

Plant Health Care Report

Scouting Report of The Morton Arboretum

May 12 - 18, 2007

Issue 2007.05

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.

Quick View

What Indicator Plants are in Bloom at the Arboretum?

Don Orton's favorite indicator plant, bridalwreath spirea, (*Spiraea x vanhouttei*) is blooming now.



Bridalwreath spirea in full bloom

Accumulated Growing Degree Days (Base 50): 368.0

Insects

- Gypsy Moths
- Spiny Oak Sawfly Larvae
- Azalea Sawfly
- Pine Needle Scale Crawlers
- Viburnum Borer Damage
- Aphids
- Ash/lilac Borer
- Elm Leafminer Update
- European Elm Flea Weevil Update
- Maple Petiole Borer
- Spiny Witch-hazel Aphids
- Leaf Crumpler

Diseases

- Ash Anthracnose
- Cedar Hawthorn Rust
- Oak Anthracnose
- Island Chlorosis
- Apple Scab

Feature Article:

- Favorite Books About Plant Disease

Degree Days and Weather Information

Through May 15, 2007, we are at 368 growing degree days which is five days ahead of the historical average (1937-2006) and ten days ahead of last year. For information about growing degree days, see our Feature Article at the end of the first week's report, "So what are degree days and why do we care about them anyway?"

Location	Growing Degree Days through May 15	Precipitation between May 9 to 15 in inches
The Morton Arboretum (Lisle, IL)	368.0	0.50
Chicago Botanic Garden (Glencoe, IL)*	268.5	0.07
Chicago O'Hare Airport*	350.5	0.84
Aurora, IL	345.0	
Bloomington, IL	529.0	
Champaign, IL	594.0	
DuPage County Airport (West Chicago, IL)	334.0	
Lansing, IL	409.5	
Midway Airport	383.5	
Danville, IL	787.0	
Decatur, IL	651.5	
DeKalb, IL	389.5	
Moline, IL	543.5	
Palwaukee Airport (Wheeling, IL)	329.0	
Peoria, IL	564.5	
Peru, IL	475.0	
Pontiac, IL	584.5	
Rantoul, IL	623.0	
Rockford, IL	386.0	
Romeoville, IL	428.5	
Springfield, IL	650.0	
Waukegan, IL	211.5	
Milwaukee, WI	212.5	
Racine, WI	186.0	
Waukesha, WI	243.0	

**Thank you to Mike Brouillard, Green Living, Inc. and Chris Yooning, Chicago Botanic Garden for supplying us with this information.*

This Week's Sightings

Gypsy Moths

We have received reports that gypsy moth larvae have hatched in Lisle, though not on our grounds. Gypsy moth caterpillars are serious defoliators that feed on over 450 species of trees and shrubs. A mature caterpillar can eat one square foot of foliage per day. Their favorite trees are oak, crabapple, birch, linden, willow, and hawthorn. Although deciduous trees that are defoliated can put out a new set of leaves, the trees use a lot of resources to do so. Trees that suffer a lot of defoliation (approximately greater than 50%) several years in a row may die. Severe defoliation also makes trees more susceptible to other problems such as Armillaria root rot. Needle bearing conifers, including spruces and pines, cannot re-foliate and therefore may die after one season of attack. In addition, gypsy moths create a lot of frass (scientific word for insect poop) which drops into yards and patios and is quite a nuisance.

A bit on insect growth: Insects have exoskeletons (a thick skin that serves as a skeleton) on the outside of their body. As they grow and get larger, they outgrow their exoskeleton. Through a process called molting, their exoskeleton splits apart and the insect wiggles out. The new skin soon dries and hardens to become a new exoskeleton. Each stage of the insect between molts is called an instar.

The first instar of gypsy moth caterpillars is black, hairy, and only about 1/4 inch long. Their head is black, shiny, and large compared to the rest of the body. The second instar has a brown stripe down its back. By the third instar, the

caterpillar develops orange spots. Mature gypsy moth larvae (fourth, fifth, and, if females, sixth instars) have five pairs of blue spots on one end and six pairs of red spots on the other end. This has been described as stop lights on one end and go lights on the other end which makes it easier to remember. OK, I know that “go” lights are green, not blue, but cut me some slack here. All instars are hairy. By the time they reach their last instar, the caterpillars are two to two and a half inches long.

Each gypsy moth caterpillar eats a lot of leaves for about six weeks. Then they pupate at the end of June for one to two weeks, emerging as adults in mid-July through mid-August. The adults mate, lay eggs on the lower 20 feet of the tree, and die. For more information about gypsy moth egg masses, read the first Plant Health Care report of the season (issue 2007.01).

Control: The gypsy moth is attacked by a number of natural predators and pathogens. The insecticidal bacterium, *Bacillus thuringiensis* var. *kurstaki* (*Btk*), can control young larvae but is not as effective against mature larvae. Other natural enemies include an introduced fungus, *Entomophaga maimaiga*, that builds up in gypsy moth infested areas and has led to major gypsy moth reductions in the East during wet weather.



A mature gypsy moth caterpillar

Gypsy moth eggs are killed in winter when the temperature reaches -20° F. or colder for at least three consecutive days. In this area, we haven't achieved those conditions since the mid-1980's. However, some plants can also suffer damage when the temperature dips that low for that long.



Gypsy moth caterpillars hide in the burlap wrapped around the tree during the day. They can be shaken out and discarded into soapy water.

Knowing some gypsy moth biology is helpful in control. The first three instars remain in the tops of trees, but mature larvae (fourth instar and later) feed at night and crawl down from the tops of trees to hide during the day in protected spots. A homeowner can trap gypsy moth caterpillars by wrapping a layer of burlap around an infested tree trunk with the top folded over. The folded flap captures the caterpillars as they ascend the tree, and they can then be discarded into a container of soapy water. The burlap also traps females moths as they climb trees to lay eggs (females moths don't fly).

Barrier bands act similar to burlap. They consist of double-sided sticky tape or a sticky material such as Tanglefoot™. Tanglefoot™ discolors bark when applied directly to it and so should be applied to the surface of material such as duct tape or tar paper that is wrapped around the trunk. Duct tape alone does not work as the stickiness is washed off in the rain (we tried this). Both the burlap and the barrier bands should be removed after August. The bands should not be so tight as to girdle the tree.

If you travel in an infested area such as Michigan or Wisconsin during the egg-laying period (July and August), take care to examine the bumpers and underside of your vehicles for egg masses. Scrape off any you find.

If you find gypsy moth caterpillars, it's critical to first verify their identification at your county extension office and then call the Illinois Department of Agriculture at 815-787-5476 for further instructions. The Department of Agriculture is tracking the pest's movement in Illinois.

Good websites:

<http://www.na.fs.fed.us/spfo/pubs/fidls/gypsymoth/gypsy.htm>

<http://www.fs.fed.us/ne/morgantown/4557/gmoth/>

<http://web.aces.uiuc.edu/urban/gypsymoth/>

Azalea Sawfly

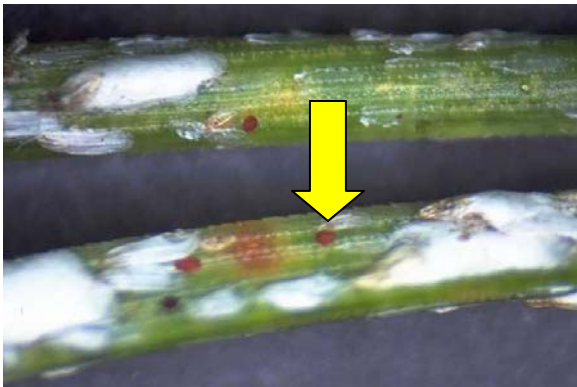
We think of this as a “holy cow” insect. One day a rhododendron looks fine and two days later, holy cow! All you can see are the mid-ribs of the leaves and half the flowers are missing! This week we found them defoliating primrose azalea (*Rhododendron* ‘Primrose’). These sawflies feed heavily on azaleas and can defoliate plants, leaving only the midribs of the leaves. The sawflies were about a third of an inch long and insatiable. The sawflies that fed on leaves were green while the larvae feeding on the red flowers were dark brown. Deciduous flame azaleas are said to be their favorite hosts, but we haven’t found much difference in host preference in the landscape.



The azalea sawfly larva is leaves only the midrib of the leaves.

Control: Minor infestations can be controlled by using a forceful jet of water to dislodge the sawfly larvae or by handpicking. Insecticidal soap can be used on young larvae. More severe infestations can be controlled with Neem oil or insecticidal sprays. Remember, these are sawfly larvae, not caterpillars, so the microbial insecticide *Bacillus thuringiensis* var. *kurstaki* (Btk) will not control them. For chemical recommendations, refer to the *Home, Yard and Garden Pest Guide* (HYG) from the University of Illinois.

Pine Needle Scale



The vulnerable stage is the crawler stage (crawlers are red).

The first generation of pine needle scale (*Chionaspis pinifoliae*) has hatched from eggs and the crawlers are feeding on dwarf white pine (*Pinus strobus* ‘Nana’). The scales overwinter as eggs beneath a waxy, white female scale cover that looks like a white, tear-drop shaped fleck on a needle. The tiny red crawlers move to a new site on the host plant to feed. They suck juice from needles. As the crawlers develop, they secrete a white, waxy covering over their bodies. By late June or early July, they reach maturity and second generation eggs are laid. Second generation crawlers begin to appear in late July to early August. A heavy infestation will cause needles to turn yellowish brown.

One easy way to find scale crawlers is to put double-sided tape on each side of colonies of adult scales before egg hatch. When the crawlers hatch, you can see them stuck on the tape.

Heavy infestations can give trees a flocked appearance. After multiple years of severe infestation, branches, and sometimes trees, can be killed. Pine needle scale prefers Scots and mugo pines and occasionally infests Austrian, white, and red pines.

Control: Several species of ladybird beetles and parasitic wasps are important natural predators of this scale. Insecticidal sprays and soaps are effective only when crawlers are active. Use insecticidal soap instead of a chemical spray as the latter will more readily kill natural predators and beneficial insects. For chemical control, refer to the *Commercial*

Landscape and Turfgrass Pest Management Handbook 2007 (CPM) if you are a commercial applicator or *Home, Yard and Garden Pest Guide* (HYG) from the University of Illinois if you are a homeowner.

Good websites:

<http://ohioline.osu.edu/hyg-fact/2000/2553.html>

http://woodypests.cas.psu.edu/FactSheets/InsectFactSheets/html/Pine_Needle_Scale.html

Viburnum Crown Borer Damage

We've found viburnum crown borer damage on black-haw viburnum (*Viburnum prunifolium*). 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 $\frac{3}{4}$ in 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 emerge from infested viburnums in June to lay eggs near wound sites on other viburnums. We have placed pheromone traps on our grounds for the adult moths and will notify you when the moths have emerged on our grounds.



Damage caused by the viburnum crown borer

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

Control: 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
GPS Coordinates: W119° 17' 30" N34° 18' 30"
805-643-5407 800-248-2847 Fax 805-643-6267
E-mail bugnet@rinconvitova.com
Web <http://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:
www.gardensalive.com

Good web site about viburnum borers:

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

Aphids

Black aphids were found on the leaves of Autumn Joy stonecrop (*Sedum* 'Herbstfreude'). Aphids can be green, black, brown, red, pink or another color depending on the color of the sap of the host plant. They have pear-shaped bodies from 1/16 to 1/8 inch long. Aphids have tubes coming out of the back of their abdomen that look like tail pipes. These tubes are called cornicles. Pheromones are released from the cornicles. Aphids are sucking insects and can eat great quantities of sap. They excrete "honeydew" (there's no way to make this pretty – it's liquid insect poop) which makes the plant sticky. Later, sooty mold may grow on the honeydew that makes the foliage and stems black.



Control: Healthy plants can withstand low to medium numbers of aphids. Natural enemies such as lady beetles, green lacewings, hover flies, and parasitic wasps often do a good job of aphid control. Sometimes we check a plant that has been attacked by aphids several days after the infestation and they're all gone. Substantial numbers of any of these natural enemies can mean that the aphid population may be reduced rapidly without the need for treatment.

Aphids can be dislodged from plants using a strong jet of water from the hose (syringing). Periodic syringing will keep the aphid populations low and allow the parasites and predators to build up to effective control levels. In severe infestations, chemical control may be warranted. Use horticultural oils and insecticidal soaps, because these materials provide good control and tend to cause less harm to the beneficials. Contact and systemic insecticides are also effective in controlling aphids. For specific chemical recommendations, refer to the CPM if you are a commercial applicator or the HYG if you are a homeowner.

Good web sites:

<http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7404.html>

http://www.mortonarb.org/plantinfo/plantclinic/pests_aphids.pdf

Ash/Lilac Borer



We are beginning to catch ash/lilac borer (*Podosesia syringae*) adults in our pheromone traps. This is NOT the emerald ash borer, but is the native borer. The adults are wasp-like clear wing moths with a 1/2 inch long brown body, brownish-black forewings, and transparent hind wings with a brown border. Sometimes they have one or more yellow stripes around their bodies. The insect overwinters as a partially grown larva within the host tree and emerges as an adult in late spring. The female lays her eggs in the bark of stressed plants in the Oleaceae family, especially lilac, ash, and privet. After hatching, brown-headed, creamy white larvae tunnel into wood and feed on phloem. Exit holes are about 1/4 inch in diameter and circular. Frass and sawdust is pushed out of the exit holes and may accumulate under the exit holes. Sometimes pupal skins can be seen emerging from exit holes. Branches can be severely damaged by this borer, and severely infested trees may die.

Control: Stressed and newly transplanted trees are particularly vulnerable. Site trees and shrubs in a place where they will thrive and keep trees mulched and watered during dry periods. Prune out heavily infested stems. Since the borers are attracted to the larger lilac canes, keep lilacs rejuvenated by making basal cuts and letting new trunks grow. For specific chemical recommendations, refer to the CPM if you are a commercial applicator or the HYG if you are a homeowner.

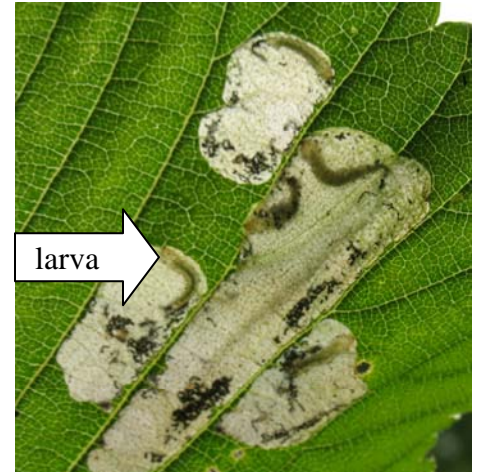
Good websites:

http://www.ipm.uiuc.edu/fruits/insects/ash_lilac_borer/

http://www.mortonarb.org/plantinfo/plantclinic/pests_borers.pdf

Elm Leafminer Update

First instar elm leaf miner larvae are starting to form mines on Scotch elm (*Ulmus glabra*) and Vanguard™ elm (*Ulmus* 'Morton Plainsman'). The mines looked like pale spots about 1/8 inch in diameter near the mid-veins when we first saw them, but a few days later, they were much larger. The sawfly larvae are feeding on the leaf tissue between the upper and lower epidermis of the leaves. See PHC report April 21 – May 4 (no. 2007.03) for more information, including how to test for leafminers.



The leafminer test - if you hold the leaf up to a light, you can see the larvae and their frass.

European Elm Flea Weevil Update



We saw the adult stage of this insect feeding on elm leaves a few weeks ago. The adult female cuts a cavity into the mid-vein of the leaf and inserts an egg. The hatching larva creates blotch mines starting at the leaf tips. The leaves almost look scorched. Larvae feed for about 2-3 weeks and then pupate within the mined leaf. See PHC report April 21 – May 4 (no. 2007.03) for more information on the European elm flea weevil.

Spiny Oak Sawfly

We found spiny oak sawfly larvae (*Periclista* sp.) feeding on leaves of a bur oak (*Quercus macrocarpa*). It is a light green sawfly larva with many dark black forked spines on its back. Host plants are bur, white, and red oak. They seemed to be feeding in groups.

Control: Remember that they are sawfly larvae, not caterpillars, so *Bacillus thuringiensis* (Bt) will not kill them. It may be possible to knock the larvae out of a young tree by shaking branches vigorously or by spraying the larvae with a blast of water, according to Michigan State University.



Maple Petiole Borer



We have an infestation of maple petiole borers on a sugar maple (*Acer saccharum*). This time of year, when a sugar maple suddenly drops a lot of leaf, it may be due to injury to the petioles by tiny wasps. The petioles on the fallen leaves have a darkened area at the base, but the fallen leaves are still green. In midspring adults lay eggs near the base of maple petioles. The resulting borer larvae hatch and bore the inside of the petioles. This weakens the stems and when the wind blows, the leaves fall off with the larvae usually remaining in the part of the petioles that remains on the tree. Eventually the rest of the petiole falls off the tree with the larvae in it (whooley, that must be quite a ride!). The larvae leaves the petiole stem and tunnels into the soil

where it pupates until the following spring. We couldn't find the insect in the petioles, but did find a lot of frass inside the fallen petioles.

No control is necessary. Leaf drop is rarely more than 20 percent of the canopy. A healthy tree can lose a significant number of leaves without harm.

Good web site:

<http://www.ca.uky.edu/entomology/entfacts/ef405.asp>

Spiny Witch-hazel Aphids

Spiny witch-hazel gall aphids (*Hamamelistes spinosus*) are feeding on the underside of the leaves of Fox Valley™ river birch (*Betula nigra* 'Little King'). Their feeding causes leaves to appear corrugated, gradually curl, turn red, then brown, and drop prematurely. Many aphids can be found inside the corrugations.

The insect overwinters in two ways: either as an egg on witch-hazel twigs or as a hibernating female on birches. Eggs hatch in spring and become "stem mothers." The stem mothers feed on witch-hazel and cause a spiny gall to form. Each gall is hollow and contains numerous young aphids. As the aphids mature, they exit the gall and fly to their alternate host, the river birch. Meanwhile, the overwintering aphids on river birch move to new leaves in spring and give birth to young aphids. These aphids eventually migrate to witch-hazel to feed on the flower buds and complete their life cycle.



Control: Leaf damage is primarily an aesthetic problem, and trees are not severely harmed. Aphid populations can be reduced by spraying plants with a hard stream of water.

Good website: <http://www.entomology.umn.edu/cues/Web/063Aphids.pdf>



Leaf Crumpler

Leaf crumpler damage (*Acrobasis indigenella*) has been found on Satin Cloud crabapple (*Malus* 'Satin Cloud'). In August of last year, leaf crumpler larvae made cases of webbing, dead leaves, and frass. The larvae bring leaves back to their cases to eat and incorporate into the webbing. The insects overwinter as larvae, and the cases of dead leaves remain on the plant. The larvae usually begin feeding again in spring when new leaves emerge.

Control: Damage can be pruned out. This should be done before the adults emerge in late June.

Web site: http://ipm.ncsu.edu/AG189/html/Leaf_Crumpler.HTML

Ash Anthracnose

The Plant Clinic has been receiving numerous specimens of green ash (*Fraxinus pennsylvanica*) that are showing the symptoms of ash anthracnose (*Gnomoniella fraxini*). We are also getting many calls about ash leaves dropping from trees. Ash anthracnose is a foliar disease that is common during cool, wet springs, conditions like we had in April. Sometimes irregular necrotic patches form on leaf margins often accompanied by leaf curl and distortion. Premature leaf drop may occur on highly susceptible species. Sometimes the leaves that fall have no obvious symptoms, but the petioles

may reveal a dark area. It does not affect twigs. The tree, if healthy, should re-leaf with the next flush of growth. The disease does not kill trees, although it may weaken them. No fungicides are necessary.

We studied the incidence of ash anthracnose on the eight most common ash species and cultivars at the Arboretum from 1997 through 1999. We found that ash anthracnose incidence was significantly higher on green ash (*Fraxinus pennsylvanica*) cultivars than on white ash (*Fraxinus americana*), which is contrary to what was commonly believed. *F. chinensis* was most susceptible and our native pumpkin ash (*F. tomentosa*) and blue ash (*F. quadrangulata*) were most resistant (none were immune). One factor in ash anthracnose incidence may be how early the particular species leaf out in the spring. Ashes that leaf out earliest tended to exhibit the most ash anthracnose. However, this wasn't always the case and there are other important determining factors to the disease. To read the entire article, see the *Journal of Arboriculture*, Vol. 28, No. 1. or the following web site:



<http://joa.isa-arbor.com/request.asp?JournalID=1&ArticleID=24&Type=2>.

Control: Cultural controls are usually sufficient to reduce the severity of ash anthracnose in our region. Keep trees healthy by watering during dry periods and keeping properly mulched.

Good websites:

<http://www.ipm.iastate.edu/ipm/hortnews/1999/5-21-1999/ashanthra.html>

http://www.mortonarb.org/plantinfo/plantclinic/disease_anthraco.pdf

Cedar Hawthorn Rust on Hawthorn



Bright orange cedar-hawthorn rust spots are appearing on leaves of frosted hawthorn (*Crataegus pruinosa*). Soon the leaves will look like they have measles. Later the spots will become swollen and aecia, the cup-shaped fruiting bodies produced by rust fungi, will form on the underside of the leaves. Aeciospores will ultimately be released from the aecia during the summer, and they infect junipers, the alternate host, causing roundish brown galls to form on juniper twigs the following spring. The spores produced on hawthorn cannot re-infect hawthorn. There is no sign yet of cedar-quince rust on rosaceous hosts.

Control: See PHC report of April 21 – May 4 (2007.03) for information, including a list of resistant plants.

Good web sites:

<http://ohioline.osu.edu/hyg-fact/3000/3055.html>

http://www.mortonarb.org/plantinfo/plantclinic/diseases_cedarapplie_rustdiseases.pdf

http://web.aces.uiuc.edu/vista/pdf_pubs/802.pdf

Oak Anthracnose

We discovered oak anthracnose, caused by *Discula quercina*, on chinquapin oak (*Quercus muhlenbergii*). Symptoms on trees in the white oak subgenus follows one of three patterns, depending on weather and stage of leaf development during

spring. Symptoms of the first pattern occur when the oak is infected early: young leaves turn brown and shrivel during leaf expansion. The second pattern occurs when a later infection produces large, irregular dead areas on sometimes distorted leaves. This is what we're seeing now. After drying, the lesions become papery and turn tan to almost white. A third pattern shows small, necrotic spots on leaves, indicating infection occurred after leaves matured. All three of these patterns start at the bottom of the tree because of high moisture and rainfall flow and can spread upwards.

We have two chinquapin oaks growing 15 feet from each other. One reliably gets anthracnose and the other is free of it. Both trees have the same growing conditions and came from the same nursery. At first this stumped us. Why aren't they both infected? Upon investigation, we found that these trees were grown from seeds, not from cuttings. Trees grown from cuttings have identical genes, but seed-grown plants have genes from two parents. Therefore the healthy tree apparently has genes that make it resistant to anthracnose.



Control: Although unsightly, oak anthracnose is a minor problem on well-established, vigorously growing trees. Cultural practices such as watering during dry spells, mulching, and removal of fallen leaves will help maintain tree vigor. Rake leaves in the fall and prune dead branches to help reduce the overwintering population of the pathogen. In severe cases where anthracnose has defoliated the tree for three or more years, chemical control may be warranted. It is too late to apply fungicides this year. Fungicides should be applied just before buds open, when leaves are half-grown, and 10 to 14 days later if rainy conditions exist. Refer to the CPM or HYG for information on chemical control.

Good websites:

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

http://www.na.fs.fed.us/spfo/pubs/fidls/anthracnose_east/fidl-ae.htm

http://www.mortonarb.org/plantinfo/plantclinic/disease_anthraco.pdf



Island Chlorosis

Island chlorosis is beginning to appear on hackberry (*Celtis occidentalis*). This common viral disease causes yellow mottling intermingled with green areas on the leaves and mosaics symptoms. Little long-term damage occurs on infected trees, although slowed growth and reduced vigor may result.

Control: No control is warranted.

Apple Scab

We're seeing the initial signs of apple scab on Japanese flowering crabapple (*Malus floribunda*). The lesions look like velvety, olive-green leaf spots and will continue to develop into larger, irregular dark spots. Sunken spots may also appear later on fruits. Often lesions develop along the mid-veins of the leaves. Infected leaves eventually turn yellow and drop prematurely on susceptible hosts. The scab fungus (*Venturia inaequalis*) overwinters on fallen leaves and on lesions on twigs. Sunken



spots may appear later on fruits, and susceptible crabapples can be defoliated in severe disease years.

Scab severity is a product of hours of leaf wetness and temperature and host susceptibility. 1995 and 1998 were especially “bad” scab years because of the wet and mild March, April and May. Scab severity is much less during dry springs.

Control: The best way to avoid apple scab is to plant resistant varieties (table 1). The Morton Arboretum brochure “Crabapples for the Home Landscape” lists recommended crabapples and discusses their resistance to several diseases. It is available at http://www.mortonarb.org/plantinfo/plantclinic/Selection_CrabappleHomeLandscape.pdf. Remember, resistant does not mean immune. Resistance 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.

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 these tissues may help reduce the source of inoculum next year.

Table 1. Some crabapples resistant to apple scab:

Malus ‘Adirondack’**

Malus baccata var. *jackii**

Malus ‘Beverly’*

Malus Camelot ‘Camzam’**

Malus ‘Centennial’**

Malus ‘Dolgo’**

Malus Harvest Gold ‘Hargozam’*

*Malus hupehensis**

Malus ‘Luwick’**

Malus ‘Makamik’*

Malus Molton Lava ‘Molazam’***

Malus ‘Prairifire’**

Malus ‘Professor Sprenger’**

*Malus sargentii***

Malus ‘Tina’**

Malus ‘Sinai Fire’**

Malus ‘Strawberry Parfait’

Malus Sugar Tyme ‘Sutyzam’

*also show good resistance to cedar-apple rust

** also shows good resistance to cedar-apple rust and fire blight

*** also shows good resistance to fire blight

Good web sites:

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

<http://ohioline.ag.ohio-state.edu/hyg-fact/3000/3003.html>

<http://learningstore.uwex.edu/pdf/A2173.pdf>

For information about chemicals to use for serious infections, refer to the CPM if you are a commercial applicator or HYG if you are a homeowner.

Sightings Elsewhere

Chris Yooning from the Chicago Botanic Garden reports that they are seeing a lot of boxwood psyllids; anthracnose on ashes, sweet birch, oak; aphids on honeysuckle (*Lonicera*); and of course a LOT of cicada holes.

What to Look for Next Week

Next week we will be looking for periodical cicadas, alder leafminers, euonymus scale crawlers, rose slug sawflies, and mines from alder leafminers.

Feature article:

Favorite Books About Plant Diseases

By Donna Danielson, M.S.

Plant Clinic Assistant

Disease identification is much harder than insect identification. Wilted leaves and dying branches can have many causes. To absolutely identify a disease, it should be taken to a culture lab such as the University of Illinois Plant Clinic. The following list contains our favorite books about diseases of plants. Most of these books do not include chemical controls, because the chemicals can change from year to year. We always refer to the CPM or HYG for chemical control, if necessary.

Diseases of Trees and Shrubs (Second Edition) by Wayne Sinclair and Howard H. Lyon, published by Cornell University Press, 2005. This is the “bible” for tree and shrub diseases. It has a plant index that lists all the diseases of each plant, which is very helpful. It has lots of good color photos. The new edition is even better because it contains spore and fruiting body drawings. These are only helpful if you have a microscope.

Diseases of Woody Ornamentals and Trees in Nurseries, edited by Ronald K. Jones and d. Michael Benson, APS Press, 2001. This book is as valuable for landscapes as it is for nurseries. Organized by plant, it lists all the common diseases of the plant with handy tables indicating how common the disease is, how severe the disease can be, the efficacy of chemical treatment, the importance of cultural practices, the importance of sanitation, and if resistant cultivars are available.

A Pocket IPM Scouting Guide for Woody Landscape Plants, compiled and edited by Diane Brown-Rytlewski, Michigan State University Extension bulletin E-2839, 2002. This is a handy, plastic-coated, pocket-sized booklet containing insect and disease information about most of the common diseases and insects in this area. Great photos.

Scouting and controlling woody ornamental diseases in landscapes and nurseries, prepared by Gary W. Moorman, a publication of Pennsylvania State University, no date found. Another handy pocket-sized book that’s convenient to carry out to the field. It contains many common diseases and lots of great color photos.

Compendium of Conifer Diseases, edited by Everett M. Hansen and Katherine J. Lewis, APS Press, 1997. This is obviously limited to conifers. Has detailed information and helpful color photos.

Compendium of Rose Diseases, prepared by R. Kenneth Horst, APS Press, 1983. Similar to the previous book but is limited to rose diseases.

Diseases of Annuals and Perennials, A Ball Guide, Identification and Control, by A.R. Chase, Margery Daughtrey, Gary W. Simone, Ball Publishing, 1995. One of the very few sources of diseases of herbaceous plants.

Wood Decay Fungi Common to Urban Living Trees in the Northeast and Central United States, by Christopher J. Luley, , published by Urban Forestry LLC 2005. This small book about the common fungi that cause internal decay in trees has great photos.



The Plant Health Care Report is prepared by Donna Danielson, Plant Clinic Assistant, and edited by Fredric Miller, PhD, research entomologist at The Morton Arboretum and professor at Joliet Junior College, Doris Taylor, Plant Information Specialist, and by Carol Belshaw, Plant Clinic 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.

The *2007 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). You may also purchase them online at <https://webstore.aces.uiuc.edu/shopsite/browsecommhort.html>. One further source is your local county extension office.

This report is available on-line at The Morton Arboretum website at <http://www.mortonarboretumphc.org/>.

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 PHC reports should be directed to Donna Danielson at ddanielson@mortonarb.org.

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