

Plant Health Care Report

Scouting Report of The Morton Arboretum



THE
CHAMPION
of TREES

July 12, 2024

Issue 2024.8

For comments regarding PHCR, or to subscribe to email alerts regarding posting of new issues, contact me at syiesla@mortonarb.org.

Our report includes up-to-date disease and insect pest reports for northeastern Illinois. Contact us via email at plantclinic@mortonarb.org or by phone at 630-719-2424 (Mon thru Fri, 10 am to 4pm).

Quick View

What indicator plant is in bloom?

Chicory (*Cichorium intybus*) is in flower (fig. 1)

Accumulated Growing Degree Days (Base 50) at The Morton Arboretum: 1439.5 (as of July 11).

Insects/other pests

- Spotted lanternfly
- Fall webworm
- Annual cicadas

Diseases

- Oak wiltor not?
- Oak wilt
- Slime mold, stink horns and mushrooms

Miscellaneous

- Dieback, cankers, stress and the weather



Figure 1 Chicory (photo: John Hagstrom)

Soil temperatures around Illinois (from Illinois State Water Survey)

This information will be provided all season. For data from other reporting stations, go to <https://warm.isws.illinois.edu/warm/soil/> (you will need to set up an account to access data.)

Max. Soil temps For 7/11/2024*	St. Charles reporting station (north)	Champaign reporting station (central)	Carbondale reporting station (south)
2-inch, bare soil	78.2	94.3	94.6
4-inch, bare soil	79	87.9	86.2
4-inch, under sod	80.3	85.2	81.6
8-inch, under sod	76.6	79.5	80.7

* This is the maximum soil temperature recorded the day prior to publication of PHCR.

Seasonal precipitation

Seasonal precipitation (rain and melted snow) in inches.			
	2024	2023	Historical average (1937-2023)
Jan	3.9	2.85	1.95
Feb	.56	4.88	1.81
Mar	2.64	2.29	2.53
April	4.44	2.23	3.65
May	3.73	.79	4.17
June	5.29	1.23	4.16
July	1.37 (thru 7/11)	8.92 (whole month)	3.95 (whole month)
Aug			
Sept			
Year to date	21.93 (thru 7/11)	23.19 (thru July)	22.22 (thru July)

Degree Days (current and compared to past years) and rainfall

As of July 11, we have 1439.5 base-50 growing degree days (GDD) at The Morton Arboretum. The historical average (1937-2023) for this date is 1228 GDD₅₀. The table below shows a comparison of GDD in different years. We are comparing the GDD₅₀ reported in this issue with the GDD reported last year, and in 2019 and 2018. These years were selected since publication dates of the issue were within a day or two of each other. Glencoe, and Waukegan (60085) were not used in 2018, so there is 'no report' from those stations.

Location	GDD as of 7/11/2024	GDD as of 7/13/2023	GDD as of 7/11/2019	GDD as of 7/12/2018
Carbondale, IL*	2291	1994	1938	2144
Champaign, IL*	1843	1645	1607	1877
Chicago Botanic Garden**	1407	No report	No report	1179.5 (7/11)
Glencoe*	1055	801	730	No report
Chicago O'Hare*	1701	1462	1257	1518
Kankakee, IL*	1644	1442	1370	1649
Lisle, IL*	1721	1488	1301	1557
The Morton Arboretum	1439.5	1233	1152	1474.5
Quincy, IL*	1963	1752	1659	2049
Rockford, IL*	1537	1367	1172	1442
Springfield, IL*	1956	1684	1652	1998
Waukegan, IL* (60087)	1420	1238	991	1200
Waukegan, IL* (60085)	1528	1323	1068	No report

*We obtain most of our degree day information from the GDD Tracker from Michigan State University web site. For additional locations and daily degree days, go to <https://gddtracker.msu.edu/>

**Thank you to Elizabeth Cullison, Chicago Botanic Garden, for supplying us with this information.

How serious is it?

Problems that can definitely compromise the health of the plant will be marked "serious". Problems that have the potential to be serious and which may warrant chemical control measures will be marked "potentially serious". Problems that are seldom serious enough for pesticide treatment will be marked "minor". "Aggressive" will be used for weeds that spread quickly and become a problem and "dangerous" for weeds that might pose a risk to humans.

Pest Updates: Insects

Examples of insects that may emerge soon in northern Illinois (based on growing degree days)			
GDD (base 50)	insect	Life stage present at this GDD	Type of damage
1200-1800	Fall webworm	Caterpillars feeding, but webbing not seen yet	Chewing on leaves
1934	Spotted lanternfly	Adult emergence	Feeding on sap; honeydew in large quantities
1950	Magnolia scale	Crawlers <u>begin</u> to emerge	Feeding on sap

Spotted lanternfly (potentially serious to serious)

Spotted lanternfly (SLF) (*Lycorma delicatula*) has been a pest in Pennsylvania since 2014. Since that time, it has spread to other eastern states like New York, Maryland and Virginia. In the last year or two, there have been isolated reports of this pest in Ohio, Indiana, and Michigan. In late 2023, isolated populations of the insect were identified in the Chicago region. Discovery of isolated populations does not mean the insect is established in Northern Illinois, but it does mean we should be watchful. The [USA National Phenology Network](#) forecasts that (if the insect is present locally), adults could be present in the Chicago region some time in the next two to three weeks.

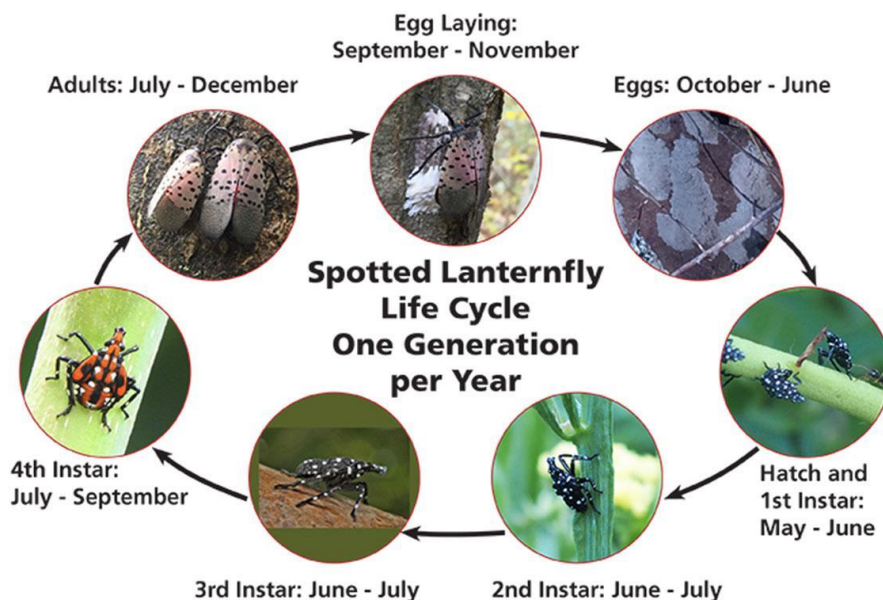


Figure 2 Illustration by Cornell CALS

SLF overwinters as egg masses (fig. 2). The female insect lays these non-descript looking egg masses on host plants, but also on hard surfaces, like bricks, wood pallets, and vehicles. The nymphs hatch out in spring and early summer. Newly hatched nymphs are white, but soon become black with white spots. Late stage instar nymphs will be red with white spots. The nymphs mature into adults beginning in mid-summer. The adult is not a true fly, but rather a planthopper. It is about one inch long. When at rest, the pinkish-gray wings are folded over the insect's back. The wings are marked by small black spots. In flight, the bright red hindwings can be seen. They are also marked with small black spots. The adults begin to lay egg masses in September and may continue to do so until a freeze.

The host range for SLF is large, more than 70 species. Preferred hosts include Tree of heaven, grapes, black walnut, hops and tuliptree. Other hosts include maple, willow, birch, and sycamore. This is a sap-feeding insect and it can feed very heavily on a host plant and weaken it. This is a major issue for grape producers. Like other sap-feeders, this insect will produce honeydew, which is a sticky substance. Spotted lanternfly differs from other sap-feeders in that it can produce extremely large amounts of honeydew. This can become a nuisance for any activity being conducted under infested trees. Sooty mold, a dark colored fungal problem, grows readily on the honeydew. The honeydew also attracts other insects like bees and wasps.

If you suspect spotted lanternfly in your area, take a photo and send a detailed email to: lanternfly@illinois.edu including when, where, and specifics of the location.

Good websites: <https://mortonarb.org/plant-and-protect/tree-plant-care/plant-care-resources/spotted-lanternfly/>
<https://ilpestsurvey.inhs.illinois.edu/pest-information/most-unwanted/>
<https://agr.illinois.gov/insects/pests/spotted-lanternfly.html>
<https://cals.cornell.edu/new-york-state-integrated-pest-management/outreach-education/whats-bugging-you/spotted-lanternfly>

Fall webworm (minor)

It's about time to be seeing fall webworm (*Hyphantria cunea*). We don't have any reports of this pest yet, but they are often overlooked when they are small. So, it is time to be looking. Despite the name, this insect shows up more in mid to late summer. Caterpillars start to come out around GDD 1200, but the webbing typically is not produced until closer to GDD 1800, so the caterpillars may be eating for a few days before the



Figure 3 Fall webworm caterpillars

telltale webbing shows up. This caterpillar is known to feed on more than 100 species of deciduous trees. Preferred hosts include hickory, ash, birch, black walnut, crabapple, elm, maple, oak, and pecan. The caterpillars (fig. 3) are pale green to yellow and covered with long hairs. There are two races, black-headed and red-headed. The black-headed webworms are supposed to appear about a month earlier than the red-headed race. Full-grown caterpillars reach about one inch in length.



Figure 4 Web of fall webworm

Fall webworms overwinter in the pupal stage in the ground, under loose bark, and in leaf litter. [Adult moths](#) appear from early to mid-summer, and females deposit eggs in masses on the underside of host leaves. In about one week, eggs hatch into caterpillars that begin to feed and then to spin a messy web (fig. 4) over the foliage on which they feed. The webs increase in size as caterpillars continue to feed. In about six weeks caterpillars will drop to the ground and pupate. Damage is cosmetic since this pest eats leaves late in the season after the leaves have finished their job of making food for the plant.

Some people confuse fall webworm and eastern tent caterpillar. How can you tell the difference? Eastern tent caterpillars are spring caterpillars and form thick, neat tents in the angles of branches. Fall webworm caterpillars are active much later in the season and make a messy web at the ends of the branches. Eastern tent caterpillars go outside the tent to feed and return to the tent at night. Fall webworm caterpillars feed in the nest and expand the nest to enclose more leaves to feed on.

Management: Insecticides are not warranted. The unsightly webs can be pruned out of small trees. Since these caterpillars stay in the web while feeding, pruning the webs at any time of day will eliminate the caterpillars. Webworms also have many natural enemies including birds, predaceous bugs, and parasitic wasps.

Good website: <https://mortonarb.org/plant-and-protect/tree-plant-care/plant-care-resources/fall-webworm/>

Annual cicada (minor)

This summer has been all cicadas, all the time. Now they are gone. Then why do you hear cicadas singing? No, you are not hearing things. It is time for the annual, or dog-day cicadas (*Neotibicen* species) to show up. These are the insects that make a noise high in trees during

the warm, dog-days of summer. This is the mating call of the male. The insect is about 1 ¼ inches long and green to brown with black markings (fig. 5). A distinguishing feature between the annual and periodic cicada is the eye color. The periodic cicada has red eyes and the annual has black. Periodical cicadas have orange veins in their wings, the annual does not. Another difference is that the annual or dog-day cicadas emerge in much smaller numbers than the 17-year type. Many years, people don't even notice that the annual ones have emerged. This year, we are a bit more sensitized to the noise.



Figure 5 Annual cicada

Like the periodical cicadas, females lay eggs by sawing a slit in the bark of twigs and placing the eggs in the twig. Egg-laying injury can cause some minor twig dieback. After the eggs hatch, the young nymphs drop down into the ground to feed on plant roots. They have large front legs used for digging in the soil. They live on tree roots as nymphs for two to five years with some adults emerging in late summer every year. The feeding on the roots doesn't cause much damage.

Management: Control is not necessary since they cause minimal damage to trees. The population of the annual cicada is much smaller than what we just experienced with periodical or 17-year cicadas. Put the netting away and relax.

Good website: <https://mortonarb.org/plant-and-protect/tree-plant-care/plant-care-resources/periodical-cicadas/>

Pest Updates: Diseases

Oak wilt...or not?

Here comes that phrase no one wants to hear: "Your oak has oak wilt". Or maybe you've been told that your elm has Dutch elm disease, or that your maple tree has verticillium wilt. That proclamation may have come from a neighbor, or an arborist, or a municipal employee. In any case, it is time to stop and think, not panic. No one can say with 100% certainty that your tree has any of these diseases. No one, except the diagnostic professional who can prove it by culturing it in a laboratory. Professionals who work in the field can say that they suspect a certain disease based on visible symptoms, but only the lab can confirm it.

There are several very serious diseases that really should be confirmed through laboratory testing. They include oak wilt, Dutch elm disease, Verticillium wilt, bacterial leaf scorch, bur oak blight and pine wilt nematode. Why is it important to be sure? Some of these diseases are very serious and can be fatal. Often, the only option is to cut the tree down. We want to verify the infection is there before we do that. In the case of Verticillium wilt, there is no way to save the tree, but if we can confirm Verticillium, we know that it will impact what we replant in that area. Verticillium wilt is a disease pathogen that actually lives in the soil and it could potentially infect a new tree.

Laboratory testing is available in each state, through the state lab. In Illinois, the state lab is the [University of Illinois Plant Clinic](#). If you live in another state, you can find your state lab through the [National Plant Diagnostic Network](#). Some arborist companies also have their own labs and can provide testing.

Oak wilt (serious)

Oak wilt is found throughout Illinois, so let's talk more about it. Oak wilt, caused by the fungus *Bretziella fagacearum*, has become a serious disease threat to oaks in the eastern and central United States, southward into Texas. All oak species are susceptible to oak wilt. The red oak group, which includes species whose leaves have sharp-pointed lobes on their leaves, is more susceptible to oak wilt than the white oak group, which includes species whose leaves have rounded lobes on their leaves. Trees in the red oak group die quite rapidly, often within weeks or months after infection. Trees in the white oak group typically develop symptoms more slowly, showing branch dieback for years before dying. In some cases, white and bur oaks recover after one year of infection.



Figure 6 Oak wilt symptoms

The fungus that causes oak wilt invades the water conducting tissues (xylem) and induces the tree to clog its own vessels, preventing the normal flow of water. This causes the foliage to discolor and die (fig. 6). As the disease progresses, limbs die back and eventually the entire tree can die.

In the red oak group, the spread of the disease can be rapid with symptoms starting at the top of the tree and progressing inward and downward on the lateral branches within a few weeks.

Complete leaf drop usually occurs by the middle of summer. Leaves may be grayish-green, brown, or brown at the tip and margin when they drop. Other symptoms include curling leaves that become stiff, a yellow or bronze leaf color, and profuse suckering at the base of the tree. Brown streaking may be present under the bark of infected branches (fig. 7). A branch cut in cross-section may show a brown ring in the sapwood.



Figure 7 Bark stripped from a branch to show streaked wood.

In the white oak group, symptoms will be similar to those in the red oak group, but spread more slowly and appear localized on individual branches.

Complete defoliation does not occur. Trees infected for two years or more develop isolated dead branches in the crown, creating a stag-head appearance. Similar dieback symptoms can result from other causes, such as two-lined chestnut borer, construction damage, soil compaction, changes in soil grade, cankers, and root rot.

The oak wilt fungus survives as spores in fungal mats that form under the bark of an infected tree, in the fall or spring following the death of that tree. As a tree in the red oak group begins to die, the oak wilt fungus produces fungal mats between the sapwood and bark of the trunk or large branches of a tree. These fungal mats push apart weakened bark and produce a fruity odor and sticky sap that attracts sap-feeding insects, especially picnic beetles (*Nitidulidae*) and bark beetles (*Scolytidae*). When the beetles visit the mats, they pick up spores on their bodies. Overland spread of oak wilt occurs when these beetles move from infected trees to feed on healthy trees, carrying spores from the fungal mats to the fresh feeding wounds.

Oak wilt can also spread from infected trees to healthy trees through root grafts between nearby oaks. Root graft transmission is responsible for the vast majority of new oak wilt infections. Trees of the same species, and sometimes the same group, growing within 50 feet of one another, may graft together and share the same vascular system. This network of roots allows the disease to move freely from one tree to the next, usually within a one-to-six year period, causing a whole stand of trees to become infected.

Management: Avoid any unnecessary wounding of oaks. Oaks should NOT be pruned between mid-April and mid-October. Fresh wounds made during the growing season can attract the beetles that transport oak wilt spores. If pruning is necessary during this time period, sterilize tools between each cut and paint the wound immediately with nontoxic tree wound dressing.

Dead or infected red oaks should be removed from the site before they produce fungal spore mats. Nearby trees of the same species may also need to be removed because of the disease moving through root grafts. Root grafts can be severed with mechanical trenches or chemical methods. Consultation with a certified arborist is recommended.

Slime molds, stinkhorns and mushrooms (minor)

Spring was wet this year and summer rain has been a little hit or miss, with some areas getting a lot and other areas only a little. With regular rainfall usually comes the question “What is that stuff on my mulch?”

Regular rainfall leads to a variety of strange looking growths in the garden. Wet weather promotes the growth of a variety of mushrooms, and there are any

number of different-looking mushrooms. Wet soils lead to decay of organic matter, and these mushrooms are the reproductive structures of the fungi that cause organic matter to decay. Mushrooms can be easily dug up and discarded.

A weird growth that shows up in the wet weather is slime mold, another decay organism. Slime mold, when fresh, comes in nice colors like yellow and pink, and it looks like a puddle, the kind of puddle that makes you wonder if your dog needs to go to the veterinarian. As it dries, some of the color goes away, and the puddle becomes a dry crust (fig. 8). When it has dried, slip the blade of your shovel under it and lift it away to the garbage.

A third candidate in the “what is that” category is the stinkhorn. Stinkhorns are a type of mushroom, but they merit a mention because they really capture our attention. They come in an interesting array of colors and, guess what, they stink. If the smell does not get your attention, the crowd of flies around them will. A common type is reddish-orange (fig. 9) and sort of looks like carrots growing upside down in the mulch. But they do come in many weird colors and even vulgar shapes (fig. 10). One thing that intrigues people is that the stinkhorn grows out of a structure that looks like an egg.

Just as with slime mold, we can slip our shovel blade in and lift them away to the garbage.



Figure 8 slime mold



Figure 9 stink horn



Figure 10 stink horn

Miscellaneous

Dieback, cankers, stress and the weather

That title has a lot going on, and those things often go hand in hand. One of the most popular questions in Plant Clinic is “Why is my (name of plant) leafing out slowly/having dead twigs/turning yellow”? Everyone expects the problem to be a disease or insect, but these days it is often a combination of weather-related events that cause stress. This stress can make plants more susceptible to canker diseases, and those cankers lead to dieback of branches. We have had stressful weather years since at least 2012. That year gave us early and extreme heat, coupled with a drought (which most likely led to some root damage). The next two years gave us extremely wet springs and flooded soils in many areas (more root damage). We have also had two polar vortices since then. We again had really wet springs in 2019 and 2020. Then 2021 gave us a dry spring and a dry summer. In recent years, we have had up-and-down springs, where the temperature was 80 degrees one week, and near freezing levels the next week. With 10-12 years of stressful weather extremes, it is no wonder that some plants are struggling.

Many trees and shrubs have cankered stems. Canker disease organisms are usually not very aggressive in healthy trees. They need an entryway, such as wounds, to infect the host. When trees are under the kind of stress we have been seeing for the last several years, the disease organism can get in to stressed trees through natural openings. The canker disease organism grows under the bark and destroys the tissue that moves water through the plants, cutting off the water supply. Canker stems may have broken or peeling bark, sunken areas or discolored bark. These stems need to be cut out. Disinfect pruning tools between cuts to minimize spread of these diseases.

We can't control the weather, but we can give our trees and shrubs good care to help mitigate some of the effects of the weather. It is always a good idea to prune out dead wood and cankered branches. We do not recommend fertilizing these stressed plants. If the roots are compromised and not taking up water from the soil, they won't be able to take up nutrients either. Chemically, fertilizers are considered salts and may further damage stressed roots. Water is the best remedy for injured roots. We need to supply enough water to allow new roots to grow, but must be careful not to saturate the soil. Roots need water, but they also need air.



Bartlett Tree Experts, Presenting Sponsor of the Plant Clinic.

The Plant Health Care Report is prepared by Sharon Yiesla, M.S., Plant Knowledge Specialist and edited by Stephanie Adams, Ph.D., Plant Health Care Leader; Fredric Miller, Ph.D., Research Entomologist at The Morton Arboretum; and Juluia Lamb, Arboretum Volunteer. The information presented is believed to be accurate, but the authors provide no guarantee and will not be held liable for consequences of actions taken based on the information.

Thank you...I would like to thank all the staff and volunteers that report disease and pest problems when they find them. Your hard work is appreciated. Our volunteer scouts for 2024 are Deb Link, Maureen Livingston, Loraine Miranda, Molly Neustadt and Moira Silverman.

Literature/website recommendations:

Indicator plants are chosen because of work done by Donald A. Orton, which is published in the book Coincide, The Orton System of Pest and Disease Management.

Additional information on growing degree days can be found at:

http://www.ipm.msu.edu/agriculture/christmas_trees/gdd_of_landscape_insects

http://extension.unh.edu/resources/files/Resource000986_Rep2328.pdf

This report is available as a PDF at The Morton Arboretum website at <https://mortonarb.org/about-arboretum/plant-health-care-report/>

For pest and disease questions, please contact the Plant Clinic. You can contact the Plant Clinic via email at plantclinic@mortonarb.org . Emails will be answered during business hours Monday through Friday.

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Inquiries or comments about the PHCR should be directed to Sharon Yiesla at syiesla@mortonarb.org .

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2024 Plant Health Care Report Index



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Following is an index of the various subjects in this year's report. The number after each subject is the report number. For example, using the chart below, Cicadas..... 1 means that it was discussed in the PHCR 2024.01 or the newsletter dated April 5, 2024. The index is updated with the publication of each full issue and is included at the end of each full issue.

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