COOPERATIVE EXTENSION SERVICE
HOME, YARD & GARDEN PEST NEWSLETTER
College of Agricultural, Consumer and Environmental Sciences, University of Illinois at Urbana - Champaign
Illinois Natural History Survey, Champaign

Number 12 – July 30, 2018

Fall Webworm

Fall webworms (*Hyphantria cunea*) are communal caterpillars that spin silk into a tent-like structure at the tip of branches. These webs are often built around leaves they feed on. Fall webworms feeds on a wide range of deciduous trees and shrubs including, but not limited to, crabapple, redbud, sweet gum, maple and oak. As the caterpillars consume the leaves within the web, they will expand the web every week or so to include more leaves. The web of mature caterpillars can be 2 to 3 feet long.

There are two races of fall webworm. The northern race caterpillars are yellow-tan body with red bodies and white moths. The southern race caterpillars are yellow-green bodied with a black head and adults are white with small black spots on the wings. Their ranges overlap so they are both found throughout the species range but one is more frequently encountered in the northern and the other more frequently encountered in the southern portions of their range.

Adults emerge late spring to midsummer and begin to deposit hairy egg masses on the underside of leaves. A few days later, the larvae hatch and begin to build silken webs over the ends of branches. You may begin to see their tent-like webs when *Hydrangea paniculata* Grandiflora (PeeGee Hydrangea) is blooming. Fall webworms usually build webs in the understory of the trees, fence-row shrubs and ornamental shrubs. Young larvae feed on the upper surfaces of leaves and larger larvae feed on whole leaves, leaving the large veins or midribs behind. While fall webworms are capable of causing significant aesthetic damage, the defoliation does not usually threaten the plant's health. This is, in part, because their populations can be well controlled by natural enemies.

Since, fall webworms are unlikely to cause enough damage to harm the plant, some aesthetic damage may be tolerated and treatment may not be required. When aesthetic damage is not tolerated, there are a number of options for fall webworm control.

Pruning back branches to remove the web is a mechanical control method that can be implemented at any time and can be effective in reducing caterpillar populations quickly.

Chemical and Bt (*Bacillus thuringiensis*) treatments can be applied as a spray application when webs appear on trees. The webs are water resistance so a gentle spray will not penetrate the surface. The spray pressure must be great enough to damage the web so the insecticide can coat the leaves inside the web, where caterpillars are feeding.

Bacillus thuringiensis kurstaki treatments (Dipel, Thuricide, etc.) target cat-

erpillars. They are more effective on caterpillars and have no impact on adult moths. Effective chemical insecticides include carbaryl (Sevin), pyrethroids and other products that are labeled to treat fall webworm. (*Sarah Hughson*)

Oak Wilt

Oak wilt is a serious fungal disease which continues to kill oak trees in residential areas, parks, farm woodlots, and forests throughout Illinois. The oak wilt pathogen was first detected in Wisconsin in 1944 and has slowly spread throughout the central and eastern United States, including across Illinois. Oak trees are the only known host, with oaks in the red oak group (pointed leaf lobes) more susceptible than oaks in the white oak group (rounded leaf lobes).

SYMPTOMS

Red and black oak group (pointed leaf lobes)

- Symptoms first appear at the top of the tree or at the tips of the lateral branches in late spring and early summer.
- Symptomatic leaves curl slightly and turn a dull pale green, bronze, or tan, starting at the leaf margins.
- Infected trees rapidly defoliate. By late summer, an infected tree is often bare of leaves.
- A brown or black discoloration usually develops in the current-season sapwood of wilting branches.
- Once infected, oaks in the red and black group do not recover.

White oak group (rounded leaf lobes)

- Symptoms usually appear on scattered branches of the crown, and may be confused with general dieback and decline.
- Leaves on infected white oaks become light brown or straw-colored from the leaf tip toward the base. Leaves curl, but often remain attached to the branches.
- The trees may die in one year, but usually die slowly over a period of several years or more.

PATHOGEN

Oak wilt is caused by the fungal pathogen Ceratocystis fagacearum. The pathogen moves from diseased to healthy trees in two ways, through root grafts formed naturally between oak trees of the same group and through fresh wounds via sap-feeding insect vectors. Within a few days of infection, balloon-like tyloses and gums begin to plug the water conducting tissue within the tree, blocking the flow of water and nutrients from the roots to the foliage. As the supply of water becomes restricted, leaves wilt and die.

DIAGNOSIS

If a tree is suspected of being infected with oak wilt, laboratory testing should be performed to confirm the diagnosis. Branches with symptomatic leaves attached should be submitted to a diagnostic laboratory. Ideally, branches are 10-12 inches long and 1-2 inches in diameter. Samples should be taken the day they are submitted. The oak wilt pathogen is sensitive to high temperatures, so samples must be kept cool in transit. If shipping

samples, we recommend using a cold pack and an insulated shipping container. Ship via overnight or next-day delivery, and avoid shipping late in the week.

MANAGEMENT

No complete control or cure for oak wilt exists. However, proper tree care plus mechanical and chemical control measures can keep the disease from spreading to healthy trees nearby.

Cultural Management

To reduce the risk of the pathogen entering the tree through wounds, it is highly recommended to avoid pruning oak trees in spring and early summer. The sap-feeding beetles that act as vectors for the oak wilt fungus are attracted to fresh wounds, which also act as a pathway for the pathogen to enter the tree. In Illinois, oak wilt is at the highest risk of spreading during April, May, and June due to increased beetle activity. While the risk of infections via pruning wounds may decrease by mid-July, those erring on the side of caution should choose to postpone any pruning until dormancy. When pruning cannot be delayed, wound dressings and latex-based paints have shown some effectiveness in reducing the potential for oak wilt transmission when applied immediately to a fresh wound. These products are believed to reduce the attractiveness of the wound to the insect vector and/or prevent the entry of oak wilt fungal spores into the vascular system of the wounded tree.

Chemical Management

Fungicide injections with propiconazole can be used to protect high value, healthy trees. Tree injections should only be made by trained arborists or others trained in injection techniques and diagnosis of oak wilt. Fungicides should be used in combination with the other strategies discussed in this fact sheet. Therapeutic injections can be effective on species within the white oak group when used early in the infection (less than 30% crown affected). However, researchers and practitioners tend to agree that it is rarely worth the expense to inject members of the red oak group that are infected with oak wilt.

REMOVAL AND DISPOSAL OF INFECTED TREES

Timely removal and proper disposal of diseased oak trees is critical for preventing the spread of the pathogen. If a diagnosis of oak wilt is confirmed, the infected tree should be removed as quickly as possible and the root zone should be trenched to break potential root grafts if there are any oak trees of the same group nearby. Ideally, the trenching is done before or just after removal of the infected tree. Trenching can be accomplished via mechanical or chemical means. The use of diseased oaks for firewood is not recommended. Firewood is frequently not burned before the following spring when trees killed by oak wilt develop fungal spore mats beneath their bark. Beetle vectors will pick up fungal spores as they breed in and feed on the fungus mats. The insects then spread the fungus as they fly to healthy oak trees and feed on the sap oozing from fresh wounds. If diseased wood is to be used, it should be debarked, cut to the proper length, split, stacked off of the ground, and protected from moisture in order to hasten drying. Wood that has been debarked or stored in a

dry place for more than one year is not a source of infection.

Additional Resources

- University of Illinois Plant Clinic http://web.extension.illinois.edu/plantclinic
- Report on Plant Disease: Oak Wilt and Its Control http://ipm.illinois.edu/diseases/rpds/618.pdf
- Plant Clinic Report: Oak Problems http://web.extension.illinois.edu/plantclinic/downloads/Plant%20Clinic%20Report%20Oak%20LO.pdf

(*Travis Cleveland and Diane Plewa*)

Weather is Conducive for Powdery Mildew

Based on the weather that we have had this past July, powdery mildew will be seen in more than just a handful of places. The six common genera of powdery mildew fungi in the Midwest all prefer warm, humid days. The spores germinate on foliage when the relative humidity is 23% to 99% but not in a free moisture (rain). Powdery mildew is a common fungal disease problem on many perennials as well as annuals, shrubs, turf and even trees. One plant can spread the disease very quickly especially in humid weather. Even though this disease can spread quickly over a plant, it doesn't normally kill one.

Symptoms of powdery mildew is a white or dusty grey patches on the leaves, shoots, buds, flowers or stems. This mildew is composed of threadlike mycelium and asexual spores of fungus. Powdery mildew fungi over winter on plant tissue and dormant buds. The spores are released in the spring damp weather and move to uninfected tissue in water or wind. In some cases the growth is superficial and in other cases the leaves become distorted dwarfed and discolored. The severity of the symptoms depends on the host species, age of the tissue infected, environmental conditions and the fungus involved. New growth on plants is more sensitive than older leaves.

Managing powdery mildew infections, can be done by several means. It is important to provide conditions for adequate air flow. Pruning and thinning stands of plants, or branches will allow for better air movement. Watering in the morning or early part of the day to promote rapid drying will also help. Resistant varieties are the first means of disease control but unfortunately are not always available. Fungicides are also available and should be utilized at the first sign of the disease. Once the disease has become widespread, it cannot be controlled in that year.

Finally in the fall when cleaning up plant debris. Remove and destroy all infected plant parts. It is not recommended to put the debris in a compost pile, as the temperature does not get high enough to destroy the fungi. It is best to put the material in a bag and take it to an appropriate dump site/landfill. (*Maria Turner*)

Protecting Trees During Construction

Are your clients taking the necessary steps to protect their trees during construction projects? Unfortunately, most

homeowners don't consult with an arborist prior to starting their major projects. More often, they contact an arborist well after the project has been completed; when the tree starts to show signs of stress and dieback. This type of situation is fairly common at the plant clinic. Each year, the clinic receives numerous samples taken from trees in advanced stages of decline. For some of these sampled trees, the decline can be attributed to various insects, diseases or environmental stresses. Other samples don't yield enough clues or information to identify a cause. Those samples require additional detective work by plant clinic staff. The first step is usually to call the client to obtain additional details that may have been omitted from the sample form. Too often, the client mentions a recent construction or renovation project in close proximity to the tree. At this point, the damage has been done, and management options are limited. For many of these trees, the decline may have been avoidable with extra planning and work.

Construction projects impact trees in many ways. Large equipment can cause mechanical injury to a tree by breaking branches, gouging large wounds into the trunk, or by severing large roots while digging. More often, damage results from a less noticeable impact to the tree's root system. Construction materials stored under the tree and equipment driving over the root system all cause significant soil compaction. This compaction results in poor air exchange to the roots and can contribute to decline.

Ideally, an arborist should be consulted prior to starting any major construction project. They will be able to evaluate the existing trees and identify trees worth preserving. They will also provide recommendations to help protect and limit impact to tree health.

The first line of protection is to exclude all construction activities, equipment, and building supplies from areas around the protected tree(s). Sturdy temporary fencing can be used to form a construction barrier. The size of the protected area will vary based the tree species and size. As a rule-of-thumb, the International Society of Arboriculture recommends a study fence be placed approximately one foot away from the trunk for every one inch of trunk diameter. The tree's dripline can also be used to help identify the protected area. Be aware, tree roots often extend well beyond the dripline. For this reason you should protect as much of the area beyond the dripline as possible. Enforcing these protected areas is a priority. Discuss the protected areas with your client's contractor. When possible, have them include tree protection in the construction contract, as well as penalties for violations. Post signs on the barriers to remind on site workers. During construction, have your clients check the site frequently to ensure the barriers are still in place and all tree protection provisions discussed with the contractor are being followed.

Space is often limited on construction sites. Protecting the entire root system may not be feasible. Even with our best efforts, some injury may still occur. An arborist will recommend strategies to help allevieate the stress from compaction. They can recommend various methods for aerating the compacted soils, as well and mulching and irrigation practices to help prevent water stress. (*Travis Cleveland*)

Butterflies and Caterpillars Abound

Caterpillars are abound this growing season leaving some to wonder, "Are they good or are they bad?" Most gardeners want butterflies and moths sipping nectar from their colorful blooms but are they willing to let the caterpillars take some hefty bites out of the foliage of their plants? Let us hope most gardener are willing, because without the fattening of caterpillars, we would not have our fancy-free winged beauties fluttering in the garden. The latest caterpillar sightings have been black swallowtails (Papilio polyxenes) on parsley, silvery checkerspots (Chlosyne nycteis) on coneflowers and milkweed tussock moth (Euchaetes egle) on milkweed.

Black swallowtail butterflies are large, shiny and black with some iridescent blue and a characteristic orange spot. They lazily move back and forth from flower to flower in gardens and on roadsides. The female lays her eggs on plants in the carrot family including parsley, dill and fennel. The caterpillars hatch and begin feasting on the leaves leaving behind bare stems. They are a light green color with black stripes and yellow dots. When disturbed, a caterpillar may send out a vibrant orange and forked structure, from the top of its head, known as an osmetarium. It is meant to ward off predators by presenting bright warning colors and secreting foul smelling defensive compounds. I like to agitate them with a poke on the head to demonstrate their defense system to the kids. They overwinter as dull brown chrysalises that mimic old fallen leaves.

Silvery checkerspot butterflies are half the size of black swallowtails. They are orange, marked with black lines, patches and spots. These butterflies fly low and slow sipping nectar from plants and are mostly seen in forest openings or meadows. The females lay egg clusters on the underside of the leaves of purple coneflower, sunflowers and rudbeckia. The caterpillars are black with brown lines down their sides and covered with black spikes. These caterpillars will eat as a large group, skeletonizing leaves within a few days. They overwinter as caterpillars in the landscape, they do not grow to full size in one season.

Milkweed tussock moths are small with gray wings and yellow stout bodies that are stippled with black dots. As adults, they do not feed but are ready to reproduce. The caterpillars, known as "the other milkweed caterpillar," can defoliate milkweed plants in no time. Their bodies are covered in orange, white and black hair tufts. They are a sight to see. Like monarchs, they have adapted to a poisonous plant so birds will not eat them and, similarly, express the black and orange warning colors. They overwinter as pupae on the ground.

Be sure not to clean up the garden this fall to allow these butterflies and moths to complete their lifecycle and further enchant the gardener. (*Kelly Allsup*)