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Sod Webworms

The hot, dry weather of recent weeks have set us up for sod webworm damage in non-irrigated turf. High temperatures result in shorter generation times, allowing more generations and higher population numbers. Dry soils reduce the infection rate of naturally-occurring microsporidia that usually help keep larval numbers low. All of this allows more individuals to mature faster resulting in high sod webworm numbers.

Adult sod webworm moths have light tan wings that are held tight against the body, giving the body a tube-like appearance. Their mouthparts have long palps that protrude beyond the front of the head, giving their taxonomic family the common name, snout moths. The species vary in size from one-half inch to about one inch long, and some species have whitish or brown stripes on their wings. When these moths are disturbed during the day in turf, they fly low to the ground, no higher than your head, in a jerky fashion. They do not fly very far, settling back down onto the turf within about 30 feet of where they were disturbed. The most common species, the larger sod webworm, tends to sit crosswise on the grass blade when at rest. Other species sit lengthwise on the grass blades.

Eggs are dropped into the turf as the adult moths fly across it. The resulting larvae live in a silk-lined tunnel in the thatch during the day, coming out at night to clip off and eat the grass blades. Small balls of green fecal pellets are common around the crowns of infested turf. The larvae are slender with dark brown spots. Their base color varies from whitish to gray to tan to green depending on the species and the larval feeding activity. Fully-grown larvae of the larger sod webworm are about one inch long. Other species are similar in size or smaller.

Damage will first appear as indistinct brown patches of turf. Close examination will reveal that most of the grass blades are missing with the thatch causing the brown appearance. The turf will be firmly rooted. As infestations progress, entire lawns can turn brown.

Unwatered turf in areas with drought is likely to experience high amounts of sod webworm larval damage. If unattended, large turf areas are likely to die. If infestations are noticed early and promptly treated, the intact root system will quickly replace the eaten grass blades, resulting in quick recovery of the turf's appearance.

Sod webworms are easily controlled with a large number of insecticides. Effective, labeled products include bifenthrin (Onyx, Talstar), carbaryl (Sevin), chlorantroniliprole (Acelepryn), clothianidin (Arena), deltamethrin (Delta

Gard), indoxacarb (Provaunt), lambda-cyhalothrin (Scimitar), trichlorfon (Dylox), spinosad (Conserve), and Steinernema carpocapsae (Biosafe). The last two are considered to be organic. Allow the spray to dry on the grass blades. (*Phil Nixon*)

White Grubs

Scouting at this time will allow control decisions to be made in areas where preventative insecticides have not been applied. Even in areas with large numbers of grubs, damage is unlikely to become evident until the second half of August.

Scout for grubs by cutting through the turf with a stout knife and prying it up. A few grubs are likely to be in the sod, but most will be exposed on the soil surface. White grubs are C-shaped, white scarab larvae with six legs, and brown heads. White grubs in early August are usually about one-quarter inch long. Till the soil with the knife to reveal any grubs below the main root zone. In moist turf, the grubs will typically be within two inches below the sod; in dry soils, the grubs are likely to be four to six inches deep. Once the grubs are counted, replace the sod and tamp it down with your foot. Watering the area reduces the likelihood of brown patches where the sod was disturbed.

At this time of year, it is easy to mistake white grubs for other species. Japanese beetle grubs and masked chafer grubs will be one-eighth to one-quarter inch long, so will billbug and black turfgrass ataenius grubs. Billbug larvae are chunky, thicker than white grubs, and will not have any legs. Black turfgrass ataenius larvae will be C-shaped like white grubs but will be more slender for their size. One can verify that the larvae are ataenius by looking for a raster pattern. Ataenius grubs will have two large pads instead of a raster pattern of spines or thick setae at the posterior underside of the abdomen.

If ten to twelve or more white grubs are present per square foot, treatment is recommended. The quickest result will be an application of trichlorfon (Dylox) watered in with at least one-half inch of water. Because Dylox will not move very deep into the soil and only lasts about five days, the larvae need to be near the soil surface at application. If the soil is dry, irrigating one or two days before treatment will draw the larvae up close to the surface. Insecticides usually used as grub preventatives will still be effective in preventing damage, particularly if applied early in August. (*Phil Nixon*)

Testing for Bacterial Leaf Scorch of Trees will be offered at the U of I Plant Clinic

Scorch may be of the noninfectious or infectious type. Environmental stress, root injury, drought, and many other factors may cause leaf margin necrosis, a condition we call scorch. It is usually widespread in a tree and is fairly uniform. Such a condition is not necessarily repeated in following years and is noninfectious. Unfortunately, we are seeing a lot of scorch symptoms on leaves brought on by this season's environmental stress.

Bacterial leaf scorch (BLS) is an infectious disease that spreads systemically and causes a slow decline

and death of the tree. This disease is not new but is beginning to appear more frequently in the Midwest. Possibly this is a function of more people recognizing the symptoms.

The infectious leaf scorch is caused by the bacterium *Xylella fastidiosa*. The bacterial pathogen is found only in xylem tissue. Xylem-feeding leafhoppers and spittlebugs are thought to spread the bacterium in landscape trees. It can also be transmitted between trees through root grafts. The transmission methods must not be very effective, though, because we do not see rapid spread of the disease from tree to tree.

The most frequent hosts of this disease include elm, oak, sycamore, mulberry, sweetgum, sugar maple, and red maple. Look for scorch symptoms that occur in early summer to midsummer and then intensify in late summer. The scorched leaf edges or tissue between veins may be bordered by a yellow or reddish-brown color. The symptoms occur first on one branch or section of branches and slowly spread in the tree from year to year. It is one of those situations that you hope will be better next year but only gets worse. Symptoms will often show on oldest leaves first, distinguishing this disease from environmental scorch that first appears on newest leaves.

Of course, diagnosis is never that simple, and oaks are an exception. We did not observe this pattern on pin oaks in Illinois. In fact, most references say that oaks show symptoms on an entire branch at once. Bacterial scorch often allows infected leaves to remain on the tree until the fall. Oaks are again the exception. They will drop leaves early. If you have seen a slow decline in your oak, leaf scorch symptoms showing each July to August, and fall leaf drop about a month ahead of healthy oaks, BLS may be present.

We will be testing for this bacterium at the U of I Plant Clinic. There is a fee. As of this writing, the fee will be $25 per sample. It is suggested that you call ahead to be certain you have prepared the correct sample and avoid resampling at your expense. Leaf petiole tissue is preferred for this test, so leaves with green petioles are the usual request. Please send your samples in the next several weeks. We will collect samples, store them, and then run ONE test on all the submitted samples at the end of August, 2011.

What can you do if bacterial scorch is present? First, there is probably nothing you can do to keep the tree from dying. You can help by pruning out dead wood as it appears. Start thinking of tree replacement and plant something that is not known to host this disease. Be sure to pick a species that does well in the site you have in mind. Investigate drainage pattern, soil type, amount of sunlight, and any oddities about the location. There are not any fungicides, insecticides, or bactericides that can be sprayed on a tree to effectively prevent or cure this disease. There may be antibiotics that can be injected may need to be repeated as frequently as every year, can be costly, and afford no guarantees. (*Stephanie Porter*)

Oak Wilt has been confirmed at the U of I Plant Clinic

As the dog days of summer begin, the appearance of obvious oak wilt symptoms

throughout Illinois continues. The U of I Plant Clinic has already positively confirmed 3 cases of oak wilt this summer and is anticipating more positive cases to appear. Oak wilt is an extremely serious disease of oaks that can cause death to oaks in the red-black group (leaves with pointed tips) within a growing season and oaks in the white-bur group (leaves with rounded lobes) over several years. No oak species is immune.

Oak wilt is caused by the fungus, *Ceratocystis fagacearum*, which invades the water-conducting vessels of trees. The fungus kills by preventing water and nutrient flow, which can result in the wilting symptoms apparent in affected trees. Trees pruned before July 15th are the most likely to become infected as the fungus is most commonly transferred by sap feeding beetles. Trees can also become infected by root grafts.

On affected trees, leaves in the canopy of the tree will become discolored and wilt. By late summer, a tree in the red-black group will already be losing leaves. Affected trees of the white-bur group will have discolored leaves that remain on the tree. Oak wilt begins as scorching of leaves from tip back in sections or canopy of the tree. If you cut off a branch with affected leaves, and remove the bark, you may find streaking within the wood. This is a strong indicator that the tree may be infected with oak wilt, but it is not enough to provide a positive diagnosis.

In order to confirm oak wilt, a sample must be cultured in the lab and due to the slow growing nature of the fungus; it usually takes about 10-14 days before a positive Identification can be made. Oaks that are infected with oak wilt will not recover and cannot be saved. A fungicide called Alamo is registered to use to protect trees from Oak Wilt, but it should not be used after infection is confirmed. Trees that test positive for oak wilt should be removed to prevent the spread of the disease.

The ideal sample for culturing the fungus that causes oak wilt should be from freshly wilting branches (NOT dead) that are 8 inches in length and about thumb width. If shipping, enclose 2-4 branches in a plastic bag (do not add water to the bag) and add a small bag of ice or frozen water bottle with the branches to preserve the sample. Samples can be sent to 1401 W St. Mary's Road, Urbana, IL 61801. Don't forget to include a U of I Plant Clinic submission form with your sample.

More information on oak wilt can be found in the University of Illinois Report on Plant Disease #618.

Information on oak wilt culturing can be found at http://universityofillinoisplantclinic.blogspot.com/2011/05/have-you-ever-wondered-how-we-culture.html.
(*Stephanie Porter and Mike Kwiatek*)