

Tomato fruitworm (Corn earworm)

(Order: Lepidoptera, Family: Noctuidae, *Helicoverpa zea* (Boddie))

Description:

Adult: Adults are medium sized moths with wingspans of 32-45 mm. Adults are variable in color, but the front wings are usually yellowish-brown and bear a small dark spot near the center. The forewings usually have a darker band near the end of the wings, but the margin of the wing is not darkened. The hind wings are creamy white with a broad dark band near the wing margins, but the margin of the hind wing is creamy white.

Immature stages: Eggs are pale green when first deposited, turn yellowish and then darken with age. Eggs are shaped like a somewhat flattened sphere with ridges (> 20) radiating from the top-center. Larvae range in size from 1.5 mm at hatching to 25mm at maturity. The head tends to be orange or light brown with white net-like markings. Larval body color may be brown, green, pink or sometimes yellow or near black. The larva usually has a broad dark lateral line above the spiracles and a light line below the spiracles. A key characteristic that will separate corn earworm larvae from most other species encountered in vegetables is the presence of black microscopic spines on the cuticle. The pupal stage occurs in the soil. Pupae are 17-22 mm in length and mahogany-brown.

Biology:

Life cycle: Eggs are deposited individually on leaf tissue and corn silks and hatch in 3-4 days. Females can lay about 35 eggs per day with 500 - 3000 over their lifetime. Larvae can feed and develop on foliage, but preferentially feed on fruiting structures. Older larvae are aggressive and cannibalistic, thus, individual fruit usually produce a single larvae. Larvae usually develop through 5 or 6 instars in 14 to 21 days in field conditions. Larvae fall to the ground and burrow into the soil to pupate. The pupal stage lasts about 13 days in the summer and serves as the overwintering stage in the late fall.

Seasonal distribution: Corn earworm can attack vegetable crops throughout most of the production season, but early planted spring crops avoid heavy pest pressure. Late spring crops and fall crops of favored hosts (such as sweet corn) can experience 100 percent fruit damage.

Damage to Crop: Corn earworm damage is caused only by the larvae. Larvae have chewing mouthparts and remove plant tissue. Although larvae can feed and develop on leaf tissue, the preferred feeding sites in most crops are reproductive structures, such as corn ears and tomato and pepper fruit. Early instar larvae will attack fruit without any leaf feeding. In corn, a single larva generally develops on a



Tomato fruitworm adult.



Tomato fruitworm late instar larva.



Tomato fruitworm damage to tomato.

single ear of corn. In fruiting vegetables, a single larva frequently damages more than one fruit.

Management: Adults can be monitored with pheromone or blacklight traps to estimate when moths are active. This can provide a measure of relative densities or peak activity. In sweet corn, corn earworm is generally controlled with scheduled applications of insecticides (frequently daily) during the silking period. Eggs are frequently deposited on the silks and hatching larvae will immediately feed on silks. Once the larvae enter the silk channel of the ear, they are protected from insecticides. While applications every two days can provide protection equal to daily applications, under heavy pest pressure any disruption of this schedule can result in significant damage. In fruiting vegetables, larvae generally remain partially exposed or move from fruit to fruit providing exposure and better control can be obtained with insecticides. Thus, scouting for eggs, larvae, and damage, and treating with insecticides as needed is generally practiced, although thresholds used are frequently presence/absence.