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TURF INSECTS: The Sod Webworms in New York State

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Synopsis:

Common name - Sod webworm
Scientific name - various
Classification (Order: Family) - Lepidoptera: Crambidae
Life stages - Egg, Larva (6-8 instars), Pupa, Adult
Feeding style - Chewing mouthparts
Name of damaging life stage - Larva (caterpillar)
Habitat of damaging life stage - Soil surface
Affected habitats - Home lawns, sod farms, golf courses
Affected plant tissues - Stems, foliage
Geographic origin - Native to the Northeast U.S.

In a Nutshell:

- Sod webworms are a species complex; the two main species are the bluegrass webworm and the striped sod webworm.
- Larvae incorporate webbing into their burrows in the thatch and soil surface; most affected systems are open sunny areas and high-maintenance turf.
- Sod webworms are probably over diagnosed in home lawn situations in response to the presence of adult moths.
- Easy to scout with soapy disclosing solutions and easy to control with long-residual preventive insecticides and with fast-acting contact insecticides, including a variety of biologically-based alternatives.

Natural History

Life stages - Egg, Larva, Pupa, Adult. Immature sod webworms are caterpillars that pass through 6-10 developmental stages, or instars, before pupating and transforming into adult moths. Fully mature larvae are about 1 inch long. Pupae are reddish-brown, about 0.5 inches long and usually enclosed in a cocoon located in the thatch or soil surface. Adults are small buff-colored moths with snout-like projections on their face, only reaching 0.5-0.75 inches long. At rest, the wings are partially folded around the body in a tube-like fashion.

Habits - Early stage larvae live on leaf surfaces, skeletonizing the blades as they feed. Late stage larvae construct silk-lined burrows through the thatch layer and onto the soil surface, incorporating debris such as soil, sand, grass clippings and frass in the tunnel walls. They emerge at night or on overcast days to forage outside the burrows.

Adults hide during the day, but when disturbed by mowing or foot traffic they take flight and move in a zigzag pattern before alighting again.

Seasonal cycle - Sob webworms overwinter as late-stage larvae within silken hibernacula up to several inches deep in the soil. When they re-emerge in spring, they feed for a few weeks before pupation in May to early June. Females only live about a week, dropping eggs onto the soil surface that hatch in about a week. One generation a year is probably most common, although two generations may be achieved downstate and elsewhere during warmer years.

Distribution - Most sob webworm species are widely distributed across North America. With the possible exception of the most northerly boundary of the state, the complex occurs everywhere in NY.

Diagnosis

Species identification - Unlike crane fly larvae, caterpillars have prolegs and a well-developed head capsule. Unlike black cutworms and armyworms, sod webworm larvae lack any stripes down the back or sides. Larvae vary from beige, light green and light brown in background coloration, punctuated by a series of darker spots.

Adults have snout-like projections on their face (thereby their common name "snout moths") and have their wings folded close to the body when at rest. They are buff- and beige-colored and 0.5-0.75 inches long. The wings have delicate fringes on the outer margin, and up-close the forewing does have longitudinal stripes of contrasting colors on a dull background.

While a complex of species occurs in the Northeast, the two most common species in New York State are probably the bluegrass webworm (*Parapediasia teterrella*) and the striped sod webworm (*Fissicrambus mutabilis*). Another species, the cranberry girdler or subterranean webworm (*Chrysoteuchia topiaria*) is problematic in the North Central states and is an emerging pest in NY. It differs from other webworms in that the larvae lack the dark-colored spots. It also differs in behavior by burrowing into and feeding on the crowns and roots of grasses.

Affected habitats - Sod webworms are only sporadic pests. The cases are actually few where the larvae become problematic, despite the large numbers of adults that may be seen. Habitat preferences are for sunny areas, from low to high maintenance turf (e.g., home lawns and golf course

turf). Heavily shaded turf is rarely affected. The more susceptible habitats may include new sod fields and areas with higher levels of fertility. Pastures, hayfields and field grasses are also susceptible. High-maintenance turf is more affected by outbreaks than low-maintenance turf, which can withstand higher populations before visual damage.

Injury recognition - Damage starts as small patches of yellowing or browning grass as early stage larvae feed on the surface layers of stems and blades. Stems are clipped off at ground level where grass is turning brown or thinning. Small piles of green frass, cut blades and web-lined tunnels indicate feeding activity attributed to webworms. This may also be expressed as irregular dark trails apparent on the surface. On low-mown turf, sod webworm damage can resemble disease, and will cause small depressed marks of injured grass that grow in size. Damage can go unnoticed during periods of drought or grass dormancy. With the exception of the cranberry girdler, webworms will not kill the grass as they feed well above the crown and the grass can grow back. Damage in low-maintenance turf can usually be outgrown with irrigation and light fertilization

Management

Sampling and monitoring - The highly visible adults often concern homeowners, but their presence does not indicate a pest problem. Therefore, the lawn should be monitored for the larvae. More often than not, damage attributed to sod webworm on residential lawns is actually just drought stress-another reason it is important to scout for larvae. Conduct scouting for larvae 2-3 weeks after adult flights, when caterpillars from the new generation will be present. Scout near brown patches by spreading the grass and looking into the thatch to find the frass. Another way is to flush them to the surface is by using a soapy disclosing solution. Foraging birds may also indicate infestations.

Decision-making - Low-maintenance turf can tolerate 12-16 larvae/sq ft before visible damage becomes apparent. On high-maintenance turf, however, densities far lower (3-5 larvae/sq ft) will lead to disruption of playing surfaces on golf courses, or to unacceptable foraging activities from birds.

Intervention - For curative control, the range of active ingredients available in NY includes bifenthrin, lambda-cyhalothrin, carbaryl, chlorpyrifos, indoxacarb and trichlorfon. As biorational alternatives to conventional insecticides, commercial products of azadirachtin, Bt, entomopathogenic nematodes and spinosad are available. Use curative control as an approach when the number of larvae or amount of damage warrants control. As most curative insecticides have greater efficacy against the earlier life stages, it is best to detect and intervene as soon as possible because late-stage larvae are less susceptible than early-stage larvae. Use less soluble insecticides that will stay in the thatch and on the foliage, or those that do not require post-application irrigation. Because larvae are most active at night, a product should be applied as late in the day as possible.

For preventive control the main active ingredient available in NY is chlorantraniliprole. Use this approach when there is a history of infestations, or when a long-residual insecticide is used to target other turf-infesting insects. There are varieties of ryegrasses and fescues that are resistant to sod webworm given their enhancement with fungal endophytes; outbreaks

are highly unlikely in stands of those varieties so this is a long-term solution for areas under constant infestation.

Regional Considerations

Sod webworms are concerns across all regions of NY. The occurrence of a second generation is most likely in warmer years and in downstate regions. More problematic in the North Central states, the cranberry girdler should be considered an emerging pest in New York. There are certain control products labeled for sod webworm control in other states, but not in NY. These include the active ingredient clothianidin.

Links to More Information

www.ento.psu.edu/extension/factsheets/sod-webworms-lawns
www.ohioline.osu.edu/hyg-fact/2000/2011.html
www.extension.usu.edu/files/publications/factsheet/cranberry-girdlers07.pdf

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