

# Plant Health Care Report

Scouting Report of The Morton Arboretum

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June 14, 2013

Issue 2013.9

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Our report includes up-to-date disease and insect pest reports, as well as color images, for northeastern Illinois. You'll also find a table of accumulated growing degree days throughout Illinois, precipitation, and plant phenology indicators to help predict pest emergence. The report is published bi-weekly on Fridays in April and August, and weekly May-July.

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 from homeowners and professionals.

If you have any comments or concerns regarding the Plant Health Care Report, please send them to Sharon Yiesla at [syiesla@mortonarb.org](mailto:syiesla@mortonarb.org).

## Quick View

### What indicator plant is in bloom at the Arboretum?

Mockorange (*Philadelphus coronarius*) is in early bloom (figure 1)

**Accumulated Growing Degree Days (Base 50): 579 (as of June 13)**

**Accumulated Growing Degree Days (Base 30): 1985 (as of June 13)**

### Insects:

- Four-lined plant bug

### Diseases:

- Sycamore anthracnose
- Clematis wilt
- Rose rosette
- Dutch elm disease
- Black spot on elm
- *Septoria* leaf spot

### Miscellaneous

- Cracks in bark of maples



Figure 1 Mockorange (photo credit: John Hagstrom)

## Degree Days and Weather Information

As of June 13, we are at 579 base-50 growing degree days (GDD). In 2012, when we were having an abnormally warm season, we had accumulated 856 GDD base-50 by this date. On average we usually have accumulated 599 GDD base-50 by this date. So we are still fairly close to average this year. From June 7 through 13 we have had 1.17 inches of rain.

Location	B <sub>50</sub> Growing Degree Days Through June 13 , 2013	Precipitation (in) June 7-13 , 2013
Carbondale, IL*	1087	
Champaign, IL*	886	
Chicago Botanic Garden**	490.5	.54 (6/5-11)
Chicago O'Hare*	649	
Kankakee, IL*	808	
The Morton Arboretum	579	1.17
Northbrook, IL**	572	.86 (6/6-12)
Quincy, IL*	866	
Rockford, IL*	642	
Springfield, IL*	892	
Waukegan, IL*	502	

\*\*Thank you to Mike Brouillard, Northbrook Park District and Mike Annes, 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/>

**New this year:** To make the Plant Health Care Report (PHCR) more effective, each pest/disease article will be marked parenthetically this year 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 included in the PHCR, but 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, are 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. As the season goes on please give me feedback as to whether this system helps you or not. Contact me at [syiesla@mortonarb.org](mailto:syiesla@mortonarb.org).

## **Pest Updates: Insects**

### **Four-lined plant bug (minor)**

Be looking for the four-lined plant bug (*Poecilocapsus lineatus*) (figure 2). Leaves showing damage from this pest have been noted in a few locations. 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 (figure 3). Four-lined plant bugs have a piercing, sucking mouthpart 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. The damage they do 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.

Nymphs are bright yellow to red with rows of black spots on the abdomen. The adult stage is 1/4" to 1/3" long and has four longitudinal black lines on its yellow or green back, 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.

**Management:** Some people try to hand-pick these insects, but their timidity makes them difficult to catch. Insecticidal soap should take care of larger infestations.

Good websites: <http://www.hort.uconn.edu/ipm/homegrnd/htms/57flpbug.htm>  
<http://www.extension.umn.edu/yardandgarden/ygbriefs/e121plantbugs-fourlined.html>  
[http://www.clemson.edu/cafls/departments/esps/cuac/miridae/poecilocapsus\\_lineatus.html](http://www.clemson.edu/cafls/departments/esps/cuac/miridae/poecilocapsus_lineatus.html)

## **Pest Updates: Diseases**

### **Sycamore anthracnose (potentially serious)**

Earlier we reported on anthracnose on ash and oak. Plant Clinic is receiving numerous calls on anthracnose on sycamore (*Platanus occidentalis*) caused by the fungus *Apiognomonia veneta*. Leaf blight symptoms are brown foliar lesions that extend along the veins, often in V-shaped patterns (figure 4). The leaves turn brown and may drop prematurely. We are seeing a fair amount of leaf drop on some of our trees at the Arboretum. Sycamore anthracnose is common when we have cool, wet weather during leaf development.



Figure 2 Four-lined plant bug adult



Figure 3 Damage done by four-lined plant bug



Figure 4 Leaf symptoms of sycamore anthracnose

Considerable defoliation may occur in late spring, but trees normally bounce back and produce a second set of leaves in early July that remain disease free.

There are two other stages of this anthracnose: shoot and leaf blight and canker formation. Shoot and leaf blight results when the pathogen enters succulent shoots. It causes the rapid death of expanding shoots and leaves. The pathogen overwinters in twigs and is active whenever temperatures are high enough in the fall, winter, and spring. During winter, cankers form on infected shoots and kill the buds. Repeated infection results in deformed shoots and witches brooms (dense clusters of twigs). Although this disease can weaken trees and increase their susceptibility to attack by other pathogens and pests, it is not lethal.

**Management:** Dead twigs should be pruned as they develop throughout the growing season. Rake and discard fallen leaves to reduce the source of inoculum. It is impractical to spray fungicides on large trees, but for smaller, specimen trees, the disease can be controlled with fungicides applied in four intervals: 1) just before bud break; 2) during bud break; 3) when leaves are fully expanded; and 4) 10 to 20 days later. Systemic fungicide injections are also used in spring and fall. . If you want to plant a *Platanus* species and don't want to worry about sycamore anthracnose, you can plant a hybrid planetree, which are resistant to the disease. Two common cultivars can be seen on the Chicagoland Grows website (<http://www.chicagolandgrows.org/index.php>)

Good websites:

[http://www.na.fs.fed.us/spfo/pubs/fidls/anthracnose\\_east/fidl-ae.htm](http://www.na.fs.fed.us/spfo/pubs/fidls/anthracnose_east/fidl-ae.htm)

<http://ohioline.osu.edu/hyg-fact/3000/3048.html>

### **Clematis wilt (potentially serious/minor)**

Our Plant Clinic has received a report of clematis wilt. Clematis wilt is a stem rot and leaf spot disease caused by the fungus *Phoma clematidina* (formerly *Ascochyta clematidina*). Infected stems collapse suddenly as flower buds are about to open, and within a few days, the stem and leaves turn black (figure 5). Any part of the plant can be attacked down to, and just below, the soil line. Large-flowered clematis hybrids are more susceptible to wilt than small-flowered hybrids and the species.



Figure 5 Clematis wilt

**Management:** Prune off the affected stems a few inches below the wilted or blackened stems.

This may mean pruning the plant below the soil line.

Use clean pruning tools and disinfect the tools between plants. Keep the plant healthy by watering the soil (not the leaves and stems) during dry periods. Fortunately, susceptible clematis generally recovers from the disease.

Good websites: <http://apps.rhs.org.uk/advicesearch/profile.aspx?pid=125>

<http://www.missouribotanicalgarden.org/gardens-gardening/your-garden/help-for-the-home-gardener/advice-tips-resources/pests-and-problems/diseases/cankers/clematis-wilt.aspx>

## Rose rosette (potentially serious, but no chemical treatments available)

Plant Clinic has received a couple of calls on rose rosette in the last few days. 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. Plants often die within one to two years after infection.

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 (figure 6) 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 much more abundant than normal, often giving a somewhat hairy appearance to the cane. 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. Aborted buds, deformed buds, or buds are converted to leaf-like tissue.



Figure 6 Damage from rose rosette

**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://hyg.ipm.illinois.edu/article.php?id=101>  
<http://www.ksre.ksu.edu/bookstore/pubs/MF2974.pdf>

## Dutch elm disease (serious)

Early symptoms of Dutch elm disease (DED) are being seen locally. DED is caused by two closely related species of fungi: *Ophiostoma ulmi* (formerly known as *Ceratocystis ulmi*) and *O. novo-ulmi*. The American elm is extremely susceptible, and the disease has killed hundreds of thousands of them across the U.S. since its introduction in 1928. All native elms are susceptible, Asian elms are resistant, and European elms are somewhere in between.

Symptoms of new DED infections are yellowing, curling, and wilting leaves on outer branches in the canopy. This is called flagging (figure 7). When the bark is removed, brown streaks can be found in the outer wood (figure 8). The fungus grows beyond the visible streaks and can rapidly spread to the trunk and kill the entire tree.

There are two insect vectors responsible for transmitting the DED pathogens: the native elm bark beetle (*Hylurgopinus rufipes*) and the European elm bark beetle (*Scolytus multistriatus*). The beetles carry the fungus to healthy trees as they feed on twigs and upper branches. Spores can enter the tree through the feeding wounds. The fungus causes the xylem to plug up and the tree to wilt and die. Beetles eventually lay their eggs in the bark of infected trees, and tunneling larvae become coated with the fungus. The larvae continue the cycle by emerging as adults to feed on the healthy elms, with the fungus on their bodies. The beetles typically have multiple generations per year in the Midwest and are present from late April through September.

DED can also be transmitted through root grafts. A network of roots allows the disease to move freely from one elm tree to the next and can result in a whole stand or parkway of elms becoming infected. Root grafts between trees are especially prevalent in cramped urban and suburban parkways. The best way to prevent DED transmission via root graft is to have the roots trenched. DED can also be transmitted on infested pruning tools. Remember to sanitize your pruning tools when working around any disease problem.

**Management:** Monitoring and sanitation are crucial to controlling DED. Elms should be inspected for flags weekly from now through July and every few weeks through September. If a tree is newly infected, pruning may manage the disease if no more than 5%–10% of the tree shows symptoms or at least seven to ten feet of clear wood occurs between the streaking and the main trunk. A final pruning cut, 7–10 feet beyond the streaks, is necessary to ensure the fungus is removed. Sterilize pruning tools between cuts with 70% alcohol or a similar disinfectant. If a tree shows many flags or completely wilts, it must be removed quickly so that beetles and root grafts do not transmit the disease further. Root grafts should be severed before removal of a diseased tree. Girdling the tree by removing the bark/cambium in a strip near the base of the tree can be done temporarily before removal. Potential elm bark breeding material, such as elm logs and stumps with intact bark, should be chipped and destroyed or, at the very least, stripped of bark.

There are several options for preventing Dutch elm disease. Valuable elms can be injected with a fungicide. A biocontrol tool, Dutch Trig<sup>®</sup>, is also available. Neither Dutch Trig<sup>®</sup> nor fungicides are 100% effective. Arbotect is highly effective for DED when it is transmitted by beetles, but not as effective when DED is root-graft transmitted.



Figure 7 Flagging symptom of Dutch elm disease



Figure 8 Streaking in wood due to Dutch elm disease

Plant resistant elm varieties: the Asian elms and lace bark elm (*U. parvifolia*) are highly resistant to the disease. The Morton Arboretum has bred several excellent elms named 'Triumph', 'Accolade', and 'Commendation', available through Chicagoland Grows®. Since they are hybrids of resistant Asian elms, they are also resistant (but not immune) to DED. There are some commercially available American elms that show resistance to DED. They include 'Princeton', 'New Harmony', 'Valley Forge', 'Jefferson' and 'Independence'.

Good websites: <http://www.mortonarb.org/tree-plant-advice/article/720/dutch-elm-disease.html>  
[http://na.fs.fed.us/spfo/pubs/howtos/ht\\_ded/ht\\_ded.htm](http://na.fs.fed.us/spfo/pubs/howtos/ht_ded/ht_ded.htm)  
[http://na.fs.fed.us/spfo/pubs/howtos/ht\\_save/ht\\_save.htm](http://na.fs.fed.us/spfo/pubs/howtos/ht_save/ht_save.htm)  
<http://www.ag.uiuc.edu/~vista/abstracts/a647.html>

### **Black spot on elm (minor)**

Black spot, caused by the fungus (*Stegophora ulmea*), has been found this week. This disease first appears as small black leaf spots (figure 9). 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 9 Black spot on 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 web site:

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

### **Septoria leaf spot (potentially serious)**

*Septoria* leaf spot has been reported on tomato plants. It is caused by the fungus *Septoria lycopersici* and it can infect tomato plants any time during the season. While the disease is most common on tomato, it can also attack tomato relatives like eggplant and potato. Disease symptoms generally show up on older, lower leaves first. The small leaf spots have gray centers and dark brown margins (figure 10). Spots will enlarge and can merge together as the disease develops. Eventually fruiting bodies will be seen in



Figure 10 Septoria leaf spot

the center of the spots. Heavy infection may lead to some defoliation. Defoliation can affect the maturation of the tomatoes and also exposes tomatoes to sunscald.

**Management:** Sanitation is important as the pathogen can overwinter on plant debris. Clean up all crop residue at the end of the growing season. Practice crop rotation, planting a crop not related to tomatoes. Improve air circulation through proper spacing of plants and staking. Avoid wetting the foliage when watering the plants. Monitor lower leaves for spots. Removal of early infection can slow the progression of the disease. Fungicides may be needed for control. When selecting a fungicide for use on tomatoes, be sure that the product is labeled for use on edible plants.

Good websites: [http://vegetablemdonline.ppath.cornell.edu/factsheets/Tomato\\_Septoria.htm](http://vegetablemdonline.ppath.cornell.edu/factsheets/Tomato_Septoria.htm)  
[http://www.ct.gov/caes/lib/caes/documents/publications/fact\\_sheets/plant\\_pathology\\_and\\_ecology/septoria\\_leaf\\_spot\\_of\\_tomato\\_06-30-08r.pdf](http://www.ct.gov/caes/lib/caes/documents/publications/fact_sheets/plant_pathology_and_ecology/septoria_leaf_spot_of_tomato_06-30-08r.pdf)  
<http://umaine.edu/ipm/ipddl/publications/5088e/>

## **Miscellaneous**

### **Cracks in bark of maples**

There have been numerous reports of cracks forming in the bark of maple trees. This could be due to a number of causes. On young maples with thin bark, it is common to see frost cracks form in winter. A frost crack is a long, narrow vertical crack in the bark of a tree. The crack is usually on the south or southwest side of the trunk but can occur on any side. Frost cracks develop when the air temperature drops substantially during the dormant period. The inner part of the trunk remains relatively warm while the outer wood becomes cold and contracts rapidly, which can result in a long vertical crack at weak points in the trunk. These cracks often close and form callus tissue that appear as raised lines on the trunk. Once a crack appears, nothing can be done. The wound will heal itself, but the crack may serve as an entry for disease organisms and insects.

Cracks can also be the result of physical damage. Trees can be damaged during the transport and planting process. During transport from the nursery, trees may be damaged by the trunk rubbing against the tailgate of a pickup truck or van. Sometimes trunk damage can result from improper handling during planting. Trunks can be damaged by tools used in the process. Physical damage can also result from the tree being hit by a lawn mower. Any of these types of physical damage can lead to cracks developing.

Physical damage coupled with stress can lead to infection by pathogens that cause canker diseases. Many canker-causing pathogens are weak pathogens, but they are able to enter through wounds, and stressed trees are particularly susceptible. The drought of last year and the flooding of this spring may have aided in stressing trees and opening them to canker diseases. Canker diseases destroy the water conducting tissue under the bark. This reduces water flow to the upper portion of the tree, resulting in dieback at the top of the tree.

**Management:** Tree trunks should be protected during transport. Avoid nicking the bark with shovels or other tools during planting. Use a ring of mulch around trees to prevent damage from lawn mower. Minimize stress on trees through proper cultural practices.



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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, an 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 that are in this report. The Scouting Volunteers include: LeeAnn Cospers, Deborah Finch-Murphy, Anne Finn, Ann Klingele, Arnis Krusow, Jack Leider, Loraine Miranda, Bill Sheahan and Kathy Stephens. Your hard work is appreciated.

Literature recommendation:

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/>

The Commercial Landscape & Turfgrass Pest Management Handbook (CPM), for commercial applicators, and the Home, Yard & Garden Pest Guide (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/tree-plant-advice.html>

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](mailto:plantclinic@mortonarb.org) . Inquiries or comments about the PHC reports should be directed to Sharon Yiesla at [syiesla@mortonarb.org](mailto:syiesla@mortonarb.org) .

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