TUSKEGEE UNIVERSITY
COOPERATIVE EXTENSION PROGRAM

Publication No. TUCED- **MANAGEMENT OF TOMATO FRUIT WORM IN ORGANIC TOMATO**

Authors: Anitha Chitturi, Franklin Quarcoo, Kokoasse Kpomblekou-A, and Desmond Mortley
November 2019

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

Tomato fruitworm feeding on fruits. Fruit worm damage with black bored holes
Photos: Leslie Grill & Anitha Chitturi, Tuskegee University

Introduction: The tomato fruitworm, *Helicoverpa zea* (Boddie), is the most damaging insect pest typically observed in high numbers in southeastern United States. Tomato fruit worm feeds on more than 100 plants including tomato, corn and cotton and so it is called as corn earworm or cotton bollworm. Tomato fruit worm also attacks other crops like tobacco, soybean, peppers, beans, okra and eggplant. In Alabama, fruit worm damage in organic tomatoes is observed during early June and continues throughout the cropping season until fruits are harvested.
Identification: Tomato fruitworm adult is a moth that lays single creamy white eggs at night during mid-May to early June on lower side of leaves or leaflets close to flowers or fruits. Newly hatched larvae/caterpillars are creamy white, brown headed with distinctive black tubercles and hairs. Larvae usually measure about 1.5 to 2 inches in size; fully grown large caterpillars vary in color from greenish-yellow to brown, pink, yellow or even black with densely covered microscopic hairs and paler white stripes running along the body. Signs of fruitworm damage can be identified by a visible black hole at the base of stems of infested plants.
Injury: Fruitworm damage is caused only by larvae that feed on tomato leaves for a short period before attacking fruits; they usually prefer small green fruits. Leaves become distorted when the larvae feed on the 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 larvae. Larvae usually complete development in a single fruit and during this process, they emerge from one fruit and enter another. When fruits are present, the hatched larvae soon enter the fruit through the stem ends and the fruitworm completes its development inside the fruit. Fruitworm larvae are

cannibalistic, so their feeding results in watery internal cavities filled with cast skins and feces. Feeding damage by a fruitworm 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 larvae enter fruits. Plants should be visually examined for eggs at flowering and when fruits are one-inch diameter in size as larvae prefer tender green fruits. At hatching, the young larvae enter the fruit and cause damage by feeding inside the fruit. Early maturing varieties, crop rotation, soil tillage practices, hand picking and destruction of the larvae are some of the cultural practices recommended for fruitworm management. Planting crops that attract natural predators like minute pirate bugs, lacewings, big-eyed bugs and damsel bugs that feed on fruitworm eggs and young larvae should be encouraged. Neem based products and biodegradable soaps that deter fruitworm larvae are recommended for their control. Spinosad, a natural based broad-spectrum biological insecticide and pyrethrins are suggested organically acceptable methods for fruitworm management.

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.tenessee.edu. Accessed 24 June 2019.

For more information, contact your county Extension office.
Visit https://www.tuskegee.edu/programs-courses/colleges-schools/caens/cooperative-extension-program/faculty-staff-agents

Acknowledgements

This extension publication was funded by USDA-NIFA Grant Contract #2016-51300-25725; and Leslie A.Grill.