

Fact Sheet No. 74  
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# TOMATO AND TOBACCO HORNWORMS

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These closely related species are similar in appearance, life cycle, host plants, and damage. The tomato hornworm is widely distributed in Utah while the tobacco hornworm is found in Washington County with a possible distribution in the Salt Lake area. The caterpillars can be quite harmful on cultivated host plants while the adults are harmless or beneficial as pollinators. Both species occur throughout most of the United States, often in the same garden. The adult tomato hornworm is known as the five-spotted hawk moth while the tobacco hornworm is called the Carolina Sphinx.

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## Description and Habits

The adults are large moths, predominately gray or gray-brown with lighter markings. They are commonly referred to as sphinx, hawk, or hummingbird moths. The wingspread of these impressive insects may reach five inches. They emerge from overwintered pupae in the soil in late spring or early summer. The moths are commonly seen at dusk, hovering hummingbird-like over beds of petunias and other flowers with long corollas. Nectar is extracted through their long, coiled, tube-like mouthparts. The hairy, robust abdomen of the tomato hornworm has five yellow spots on each side of the abdomen while tobacco hornworm moths have six. The tomato hornworm moth has two distinct, narrow, dark, zigzag, diagonal lines running across the center of the hindwings. These fine lines are obscured and fused into a single, dark, indistinct stripe in the tobacco hornworm (Carolina Sphinx).

The spherical greenish-yellow eggs are deposited singly on the undersides of host plant leaves. The eggs hatch in approximately one week and larvae begin feeding on foliage. Larvae feed for 3-4 weeks, molt five times, and may reach four inches in length and 1/2 inch in width when full grown. Both species are green with a distinct "horn" on the top of the tail end. The sides of the tomato hornworm are marked with a series of white marks resembling a "v" laying on it's side and pointing toward the head. The white marks on the sides of the tobacco hornworm form a series of seven diagonal lines. The tip of the tomato hornworm's horn is black while that of the tobacco hornworm's is red. Full grown larvae burrow 3-4 inches into the soil and form dark brown, two inch long pupae. A sheath for the mouthparts projects from the head of the pupa and curves downward, resembling the handle of a pitcher. There is one generation per year in northern areas. Larvae consume large amounts of foliage on peppers, tomatoes, eggplant, potatoes, and related solanaceous weeds. Loss of foliage decreases production and increases the amount of sunburned fruit.

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## Control

If only a few plants are involved, larvae can be removed by hand. Often the characteristic droppings or fecal pellets can be seen before the caterpillar is located. Plants can be protected with common garden insecticidal sprays and dusts registered for the host plants. Various formulations of *Bacillus thuringiensis* (*Bt*) **kurstaki** strain can be used as a safe biological pesticide. *Bt* is most effective on the smaller (younger) larval stages, the larger the larva the harder it is to kill with *Bt* or other insecticides.

At times hornworm larvae may be completely covered with small white, elongate, egg shaped objects. These are the cocoons of a small parasitic wasp. Do not destroy or spray these parasitized larvae. The wasps that emerge from the cocoons are harmless to people and may provide some natural control of remaining hornworms.

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