

Plant Health Care Report

Scouting Report of The Morton Arboretum

June 30, 2017

Issue 2017.7

Welcome to the Plant Health Care Report (PHCR). My name is Sharon Yiesla. I am on staff at The Morton Arboretum Plant Clinic, and I am responsible for compiling the newsletter. Comments or concerns regarding PHCR should be sent to syiesla@mortonarb.org. To be added to the email list, please contact me at that email address.

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.

This newsletter is available online at

<http://www.mortonarb.org/news-publication/plant-healthcare-report?tid=259>

Quick View

What indicator plant is in bloom at the Arboretum?

Wild hydrangea (*Hydrangea arborescens*) is in flower (Figure 1)

Accumulated Growing Degree Days (Base 50): 988.5 (as of June 29)

Accumulated Growing Degree Days (Base 30): 3244.5(as of June 29)

Insects/other pests

- Japanese beetles
- Kermes scale
- Good guys
- Eggs..no side of bacon
- Grape phylloxera
- Galls, Chapter 3

Diseases

- Powdery mildew
- Guignardia on buckeye
- Guignardia on Boston ivy
- Witch-hazel leaf spot
- Tubakia leaf spot

Weeds

- Helleborine
- Wild parsnip



Figure 1 Wild hydrangea

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.

As of June 29, we are at 988.5 base-50 growing degree days (GDD). The historical average (1937-2016) for this date is 932.5 GDD₅₀. Since January 1, we have had 23.44 inches of precipitation. Historical average (1937-2016) for precipitation Jan-June is 18.02 inches.

Location	B ₅₀ Growing Degree Days Through June 29, 2017	Precipitation (in) June 23-29, 2017
Carbondale, IL*	1797	
Champaign, IL*	1459	
Chicago Botanic Garden**	945 (as of 6/28)	1.03"
Chicago O'Hare*	1120	
Kankakee, IL*	1236	
Lisle, IL*	1158	
The Morton Arboretum	988.5	.65 inch
Northbrook, IL**	957.5 (as of 6/28)	
Quincy, IL*	1534	
Rockford, IL*	1024	
Springfield, IL*	1511	
Waukegan, IL*	886	

**Thank you to Mike Brouillard, Northbrook Park District and Chris Beiser, 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

Japanese beetles (Potentially serious)

That special time of year has arrived. It's Japanese beetle time. We are getting reports of adult Japanese beetles (*Popillia japonica*), a couple of beetles per sighting, in several locations in Dupage County, including the Arboretum. I have even spotted a couple of them as far north as Boone County, close to the Wisconsin border. Japanese beetles are up to 1/2 inch long, and have oval, metallic green bodies with coppery brown wing covers (fig. 2). They appear to have five white spots along each side and two additional white spots behind their wing covers. Upon examination under a hand lens, the spots are actually tufts of hair.



Figure 2 Japanese beetle adult

Adult beetles feed on nearly 300 different species of ornamental plants with about 50 species being preferred. Highly preferred hosts include rose, crabapple, cherry, grape, and linden. The adults feed on leaf tissue between veins, resulting in skeletonized leaves (fig. 3). Severely infested plants may be almost completely defoliated. Early infestations of Japanese beetle may be missed since the insects start feeding in the tops of trees.

Japanese beetles overwinter as larvae (grubs) about four to eight inches beneath the soil surface. In spring, as the soil temperatures warm to about 55° F, the grubs move upward through the soil to pupate. Adults normally emerge from late June through July. Within a few days after emergence, the females mate and burrow into the soil to lay eggs. Nearly all eggs are laid by mid-August. In sufficiently warm and moist soil, eggs will hatch in about ten days. Grubs feed on plant roots until cold weather forces them to greater depths in the soil for the winter. There is one generation of this beetle per year.



Figure 3 Japanese beetle damage

Management: Adult Japanese beetles can be handpicked. It is easiest to catch them by placing a soapy-water filled container directly under the leaf that they are chewing on and then shaking the leaf. The soapy water ensures that the beetles die while you're collecting them. The beetles generally fly straight down into the collecting container. Sometimes Japanese beetle pheromone traps are used to trap them. This is not recommended as you will be

attracting even more beetles to your property (more than the trap can collect). Insecticides can be used in the case of valuable plants.

Managing the Japanese beetle grubs that will hatch out around late July may help to reduce populations of adult beetles for next year. First, be sure your lawn has grubs. In late July and August, if areas of turfgrass are dying, peel the lawn back and look underneath to see the grubs. Treatment for grub infestations in lawns is not considered necessary unless the population exceeds 10 to 12 grubs per square foot. Eggs and first instar larvae require moisture to survive; therefore, the easiest way to reduce grub populations is to limit lawn irrigation during the egg-laying period when beetle populations peak (mid-July through early August). Japanese beetles also avoid laying eggs in shade, which is another great reason to plant more trees and shrubs. Insecticide applications are effective in controlling young larvae.

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 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. A newer product, chlorantraniliprole, is applied in spring to kill new grubs that hatch out in late July. It will not kill grubs present in spring. (Insecticide information from University of Illinois and Michigan State University). The bottom line is to read the product label carefully and use it at the appropriate time.

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 at all in colder, northern states. Also if you have grubs that come from another type of beetle, it won't work on them at all. This product is really not recommended for our area.

Beneficial nematodes can be watered into turf, again in late July, where they infest and kill grubs. Products containing *Heterorhabditis bacteriophora* nematodes are recommended by the University of Illinois. Beneficial nematodes are not always available in stores; they are available through mail order/internet sources.

Good websites:

<http://www.mortonarb.org/trees-plants/tree-and-plant-advice/help-pests/japanese-beetles>

<http://www.turf.msu.edu/home-lawn-grub-control-products-2>

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.

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 (fig. 4). Our scouts have found a small population of kermes scale on bur oak this year. This species of scale tends to congregate at the ends of the twigs, 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. This scale does produce honeydew.



Figure 4 Kermes scale adults

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>

Good guys

Every once in a while it pays to stop and think for a minute. It is human nature to see an insect and want to get rid of it. We should rethink that. There are a lot of insects that are harmless. More importantly there are some that help us. Our scouts have been bringing in good guys regularly, including lady bug larvae (fig. 5), a pupating lady bug (fig. 6), and an assassin bug nymph. These insects feed on other insects. Sometimes they do wander into our



Figure 5 Lady bug larva

homes and become a nuisance, but when they are outside, they are beneficial to the gardener.

The bottom line is to take a minute to think before you squash or spray an insect. Sometimes they are the good guys.



Figure 6 Lady bug pupa

Eggs.. no side of bacon

When we see insect eggs, we also want to stop and think before we crush. The scouts have been bringing in a lot of insects eggs recently. Some have been good guys and some have been bad guys. The scouts brought in lady bug larvae, just out of the eggs and still sitting on the egg cluster (good guys). They also brought in stink bug eggs (fig. 7) (bad guys). This week they found eggs on Manchurian pipevine (*Aristolochia manshuriensis*). These turned out to be the eggs of the pipevine swallowtail. The caterpillars will eat the vine, but they turn into beautiful butterflies.



Figure 7 Stink bug eggs

Grape phylloxera (potentially serious)

Grape phylloxera (*Daktulosphaira vitifoliae*) is a serious pest in commercial vineyards and can affect home grape growing as well. These insects are tiny and hard to see without magnification. The damage they do is far more noticeable. These insects cause round galls on the lower surface of grape leaves. The galls are often numerous and lead to deformation of the leaf (fig. 8). Gall production may also lead to death of leaves and premature defoliation. Premature defoliation, in turn, can lead to reduced crop quality and weakening of the vines leading to winter injury. Phylloxera can also feed on roots, causing galls there.



Figure 8 Grape phylloxera on wild grape

Management: Avoid susceptible cultivars. French-American hybrids are most at risk (see the first website listed below for susceptible cultivars and rootstock resistant to the root form of the phylloxera). Practice good sanitation by removing and destroying leaves with galls as soon as possible. Destroy populations of wild grape nearby as this plant can harbor the

pest (this is where our sample was collected). A few chemical controls are available to commercial growers. None are available to home grape growers.

Good websites: http://www.uaex.edu/Other_Areas/publications/PDF/FSA-7074.pdf

Galls, Chapter 3 (minor)

As we enter midseason, we continue to see numerous galls. Again, all these are harmless, but it is good to be able to identify them. Oaks are the big winners this week, weighing in with two galls. Oak spangles (fig. 9) are in the early stage of development. They are caused by a tiny wasp, and when the gall is fully developed it looks like a little disk stuck on the lower side of the leaf. The fuzzy oak gall is also caused by a tiny wasp, but has a completely different look. They do look like little fuzzy tan balls. Both of these oak galls are usually present in fairly large numbers.



Figure 9 Oak spangles

Management: None needed.

Pest Updates: Diseases

Powdery mildew (minor)

Earlier this season we reported on powdery mildew on ninebark. We are now starting to see it show up on other plants. Our scouts found it on London Planetree (*Platanus x acerifolia*). Hundreds of plant species are susceptible to powdery mildew, but the disease is caused by many different species of fungi which are host specific. This means that the powdery mildew on coralberry will not infect lilacs and so forth.

Powdery mildew appears as a superficial white to gray coating over leaf surfaces, stems, flowers, or fruits of affected plants (fig.10). Initially, circular powdery white spots appear. These spots coalesce producing a continuous patch of “mildew.” Later in the season, small, black fruiting bodies will appear. Warm days and cool nights favor this fungal disease. The fungi that cause powdery mildew are deterred by water on the leaves, since spores will not germinate in water on leaves. However, the fungus still needs high humidity to infect the plant. Leaf curling and twisting result, and in severe infestations you may see



Figure 10 Powdery mildew

premature defoliation and deformed flower buds. Although unsightly, powdery mildew is usually not fatal in the landscape.

Management: Infected plant parts should be removed as soon as symptoms appear. Dispose of fallen leaves, and do not handle plants when foliage is wet. Water plants during periods of drought to keep them healthy. High humidity can increase disease severity, so avoid overhead watering in late afternoon or evening. Put plants in locations where there is good soil drainage and sufficient sunlight. Provide proper plant spacing for good air circulation. Powdery mildew on some plants can result in significant damage, and fungicides may be needed. To obtain optimum results, spray programs should begin as soon as mildew is detected. In the future, plant mildew-resistant cultivars and species.

Good websites:

<http://www.mortonarb.org/trees-plants/plant-clinic/help-diseases/powdery-mildews>

***Guignardia* on buckeye (minor)**

Guignardia leaf blotch (*Guignardia aesculi*) was found on buckeye recently. The disease causes reddish brown to brown lesions with a yellow border (fig. 11) that blends into the normal green leaf tissue. The blotches will enlarge, coalesce, and may cover the entire leaf by the end of summer. Premature defoliation may follow on the most susceptible hosts. This disease eventually decreases a tree's ability to photosynthesize, but generally the disease doesn't become severe until the tree's annual growth has slowed or is complete. Therefore it does not do much harm to trees in the landscape, but it does make them unsightly.



Figure 11 *Guignardia* on buckeye

Management: Removing fallen leaves may help to destroy the overwintering inoculum. Pruning trees to improve air flow may also help, since the spores are spread and germinate under moist to wet conditions. It is too late for any fungicide treatments.

Good website: <https://extension.umaine.edu/ipm/ipddl/publications/5094e/>

***Guignardia* on Boston ivy (minor)**

Our scouts found Boston ivy (*Parthenocissus tricuspidata*) infected with a leaf spot caused by *Guignardia bidwellii*. The spot is relatively round with a dark margin (fig. 12). The dark fruiting bodies can also be found in this leaf spot. This disease also affects Virginia creeper

(*Parthenocissus quinquefolia*). While this disease is fairly minor on ornamental plants, it also causes black rot of grapes, which is more serious.

Management: Removing fallen leaves may help to destroy the overwintering inoculum. On Boston ivy and Virginia creeper, removing badly infected leaves may help. Improving air flow may also help, since the spores are spread and germinate under moist to wet conditions.



Figure 12 *Guignardia* on ivy

Good website: <http://hort.uwex.edu/articles/guignardia-leaf-spot>

Witch-hazel leaf spot (potentially serious)

We are seeing symptoms of leaf spot on witch-hazel (*Hamamelis* spp.), caused by the fungus *Phyllosticta hamamelidis*. This disease appears as brown, irregular leaf blotches (fig. 13) with very narrow dark-brown margins. Tiny black fruiting bodies called pycnidia break through both surfaces of the lesion and can be seen with a hand lens or magnifier. The level of disease we are seeing is minor, but leaves throughout the tree have been affected. This disease can defoliate witch-hazel when severe.



Figure 13 Witch-hazel leaf spot

Management: Prune branches and give plants ample space to improve air circulation. This fungus overwinters in fallen leaves; therefore rake and compost leaves to reduce the source of inoculum. Fungicides can be applied in spring when leaves emerge. Only trees that had severe leaf blight this year should be treated.

Tubakia leaf spot (minor)

Our scouts found Tubakia leaf spot on bur oak (*Quercus macrocarpa*). This disease is caused by the fungus *Tubakia dryina*. This is NOT the species that causes bur oak blight. Tubakia leaf spot usually starts to show up in mid-season, starting as a small brown spot, often with a yellowish halo. The spots develop concentric rings (fig. 14) and may coalesce as the season continues. There may be some leaf drop



Figure 14 *Tubakia* leaf spot

when infection occurs early or when the host is stressed, but this is mostly a cosmetic problem.

Management: Fungicides are seldom needed. Clean up infected leaves and give good care, especially water, to stressed trees.

Good website: http://msue.anr.msu.edu/news/tubakia_leaf_spot_appearing_on_oak_trees
<http://hyg.ipm.illinois.edu/pastpest/200617b.html>

Weeds

Helleborine (aggressive)

When is an orchid a bad thing? When it is helleborine (*Epicactus helleborine*), a non-native orchid. The Plant Clinic at The Morton Arboretum has received several calls on this orchid turned weed. Why is it a weed? It spreads underground very aggressively via fleshy rhizomes. Large patches can develop quickly. 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 (fig. 15). Numerous flowers are produced on a spike.

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. Various University websites indicate that glyphosate may not be successful when used as a single treatment. Re-application will most likely be needed. To get the best results from glyphosate, cut the plant down and wait until new shoots begin to emerge. Actively growing new foliage absorbs the product most effectively.

Good websites: <https://www.minnesotawildflowers.info/flower/helleborine>
msue.anr.msu.edu/news/homeowners_battling_a_weedy_orchid_invading_lawns_and_flower_beds



Figure 15 Flowers of helleborine (photo: Rob Routledge, Sault College, Bugwood.org)

Wild parsnip (aggressive and dangerous)

It is time to talk about another one of those weeds that can hurt us, wild parsnip (*Pastinaca sativa*). This certainly is a plant of concern, because it can spread aggressively and it can impact human health. The concern over this plant is two-fold. It is an aggressive plant that produces large numbers of seed. It is showing up as large colonies along roadsides and in other out-of-the-way places. I have also seen it in State parks and other native areas (wild parsnip is a non-native plant). There is also a human health concern as contact with the sap of this plant can lead to a serious skin reaction. The reaction is called phyto-photo-dermatitis and it occurs when the sap of the plant gets on your skin and then is exposed to sunlight (actually ultra-violet light as this can still happen on a cloudy day.) Symptoms usually show up within 24 to 48 hours and can range from something similar to sunburn to blistering.

Learn to recognize this plant. It is in the carrot family and will have a flower cluster (umbel) similar to that of Queen Anne's lace, but the flowers will be yellow (fig. 16). Flowering is most prominent in July. Plant size can range from 2 to 5 feet tall, and the main stem is visibly grooved (fig. 17). The leaves are pinnately compound and can have 5 to 15 toothed leaflets (fig. 18). Identification of the plant is important if you are planning to remove it. There is a native wildflower known as Golden Alexanders (*Zizia aurea*) that has a similar appearance. Golden Alexanders will flower earlier and is almost done flowering by the time wild parsnip comes into flower. Golden Alexanders also has umbels of yellow flowers and compound leaves, but generally has only 3 to 5 leaflets (fig. 19). It is also a shorter plant at maturity (2 ½ feet).

Management: When removing this weed be sure to wear long pants, long sleeves and gloves to avoid contact with the sap. Small populations can be cut by hand (best done before seeds are set). Larger areas can be mown by machine, but you must be sure



Figure 16 Wild parsnip flowers



Figure 17 Grooved stem of wild parsnip



Figure 18 Leaves of Wild parsnip

that the mower does not discharge the clippings back onto the operator. Mowers should be cleaned afterwards to remove sap. Young, fast –growing plants can be treated with glyphosate.

Good websites:

<http://www.dot.state.mn.us/adopt/documents/wild-parsnips.pdf>

http://www.illinoiswildflowers.info/weeds/plants/wild_parsnip.htm



Figure 19 Leaves of golden Alexanders



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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; Doris Taylor, Plant Clinic Manager, and Carol Belshaw, Arboretum Volunteer. Frank Balestri M.S., Plant Health Care Technician/Research Assistant is responsible for coordinating the scouts. 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 the volunteers who will be scouting for us this season. They find most of the insects and diseases reported here. The Scouting Volunteers include: Maggie Burnitz, LeeAnn Cosper, Ingrid Giles, Emily Hansen, Ann Klingele, Pat Miller, Loraine Miranda, Julie Moore, Mary Noe and Wendy Vichick . 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, which is published in the book Coincide, The Orton System of Pest and Disease Management. This book may be purchased through the publisher at: <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 .

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