Plant Health Care Report

Scouting Report of The Morton Arboretum

August 9, 2019 **Issue 2019.10**

Comments or concerns regarding PHCR should be sent to syiesla@mortonarb.org.

Our report includes up-to-date disease and insect pest reports for northeastern Illinois. You'll also find a table of accumulated growing degree days (GDD) throughout Illinois, precipitation, and plant phenology indicators to help predict pest emergence. Arboretum staff and volunteers will be scouting for insects and diseases throughout the season. We will also be including information about other pest and disease problems based on samples brought into The Arboretum's Plant Clinic.

We are continuing to use last year's format: full issues alternating with growing degree day (GDD) issues; focus on more serious pests; minor pests covered in shorter articles; alerts issued for new major pests. Readers who receive our email blasts that announce the newsletter is posted online will continue to receive them this year. To be added, please contact me at syiesla@mortonarb.org

The newsletter season is almost over. This is the next to last full issue. There will be a growing degree day issue on Aug. 16, and the last full issue will come out on Aug. 23.

Quick View

What indicator plant is in bloom at the Arboretum?
Rose of Sharon (*Hibiscus syricacus*) is in full flower (fig 1)

Accumulated Growing Degree Days (Base 50): 1835 (as of August 8)
Accumulated Growing Degree Days (Base 30): 4572 (as of August 8)

Insects/other pests

- **Grubs in the lawn**
- **Aphids on native plants**
- **Kermes scale**
- **Foliar nematodes**
- **Bagworm**
- **Sawflies**

Diseases

- **Laurel wilt**

Figure 1 Rose of Sharon in flower (photo: John Hagstrom)

Degree Days and Weather Information

We are once again offering Lisle readings right above the Arboretum readings. The spread between these two sites shows that temperatures can vary over a short distance, which means growing degree days can be quite variable as well. To show that this happens elsewhere, we are comparing the GDD in Glencoe to those at the Botanic Garden (which is in Glencoe) and showing the differences at two locations in Waukegan.

As of August 8, we have 1835 base-50 growing degree days (GDD). The historical average (1937-2018) for this date is 1909 GDD_{50}. Since January 1, we have had 33.39 inches of precipitation. Historical average (1937-2018) for precipitation Jan-July is 25.10 inches.

Location	B_{50} Growing Degree Days Through Aug 8, 2019	Precipitation (in) Aug 2-8, 2019
Carbondale, IL*	2706	
Champaign, IL*	2320	
Chicago Botanic Garden**	No report	
Glencoe*	1373	
Chicago O'Hare*	1991	
Kankakee, IL*	2067	
Lisle, IL*	2038	
The Morton Arboretum	1835	
Quincy, IL*	2399	
Rockford, IL*	1867	
Springfield, IL*	2380	
Waukegan, IL* (60087)	1667	
Waukegan, IL* (60085)	1765	

**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 http://www.gddtracker.net/

How serious is it?

This year, articles will continue to be marked to indicate the severity of the problem. 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”. Articles that discuss a problem that is seen now, but would be treated with a pesticide at a later date will be marked “treat later”. Since we will cover weeds from time to time, we’ll make some categories for them as well. “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

Grubs in the lawn (potentially serious)

The Plant Clinic has been receiving some inquiries about grubs in the lawn. So far this season, this does not seem to be a big problem. It is worthwhile to review the problem, however, 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, 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. 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.

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 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. Good website: http://www.turf.msu.edu/home-lawn-grub-control-products-2

Aphids on native plants (minor)

During this growing season we have had scattered reports about aphids on a variety of plants. Most of the populations have been small. Now as we get into late summer we are getting a lot of reports of large populations of aphids on some of our native plants like common milkweed (*Asclepias syriaca*) and cup plant (*Silphium perfoliatum*). There are a number of different species of aphids that vary in color: yellow, green, pink, black. Right now, we are seeing a lot of the yellow and red species. The yellow ones (*Aphis nerii*) are called oleander aphids or milkweed aphids. The red ones are most likely a species of *Uroleucon*, which feed on members of the Aster family (to which many of our late season natives belong). They are all tear-drop shaped and have two cornicles (fig. 2) on the back end (looks like twin tail-pipes). Aphids are small, about 1/16".

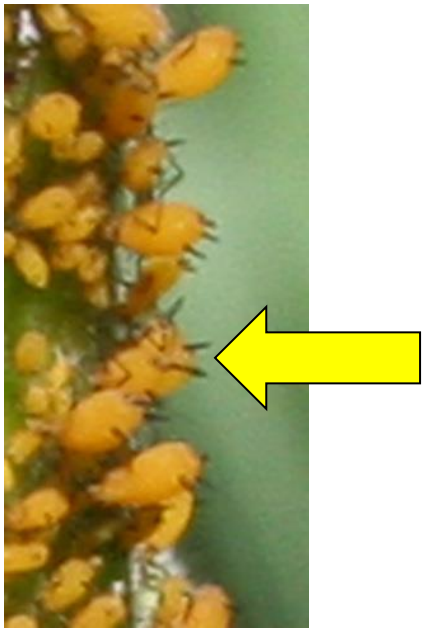

Figure 2 Aphids on milkweed (arrow points to cornicles)

These insects suck out sap from the leaves. The feeding often leads to curled or distorted leaves. Uncurling the leaves exposes the insects. Aphids also produce honeydew, which is a sticky substance. Sticky leaves are often noticed before the insects themselves. Aphid damage is generally fairly minor, but they can be vectors for viruses.

Management: Aphids are relatively easy to manage. Some species do not stay with a particular plant for the whole season. By the time the damage is noticed, the insects may have moved on. Aphids tend to feed in groups at the ends of branches. Clipping off those branch ends can get rid of the whole population quickly. Spraying the plant with a strong stream of water from the garden hose may also dislodge much of the population. There are also natural predators, like lady bugs, that will feed on aphids, so avoid insecticides and let the good insects do their job. Our scouts have been finding lacewings and lady bugs all season, so our friends are out there.

Good websites:

http://www.mortonarb.org/trees-plants/tree-and-plant-advice/help-pests/aphids
http://extension.missouri.edu/p/g7274

Kermes scale (potentially serious)

Scale insects are sap feeders, and heavy populations can, over time, lead to branch dieback and even decline of the tree. Some scale insects produce a sticky substance called honeydew, while other species do not. Those that do produce honeydew are often easy to spot since the plant is sticky to the touch.

Figure 3 Kermes scale clustered on the end of a bur oak twig

A couple of years ago, we had an infestation of kermes scale on oak, most commonly on bur oak. There are a couple of species of kermes, and they vary in color. Some species are dark and some are more mottled. We have received a couple of samples of Kermes scale this season. This species of scale tends to congregate at the ends of the twigs (fig. 3), weakening them. Often the ends of twigs will break off and fall to the ground. The appearance of several twig ends on the ground tends to get the attention of the owner of the tree. Luckily there is little long-term damage from the dropping of the twigs. At this time, populations appear to be small. This scale does produce honeydew.

Management: Hand removal is possible on small trees. Heavily infested branches may be pruned out to reduce infestations. Kermes scale is often controlled by natural predators. Chemical treatments are commonly targeted at the young (crawler stage) of the scale, so knowing which scale you have and when the crawlers are expected helps with the timing of pesticide use. Systemic insecticides may be used on some species of scale, but planning is required as these products are often applied early in the season to give them time to move through the plant. Before using any insecticide, check for the presence of beneficial insects that may be predators of the scale.

Good website: http://www.mortonarb.org/trees-plants/plant-clinic/help-pests/scale-insects

Foliar nematodes (potentially serious)

Nematodes are not pathogens. They are microscopic roundworms, but they do cause disease-like symptoms. We have seen these affecting Siberian bugloss (*Brunnera*) this season. On bugloss the symptoms are angular dark spots cut off by the veins (fig. 4). On hosta, the symptoms are elongated areas of yellow or lighter green. These areas run parallel to the veins. Eventually the yellow areas turn brown and may become tattered.

Foliar nematodes (*Aphelenchoides* species) move on the plant in a film of water. They can enter through the breathing pores (stomates) of the leaves. The damaged areas are often defined by the veins of the leaves as the nematodes cannot cross the veins.

Figure 4 Damage from foliar nematodes on Siberian bugloss

Management: Since the nematodes move in water, it is important to avoid overhead watering. Soaker hoses should be used. Remove infested plants. Clean-up of plant debris is also important since the nematodes reproduce in plant tissues (leaves and buds, but not roots). It is also thought that they may survive in soil. There are no chemical controls at this time.

Bagworm (potentially serious)

Figure 5 bag of bagworm

Bagworms (*Thyridopteryx ephemeraeformis*) are starting to be reported, but so far, populations seem low. Bagworms overwinter as eggs inside the female bag. The bag can contain between 300 and 1,000 eggs. The eggs hatch in early summer, and the young larvae suspend from a silk string and are often "ballooned" by wind to nearby plants. When a suitable host plant is found, larvae begin to form bags over their bodies. They move to a sturdy branch, attach the bag with a strong band of silk, and then pupate. By mid-August the larvae have matured and are 1 to 1-1/2 inches in length, and their completed bags (fig. 5) are 1-1/2 to 2-1/2 inches long. About four weeks later, adults emerge and mate. The sedentary female, which has no eyes, wings, legs, antennae, or functional mouthparts, lays eggs and is then mummified around the egg mass within the bag.

Figure 6 Bagworm caterpillar peeking out of bag

The tiny cone-shaped brownish bags are constructed from silk and camouflaged with bits of twigs and foliage from the host plant. Larvae stick their heads and front legs out of the top of the bags to feed and move (fig. 6). The feeding by young larvae results in holes in the foliage of deciduous plants and loss of needles on evergreens. As the larvae grow, they enlarge their bags and feed on the entire leaf, leaving only veins. Bagworm populations can build rapidly and quickly defoliate their hosts. Healthy deciduous trees can

usually tolerate consecutive years of severe defoliation before they are killed. Evergreen trees, on the other hand, can be killed by just one year of severe defoliation. Bagworm larvae feed on over 120 species of trees and shrubs. Their bags are made of the foliage they're feeding on, so a bagworm feeding on pine will have pine needles in its bag, while a bagworm feeding on a crabapple will have pieces of crabapple leaves decorating its bag.

Management: It is too late in the season to consider using insecticides. Handpicking bags from now until early spring will help control populations for next year.

Good websites:
http://www.mortonarb.org/trees-plants/tree-and-plant-advice/help-pests/bagworms
http://ento.psu.edu/extension/factsheets/bagworm

Sawflies (minor to potentially serious)

We wrote about sawflies early this season, but it seems worth repeating because we continue to see these pests on a wide range of plants this year. Sawflies are a large group of insects (literally hundreds of species). So far this year, we have seen sawflies on some unusual plants. We had reports of a sawfly larvae feeding on the leaves of creeping Jenny (*Lysimachia nummularia*). Even the tough guys have their enemies! Our native buttonbush suffered an attacked of sawfly larvae to the point that the plant was almost completely defoliated. Looking at the same shrub this week I find that it has produced a full set of new leaves! This week we are seeing hydrangea, a generally tough plant, being chewed by the hibiscus sawfly larvae (fig. 7).

Figure 7 Hibiscus sawfly

These insects can be confusing. As adults, they often have a fly-like or wasp-like appearance and may go unnoticed. As larvae, they look like caterpillars but are not true caterpillars (this means that *Bacillus thuringiensis* var. *kurstaki* will NOT kill them). Sawfly larvae and caterpillars do differ from one another. While each will have three pair of tiny legs near the head end of the body, they differ in the number of prolegs at the far end. Prolegs are outgrowths in the abdomen that the insect uses like legs. Caterpillars have five or fewer pair, while sawfly larvae have six or more pair. So, to be sure who you have, you'll need to get close and count those prolegs. Caterpillars have hooks, called crochets, on the bottom of their prolegs, so they can hold on tight. Sawfly larvae lack these hooks and can easily be dislodged from their host, so hitting them with a stream of water from the garden host often gets rid of them. Sawfly larvae

vary in color by species. Some are very colorful, while others are not. Some may be identified by spots, spines or other marks.

Sawfly larvae eat foliage, and the severity of their damage depends on the host, the size of the population and general health of the plant. High populations of sawfly can do a lot of damage and will add some stress to the host's life, but generally won't kill the host. Repeated defoliation year after year can lead to decline. Deciduous hosts can often tolerate more damage than evergreen hosts, and healthy plants can tolerate more defoliation than weak plants.

Management: Because sawfly larvae don't have hooks on the prolegs, they can't hold on tight. That makes them easy to wash off with the garden hose or to pick by hand.

Good websites: https://www.extension.umn.edu/garden/insects/find/sawflies/

http://jhr.pensoft.net/articles.php?id=4106

Pest Updates: Diseases

Laurel wilt (serious)

Here is some information that comes to us from Chris Evans, Forestry Extension and Research Specialist at University of Illinois at Urbana-Champaign:

"A new forest health threat, laurel wilt, has recently been detected in western Kentucky and western Tennessee. This has the ability to rapidly kill sassafras trees (*Sassafras albidum*) and potentially spicebush (*Lindera benzoin*) as it attacks members of the Lauraceae family. Laurel wilt is a disease complex caused by the interaction of an exotic fungus (Raffaelea lauricola) and the exotic red-bay ambrosia beetle (Xyleborus glabratus). Symptoms of laurel wilt on sassafras include rapid wilting of leaves, red-brown leaves still attached to dead or dying trees and dark streaky staining in wood just under bark. We would like to monitor for this new disease in Illinois. If you see sassafras trees matching these symptoms, please alert the University of Illinois Extension Forestry Program at cwevans@illinois.edu or 618-695-3383.

Link to more: https://uofi.box.com/v/LaurelWiltAlert

The Plant Health Care Report is prepared by Sharon Yiesla, M.S., Plant Knowledge Specialist and edited by 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 to the volunteers who will be scouting for us this season. The Scouting Volunteers include: Maggie Burnitz, LeeAnn Cosper, Ingrid Giles, Loraine Miranda, Mary Noe and Emma Visee. Your hard work is appreciated. Thanks also to Donna Danielson who shares her scouting findings.

Literature/website recommendations:
Indicator plants are chosen because of work done by Donald A. Orton, published in the book Coincide, The Orton System of Pest and Disease Management
(http://www.laborofloveconservatory.com/)

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

The Commercial Landscape & Turfgrass Pest Management Handbook (CPM), for commercial applicators, and Pest Management for the Home Landscape (HYG) for homeowners from the University of Illinois, are available by calling (800-345-6087).

This report is available as a PDF at The Morton Arboretum website at
http://www.mortonarb.org/visit-explore/news-events/arboretum-news?tid=259
For pest and disease questions, please contact the Plant Clinic at (630) 719-2424 between 10:00 and 4:00 Mondays through Saturdays or email plantclinic@mortonarb.org . Inquiries or comments about the PHCR should be directed to Sharon Yiesla at syiesla@mortonarb.org .