

Hungry Caterpillars in the Garden

One of the more popular books read to children is the *Very Hungry Caterpillar*. The story follows a large caterpillar as it eats its way through various foods as a subtle way to teach counting and an insect's life cycle, from egg to butterfly.



A collection of tobacco hornworm. They are identified by its' red "horn" on the back end and white diagonal markings on the side. It can reach lengths of 4 inches and half-inch wide. Photo: Tom Butzler, Penn State

A very similar story occurs in our vegetable gardens as a large caterpillar, the tobacco hornworm, devours sizeable portions of tomato plantings. The name pertains to the red "horn" on the back end. Another characteristic ID is the white diagonal markings on the side. There is also a tomato hornworm, but its 'horn' is black and the white markings are 'V' shaped.



The tobacco hornworm is identified by its' red "horn" on the back end and white diagonal markings on the side. It can reach lengths of 4 inches and half-inch wide. Photos: Tom Butzler, Penn State

While the insect does not have a wide host range (as in the children's story), it does have a huge appetite. For most gardeners, their activity goes unnoticed at first. The female moth lays eggs on the underside of the leaves in early summer and small little larvae hatch out and start to feed shortly thereafter. The damage from their small chewing mouthparts is easily missed. In addition, they perfectly blend into the surrounding foliage with their green bodies with white diagonal stripes on the sides. But as they go through their numerous growth stages (instars), the feeding intensity increases. The caterpillar can reach lengths of 4 inches and half-inch wide in the last instar.





The easiest way to locate hornworm feeding activity is to use a piece of white paper held against the plant. Tomato limbs stick out like a sore thumb with 90% of their leaves missing. Photos: Tom Butzler, Penn State

What are some of the clues that gardeners can use to search and destroy this worm? The easiest sign is to look for their feeding activity. Tomato limbs stick out like a sore thumb with 90% of their leaves missing. Also, the later instar caterpillars will feed on the fruit itself. A half-eaten tomato, hanging from a limb, is easily noticeable.



In addition to hornworms devouring foliage, they will also feed on the fruit. Can you spot the two hornworms in the picture on the left? Photos: Tom Butzler, Penn State

Also, look on the garden floor for fecal pellets. Ravenous eaters need to get rid of their waste; large input (leaves) leads to large outputs (poop). Droppings are much easier to find than the camouflaged hornworm. Note that fresh droppings are green while older droppings, after being exposed to warm temperatures, are black.



Large green hornworm droppings (left) represent fresh feeding activity while blackened droppings are old (right). Large green droppings are a hint that the tobacco hornworm has recently been feeding. Photos: Tom Butzler, Penn State

While insecticides are certainly effective in controlling hornworms, they are usually not in large enough numbers to warrant an application. Look for signs of their presence and start the hunt. Once spotted, pick off the plant and squish or feed to the chickens. There are also some tiny wasps that lay their eggs inside the body of the caterpillar and offer some control, typically later in the season.

If left unchecked, the tobacco hornworm will drop to the soil, pupate, and emerge in the spring as the Carolina Sphinx. The adult moth typically flies in the evening, looking for nectar in flowers with long corollas, such as petunias.



Carolina Sphinx moth (*Manduca sexta*) Photo: Government of Bermuda, Department of Environment and Natural Resources, A. Copeland [Tobacco Hornworm and Carolina sphinx moth](#)

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