

Plant Health Care Report

Scouting Report of The Morton Arboretum



June 12, 2015

Issue 2015.6

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. 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.

New this year: We are on an every other week schedule this year. Our focus will be on pests that are more serious. Should we encounter some new major pest, we will issue an alert. If this occurs during a week when we are not publishing the newsletter, our regular readers will receive a timely email alert, and the information will be published in the next scheduled newsletter. On weeks when we do not publish a full newsletter, we will still make growing degree day information available since many of our readers use this information. Readers who receive our email blasts will receive one weekly, either to announce that the newsletter is available or that the growing degree day information is available. To be added to the email list, please contact me at syiesla@mortonarb.org

Quick View

What indicator plant is in bloom at the Arboretum?

Catalpa (*Catalpa speciosa*) is in bloom (fig 1)

Accumulated Growing Degree Days (Base 50): 599.5 (as of June 11)

Accumulated Growing Degree Days (Base 30): 2135.5 (as of June 11)

Insects and insect relatives

- Viburnum leaf beetle update
- Scale and more scale
- Euonymus caterpillar or webworm

Diseases

- Fireblight
- Peach leaf curl
- Rose rosette
- Apple scab
- Guignardia
- Exobasidium gall
- Viruses

Weeds

- Wild parsnip



Figure 1 Catalpa (photo: John Hagstrom)

Degree Days and Weather Information

As of June 11, we are at 599.5 base-50 growing degree days (GDD). The historical average (1937-2013) for this date is 553 GDD₅₀.

Location	B ₅₀ Growing Degree Days Through June 11, 2015	Precipitation (in) June 5-11, 2015
Carbondale, IL*	1136	
Champaign, IL*	960	
Chicago Botanic Garden**	494 (as of 6/10)	.68ø (6/4-10)
Chicago O'Hare*	730	
Kankakee, IL*	783	
The Morton Arboretum	599.5	.65ö
Northbrook, IL**	503.5 (as of 6/10)	1.02ö (6/3-9)
Quincy, IL*	1030	
Rockford, IL*	607	
Springfield, IL*	1020	
Waukegan, IL*	542	

**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 and insect relatives

Viburnum leaf beetle update (potentially serious)

We continue to get reports of Viburnum leaf beetle from a number of locations. Reports are coming from as far north as Gurnee and as far south as Orland Park. As we approach the middle of June, the larvae may be harder to find as they will begin their descent to the ground to pupate. The problem will not be over, however, as the adult beetles that emerge from the pupae will also feed. Expect the adults to show up in early July. University of Illinois has published some extensive information in their newsletter that will be of help to homeowners: <http://hyg.ipm.illinois.edu/article.php?id=694> and <http://hyg.ipm.illinois.edu/article.php?id=701>

Scale and more scale (potentially serious)

In our May 29th issue, we reported on pine needle scale and oystershell scale. We continue to see many species of scale and in some instances heavy populations of scale. Several calls to the Morton Arboretum Plant Clinic have involved Kermes scale on oak and lecanium scale on a number of different plants. We have also noted a couple of cases of calico scale and one sample that we have tentatively identified as striped pine scale.

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.

Kermes scale (fig. 2) has been showing up on oak, most commonly on bur oak, for the last three years. This dark colored 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 2 Kermes scale (photo: U of I Extension)

Lecanium scale (fig. 3) populations are unbelievably heavy this season. The term lecanium scale actually refers to several species that were once lumped together in the same genus. They vary in size, color, and shape, depending somewhat on the host plant they attack (hosts include maple, oak, elm and birch among others). The adult scale length varies from 1/8 to 1/2 inch.

Most species of lecanium scales have similar life cycles. Eggs are laid beneath the females beginning in late spring to early summer. After egg laying, the female's body dries, becomes brittle, and turns brown. This "scale" covering provides protection to the developing eggs. Crawlers are expected to emerge at 900-1200 growing degree days (base 50). After the crawlers hatch, they migrate to leaves to feed on plant sap. Infested plant leaves are often covered with sooty mold, a black fungus that grows on the honeydew excreted by the scales as they feed.



Figure 3 Lecanium scale

In severe infestations, lecanium scales will cause some twig dieback and premature leaf drop.

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. We have had a report of lady bugs feeding on lecanium scale on oaks.

Good website:

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

Euonymus caterpillar or webworm (severity is determined by the amount of defoliation occurring)

Euonymus caterpillars (*Yponomeuta cagnagella*), also known as euonymus webworms for the webbing they make, have been reported on various species of euonymus. This pest shows up from time to time. They are leaf-feeding insects that live in colonies within thin webs at branch ends. The web increases with size as the larvae feed on the leaves and continue to grow themselves. Larvae are pale yellow to cream-colored with black spots (fig. 4), eventually reaching an inch at maturity. The larvae will pupate in cocoons that hang on the branches. The adult moth emerges in June. The moth, known as an ermine moth, is white with black spots.



Figure 4 Euonymus webworm larva

Management: This pest is mostly over now, but the calls received in the Plant Clinic were on plants that were fairly heavily defoliated, possibly indicating heavy populations. Prune out webs when small. *Bacillus thuringiensis* var. *kurstaki* (Btk) will control young larvae.

Good web site: <http://bugguide.net/node/view/70367>

Pest Updates: Diseases

Fire blight (serious)

We have had some reports of fire blight showing up on crabapples and *Prunus* species. Fire blight is a serious disease of plants in the rose family and is caused by the bacterium *Erwinia amylovora*. Common symptoms are blossom and shoot blight. Branches are described as looking as though they were burned, thus the name fire blight. Blossoms, leaves, and shoots wilt, turn dark brown, and look water-soaked. Leaves usually persist, and succulent shoots that become infected frequently form what looks like a “shepherd’s crook”(fig. 5). Fire blight infections move rapidly from the blossoms into branches and trunks, causing cankers. The cankers enlarge and may girdle a tree during the growing season. Clear, or sometimes milky, ooze often exudes from fissures on infected shoots and canker margins. The presence of ooze seems to depend on weather conditions. Fire blight bacteria overwinter in canker margins and buds. In spring, bacteria resume reproduction when temperatures rise above 65 degrees. Rain, heavy dews, high humidity, and vigorous tree growth favor the disease. Frequently trees that are heavily pruned and have a lot of subsequent succulent new growth become infected. The bacteria are spread in droplets of ooze carried by pollinating insects, rain, and pruning tools.



Figure 5 Shepherd's crook (fire blight)

Management: It is critical to respond quickly to this disease by removing infected limbs or the entire tree as the disease rapidly spreads. Prune blighted stems during dry weather as soon as they are spotted. Make pruning cuts at least six inches below infected areas, and sterilize pruning tools between cuts. Longer term management requires avoiding crowded plantings, heavy pruning, and high nitrogen fertilizers that can increase succulent growth. Copper-containing chemicals can be used as protectants against fire blight. Streptomycin sulfate can also be used. Plant resistant varieties of Rosaceous plants.

Good websites:

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

<http://www.ag.uiuc.edu/~vista/abstracts/a801.html>

Peach leaf curl (potentially serious)

Peach leaf curl (*Taphrina deformans*) was diagnosed at the plant clinic this week. This fungal disease is most severe when cool, wet weather is prevalent when the leaves are first emerging. Young, succulent leaves become puckered and deformed as they develop. The puckered areas turn yellow, pink and red (fig.6). A white bloom appears on the deformed part of the leaf. Shortly after, the leaves turn yellow and fall off. Diseased twigs become swollen and stunted. Diseased fruits also 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 6 Peach leaf curl (photo: S. Yiesla)

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.

Rose rosette (serious, but no chemical treatments available)

Rose rosette is showing up on roses in the Chicago region. Rose rosette is believed to be caused by a virus or virus-like organism and is vectored (spread) by a small eriophyid mite. It can also be spread through grafts. *Rosa* sp. are the only known hosts, and all types of roses can be infected (this has been reported even on Knock-Out® roses). Plants often die within one to two years after infection.



Figure 7 Rose rosette

It is not always easy to diagnose this disease as the symptoms vary depending on the species or cultivar infected. When all of the symptoms listed below are present, diagnosis is relatively straightforward. However, a diseased plant usually exhibits just a few of these symptoms, especially in the early stages of the disease. Symptoms include rapid elongation of new stems, followed by development of witches' brooms that appear as numerous red lateral shoots growing in different directions. Tiny and distorted leaves often, though not consistently, have a

red coloration or a mosaic of green, yellow, and red. Thorns are abundant and obvious (fig. 7). Canes are thicker than the parent cane from which they emerged. Short, deformed shoots, often with red blotches, distorted flowers with fewer petals than normal, and abnormal coloration appear.

Management: No chemical controls are available. Infected plants cannot be cured and should be dug up and destroyed (including roots) when symptoms first appear.

Good website: <http://www.ksre.ksu.edu/bookstore/pubs/MF2974.pdf>

Apple scab (potentially serious)

We are seeing early symptoms of apple scab on crabapple (*Malus*). Early lesions look like velvety, olive-green leaf spots (fig. 8) and will continue to develop into larger, irregular dark spots. 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 8 Early symptoms of apple scab

Management: The best way to avoid apple scab is to plant resistant varieties. “Resistant” just means that, in the 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/plant-clinic/help-diseases/apple-scab>

Guignardia leaf blotch on *Aesculus* (minor)

Guignardia leaf blotch (*Guignardia aesculi*) was found on buckeye recently. The disease causes reddish brown to brown lesions with a yellow border that blends into the normal green leaf tissue (fig.9). 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 9 Guignardia leaf blotch

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.

Good websites: <http://ohioline.osu.edu/hyg-fact/3000/pdf/3044.pdf>

Exobasidium gall (minor)

This wet spring is fueling infection by common diseases like apple scab, rust and guignardia. Every once in a while some unusual diseases also pop up for a visit. Our pathologist, Stephanie Adams, tells us that the U of I Plant Clinic has a report of Exobasidium gall on azalea. This is not a common problem in our area. The causal fungus affects both flowers and leaves. The most common symptom is leaves curled to the point where they look like balls. They are white in color due to a coating of spores (see website below for photos). Other possible symptoms include swollen stems and witches brooms. Common hosts include azalea, rhododendron and Japanese Andromeda.

Management: Hand pick leaves as soon as symptoms are noticed. Remove leaves from the garden completely. It is too late to spray fungicides.

Good website: <http://plantclinic.cornell.edu/factsheets/azaleagall.pdf>

Viruses (most are minor)

Last year we reported on a number of viruses on landscape plants, and we are starting to see some already this year. Our scouts have noticed a virus on geranium and a mosaic virus on

hackberry (fig.10). Viruses seldom kill their hosts, but the plant will always be infected and many viruses can be spread by insects that feed on a diseased plant and then move to a healthy plant to feed. Virus symptoms can vary by plant and by virus. Common symptoms include mottling, mosaic patterns and excessive growth of plant parts.

Management: There is no chemical management of viruses. Once the plant is infected, it cannot be 'cured'. There are two options for dealing with viruses. First, you can keep the plant and live with the fact that it has the virus. For some plants this is an acceptable option, especially if it does no serious damage to the plant or there are no other plants of the same species nearby to become infected. The second option is to destroy the plant. This is a good idea with small plants like roses, hostas or raspberries where there are other plants of the same species nearby that might become infected.



Figure 10 Hackberry mosaic virus

Pest Updates: Weeds

Wild parsnip (dangerous)

Wild parsnip (*Pastinaca sativa*) is becoming fairly common in the Chicago region. It is a pretty plant with a dark side. The plant contains chemicals that can lead to a rash or blistering of the skin when you come in contact with the plant in the presence of sunlight. The danger with this introduced plant is that it looks a lot like one of our native plants, golden Alexanders (*Zizia aurea*). Both plants belong to the same family and have similar flowers (tiny yellow flowers in umbels, similar to the white clusters of Queen Anne's lace). Golden Alexanders blooms from late spring into early summer while wild parsnip blooms mid to late summer. These bloom times can overlap a little so it is possible to find both plants blooming at the same time. Wild parsnip is generally taller (4 feet) than golden Alexanders (2.5 feet). It has a compound leaf with 5-15 leaflets while golden Alexanders has a compound leaf with 3-5 leaflets.

Management: Plants can be dug by hand. Be sure to wear gloves and long sleeves to avoid contact with the plant. Herbicides like glyphosate can be applied to the plant when it is in the rosette stage.

Good websites (last two gives good photos of wild parsnip and golden Alexanders):

http://www.nyis.info/user_uploads/files/wild-parsnip%20-%20USFS.pdf

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

http://www.illinoiswildflowers.info/prairie/plantx/gld_alexanderx.htm



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The Plant Health Care Report is prepared by Sharon Yiesla, M.S., Plant Clinic Assistant and edited by Stephanie Adams, M.S. Research Specialist in Plant Health Care; Fredric Miller, Ph.D., Research Entomologist at The Morton Arboretum and Professor at Joliet Junior College; Doris Taylor, Plant Information Specialist, 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: LeeAnn Cosper, Paul Duke, Deborah Finch-Murphy, Anne Finn, Ann Klingele, Loraine Miranda, and Bill Sheahan. Your hard work is appreciated. Thanks also to Donna Danielson who also provides scouting information to us.

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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