Plant Health Care Report

Scouting Report of The Morton Arboretum

July 9, 2021 **Issue 2021.8**

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

Our report includes up-to-date disease and insect pest reports for northeastern Illinois. Plant Clinic staff and volunteers are now back to working onsite, with the Plant Clinic open to walk-in visitors. Questions can also be answered by email at plantclinic@mortonarb.org. or by phone at 630-719-2424 (Monday thru Friday, 10 am to 4 pm).

Quick View

What indicator plant is in bloom at the Arboretum?
Panicled hydrangea (*Hydrangea paniculata*) is flowering (fig. 1).

Accumulated Growing Degree Days (Base 50): 1287 (as of July 8)

Insects/other pests

- **Viburnum leaf beetle update**
- **Fall webworm**
- **Cottony cushion scale**

Diseases

- **Slime mold, stink horns and mushrooms**
- **Mushrooms on trees**

Miscellaneous

- **Herbicide damage**
- **Blossom-end rot**
- **Dieback, cankers, stress and the weather**

Figure 1 Panicled hydrangea (photo: John Hagstrom)

Soil temperatures around Illinois (from Illinois State Water Survey)

For more data go to https://www.isws.illinois.edu/warm/soil/ (you will need to set up an account to access data.)

Max. Soil temps For July 8, 2021*	St. Charles reporting station (north)	Champaign reporting station (central)	Carbondale reporting station (south)
2-inch, bare soil	81.9	92.4	98.9
4-inch, bare soil	81.6	91.8	88.6
4-inch, under sod	77.7	86.6	85.4
8-inch, under sod	76.3	80.6	81

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

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

As of July 8, we have 1287 base-50 growing degree days (GDD). The historical average (1937-2020) for this date is 1159 GDD_{50}. The table below shows a comparison of GDD in different years. We are comparing the GDD reported in this issue with the GDD reported in the first issue of 2020, 2015 and 2014. These years were selected since publication dates of the first issue were within a day or two of each other. Glencoe, Lisle and Waukegan (60085) were not used in 2015 and 2014, so there is 'no report' from those stations.

Location	GDD as of 7/8/21	GDD as of 7/9/20	GDD as of 7/9/15	GDD as of 7/10/14
Carbondale, IL*	1780	1763	1913	1874
Champaign, IL*	1510	1481	1588	1611
Chicago Botanic Garden**	1388 (7/7)	1249	959 (7/8)	1026 (7/9)
Glencoe*	949	880	No report	No report
Chicago O'Hare*	1462	1334	1278	1382
Kankakee, IL*	1385	1375	1342	1412
Lisle, IL*	1451	1375	No report	No report
The Morton Arboretum	1287	1324	1099.5	1183
Quincy, IL*	1385	1549	1680	1679
Rockford, IL*	1340	1269	1091	1185
Springfield, IL*	1572	1533	1664	1650
Waukegan, IL* (60087)	1287	1127	1013	1167
Waukegan, IL (60085)	1364	1180	No report	No report

**Thank you to Chris Henning, Chicago Botanic Garden, for supplying us with this information.

*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/

Seasonal precipitation (rain and melted snow) in inches.			
	2021	2020	average
Jan	1.5	2.14	1.952
Feb	1.49	.85	1.769
Mar	1.24	4.15	2.536
April	1.39	4.37	3.692
May	3.34	8.24	4.194
June	6.57	4.91	4.190
July	.3 (as of 7/8)	2.87	3.893
Aug		1.1	3.802
Year to date	15.53 (as of 6/30)	24.66 (as of 6/30)	18.33 (as of 6/30)
Total (Jan-Sept)		32.18 (Jan-Sept)	29.33 (Jan-Sept)

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
Possibly 1200-1300	Viburnum leaf beetles	Adults emerging	Chewing on leaves
1200-1800	Fall webworm	Caterpillars feeding, but webbing not seen yet	Chewing on leaves

Viburnum leaf beetle update (serious)

Viburnum leaf beetle adults are out and chewing. The beetles are small (1/3 inch) and brown to golden brown (fig 2). They are not easily noticed, but their feeding is. They will pick up where the larvae left off.

Management: Adults can be treated with an insecticide, including carbaryl, cyfluthrin, permethrin, or malathion. Insecticidal soap is **not** effective on the adults. Do not spray for the adults until they are present. Insecticides are not preventative.

Figure 2 Viburnum leaf beetle adult

In fall, look for egg-laying sites. The actual eggs are

not visible. The eggs are laid in small holes on the ends of twigs, and then the holes are capped. The caps stand out against the bark of the twig, making them easy to see (fig. 3). Cut out the twigs that have the eggs in them, and get them out of the garden completely. This will greatly reduce the number of insects you have next year. If you have a number of shrubs, remember that you have all fall and winter to remove these twigs. Getting them in the egg stage greatly reduces the need to spray next year. We can't stress enough the importance of this technique. This is the most effective management approach and the least toxic to beneficial insects.

Figure 3 egg laying sites of viburnum leaf beetle

Fall webworm (minor)

It's about time to be seeing fall webworm *(Hyphantria cunea*). 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 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 are pale green to yellow, with black spots, and covered with long, silky white hairs (fig. 4). 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.

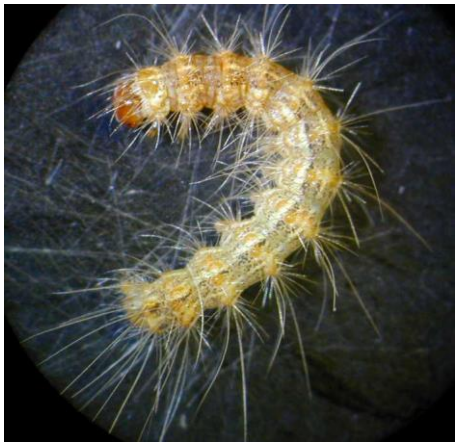

Figure 4 Fall webworm caterpillar

Fall webworms overwinter in the pupal stage in the ground, under loose bark, and in leaf litter. Adult moths appear from late May through August, and females deposit eggs in hair-covered 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. 5) 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 generally

Figure 5 Fall webworm nest

cosmetic since this pest usually eats leaves late in the season, and webs are found in limited areas.

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 generally 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/tent-or-web-making-caterpillars/

Cottony cushion scale (minor to potentially serious, depending on host and population)

We have an unconfirmed report of cottony cushion scale (*Icerya purchasi*) on a magnolia tree in central Illinois. Cottony cushion scale is a pest commonly found in the southern United States, but there have been confirmed cases as far north as Michigan. This scale can attack a range of ornamental plants including apple, magnolia, peach and spirea.

Figure 6 Cottony cushion scale crawler (photo: Lyle J. Buss, Univ of Florida)

The adult is easy to spot, due to the large, fluted, white egg sac that extends beyond the scale covering of the adult. The young crawlers are also fairly easy to spot when they hatch. They have reddish bodies with black legs and black antennae (fig. 6). As the crawlers grow, they become more flattened and oval in outline. With each molt, the color changes a bit, often showing a mix of red and cream colors (fig. 7). After the third molt, the egg sac is formed. As it enlarges, the back end of the scale is lifted up into a tilted position in front of the egg sac. The edge of the cover shows up against the white of the egg sac so it almost looks like a collar or necklace. The photo we received showed an adult scale as well as a possible third instar.

In southern states, there may be 2 or 3 generations per year. It is not known for sure how many generations there may be in colder climates. We also do not know if this insect can successfully overwinter in northern Illinois. Like other scale insects, this pest feeds on the sap of the plant, and feeding by large populations may weaken the host plant. This scale does produce honeydew.

Figure 7 Cottony cushion scale adult and instars (photo: Paul Choate, Univ. of Florida)

Management: This pest can be a serious problem in the south, where it is well-established. In areas, where it is less prominent, it may be well controlled by predators. Avoid insecticide use if predators are present as many insecticides will kill the predators.

Good websites:
https://www.canr.msu.edu/news/cottony_cushion_scale_detected_in_michigan_nursery
https://entnemdept.ufl.edu/creatures/fruit/cottony_cushion_scale.htm

Pest Updates: Diseases

Slime mold, stink horns and mushrooms (minor)

After the dry spring, we finally started to get some rain and then some more rain and a little more rain. 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.

Figure 8 Slime mold

Another weird growth that shows up in the wet 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 stink horn. Stink horns 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. A common type is reddish orange and sort of looks like carrots growing upside down in the mulch. But they do come in many weird and even vulgar shapes. One thing that intrigues people is that the stink horn 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.

Mushrooms on trees (serious)

Now that we have talked about all the small, minor mushrooms, let's take time to remember there are fungal organisms that cause wood decay and they eventually produce mushrooms. These fungal organisms may enter a tree through a wound or through a crack in the bark that allows water to enter. The mushrooms produced by these decay organisms can take on a lot of different appearances. Sometimes it will be a group of mushrooms growing at the base of the trunk or out of the root system. We may see a typical-looking mushroom growing out of the trunk of the tree (fig. 9) or a shelf-like structure referred to as a shelf fungus. These all tend to look fairly minor, but we should pay close attention.

Figure 9 Mushrooms growing out of a tree trunk (photo: Sharon Yiesla)

Any mushroom-like structure growing out of a tree should make us consider the possibility that there is decay inside the tree. We often refer to this under the general term 'wood rot'. The mushroom growing out of the trunk or stems is the tip of the ice berg. With wood rot, there is a fungal organism inside the wood causing it to decay. This decay process may continue, undetected, for years. At some point, in the life cycle of the fungal organism causing the decay, the reproductive structure (the mushroom) is produced and can be seen on the outside of the tree.

Even though these appear minor, and many people just knock them off when they see them, we really should pay attention to this sign and call in a professional, certified arborist to

examine the tree. When the wood inside a tree decays, that tree starts to lose stability. It may be one branch that is rotting and we can easily remedy that by removing that branch. If the rot is inside the main trunk, the whole tree may need to be removed. Any fungal structure growing on a tree should be taken seriously. To find a certified arborist go to www.illinoisarborist.org

Miscellaneous

Herbicide damage

We have seen a number of plants this year with symptoms that could be attributed to herbicide (weed killer) damage. I use the term 'could be attributed to' because herbicide damage is difficult to prove. Some labs will test for herbicide residue, but testing can be expensive, unless you can narrow down which chemical you suspect. Other causes like cold damage and viruses can sometimes cause similar symptoms.

Herbicides, like 2, 4-D and dicamba are commonly found in a number of products, especially those for broadleaf weed control in lawns. These herbicides are growth regulators, and damage from them often shows up as distorted growth. These chemicals have the potential to volatilize into the air and be carried on the wind to off-target species. This spring and early summer provided us with many windy days where this type of drift could occur. Also, very hot temperatures can increase volatilization. We have experienced some very hot days this spring and summer. Herbicide labels often say to avoid using the product when the temperature exceeds a certain level to reduce damage to off-target plants. Luckily, most landscape plants will outgrow the damage from herbicide drift as long as they were not sprayed directly.

The bottom line is to read the label directions and follow them carefully. Not only can dicamba do damage if it volatilizes and drifts, it can also enter the root systems of trees and shrubs if the product is applied in the root zone. Products that contain dicamba have a special warning on the label regarding use around trees and shrubs. If you are using any herbicide, read the label carefully to see what active ingredient is in the product. When hiring landscapers and lawn care companies to treat lawns, ask what product they use and ask also which active ingredient(s) it contains.

Blossom-end rot

You planted and tended your tomato plants. You are rewarded with flowers. The pollinators visit your flowers and before you know it there are tiny tomatoes forming. Then one day, you discover that the bottom of the tomato is turning black and sometimes almost leathery (fig. 10). This is blossom-end rot. The bottom of the tomato is called the blossom end, because

that is where the flower or blossom was connected. That little dark dot on the bottom of the tomato marks the spot where the flower was.

This type of 'rot' is not a disease. It is caused by a calcium deficiency. Calcium is an important building block of the cell walls within every plant. When it is deficient, the cell walls don't form properly and the cells collapse. Blossom-end rot does not always mean that there is not enough calcium in the soil, it means that the calcium is not making it all the way to the bottom of your tomato. Our soils are generally not deficient in calcium.

Figure 10 Blossom-end rot

Improper watering or very dry weather are often the reasons we don't get the calcium out to the bottom of the tomatoes. The water carries the calcium from the soil into the plant. If water is lacking, the calcium can't be delivered. Up until recently, we were having a lot of dry weather, which meant that we needed to do a lot of supplemental watering. Often, gardeners are watering frequently, but not deeply. Watering everyday is not needed for in-ground gardens. Water those plants when the top inch or so of soil is drying, and when you water be sure to water thoroughly. If you have to water every day or every other day, you are not watering thoroughly. Depending on weather, you should be watering every 4 to 7 days.

Container-grown tomatoes are the exception. They most likely will need to be watered every day due to the small volume of the container. Water containers enough so that some water comes out the drainage holes in the bottom of the container. Container-grown tomatoes often get blossom-end rot because it can be difficult to maintain adequate water in containers. Also, unlike our garden soils, potting mixes for containers may need to have calcium added.

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. 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 years of stressful weather extremes, it is no wonder that some plants are struggling.

Many trees and shrubs have cankered stems. The canker disease organism grows under the bark and destroys the tissue that moves water through the plants, cutting off the water supply. Cankered 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, Plant Clinic sponsor

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 Professor at Joliet Junior College; Julie Janoski, Plant Clinic Manager; and Carol Belshaw, 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.

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 online at https://mortonarb.org/about-arboretum/plant-health-care-report/

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2021 Plant Health Care Report Index

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, Cankers….. 1 means that it was discussed in the PHC report 2021.01 or the newsletter dated April 2, 2021. The index is updated with the publication of each full issue and is included at the end of each full issue.

2021.1	April 2	2021.8	July 9
2021.2	April 16	2021.9	July 23
2021.3	April 30	2021.10	August 6
2021.4	May 14	2021.11	August 20
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