

Plant Health Care Report

Scouting Report of The Morton Arboretum

June 14- 21, 2008

Issue 2008.10

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.

June 20-21 is the summer solstice!!! The solstice marks the beginning of summer in our northern hemisphere with the longest day and shortest night of the year. On June 21, there are 24 hours of daylight north of the Arctic circle and 24 hours of darkness south of the Arctic circle.

Quick View

What Indicator Plants are in Bloom at the Arboretum?

Mockorange (*Philadelphus coronarius*) is in bloom.

**Accumulated Growing Degree Days (Base 50):
649.0**

Insects

- Rose curculio
- European elm scale
- Lecanium scale
- Currant spanworm
- Spiny witch hazel gall aphid
- Birch leafminer
- Hackberry nipple gall
- Gypsy moth update
- Pear leaf blister mite damage
- The half-wing caterpillar



Diseases

- Verticillium wilt
- Downy leaf spot
- Rose rust
- Island chlorosis
- Dog vomit slime mold

Degree Days and Weather Information

As of June 19, 2008, we are about 9 growing degree days behind of the historical average (1937-2007) and 16 growing degree days behind last year.

Location*	Growing Degree Days through June 19	Precipitation between June 13 – June 19 in inches
The Morton Arboretum (Lisle, IL)	649.0	0.80
Chicago Botanic Garden (Glencoe, IL)*	602.5	0.37
Chicago O-Hare Airport*	657.0	1.27
Aurora, IL	689.5	
Bloomington, IL	810.0	
Champaign, IL	864.0	
DuPage County Airport (West Chicago, IL)	707.0	
Midway Airport	754.0	
Danville, IL	967.0	
Decatur, IL	929.5	
DeKalb, IL	695.0	
Moline, IL	818.0	
Palwaukee Airport (Wheeling, IL)	653.5	
Peoria, IL	889.5	
Peru, IL	919.5	
Pontiac, IL	812.0	
Rantoul, IL	967.5	
Rockford, IL	724.0	
Romeoville, IL	707.0	
Springfield, IL	944.5	
Waukegan, IL	527.5	
Madison, WI	571.0	
Milwaukee, WI	459.5	

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

We obtain most of our degree day information from the Virtual Arborist web site. For additional locations and daily degree days, go to <http://virtualarborist.com/>.

This Week's Sightings

Rose curculio



Rose curculios were found on the Frau Dagmar Hastrup rose (*Rosa rugosa* 'Frau Dagmar Hastrup') on our grounds this week. This is a red weevil with a black snout, head, and legs. The snout is ideal for drilling small holes into flower buds and hips for feeding and egg laying. The curculio is about ¼ inch long. Damaged flower buds that bloom will appear ragged and unsightly. Larvae that feed within rosebuds sometimes kill them.

Control: Adults can be handpicked. Like Japanese beetles (which we have not seen yet this year but expect to soon), adults fall from the plant when they are disturbed. You may be able to catch many of the insects by shaking rose canes over a bucket. Remove spent flowers to eliminate larvae.

European elm scale



Crawlers are the yellowish specks

Adults and crawlers of the European elm scale (*Gossyparia spuria*), were identified on two samples of American elm (*Ulmus americana*.) in the plant clinic. An interesting observation was that all the adult scales seemed to congregate along the areas that have cicada damage from last year. Like magnolia scales, they are soft scales and, since they are sap feeders, produce honeydew, which attracts sooty mold. Very heavy infestations can cause leaf and twig dieback. Severely injured leaves remain on the tree all winter. Mature females prefer feeding in the forks of twigs.

Female scales are oval, red-brown, and surrounded by white, cottony fringe. They're only about 1/8 of an inch in diameter. They produce one generation per year. They lay eggs near the end of June into July. The eggs hatch within a few hours into bright yellow crawlers. Crawlers migrate to feeding sites along the

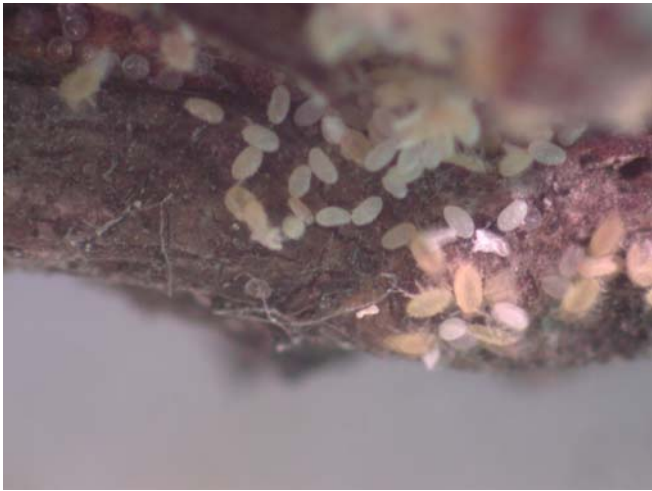
midrib of the underside of leaves, where they will remain until the end of summer. In fall, crawlers return to limb or bark crevices to overwinter as immature females. They mature in late May, mate, and begin depositing eggs.

Control: Horticultural oil or insecticidal soap can be sprayed on crawlers. You can put out double-sided tape to detect this insect. Insecticidal soaps, summer oils, or insecticides should be applied now to control crawlers. For further information about chemical control, refer to 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.

Good web site:

<http://www.entomology.umn.edu/cues/Web/126EuropeanElmScale.pdf>

Lecanium scale



Lecanium scale (*Lecanium* sp.) crawlers have just emerged and were found on an American elm (*Ulmus americana*). Lecanium scales are common pests in North America and include about a dozen species that attack a wide variety of shade and fruit trees and ornamental trees and shrubs. They vary in size, color, and shape, depending somewhat on the host plant they attack. The adult scale length varies from 1/8 to 1/2 inch.

Most species of lecanium scales have similar life cycles. Eggs are laid beneath the females beginning in late spring to early summer. After egg laying, the female's body dries, becomes brittle, and turns brown. This "scale" covering provides protection to the developing eggs. Crawlers emerge soon after and migrate to leaves to feed on plant sap. Infested plant leaves are often covered with sooty mold, a black fungus that grows on

the honeydew excreted by the scales as they feed. In severe infestations, lecanium scales will cause some twig dieback and premature leaf drop.

See feature article "Understanding and Identifying Scale Insects on Woody Plants" by Fredric Miller, Ph.D. at <http://www.mortonarboretumphc.org/feature%20articles/Insects/Understanding%20and%20Identifying%20Scale%20Insects%20on%20Woody%20Plants%20%20May%202004.pdf> for further information.

Good web site:

<http://www.ces.ncsu.edu/depts/ent/notes/O&T/trees/note36/note36.html>

Currant spanworm

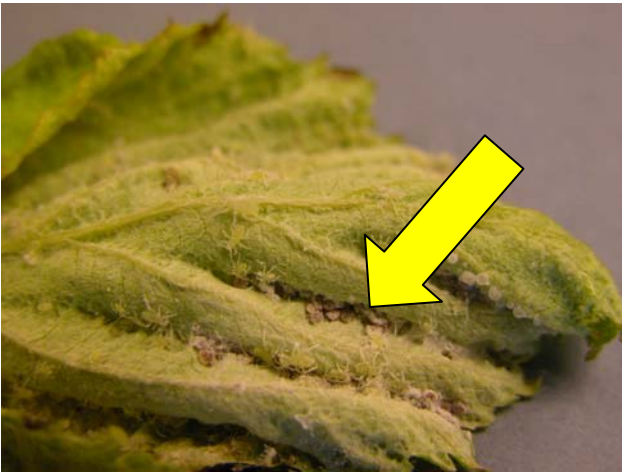
The currant spanworm (*Itame ribearia*) has been found on our green mound alpine currant (*Ribes alpinum* 'Green Mound'). This lemon yellow frosted white, black spotted caterpillar is quite beautiful. The currant spanworm is a fairly uncommon pest. They did get our attention by chewing on all of our currant leaves. When disturbed, the caterpillars drop down from the plant on a strand of silk. The spanworm pupates in the ground and the moth emerges in late June. The egg overwinters. The moth is light tan with a row of parallel gray dashes across each wing. The eggs are laid on the bark in July and hatch the following spring.

Control: Treatment is seldom needed. In a severe infestation *Bacillus thuringiensis kurstaki* (Btk) can be used.



Spiny witch-hazel gall aphid

Spiny witch-hazel gall aphids (*Hamamelistes spinosus*) are feeding on the underside of river birch (*Betula nigra*) leaves. Their feeding causes leaves to appear corrugated, gradually curl, turn brown, and drop prematurely.



Aphids feeding

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 that feed and live on leaves. These aphids eventually migrate to witch-hazel to feed on the flower buds and complete their life cycle.

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

Good web site:

<http://entweb.clemson.edu/eiis/pdfs/to17.pdf>

Birch leaf miner

The mines of birch leaf miner were found on paper birch (*Betula papyrifera*). The mines are just beginning right now. Gray birch (*Betula 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 (*Betula 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.

Control: Plant resistant varieties of birch. For chemical control, refer to the CPM or the HYG.

Good web sites:

<http://www.ag.ohio-state.edu/~ohioline/hyg-fact/2000/2035.html>

<http://www.entomology.wisc.edu/ppbirch.html>



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. 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. As a matter of fact, I was taught to identify hackberries (*Celtis* spp.) by their warty leaves caused by the galls as well as their warty bark. The damage is not considered serious.

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

Good web sites:

http://www.oznet.ksu.edu/dp_hfrr/extensn/problems/hackgall.htm

http://www.ipm.uiuc.edu/landturf/insects/hackberry_psyllids/index.html

Gypsy moth update



Female gypsy moth

We are continuing to receive numerous calls on gypsy moth caterpillar sightings. The bigger they get, the more obvious they become. Caterpillars range in size from $\frac{3}{4}$ to 2 inches long (when fully grown). They are often seen when they move from one tree to another looking for additional food. When they are fully grown, caterpillars descend from the tree to search for a protected site to pupate. Pupation usually occurs at the end of June, with moths emerging in July. Adult male moths are brown with black markings, feathered antennae, and have a wingspan of one and a half inches. Female moths are white to cream-colored with black markings on their wings and have a wingspan of about two inches. Although winged, the females are too heavy to take flight.

Females lay egg masses in July and August on branches and trunks of trees. They are also found in sheltered locations such as under loose bark, in woodpiles, on outdoor furniture, or the undersides of vehicles. The egg masses are buff colored, covered with hairs, and about one and a half inches long. It is easiest to wait until the leaves are fallen off the tree in autumn to look for egg masses.

Control: With caterpillars being nearly fully grown, treatment now is not recommended. Insecticides are more effective against younger caterpillars (in May).

Good websites:

http://www.aphis.usda.gov/lpa/pubs/fsheet_faq_notice/fs_phgmprogress.html

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



Male gypsy moth

Pear leaf blister mite damage



Pear leaf blister mite damage on pear (*Pyrus sp.*) has been found on our grounds. The blistering is caused by the pear leaf blister mite (*Phytoptus pyri*), an eriophyid mite that is a pest of pear, apple and European mountain ash. Blisters begin as small greenish to pale yellowish bumps that eventually turn brown and reach an eighth of an inch in diameter. Heavily infested leaves become distorted and drop prematurely. Mites also feed on developing fruit, causing depressed brown spots surrounded by a halo of clear tissue. Often, fruit becomes deformed and misshapen. The adult mites overwinter in bud scales. They become active in spring as buds swell and migrate to emerging leaves, burrowing beneath the epidermis of the leaf underside. Their feeding induces blister formation. The eggs are laid in

the fall, and the young remain in the gall until they mature. They then migrate to new leaves. There are 2 to 3 generations per year. This is the second year in a row that we've seen a fair amount of this.

Control: This is only a cosmetic problem so controls are not warranted. However, if you grow edible pears, you might want to contact your County University of Illinois cooperative extension office for chemical recommendations.

Good web site:

<http://www.canr.msu.edu/vanburen/fplbm.htm>

The half-wing caterpillar

The half-wing caterpillar (*Phigalia titea*), was found on hickory (*Carya sp.*). It is a blue-gray caterpillar with black pinstripes running the length of the body. Additionally there are orange and yellow patches with black spots in each. They have a looper-like personality (which means they stand on their hind legs and look around in a wavy, loopy-like fashion. It's quite comical.). Common food plants include American hornbeam (*Carpinus sp.*), apple (*Malus sp.*), linden (*Tilia sp.*), birch (*Betula sp.*), elm (*Ulmus sp.*), hickory (*Carya sp.*), maple (*Acer sp.*) and oak (*Quercus sp.*). They only eat newly emerged foliage in the spring. If you offer them only older foliage, the caterpillars will starve.

They hatch in April and larvae feed until early June. The pupa overwinters in litter or soil. Emerge as adults from late March to mid April, the females are flightless. Eggs are deposited in bark crevices in early spring. One generation per year.

Control: Treatment is seldom needed.



Verticillium wilt



We are seeing the first symptoms of verticillium wilt on nikko maple (*Acer nikoense*). The branch of the maple we saw was wilting and the leaves were turning brown. When we scraped the bark off the branch, we saw the characteristic light brown streaks in the sapwood. Verticillium wilt is a fungal disease that affects over 300 herbaceous and woody plants. The disease is caused by many host-specific strains of two soil-borne fungi, *Verticillium albo-atrum* and *V. dahliae*.

Verticillium dahliae is believed to be the predominant species attacking trees in the Midwest. The disease attacks many herbaceous plants as well as woody plants and has both acute and chronic (long-term) modes of action.

This is a soil-borne disease in which overwintering microsclerotia (tiny masses of fungus that are very good at surviving under unfavorable conditions) remain in the soil in a type of dormancy until unsuspecting roots cross their path. The fungus enters the root through wounds or direct penetration. Once inside a root, the fungus colonizes water-conducting tissue (xylem) and gradually spreads upward through the plant. The fungus produces toxins that cause the plant to block

off the xylem in an attempt to limit the growth of the fungus. This cuts off the flow of water which results in leaf wilting, yellowing and browning, branch dieback, and often plant death. The wood beneath the bark is streaked in many species because of the “plugging” response. Typically when a wilting branch is cut in cross section, or the bark peeled back, brown streaks can be seen in the outer ring of sapwood. Not all plants, including ash and Japanese tree lilac, will show streaking.

Verticillium can be a chronic problem, that is, killing a branch or two annually, or it can kill the whole plant in one season. Chronic (long-term) symptoms may also appear such as: stunted, chlorotic, and deformed foliage; slow growth; and abnormal seed production.

Verticillium can be spread to new plants and soils by seeds, tools, irrigation furrows, and the soil and roots of new transplants and nursery stock. Once the fungus is introduced into soil it can survive for several years as microscopic microsclerotia, even in really bad conditions. This is one tough fungus.

Too often, arborists assume a maple with wilting branches is infected with verticillium, but a culture lab should be used to verify the diagnosis. In case the tree dies and needs to be replaced, you want to replace it with a tree resistant to the verticillium fungus.

Control: Verticillium wilt is difficult to control because of the pathogen’s ability to hunker down and survive in the soil with or without a host plant. Fungicides are ineffective in controlling Verticillium. The best course of action is sanitation and prevention. Dead branches should be pruned out as they occur to help overall plant vigor. Because the disease can be transmitted via sap, sterilize pruning tools with 70% alcohol (or a similar disinfectant) between cuts. Remove chronically infected trees.



Wilting and browning of branches

Other control measures:

- Start with clean plant materials and soil.
- Plant trees in sites that are appropriate for the plant.
- Water during dry periods. But do not overwater since the lower soil temperature may hasten disease in addition to creating plant stress.
- Use a three to four inch layer of organic mulch to retain moisture and prevent soil temperature fluctuation.
- Do not over fertilize. Maintain a balanced fertility and use an ammonium or urea source of nitrogen. Unbalanced nitrogen (too high or too low), too low potassium and too low phosphorous can lead to more disease. Nitrate sources of nitrogen have been correlated with the disease.
- Remove susceptible plants and plant debris or they will act as reservoirs of the fungus and increase the inoculum "load" of the soil.
- Avoid injuries to the roots, trunk, and branches.
- Plant resistant varieties.
- Remove severely infected trees and replace with plants that are not susceptible to *Verticillium*. Some species with reported resistance include:

arborvitae
bald cypress
beech
birch
boxwood

crabapple
dogwood
ginkgo
hackberry
hawthorn

hazelnut
hickory
holly
honey locust
hornbeam

ironwood
Katsuratree
some red maple cultivars
(‘Armstrong’, ‘Autumn
Flame’, ‘Bowhall’, ‘October
sycamore
walnut
willow
yew
zelkova

Glory’, ‘Red Sunset’, ‘Scarlet’
and ‘Schlessinger’)
mountainash
mulberry
oak

pear
pine
rhododendron
spruce
sweetgum

Good web sites:

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

<http://www.ipm.iastate.edu/ipm/hortnews/1998/3-13-1998/verticil.html>

<http://ohioline.ag.ohio-state.edu/hyg-fact/3000/3053.html>

<http://www.extension.umn.edu/distribution/horticulture/DG1164.html>

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.

Control: 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.

Good web site:

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

Rose rust

We’re finding rose rust on prairie rose (*Rosa setigera*) leaves. Bright orange “powder” appears initially as spots on the leaves and later may coalesce as the disease worsens. This powder is actually a cluster of aeciospores of the fungus (*Phragmidium* sp.). These spores reinfect other roses and cause orange red spots on the leaves and long, narrow lesions on the stems. Leaves may wither and fall off and shoots may become distorted and reddish. Plants infected by this obligate parasite will gradually decline in vigor.

Control: Infected plant parts should be pruned out and destroyed immediately. Do not work with the plants in



wet weather and provide ample air circulation in plantings. Plant disease -resistant roses. Tea roses are considered highly resistant, while hybrid teas, ramblers, and polyantha types are moderately resistant. For chemical control, refer to the CPM or HYG.

Good websites:

<http://ohioline.osu.edu/hyg-fact/3000/3063.html>

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. When leaves are held up to the light, it makes for a pretty picture.

Control: No control is warranted.

Good web site:

<http://hyg.aces.uiuc.edu/secure/subscribers/200708c.html>



Dog vomit slime mold



Dog vomit slime mold (we are not kidding about the name) has been reported to the plant clinic this week, a true sign of summer. This is a fungus that grows in mulch, especially during wet conditions. It looks exactly like its name. Dog vomit slime mold looks like a beige mat with yellow edges and bright yellow underneath. When it dries out, it turns brown and then to a white powder. It favors compacted mulch. Rake the mulch to help aerate it and alleviate the compaction. The fungus will not harm your plants. If you're planning an outdoor event and don't want the mold around, just break it up, let it dry out, and rake it up or turn it into the soil. We're always amused when callers try to describe their discovery. One person was concerned about the mysterious unnamed animal that seemed to visit their yard every night that was obviously very sick. They were relieved to hear that it wasn't a sick animal that was going to be contagious to their pets. Someone else thought it was teenage kids that partied too hard.

Good web site:

<http://hgic.clemson.edu/tyk/2008/tyk06b.htm>

What to Look for Next Week

Next week we will be looking for ash virus, lacebug, and black spot on rose.

Quote of the week: "When the world wearies and society fails to satisfy, there is always the garden."-- Minnie Aumonier



The Plant Health Care Report is prepared by Trica Barron, Plant Health Care Technician, and edited by Donna Danielson, Plant Clinic Assistant; 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://pubsplus.uiuc.edu/ICLT-07.html> (commercial handbook) and <https://pubsplus.uiuc.edu/C1391.html> (homeowners' guide). 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 Trica Barron at tbarron@mortonarb.org.

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