

Plant Health Care Report

Scouting Report of The Morton Arboretum



June 26, 2015

Issue 2015.7

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 On weeks when we do not publish a full newsletter, we will still make growing degree day information available since many of our readers use this information.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

Elderberry (*Sambucus canadensis*) is in bloom (fig 1)

Accumulated Growing Degree Days (Base 50): 870.5 (as of June 25)

Accumulated Growing Degree Days (Base 30): 2686.5 (as of June 25)

Insects and insect relatives

- Japanese beetles
- Magnolia scale
- Spruce spider mites
- Oblique-banded leafroller
- Galls, galls, galls
-

Diseases

- Oak leaf blister
- Downy leaf spot of *Carya*
- Phyllosticta
- Fungal leaf spots



Figure 1 Elderberry (photo: John Hagstrom)

Degree Days and Weather Information

As of June 25, we are at 870.5 base-50 growing degree days (GDD). The historical average (1937-2013) for this date is 840 GDD₅₀. We are above average on rain for June. The average is 4.23" and we have already had 7.25 ".

Location	B ₅₀ Growing Degree Days Through June 25, 2015	Precipitation (in) June 19-25, 2015
Carbondale, IL*	1559	
Champaign, IL*	1320	
Chicago Botanic Garden**	735 (as of 6/24)	.65ö (6/17-23)
Chicago O'Hare*	1031	
Kankakee, IL*	1098	
The Morton Arboretum	870.5	1.32ö
Northbrook, IL**	765.5 (as of 6/24)	.8ö (6/17-23)
Quincy, IL*	1387	
Rockford, IL*	875	
Springfield, IL*	1381	
Waukegan, IL*	798	

**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

Japanese beetles (Potentially serious)

That special time of year has arrived. It's Japanese beetle time. We have had a report of adult Japanese beetles (*Popillia japonica*) in Kendall County. A Plant Clinic volunteer reported this finding to us on June 24. 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 Adult Japanese beetle

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.



Figure 3 Japanese beetle damage

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.

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 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. 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 (*Bacillus popilliae*). 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/plant-clinic/help-pests/japanese-beetles>

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

Magnolia scale (potentially serious)

The Plant Clinic at The Morton Arboretum is starting to get calls and emails from homeowners with magnolia scale (*Neolecanium cornuparvum*) on their magnolia trees. This is an unusual scale insect because they're so big and easy to see! Magnolia scale has become an ongoing problem in northeastern Illinois. These insects have sucking mouthparts and extract sap from the host plant's branches and twigs. Badly infested branches and twigs are weakened and plant growth is slowed. When infestations are severe, branch dieback can result, and with repeated severe attacks, trees may be killed. As with most soft scale infestations, plant leaves are often covered with sooty mold, a black fungus that grows on the honeydew excreted by the scales (Fig. 4). Sooty mold cuts down on photosynthesis because it blocks sunlight from the leaf.



Figure 4 Honeydew and sooty mold on magnolia

Initially, magnolia scales are shiny, flesh-colored to pinkish brown, and smooth, but they become covered with a white mealy wax over time (Fig. 5). This wax is lost at the time crawlers emerge. Adult females give birth to live young, called crawlers, in late August or early September. The crawlers are tiny, flattened, and vary in color from yellow to reddish-brown. The crawlers settle on one- to two-year-old twigs to feed and remain there through the winter.



Figure 5 Magnolia scale adults

Management: Before you buy a plant, check it carefully for scale. Beneficial insects, such as ladybird beetles, are frequently seen gobbling up crawlers. Fall and spring insecticide applications to control crawlers are suggested. To check for crawlers at the end of summer, put double-sided tape on each side of a scale colony. The crawlers will become stuck on the tape. This would not be used for control, just to check for the presence of crawlers.

Good web sites: <http://www.mortonarb.org/trees-plants/plant-clinic/help-pests/scale-insects>
<http://ento.psu.edu/extension/factsheets/magnolia-scale>

Spruce spider mites (potentially serious)

Spruce spider mites (*Oligonychus ununguis*) were found on junipers at the Arboretum. Spruce spider mites are very tiny (you need a hand lens to see them clearly) and have eight legs. They have needle-like mouth parts which they use to suck up cells. They can cause severe stippling of spruce needles (Fig.6). Badly infested needles appear bronze and fall off the tree. Spruce spider mites prefer cool temperatures in the 60s to low 70s°F and become inactive during the hot summer months. This is unlike two-spotted spider mites that prefer warm weather. Damage from spruce spider mites often becomes visible later in the season after the mites are gone. Hosts include spruce, arborvitae, juniper, hemlock, pine, Douglas fir, Fraser fir, and larch.



Figure 6 Spruce spider mite damage

Remember that not all spider mites are pests. Some mites are predacious mites, that is, they eat the bad spider mites. So, how can you tell the difference between the pests and the predators? Shake a branch vigorously over a blank, white piece of paper. If the tree has mites, you will see tiny dots running around on the paper. If you crush them with your finger, they will be either green or yellowish-orange. The green ones have been eating plants, but the yellowish-orange ones have been eating other spider mites. Predaceous mites also move faster and generally have longer legs. Having a lot of predaceous mites reduces your need to use chemicals.

Management: There are many predators of spruce spider mites, including lady beetles (ladybugs). Sometimes a strong spray of water can blast spider mites off the tree. Insecticides may be needed for severe outbreaks.

Good website:

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

Obliquebanded leafroller (minor)

Obliquebanded leaf roller caterpillar (*Choristoneura rosaceana*) has been found on a variety of plants. The insect primarily attacks members of the rose family such as roses, hawthorns, cotoneaster, apples, and *Prunus* species, but can be found on woody plants that are not in the rose family. It is a pale yellow green caterpillar with thin hairs on its body (Fig. 7). Leaf rollers roll the leaves



Figure 7 Obliquebanded leafroller

together, fastening the edges with strands of silk. The insect feeds within the rolled-up leaves.

Management: Leafrollers generally don't do sufficient damage to warrant control.

Good website: <http://nysipm.cornell.edu/factsheets/treefruit/pests/oblr/oblr.asp>

Galls, galls, galls (minor)

This seems to be a busy year for gall makers. We have already reported on a number of common galls in earlier issues. A steady stream of galls is making its way into the Plant Clinic. In the last couple of weeks we have seen the following galls: witchhazel cone gall (Fig. 8) (caused by an aphid), willow blister gall on pussy willow (Fig. 9) (caused by an eriophyid mite), erineum gall on birch (also caused by an eriophyid mite) and a couple of galls on hickory (caused by phylloxera). All interesting to see, but luckily of no harm to the host plant.



Figure 8 Witchhazel cone gall



Figure 9 Willow blister gall

Pest Updates: Diseases

Oak leaf blister (minor)

Oak leaf blister, caused by the fungus *Taphrina caerulescens*, has been found on bur oak. Leaves develop wrinkled, raised, pale whitish-yellow blisters on their upper surface (Fig. 10) and corresponding gray depressions on the lower leaf surface in spring and early summer. Blisters range from 1/10th of an inch to an inch in diameter. As they age and merge, the blisters turn reddish brown with pale yellow margins, and the leaf may become distorted. Red oak (*Quercus rubra*) is the most susceptible species. Oak leaf blister, like other *Taphrina* diseases, usually develops only during cool, wet springs and is mostly a cosmetic problem.



Figure 10 Oak leaf blister

Infected leaves become distorted and may prematurely drop. The disease usually slows during the summer.

Management: The fungus survives the winter on twigs and bud scales. On oak, leaf blister is more unsightly than harmful, so control is not a high priority.

Good web site: <http://www.ag.uiuc.edu/~vista/abstracts/a663.html>

Downy leaf spot of *Carya* (minor)

Downy leaf spot, also known as white mold or white leaf spot, caused by the fungus *Microstroma juglandis*, has been found on hickory (*Carya* sp.). Powdery, white, fuzzy spots that are more concentrated near the leaf veins are forming on the underside of the leaf surface (Fig. 11). Corresponding chlorotic spots appear on the upper leaf surface. These spots vary in size and may coalesce to form large angular lesions. The fungus may also cause witches' brooms near the ends of branches with stunted and yellowish leaves that may drop in early summer.



Figure 11 Downy leaf spot

Management: Downy leaf spot attacks hickories and walnuts but is not a significant threat to the trees. Brooms can be pruned to improve the appearance of the tree. Chemical management is not recommended.

Good websites:

<http://plantclinic.cornell.edu/factsheets/downyleafspothckory.pdf>

Phyllosticta (minor)

Leaf spots caused by *Phyllosticta* were found on witchhazel (*Hamamelis*). The spots are irregularly round, less than 5 mm in diameter, and are usually found on lower leaves. They are brown at first, and then develop a tan center and a dark purple border. Small black fruiting bodies are often visible in lesions on the upper side of the leaf. In severe infections, lesions may grow together forming large, irregularly shaped areas of diseased tissues (Fig. 12). Damage is



Figure 12 *Phyllosticta* leaf blight

mostly aesthetic.

Management: Rake and destroy fallen leaves to reduce the source of inoculum.

Good website: <http://hyg.ipm.illinois.edu/article.php?id=85>

Fungal leaf spots (minor)

With all the rain we have had this season, it's not hard to find fungal leaf spots. They are everywhere, both on woody and herbaceous plants alike. This tends to cause a lot of worry and it shouldn't. The majority of these fungal leaf spots are unattractive, but not harmful. Concern may be warranted if the leaf spots are accompanied by leaf drop. Early leaf loss can put a lot of stress on a plant. Luckily most of the leaf spots don't lead to defoliation. Many homeowners want to spray when they see the leaf spots, but once you see the symptoms it is generally too late to do so. Most fungicides need to be applied as protectants (before the infection occurs).



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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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