

# Management of Tomato Fruitworm in Organic Tomato in Alabama

## Authors:

Anitha Chitturi, Olufemi S. Ajayi, Franklin Quarcoo  
Kokoasse Kpomblekou-A, and Desmond Mortley

## Tomato Fruitworm:

*Helicoverpa zea* (Boddie)  
(Insecta: Lepidoptera: Noctuidae)



Tomato fruitworm feeding on fruit | Fruitworm damage with black bored holes

Photos: Leslie Grill & Anitha Chitturi

## Introduction:

The tomato fruitworm, *Helicoverpa zea* (Boddie), is a serious insect pest of several vegetable plants in the southeastern United States. Tomato fruitworm feeds on more than 100 plants including tomato, corn and cotton. It is called by many other names, such as corn earworm or cotton bollworm. Tomato fruitworm attacks many other crops like tobacco, soybean, pepper, bean, okra and eggplant. In Alabama, tomato fruitworm damage in organic tomato is usually observed during early June and continues throughout the cropping season until fruits are harvested.

## Identification:

Adult tomato fruitworm is a moth that lays single creamy white eggs at night usually during mid-May to early June on the lower side of plant leaves or leaflets close to flowers or fruits. Newly hatched larvae/caterpillars are creamy white in color, brown headed with distinctive black bumps and hairs. Caterpillars usually measure about 1.5 to 2 inches in length; fully-grown caterpillars vary in color from greenish-yellow to brown, pink, yellow or even black with densely covered microscopic hairs and pale white stripes running along the body.

## Injury:

Signs of fruitworm damage can be identified by a visible black hole at the base of stems of infested plants. Fruitworm caterpillars usually feed on tomato leaves for

**Early-stage  
larvae damage  
tomato fruits  
by boring small  
holes on the  
stem end of fruit  
for entry.**

---

a short period before attacking fruits, thus causing damage to the plant. They usually prefer small green tomato fruits. Tomato leaves become distorted when the caterpillars feed on leaf tips, developing buds, and bore into stalks or midribs.

Damage consists of small bored holes in the stem of the fruit when attacked by young caterpillars. Caterpillars usually complete development in a single fruit. Newly hatched caterpillar enters any available fruit through the stem ends, and the fruitworm completes its development inside that fruit. Fruitworm caterpillars are cannibalistic, so their feeding results in watery internal cavities filled with cast skins and feces. Feeding damage by fruitworms results in premature ripening and unmarketable fruits.

#### **Management:**

An effective management strategy for fruitworms is to monitor fields for eggs and signs of damage before large numbers of caterpillar enter fruits. At flowering stage and

when tomato fruit size is about one-inch in diameter, plants should be visually examined for fruitworm eggs as caterpillars prefer tender green fruits. Upon hatching, the young caterpillars enter the fruit and cause damage by

feeding inside the fruit. Some cultural practices recommended for fruitworm management include utilization of early maturing tomato varieties, crop rotation, soil tillage practices, hand picking and destruction of the caterpillars. Attracting natural predators like minute pirate bugs, lacewings, big-eyed bugs and damsel bugs that feed on fruitworm eggs and young larvae should be encouraged by planting crops that attract these predators. Neem based products and biodegradable soaps that deter fruitworms are recommended for

fruitworm control. Spinosad, a natural based broad-spectrum biological insecticide and pyrethrins are suggested organically acceptable methods for fruitworm management.

---

**Newly hatched larvae/ caterpillars are creamy white in color, brown headed with distinctive black bumps and hairs.**

---

---

#### **Selected References:**

Griffin, R. P. and Williamson, J. 2019. Tomato hornworm. Clemson University, Clemson | Cooperative Extension (HGIC 2218, 8 February 2019).

UC IPM: UC Pest Management Guidelines: Tomato. UC ANR Publication 3470.

**Website:** <http://ipm.ucanr.edu/PMG/r783300111.html>.

Accessed 24 June 2019.

Annette Wszelaki 2012. Organic Tomato Production. The University of Tennessee Extension Growing Guide (11 June 2012).

**Website:** <http://organics.tennessee.edu>.

Accessed 24 June 2019.

**For more information, contact your county Extension office.**

**Visit <https://www.tuskegee.edu/extension>**

#### **Acknowledgements**

USDA-NIFA Grant Contract #2016-51300-25725 funded this extension publication. We thank Leslie A. Grill for taking photos of the insects.

**ANR210904**