

Hornworms (Order: Lepidoptera, Family: Sphingidae)
Tomato hornworm (*Manduca quinque maculata* (Haworth))
Tobacco hornworm (*Manduca sexta* (Linnaeus))

Description:

Adult: These two species are similar in appearance. Both are large moths with a wingspan of 80 to 130 mm. The front wings are larger and much longer than the hind wings. Both species are grayish-brown or dull-gray moths with the abdomen marked by a series of orange-yellow spots down each side (six paired spots on the tobacco hornworm and 5 paired spots on the tomato hornworm). The abdomen tapers to a point.

Immature stages:

Eggs are spherical to oval and 1.25 to 1.5 mm in diameter. They are light green or yellow when laid and turn white at maturity. The larva is cylindrical, with 5 pair of prolegs (4 abdominal plus anal prolegs) and three pair of thoracic legs. Young larvae are yellowish-white but turn green with white diagonal markings on each side of abdominal segments. The most striking characteristic of these larvae is the presence of a thick pointed structure or 'horn' projecting backward from the top of the last abdominal segment. Last instar larvae are large, averaging about 8 cm in length. The large brown to reddish-brown pupae (45-60 mm long) possess a pronounced maxillary loop, which looks similar to a flattened handle on a teacup.

Biology:

Life cycle: There are likely 2 to 4 generations of these pests in Georgia. Both species overwinter in the pupal stage. Females are reported to lay 250 to 350 eggs but can produce nearly 1400 eggs under favorable conditions. Eggs are laid singularly on foliage and hatch in about 5 days. Larvae go through 5 or 6 instars, starting at about 6.7 mm and reaching a length of about 8 cm. Larval development time averages about 20 days. The pupal stage occurs in the soil at a depth of 10 to 15 cm. The pupal stage in the summer generations averages about 51 days but can extend greater than 100 days.

Seasonal distribution: There are 3-4 generations per year in northern Florida. Damage is much more severe in the fall production season.

Damage to Crop:

While these pests can occur on all the fruiting vegetables, they are common only on tomatoes. Although common, they generally are not of economic concern except in home gardens. The larvae are defoliators, generally attacking the upper portion of plants first. They generally consume entire leaves rather than chewing holes in leaves. About 90% of the foliage consumption occurs in the last instar. The color of the larvae makes them difficult to detect, as they blend with the foliage. They are frequently not detected until they consume considerable foliage at the end of their development.

Management:

While individual larvae can consume considerable foliage, populations of these pests seldom reach a level that justifies corrective action in commercial production. In home gardens, where individual plants are more valuable, hand picking usually provides adequate control.



Tobacco hornworm adult.



Tobacco hornworm larva with characteristic diagonal stripes.



Tobacco hornworm feeding on tomato plant.