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Fall Webworm

Fall webworm lives as a group of caterpillars that spin a communal silk web. This silk nest typically encloses the end of the branch and associated leaves. The caterpillars remain in the webbing, feeding on these enclosed leaves. When the leaves inside the web are eaten, the silk webbing is expanded to include more leaves. Webs of mature caterpillars are typically 2 to 3 feet long. Multiple colonies frequently occur on a single tree, so many branches can be involved. Occasionally, entirely webbed trees are found.

The silk webbing shelters the caterpillars from rain and protects them from predators and parasites. It is common to see parasitic wasps trying to get to the caterpillars, only to be prevented from doing so by the silk webbing. Similarly, insectivorous birds are usually unable to pluck many caterpillars out of the webbing.

The caterpillars are yellowish and hairy. There are two races of fall webworm. The redheaded race has a red head and a yellowish body. The blackheaded race has a black head and a yellowish body with many black spots and a wide black stripe running down the back.

This insect has an extremely large host range, being found on almost any deciduous tree and some shrubs. It is most commonly found in Illinois landscapes on crabapple, walnut, hickory, pecan, redbud, sweet gum, maple, and oak. There does not appear to be any separation of hosts based on the races of fall webworm.

In the southern half of Illinois, fall webworm has two generations per year. The first generation typically occurs in June, with the second generation in August and September. In the northern half of the state, only the August and September generation occurs.

Only the spring generation of these caterpillars is considered to be important to the health of the tree. The generation that occurs in August and September eats leaves that have already produced most of the energy that they will for the tree. As a result, the loss of those leaves is not a major problem to the plant. However, if the tree responds to the loss of these leaves by breaking buds and growing new leaves, then there is a health impact. Usually, this doesn't happen.

Clientele find the webs to be unsightly; and as the season progresses, they become only more so. Not only are the webs made larger, but they tend to become littered with the cast skins and fecal pellets from the larvae. For these reasons, control is usually important in landscapes for aesthetic reasons.

Because the caterpillars are in the webbing at all times, pruning off the

branch with its webbing and disposing of it is very effective. Another method is to grab onto the webbing and pull it off the branch, bringing almost all of the caterpillars along with it. This allows the branch to remain on the tree, to releaf the following spring. A popular homeowner method is to set fire to the webbing, which does an excellent job of killing and toasting the caterpillars. However, the fire damages the bark of the involved branch and those nearby, which may get cankers or have other resulting problems.

Many insecticides are effective in controlling fall webworm. Bacillus thuringiensis kurstaki (Dipel, Thuricide), carbaryl (Sevin), pyrethroids, and other labeled insecticides are effective. However, the webbing is waterproof, making it spray resistant. Enough spray pressure is needed to break into the web and get the insecticide onto the leaves within the nest. Nest webs are typically expanded only every week or so, so insecticide deposited on leaves outside the webs is likely to break down before the caterpillars expand the webbing over treated leaves.

Finally, fall webworm is a native insect that is attacked by several natural enemies. As is typical of native insects, it is very numerous and obvious for about 3 years, followed by several years, usually 5 to 7, where it is low in numbers. Doing nothing to control these insects will not result in overwhelming attack and damage. Their numbers will drop naturally although they are likely to be numerous for the next couple of years before their numbers drop. Control this year is likely to have little effect on how large the infestation is next year as this insect feeds on many forest trees and the adult moths are strong fliers. (*Phil Nixon)*

Turf Insecticides and Pollinators

Insecticides, particularly neonicotinoids, have been receiving some heavy hits recently about effects on honey bees and other pollinating insects. Other pollinating insects include bumblebees, sweat bees, ground bees, flower flies, bee flies, butterflies, moths, and various beetles. Last week, I attended the National Turfgrass Entomology Workshop held in South Kingston, Rhode Island where this topic came up.

There are several types of insecticides used in turf. Most organophosphates, such as trichlorfon (Dylox), are very toxic to bees and other pollinators. Like pyrethroids, they kill the insect quickly, resulting in less impact on the hive or nest.

Pyrethroids, such as cyfluthrin (Tempo), bifenthrin (Onyx), permethrin (Astro, Pounce), and lambda-cyhalothrin (Scimitar) have long been known to be very toxic to bees and other insect pollinators. They are so toxic, that insects coming into contact with them are killed very quickly. This trait actually reduces their effects on honey bee hives and bumblebee nests as the insect and thus the insecticide does not get back to the colony to be spread around to the larvae and other adults.

Neonicotinoids are perhaps more damaging to pollinators as they are typically slow-acting, which allows exposed bees to get back to the hive or nest, move systemically within the plant to contaminate nectar and pollen, and low doses insufficient to kill the insect still affect behavior. These include imidacloprid (Merit), thiamethoxam (Meridian), and clothianidin (Arena). Bifenthrin is sold in combination with

imidacloprid as Allectus and with clothianidin as Aloft.

Chlorantroniliprole (Acelepryn) is of different chemistry, being an anthraniic diamide. It affects insect muscles rather than the insect nervous system as do most other turf insecticides. It has a lower toxicity to birds, mammals, fish, and other vertebrates and has been found to have less of an effect on bees and other insect pollinators.

Bees and other insect pollinators are not attracted to turfgrasses. Being wind-pollinated, there is no nectar attractant. They do not collect turfgrass pollen, even though honey bees do collect pollen from corn, another grass. For these reasons, turf applied insecticides' impact occurs primarily through the flowering plants in turf that we call weeds including dandelions, white Dutch clover, and creeping Charlie. Highly maintained turf contains almost none of these weeds due to herbicide applications and other management. However, many home lawns and lesser maintained turf areas in parks and similar areas do contain flowering weeds.

Research conducted by University of Kentucky entomologists with white Dutch clover showed that neonicotinoids such as thiamethoxam, clothinidin, and imidacloprid reduced the number of bumblebees contained over treated turf by one-third while Acelepryn had no effect on mortality.

Bumblebees exposed for as little as six days to Clothianidin initially lost weight and had fewer individuals. Because only the largest bumblebee hives produce queens, clothianidin exposed hives did not produce queens. Bumblebees are annual, relying on queen production to survive from year to year, so no queen production equates to no long term survival. Acelepryn exposure did not cause weight loss, hive size reduction, or reduced queen production.

So should we only use Acelepryn for white grub control? No, the use of a single insecticide is almost surely going to result in resistance problems. It was determined that neonicotinoids do not move well systemically into white Dutch clover flowers and that most of the exposure was from the flowers being directly sprayed. Using granular formulations avoided the effects seen with spray applications. Mowing before or immediately after spray application removes the flowers and avoids deleterious effects on bees. A little communication with clientele to ensure that lawns with flowering weeds are mowed before or immediately after application will allow neonicotinoids to be sprayed without serious harm to pollinators. (*Phil Nixon*)

Turfgrass Rust

Turf rust outbreaks are commonly seen in late summer to early fall as moderate temperatures and long evening dew periods occur. Rust diseases are most severe on slow growing turf stressed by drought, summer heat, low-fertility, shade or compaction. From a distance, severely infected turf appears thin and tinted yellow, red, or brown. Closer inspection will reveal individual blades with numerous yellow orange pustules. Orange spores produced by the pathogen are easily picked up by shoes, pets or anything in contact with rust affected grass blades.

On established turf, damage from rust is mostly cosmetic. A variety of cultural practices are usually sufficient to control the problem. Additional fertilizer can be applied to problematic areas to help stimulate growth and allow the turf outgrow the rust's relatively slow infection cycle. Mowing will remove infected tissues before they can be problematic. Irrigation may also be needed to reduce drought stress. However, note that leaf wetness is required for infection. To avoid promoting infection, it is important to water early in the day and allow the turf to dry before night. Also, avoid frequent, light irrigation, but water turf infrequently and deeply. Several fungicides are available and effective against rust. However, they are usually not warranted on established turf. (*Travis Cleveland*)

New Plant Diagnostic Sample Submission App

The Plant Diagnostic Sample Submission App is a joint effort to provide a way to easily submit digital images of plant problems or pests on the go. This App is available for iOS and available for free download in the iTunes store. Farmers, homeowners, greenhouse and nursery growers, agricultural specialists and others now have a new mobile application resource to identify plants, plant diseases, insect pests and other plant problems. It allows users to take and send digital photos and plant-problem descriptions to any of the eight participating labs. The following labs are accepting submissions on this App (note exceptions for KY & NH):

- Alabama Cooperative Extension System
- University of Connecticut Plant Diagnostic Laboratory
- **University of Illinois Plant Clinic/ University of Illinois Extension**
- University of Kentucky Plant Disease Diagnostic Laboratory (County ANR/HORT Agents Only)
- Michigan State University Diagnostic Services Laboratory
- University of New Hampshire Cooperative Extension Plant Diagnostic Lab (UNHCE Field & State Specialists only)
- Ohio State University C. Wayne Ellet Plant and Pest Diagnostic Clinic
- Purdue University Plant & Pest Diagnostic Laboratory

Submissions are sent to the labs using the iPhone or iPad built-in mail app, which requires an email account on the device. The University of Illinois Plant Clinic is not charging a fee for this service; however other diagnostic labs have specific fee policies, so users should check with their preferred lab for details. Right now Kentucky and New Hampshire laboratories will only accept samples via the app from Extension educators and specialists who have a proper passcode.

You can search for it by going to the App Store, using the following link: Plant Diagnostic Sample Submission App.

This Plant Diagnostic Sample Submission App has been described as "easy to use" and it will guide you through the submission process. The App includes submission forms with customized questions about agronomic crops, weeds, vegetables, houseplants and more. Contact settings can be saved, so that information will not have to be entered

every time you use the App. Photo tips such as, "provide pictures of the plant, plant problem, or pest in its entirety", "from middle distance, as well as up close", will be given to users to aid in the diagnostic process.

Once the pictures arrive in my email inbox, they will be evaluated as soon as possible. There could be a delay during the growing season; as priority is given to the diagnosis of samples that are submitted to the U of I Plant Clinic. Please do not expect a diagnosis with every picture submission. Often times, I will list possible problems, refer you to links to help you further investigate the problem, or even suggest that a sample be submitted to the U of I Plant Clinic.

The Plant Diagnostic Sample Submission App was developed by IN3 (http://www.in3applications.com), located in the Purdue Research Park of West Lafayette. (*Stephanie Porter*)

Modified Growing Degree Days (Base 50°F, March 1 through August 22)

Station Location	Actual Total	Historical Average (11 year)	One-Week Projection	Two-Week Projection
Freeport	2114	2199	2263	2393
St. Charles	2114	2082	2256	2380
DeKalb	2085	2225	2225	2347
Monmouth	2300	2346	2455	2594
Peoria	2386	2495	2532	2679
Champaign	2485	2566	2653	2805
Springfield	2626	2734	2805	2967
Brownstown	2548	2831	2728	2893
Belleville	2661	2835	2838	3000
Rend Lake	2836	3007	3022	3196
Carbondale	2723	2857	2902	3066
Dixon Springs	2752	2952	2935	3105

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 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*)

Invasive Species Roundup

Spotted Wing Drosophila. Questions about spotted wing drosophila continue to come in. Damaged fruit in gardens has been seen in several locations across the state. In a recent Home, Yard, and Garden article, this small fruit fly was discussed in more detail, including information on identification and trapping.

Brown Marmorated Stink Bug. Another invasive pest you may find in your garden this time of year is the Brown Marmorated Stink Bug (BMSB). We are still monitoring the distribution of BMSB in Illinois. While this has been a "slow" year with reports of BMSB, we do regularly get calls about this insect. There are several native stink bugs, as well as a few other garden pests, that can commonly be confused with BMSB. There is lots of good information, including the photos below at www.stopbmsb.org. If you have any questions on whether the stink bug in

your garden is the common brown stink bug or brown marmorated stink bug, please feel free to give me a call or send me a sample.

Thousand Cankers Disease. In another recent thousand cankers disease (TCD) update, Ohio confirmed the presence of the TCD fungus from walnut branch samples from the Butler County area, marking the first time TCD has been confirmed in Ohio. In 2012, the walnut twig beetle was found in traps in Butler County.

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