

Number 13 - August 9, 2013

## **White Grubs**

Now is the time to be scouting for white grubs throughout the state. The eggs have hatched so there are grubs to find, but they will be too small until mid to late August to eat enough roots to cause dieback.

Cut through the turf with a sturdy knife, I like to use a folding outdoor knife. Select an area where white grubs have been previously, areas that are damper, or the edges of brownish areas. Cut about a one-foot square on three sides, and pull back the sod. In moist soil, the white grubs will be obvious on the soil surface where they have been feeding on the roots of the grass. Look for grubs hanging onto the underside of the sod, and till the upper three inches or so of the soil with the knife blade to flip any deeper grubs onto the soil surface. In dry soil, the grubs will descend downward to where the moisture is located, so they are likely to be four to six inches deep.

Ten to twelve grubs per square foot are enough to cause damage. Stressed turf, such as a heavily used soccer field, is damaged by fewer grubs, about eight grubs per square foot. Lightly used turf can have fourteen or more grubs per square foot without showing dieback.

Even one to three grubs per square foot are attractive enough to predators to

result in digging damage. Raccoons peel back several inch wide sections of turf to feed on the grubs. A single skunk in one night will create 100 or so three inch diameter shallow holes in the turf seeking grubs. Insectivorous birds, such as cowbirds, blackbirds, starlings, and robins will “chicken-scratch” through the turf to expose and feed on white grubs. In the southern third of the Illinois, where armadillos occur, they will dig holes several inches deep while searching for grubs. None of these animals fill in their holes or replace their divots.

High grub numbers can still be reduced to non-damaging levels with an application of trichlorfon (Dylox) or chlorantroniliprole (Acelepryn). Imidacloprid (Merit), thiamethoxam (Meridian), and clothianidin (Arena) are also effective, but the grubs may not die for two to three weeks. All grub insecticides provide better control if watered in with at least one-half inch of water. (*Phil Nixon*)

## **Yellownecked Caterpillar**

Various caterpillars attack trees in late summer and early fall. These include fall webworm, yellownecked caterpillar, walnut caterpillar, sumac caterpillar, and whitemarked tussock moth. The damage caused by these caterpillars to attacked trees is relatively slight

because the leaves have already produced most of the food for the tree that they will produce. The loss of leaves at this time of year is not very important to the tree. The main tree health concern about late-season defoliation is that the tree will break lateral buds and replace the lost leaves.

Yellownecked caterpillars feed on the leaves of a wide range of trees, including crabapple, maple, oak, and walnut. The adult moth lays her white eggs on a host leaf in a cluster about one inch in diameter. Usually the cluster is about one-half longer than wide. Generally, a newly hatched caterpillar's first meal is its egg shell, but yellownecked caterpillars usually leave behind much of the egg shells and start feeding on tree leaves.

Initially caterpillars window-feed from the leaf underside. The lower epidermis and mesophyll is eaten, leaving the upper epidermis which is clear or whitish. It turns brown as the exposed cells die. This first feeding usually damages two or three leaves. During window-feeding, the larvae grow to about one-quarter inch long and are yellowish with black heads.

Older, larger larvae skeletonize the leaves, eating away the edges down to the midvein. These larger larvae are one to one and one-half inches long and reddish-brown with indistinct longitudinal white lines. Because yellownecked caterpillars feed in groups through their lives, feeding damage becomes more obvious with small branches being stripped of foliage.

As the caterpillars grow older and larger, they molt to being black with

obvious yellow stripes and the dorsal area behind the head is a reddish-yellow, giving them the name, yellownecked caterpillar. Black caterpillars are two to two and one-half inches long and eat large amounts of foliage, resulting in these colonial caterpillars stripping large branches and portions of trees. This, and their one-eighth inch diameter black cubes of feces dropping all over underlying patios and sidewalks, makes them obvious to homeowners. At this time, the caterpillars are about to descend from the trees and crawl across the ground looking for pupation sites, so their feeding is coming to an end.

They form naked, reddish-brown pupae in the debris and soil below the tree, emerging as tan moths with white bands to mate and lay eggs for a second generation. It is the second generation that we are seeing now. These current larvae will overwinter as pupae to emerge as adult moths next year in late spring.

Walnut caterpillars are similar in appearance to yellownecked caterpillars, and they cause similar damage to walnut, pecan, and hickories. However, older caterpillars are black with long white hairs (setae). They do not have obvious stripes when older nor do they have the "yellow neck." Otherwise, they are similar in life cycle and in the feeding damage that they cause as they are in the same genus as yellownecked caterpillar.

We have seen and heard about infestations of yellownecked caterpillar and walnut caterpillar within the past couple of weeks, which is early enough to cause many trees to refoliate if

heavily damaged. Even so, treatment is usually not needed for late-season caterpillars. If control is needed, *Bacillus thuringiensis* 'kurstaki' (Dipel, Thuricide), spinosad (Conserve), carbaryl (Sevin), and various pyrethroid insecticides are effective. (Phil Nixon)

### Got Spots on your Tomatoes?

This year, many bacterial diseases are being reported in tomatoes. First of all, when tomato foliage is infected with bacterial diseases, they can be easily misdiagnosed as other diseases. So, the first step is proper diagnosis, which can be obtained by submitting a sample to the U of I Plant Clinic. We are able to diagnose bacterial diseases on tomato in our lab by cutting lesions and placing them under a microscope. If we see microscopic, bacteria oozing from the infected plant material, we know that we are dealing with a bacterial disease. Improper diagnosis will lead to mismanagement!

Bacterial spot (*Xanthomonas campestris* pv. *vesicatoria*) and Bacterial speck (*Pseudomonas syringae* pv. *tomato*) are very difficult to differentiate based on foliar symptoms, because they both can cause spots to occur on all above ground parts of the plant. They can be easily misdiagnosed as the fungal disease, Septoria leaf spot. Most of the time, there is no need to differentiate between bacterial spot and bacterial speck, because **controls for both of these diseases are the same!** We can differentiate between these two bacterial pathogens by culturing and isolating in the lab. If *Pseudomonas* (Bacterial Speck) is cultured on a special agar called King's B, the bacterial growth

will glow when exposed to a black light (ultraviolet light) and we think this is pretty groovy!

Bacterial Canker (*Clavibacter michiganensis* subsp. *Michiganensis*) is another disease that once infected, the plant will have vascular discoloration, wilt, and scorching of leaf tips and infection is considered "devastating" to the plant. There is no cure for this disease. This bacterial disease can be misdiagnosed as bacterial wilt as well as other fungal wilts. The U of I Plant Clinic uses Agdia ELISA quick strip tests to aid in the diagnosis of Bacterial canker.

What do bacterial spot, bacterial speck, and bacterial canker all have in common? They all can cause the tomato fruit to have spots. These spots can be used (not always) as a diagnostic aid.

#### *Bacterial spot and bacterial speck management (IPM)*

- When purchasing transplants, inspect them carefully for disease
- Disease can survive on the seed, so make sure it has been certified to be disease free
- There are no cultivars that are completely resistant to Bacterial spot and some lines hold up to Bacterial speck better than others
- Avoid splashing water if possible
- minimize that time that foliage remains wet
- Do not spray, tie, harvest, or handle plants when they are wet
- Avoid the spread of disease on volunteers, weeds, and plant debris (over winter in soil)
- Never plant tomatoes in the same spot 2 years in a row (2 to 3 years between tomato crops)

- Peppers can also be susceptible to bacterial spot and spread to tomatoes
- Copper products can protect uninfected plants or fruit/foilage
- Read label directions carefully. Copper has been known to cause phytotoxicity to plants.

(Stephanie Porter)

### **Pachysandra Leaf and Stem Blight**

When sited properly, Japanese pachysandra (*Pachysandra terminalis*) is considered to be a mostly trouble-free species. However, it occasionally will have problems with scales and a few fungal diseases. Pachysandra leaf and stem blight is the most common disease seen. The disease is caused by the fungal pathogen *Volutella pachysandra*, which is the disease's imperfect stage. The perfect stage is *Pseudonectria pachysandricola*.

Common symptoms include:

- Tan leaf spots or blotches with dark brown borders. Concentric rings are often visible within the spots (Photo 1).
- Stems can also be infected resulting in dark brown, expanding cankers. The canker girdles the stem resulting in the death of tissues beyond the infection. Dead stems eventually become withered and shriveled (Photo 2)
- Under wet conditions of spring and early summer, pink to orange brown spore pustules are visible on the undersides of affected stems and leaves.

This disease is favored by a weakened or stressed host plant and is often seen on

pachysandra damaged by winter injury. Other stresses, such as transplant shock, excess moisture, shearing, scorch from excess sunlight, or scale infestations can also increase a host's susceptibility to the disease. The plants in photo 2 were also infested with Oystershell Scale, likely contributing to the plants susceptibility.

Control options should begin by removing and destroying all severely infected plants. The next step should focus on alleviating any known stresses by controlling scale or other pests, removing accumulated leaf debris that may hold moisture, protecting from excess sunlight or desiccating winter winds. Periodically thinning pachysandra beds will increase air circulation and allow plants to dry off more quickly. Chemical controls should be used as your last option. Fungicides can be used to prevent new infections. Products with the active ingredients chlorothalonil or mancozeb are labeled for homeowner use. Products with chlorothalonil, thiophanate-methyl, mancozeb and copper based active ingredients are labeled for use in Illinois by commercial applicators. (Travis Cleveland)

### **Invasive Species Roundup**

***Emerald Ash Borer.*** In July, emerald ash borer was confirmed for the [first time in Whiteside County](#). An infested tree was identified on the county's fairgrounds location in Morrison. Thus far, the infestation appears to be localized. In neighboring Iowa, emerald ash borer was confirmed in Burlington (Des Moines County) on July 10 and most recently in Fairfield, Iowa (Jefferson

County) in late July. News on EAB and other Iowa invasives can be found at the [Iowa Tree Pests website](#).

**Asian Longhorned Beetle.** [USDA has declared August as “Tree Check Month”](#) and urges the public to take 10 minutes check their trees for [signs of ALB](#). Asian longhorned beetle was officially declared eradicated in Illinois in 2008. However, residents should still remain vigilant to the potential of this invasive insect being reintroduced.

**Thousand Cankers Disease.** Earlier this summer, West Virginia was added to the growing list of states that has established an exterior quarantine to protect its state’s walnut resources from Thousand Cankers Disease. This recently updated map illustrates states where TCD has been confirmed and states that have enacted quarantines. Surveys are being conducted throughout Illinois to determine if the walnut twig beetle, the vector [of Thousand Cankers Disease](#) is present in Illinois.

Visit the [Illinois CAPS blog](#) for all the latest news on invasive pests in Illinois or contact Kelly Estes ([kcook8@illinois.edu](mailto:kcook8@illinois.edu)) with any questions. (*Kelly Estes, State Survey Coordinator, Illinois Cooperative Agriculture Pest Survey Program*)

**Modified Growing Degree Days (Base 50°F, March 1 through August 8)**

Station Location	Actual Total	Historical Average (11 year)	One-Week Projection	Two-Week Projection
Freeport	1855	1903	2003	2151
St. Charles	1860	1800	2001	2142
DeKalb	1854	1942	1996	2136
Monmouth	2047	2043	2198	2350
Peoria	2100	2169	2262	2425
Champaign	2185	2232	2352	2518
Springfield	2328	2379	2505	2682
Brownstown	2267	2472	2447	2626
Belleville	2371	2478	2550	2728
Rend Lake	2517	2636	2703	2889
Carbondale	2411	2501	2589	2768
Dixon Springs	2434	2589	2616	2797

Insect development is temperature dependent. We can use [degree days](#) to help predict insect emergence and activity. Home, Yard, and Garden readers can use the links below with the degree day accumulations above to determine what insect pests could be active in their area.

[GDD of Landscape Pests](#)

[GDD of Conifer Pests](#)

Degree day accumulations are calculated using the [Illinois IPM Degree-Day Calculator](#) (a project by the University Of Illinois Department Of Crop Sciences and the Illinois Water Survey). (*Kelly Estes*)