Sod Webworms:

BIOLOGY AND MANAGEMENT IN TURFGRASS

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EXTENSION

Sod webworms (Figure 1) including tropical sod webworms, *Herpetogramma phaeopteralis*, are pests of warm-season turfgrass in Georgia. They do extensive damage to turfgrass in warm, tropical, subtropical, and coastal climates. Even minor infestations in poorly managed turfgrass stressed by hot, dry weather can cause problems for homeowners and sod producers. Because it's difficult to detect this pest early on, managing sod webworms may present challenges.

The sod webworm, especially tropical sod webworm, occur throughout the Southern U.S. from South Carolina to Georgia and Florida, and west to Texas. In Georgia, peak activity is in the fall, September through November. The population starts to decline with the onset of colder temperatures. Larvae overwinter in thatch, then start feeding again when the weather warms in the spring. Tropical sod webworm infests all warm-season turfgrasses including bermudagrass (*Cynodon* spp.); St. Augustinegrass (*Stenotaphrum secundatum* [Walker] Kuntze); centipedegrass (*Eremochloa ophiuroides*); seashore paspalum (*Paspalum vaginitium* Swartz); zoysiagrass (*Zoysia japonicum* Stendel); bahiagrass (*Paspalum notatum* Fluegge) with a particular preference for bermudagrass and St. Augustinegrass, the most common turfgrass in Georgia.

Identification and biology

During the daytime, adults of most webworm species seek shelter in shrubbery and other damp places, emerging in early evening. Adult sod webworms are brown, dingy moths, flying in a zigzag manner low over the grass. The one diagnostic feature of the tropical webworm moth is that this moth holds its wings flat over the body (Figure 1a) whereas other North American webworm species partially fold their wings, giving them a tube-like appearance (Figure 1b).

Figure 1a. Tropical webworm moth
*Source: James Kerrigan, University of Florida**

Figure 1b. Commonly occuring sod webworm moth.
Source: David Cappaert, Bugwood.org

The general life cycle of sod webworms is illustrated in Figure 2. Adult female tropical webworms scatter their eggs in clusters of 10 to 35 over the turfgrass during their flight in the evening. The eggs of sod webworm are creamy white in color, laid on the upper surface of the grass leaf blades. These egg masses are generally flat, oval, and overlapping in appearance, becoming brownish-red as they mature. The eggs hatch in about 10-14 days. Caterpillars undergo five to six larval stages before turning into pupae. Larvae change color from whitish to light-green to yellowish-brown as they hatch, with dark-brown heads and brown spots on each segment. These spots become prominent as they develop into the final sixth larval, or pre-pupal, stage. They web together small pieces of grass and other debris to prepare their cocoons for pupation, thus the name "sod webworms." The pupa is reddish-brown in color, normally buried in the upper thatch. It takes 21 to 47 days for the eggs to develop through larval, pre-pupal, and pupal stages to become adults, depending on the temperature. Adults are brown to dull grey in color, and they grow up to ¾ inch in length with a wingspan of approximately ¾ inch. Some species of webworm adults, including tropical sod webworm, have prominent forward-pointing, snout-like mouthparts (Figure 1b).

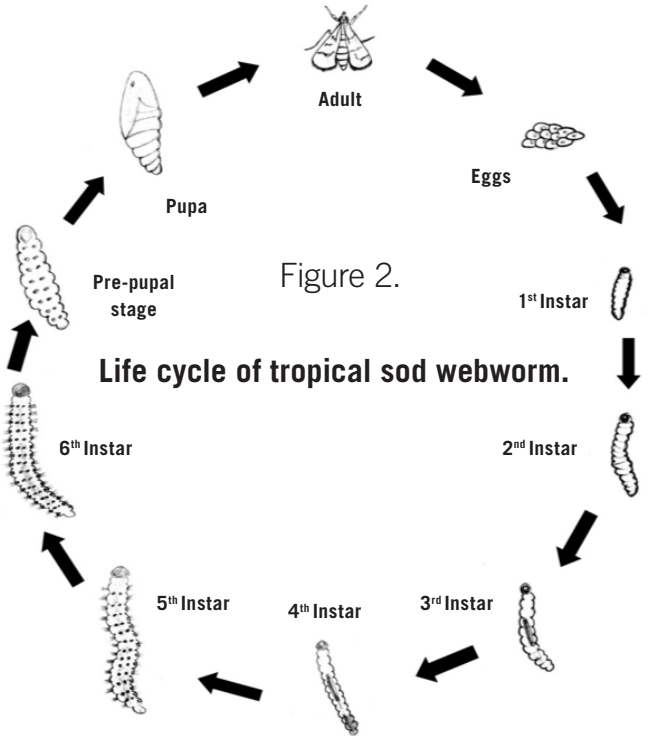

Figure 2.

Life cycle of tropical sod webworm.

Damage

The larval stages feed on grass leaves using their chewing and biting mouthpart and can cause extensive damage. They feed only after sunset during dusk or at night. They prefer hot and dry grassy areas like banks and steep slopes, where drought stress can be a greater problem. The first four larval stages feed superficially on the upper leaf surface of the grass, so the injury is often overlooked. Sodworms in the fifth and sixth larval stages cause serious damage to the grass by chewing the entire leaf blades. The initial symptoms are small-sized patches, which become yellow-brown in midsummer (Figure 3). These patches quickly coalesce in dry weather to form large, dry patches of turfgrass, which can easily be confused with drought symptoms. Additional evidence can be provided by birds, which feed more than usual on sod webworm larvae. Grasses can recover if the infestation is not too severe and if proper cultural practices have been followed.

Figure 3. Larva, pupa, and damage caused by sod webworms.
*Source: Steven Arthurs, University of Florida**

Management

Well-maintained turfgrass is relatively resistant to webworm damage. Mow the lawn regularly but make sure to set the mower at the recommended height for the grass species. Do not over-fertilize the grass with nitrogen, which may enhance the growth of the grass and thatch accumulation near the soil. Greater grass growth and thatch accumulation can ultimately increase the sod webworm attack. Apart from that, resistance grass cultivars could be a potential control measure. Although St. Augustinegrass cultivars including 'Amerishade', 'Floratine', 'Captiva', and 'Winchester' and zoysiagrass cultivar 'Cavalier' are not currently sold in Georgia, they are less preferred by tropical webworm larvae. St. Augustinegrass cultivars currently sold in Georgia, such as 'Palmetto' and 'Raleigh', are susceptible to sod webworms.

If initial symptoms are already present in the turf, soil drenching can be done with a soap solution for monitoring and spot treatment of the pest. For this, add 1 ounce of dish detergent in 1 gallon of water and pour the solution over a 1-square-yard area where the infestation is suspected. This is called the "soap flush technique." This soap solution should kill the caterpillars. If insecticides are necessary for management, application timing is critical, as insecticides are more effective on young larvae (e.g., first and second larval stages) than mature larvae. Pay attention to the zigzag flight of moths over the lawn during evening hours. Within a few days, these moths will lay eggs and eggs will hatch. This can happen within 7-14 days after the adult flight activity. Young sod webworm caterpillars are small and can be challenging to find on turfgrass. Sample the turfgrass for early stages of sod webworm larvae or use the soap flush technique, counting the larvae to determine their density. Also, look for signs of early feeding activity on the grass, which appear as small, yellow spot or patch similar to yellowing spots observed when dogs urinate on turfgrass. The appearance of feeding damage can be used as a threshold for insecticide use to stop further damage. The soap flush technique can be used for larval control if the infestation is mild. Under circumstances where tolerance to pest damage is very low, intensified sampling should begin immediately after the moths' flight activity is noticed. If infestation is detected, insecticides should be promptly used. Repeat the insecticide application at two- to three-week intervals as long as moth activity persists and early signs of damages appear. Use liquid-based insecticides over granular formulations to get better coverage. Apply the insecticides in the evening when sod webworm activity is high. Various types of insecticides are available on the market for sod webworm management, such as spinosad (Conserve SC), acephate (Orthene), carbaryl (Sevin), and synthetic pyrethroids (such as bifenthrin and cyfluthrin). Read the label instructions carefully before applying any pesticide. Apart from synthetic insecticides, nonchemical products that contain live organisms or its proteins such as nematodes that feed on insects (e.g., *Steinernema carpocapsae*), fungi that infect insects (e.g., *Beauveria bassiana* [BotaniGard]), and bacterial spores and proteins such as Bacillus thuringiensis var. *kurstaki* and *aizawai* (Thuricide) may help control sod webworm with minimum impact on the beneficial insects. Insecticides should be used only as a last resort after the identity of the pest is confirmed. This is because insecticides may create more damage to the turfgrass ecosystem by harming various kinds of natural enemies such as minute pirate bug and big-eyed bug, which feed on the sod webworm larvae. These predators are common in Georgia.

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Photos for Figures 1a and 3 provided by UF/IFAS Extension publication EENY-541, published October 2012 and last reviewed January 2019. Retrieved from http://entnemdept.ufl.edu/creatures/ORN/TURF/Tropical_sod_webworm.htm

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