



Diamondback moth or Cabbage moth

Taxonomy

Order: Lepidoptera

Family: Plutellidae

Species: *Plutella xylostella* (Linnaeus)

Summary

The diamondback moth is a cosmopolitan pest of many Cruciferous vegetables within the Brassicaceae family. It is found pretty much wherever its Brassica hosts are planted and to date is one of the most studied pests in the world with huge amounts of literature available online. The biggest problem with it is the resistance it has built up to conventional control measures both microbial (*Bacillus thuringiensis*) and insecticidal (permethrin, methomyl etc.).

Biology

Four stages of development (egg, larvae, pupa, adult). After the eggs have been oviposited on the host plant, they hatch after 3-15 days (depending on temperature) and the 1st instar larvae immediately start feeding on the spongy mesophyll of the leaves. Successive instars (4 in total) consume voraciously before pupating. (Total time in larval stage anything between a week to three weeks depending on temperature). It remains a pupa for approx. 25 days before the adult emerges (Adults may live 12-16 days). Males and females have differing lifespans. The plant host range is almost exclusively limited to members of the Brassicaceae but *Abelmoschus esculentus* (okra), *Pisum sativum* (pea), *Lactuca sativa* (lettuce) and many more are also targeted.

Distribution in Caribbean

Common throughout the Caribbean region, including Anguilla and TCI on Brassicaceae.



Profile view of the adult of *Plutella xylostella* / © Martin Grimm (www.inaturalist.org)

Pathway of Entry

Natural dispersal: via air convection currents. Adults may be passively spread this way over colossal distances, but larvae may also adhere to organic material with silk that then might get caught up in convection currents. Mass migrations may also occur assisted by winds. Movement may occur between field margins, but they are weak fliers.

Intentional/Anthropogenic dispersal: immatures may be inadvertently dispersed on plant material. Other life stages might be transported on residues being disposed of, or vegetables destined for the market. Otherwise: land vehicles, mail, clothing, soil etc.

Impact

Larvae feed on leaves, flowers and the buds of their host plant. All stages of the larvae feed on the host plant. Initially the early instars feed on everything but the veins of the leaves but latter instars are voracious feeders and can completely decimate crops. As an example, a summer crop in Jiangsu was found to have a 99% loss in 1990 and 80% loss in 1994 in the absence of sprays. Even mild infestations can lead to the malformation of cabbage, broccoli and cauliflower heads while even the presence of larvae can put off buyers.



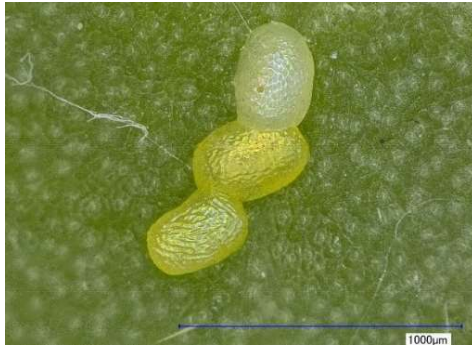
Further Information:

University of Florida:

http://entnemdept.ufl.edu/creatures/veg/leaf/diamonback_moth.htm

CABI 2020:

<https://www.cabi.org/isc/datasheet/42318>



The bright, oval eggs of *Plutella xylostella* showing the reticulation © CABI



The neon green larva of *Plutella xylostella* © Tina Dancau



Pupa of *Plutella xylostella* with characteristic, loose, silk netting laid on the outside of leaves © Salvador vitanza (www.bugguide.net)



Dorsal view of the adult of *Plutella xylostella* © Jason Michael Crockwell (www.inaturalist.org)

Field Description

Eggs deposited singly or in clusters of 2-8. They are flat, oval and glossy yellow.

Larvae green (often quite neon) with pale yellow markings. The head capsule is black in early instars which changes to pale greenish/brownish mottled with brown spots. The body has distinct segments with short hairs marked by the small white setal bases. The larva has five pairs of prolegs and a pair of prolegs protrudes from the posterior end forming a distinctive 'V' shape. (Fully grown- 10mm).

Pupae formed of a loose, "netting" of silk with the developing adult visible within.

Adults are small, brownish/greyish moths. In both sexes, when the wings are folded, a dorsal view reveals multiple, central, beige/cream coloured dorsal "diamonds" hence the common name. Males and females are the same size.