



# Tomato Pest – Tomato Fruitworm

## What is the Tomato Fruitworm?

The tomato fruitworm (*Helicoverpa (Heliiothis) armigera*) has several common names depending on which crop it is infesting. These include corn earworm, cotton bollworm, and American bollworm. Tomato fruitworm (TFW) adults are medium-sized, night-flying moths (25-35 mm wingspan), pale tan to medium brown in color, sometimes with a slight greenish tinge. Eggs are spherical and slightly flattened with coarse striations running the length of the egg. As they develop, the creamy white eggs develop a reddish brown ring and darken just before larvae emerge. Newly emerged TFW larvae are white with black heads and have bristle-like hairs on the topside of the body. Mature larvae retain the bristly hairs and also have patches of shorter spines along the body; they vary in color from yellowish-green to nearly black and have fine white lines running lengthwise along the body.



Tomato fruitworm larvae feed inside tomatoes, liquefying and spoiling the fruit<sup>1 2</sup>

## What is the Damage Caused?

Larvae emerge from the egg and search for tomato fruit, entering near the stem. Fruit is devoured internally, resulting in a messy, watery internal fruit cavity filled with cast skins and feces. Larvae may enter and exit multiple fruits throughout their development. Damaged fruit ripen prematurely and small larvae in fruit late in the season may be a problem in processing tomatoes, as infested fruit are difficult to detect. Less problematic in fresh market tomatoes because infested fruit can be easily culled at harvest.

## How to Manage TFW in Tomato?

**Monitor:** Check surrounding weeds twice a week for TFW eggs before crops are seedlings. The most effective time to apply insecticides is when the majority of eggs have hatched and the early instar larvae have emerged.

### Biological Management:

- TFW larvae have several natural enemies (e.g. parasitoid wasps and flies), and are susceptible to viral disease. Remember to consider natural enemies before choosing a pesticide. The tiny parasitoid wasp *Trichogramma* can be mass-reared and released.

### Cultural Management:

- Disc land right after harvest to kill larvae and pupae.

**Pesticide Treatment Options:** Below are pesticide suggestions for *Helicoverpa armigera* when it attacks tomatoes. Note other pesticides may be more effective for corn and cotton infestations.

- Indoxacarb (Avaunt\*) at 245 g/ha (3.5 oz/acre). Do not apply within 3 days of harvest. Wait 12 hours after application before reentering the crop.
- Esfenvalerate (Asana XL\*) at 420-700 ml/ha (5.8-9.6 fl. oz/acre). Do not let livestock graze on treated vines. Do not apply if honey bees are present. Some superficial bleaching on foliage may occur; this does not affect quality or yield of fruit. Best applied during cool months. Some resistance to this material has been reported in some areas. Do not apply within 1 day of harvest. Wait 12 hours after application before reentering the crop.

For more treatment options visit [www.ipm.ucdavis.edu](http://www.ipm.ucdavis.edu)

\*Commercial name. The authors make no endorsement towards commercial brands mentioned in this document nor are the absence of other brand names an implication of our disapproval.

Prepared by Frank Zalom, Emily Symmes, Mark Henderson and Mark Bell, July 2009

**References:** Statewide IPM Program, Agriculture and Natural Resources, University of California <http://www.ipm.ucdavis.edu/index.html>

**Photo:** <sup>1</sup>IPM for Tomatoes 4th edition, UC Statewide IPM Program, UC ANR, <sup>2</sup>Jack Kelly Clark – UC IPM

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