

Plant Health Care Report

Scouting Report of The Morton Arboretum



July 10, 2015

Issue 2015.8

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 On weeks when we do not publish a full newsletter, we will still make growing degree day information available since many of our readers use this information.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?

Wild hydrangea (*Hydrangea arborescens*) is in full bloom (fig.1)

Accumulated Growing Degree Days (Base 50): 1099.5 (as of July 9)

Accumulated Growing Degree Days (Base 30): 3195.5 (as of July 9)

Insects and insect relatives

- Leafminers
- Sycamore lacebugs
- More galls

Diseases

- Brown rot of stone fruits
- Cedar-quince rust on hawthorn
- Black spot of elm
- Island chlorosis (virus)

Miscellaneous

- Chlorosis



Figure 1 Wild hydrangea

Degree Days and Weather Information

As of July 9, we have accumulated 1099.5 base-50 growing degree days (GDD). The historical average (1937-2013) for this date is 1166 GDD₅₀.

Location	B ₅₀ Growing Degree Days Through July 9, 2015	Precipitation (in) July 3-9, 2015
Carbondale, IL*	1913	
Champaign, IL*	1588	
Chicago Botanic Garden**	959 (as of 7/8)	.58 (7/1-7)
Chicago O'Hare*	1278	
Kankakee, IL*	1342	
The Morton Arboretum	1099.5	1.14
Northbrook, IL**	1000 (as of 7/8)	.77ö (7/1-7)
Quincy, IL*	1680	
Rockford, IL*	1091	
Springfield, IL*	1664	
Waukegan, IL*	1013	

**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

Leafminers (minor)

There are numerous species of tiny insects known as leafminers that live and feed inside leaves of many different plant species. Leafminer larvae eat leaf tissue between the upper and lower leaf surfaces leaving the leaf intact. Leafminers and their black frass (excrement) can be seen within the mined leaf by holding a damaged leaf up to sunlight. We recently found oak leafminer on white oak (*Quercus alba*) and columbine leafminer on columbine (*Aquilegia* sp.) (Fig. 2).



Figure 2 Damage from columbine leafminer

Management: Leafminer injury is generally an aesthetic problem so management is rarely justified.

Good websites:

<http://www.mortonarb.org/trees-plants/tree-and-plant-advice/help-pests/minor-plant-pest-problems>

<http://www.ext.colostate.edu/pubs/insect/05548.html>

Sycamore lacebugs (minor)

Sycamore lacebugs (*Corythucha ciliata*) have been found feeding on London Planetree (*Platanus x acerifolia*). Lacebugs are a common pest of ornamental trees and shrubs, and most lacebug species are host specific. An exception is the hawthorn lacebug (*C. cydoniae*), which attacks several species within the *Rosaceae* family including cotoneaster, flowering quince, crabapple, mountain ash, *Pyracantha*, and hawthorn. Most lacebug species have two or more generations per year. The hawthorn lacebugs have only one generation per year.



Figure 3 Sycamore lacebug

The sycamore lacebug overwinters as an adult under loose bark of its host and becomes active in early spring as leaves begin to develop. Soon afterwards, the female lays eggs on the undersides of leaves. Eggs hatch within a few days, and spiny, wingless, black nymphs begin feeding. Within 4 to 6 weeks the nymphs pupate, and the next generation of adults emerges. Adults are 3 to 6 mm long (1/8 to 1/4 inch) with lacy wings (Fig. 3).

Sycamore lace bug adults and nymphs live on the lower surfaces of leaves and feed on leaf sap, causing yellow and white stippling on the upper leaf surface. As the insects feed, they deposit brown varnish-like excrement on the underside of leaves. Heavy infestations may lead to complete stippling and premature leaf drop.

Management: There are several naturally occurring predators including green lacewings, mites, and assassin bugs. A forceful spray of water will dislodge newly hatched nymphs, and they will often die before they find their way back to suitable leaves. Planting site selection is also important as lace bugs prefer bright, sunny locations. Insecticides generally are not necessary except for severe infestations. Avoid using insecticides if predators are present.

Good websites:

<http://aggie-horticulture.tamu.edu/galveston/Gardening-Handbook/PDF-files/GH-023--sycamore-lace-bug.pdf>

<http://edis.ifas.ufl.edu/in347>

More galls (minor)

The parade of galls continues. We have reports of several different galls this week. Jumping oak gall has been seen on white and bur oaks. Jumping oak gall is caused by a gall wasp *Neuroterus saltatorius*. Right now this looks like small beads on the back of oak leaves (Fig.4). Soon the galls will pop off and fall to the ground. The activity of the larvae inside will cause the galls to jump around. Free entertainment from the insect world. (If you have never seen this, go to <http://www.arkive.org/california-jumping-gall-wasp/neuroterus-saltatorius/video-00.html> for a great video). A small brown spot remains on the leaf where the gall was once attached. Since no evidence of the gall remains, people assume that the tree has a fungus.



Figure 4 Jumping oak gall

Hedgehog gall has also been spotted. If a gall can be thought of as cute, it's this one. Hedgehog galls are produced by the cynipid wasp, *Acraspis erinacei*, and are usually attached to the leaf midvein. They range in size from 6 to 12 mm (1/4 to 1/2 inch) in diameter and are yellow and red in color (Fig. 5). They are very eye-catching.



Figure 5 Hedgehog gall

Management: These galls are not harmful so no management is needed.

Pest Updates: Diseases

Brown rot of stone fruits (serious)

The Plant Clinic at The Morton Arboretum has received 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. We are mostly getting reports of fruit infection this year. 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. 6). 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 6 Brown rot on cherry (photo credit: Michigan State University)

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

<http://www.ag.uiuc.edu/~vista/abstracts/a804.html>

Cedar-quince rust on hawthorn (potentially serious*)

Cedar-quince rust caused by the fungus *Gymnosporangium claviceps* is appearing on hawthorn fruit. We are seeing orange tubular projections on fruit. Quince rust does not infect foliage. Instead, fruit and stems of hawthorns and several other hosts are infected. As discussed in previous issues, all three cedar rusts spend part of their life cycle on junipers and part on plants in the rose family. The fruiting structures developing now (aecia) will eventually release spores

in the summer-fall that can only infect junipers. Fruit infected by cedar-quince rust appear spiky like medieval maces (some of our clients have described them as 'sputniks') (Fig. 7).

Management: Quince rust causes branches to be girdled and trees of both hosts to decline over time. Prune out infected branches and cankers. Unfortunately, most hawthorns are susceptible to quince rust. A protective fungicide application or two can help the rosaceous host if timed to when succulent twigs and branches are first developing and when galls on juniper are gelatinous (too late now). The galls do not release spores when dried up in the summer.



Figure 7 Hawthorn fruit infected with cedar-quince rust

*While we list this disease as potentially serious, cedar rusts do not kill their host trees. The disease often warrants treatment mainly due to the unattractive nature of the symptoms.

Good website:

<http://www.mortonarb.org/trees-plants/plant-clinic/help-diseases/cedar-apple-rust>

Black spot of elm (minor)

Black spot of elm, caused by the fungus *Stegophora ulmea* has been found recently. This disease first appears as small black leaf spots (Fig. 8). Later, spots may coalesce to form irregular black blotches up to ¼ inch wide. Wet seasons may lead to severe blighting of young leaves and succulent shoots or complete defoliation by early August. Symptoms normally progress from low branches to high ones. Susceptible elms include American, Chinese, Dutch, Japanese, Scotch, and Siberian.



Figure 8 Black spot of elm

Management: This disease is one of several "anthracnose" diseases we see each year. Dead leaves and shoots should be collected and pruned out during dry weather to reduce inoculum. Chemical controls are not usually necessary.

Good website:

<http://www.ento.okstate.edu/ddd/diseases/elmblackspot.htm>

Island chlorosis (virus) (minor)

Usually when we talk about chlorosis we are talking about yellowing of leaves due to nutrient deficiencies. Island chlorosis is caused by a virus and is showing up on hackberry (*Celtis occidentalis*) at The Morton Arboretum. The symptoms of the viral infection are a mosaic pattern of spots of light green or tan tissue between veins (Fig. 9) and some marginal necrosis. The interesting thing about viral infections is that the virus does not want to kill the host, because it needs the host in order to reproduce, but it does make the host weaker and more susceptible to other infections. Since viruses are unable to move on their own, they rely on vectors to move them around. The vectors may be insects, humans, or anything else that can carry the viral particle and create a piercing wound into the host. The only way to prevent a viral disease is to control the vector. Once the tree has a viral disease, it will have it for life. Luckily this one seems to do no real harm to the tree.



Figure 9 Island chlorosis on hackberry

Management: The best way to manage a viral disease is to improve the health and vigor of the host. Running soil and foliar nutrient tests and adding the needed nutrients to the soil, mulching, and watering during dry periods are the best ways to manage.

Miscellaneous

Chlorosis (potentially serious)

And now for the more commonly known chlorosis. Chlorosis (yellowing of leaves) is showing up on a number of plants including river birch (*Betula nigra*), hydrangea (*Hydrangea*), tulip tree (*Liriodendron tulipifera*) (Fig. 10) and swamp white oak (*Quercus bicolor*). Chlorosis is a yellowing of the leaf due to low levels of chlorophyll (the green pigment in leaves). In mild cases, leaf tissue appears pale green but the veins remain green. Leaf tissue becomes progressively yellow, and may turn white in advanced cases. Leaf margins may become scorched or develop symmetrical brown spots between veins. Trees that commonly show chlorosis include pin oak, red oak, red maple, white oak, river birch, tulip-tree, sweet gum, bald cypress, magnolia, and white pine.

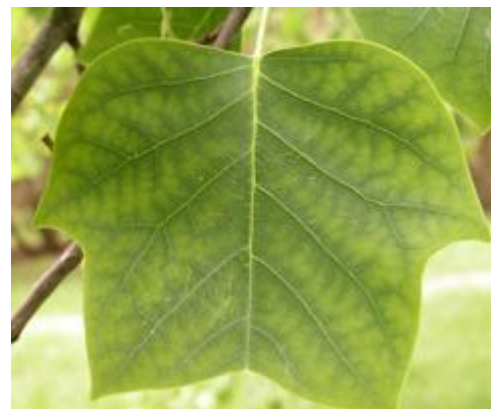


Figure 10 Chlorosis on tuliptree

There are many causes of chlorosis. The most common cause of chlorosis in our area is due to iron and manganese deficiencies resulting from alkaline soils. High soil pH causes iron and manganese that is present in the soil to become unavailable to the plant. Anything that negatively impacts the root system (physical damage, flooded soils, and dry soils) can also lead to chlorosis. This year the abundant rains are starting to impact the ability of roots to take up nutrients, so addition of iron to the soil may not work in all cases. There may be more than one possible cause. Take river birch, for example. It is fairly common to see chlorosis from lack of iron. In this case, we see the typical yellow leaf with green veins. River birch also suffers when the soil is too dry. In that case, we tend to see leaves turn all yellow and fall off (sometimes as many as half the leaves may drop). Determining the cause helps us to determine management practices.

Management: In dry seasons, be sure to provide enough moisture to plants. When the season is wet, there is not much we can do but wait for drier weather. Adding fertilizer just won't help in this case. Where soil pH is alkaline (northern Illinois), avoid planting trees that do not tolerate alkaline soils. For existing trees, fertilize soil with a nitrogen- and sulfur-based fertilizer from early spring through mid-May, use chelated iron which is not affected by soil pH (this is best used in spring), or have the tree injected with iron or manganese.

Good websites:

<http://www.mortonarb.org/trees-plants/plant-clinic/horticulture-care/chlorosis>

<http://www.ag.uiuc.edu/~vista/abstracts/aIRONCHL.HTML>



Bartlett Tree Experts, Presenting Sponsor of the Plant Clinic.

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 .

Copyright © 2015 The Morton Arboretum

Not printed on recycled paper, or any paper for that matter.