

Diamondback Moths

By Master Gardener Teresa Casey

Description

The diamondback moth (*Plutella xylostella*) has narrow front wings, fringed hind wings, a length of about a quarter inch with a wingspan between 1/2 to 3/4 of an inch. The wings of the male come together when at rest to form a line of white or pale-yellow diamonds down the middle of the back. Female moths have a more rounded scalloped line down the back.

In caterpillar form they taper slightly at both ends and are pale green with black heads and scattered black hairs. They grow to about 3/8 of an inch long. There are five pairs of prolegs, which help to grip the surface of the leaf. Diamondback moth caterpillars wiggle rapidly when disturbed and they will hang by a silk thread when they drop from a plant.



Diamondback moth caterpillar damaging stock.
Credit: J. R. Baker, NC State University

Damage

Diamondback moths cause plant damage in the caterpillar stage as they feed on cruciferous vegetable crops such as broccoli, cabbage and kale (including ornamental varieties) though they occasionally feed on tomato plants. They will feed on alyssum, candytuft, and watercress. Diamondback moth caterpillars feed on all plant parts, but prefer the undersides of older leaves, crevices between loose leaves, and young buds. They may eat small holes in leaves and buds or feed superficially.

to infest the undersides of leaves. Mature caterpillars enclose themselves in loosely spun lacey cocoons about 3/8 inch long attached to lower leaf surfaces and then pupate. About two weeks later, moths emerge and live for about 2 weeks on average.

Biology

Diamondback moths have four life cycle stages: egg, larva, pupa and adult. In spring female diamondback moths lay tiny oval, pale yellow eggs (singly or in groups of two to eight) on foliage. Each female lays about 150 eggs in one lifetime. Tiny caterpillars hatch from eggs a few days later and feed for about 10 to 30 days first as leaf miners that burrow into leaves but then emerge to

There are generally five or six diamondback moth generations per year in North Carolina. Diamondback moths overwinter as adults among field debris of crucifer crops. Although the moths are weak fliers, they can be carried long distances by winds.

Control Methods

Preventative management is important when growing any Brassica crops in spring, summer and fall. Plants should be inspected often for eggs or larvae, and any larvae or leaf damage, such as holes. The diamondback moths are adaptable and have acquired resistance to many kinds of pesticides including some of the *Bacillus thuringiensis* pesticides that are labeled for the diamondback moth.

Natural predators of diamondback moths, including parasitoids, can play an important role in controlling their population. Various garden predators such as ground beetles, predatory true bugs and spiders, which consume the eggs and larvae, may also aid in management.

Because of the diamondback's prolific capability of developing resistance, chemical insecticides should only be used in home gardens when other methods fail. Local county extension offices can be a resource of information for managing populations of diamondback moths in the garden. Products containing pyrethroids (bifenthrin, zeta cypermethrin, esfenvalerate, etc.), Spinosad, and Bt (*Bacillus thuringiensis*) currently provide good to fair control.

If diamondback caterpillars survive insecticides labeled for use in vegetable gardens or residential landscapes, it may be better to consider growing another species not in the Cruciferae family.



A diamondback moth on heavily damage stock.
Credit: J. R. Baker, NC State University