European cabbageworm *Pieris brassicae*

The European cabbageworm defoliates cabbage and other cruciferous crops and is related to the imported cabbageworm (*P. rapae*) already established in Michigan. This insect poses a concern to vegetable producers and nurseries dealing with crucifers.

Michigan risk maps for exotic plant pests.

Other common names

large white butterfly, cabbage white butterfly

Systematic position

Insecta > Lepidoptera > Pieridae > *Pieris brassicae* (Linnaeus)

Global distribution

Widely distributed in Europe, Asia, Northern Africa, and Chile, South America.

Quarantine status

This insect has been reported from New York State (Opler et al 2009); although it is unclear if this record has been confirmed by regulatory officials.

Plant hosts

Cruciferous plants: Brussels sprouts, cabbage, cauliflower, rape, rutabaga, turnip (*Brassica* spp.), horseradish (*Armoracia rusticana*), radish (*Raphanus sativus*), watercress (*Nasturtium microphyllum*) and garlic mustard (*Alliaria petiolata*).

Biology

A female butterfly lays masses of yellow eggs on underside of host leaves. After egg hatch, caterpillars feed on leaves. Young caterpillars aggregate while older caterpillars occur separately. Fully grown caterpillar leaves the plant and moves to a suitable pupation site (e.g., fences, walls, roofs or tree trunks). The pupa is anchored by a spindle of silk. Adult butterflies are active from April through October feeding on nectar from a wide array of plants.

Identification

- **Adult**: Wingspan is 60-70 mm. Wings are white with black tips on the forewings. Females also have two black spots on each forewing.
- **Caterpillar**: Up to 60 mm in length; body hairy and yellowish-green with black spots.
- **Pupa**: Yellowish-pale green with black spots.

Adult. (Photo: H. Arentsen, Garden Safari, Bugwood.org)

Larva. (Photo from INRA HYPPZ)

Pupa. (Photo from INRA HYPPZ)

- **Eggs**: Yellow.

Signs of infestation

- Presence of egg mass or larvae on leaves of crucifers. Eggs are likely to be found on undersides of leaves.
- Leaves with holes or skeletonized leaves.

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Egg masses. (Photo from INRA HYPPZ)

Damage on cabbage. (Photo from INRA HYPPZ)

- A fluttering large white butterfly.

Note: Three species of *Pieris* butterflies have been documented in Michigan (Opler et al. 2009) and they all have white wings and feed on crucifers as larvae. In particular, the imported cabbageworm (*Pieris rapae*) looks like a smaller European cabbageworm as an adult (45-58 mm in wingspan) and is common throughout Michigan. However, caterpillars of these two species look very different with *P. rapae* having a green body and *P. brassicae* having conspicuous black patterns.

Potential economic and environmental impacts to Michigan

The invasion of the European cabbageworm into Michigan may disrupt cole crop production and shipping if quarantine and eradication measures aren't implemented. Once established, the butterfly populations may be difficult to contain because they can migrate long distances.

Likely pathways of entry in Michigan

Shipping containers from Europe, Asia and northern Africa providing pupation sites. For example, the European cabbageworm pupae attached to a shipping container from Spain had been intercepted in Massachusetts (NAPIS 2002).

If you find something suspicious on a susceptible host plant, please contact MSU Diagnostic Services (517-355-4536), your county extension office, or the Michigan Department of Agriculture (1-800-292-3939).

References

NAPPO. 2002. North American Plant Protection Organization's phytosanitary alert system. (http://www.pestalert.org/viewArchNewsStory.cfm?nid=205)

Opler, P. A., K. Lotts, and T. Naberhaus. 2009. Butterflies and Moths of North America. Bozeman, MT: Big Sky Institute. (http://www.butterfliesandmoths.org/species?l=1399)

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