



Information

Bohart Museum of Entomology

No. 031

Tomato Hornworm

The tomato hornworm (*Manduca quinquemaculata*) is a common pest in suburban gardens. This insect is a Sphinx Moth in the family Sphingidae. The larval stage (caterpillar) is the damaging stage, and feeds primarily on tomato, but it also is known to attack eggplant, pepper, and potato plants. When the caterpillars are numerous, they can do extensive damage in a short time. The caterpillars feed on the upper portions of leaves and new stems, and occasionally, when the caterpillars are numerous, it will feed on the tomato fruit as well. They tend to remain out of direct sunlight, and so are found near the main stem of the plant during the day. They are more easily spotted when they move to the outer portions of the plant at dusk and dawn. Their presence often is first recognized by an excessive amount of frass (droppings) around the base of the plant.

The larval stage of this insect is a 3 1/2 to 4 inch (9-10 cm) long pale green caterpillar with white and black markings. The name "hornworm" comes from the fact that one of the last abdominal segments has a spine-like red or black projection that extends backward. The adult sphinx moth is a grayish-colored insect with a wingspan of 4 to 5 inches (10-12 cm). Its body is dark brown with yellow spots on the side of the abdomen. It has narrow wings with alternating gray and light brown bands. The adult moth feeds only on nectar. It is often confused with a hummingbird because of its habit of feeding from flowers with its long tongue while hovering in flight.

In late spring, the adult moth lays eggs on the underside of tomato leaves. The eggs hatch in 6 to 8 days and the larva passes through five or six stages before reaching full growth in 3 to 4 weeks. The full-grown larvae eventually drop to the soil and burrow underground to pupate. The tomato hornworm will remain in the pupal stage throughout the winter. In the spring, adult moths emerge from the pupa and take flight. After mating, females will begin to deposit eggs on their preferred host plant once again.

Gardeners are advised to examine tomato plants frequently from early July into August for hornworm eggs and small caterpillars. Handpicking is an effective control in small gardens. There are also several natural enemies of the tomato hornworm to be aware of. One common insect parasite of the tomato hornworm is a small braconid wasp. Adult female wasps will lay their eggs on the hornworm caterpillars. Young wasp larvae hatch from the eggs and burrow into the caterpillar body, where they feed on the living tissues. Eventually the wasps pupate on the surface of the caterpillar, and the cocoons of the wasp appear as white projections protruding from the hornworm body. If such projections are seen on a hornworm caterpillar, gardeners are advised to leave the hornworms alone, as the wasps will kill the caterpillar when they emerge from their cocoons. This new generation of wasps will go on to parasitize more hornworms, making this an effective, natural control measure for this garden pest.