

Plant Health Care Report

Scouting Report of The Morton Arboretum



THE
CHAMPION
of TREES

Aug 9, 2024

Issue 2024.10

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. For plant questions, contact the plant clinic via email at plantclinic@mortonarb.org or by phone at 630-719-2424 (Mon thru Fri, 10 am to 4pm). Please do not send plant questions directly to me.

Quick View

What indicator plant is in bloom?

Rose of Sharon (*Hibiscus syriacus*) is in flower (fig 1)

**Accumulated Growing Degree Days (Base 50) at The Morton Arboretum: 2129 (as of Aug 8).
(GDD updated 9/23/24)**

Insects/other pests

- Magnolia scale, some important details
- Viburnum leaf beetle update
- Fall galls
- Grubs in the lawn

Diseases

- Verticillium wilt

Miscellaneous

- Oak problems are complex
- Goldenrod is s a good guy



Figure 1 Rose of Sharon (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 8/8/2024*	St. Charles reporting station (north)	Champaign reporting station (central)	Carbondale reporting station (south)
2-inch, bare soil	74.3	No report	90.5
4-inch, bare soil	74.7	91.2	87.8
4-inch, under sod	75.7	83.8	79.9
8-inch, under sod	74	79.6	77.9

* 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 data updated on 9/20/2024	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	4.79	8.92	3.95
Aug	.25 (as of 8/8)	2.54	3.75
Sept			
Year to date	26.16 (as of 8/8)	25.73 (thru Aug)	25.97 (thru Aug)

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

As of Aug 8, we have 2129 base-50 growing degree days (GDD) at The Morton Arboretum. The historical average (1937-2023) for this date is 1902 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 8/8/2024	GDD as of 8/10/2023	GDD as of 8/8/2019	GDD as of 8/9/2018
Carbondale, IL*	3078	2777	2706	2899
Champaign, IL*	2528	2326	2320	2532
Chicago Botanic Garden**	2052	No report	No report	1881.5
Glencoe*	1703	1422	1373	No report
Chicago O'Hare*	2403	2143	1991	2199
Kankakee, IL*	2293	2061	2067	2299
Lisle, IL*	2429	2165	2038	2233
The Morton Arboretum	2129***	1839.5	1835	2125
Quincy, IL*	2699	2510	2399	2767
Rockford, IL*	2157	1978	1867	2050
Springfield, IL*	2658	2378	2380	2673
Waukegan, IL* (60087)	2050	1886	1667	1836
Waukegan, IL* (60085)	2184	1982	1765	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.

***Data updated 9/23/24

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

Magnolia scale, some important details

The battle against magnolia scale has been a fierce one this year. Now, we come to that time of year when the crawlers, the youngsters, are born. This is the time when we can turn the tide and win the battle. Sometimes, we miss this opportunity because we don't have a good handle on the life cycle of this pest. Let's clear up some of the confusion and win the battle this year.

This insect has an odd life cycle and we need to understand it. As fall and winter approach, many insects go into a very protected overwintering stage like an egg or a pupa. Not so with the magnolia scale. She gives birth to her babies in late summer and they will overwinter on the stems as half-grown nymphs. She is literally turning her children out into the cold.

How does this information help us? Right now, most people with a magnolia tree are focused on the adults because they are so visible. These adults will give birth to their babies and will be dead by the end of the season. They may hang on to the tree for some time after they die, but they will be dead. So, we can stop thinking about them. At this time of year, let's focus on the newborn crawlers; the defenseless newborn crawlers.

The crawlers are going to be moving around and growing for the next couple of months (maybe longer, depending on how the weather goes). That gives us time to kill them before winter. After winter, any of the crawlers that did not killed by us, or the winter, will become active again and will still be moving around in spring, giving us another chance to kill the ones we missed in fall. This is where we can win the battle!! Remember that the babies being born right now, will be the adults you see next summer. If we can kill them now, there will be few to no adults next summer.

Because the crawlers are exposed right now, we can spray them with insecticidal soap, with a horticultural oil or with an insecticide. Insecticidal soap and horticultural oil both must come in direct contact with the crawlers to kill them. Horticultural oil is also sold as summer oil and multi-season oil.

Act now and you can win the battle against magnolia scale.

Viburnum leaf beetle update (serious)

Viburnum leaf beetle egg-laying sites should be visible soon (or possibly, already visible in some areas). The eggs will hatch into larvae next spring. Viburnum leaf beetles lay their eggs in the

tips of viburnum twigs (usually on the underside of the twig). If we clip those twig tips off in fall and winter and destroy them, we can minimize populations for next spring. The egg-laying damage usually occurs in rows. The eggs are laid in holes chewed by the adult. The holes are then covered by a cap of chewed bark. These caps are fairly easy to see as they are a different color than the stem (fig. 2), but they will be SMALL since they are out at the very tips of the stems.



Figure 2 Viburnum leaf beetle egg laying sites

While the thought of cutting out egg-infested twigs may not be appealing, getting rid of an insect at the egg stage can be very effective. Food for thought: the fewer that hatch, the fewer we have to try to kill next spring. That means we can use less insecticide, and that is a good thing for the environment. Ultimately, it also means less damage to our viburnums. You might say “But I have 20 arrowwood viburnums on my property!” More food for thought: we should probably stop planting 20 of anything. With all the pests on the horizon, it pays to diversify as we install new plants. Even with a number of shrubs, we can still reduce the population for next season. The eggs are there during fall and winter. That gives us about 7 months to find and destroy those twigs. This does work!



Figure 3 Goldenrod fly gall (photo: S. Yiesla)

Fall galls (minor)

We are featuring a nice selection of late season galls for you this week. We write about these just so you know what you are looking at. Most galls are very minor and we don't need to treat for them.

We have two galls showing up on goldenrod. They are the goldenrod fly gall (fig. 3) and the goldenrod bunch gall (fig. 4).

The goldenrod fly gall (*Eurosta solidaginis*) shows up as those interesting ball shapes in the goldenrod stem. The gall maker lives inside that round gall and will pupate there in spring.



Figure 4 Goldenrod bunch gall

The goldenrod bunch gall is caused by a midge (*Rhopalomyia solidaginis*). The larva of this midge secretes a chemical that

stops the goldenrod stem from growing any taller. The leaves keep forming, though. This leads to a bunch of shortened leaves at the end of the stem. Actually, very pretty! This one has been very prevalent this season.

Grubs in the lawn (potentially serious)

We are getting to the time of year when homeowners start thinking about grubs (whether or not that actually have them). It is worthwhile to review the problem as it seems like there is always some wrong information floating around out there. White grubs are the larvae of several beetles including Japanese beetles, masked chafers and June beetles. While eggs of these species will hatch into grubs at various times in late summer, most of the damage begins around early August. The grubs will continue to feed on turf roots until the weather gets cold. Then they will go deeper into the soil to spend the winter. When spring returns, the grubs will come back to the surface, but they are older and tougher and insecticides are less successful.

How do you know if your lawn needs grub control? Grubs eat grass roots, and this will lead to brown areas in the lawn. Unfortunately, other causes can lead to a brown lawn. We have had a lot of hot, dry weather, and that can cause lawns to turn brown. We are also seeing some fungal diseases in lawns that can lead to browning. If your lawn has grubs, you will be able to pull the lawn up like a carpet since the roots are gone. Homeowners who are irrigating the lawn should be watchful. The beetles have to bury their eggs in the soil. They are more likely to do this in soils that are moist and easy to dig. So, those of you who are watering may be more likely to deal with grubs this year.

Is grub control a good idea for everyone? Not necessarily. If your lawn has never had grubs before and you are not irrigating, it would be best to skip the grub control. Usually, control is not warranted unless 10-12 grubs are present per square foot. Also, we have had fewer reports of Japanese beetles this year, so the grub population may be down.

If you plan to manage grubs with insecticides, know that the timing of application depends on the product selected. There are now many insecticides available to treat grubs, and they have different application times. Traditional insecticides, like trichlorfon and carbaryl, are applied to the lawn when young grubs are active (August and September). Imidacloprid can be applied once in mid-July in areas where adult beetles were numerous. Another product, known as chlorantraniliprole, is applied in spring to kill new grubs that hatch out in late July. It will not kill grubs present in spring. Usually, one treatment of any of these is adequate when followed up with good turf management. (Insecticide information from University of Illinois and Michigan State University). The bottom line is to read the product label carefully to see which ingredient the product contains and exactly when it should be used. Timing is important. Most of these products need to be watered in to be effective. Check the label for this information as well.

We receive a lot of questions about the use of the biological control milky spore disease. This is a bacterium that is specifically toxic to the grub stage of the Japanese beetle and is applied to the soil. This is a slow method at best in the warmer southern states (may take 3-5 years to build up in soil enough to be effective) and is often not very effective in colder, northern states. Also, if you have grubs that come from another type of beetle, it won't work on them at all.

There are also products that contain *Bacillus thuringiensis* var. *galleriae*, a naturally occurring bacterium. [Clemson](#) Cooperative Extension indicates that "research has shown control to be marginal".

Good website:

https://www.canr.msu.edu/news/how_to_choose_and_when_to_apply_grub_control_products_for_your_lawn

Pest Updates: Diseases

***Verticillium* wilt (serious)**

Verticillium wilt is a fungal disease that affects over 300 herbaceous and woody plants. The disease is caused by many host-specific strains of two soil-borne fungi, *Verticillium albo-atrum* and *V. dahliae*. *Verticillium dahliae* is believed to be the predominant species attacking trees in the Midwest. The disease has both acute and chronic (long-term) symptoms.

This soil-borne fungus remains in the soil in microscopic structures called microsclerotia which can survive in soil for up to 10 years. The fungus often enters the root through wounds. Once inside a root, the fungus colonizes water-conducting tissue (xylem) and gradually spreads upward through the plant. The fungus produces toxins that cause the plant to block off the xylem in an attempt to limit the growth of the fungus. This cuts off the flow of water which results in leaf wilting, yellowing (fig. 5) and browning, early fall color and branch dieback (these are the acute symptoms). The wood beneath the bark is streaked in many species because of the "plugging" response. Typically, when the bark of an affected branch is peeled back, brown streaks can be seen. These streaks can be seen as soon as the bark is peeled back. Some plants, like ash and Japanese tree lilac, will not show streaking. In maple, the streaking may look green.



Figure 5 Wilting and dieback due to *Verticillium* wilt

Verticillium can be a chronic problem, that is, killing a branch or two annually, or it can kill the whole plant in one season. Chronic symptoms may also appear, such as stunted, chlorotic, and deformed foliage; slow growth; and abnormal seed production. Verticillium can be spread by seeds, tools, and in the soil and roots of new transplants and nursery stock.

Symptoms are not enough to determine that a plant is infected with *Verticillium*. Other problems, such as root damage and environmental stress may cause many of these symptoms. A culture lab, like the [University of Illinois Plant Clinic](#), should be used to verify the diagnosis. It is important to know if a plant died from Verticillium wilt. If a plant needs to be replaced, you want to replace it with a tree resistant to the *Verticillium* fungus. These include conifers, crabapple, ginkgo, hackberry, hawthorn and others.

Management: *Verticillium* wilt is difficult to control because of the pathogen's ability to hunker down and survive in the soil with or without a host plant. Fungicides are ineffective in controlling *Verticillium*. The best course of action is sanitation and prevention. Dead branches should be pruned out as they occur to help overall plant vigor. Because the disease can be transmitted via sap, sterilize pruning tools between cuts. Remove chronically infected trees.

Good Websites:

<https://mortonarb.org/plant-and-protect/tree-plant-care/plant-care-resources/verticillium-wilt/>

<http://extension.cropsciences.illinois.edu/fruitveg/pdfs/1010.pdf>

<http://www.ipm.iastate.edu/ipm/hortnews/1998/3-13-1998/verticil.html>

Miscellaneous

Oak problems are often complex

The Plant Clinic at The Morton Arboretum has received a large number of calls about oak trees this season. In many cases, it is not easy to resolve the issue because there can be multiple problems affecting the tree at the same time. What are some of these problems?

Age may be playing a role in some cases. There are many older oaks across the Chicago region. Older trees have lived through more years of stress and this can affect their health. Disease may be part of the equation as well. We do see oak wilt in the region, as well as bur oak blight (bur oak only), anthracnose and *Phytophthora* root rot. These diseases vary in severity in terms of the impact they have on a tree. Some are fatal by themselves, and others are not. Those that are not fatal can still add stress to the tree and can be part of a more complex problem. Insects may be involved in some situations. In the last several years, we have seen large

populations of scale insects on oaks. [Two-lined chestnut borer](#) has been reported as well, but that insect is often opportunistic, taking advantage of a tree stressed by other problems, rather than the actual cause.

The environment has become a big issue for oaks, as well as many other trees. The last decade has given us several very wet springs, extremely hot (and often dry) summers, and two polar vortices. This summer, we had a rainy spring with varying temperatures, followed by some long spells of extreme heat and drought. This type of up and down extreme weather has an impact on tree health. Temperatures above 86 degrees actually cause physiological damage to leaves and they can slow down or stop functioning. That means reduced photosynthesis (production of food) and reduced ability to produce leaves, buds and acorns.

There are things we do that may also have an impact on our oaks (and other trees). If we plant a garden under a tree, we may damage roots. If we install a sidewalk (driveway, swimming pool, etc.), roots may be damaged or soil may be compacted and make it more difficult for water to get into the soil and for roots to function properly. Construction projects may also lead to grade changes and we end up with extra soil over the root system. That can limit the amount of oxygen getting to the roots and again root function will be impaired.

So, when we ask “What is wrong with my oak?” we are really asking a very complex question. To sort things out, we really need to take the time to consider all the problems discussed above. There will not always be a quick, easy answer. We are focusing on oaks in this article, because we are seeing so many doing poorly. Much of this information can apply to other trees, not just the oaks.

Goldenrod is a good guy

We often get comments of concern about goldenrod (*Solidago* and *Oligoneuron* species).

Those concerns include health issues and ‘invasiveness’. One of the big concerns is hay fever during fall flowering. Ragweed is the real culprit in this case. It has green flowers that go unnoticed. Ragweed is wind-pollinated, so the pollen is blowing on the wind and is finding its way to allergy sufferers. Goldenrod has heavier pollen that is moved by insects. Some people express concern about touching goldenrod, and I suspect that this is just misinformation that has grown out of the hay fever myth.



Figure 6 Goldenrod in flower

The other big concern is ‘invasiveness’. The term invasive indicates that the plant is doing some harm to other organisms or habitats. The goldenrods are native plants and don’t have this kind of impact on other plants or habitats. Some goldenrods are spreaders and can grow more aggressively than is wanted in a residential garden. So, when including goldenrod in a landscape, choose species that are clumpers, not spreaders.

Goldenrod is not guilty of any of the things of which it stands accused. In fact, goldenrod is a really good guy in terms of pollinators. Goldenrod flowers (fig. 6) late in the season when there are fewer plants in flower, so it is beneficial to pollinators as a late season meal. Some plants have flowers that are visited by a few pollinators. Goldenrod has a very open-door policy and serves a wide range of pollinators, including several species of bees, wasps, beetles, flies, butterflies and moths. After the pollinators are gone and the seeds are produced, there are some birds that will stop by for a snack as well. So, the party at goldenrod’s house just keeps going well into autumn. This is definitely a group of plants that deserves more respect.



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. You can call the Plant Clinic (630-719-2424) or visit in person, Monday thru Friday 10 am to 4 pm. 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



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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