

Plant Health Care Report

Scouting Report of The Morton Arboretum

June 26 – July 4, 2009

Issue 2009.12

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?

American elderberry (*Sambucus canadensis*) is blooming.

Accumulated Growing Degree Days (Base 50) through June 30: 925.5



Photo by John Hagstrom

Insects

- Japanese beetles
- Magnolia scale
- Earwigs
- Cottony maple scale
- Leafhoppers
- Redbud leaffolder

Diseases

- Honeysuckle blight
- Azalea gall
- Guignardia

Sightings Elsewhere

- Viburnum leaf beetle

Weed Note

- Poison ivy

Degree Days and Weather Information

As of June 30, 2009, we are at 925.0 growing degree days which are seven days behind the historical average (1937-2007) of 1081.0 and two days ahead of last year (879.0).

Location	Growing Degree Days through July 2	Precipitation between June 26 to July 2 in inches
The Morton Arboretum (Lisle, IL) (through June 30)	925.0	0.17
Chicago Botanic Garden (Glencoe, IL)*	N/A	N/A
Chicago O'Hare Airport* (through July 1)	903.5	0.34 (June 24 – 30)
Aurora, IL**	908.4	
Champaign, IL**	1281.2	
DuPage County Airport (West Chicago, IL)**	1031.8	
Decatur, IL**	1319.3	
Moline, IL**	1136.1	
Peoria, IL**	1225.5	
Quincy, IL**	1344.4	
Rockford, IL**	937.7	
Waukegan, IL**	676.5	
Wheeling, IL**	837.1	

**Thank you to Mike Brouillard, Green Living, Inc., and Chris Yooning, 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>

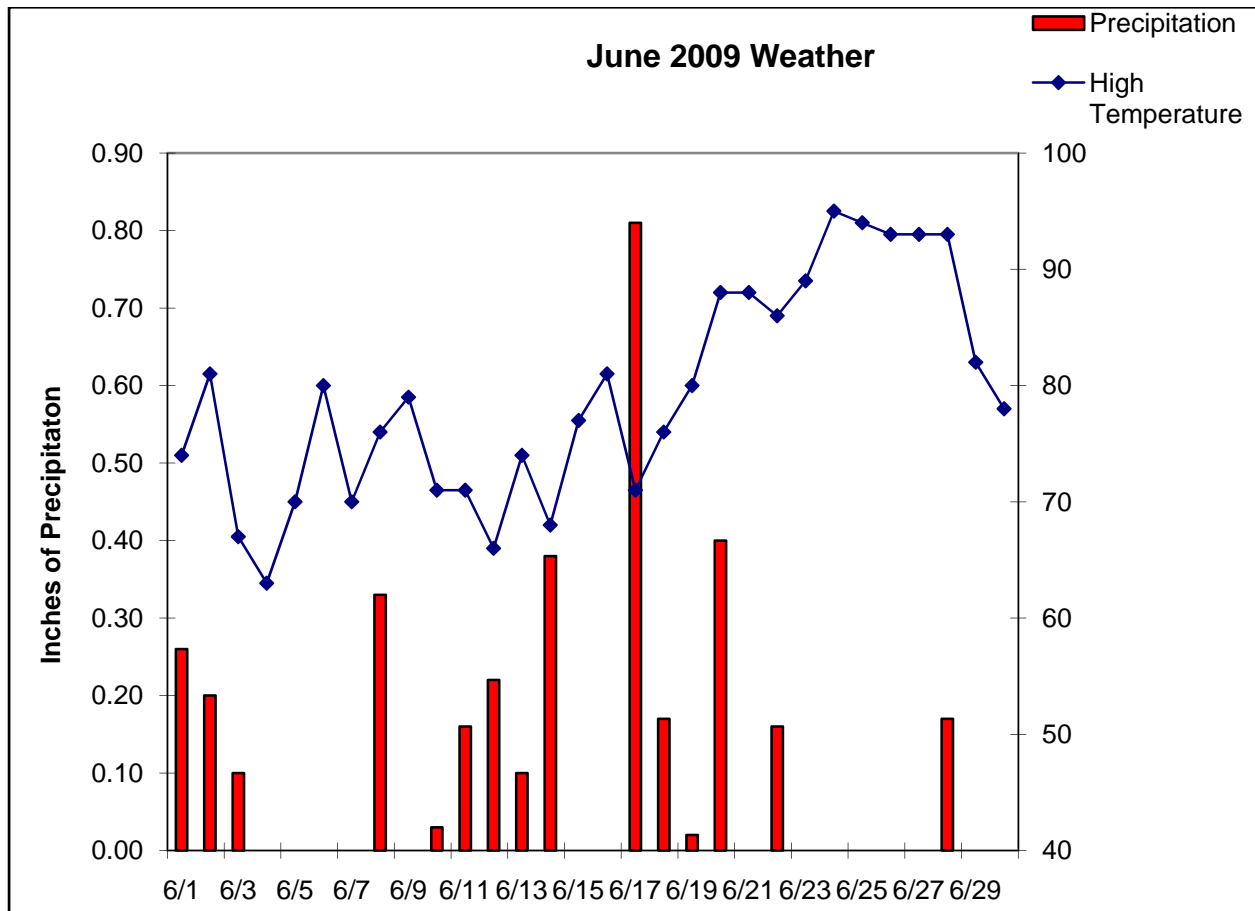
June Weather

Our June weather was cooler than average, especially the first half of the month. The average temperature for the month was more than two degrees cooler than our historical average (1937-2008). Overall our total precipitation here was drier than the historical average. However, rainfall varied tremendously here over the Chicago area with some of the area receiving much more rainfall than we did in Lisle.

Summary of June Temperature and Precipitation Data

	June 2009
Average Daily Temperature	67.9° F
Historical Avg. Daily Temp.	70.0° F
High Temperature	95° F
Low Temperature	42° F
Total Precipitation	3.51 in.
Historical Avg. Precipitation	4.00 in.
Total Days with Precipitation	16

The following chart displays the daily precipitation and high temperatures.



This Week's Sightings

Japanese beetles

They're baaa-ck! Japanese beetle (*Popillia japonica*) adults have been seen in both Naperville and St. Charles. Japanese beetles are up to 1/2 inch long, and have oval, metallic green bodies with coppery brown wing covers. They appear to have five white spots along each side and two additional white spots behind their wing covers. Upon examination under a hand lens (which we know you carry around faithfully), the spots are actually tufts of white hair.

Adult beetles feed on nearly 400 different species of ornamental plants with about 50 species being preferred. Highly preferred hosts include rose, crabapple, Norway maple, apple, cherry, grape, and linden. The adults feed on leaf tissue between veins, resulting in skeletonized leaves that soon wither and die. Severely infested plants may be almost completely defoliated.



Japanese beetles overwinter as larvae (grubs) about four to eight inches beneath the soil surface. In spring, as the soil temperatures warm to about 55° F (usually mid-April), the grubs move upward and feed on plant roots. Adults emerge in late June through July. Within a few days after emergence, females mate and burrow into the soil to lay eggs at a depth of two to four inches. Nearly all eggs are laid by mid-August. In sufficiently warm and moist soil, eggs will hatch in about ten days. Larvae feed on plant roots until cold weather forces them to greater depths in the soil for the winter. There is one generation of this beetle per year. Sometimes it seems like the adult stage lasts forever, especially if they attack your roses.

Control:

Adults

Adult Japanese beetles can be handpicked. This is the control we use here at the Arboretum. It is easiest to catch them by placing a container directly under the leaf that they are chewing on and then shaking the leaf. For reasons known only to Japanese beetles, they nearly always fly straight down, right into the “collecting container.” Be careful that you aren’t trying to collect bees which are also found on roses this time of year.

Sometimes pheromone traps are used to collect Japanese beetles. This is a bad idea - you will be attracting even more beetles to your property. While most of them will be killed in the trap, a large number will eat your plants! In severe infestations, insecticides can be used. Applications should be made when adults are most active—mid-July through early August. For information about chemical control, refer to the Commercial Landscape Turfgrass Pest and Management Handbook 2007 (CPM) if you are a commercial applicator or the Home, Yard and Garden Pest Guide (HYG) if you are a homeowner.

When choosing new plants, select resistant species. For a list of susceptible and resistant plants see:

<http://extension.entm.purdue.edu/publications/E-75.pdf>

Larvae (Grubs)

If areas of turfgrass are dying, peel the turfgrass back and look underneath the sod to assess the population. Treatment for grub infestations in turfgrass is not considered necessary unless the population exceeds 10 to 12 grubs per square foot. Eggs and first instar larvae require moisture to survive; therefore, the easiest way to reduce grub populations is to limit turfgrass irrigation during the egg-laying period when beetle populations peak (mid-July through early August). We’ve always found turfgrass to be boring anyway. After all, we’re the Arboretum; we think the world should be full of trees, shrubs, and mulch! Japanese beetles also avoid laying eggs in shade, which is another great reason to plant more trees and shrubs. But if you insist on growing turfgrass and have a bad grub infestation, insecticide applications are effective in controlling young larvae. To achieve the most effective control, insecticides should be applied when grubs are small and feeding near the soil surface. Insecticide applications in spring are often ineffective since the grubs are quite large or, in late spring, they could be pupating. Refer to the CPM and HYG for specific chemical recommendations.

Although not too effective in colder climates, the most commonly used biological control is milky spore disease (*Bacillus popilliae*). This is a bacterium that is specifically toxic to the grub stage of the Japanese beetle and is applied to the soil. However, if you are using this to kill white grubs in your lawn, the first step is to be positive that the problem is caused by Japanese beetle grubs. In this area, more lawn damage is caused by southern masked chafer grubs (also known as annual white grubs) than by Japanese beetle grubs, so you want to know who you’re dealing with. There is a pretty simple way to distinguish between the two. And this could be another neat party trick that will amaze and astound your friends. “Wanna know what kind of grubs these are?” Most people will run in fright from you, but if you have the right kind of friends, they’ll be amazed and impressed with your vast entomological knowledge.

Anyway, don’t get squeamish on me here. You need to look at the underside of the back end of the grubs. (Good manners prevents us from using the term “butt”.) Grubs have a pattern of hairs on the last abdominal segment called rasters. You need at least a 10X lens to see the hairs. The rasters on the Japanese beetle grubs are in a distinct inverted “V” shape, while the raster pattern on the southern masked chafer grubs is random. Ohio State University has a really neat web site that shows the different common grubs and their “raster patterns”:

<http://ohioline.osu.edu/hyg-fact/2000/2510.html>

Beneficial nematodes are now available that can be watered into turf where they infest and kill grubs. Products containing *Heterorhabditis* spp. appear to be more effective than those containing *Steinernema carpocapsae*. Beneficial nematodes are not available in stores; they are only available through mail order sources. Ohio State University keeps a web site listing good mail order sources of beneficial nematodes at:

http://www.oardc.ohio-state.edu/nematodes/nematode_suppliers.htm

Good websites:

<http://www.ag.ohio-state.edu/~ohioline/hyg-fact/2000/2504.html>

<http://ohioline.osu.edu/hyg-fact/2000/2001.html>

<http://www.uwex.edu/ces/wihort/gardenfacts/X1062.pdf>

Magnolia scale

We've seen magnolia scale (*Neolecanium cornuparvum*) on pink star magnolia (*Magnolia stellata* 'Rosea'). This is our favorite scale insect because it's big and those of us of advanced age can see them so easily! Magnolia scales have sucking mouthparts and extract sap from the host plant's branches and twigs. Badly infested branches and twigs are weakened and plant growth is slowed. When infestations are severe, branch dieback can result and, with repeated severe attacks, trees may be killed. As with most soft scale infestations, plant leaves are often covered with sooty mold, a black fungus that grows on the honeydew (liquid insect poop) excreted by the scales.



Sooty mold cuts down on photosynthesis because it blocks sunlight from the leaf.

Initially, magnolia scales are shiny, flesh-colored to pinkish brown, and smooth, but they become covered with a white mealy wax over time. This wax is lost at the time crawlers emerge. Right now we're seeing white, waxy female adults that are about 1/3 inch in diameter. Crawlers, which begin to hatch around Labor Day, are very tiny, flattened, and vary in color from yellow to reddish-brown. The crawlers settle on one- to two-year-old twigs to feed and remain there through the winter.

Star and saucer magnolias are the preferred hosts, although magnolia scale will also attack cultivars, although usually less frequently. According to The Ohio State University, magnolia species native to the U.S. are much more resistant than exotic species. Native species include cucumbertree, southern, sweetbay, bigleaf, and umbrella magnolia.

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

For chemical recommendations, 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 web sites:

<http://ohioline.ag.ohio-state.edu/hyg-fact/2000/2003.html>



Earwigs

Earwigs have been found on many herbaceous plants. Earwigs generally feed on dead insects and rotting plant material; however, they are also known to feed on flowers, fruit, and foliage of vegetable, fruit, ornamental, and field plants when populations are numerous. Their feeding causes small, irregular holes, and can give foliage a ragged appearance in severe infestations. This insect, which is about an inch long, is easily identifiable by the prominent pair of pincers on the tip of the abdomen. Earwigs are nocturnal creatures and hide in dark, moist places under stones and in debris or sometimes in bark during the day. They may find their way into houses and garages—particularly during periods of prolonged warm, dry weather and in fall. Inside they seek out moist areas such as basements, crawl spaces, and kitchens where they feed on sweet, oily or greasy foods, in addition to houseplants.

Since they feed on insect larvae, they are considered beneficial, but they are not beneficial to humans if you sit on one and get pinched. Trust me on this. I have experience, and you don't need details.

Next time you are at a party, you can astound your friends and family with your knowledge by asking them how to tell the difference between male and female earwigs. The answer is: on females the pincers are nearly straight; on males they are curved.

Control: Removing plant debris from your garden will remove some of their hiding places. Place rolled up newspapers on the ground near problem areas. Check the "newspaper traps" in the morning for earwigs. Shake the earwigs into a pail of soapy water. For indoor control, eliminate damp conditions in crawl spaces, near faucets, around air-conditioning units, and along house foundations. Keep moist mulches three feet away from the house foundation, window wells, and doorways, if you have a serious earwig problem. Trim back vegetation and remove ground covers near foundations that contribute to moisture retention. Move log piles away from the house.

Good web sites:

<http://ohioline.osu.edu/hyg-fact/2000/2068.html>

<http://learningstore.uwex.edu/pdf/A3640.pdf>



Cottony maple scale

We found cottony maple scale on twigs of linden (*Tilia caucasica*). These "growths" are female adult maple scales (*Pulvinaria innumerabilis*). The scales themselves are 1/4 inch long, flat, oval, brown and have white, cottony egg masses (ovisacs) protruding from the rear. The "cotton" is actually waxy threads and the ovisac may contain over 1,500 eggs. Their preferred hosts are red and silver maple, but they also attack other maples, white ash, hackberry, dogwood, apple, oak, boxelder, beech, poplar, linden, and

other hardwoods. At this point, each scale looks like a kernel of popcorn. The eggs will hatch soon into crawlers that migrate to the underside of leaves to feed. Mated females migrate to twigs to overwinter. When heavily infested, leaves may yellow and fall off prematurely, or branches or twigs may die. Cottony maple scale creates honeydew (liquid insect poop) which drops onto leaves below. Sooty mold may colonize the honeydew, resulting in less photosynthesis in the leaves.

Control: Cottony maple scale has a lot of natural enemies. Dormant oil can be used in spring before leaves emerge. To achieve optimum results, control measures should be aimed at the crawlers. They should be active by late June to early July. Refer to the CPM and HYG for specific chemical recommendations. In the meantime you can pick them off and destroy them.

Web site:

<http://ohioline.osu.edu/hyg-fact/2000/2019.html>

Leafhoppers

Leafhoppers were brought into the Plant Clinic feeding on various plants such as parsley. This is just the beginning of a long season of leafhopper activity, as there are thousands of species that infest woody and herbaceous plants. They will be active throughout the growing season.

Leafhoppers have piercing/sucking mouthparts and feed on leaf sap causing yellow-white stippling and leaf curling. The stippling is similar to spider mite damage but more noticeable. Damage on some plants shows up as stunted shoots and distorted leaves, while on other plants appears more like stippling on the leaves. Leafhoppers attack several host trees, with red maples showing the most damage. Feeding on maples produces stunted tree shoots and leaves with brown edges that curl downward. Potato leafhoppers do not overwinter in this area and are blown here from fields farther south. Leafhoppers are vectors of several woody plant diseases including elm yellows, aster yellows, and bacterial scorch diseases. Controlling the vector helps to control these diseases.



Candy-striped leafhoppers (*Graphocephala coccinea*)

Most leafhopper species overwinter as eggs in the bark of host plants or among fallen host plant leaves. Eggs hatch in the spring and five nymphal stages are passed through before the adult stage is reached. Adults are generally less than 3 mm long.

Control: Remove and destroy leaf debris in the fall. Keep trees healthy and vigorous by keeping them mulched and watering during drought periods to lower tree stress. In severe infestations, insecticides can be used and should be applied when hoppers are visible on the foliage but before leaves begin to curl. For further information on chemical controls refer to the CPM and HYG.

Web site: <http://www.entomology.umn.edu/cues/Web/162LeafHopper.pdf>



Redbud leaffolder

Redbud leaffolders (*Fascista cercerisella*) have been found feeding on leaves of redbud (*Cercis canadensis*). They fold leaves nearly in half and secrete silk webbing that holds the leaf together. Larvae feed within these folds as skeletonizers and consume the epidermis of both the upper and lower leaf surfaces. The larvae are striped black and cream and reach ½ inch at maturity.

Control: Redbud leaffolder is a minor pest in our region. Damage is primarily aesthetic and controls are not necessary.

Honeysuckle blight

The Plant Clinic has received several cases of Honeysuckle Blight caused by the fungus *Insolibasidium deformans* on honeysuckle (*Lonicera* spp.). The fungus overwinters in dead leaves. In spring, spores are blown or splashed via rainfall to young honeysuckle leaves. Infected leaves initially turn yellow, eventually becoming tan to brown. Brown areas may cover the entire leaf. Leaves often roll up or become twisted and fall off. During wet weather, the lower surface of the leaves may turn silvery white. The silvery white color is from either basidiospores or conidia (fungal spores) that will infect new leaves as they emerge. The infection may continue as long as there is cool, wet weather. Stems are not attacked. Most honeysuckle species are susceptible.

Control: Cultural practices may provide adequate control.

Severely infected foliage should be pruned. Fallen leaves should be raked and removed. Honeysuckle can be thinned and plants should be watered early in the day in order to dry faster. For information about chemical recommendations, refer to the HYG.

Web site:

<http://www.forestpests.org/nursery/honeyblight.html>



Azalea gall

Azalea galls, caused by the fungus *Exobasidium japonicum*, were brought into the Plant Clinic on an Azalea (*Rhododendron* sp.). Symptoms are swollen, fleshy white structures on leaves that have the consistency of styrofoam. The fungus overwinters in buds of infected plants. In late spring, spores are released which infect other azaleas during wet weather. The disease is much more common during cool, wet weather.

Control: Galls should be picked and destroyed. For chemical recommendations, refer to the HYG.

Web site:

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

Guignardia

The initial stages of Guignardia leaf blotch were found on Ohio buckeye (*Aesculus glabra*). Right now we're seeing reddish brown to brown lesions with a yellow border that blends into the normal green leaf tissue. Upon closer inspection with a hand lens (which good scouts never leave home without), you will soon be able to see the dark pycnidia (fungal fruiting bodies), which look like black pepper on the lesions on the upper surface of the leaf. The blotches will enlarge, coalesce, and may cover the entire leaf by the end of summer. Premature defoliation may follow on the most susceptible hosts. This disease eventually decreases a tree's ability to photosynthesize, but generally the disease doesn't become severe until the tree's annual growth has slowed or is complete. Therefore it does not do much harm to trees in the landscape, but it does make them unsightly. This is so common, that we've starting thinking that the fall color of the horsechestnut is brown. A few years ago, we rated our *Aesculus* trees for susceptibility to Guignardia. Generally horse chestnuts (*Aesculus hippocastanum*) are the most severely infested. We found that in addition to bottlebrush buckeye (*A. parviflora*) being resistant, Japanese horsechestnut (*A. turbinata*) and some Ohio buckeyes (*A. glabra*) show tolerance.



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Control: Removing fallen leaves may help to destroy the overwintering inoculum. Pruning trees to improve air flow may also help, since the spores are spread and germinate under moist to wet conditions.

Sightings Elsewhere

Viburnum leaf beetle

Though it hasn't been found in Illinois yet, the very serious viburnum leaf beetle (*Pyrrhalta viburni*) has been identified in Dane County, Wisconsin. This is a European species found on the east coast a few years ago that has been spreading west. To our knowledge, the closest previous infestation had been in Ohio. Viburnum leaf beetle attacks only viburnums. Both the larvae and adults feed on viburnum leaves, usually from the lower surface of the leaf. Plants that have been defoliated for two or three consecutive years may die. The insects overwinter as eggs on the underside of twigs. The larvae hatch in early May and feed in group, skeletonizing leaves. By early to mid-June, the mature larvae drop to the ground to pupate in the soil for about ten days. Adults emerge in July and feed through September, producing oblong holes in leaves. Females lay eggs on branch tips from late summer to fall. The eggs are glued to the underside of twigs and covered with frass (insect poop) and chewed bark. There is one generation annually.

Adults are 1/5 – 1/4 inch long and yellowish brown to light brown. Mature larvae are larger than adults (about 2/5 of an inch), shiny, greenish-yellow to white, and covered with dark dots.

Paul Weston of Cornell University and the Viburnum Leaf Beetle Citizen Science Project rated susceptibility and resistance of viburnums to the viburnum leaf beetle in 2003. The results follow:

Most susceptible to viburnum leaf beetle:

- V. opulus/trilobum* - European cranberry bush viburnum
- V. dentatum* - arrowwood viburnum
- V. sargentii* - Sargent viburnum

Moderately susceptible to viburnum leaf beetle:

- V. acerifolium* – maple leaved viburnum
- V. carlcephalum* – fragrant snowball
- V. lantana* - wayfaring tree viburnum
- V. lentago* - nannyberry viburnum
- V. macrocephalum*
- V. pragensense* – Prague viburnum
- V. prunifolium* - blackhaw viburnum

Resistant to viburnum leaf beetle:

- V. burkwoodii* – Burkwood’s viburnum
- V. carlesii* – Korean spice viburnum
- V. lantanoides/alnifolium*
- V. plicatum f. tomentosum*
- V. rhytidiphyllodes* – Hybrid leatherleaf viburnum
- V. rhytidiphyllum* - leatherleaf viburnum
- V. sieboldi* – Siebold’s viburnum

Web sites:

- <http://onlineservices.datcp.wi.gov/pests.jsp?categoryid=35&articleid=1276&issueid=124>
- <http://ento.psu.edu/extension/factsheets/viburnum-leaf-beetle>
- http://entnemdept.ufl.edu/creatures/orn/beetles/viburnum_leaf_beetle.htm

Weed Note

Poison ivy

Poison ivy, (*Toxicodendron radicans*), is a plant that many of us are too familiar with! It can take many forms – as a vine, upright shrub, or a small, sprawling perennial. It has compound leaves with three leaflets. The leaves are alternate and can be confused with young boxelder sprouts. However, the compound leaves of boxelders have an opposite arrangement. The middle leaflet of poison ivy has a long petiole, while the lateral leaflets have shorter petioles. Flowers bloom in May to July. Flowers are off-white to green, small, have five petals, and emerge from lateral branches in large clusters. Berries are white and hard, about 1/7 of an inch in diameter. The berries are not toxic to birds; thus the seeds are spread by our avian friends. Poison ivy also spreads by rhizomes. **DO NOT TOUCH THIS PLANT!** All parts of poison ivy are toxic.





Poison ivy flowers (All poison ivy photos courtesy of John Hagstrom)

Control: Wear heavy gloves and protective clothing when dealing with poison ivy. Digging up the plant, including the entire root system, is a common means of control, best done in fall. It can also be controlled by repeated cutting or mowing plants. Poison ivy should not be burned or composted. Even exposure to the smoke can cause a toxic reaction. A 1% solution of triclopyr can be applied to the leaves.

Poison ivy fruits



Other Notes:

Trica Barron resigned from her position as Plant Health Care Technician at The Morton Arboretum last week. Donna Danielson, Plant Clinic Assistant, is once again responsible for the PHC Report.

What to Look for Next Week

We will be looking for Botryosphaeria canker and basswood lacebug.

Quote of the week:

"In gardens, beauty is a by-product. The main business is sex and death." Sam Llewellyn



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 quote of the week was provided by Rita Hassert, Technical Services Librarian Extraordinaire at the Sterling Morton Library. 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.mortonarb.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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