Plant Health Care Report

Scouting Report of The Morton Arboretum

June 12, 2020 **Issue 2020.6**

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. Due to the current COVID-19 situation, we will not be scouting on the Arboretum grounds at this time. We will be including information about pest and disease problems based on questions emailed to The Arboretum's Plant Clinic. We are working remotely, but still able to answer questions via email at plantclinic@mortonarb.org

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 to the email list, please contact me at syiesla@mortonarb.org. Comments or concerns regarding PHCR should be sent to the same email.

Quick View

What indicator plant is in bloom in Dupage County?
Arrowwood viburnum (*Viburnum dentatum*) is in flower (Figure 1)

Accumulated Growing Degree Days (Base 50): 652.5 (as of June 11)
Accumulated Growing Degree Days (Base 30): 2322.5 (as of June 11)

Insects/other pests

- **Periodical cicadas**
- **Viburnum leaf beetle update**
- **Euonymus scale**
- **Four-lined plantbug**

Diseases

- **Apple scab**
- **Powdery mildew on ninebark**
- **Peach leaf curl**
- **Brown rot of stone fruit**
- **Guignardia on ivy**

Weeds

- **Helleborine**

Miscellaneous

- **Brown ginkgo update**

Figure 1 Arrowwood viburnum (photo: John Hagstrom)

Thank you!

Writing the Plant Health Care Report has been more challenging this year without the regular scouts in the field. As I have mentioned previously, I can glean information from the Plant Clinic email, the scouts looking around their own neighborhoods and observations I can make while driving around the area. I am also receiving help from our Plant Clinic volunteers. They live in many different communities (and counties) in the Chicago region and they are very observant. I put out the call to them to tell me what they are seeing. The response is great and has allowed me to write a fuller and more in-depth newsletter than I thought I would. Never doubt the power of a group of volunteers. Thanks to them for helping and thanks to you for reading.

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 11, we have 652.5 base-50 growing degree days (GDD). The historical average (1937-2019) for this date is 568 GDD_{50}. Since January 1, we have had 20.39 inches of precipitation. Historical average (1937-2019) for precipitation Jan-June is 20.7 inches.

Location	B_{50} Growing Degree Days Through June 11, 2020
Carbondale, IL*	1003
Champaign, IL*	760
Glencoe*	345
Chicago Botanic Garden**	583
Chicago O'Hare*	644
Kankakee, IL*	680
Lisle, IL*	670
The Morton Arboretum	652.5
Quincy, IL*	824
Rockford, IL*	609
Springfield, IL*	816
Waukegan, IL* (60087)	511
Waukegan, IL* (60085)	548

**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

Periodical cicadas (potentially serious and really loud)

Yes, it's true. Periodical cicadas are showing up around the Chicago region (fig. 2). Entomologist Dr. Fredric Miller says these are part of the brood expected to emerge in 2024. Early arrivals also happened with the 2007 brood. Some areas are seeing a lot of these and other areas are not. Areas that have experienced a lot of construction in the last few years may not see many, as the construction may have killed a lot of them while they were dormant underground. The ones that came up in my front yard, found their tree missing (cut down last fall) and promptly moved on to other trees. You may feel relieved if you don't see many in your area, but remember, these are the early emergers. The main invasion is still scheduled for 2024.

Figure 2 Newly emerged periodical cicadas (photo: C. Donovan)

Right now, they are mating. The males are 'singing' to attract the females. Once the females have mated, they will try to slit open small branches to lay their eggs. Damage to older trees is usually fairly limited. It would be wise to protect young trees and shrubs with netting (many people used tulle during the last emergence). Insecticides are not effective. Adult cicadas live for about 4 to 6 weeks. Birds and animals will be feasting on these critters, reducing the population somewhat. I saw a robin with one in his beak the other day. He seemed quite delighted.

Be aware that, later this season, we will also see the annual (or dog day) cicadas come out. The periodical cicadas we are seeing now have orange eyes and wing veins. The annual ones have dark eyes and green wing veins.

Viburnum leaf beetle update

Until recently, viburnum leaf beetle larvae have been feeding heavily on viburnum leaves. The larvae are now, or soon will be, going into the ground to pupate and become adults. While they are in the soil, they can't be treated with insecticides. Insecticides generally do not harm insects in the pupal stage. A soil drench of imidacloprid can be done now, but that will be taken up by the plant and will target the adults when they return to feed. It will not kill the pupae in the soil. In early July, the small brown beetles will emerge and again feed on leaves. They can be treated with one on the following insecticides: acephate, carbaryl, cyfluthrin, permethrin or malathion. Insecticidal soap that worked on the larvae will not treat the adults.

In fall, look for egg-laying sites. The actual eggs are not visible. The eggs are laid in small holes on the ends of twigs, and then the holes are capped with a mixture of chewed wood and excrement. The caps are dark and stand out against the bark of the twig, making them easy to see. From October through March, cut out the twig tips that have the eggs in them and get them out of the garden completely. This is the most effective and least toxic means of control. It will greatly reduce the number of insects you have next year. If the eggs can't hatch, they can't eat.

Euonymus scale (potentially serious)

Euonymus scale should be in the crawler stage very soon. We are seeing adults not only on euonymus ground cover this year, but also on pachysandra. Euonymus scale (*Unaspis euonymi*) is one of those pests that we can see all year long, especially on ground cover euonymus. Even though we see the adults all season, the young crawlers are out and active for only a short time. 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 dark brown (fig. 3) and oystershell-shaped. Euonymus scale overwinters as mated females on plant stems.

Figure 3 Euonymus scale (white are male, brown are female)

Management: On smaller plants, like groundcover euonymus, 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, which should be out now. Imidacloprid, used

as a soil drench, may be used on some species of scale, but it is not generally effective on armored scale, like euonymus scale.

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

Four-lined plantbug (minor)

Be looking for the four-lined plantbug (*Poecilocapsus lineatus*). The nymphs are out, and we are seeing feeding damage on a wide range 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 feeding wound with digestive juices. Damage appears as dark leaf spots which subsequently turn translucent (fig. 4). The damage is more serious on herbaceous plants than on woody plants. Sometimes by the time the damage is noticed, the insect isn't there anymore. Both nymphs and adults feed on leaves, creating the spots.

Figure 4 Four-lined plantbug damage

Nymphs are red and will develop dark wing pads as they mature. The adult stage is 1/4" to 1/3" long and has four longitudinal black lines on its yellow or green back (fig. 5), 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 5 Four-lined plantbug adult

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

Pest Updates: Diseases

Apple scab (potentially serious)

Apple scab is showing up already and is progressing rapidly due to the wet conditions we have had this spring. We are already seeing development of the leaf spots. Early lesions look like

olive-green leaf spots and will continue to develop into larger, irregular dark spots (fig. 6). Often lesions develop along the mid-veins of the leaves. Infected leaves eventually turn yellow and drop prematurely on susceptible hosts. This defoliation can stress and weaken the tree, especially if it happens year after year. The fungus which causes scab (*Venturia inaequalis*) overwinters on fallen leaves and on lesions on twigs. Sunken spots may appear later on fruits, and susceptible crabapples can be completely defoliated in severe disease years. Scab severity is a product of a specific temperature range, duration of moisture on leaves, and host susceptibility. Scab severity is worse in wet springs, so we can expect to see quite a bit of this on susceptible cultivars.

Figure 6 apple scab

Management: The best way to avoid apple scab is to plant resistant varieties. "Resistant" just means that. In a typical year, a resistant plant won't suffer as much from the disease as a susceptible plant. However, it may exhibit symptoms in "bad" scab years. When shopping for new crabapples, ask your local nursery which scab-resistant varieties they stock. Caring for your trees, such as watering during summer droughts, may moderate effects of defoliation and reduced photosynthesis in affected trees. As the fungus overwinters on fallen leaves and blighted twigs, collecting and destroying them may help reduce the source of inoculum next year. Spraying for apple scab needs to begin when leaves begin to emerge and should continue (at labeled intervals) until two weeks beyond petal fall.

Good websites: http://www.mortonarb.org/trees-plants/tree-and-plant-advice/help-diseases/apple-scab

Powdery mildew on ninebark (minor to potentially serious)

We have not seen a lot of powdery mildew yet this season, but it is showing up on the leaves of ninebark (*Physocarpus opulifolius*). The straight species of ninebark is relatively resistant to powdery mildew, but some of the cultivars can be very susceptible and can sustain quite a bit of damage. 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.

Figure 7 Powdery mildew on ninebark

Powdery mildew appears as a superficial white to gray coating over leaf surfaces, stems, flowers, or fruits of affected plants. Initially, circular powdery white spots appear. These spots coalesce producing a continuous patch of "mildew." On ninebark, the tips of branches often develop a thick coating of white powder (fig. 7), while other parts of the same plant may show very few symptoms. Later in the season, fungal fruiting bodies that look like black pepper under a hand lens will appear. Warm days and cool nights favor this fungal disease. The fungi that cause powdery mildew are deterred by water since spores will not germinate on wet leaves. However, the fungus still needs high humidity to infect the plant. Leaf curling and twisting result, and in severe infestations you may see 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. On ninebark, prune out infected tips. Water plants during periods of drought to keep them healthy. 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 website:
http://www.mortonarb.org/trees-plants/tree-and-plant-advice/help-diseases/powdery-mildews

Peach leaf curl (potentially serious)

Peach leaf curl is caused by the fungus *Taphrina deformans* (which is related to the fungus that causes oak leaf blister). Common hosts include peach and nectarine. This fungal disease is most severe when cool, wet weather is prevalent at the same time new leaves are emerging. Young, succulent leaves become puckered and deformed as they develop. The puckered areas turn yellow, pink and red (fig. 8). Later, as spores are produced, the leaf surfaces will turn gray or have a powdery appearance. Eventually, the leaves turn yellow and fall off. Diseased fruits can become distorted and swollen with discolored areas on the skin. Peach leaf curl generally does not kill the tree, but annual infections may weaken a tree and predispose it to other problems.

Figure 8 Symptoms of peach leaf curl

Management: The fungus overwinters in buds. Fungicides are only effective when applied in fall after leaf drop or in spring before buds swell. Once the leaves have emerged, fungicides are no longer effective.

Good website:

http://www.mortonarb.org/trees-plants/tree-and-plant-advice/help-diseases/peach-leaf-curl
https://extension.psu.edu/disease-of-the-month-peach-leaf-curl
https://extension.illinois.edu/blogs/good-growing/2016-06-21-peach-leaf-curl

Brown rot of stone fruit (serious)

The Plant Clinic at The Morton Arboretum has received a couple of reports of brown rot on cherries. Brown rot is caused by the fungus *Monilinia fructicola* which can infect peaches, plums, cherries, apricots, and other *Prunus* species. The disease is sometimes seen as blossom blight – the browning and sudden collapse of blossoms. The infection can spread into shoots and twigs during the next several weeks resulting in shoot and twig blight. Cankers, which may be accompanied by a gummy ooze at their margins, form on twigs often causing twig dieback. Infections of fruit start as brown spots that rapidly infect the entire fruit, completely covering it with spores and giving it a fuzzy look (fig. 9). Infected fruits decay and shrivel; some will stay attached to the tree throughout winter while others will fall to the ground. These 'mummies' provide inoculum for the following spring.

Figure 9 Peach infected with brown rot (photo: S. Yiesla)

Management: Sanitation is crucial to control of brown rot. Prune out active infections immediately during dry weather. Don't forget to disinfect pruning tools. Rake and clean up debris under the tree during the summer to remove fallen leaves and fruit. Prune to promote good air circulation through the tree canopy. Wild or neglected stone fruit trees (e.g., wild plum and cherry) in the area are likely to have the disease and be sources of inoculum that should be removed. Later in the year remove rotted fruit 'mummies' that are persistent, and prune out cankers and infected twigs. If damage is severe, fungicides need to be applied when blossoms first open in early spring.

Good websites: http://ohioline.osu.edu/hyg-fact/3000/pdf/HYG_3009_08.pdf

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

Boston ivy (*Parthenocissus tricuspidata*) are showing up, infected with a leaf spot caused by *Guignardia bidwellii.* The spot is relatively round with a dark margin (fig. 10). 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. Due to wet weather in May, the infections on Boston ivy seem to be more severe this year, with some reports of leaf drop.

Figure 10 Guignardia on Virginia creeper

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.

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

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 already received emails this season on 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 (fig. 11). 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 11 Flowers of 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. 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

Miscellaneous

Brown Ginkgo update

Figure 12 New ginkgo leaves emerging

In our May 29 issue, we reported on numerous ginkgo trees with brown leaves due to the freeze on the Mother's Day weekend. We are now getting reports about some of those trees producing new leaves (fig. 12). That is good news. To encourage that to continue, be sure that trees get watered regularly. Trees need water to be able to produce new leaves. We have been having a hot, dry spell recently. Check your soil to see if you need to water. Fertilizer is NOT recommended at this time.

Other trees besides ginkgo were hit by the same freeze. We have a report from the field that a number of oaks suffered similar damage and are now producing new foliage as well.

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...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, Loraine Miranda, and Emma Visee. Your hard work is appreciated.

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

For pest and disease questions, please contact the Plant Clinic. At this time due to the COVID-19 situation, the Plant Clinic building is closed. You can still contact the Plant Clinic via email at plantclinic@mortonarb.org . Emails will be answered during business hours Monday through Friday. Inquiries or comments about the PHCR should be directed to Sharon Yiesla at syiesla@mortonarb.org .