Plant Health Care Report

Scouting Report of The Morton Arboretum

June 9, 2023 **Issue 2023.6**

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 (Monday thru Friday, 10 am to 4pm). The Plant Clinic is also open to walk-ins, but a timed entry and payment of entry fee is required for non-members.

Quick View

What indicator plant is in bloom at the Arboretum?

Japanese tree lilac (*Syringa reticulata*) is in flower (fig. 1)

Accumulated Growing Degree Days (Base 50) at The Morton Arboretum: 557 (as of June 8).

Insects/other pests

- **Euonymus scale**
- **Oystershell scale**
- **European elm scale**
- **Fletcher scale**
- **Four-lined plantbug**
- **Azalea lace bug**

Diseases

- **Crown gall**

Miscellaneous

- **Stink horns**

Weeds

- **Helleborine**

Figure 1 Japanese tree lilac

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 6/8/2023*	St. Charles reporting station (north)	Champaign reporting station (central)	Carbondale reporting station (south)
2-inch, bare soil	87.2	96.4	85.8
4-inch, bare soil	85.1	85.2	81
4-inch, under sod	75.8	79.3	77.7
8-inch, under sod	69.5	73.5	74.1

* 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 June 8, we have 557 base-50 growing degree days (GDD) at The Morton Arboretum. The historical average (1937-2022) for this date is 508 GDD_{50}. The table below shows a comparison of GDD in different years. We are comparing the GDD_{50} reported in this issue with the GDD reported in the first issue of 2022, 2017 and 2016. These years were selected since publication dates of the first issue were within a day or two of each other. Glencoe, and Waukegan (60085) were not used in 2017 and 2016, so there is 'no report' from those stations.

Location	GDD as of 5/25/2023	GDD as of 6/9/2022	GDD as of 6/8/2017	GDD as of 6/9/2016
Carbondale, IL*	1079	1119	1263	1123
Champaign, IL*	876	854	949	892
Chicago Botanic Garden**	581.2	No report	469.5 (6/7)	484 (6/7)
Glencoe*	266	344	No report	No report
Chicago O'Hare*	718	692	630	704
Kankakee, IL*	733	706	745	747
Lisle, IL*	731	702	658	730
The Morton Arboretum	557	641	528	577
Quincy, IL*	917	899	1026	992
Rockford, IL*	655	588	571	614
Springfield, IL*	884	882	989	944
Waukegan, IL* (60087)	567	552	468	547
Waukegan, IL (60085)	626	605	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

Seasonal precipitation (rain and melted snow) in inches.			
	2023	2022	Historical average (1937-2022)
Jan	2.85	1	1.935
Feb	4.88	2.61	1.775
Mar	2.29	3.88	2.536
April	2.23	3.88	3.667
May	.79	6.1	4.206
June	.05 (thru 6/8)		
July			
Aug			
Sept			
Year to date	13.09 (thru 6/8)	17.47 (thru May)	14.12 (thru May)

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
500-700	Euonymus scale	Crawlers emerging	Feeding on sap
700-800	Bagworm	Caterpillars emerging	Chewing foliage
900-1200	Japanese beetle	adults	Chewing foliage; mating and laying eggs

Euonymus scale… (potentially serious)

Euonymus scale (*Unaspis euonymi*) is one of those insects that we can find all year round. Right now, we are seeing the overwintering adults. Even though we see the adults all season, the young crawlers are out and active for only a short time (and now is the time to look). Many insecticide treatments are targeted at the crawlers when they emerge, which is generally around the early part of June (GDD 500-700). The crawlers are a pale, yellow-orange. Male adult scales are white, and the females are brown (fig. 2) and oystershell-shaped. Euonymus

scale overwinters as fertilized females on plant stems. Euonymus scale does not produce honeydew.

Management: On smaller plants, like groundcover euonymus and pachysandra, heavily infested branches may be pruned out to reduce the population. Sprays of insecticide are commonly targeted at the young (crawler stage) of the scale. Imidacloprid, used as a soil drench, may be used on some species of scale, but it is not generally effective on euonymus scale, since it is an armored scale. Armored scale do not feed in the vascular system where the systemic insecticide is located.

Figure 2 Euonymus scale adults, male (white) and female (brown)

Good website:
https://mortonarb.org/plant-and-protect/tree-plant-care/plant-care-resources/scale-insects/#overview

... and oystershell scale (potentially serious)

Speaking of scale insects that are shaped like oyster shells, that brings us to, you guessed it, oystershell scale (*Lepidosaphes ulmi*). On plants like pachysandra, it may be possible to have both oystershell and euonymus scale at the same time. They can be hard to tell apart. Both scales do have the overall shape of an oyster shell, but the female euonymus scale often tends to be more pear-shaped and a bit flattened. The male euonymus scale is white and elongated. The oystershell scale is closer to really looking like an oyster shell and is usually more convex. There may be some banding on oystershell scale, but it is not always obvious. Oystershell scale does not produce honeydew.

Figure 3 Large population of oystershell scale

This scale has a wide host range, and we did see it on some trees and shrubs last year. Populations can get very dense, sometimes to the point where the bark of the branch cannot be seen (fig. 3). This is a pest to be watching.

Oystershell scale overwinters as eggs under the female's protective cover. The crawlers emerge just slightly earlier (GDD 300) than those of euonymus scale (GDD 500). We are past both of those GDD levels already, but crawlers may still be active.

Management: With the emergence of both crawlers so close to one another, it may not matter if you are sure which scale you have on pachysandra, or if you have both. When you spray for one, you may catch both, if you time it right. Careful scouting of plants will be important. Start looking for crawlers around that GDD 300 mark. Like euonymus scale, oystershell scale is also one of the armored scale, and imidacloprid, used as a drench, is not effective against it.

Good website:
https://mortonarb.org/plant-and-protect/tree-plant-care/plant-care-resources/scale-insects/#overview

European elm scale (potentially serious)

A report of European elm scale (*Eriococcus spurius*, formerly *Gossyparia spuria*) on elm came into the Plant Clinic at The Morton Arboretum this week. These are soft scales, and since they feed in the phloem, they produce honeydew, which supports the growth of sooty mold. This scale can produce honeydew in large quantities, so look for sticky plants and obvious growth of sooty mold. Very heavy infestations can cause leaf and twig dieback.

Figure 4 European elm scale

The photos we received showed mature females, which are dark in color and surrounded by a fringe of white (fig. 4). This insect produces one generation per year. It overwinters as half-grown nymphs and matures into adults in early summer. Eggs are laid around the end of June into July. The eggs hatch within a few hours into bright yellow crawlers. Crawlers migrate to feeding sites along the midrib of the underside of leaves, where they will remain until the end of summer. In fall, crawlers return to limb or bark crevices to overwinter as immature females.

Management: Insecticides that target crawlers can be used. Systemic insecticides can also be useful in control of this species. As with other scale insects, this species can cause stress to the host tree. Watering trees during dry weather can help boost the vigor of the tree. Applications of nitrogen fertilizers should be avoided. Excess nitrogen helps the plant produce more amino acids, and these serve as a food source for the scale. This could actually increase the population of this pest.

Good website: https://bygl.osu.edu/node/1974

Fletcher scale (minor to potentially serious)

Fletcher scale (*Parthenolecanium fletcheri)* adults have been found on arborvitae (*Thuja*) and bald-cypress (*Taxodium distichum*) recently. Yews are also re common hosts for this pest. The adult scales are reddish brown and about 1/8 of an inch in diameter on the twigs (fig. 5). The crawlers are very tiny and pale yellow. You definitely need a good hand lens to see the crawlers. We did not see any crawlers on the sample that came in last week, but crawlers are expected to be active between mid-June and mid-July (GDD 900-1200). Fletcher scale weakens plants, causing foliage drop, and because they create honeydew, can cause sooty mold on host plants.

Figure 5 Adult fletcher scale

Management: The crawler stage is the stage that needs to be managed. Since Fletcher scale has a lot of natural enemies, use an insecticide that minimizes death of natural enemies such as insecticidal soap or summer oil.

Four-lined plantbug (minor)

Be looking for the four-lined plantbug (*Poecilocapsus lineatus*). The nymphs are out, and feeding damage may be found on a variety of plants. This insect feeds on 250 species, including many kinds of perennials, vegetables, and shrubs such as bluebeard, forsythia, and sumac. Feeding injury is frequently mistaken for leaf spots. Four-lined plantbugs have piercing, sucking mouthparts which they use to break plant cells and then flush the

Figure 6 Four-lined plantbug damage

feeding wound with digestive juices. Damage appears as dark leaf spots which subsequently turn translucent (fig. 6). The damage is more serious on herbaceous plants than on woody plants. Both nymphs and adults feed on leaves, creating the spots.

Nymphs are red and will develop dark wing pads as they mature (fig. 7). We are seeing them at this time, but they may become adults very soon. The adult stage is 1/4" to 1/3" long and has four longitudinal black lines on its yellow or green back, thus the name. It's quite a shy insect that scurries away when you try to find it. The insect overwinters as eggs laid in slits cut into plant shoots. There is one generation per year.

Figure 7 Nymph of four-lined plantbug

Management: Some people try to hand-pick these insects, but their timidity makes them difficult to catch. Small populations don't generally need to be controlled

Good website: https://extension.umn.edu/yard-and-garden-insects/four-lined-plant-bugs

Azalea lace bug (minor to potentially serious)

One of our Plant Clinic volunteers brought in an azalea lace bug (*Stephanitis pyrioides*) this week. We are starting to see this pest on a more regular basis than in the past. Azaleas are being used more in the landscape, and our changing climate may be more favorable to this pest. These factors are likely contributing to the more regular appearance. While we usually think of lace bugs as a minor pest, this particular species can be serious when the populations are high. The sample we saw had moderate damage, and the leaves were already partially discolored from the feeding.

Figure 8 Adult azalea lace bug

This pest overwinters as eggs on evergreen azaleas. The nymphs hatch in spring. More than one generation will occur over the growing season. It is not unusual to find more than one stage infesting a plant at one time. The insect feeds in both the nymph and adult stages. The adult has very lacy wings (fig. 8), thus the name. Azalea lace bug has piercing/sucking mouth parts, and sucks sap from leaves, resulting in stippling. A serious infestation will cause leaves to appear white (fig. 9), dry up, and fall off the plant. The damage can be confused with mite

Figure 9 Azalea lace bug damage

damage, but looking at the underside of the leaves reveal clues that point to the azalea lace bug. Lace bugs leave behind shiny black spots of excrement. Nymphs, adults and cast-off skins can also be found on the undersides of the leaves.

Management: Avoid planting azaleas and rhododendrons in sunny sites. This stresses the plant and can lead to larger populations of the pest. Insecticide sprays can be used and will be most effective when nymphs are present. Timely treatment can prevent heavy damage to leaves.

Pest Updates: Diseases

Crown gall (serious)

We have had one report of crown gall on euonymus ground cover. Crown gall has a wide host range and attacks both woody and herbaceous plants. It is very common on rose and euonymus. It is caused by several strains of a bacterium, *Agrobacterium tumefaciens*, that form woody galls that girdle stems. The galls appear near the soil line on most plants (fig. 10). The bacterium lives in the soil and is spread by splashing rain and by tools that were used in infected soil and not cleaned properly. Infected soil on shoes may also be a source of inoculum.

Figure 10 Crown gall

Management: Remove and destroy infected plant parts. As the bacterium must enter the plants through wounds, avoid wounding stems and roots. Do not plant susceptible plants in the infected soil for 5 years. Without a host plant, the bacterium will eventually die out. Grasses are immune and can be planted in an area where crown gall has been found.

Good websites:
https://ag.umass.edu/landscape/fact-sheets/crown-gall (includes a list of resistant species)

https://extension.umn.edu/plant-diseases/crown-gall

Miscellaneous

Slime mold, stink horns and mushrooms (minor)

Often around late spring we start to see a variety of strange growths in our gardens, leading to the question, “What is that stuff on my mulch?” These things usually pop up when the season

turns wet and the Chicago region has been anything but wet recently. And yet, we have our first report of one of these weird growths. Perhaps people are watering their gardens due to the dry season, or the recent spate of pop-up storms may have been just enough to get these things going.

Figure 11 Stink horns

Our first candidate in the "what is that" category is the stink horn. We received confirmation of this weird thing just this week via our email. 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, and the type we saw in photos this week, is reddish orange and sort of looks like carrots growing upside down in the mulch (fig. 11). 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. Not only do they stink, the odor they produce invites flies to visit their location. Luckily, they are easy to remove. Just slip the edge of your shovel under the stink horn and lift it away to the garbage.

Excess water promotes the growth of a variety of 'regular' mushrooms, and although they are easy to recognize as mushrooms, there are any number of different-looking species. 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.

Another weird growth that shows up in the wet is slime mold, also a 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. When it has dried, slip the blade of your shovel under it and lift it away to the garbage.

Pest Updates: Weeds

Helleborine (aggressive)

When is an orchid a bad thing? When it is helleborine (*Epipactus helleborine*), a non-native orchid. The Plant Clinic at The Morton Arboretum has received emails again this season regarding this orchid turned weed. Why is it a weed? It spreads underground very aggressively via fleshy rhizomes. Large patches can develop quickly. Wisconsin lists this as a restricted invasive plant. Helleborine grows up to three feet tall and has a thick stem with dark green

leaves that clasp the stem. The leaves are lance-shaped and up to six inches long. The flowers do look like orchids and vary in color, with a mix of green, pink and purple. Numerous flowers are produced on a spike.

Figure 12 Helleborine (photo: Rob Routledge, Sault College, bugwood.org)

Management: Individual plants may be dug up, but you must be careful to get all of the underground structures or the plant will re-sprout. Chemical management is possible, but can be challenging. Michigan State offers some guidance in this area.

Good website:
https://www.minnesotawildflowers.info/flower/helleborine

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 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. Our volunteer scouts for 2023 are Deb Link, Maureen Livingston, Loraine Miranda, and Molly Neustadt.

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. You can call the Plant Clinic by phone (630-719-2424) or visit in person, Monday thru Friday 10 am to 4 pm. On weekends and national holidays, Arboretum members need a timed entry ticket to enter the Arboretum and visit Plant Clinic in person. Non-members need a timed ticket every day and must pay the entry fee.

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

2023 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, Cicadas….. 1 means that it was discussed in the PHCR 2023.01 or the newsletter dated April 7, 2023. The index is updated with the publication of each full issue and is included at the end of each full issue.

2023.1	April 7
2023.2	April 14
2023.3	April 28
2023.4	May 12
2023.5	May 26
2023.6	June 9
2023.7	June 23
2023.8	July 7
2023.9	July 21
2023.10	August 4
2023.11	August 18
2023.12	September 8
2023.13	September 22