



UNIVERSITY OF ILLINOIS EXTENSION

HOME, YARD & GARDEN PEST

College of Agricultural, Consumer and Environmental Sciences, University of Illinois at Urbana-Champaign
Illinois Natural History Survey, Champaign

NEWSLETTER

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PLANT DISEASES

Plant Clinic Closing for Season

This has been an odd season for the Plant Clinic. Cool, wet weather and late planting resulted in a slow spring in the lab. Now that we should be winding down, samples continue to pour in. Still, staff members have begun to cut hours as classes at the University of Illinois gain momentum.

The Plant Clinic will be open through September 15th, which will be here before we know it. This date is firm. We will accept any samples through September 15th. Although the lab will be closed to the public beginning the 16th, staff will continue working until all samples are completed.

Plant questions should be directed to local Extension offices. If those resources are unable to help, state specialists may be recommended. Illinois Extension offices also have access to Distance Diagnostics through Digital Imaging (DDDI). This system is free of charge and involves taking digital images of the plant problem and uploading them at the Extension office. These images and a data form are sent electronically to Extension specialists throughout the state for feedback.

Once again, thank you to many of you for using the Plant Clinic lab services. We look forward to working on some new testing to offer in 2009. (*Nancy Pataky*)

Oak Wilt Trend?

Oak wilt is a fungal disease that kills mature oaks in as little as one growing season. The University of Illinois Plant Clinic has been testing oak wood for the presence of the oak wilt fungus since 1976. You can learn details about this disease in the University of Illinois *Report on Plant Disease*, no. 618, available in Extension offices or in electronic form at <http://www.ag.uiuc.edu/~vista/abstracts/a618.html>.

The only way to be certain that an oak is infected with the oak wilt fungus is to culture live wood on a laboratory medium (such as potato dextrose agar), isolate the causal fungus, and observe diagnostic spores. The tree is considered as a positive case only when the fungus is isolated from the wood. If you need details

on how to submit a sample for oak wilt testing, refer to issue no. 12 (2008) or no. 7 (2007) of this newsletter.

Two frequently asked questions concerning oak wilt are (1) Are we seeing more oak wilt than usual this year at the University of Illinois Plant Clinic? and (2) How have the numbers of positive cases of oak wilt changed over the past few years?

First, it is important to realize that the Plant Clinic does not survey the state of Illinois. We work on whatever samples are sent to us for testing. Comparing this season to records of oak wilt for the past eight seasons, we are not seeing any more positive cases than usual. We test over 50 oaks each year as a normal part of our service. The number of positive cases in the last 8 years follows:

	<i>Number positive</i>	<i>Number tested</i>	<i>Counties tested</i>
2000	11	72	25
2001	10	53	22
2002	26	104	26
2003	16	62	21
2004	15	84	29
2005	12	68	19
2006	7	51	19
2007	10	57	20

So far in 2008, we have tested 28 trees, representing 16 Illinois counties. Eleven cases have been positive. Those positive oak wilt cases occurred in DuPage, Effingham, Fulton, Macoupin, Morgan, Ogle, Sangamon, and Stephenson counties. Bur (4), red (2), shingle (2), and unidentified oaks (3) were the species involved. (*Nancy Pataky*)

Conifer Concerns

It is often difficult to determine whether a conifer is showing symptoms of infectious diseases or stress from environmental conditions and site imperfections. Possibly the concern is one-sided burn, browning of needle and stem tips, overall yellowing, or possibly worse symptoms. Fortunately, not all conifer problems are due to disease. If the problem appeared in a few days, disease is not likely. If symptoms have become progressively worse over the past months, then plant disease is a possibility.

Conifers are usually evergreen. Bald cypress, larch, and dawn redwood are conifers that drop their needles in the autumn, so they aren't evergreen. All the other conifers we grow, such as pine, spruce, fir, and Douglas-fir, hold their needles year-round. It is natural for evergreens to drop third-year needles at some point in the year, usually in autumn, but 1- and 2-year-old needles are not affected. If they are, your tree may have a problem.

Many diseases commonly affect conifers in Illinois, including four needle cast diseases, three needle blights, five shoot and twig blights, two stem diseases, five rusts, one wilt disease, and three root rot diseases. Those are only the common diseases. We see others as well, depending on the weather and site stress that might predispose a plant.

I have a few suggestions on what you can do to work toward determining the cause of your conifer problems. First, take a step back and examine the big picture. The pattern of affected plants in the landscape or planting block is important to diagnosticians. Most diseases begin in hot spots and slowly spread from those sources. It is rare to see a disease affect a line of trees at once or to appear seemingly overnight. Look at similar trees in the community to see if they also show the symptoms. If all the pines in the area are affected, environmental stress is more likely.

Next, determine the pattern on one affected plant. A tree that is yellow or off-color on one entire side suggests a stress on that side of the tree. Salt spray burn in the winter can be seen as one-sided burn on evergreens. On the other hand, if the entire tree declines at once, look at roots or the lower stem as potential sites of problems. You may find that the trunk has been girdled by old nylon twine left at planting, roots have grown around the base of the tree, or a weed trimmer has girdled the trunk. Tip browning over the entire tree might indicate possible root rot, drought stress, flooding injury, mechanical injury, or other factors that could affect roots. Excessive fertilization can also cause browning of stem and needle tips.

Gather facts about the site, care of the trees, and especially practices or events that may have changed prior to problem expression. It is helpful to know the plant species to determine possible sensitivities. For example, Scotch pines are very susceptible to pine wilt. The three healthy trees have not yet been infected. Find out whether chemicals have been used on the plant or on nearby plants, and determine timing in relation to symptom expression. Usually chemical injury appears soon after chemicals are applied. Was there a late frost just before tip burn developed on your spruce?

One last step is to look for signs of disease or evidence of insect activity. Disease pathogens often form structures that we call fruiting bodies. These structures

are usually about the size of a pinhead and are embedded in affected tissue. They don't rub off easily. Diseases such as Diplodia blight on pine or needle cast on spruce have such structures that clinch the diagnosis.

Many good Web sites offer information about conifer diseases. An Extension Web site, <http://www.urbanext.uiuc.edu/focus/>, describes some evergreen tree and shrub problems. Fact sheets about specific diseases can be found at <http://www.ag.uiuc.edu/%7Evista/horticult.htm>. Plant samples and pictures may be taken to your local Extension office for diagnostic help and possibly diagnosed through University of Illinois Extension Distance Diagnostics through Digital Imaging (DDDI) system, which uses specialists from throughout the state. The University of Illinois Plant Clinic (<http://plantclinic.cropsci.uiuc.edu>) is another option available from May through mid-September. Early diagnosis is important. Once a positive diagnosis has been made, we can suggest changes in cultural practices, possible spray options, or other ideas to help you manage the problems found on your conifers. (Nancy Pataky)

INSECTS

Chinch Bug

The recent spell of dry weather has created conditions conducive to the appearance of chinch bug damage in turf. Chinch bugs are typically not much of a turf problem in Illinois, being more of a pest problem in the Great Plains region. One reason for this is that chinch bug is attacked by a naturally occurring fungal pathogen, *Beauveria bassiana*. This causes all stages—eggs, nymphs, and adults—to be killed and covered with fine white fungal strands. As with fungi that attack plants, they do better under cool, moist conditions. In Illinois, we typically get enough rainfall throughout the season that the fungus controls the chinch bugs for us, free of charge.

The other factor in chinch bug abundance is nitrogen. Chinch bugs, along with many other sap-sucking insects, are healthier and reproduce more on plants containing high levels of nitrogen. The sap that these insects feed on in the plant phloem tends to be very low in nitrogen. All animals, including insects, need relatively high levels of nitrogen in their diet. In many areas, landscapers and lawn care professionals feel that they are forced to overapply nitrogen fertilization to turfgrass to satisfy their clients' demands for greener lawns. This excess nitrogen results in many more chinch bugs than would normally be present. In addition, excess nitrogen tends to result in increased thatch, allowing the chinch bugs to live in that area rather than against the soil where it tends to stay moist and the fungus is more prevalent.

A combination of high nitrogen fertilization and drought and/or high temperatures results in damaging

chinch bug infestations. Being cold-blooded animals, chinch bugs grow faster and reproduce more at higher temperatures, particularly those in the 80°F range.

Damaged turf is light tan in color, looking like straw. Due to the high-nitrogen factor, adjoining lawns that have not received as much nitrogen fertilization typically show no damage. Because there is less moisture evaporation under tree canopies, allowing the *Beauveria* fungus to be more active and kill more chinch bugs, the turf is usually greener there.

To find the chinch bugs, push the grass blades to the side with your fingers to reveal the crowns of the grass plants, and the bugs will be evident at the base of the shoots. Another way to scout for chinch bugs is to push a coffee can or similar can down into the turf and fill it with water. The bugs will pop to the water surface and accumulate around the edge of the can. The threshold for treatment is a solid line of chinch bugs where the water meets the can.

Two species of chinch bugs attack Illinois turfgrass. Hairy chinch bugs are found in northern Illinois, where they attack Kentucky bluegrass, fine fescues, perennial ryegrass, bentgrass, and zoysiagrass. Common chinch bug occurs in southern Illinois and feeds on the same grass species, as well as field grain crops such as wheat, corn, and sorghum. Both are similar in appearance and habits. Chinch bug infestations are uncommon enough in central Illinois that we have not been able to determine the species involved.

Adult chinch bugs overwinter in the crowns of grasses. They become active in the spring. They are about 1/8 inch long, long oval-shaped, and are black and white, due to wing coloration. Some adults have short wings and appear black. Nymphs are bright orange with a white band, turning to black as they go through five instars (stages). First-instar nymphs are about 1/32 inch long and grow up to be 1/8 inch-long fifth-instar nymphs.

Control chinch bugs with a spray of bifenthrin (Onyx, Talstar), deltamethrin (DeltaGard), lambda-cyhalothrin (Scimitar), or trichlorfon (Dylox). (*Phil Nixon*)

Cranberry Girdler

Be watchful for cranberry girdler, a sod webworm that feeds on turf roots and causes damage like a white grub. The adult is similar in appearance to other sod webworm moths, being elongate and about 1/2 to 3/4 inch long, with elongated palps that look like a snout. The wings have more markings, with black spots and orange coloration towards the end.

Unlike other sod webworm moths that fly over turf areas, scattering their eggs, cranberry girdler moths drop theirs while sitting on grass blades from late June to mid-August. With each moth producing up to 500 eggs,

locally high infestations can result. The eggs hatch into elongated whitish larvae, like sod webworms; but they have no spots. Larvae grow to be about 3/4 inch long.

They feed on cool season grasses, including Kentucky bluegrass, bentgrass, and fine fescues, eating the stems, roots, and crowns. Damage appears similar to that of white grubs, with brown patches that can easily be pulled back to reveal the whitish caterpillars in the root zone. Whitish webbing containing fecal matter is also commonly present by late August into September. Larvae overwinter to resume feeding the following spring. They then pupate and emerge 2 to 4 weeks later as moths.

Control cranberry girdler as you would white grubs, using either trichlorfon (Dylox), halofenozide (Mach 2), or clothianidin (Arena) watered into the soil. Imidacloprid (Merit) should not be used for this insect, as it is not effective against caterpillars. Pyrethroids, typically used to control sod webworms, tend to lose effectiveness in the soil and are not recommended for this pest. (*Phil Nixon*)

Turkey Mites? No, Lone Star Tick

Lone star tick larvae, also called seed ticks, are very prevalent at this time, particularly in the southern third of Illinois. Many local residents are referring to them as turkey mites, blaming increasing wild turkey populations for their abundance. Although lone star ticks feed on most mammals and ground-living birds, their abundance is more likely due to abundant rainfall this spring.

Ticks, particularly larval ticks, are very susceptible to dry conditions and low humidity. These larval ticks are roundish, six-legged, and about the size of the period at the end of a sentence. Ticks do not get eight legs until they molt to the nymph stage and retain eight legs in the following adult. Unengorged, adult lone star ticks are flattened, roundish, and about 1/8 inch in diameter. Female ticks have a white spot in the middle of the back, being the source of the species' name.

Control ticks by keeping grassy areas mowed. The resulting drier conditions eliminate most of the ticks. If needed, spray the turf with a single application of carbaryl (Sevin) or malathion. Insect repellent containing DEET, picloram, or soybean oil can be applied to skin and/or clothes. Permethrin, sold as Permanone, is a repellent and toxicant that can be applied to clothes. (*Phil Nixon*)

Invasive Species Spotlight: Asian Longhorned Beetle

Once again, the Asian longhorned beetle (ALB) has made it back in the spotlight in Illinois. Four months after the beetle was declared eradicated from the Chicago area, it was found in Deerfield of August 2008.

Authorities still are not sure if this is a new infestation brought into the area or a remnant of the previous infestation. Regardless, it has many people concerned and shows what a challenge it is to manage healthy and safe urban trees.

The ALB was previously first identified in New York City in 1996. Two years later it was detected in a Chicago neighborhood and in 2002 in New Jersey. When entomologists and resource managers from numerous organizations first learned of the destructive potential of the insect, they quickly made plans to try and eradicate it. The first steps were to survey for damage and then to establish quarantine zones. Surveys were done using aerial lifts and tree climbers to thoroughly inspect all tree parts. Infested trees were removed and destroyed. Noninfested trees within the quarantine zones were treated with a systemic insecticide as a precautionary approach.

Like many other beetles, the ALB goes through four life stages: egg, larva, pupa, and adult. The eggs are laid by adult beetles on the bark of living trees. A single female can lay up to 90 eggs a year, with each egg being placed in its own site. Eggs are encased in a brownish protective secretion about 1/4 inch in diameter. The larva emerges from this egg site in about 10 to 15 days and begins burrowing into the trees bark. They begin by feeding on the sapwood around the tree but later feed on the heartwood and overwinter in there. In the springtime they continue feeding until they begin their pupa stage. This may last over a week as it begins transformation into its adult form. They then exit the trees and begin to search for mates, with the cycle beginning again.

Adult beetles can be from 1 to 1-1/2 inches long and are black with white specks on its elytra (wing covers) and have long white-and-black-banded antennae. Females tend to be a bit larger than the males.

The greatest damage to trees is caused by the larva as they tunnel through the living tissues of the phloem and xylem. Ultimately, the tree loses its ability to transport water and nutrients to its canopy and roots, and it dies. Because the ALB can be quite large, it can also weaken the structural integrity of a tree.

Visual symptoms of an infested tree can include the accumulation of frass on tree branch collars below holes caused by exiting beetles. Exit holes can be quite large and distinct from those of other longhorned beetles—up to 3/8 inch in diameter and almost perfectly circular. Adult beetles can also be found chewing on the veins of leaves, leaving the other leaf tissues intact. Egg sites can also be an important visual clue to the presence of ALB.

Asian longhorned beetles have a wide range of preferred host trees. Most studies show that they prefer maple trees of any species. Other top choices include birch, horse chestnut, poplar, willow, elm, ash, hackberry, sycamore, mountain ash, and London plane tree. If you suspect the Asian longhorned beetle anywhere in Illinois, please contact the Illinois Department of Agriculture at 1(800)641-3934. (*Kelly Estes*)

Home, Yard, and Garden Pest Newsletter is prepared by Extension specialists from the University of Illinois at Urbana-Champaign and the Illinois Natural History Survey. Information for this newsletter is gathered with the help of staff members, Extension field staff, and others. Karel Jacobs and Donna Danielson of The Morton Arboretum also provide information and articles.

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