

# Plant Health Care Report

Scouting Report of The Morton Arboretum

June 17, 2011

Issue 2011.09

Our report includes up-to-date disease and insect pest and abiotic problem information 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 Friday in April and August, and weekly May-July.

Arboretum employees and volunteers will be scouting our grounds for insects and diseases throughout the season. Information about other pest and disease problems based on samples brought into the Arboretum's Plant Clinic from homeowners and professionals will also be included.

Over the course of the next year the Plant Health Care Report (PHCR) will be undergoing some format changes, but will still be offering the same content. [If you prefer a PDF version of the PHCR, please click here to download and print.](#)

If you would like to receive a notification email when the PHC Report is available on-line, send me an email ([sadams@mortonarb.org](mailto:sadams@mortonarb.org)) with 'subscribe to PHCR notification' in the subject. The emails on the notification list are only used for the notification and nothing else.

**Accumulated Growing Degree Days (Base<sub>50</sub>): 625**  
**Accumulated Growing Degree Days (Base<sub>30</sub>): 2194**  
**This week's Indicator Plant: Hills of snow hydrangea**  
*(Hydrangea arborescens 'Grandiflora')*  
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## Weather update

As of June 16, 2011, we are at 625 base-50 growing degree days (GDD<sub>50</sub>), which is 201.5 GDD<sub>50</sub> (11 calendar days) behind 2010, and behind the historical average (1937-2010) by 143 GDD<sub>50</sub> (7 calendar days). June has received 3.80" of precipitation, which brings 2011 to 19.2" total. Most of June's precipitation fell between June 9 - 16 (3.72").

	<b>B<sub>50</sub> Growing Degree Days through June 16</b>	<b>Precipitation (inches) June 9 - 16</b>
Aurora, IL*	607	
Carbondale, IL*	1418	
Chicago Botanic Gardens**	545.5	1.6
Chicago Midway*	597	
Chicago O'Hare**	601 (June 15)	1.65" (June 8-14)
Crystal Lake, IL*	642	
Harvard, IL*	605	
Kankakee, IL*	824	
The Morton Arboretum	625	3.72
Peoria, IL*	982	
Quincy, IL*	1076	
Rockford, IL*	685	
Springfield, IL*	1108	
Waukegan, IL*	495	
Champaign, IL*	992	

\*\*Thank you to Mike Brouillard, Northbrook Park District, and 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/?zip=60185&model=2&state=IL>

## Pest Update: Insects

### Birch leafminer

The mines of birch leafminer were found on paper birch (*Betula papyrifera*). The mines are just beginning right now. Gray birch (*B. populifolia*), forestii birch (*B. forrestii*), and European white birches (*B. pendula*), are usually their favorite hosts, while black (*B. lenta*), yellow (*B. alleghaniensis*), dahurian birch (*B. davurica*), or river birch (*B. nigra*) are rarely attacked. These sawfly larvae, originally from Europe, feed between the top and bottom layers of the leaf. The result looks like a large blotch on the leaf, completely different from the serpentine mines made by most leafminers that we usually see. Birch leaf miners are usually attracted to healthy, vigorously



growing trees which are able to withstand the damage.

**Management:** Plant resistant varieties of birch. For chemical control, refer to the *2010 Commercial Landscape & Turfgrass pest management Handbook* (CPM) or the *2008 Home, Yard & Garden Pest Guide* (HYG).

**Suggested reading:** <http://www.ag.ohio-state.edu/~ohioline/hyg-fact/2000/2035.html>  
<http://www.entomology.wisc.edu/ppbirch.html>

### Oak leafroller

Oak leafroller larvae (*Archips semifera*) were found on bur oak (*Quercus macrocarpa*). There are about 200 species of leafrollers that attack ornamental plants but they cause little damage. These pale yellow caterpillars roll up leaves and feed from within the shelter of the rolled-up leaf, skeletonizing, and tattering the leaves.

**Management:** None required as leafrollers usually cause minimal damage.



### Viburnum crown borer



Viburnum crown borer moths have emerged. We found several males stuck on our pheromone traps. Viburnum borers (*Synanthedon* sp.) are clearwing moths that lay eggs on the bark or in wounds of viburnums near the soil line. The larvae hatch and tunnel into the cambium from several inches below the soil line to about 18 inches above. Larvae are white and legless with brown heads and eventually grow to three-quarters of an inch long. Damage looks like gnarled and scarred stems and eventually there is dieback of stems and the plant. The insects overwinter as larvae and pupate in spring. The moths usually emerge from infested viburnums in June to lay eggs near wound sites on other viburnums.



Young plants are especially susceptible. Sometimes plants are able to survive attack as they age. In a study done by the University of Wisconsin, American cranberry-bush (*Viburnum trilobum*), Wayfaringtree (*V. lantana*) and European cranberry-bush (*V. opulus*) were preferred hosts, while Nannyberry (*V. lentago*) was the least preferred host.

**Management:** Beneficial nematodes (*Heterorhabditis bacteriophora* or *Steinernema feltiae*) can be sprayed on the base of the plant or in the soil in late August when

larvae are present. Be sure to keep the soil moist so the nematodes don't dry out. They are living organisms. The optimum temperature for spraying is between 60 and 85 degrees. Chemical control can also be applied when adults are laying eggs. Refer to the CPM for further information.

A few sources for the beneficial nematodes are:

Rincon-Vitova Insectaries, Inc.  
PO Box 1555, Ventura, CA 93002-1555  
3891 North Ventura Avenue (rear), Ventura, CA 93001-1243  
Phone: 800-248-2847; Fax: 805-643-6267  
Web <http://rinconvitova.com/>  
E-mail [bugnet@rinconvitova.com](mailto:bugnet@rinconvitova.com)

Gardens Alive!  
5100 Schenley Place  
Lawrenceburg, IN 47025  
Telephone: 812/537-8650 (orders); 812/537-8651 (product information); FAX: 812/537-5108  
Web site: <http://www.gardensalive.com/Default.asp?bhcd2=1215093338>

**Suggested reading:** <http://www.uwex.edu/ces/wihort/gardenfacts/X1046.pdf>

### Dogwood sawfly

The dogwood sawfly (*Macremphytus tarsatus*), has been found feeding on blood-twig dogwood (*Cornus sanguinea*). It can be a significant pest of dogwood (*Cornus*) species. The wasp-like adult sawfly lays eggs that hatch into larvae, which take on several forms while in the larval stage. Because of their different forms, they can be difficult to identify. The first instar is an almost translucent yellow. Look for groups of these larvae on the undersides of leaves that are being skeletonized. The second instar appears to be covered with a chalky powder, and the last instar is a one inch long, creamy-yellow larva that has a shiny black head and black spots. The sawflies pupate in the spring. The adult sawflies emerge, mate, and lay eggs from May to July. There is one generation per year.



The first instars can devour small portions of leaves, with groups of them producing a skeletonized appearance to the leaves. However, the larger final instar can consume entire leaves, leaving only the tougher leaf midribs. Mature larvae wander about seeking soft or decaying wood in which to hibernate. They will sometimes bore into siding or wooden lawn furniture.

**Management:** Handpick and destroy the larva. For chemical recommendations, refer to the CPM if you are a commercial applicator or HYG from the University of Illinois if you are a homeowner.

**Suggested reading:**

<http://woodypests.cas.psu.edu/FactSheets/InsectFactSheets/html/DogwoodSawfly.html>

[www.entomology.umn.edu/cues/Web/105DogwoodSawfly.pdf](http://www.entomology.umn.edu/cues/Web/105DogwoodSawfly.pdf)

**Tarnished plant bug**

Tarnished plant bugs (*Lygus lineolaris*) were found on black walnut (*Juglans nigra*) recently. These true bugs (Order: Hemiptera) can be found nationwide on a variety of herbaceous plants and some agro-economic crops. These 1/4" long insects overwinter as adults in leaf debris, in bark, or in other protected areas. They emerge in the spring and begin feeding on buds and young leaves. In early to mid-summer (now) the females deposit their eggs in plant organs (stem, leaves, buds, etc.), which hatch after a few weeks. Depending on their location, there can be 2-5 generations per year.

Although these plant bugs can damage important plants, they do have some redeeming qualities. Tarnished plant bugs are omnivores and they also feed on aphids and other small soft-bodied insects.

**Membracid nymph**



A Membracid nymph (Order Hemiptera) (i.e. treehopper) was found on black walnut (*Juglans nigra*) this week. Treehoppers are usually identifiable by the pronotum (protruding head covering) that covers their head. The pronotum can be smooth and hump-back looking, or it can have spines and horns. Treehoppers feed primarily on shrubs and trees, but only very few species are economically important. One of the most important is the buffalo treehopper (*Stictocephala bizonia*) which feeds on apples and other important crop-bearing trees. The black and white treehopper that was found is not considered an important insect pest.

**Sumac flea beetle**

Sumac flea beetles (*Blepharida rhois*) have been found feeding on fragrant sumac (*Rhus aromatica*). These tiny beetles (Order: Coleoptera) are one of the bigger flea beetles at 1/4" long and 1/8" wide. Their defining features are their yellow head and reddish-brown elytra (wings). The adults overwinter in the soil or in leaf debris. Two of their other preferred host plants are the smooth and staghorn sumacs (*R. glabra* and *R. hirta*, respectively).

**Management:** Sumac flea beetles are able to completely



defoliate plants in a short period of time. The best management would be chemical applications of carbaryl, spinosad, bifenthrin and permethrin. Apply them when the first flea beetle is spotted and reapply at labeled rates.

**Suggested reading:** <http://www.ext.colostate.edu/pubs/insect/05592.html>  
[http://minnesotaseasons.com/Insects/sumac\\_flea\\_beetle.html](http://minnesotaseasons.com/Insects/sumac_flea_beetle.html)

### Pine false webworm

A pine false webworm (*Acantholyda erythrocephala*) nest was found on a scotch pine (*Pinus sylvestris*) in the China collection at The Arboretum. This sawfly belongs to a group of insects in the order Hymenoptera, which includes wasps, bees, hornets, etc. The adults are present from May to early June. The wasp-like adults have a shiny blue-black body. Females have a small area of yellow to yellow-orange on the front of their head. Females are 11.1 – 12.7 mm (7/16 - 1/2 in) long and males are slightly smaller at 9.5 mm (3/8 in) long. After mating, the females lay groups of 2-6 eggs side by side on pine needles. When the larvae hatch, they move to the base of last year's needles. Larvae then construct loose webbing and feed on needles. They prefer to feed on old foliage of pines; they will consume needles of the current year's growth only when high infestations occur. The larvae are green with two small antennae-like projections that stick out of the tip of their abdomen. Feeding lasts for 18-20 days. Then the mature larvae drop to the ground, burrow into the soil and remain dormant until the next spring when they emerge as an adult. Only one generation per year occurs.



The false pine webworm differs from the true pine webworm by having no silken tunnels present; they have smaller nests and contain fewer larvae per nest. But the most important distinction is that the true pine webworm belongs to the moth and butterfly order Lepidoptera.

**Management:** Small numbers of nests can be pruned out and destroyed. Refer to the CPM and HYG for chemical control.

**Suggested reading:** [http://bugs.osu.edu/~bugdoc/Shetlar/factsheet/christmasstree/pine\\_false\\_webworm.htm](http://bugs.osu.edu/~bugdoc/Shetlar/factsheet/christmasstree/pine_false_webworm.htm)



### Hackberry nipple gall

Nipple galls caused by the hackberry nipple gall psyllid (*Pachypsylla celtidismamma*) are forming on leaves of hackberry (*Celtis occidentalis*). The galls look like small round bumps at this point. The adult female psyllids laid eggs on the underside of the leaves earlier this spring. When the eggs hatch about a week later, the plant grows tissue around the nymphs in response to the feeding of the insect. Inside the gall resides a

tiny yellow to orange psyllid nymph. Nymphs grow larger and emerge from the galls as adults in September.

Hackberry is the only known host of this psyllid. The psyllids are also called jumping plant lice because of their ability to jump. Hackberries frequently get nipple galls. The damage is not considered serious.

**Management:** Keep trees healthy and vigorous by keeping them mulched and watering during dry periods. Several parasites help control psyllids. Chemical control is usually not warranted.

**Suggested reading:** [http://www.ipm.uiuc.edu/landturf/insects/hackberry\\_psyllids/index.html](http://www.ipm.uiuc.edu/landturf/insects/hackberry_psyllids/index.html)  
<http://www.coopext.colostate.edu/arapahoe/horti/TreeID/treemasterpics/zproblems/hackberrynipplegal/HackberryNplgall.html>

### Roseslug sawfly

Roseslug sawfly (*Endelomyia aethiops*) larvae have been found feeding on red-leaved rose (*Rosa glauca*) leaves. Larvae feed on the upper layers of the leaf, leaving behind the lower epidermal layer and creating a "window pane" effect.

The larvae are greenish yellow with orange heads and are about 13 mm (1/2 inch) long when fully grown. They are covered in slime that helps protect them from predators. When larvae mature, they lose their slimy coverings.

**Management:** Minor infestations can be controlled by using a forceful jet of water to dislodge the sawfly larvae or by handpicking. Insecticidal soap can also be used for low populations of young larvae. More severe infestations can be controlled with neem oil or insecticidal sprays. Controls should be implemented now. Chemicals will need to be reapplied after rainfall. Refer to the HYGPG for chemical recommendations.

**Suggested reading:**

<http://www.extension.umn.edu/distribution/horticulture/DG6703.html>



### Four-lined plant bug



Four-lined plant bugs (*Poecilocapsus lineatus*) have been found on butterfly bush (*Buddleia* sp.). This insect feeds on 250 species, including many kinds of perennials, vegetables, and shrubs including bluebeard, forsythia, and sumac. Feeding injury is frequently mistaken for leaf spots. 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 is gone. Both nymphs and adults feed on leaves,

creating the spots. Nymphs are bright yellow to red with rows of black spots on their abdomen. The adults are 6.4 – 8.5 mm (0.25 – 0.33 in) long with four longitudinal black lines on its yellow or green back, the character that gives it its name. The insect overwinters as eggs laid in slits that are cut into plant shoots. There is one generation per year. It's a shy insect that scurries away when you try to find it.

**Management:** Some people try to hand-pick these insects, but their timidity makes them difficult to catch. For information about chemicals to use for serious infestations, refer to the CPM if you are a commercial landscaper or the HYG if you are a homeowner, refer to “plant bugs.”

**Suggested reading:**

<http://www.extension.umn.edu/yardandgarden/ygbriefs/e121plantbugs-fourlined.html>

<http://wihort.uwex.edu/gardenfacts/XHT1101.pdf>

**Vein pocket gall**

Vein pocket galls were found on the leaves of pin oak (*Quercus palustris*). These galls are hard, light green-colored elongate swellings that occur along mid- and lateral-leaf veins of pin oaks. Feeding by the larval (maggot) stages of very small flies called midges cause the galls to form. This is just one of the many kinds of oak galls. Most do very little harm.



**Suggested reading:** [http://www.mortonarb.org/plantinfo/plantclinic/pests\\_plantgalls.pdf](http://www.mortonarb.org/plantinfo/plantclinic/pests_plantgalls.pdf)

**Pest Update: Diseases**

**Cedar rust leaf spots on rosaceous hosts**

Leaf spots on the upper surface of the leaves of the rosaceous hosts have been found on crabapple and hawthorn. The cedar rusts pathogens (cedar-apple rust (*Gymnosporangium juniper-virginianae*), cedar-hawthorn rust (*G. globosum*), and cedar-quince rust (*G. clavipes*)) have four spore stages (telial spore, basidiospore, spermogonia, and aeciospore), on two separate hosts. The first stage was seen earlier this year with the emergence of the telial horns on the juniper host.



In the spring after rain events, the telial horns, (orange slimy protrusions) in the cedar rust galls on the juniper hosts, emerge. The spores that are produced by the orange and slimy telial horns are the teliospores. When the teliospores germinate on the telial horns, they will bear the next spore stage, the basidiospores. The basidiospores are transported in the air and rain to the rosaceous hosts, where they penetrate the upper surface of the leaves and produce the spermogonium, which is what we're seeing now. The





spermogonium will mature and produce the spermogonia, which will be carried in the air to the undersurface of the rosaceous leaf. On the undersurface of the leaf, the spermogonia will infect the leaf and give rise to the aecia, which bears the aeciospores. Late in the summer the aeciospores will be transported via wind to the cedar host, where it infects the cedar and overwinters. Then in the spring, the aeciospores develop into the galls we're seeing now. And the cycle continues.

For a full picture of the cedar apple rust life cycle, visit the Cornell IPM page:  
[http://www.nysipm.cornell.edu/factsheets/treefruit/diseases/car/car\\_cycle.gif](http://www.nysipm.cornell.edu/factsheets/treefruit/diseases/car/car_cycle.gif)

### Downy leaf spot

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. 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.

**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 control is not recommended.

#### Suggested reading:

<http://plantclinic.cornell.edu/FactSheets/hickorydownyleafspot/hickorydownyleafspot.htm>



### Maple anthracnose

Maple anthracnose, caused by a *Discula* species, has been found on sugar maple (*Acer saccharum*). There are three types of foliar symptoms that are caused by two or more different fungi: (1) elongate lesions that form initially along the vein and extend into interveinal areas; (2) irregularly shaped necrotic spots that are often centered on veins; and (3) necrotic blotches that cover large areas of the leaf. We are seeing both

necrotic spots and elongated lesions. The disease is typically more severe during cool, wet weather, sometimes even causing defoliation.

Anthrachnose necrotic spots can be mistaken for early leaf spots caused by *Phyllosticta minima*, a fungus that causes leaf spots on several species of maples. *Phyllosticta* lesions are initially brown; however, as they age, they develop tan centers and usually form distinct red to purple borders. Unlike anthracnose, black pycnidia (fruiting bodies) are produced in the *Phyllosticta* lesions.

**Management:** Maple anthracnose is primarily an aesthetic problem. Proper fertilization and irrigation of trees that have considerable disease may help trees re-leaf and maintain their vigor. Because spores overwinter in infested fallen leaves, remove these leaves from the property to prevent next year's infection.

**Suggested reading:** <http://urbanext.illinois.edu/hortanswers/detailproblem.cfm?PathogenID=5>  
<http://ohioline.osu.edu/hyg-fact/3000/3048.html>



### **Black spot on rose**

The symptoms of black spot of rose have been found on rugosa rose (*Rosa rugosa*). Black spot is caused by the fungus *Diplocarpon rosae*. Round to irregular black leaf spots with fringed margins appear on either leaf surface but primarily on the upper surface. When infection is severe, the entire leaf will turn yellow and drop. Repeated defoliation will lead to reduction in flower quality and quantity, stunting and weakening of the plant, and increased susceptibility to other diseases.



The fungus overwinters on fallen leaves and diseased canes. Spores are splashed by water or wind-blown rain from fallen leaves and cane lesions to newly emerging leaves and succulent stems in the spring. Warm temperatures, combined with wet leaves and high humidity, will result in abundant spore germination and infection in about one day. Black spots become evident 3 to 16 days later.

**Management:** Remove infected leaves and canes to reduce inoculum. Plant roses in sunny locations with good air circulation and avoid overhead watering. Avoid planting them too densely. Fungicides should be applied as soon as leaves emerge and continued, at labeled intervals, until leaves drop in the fall. Lengthen spray intervals or skip applications during dry weather.



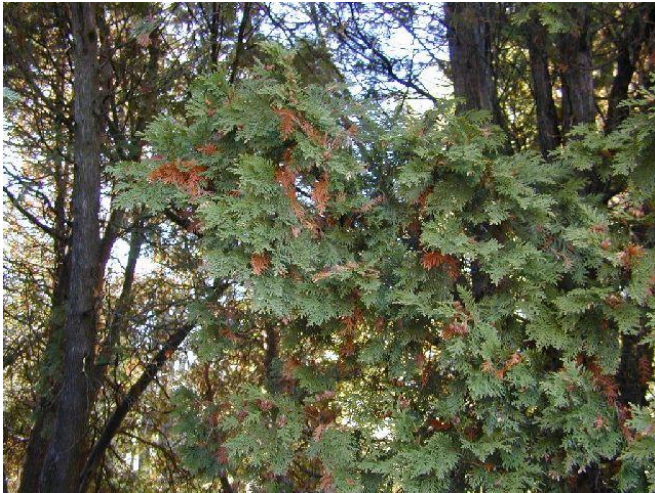
For specific chemical recommendations, refer to the CPM or HYG. Planting resistant varieties is the best way to prevent this disease. The Purdue University Extension has listed many varieties of roses that are reported to be resistant. See <http://www.ppd.purdue.edu/ppdl/weekypics/3-22-04.html> for more details.

**Suggested reading:** <http://urbanext.illinois.edu/hortanswers/detailproblem.cfm?PathogenID=6>  
<http://www.extension.iastate.edu/news/2007/may/071101.htm>

## Pest Update: Abiotic problems

### Seasonal needle drop of *Chamaecyparis*

The third-year needles on blue weeping Alaska-cedar (*Chamaecyparis nootkatensis* 'Glauca Pendula') have turned brown and will soon drop off the tree. Needles of conifers do not remain attached indefinitely to a tree.



Seasonal needle drop is often mistaken for a disease problem. It is completely normal after a few years for older, inner needles of conifers to discolor and drop. Most evergreens shed their inner foliage in the fall, but a few shed their needles in spring and summer. In a few more weeks the inner needles of yews will begin to yellow then drop. The blue weeping Alaska-cedar's second year needles often turn brown, but they will persist on the tree for a third year before they are shed, according to Harlow and Harrar.

This casting of foliage is normal and doesn't hurt a tree. However, if the outer needles are yellow, brown, or wilted, the tree may have underlying diseases or stress

problems and should be diagnosed accordingly.

<http://www.mortonarb.org/component/content/article/95-tree-and-plant-care/685-seasonal-needle-drop.html>

Hardin, James W., Donald J. Leopold, and Fred M. White. 2001. *Harlow & Harrar's Textbook of Dendrology*. 9th edition. Page 235.

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**What to look for in the next week:** black vine weevil, black spot on elm, twig pruners and girdlers, Guignardia leaf blotch

Thank you...I would like to thank the volunteers that scouted this past week and found most of the insects and diseases that are in this report. The Scouting Volunteers for this Report include: Mary Carter Beary, Davida Kalina, Fritz Porter, LeeAnn Cospers, Ann Klingele, and Loraine Miranda. Your hard work is appreciated.

The Plant Health Care Report is prepared by Stephanie Adams, M.S., Plant Health Care Technician, and edited by Donna Danielson, M.S., Plant Clinic Assistant; 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.

**Anyone who's come in to the Plant Clinic, read the PHCR, or worked on plant health related projects at the Arb has had the pleasure of meeting Donna Danielson. Donna has been an integral part of The Arboretum for**

so many years and today she's retiring. She has touched so many volunteers, employees, and visitors that it will be hard to see her go. Since my arrival two years ago she has been a mentor to me helping me learn the PHC program. We have worked closely together on insect and disease identification, including sharing 'really cool gross stuff'. Congratulations on your retirement, dear friend.

**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 *2010 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 on-line 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 Stephanie Adams at [sadams@mortonarb.org](mailto:sadams@mortonarb.org) .