

## Corn Earworm on Vegetables

by Tom Kuhar, Chris Philips, Hélène Doughty, and Eric Day

**Scientific Name:** Lepidoptera: Noctuidae, *Helicoverpa zea* (Boddie)

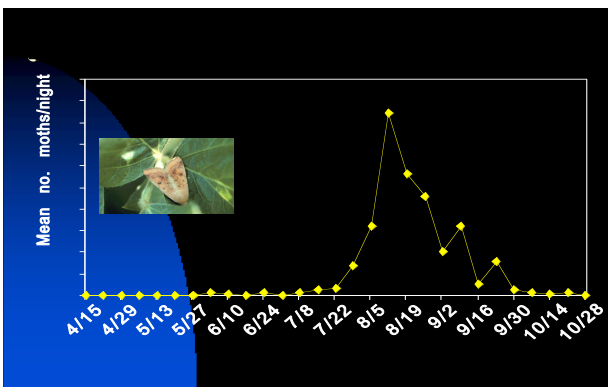
**Common Names:** Tomato fruitworm, sorghum headworm, vetchworm, podworm, and cotton bollworm.

**Distribution:** Corn earworm is found throughout Virginia. Most of the pest population, however, migrates from southern states each summer. Moths may be caught in late spring, but significant moth densities usually do not appear until mid July.

**Plants Attacked:** Corn earworms have a very broad host range and can feed and develop on more than 300 different host plants including many vegetable crops. In Virginia, the vegetables most commonly attacked by this pest include sweet corn, tomatoes, beans, broccoli, cabbage, pepper, and lettuce.



**Life Cycle and Description:** Corn earworm adults are small to medium-sized tan-colored moths with a maximum wingspan of about 1.5 inches. Wings have dark central spots that are easily visible from the underside. Adults are nocturnal, and live for about 15 days. In Virginia, they can be found flying throughout the summer and into the early fall months.



A single female moth can lay as many as 3000 eggs. Eggs are laid singly and are pale green to yellowish gray. They are dome shaped and about ½ mm and generally hatch in 3-4 days. Once the eggs hatch, the larvae pass through 6-8 instars that take about 2-3 weeks depending on temperature. When fully developed, larvae reach a maximum length of about 1 inch. They have an orange-brown head, and their body color can range from brown, green pink, and yellow, to mostly black. Once larvae have completed development, they will drop to the ground and burrow into the soil 2-4 inches to pupate. Pupae are 0.5-1 inch dark brown. Non-overwintering pupae develop in about 2 weeks. Overwintering pupae can remain in the soil for up to 8 months.

**Damage:** Corn earworm's preferred host is corn, where larvae feed on tassels, leaves, shoots, silks and kernels near the tip of the ear. On tomato, larvae feed on leaves and fruit. Because a single larva often feeds on more than one fruit, this pest can cause a tremendous amount of damage to tomatoes. Similar damage can be found on beans and other fruiting vegetables.



**Monitoring Thresholds:** No sampling protocol is established for sweet corn, but methods for monitoring have been suggested (Hoffmann et al. 1996). On tomato, 20-30 plants should be observed per field for any sign of eggs, which are generally laid on leaves below the highest flower cluster (Kuhar et al. 2006). Adults can be monitored by blacklight and pheromone traps. If more than 20 moths are caught per night the insecticide treatment should be considered.

**Cultural Control:** In Virginia, corn earworm is typically a late summer pest of vegetables, so spring planted vegetables often escape significant pest pressure. Generally, sweet corn, beans and tomatoes harvested before mid-July escape serious pest damage. In small gardens, hand picking and destroying wormy fruit and damaged pods can help eliminate the pest. Transgenic sweet corn containing the *Bacillus thuringiensis* (Bt) genes (=Attribute™) can effectively reduce sweet corn injury to that crop. Currently, Bt or any other CEW-resistant varieties are not available for other vegetable crops.

**Organic/Biological Control:** *Bacillus thuringiensis* (Bt) should provide enough control for garden vegetables such as tomatoes, beans, and lettuce. For earworm control on sweet corn, apply 20 drops of mineral oil with a medicine dropper to silks inside tip of ear after silks have wilted (3 to 7 days after silks first appear). Numerous natural enemies have been identified, but none are effective at controlling corn earworm and preventing crop damage.

**Chemical Control:** Treat with a registered insecticide. Many pyrethroid products are effective and commonly used.

For sweet corn: Apply at 2 – 3 day intervals during silking.

For green beans: Treat when pods are 1 inch long (pin stage) and weekly thereafter.

For tomato: Treat every 5 – 7 days when fruit begins to set. Continue as long as fruit is present if needed.

#### Useful References:

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