

# Plant Health Care Report

Scouting Report of The Morton Arboretum



THE  
CHAMPION  
of TREES

Sept 22, 2023

Issue 2023.13

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

Accumulated Growing Degree Days (Base 50) at The Morton Arboretum: 2564 (as of Sept 21).

**This is our last issue of the year.  
Thanks for reading. See you next April.**

### Special topics in plant health care

- Plant health care
- What about the weather?
- What happens when we water?
- Next season is now

### Insects/other pests

- Cicadas coming in 2024
- Fall galls

### Miscellaneous

- Seasonal needle drop

### Upcoming educational events

- Landscape below ground conference

## 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 9/21/2023*	St. Charles reporting station (north)	Champaign reporting station (central)	Carbondale reporting station (south)
2-inch, bare soil	69.2	79.5	88.4
4-inch, bare soil	70.1	71.6	82.3
4-inch, under sod	68.6	74.2	77.1
8-inch, under sod	67.3	71.4	72.8

\* 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 Sept 21, we have 2564 base-50 growing degree days (GDD) at The Morton Arboretum. The historical average (1937-2022) for this date is 2765 GDD<sub>50</sub>. The table below shows a comparison of GDD in different years.

Location	GDD as of 9/21/2023	GDD as of 9/22/2022
Carbondale, IL*	3752	3947
Champaign, IL*	3200	3332
Chicago Botanic Garden**	No report	3051 (9/21)
Glencoe*	2245	2519
Chicago O'Hare*	2981	3178
Kankakee, IL*	2832	2996
Lisle, IL*	3000	3197
The Morton Arboretum	2564	2967.5 (9/21)
Quincy, IL*	3461	3528
Rockford, IL*	2753	2817
Springfield, IL*	3277	3423
Waukegan, IL* (60087)	2674	2789
Waukegan, IL (60085)	2798	2933

\*\*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	1.23	2.51	4.2
July	8.92	5.7	3.9
Aug	2.54	2.42	3.77
Sept	3.58 (thru 9/21)	4.98 (whole month)	3.3 (whole month)
Year to date	29.31 (thru 9/21)	32.87 (thru 9/21)	29.28 (thru 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.

### **Special topics in plant health care**

The articles presented here are meant to help us think more broadly about plant health care and to encourage everyone to take a deeper dive into some of these issues that impact plant health.

#### **Plant health care**

We call our newsletter the Plant Health Care Report, so we should talk about what that really means. We spend a lot of time chasing the insects and diseases, but plant health care (PHC) is more than that. PHC should be a more holistic approach, looking at proper site selection, proper planting and good maintenance. PHC focuses on stress and stress reduction. Many disease and insect problems are related to stress. A plant that is experiencing less stress will be healthier and less likely to succumb to problems. That is why we sometimes include articles on related topics like watering and weather. When we consider the health of the tree, we must also look at the environment in which it lives and consider the care that it receives. This issue of the newsletter will look at some of these things in more detail.

## What about the weather?

Weather does impact trees (and other plants). Often when we talk about the weather, everyone immediately thinks about current weather. We need to look back further than that. The effects of weather are cumulative on trees. Let's look back at 2012. That year, spring temperatures rose very quickly, and many things flowered early and some flowered out of their normal sequence. That summer was very hot, and we experienced dry conditions. Trees that were not being watered were at risk for root damage. Going forward to the spring of 2013, our area experienced flooding rains (9.78 inches in April compared to the 3.7 inches average for that month). One might be inclined to say that the heavy rainfall balanced out the dry conditions from the previous summer. But for trees that suffered root damage in summer of 2012, the floods brought additional root damage, not relief. Saturated roots (fig. 1) cannot function properly and if they are saturated long enough, root rots can begin. So, we have damage piled on top of damage.



Figure 1 Spruce sitting in water (photo: S. Yiesla)

In the years since 2013, we have had other very wet springs and hot dry summers. We have also had two polar vortices. We have seen weirdly fluctuating weather conditions. One example is April 2019, when temperatures early in the month rose into the 80's and temperatures at the end of the month dropped to freezing. Plants struggled to deal with these temperature swings. A plant that leafed out early when the temperatures soared may have suffered some cold damage in late April when we hit the freezing mark. Another example is fall of that same year. October was a beautiful, warm month, and then it snowed on Halloween. That was followed by several days of brutally cold temps (the lows dropped into single digits for a couple of nights). The real issue for most plants was the cold temperature, rather than the snow. When those cold temperatures hit, many plants were not fully dormant and some may have suffered some cold damage.

Just thinking about all the extreme weather is a bit exhausting. Think about the trees and other plants that have to stand out in it all year! Inclement weather causes stress to our plants. This stress builds up and makes our plants more susceptible to disease and insect issues. As we diagnose plant problems, we have to factor in the weather and not just the current weather.

Often when we see a plant in decline, it is not from what is happening now, but what has been building up for years. Anyone who works with plants should be aware of the weather of previous years.

### **What happens when we water?**

The obvious answer to that question is that we keep our plants alive. But we need to dive deeper here. We don't just want our plants to survive, we want them to thrive. Water is essential to all life forms, and the plants need water just like everybody else. They need it to live and to grow (make new plant parts) and to reproduce (flower and produce seeds). When we turn on the garden hose or lawn sprinkler, we tend to have one eye on the water meter. This is wise, but instead of denying our plants water, we should make sure that every drop is used well by watering properly (see the June 16, 2023 [special watering issue](#) for more on watering properly).

I am not a researcher and this is not intended to be a scientific paper on plant physiology, but we are going to dig one layer deeper than most of us generally do. So, what does water do for our plants? Obviously, on a hot, dry day, watering the plant gives it water to take up so it does not wilt. But water is important to plants in so many other ways.

Water plays an essential role in photosynthesis, the process by which plants make their own food. This is not the 'food' we give plants when we fertilize (nitrogen, phosphorus and potassium). Through photosynthesis, plants make carbohydrates that they burn for energy so they can complete various biological processes. Water helps the plant produce chlorophyll, the green pigment that is necessary for photosynthesis. Plants need to make new chlorophyll every day. If water is in short supply, chlorophyll is not formed and leaves turn yellow. Water is also involved in the photosynthetic process itself. Remember that formula for photosynthesis that the science teacher showed you in biology class? Don't stop reading, I won't show it to you here. Instead, I will tell you what it means: carbon dioxide molecules and water molecules, in the presence of light energy captured by chlorophyll are converted into sugar (carbohydrates) and oxygen molecules. So, no water, no carbs, no food (and also less oxygen for us to breathe).

Water also plays an important role in growth, partly because of its role in photosynthesis, but also because it is needed to help with the development and expansion of new plant parts. Trees form their leaf buds for next year in the current summer. If there is a lack of water during summer, bud formation will be affected, so that fewer buds may be formed and those that are formed may be smaller than normal. So, watering your tree in the summer not only keeps it from wilting, it also helps with bud production for next spring. Watering is an investment in the future growth of that tree.

I mentioned in the article about the weather, that in a dry season, roots are at risk for damage. Roots that have been cut during construction have been damaged. A tree that is dug from a nursery field and planted in a new location has suffered root damage. In both of these cases, the tree will need to produce new roots. Usually, the first question people ask in these situations is “Should I fertilize?” The answer is “No”. Water is the essential ingredient for root growth. We should tend to that need first and foremost. Water is needed so the remaining roots can keep supplying water to the tree, but it is also needed for the tree to develop new roots and expand its root system. The carbohydrates made through photosynthesis (remember that takes water too!) help with new root growth. We can consider if fertilizer is appropriate at a later date.



Figure 2 Fruit won't develop well without water

Water is also important in flowering and reproduction. Water is essential for the development of leaf buds, and it is equally important for the development of flower buds. Water also plays important roles in the development of fruits (fig. 2) and seeds. When a fruit starts to grow, plants start to send lots of carbohydrates to that fruit. Fruit production is a high priority on the list of plant parts that need carbohydrates. If water is lacking and carbohydrate production (photosynthesis) is decreased, fruits and seeds may fail to develop or may develop poorly. Also, fruits that are juicy, need water to make them so. You can't get a good watermelon without water.

So, when we water our plants, we are doing so much more than just getting them through a dry spell. We are helping them carry out their day-to-day biological functions and helping them to grow and develop for the future. Watering your tree today is an investment for tomorrow.

### **Next season is now**

Normally, at this time of year we are gearing down from one growing season and planning for the next. Considering all the points covered in the articles in this issue, we may need to rethink that concept. The current growing season is impacted by the ones that preceded it and will have impact on the one coming up. Plants are living and growing in a continuum. Winter is not a holiday between growing seasons. In some years, our growing seasons are getting longer, with moderate temperatures lasting into November and December. Timing on practices like watering and pruning need to adapt to these changes.

Hopefully the concepts covered in the articles in this ‘end of season’ issue, show us that the season doesn’t really end. Take some time to consider these concepts and look at Plant Health Care as a more holistic process. We need to think about updating some of our practices.

## **Pest Updates: Insects**

### **Cicadas are coming in 2024**

Has it been 17 years already? Yes, next spring, the periodical cicadas (fig. 3) will return and the buzz (so to speak) about these insects has started already. Some people are excited about this unusual phenomenon, but many others are a bit nervous and maybe even a bit upset. As publication of the Plant Health Care Report resumes next April, we will certainly be updating the situation with this unusual insect.



Figure 3 Periodical cicada

In the meantime, check our [webpage](#) about cicadas and consider these important facts:

- The cicadas will NOT be here all year. They are usually out and about for 4 to maybe 6 weeks in May and June.
- Insecticide use is not recommended. Insecticides will not be effective against the eggs that will be laid. The adults are a desirable food source for many birds and animals, and your dog may eat them as well, so we don’t want them to be packed full of insecticides.
- Cicadas can’t bite, so they won’t bite you. It might be weird to find one sitting on your arm, but it can’t hurt you.
- Flowering plants, vegetable crops and older trees won’t be harmed. Younger trees with smaller twigs and shrubs may be a target for the female wanting to lay her eggs. Small trees and shrubs can be protected with a fine netting as a barrier to the egg-laying females. Think back 17 years ago to remember all those trees and shrubs dressed in tutus (fig. 4). Winter might be a good time to stock up on tulle.



Figure 4 shrub protected by netting

## 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 and the goldenrod bunch gall.

The goldenrod fly gall (*Eurosta solidaginis*) shows up as those interesting ball shapes (fig. 5) in the goldenrod stem. The gall maker lives inside that round gall and will pupate there in spring.



Figure 5 Goldenrod fly gall (photo: S. Yiesla)

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 (fig. 6). Actually, very pretty!



Figure 6 Goldenrod bunch gall

## Miscellaneous

### Seasonal needle drop

A phenomenon of fall is heading our way soon: seasonal needle drop (also known as normal needle drop). In autumn, many evergreens will drop older needles. This is a normal process. Needles on an evergreen live for a limited number of years. At the end of their lives, these needles will turn yellow or brown and eventually fall off. On some evergreens, such as white pine or arborvitae, this process can be very dramatic, making the evergreen look like it is dying. To determine if your tree has a disease or is going through normal needle drop, check the location of the yellow or brown needles. Trees going through normal needle drop will have a fairly uniform brown or yellow appearance in the interior of the tree since this is where the oldest needles are located (fig. 7). After a few weeks these needles will fall off, leaving the tree looking normal



Figure 7 Seasonal needle drop on white pine



and healthy. Trees with a disease may have brown needles in various areas of the tree, depending on the disease, but the appearance will not be as uniform as that of needle drop. Diseased needles may eventually fall off, but the tree won't look healthy.

Good website: <https://mortonarb.org/plant-and-protect/tree-plant-care/plant-care-resources/seasonal-needle-drop/>

## **Upcoming Educational Events**

### **Landscape below ground conference (October 11-12, 2023 in person or online)**

Learn about the latest science-based management strategies for establishing and maintaining trees' roots in challenging urban situations at the fifth Landscape Below Ground conference!

In this international conference on tree root development in urban soils, learn about the latest science-based management strategies for establishing and maintaining trees' roots in challenging urban situations. Top scientists and practitioners from around the world will present knowledge to help managers and policymakers choose, plant, and care for healthier, longer-lived trees by focusing on trees' critical and vulnerable root systems. Speakers will address such topics as the design and constraints of street planting spaces, nursery growing, soil selection and amendment, tree root architecture, and tree stability.

Landscape Below Ground V is presented in partnership by The Morton Arboretum and the International Society of Arboriculture.

Learn more and register [here](#).

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## 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://www.ipm.msu.edu/agriculture/christmas_trees/gdd_of_landscape_insects)  
[http://extension.unh.edu/resources/files/Resource000986\\_Rep2328.pdf](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](mailto: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](mailto:syiesla@mortonarb.org).

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## 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.

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