

Diamondback Moth

(Lepidoptera, Plutellidae)

Description:

Immature stages – Eggs are small, flat-oval (0.44 mm long), yellow, and usually laid singly on leaves. Larvae are light to dark green, tapering slightly at both ends with four pairs of prolegs, with slightly darker head and scattered hairs. Ranges in size from about 1.3 mm when hatching to a length of 8.6 mm in the fourth instar. Wriggles rapidly when disturbed and may drop from plant by a silken thread.

Adult stages – grayish-brown, narrow forewings, fringed hind wings and pronounced antennae. Body length excluding antennae is about 6-9 mm with wingspan of approximately double when fully extended. When wings come together in resting position they form line of pale diamonds down the middle of back, hence the name.

Biology:

Life Cycle – The moth mates in the evening hours and lays eggs singly or in loose groups attached to the foliage. Larvae hatch in 3-5 days and develop through 4 larval instars in about 11 days under warm temperature conditions as it feeds on the foliage. First instar larvae feed on just the underside of leaves causing a “window pane” effect - the upper epidermis still intact. Four instar larvae spin cocoons attached to lower leaf surfaces or the stem. Moths emerge from cocoons in about a week. The entire life cycle under warm conditions is approximately 3 weeks.

Seasonal Distribution – In Georgia there are multiple generations per year, with generation time slowing considerably in the winter months. Traditionally numbers were very low in the winter, but in recent years, greater moth activity has been noted when temperatures are higher in than normal in December and January.

Damage to Crop:

Larvae feed on foliage with early instars causing window paining or small channels in the leaf surface and larger larvae causing perforations in the leaf. Low populations under 0.3 larvae/plant are not economically damaging early in the season, but should be controlled above this level. Cocoons are a source of contaminants late in the season and should be prevented 3 weeks before harvest.

Management:

Scout weekly to determine if 0.1-0.3 larvae/plant threshold has been reached. Allow a 1-2-month production break in mid-summer to avoid building up populations between spring and fall (note populations tend to be lower in the winter months in many years). Rotate insecticides as this insect can temporarily develop resistance to many pesticides with their excessive use. In Georgia, excessive, season-long use of a single insecticide ingredient has recently resulted in high levels of insecticide resistance (e.g., in 2002 in Mitchell county with the product spinosad). Encourage beneficial insects by avoiding chemicals toxic to parasitoids, e.g. the wasp parasitoid, *Diadegama insulare*, with effective alternatives like *Bacillus thuringiensis* sprays.

