbage, or get into the developing flower (edible part) of broccoli or cauliflower. Early-grown cabbage is seldom severely injured because it reaches maturity before the imported cabbageworm populations have built up significantly. Late-grown cabbage is very susceptible to injury from this insect, however. From about mid-July on, this insect is like to be a pest of some importance.

**Description:** The adult of the imported cabbageworm is a common white butterfly with black spots on the wings (**Fig. 2**) that may be seen flying about in the field from early spring to late fall. The eggs (**Fig. 3**) are deposited singly on the leaves of the host plant and are an off-white color. Small larvae are pale green to green in color. The full grown larva (**Fig. 4**) is about 1 1/4 inches long and velvety green in color. The mature larvae attach themselves by a silken thread to a leaf of the host plant when they are ready to pupate. The pupa (chrysalis) is a light green color (**Fig. 5**), gradually turning to light brown just before adult emergence.

**Life History:** The adult butterflies are present from early spring through late fall. They will begin depositing eggs singly on the undersides of the host (crucifer) plant leaves. The eggs hatch in 3 to 7 days and the young larvae begin feeding on the undersides of the leaves. In about 2 to 3 weeks the larvae become full grown and attach themselves to plant leaves by a silken thread then transform into the pupa. In New York State there are usually three, sometimes four or five, generations annually. That translates to pest pressure through much of the growing season, especially from July on, when populations are



**Figure 2.** Adult imported cabbage worm (Note the black spot on the wing) (David Cappaert, [www.insectimages.org](http://www.insectimages.org)).

greater.

**Management:** Scout the crop regularly to check for presence of larvae. Look for the larvae themselves, or find them by finding fresh feeding damage or fresh green frass piles, then searching plant nearby for the presence of the larva.

Grow cabbage as an early crop, as early-grown cabbage is seldom severely injured because it reaches maturity before the imported cabbageworm populations have built up significantly. Late-grown cabbage is very susceptible to injury from this insect. From about mid-July on, this insect is like to be a pest of some importance if control measures are not taken.

There are some natural enemies of this caterpillar that the home gardener may encounter. Occasionally one may see the results of parasitism: light yellowish masses containing cocoons of a small beneficial braconid wasp may be present on the leaf next to the dead caterpillar. The cocoons will soon hatch and another generation of adult parasites will emerge and

begin laying eggs on other caterpillars. There is also a small wasp that parasitizes the pupal stage. Occasionally caterpillars are attacked by predaceous bugs, and also by diseases caused by virus or bacteria.

Hand picking larvae can be effective for small or large gardens. Row covers are sometimes used to prevent the butterflies from having access to the plants to lay eggs on.

In large gardens or farms and where hand methods are not the option chosen by the grower, there are some pesticides available for control of the imported cabbageworm. Insecticides registered in 2009 in New York State for use in the home garden include: Bt (*Bacillus thuringiensis* ssp. *kurstaki*), carbaryl, insecticidal soap (potassium salts of fatty acids), malathion, neem oil, permethrin, or spinosad. Bt is a least toxic choice that gives excellent control when used against young larvae, and is compatible with natural enemies. No matter what your choice, follow the manufacturer's recommendations for rates and timing of applications and the days to wait before harvesting. Treatment should start when the first cabbageworms are noticed. Monitor the population and repeat (following manufacturer's directions) only if needed.

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The Pesticide Management Education Program (PMEP), in cooperation with the New York State Department of Environmental Conservation (NYSDEC), maintains a web site with a searchable database for pesticide products currently registered in New York State. Homeowners who have Internet access can locate currently registered products at <http://pims.psur.cornell.edu/>. Several different queries are available that will produce a summary for the product(s) that the system locates. If the system fails to locate the product in question, then that product is not currently registered in New York State. The database also provides a summary of important information related to every product currently registered. Two data fields "Status" and "Expiration Date" are provided in each summary. Products with a status of "Registered - Discontinued" are currently registered but will probably be discontinued for use, sale, and distribution in New York State after the date noted in the "Expiration Date" field.

**This publication contains pesticide recommendations. Changes in pesticide regulations occur constantly and human errors are still possible. Some materials mentioned may no longer be available and some uses may no longer be legal. All pesticides distributed, sold or applied in New York State must be registered with the New York State Department of Environmental Conservation (DEC). Questions concerning the legality and/or registration status for pesticide use in New York State should be directed to the appropriate Cornell Cooperative Extension Specialist or your regional DEC office. READ THE LABEL BEFORE APPLYING ANY PESTICIDE.**

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