

Number 9 - June 30, 2014

Thousand Cankers Disease

This past week, specialists from the University of Illinois attended a Thousand Cankers Disease (TCD) workshop in Knoxville, TN. The workshop provided updated information on TCD as well as tours of “Ground Zero”, the first areas in the Eastern U.S. to have confirmed the disease in black walnut. TCD symptoms are explained in detail in a previous issue of this newsletter at <http://hyg.ipm.illinois.edu/article.php?id=245>

The destruction caused by TCD was evident by the numerous tree stumps in surrounding landscapes. However, the most surprising was that not all of the black walnuts were killed by the disease. Many of the trees in high quality sites originally confirmed to have TCD looked relatively healthy, and for the time being, were showing signs of recovery. Branches were bushier than normal due to epicormic branching, but there was also excellent tip growth and foliage as seen in the included photos. This recovery is surprising because observations in the Western U.S. indicated the disease to be lethal to the highly susceptible black walnut. Those researching the pathogen in the Eastern part of the country also reported that symptoms observed on black walnuts were less severe than those grown in the western states. Cankers were often smaller and fewer in number.

An explanation for the difference in symptoms as well as the observed recovery on some trees is not fully understood. Researchers working on TCD hypothesized a number of factors may be involved. The disease appears to be more severe on trees grown on stressed sites and that some of the trees that are recovering may have some resistance. Weather conditions may also have played a role in their recovery. The researchers reported that the tree vigor may have been boosted by adequate to near ideal rainfall and growing conditions for the 2013 growing season. The years leading up to the discovery had drought conditions and below average rainfall contributing to tree stress.

Black walnut is not native in infested areas of the Western U.S., but it is native to most of the Eastern U.S. including Tennessee and Illinois. In its native range, the soils, climates, and other factors are those where black walnut thrives. Certainly, these factors are not quite correct for black walnut in the Western U.S., probably resulting in those trees always being under at least some stress. With the correct conditions for black walnut found in the Eastern U.S., the trees may be able to cope with TCD and survive. Either way, TCD still poses a major threat to black walnuts. Significant additional research will be needed, but we at least have a cautiously optimistic hope for black walnuts growing in the Eastern U.S.

TCD is not known to occur in Illinois, but it is important to remain vigilant and report suspicious trees to your local Illinois Department of Illinois field person, your local Extension office, or us. It appears that when TCD arrives in Illinois it will kill street trees and other stressed trees growing in less than ideal sites. Black walnut is typically not planted in landscapes because of the nuts, and it leafing out late in the spring and dropping leaves early in the fall. As a result, black walnuts are usually found around houses built before the 1970's and in other sites where the original forest trees were retained when the house was built. (*Travis Cleveland and Phil Nixon*)

Lesser Known “Weeds”- Elderberry

On the heels of Kelly Estes' article, “Giant Confusion: Giant Hogweed and Common Look-Alikes” which can be found in the June 2 issue, I present you with one more look-alike: Elderberry (*Sambucus nigra subsp. canadensis*). This is one of a few lesser known species that I am commonly asked to identify.

Elderberry is quite common. It can be found in every Illinois' county and is in bloom now in central Illinois. Although this is a commonly seen species (especially when in bloom), many are not familiar with this native perennial shrub. It grows from 5 to 10 feet tall and has fairly large (4 to 6 inch) flower clusters of small white flowers that form flat, compound umbels. The large size and flower similarities between the two combined with an increase awareness of giant hogweed and its spread creates concern and confusion.

Unlike giant hogweed, the leaves of elderberry are pinnately compound. An entire leaf is comprised of 5 to 11 oppositely arranged leaflets. Another difference is that giant hogweed does not produce berries. Elderberry has hanging clusters of blue-black, fleshy berries. And finally, elderberry does not possess sap that can cause burning and blistering on the skin making it safer to handle than giant hogweed.

Many do not view this plant as being a weed. In fact, the fruit is edible once cooked and can be made into pies and jams and wine. Be sure to properly identify the plant first! The berries are toxic when raw. For a short video and description of elderberry, click this link by the University of Florida Center for Aquatic and Invasive Plants:

<http://plants.ifas.ufl.edu/node/397>.

For more information specific to Illinois, check out:

http://www.illinoiswildflowers.info/trees/plants/cm_elder.htm.

Michelle Wiesbrook

Modified Growing Degree Days (Base 50°F, March 1 through June 26)

Station Location	Actual Total	Historical Average (11 year)	One-Week Projection	Two-Week Projection
Freeport	1191	939	1346	1500
St. Charles	1008	886	1157	1306
DeKalb	1020	1001	1178	1332
Monmouth	1164	1064	1323	1482
Peoria	1210	1119	1379	1550
Champaign	1281	1156	1455	1630
Springfield	1428	1248	1610	1797
Brownstown	1391	1324	1577	1766
Belleville	1453	1338	1636	1825
Rend Lake	1549	1448	1741	1936
Carbondale	1520	1367	1698	1884
Dixon Springs	1535	1439	1717	1905

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*)

Sampling for Tree Diseases? You're Barking up the Right Tree!

Proper sampling of woody tissue for fungal vascular disease diagnosis can save you a lot of time (and money!) If you have a tree with a problem that you want diagnosed by the University of Illinois Plant Clinic, or another diagnostic clinic, there are some things you should know before climbing up that ladder.

Observations: The first symptom you should check for on your tree is cankers. Cankers are usually seen as sunken, dead areas on trunks, branches, or even twigs. Symptoms caused by cankers can be both vascular and foliar, and cankers are fairly easy to spot. If you find a canker on your tree, it would be ideal to send a branch sample containing the canker to the Plant Clinic for diagnosis. If the canker is on the trunk, it might be easier to submit portions of twigs and branches with leaves and include a picture of the canker.

If you see foliar symptoms that don't include wilting, you might be able to get an adequate diagnosis by just sending some leaf samples. However, in most cases (especially if there are wilting symptoms) including branch samples is highly recommended. This simple step can save you time and money and allows us the means we need to figure out what is wrong with your tree most efficiently.

Sampling: When sampling branch tissue, *the best samples are 8-10" long from a symptomatic branch that is around 1" in diameter (about the diameter of your thumb)*. We can rarely do successful culturing with the tissue that comes from twigs smaller than 1". Also note that sending a branch that is way more than 1" thick isn't twice as good for culturing, it's in reality twice as hard for us to get a good culture. The branch sample should come from an area of the tree that is still alive, but beginning to show symptoms. Sampling from an area that is completely DEAD rarely ever yields a successful diagnosis.

Shipping: The procedure you use to ship your sample can make or break the chances we have of recovering whatever pathogen is causing disease in your tree. It is very important to ship tree branch samples with ice or an ice pack in insulated packaging such as Styrofoam containers since the summer heat compounded with delivery truck heat can kill pathogens that are in the branch and leaf samples. Another important thing to consider is what weekday you send your sample. It is important to not send a sample at the end of the week since that increases the chances of the sample taking longer to get to us and sitting in hot delivery trucks for extended periods of time.

When sending samples of trees it really helps us if we can see the big picture, literally. Sending pictures of the entire tree and of the affected area helps show us how the disease is affecting your tree. Use this email plantclinic@illinois.edu for that purpose, refer to the sample and species you are having delivered when emailing .jpg files. This is not required, but recommended.

Waiting for a diagnosis: After we receive your sample, we culture it on growth media that favors fungal growth. Recovering the fungus that is causing the disease on your tree from the branch tissue can take as long as 2 weeks depending on the fungal pathogen we are trying to recover. So patience is a must after sending your sample. We promise to do our best to figure out what is harming your tree so we can give you proper recommendations for management. (*Chelsea Harbach and Suzanne Bissonnette*)

Last Weekly Issue

This is the last weekly issue of the Home, Yard, and Garden Pest Newsletter for this year. Weeds, diseases, and insect pests tend to be more prevalent in the spring as the frequent rains provide moisture for weed seed germination and fungus disease development. The warming temperatures and growing plants result in a sequence of insect pests as well. Starting in early July, reduced rainfall and hot temperatures result in fewer pest occurrences that develop slower. For that reason, this newsletter will be published every other week during July, August, and September, through mid-October. (*Phil Nixon*)

Conifer Sawflies

The most common sawfly that attacks needled evergreens in Illinois is the European pine sawfly, which is present as damaging larvae in the spring. Because this sawfly finishes larval feeding at candle emergence, only second- and third-year needles are consumed. The result is that the emerging needles keep attacked branches alive, even though lower areas of the branch may be stripped of needles.

Less common in Illinois, but more devastating in high numbers, are the later-appearing redheaded pine sawfly and white pine sawfly. The larvae of these insects are present from summer into fall, with high populations eating all the needles off branches or entire trees, resulting in the death of branches and trees.

Adult sawflies are broad-bodied, with a thick abdomen, and have membranous wings. Females are larger and more robust than males. Sawfly females have a saw-like ovipositor, which they use to create slits or cuts in plant tissue. Eggs are then inserted into these slits, generally located on the edge of needles. A female can lay up to 100 eggs during her lifetime.

Redheaded pine sawfly, *Neodiprion lecontei*, feeds primarily on two- and three-needle pines and is particularly common on Scotch, jack, and red pines. They can also feed on five-needle pines, Norway spruce, and larch growing near two- or three-needle pines. The larva is about an inch long when fully grown, has a red head, and is yellow, with several rows of black dots. As with all sawfly larvae, it has more prolegs than

caterpillars do (caterpillars have five or fewer pairs of prolegs). This species has seven pairs of prolegs on its abdomen, as well as three pairs of true legs on the front end of its body.

White pine sawfly, *Neodiprion pinetum*, feeds mainly on white pine; it also attacks red, Mugo, and other short-needled pines. White pine sawfly feeds from July through September and if left unchecked can cause severe damage to pines. The larvae are yellow- to cream-colored and have a deep black head. Four longitudinal rows of black spots run the length of the body, and a posterior black spot is at the end of the abdomen.

Full-grown larvae of both species drop to the ground, where they pupate in silk cocoons. In southern Illinois, a second generation of redheaded sawfly larvae occurs in late August through September. In central and northern Illinois, only one generation per year of redheaded

pine sawfly occurs. White pine sawfly occurs only in northern Illinois, where there is one generation per year. Winter is spent as a prepupa in a cocoon on or in the duff under trees. Thus, removing fallen needles and debris beneath infested trees in the winter should eliminate many of the mature larvae. The prepupae pupate in the spring, to emerge as adults a few weeks later.

White pine sawfly can be managed with pest-control materials such as acephate (Orthene), azadirachtin (Azatin/Ornazin), carbaryl (Sevin), chlorpyrifos (Dursban), and spinosad (Conserve). Spray applications should be made when larvae are small and feeding on needles. The microbial insecticide, *Bacillus thuringiensis* var. *kurstaki* (Dipel, Thuricide, and Javelin), that is used for controlling caterpillars, does not work on sawflies because sawflies are closely related to wasps and ants. Btk is effective against only the larvae of moths and butterflies. (*Phil Nixon*)