

Plant Health Care Report

Scouting Report of The Morton Arboretum

August 15 - 28, 2009

Issue 2009.18

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.

This is the final report of the season.

Quick View

What Indicator Plants are in Bloom at the Arboretum?

We have run out of indicator plants for the season. The photo is of an attractive called Prairie Flame shining sumac (*Rhus copallina* var. *latifolia* 'Morton').



Photo by John Hagstrom

Accumulated Growing Degree Days (Base 50) as of August 26: 1967.0

Insects

- Emerald Ash Borer Update
- Yellow necked caterpillars
- Milkweed tussock moth
- Soldier beetle

Diseases

- Phomopsis on Douglas fir
- Butternut canker
- Pestalotiopsis blight
- Bullseye leaf spot
- Smooth patch

Miscellaneous:

- Stinkhorns

Weed Note

- Common ragweed (*Ambrosia artemisiifolia*)

Feature article

- An Ounce of Prevention in the Autumn
By Stephanie Adams, M.S.

Degree Days and Weather Information

As of August 26, 2009, we are at 1967.0 growing degree days which are approximately **twenty** calendar days behind the historical average (1937-2008) and two calendar days ahead of last year.

Location	Growing Degree Days through August 25	Precipitation between August 13 through 25 in inches
The Morton Arboretum (Lisle, IL)	1967.0	3.10
Chicago Botanic Garden (Glencoe, IL)*	1880.0	1.05
Chicago O-Hare Airport* (through 8/26)	2046.0	2.10
Aurora, IL**	1631.3	
Champaign, IL**	2097.4	
DuPage County Airport (West Chicago, IL)**	1891.0	
Decatur, IL**	2196.6	
Moline, IL**	1973.9	
Peoria, IL**	2103.4	
Quincy, IL**	2249.1	
Rockford, IL**	1681.6	
Springfield, IL**	2354.2	
Waukegan, IL**	1405.2	
Wheeling, IL**	1665.9	

*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>

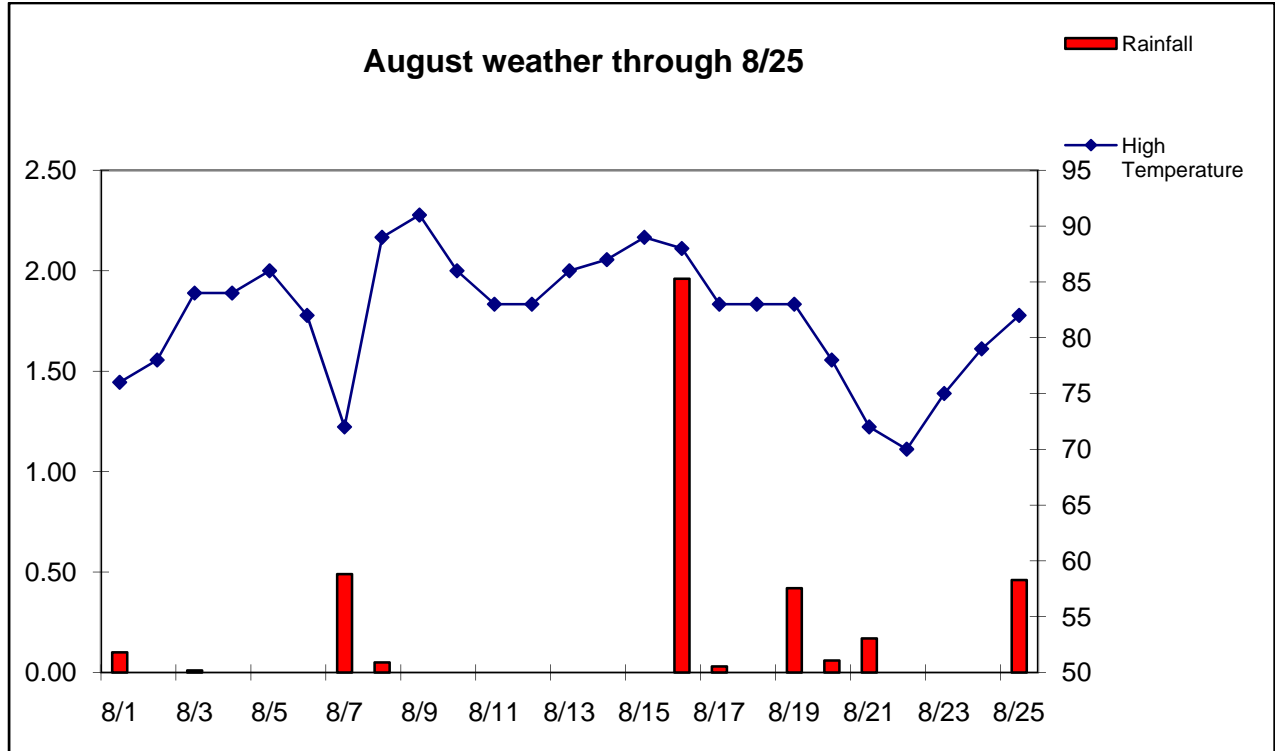
August weather

What a chilly summer we've had! Our August weather continued to be cooler than average (nearly two degrees cooler). The month began with insufficient soil moisture, but we've had quite a bit of rain over the past two weeks. However, rainfall varied over the Chicago area with parts of the area receiving less rainfall than we did in Lisle.

Summary of August Temperature and Precipitation Data through August 25

	August 2009 through August 25
Average Daily Temperature	70.7° F
Historical Avg. Daily Temp.	72.6° F
High Temperature	91° F
Low Temperature	52° F
Total Precipitation	3.75 in.
Historical Avg. Precipitation	3.70 in.
Total Days with Precipitation	10

The following chart displays the daily precipitation and high temperatures:



This Week's Sightings

Emerald Ash Borer Update

We have not yet seen emerald ash borers on our trees, but emerald ash borers have become so widespread in this area that new sightings frequently don't even make the news. To see a list of confirmed sightings in Illinois, see the following web site and click on <http://www.agr.state.il.us/eab/>, then click on "confirmed Illinois sightings" in the left-hand column.

Parasitic wasps that feed on emerald ash borer eggs were released in Evanston and Chicago in July. The adult wasp (*Oobius agrili*) lays eggs in emerald ash borer eggs. The resulting larva feeds on the contents of the eggs. The adult wasp is tiny, only about one-half the size of the head of a straight pin. They are unable to sting humans. In China, this insect reduces emerald ash borer numbers 50-60%. It was released last year in Michigan and survived a harsh Michigan winter. It's too early to tell how helpful it will be in the U.S. The wasp was tested on many North American insects before release and was found to be very specific to emerald ash borer.

A two-day conference called "Coping with the Costs: The Economic, Social and Environmental Impacts of Invasive Insects on our Communities," will be held at The Morton Arboretum on September 29-30. Sponsors include the U.S. Forest Service, The Morton Arboretum, The Nature Conservancy, and Purdue University.

The focus of the conference is to develop and share strategies for communities facing or anticipating the economic, social, and environmental impacts of invasive pests. These destructive insects include the emerald ash borer, Asian longhorned beetle, gypsy moth, and others.

This forum will be of interest to a broad spectrum of green industry, municipal, governmental, and educational institutions and will in particular connect managers of invasive pest-affected communities and any group that is interested in these issues with potential resources. Public, private, corporate, and institutional land managers will be offered tools and

networking opportunities that will assist them with economic impacts, minimizing further tree loss and promoting tree restoration.

The conference will feature presentations and panel discussions by regional and national experts, as well as provide networking opportunities.

For more information about the seminar, see our web site at <http://www.mortonarb.org> or call the Registrar's office at 630-719-2468.

Yellow-necked caterpillars

Yellow-necked caterpillars (*Datana ministra*) were found in Elburn defoliating red-twig dogwoods (*Cornus sericea*). These are larvae that feed in groups. In light infestations, individual branches can be defoliated. Yellow-necked caterpillars have a broad range of hosts including basswood, beech, birch, crabapples, elms, maples and oaks. Young larvae have black heads and yellow bodies with red stripes. Their name is derived from the orange-yellow segments behind their heads. When young, they are in the yellow-red color phase, which means they have red longitudinal stripes on their yellow bodies. As they mature, they go into their black-yellow phase, which means their red stripes turn black. They will eventually grow to two inches in length. They devour entire leaves, leaving only the petioles (leaf stems). When disturbed, they lift their heads and tails above the rest of their bodies, almost like they're trying to touch their tails with the heads. The ones we saw were black and yellow and nearing two inches in length, meaning they were quite mature. They were also very hungry.



Yellow-necked caterpillars overwinter as pupae in the soil, emerging as adults in June to lay eggs. There is one generation annually.

Control: A small infestation can be pruned out or ignored since they feed relatively late in the growing season. Control is more critical on a young tree. We would probably handpick them on a small tree using our patented pick'n'squish™ technique. They can also be dropped in a bucket of soapy water as they are not strong swimmers. *Bacillus thuringiensis* var. *kurstaki* (Btk) can also be used to control young larvae. Btk is not as effective on mature larvae. 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.

Web sites:

<http://bugs.osu.edu/~bugdoc/Shetlar/factsheet/ornamental/FSyellowneckcat.htm>

http://ipm.ncsu.edu/small_fruit/datana.html

Milkweed tussock moth



Milkweed tussock moth caterpillars (*Euchaetes egle*) were found chewing the leaves of a milkweed plant. They have black and white "hair pencils" along their front, back, and sides and six pairs of thick yellow and black tufts of hair along their middle and grow up to an inch long. The caterpillars feed in colonies and roll into balls, dropping to the ground when disturbed. They are late season feeders on all kinds of milkweeds so check your butterfly weed (*Aesclepias tuberosa*). They may defoliate patches of milkweed. Adult males sing to attract females by making lovely clicking sounds (remember, beauty is in the eye or, in this case, ear of the beholder).

Control: *Bacillus thuringiensis* var. *kurstaki* (Btk) will kill young caterpillars, but is not as effective against older larvae.

Soldier beetle



Goldenrod soldier beetle adults are feeding on pollen of Queen Anne's lace (*Daucus carota*). Both adult and larval forms of this beneficial beetle are predacious beneficial insects. Larvae feed on soft-bodied insects, such as maggots, small caterpillars, and grasshopper eggs. Adults feed on small insects, such as aphids, as well as flower pollen and nectar.

Adult soldier beetles are about 1/2 inch long and orange with two elongate, parallel dark spots on their back. They resemble fireflies but lack the light producing organ. Adults are commonly found on flowers and foliage of goldenrod, milkweed, and sweet clover. Larvae are long, slender, dark brown to gray, and worm-like. Their body is covered with tiny dense bristles and appears velvety. Soldier beetle larvae usually spend the winter in damp soil and debris or under loose bark.

Phomopsis on Douglas fir

Phomopsis canker (*Phomopsis* spp., sexual stage: *Diaporthe*) was found on Douglas fir (*Pseudotsuga menziesii* var. *glauca*). This twig canker causes dieback of the current year's twigs and then the death of the current-year's needles. The distribution of the fungus tends to be sporadic in the tree and causes small patches of dieback that usually appear as a shepherd's crook. The cankers are usually well defined with small black pycnidia (flask-shaped fruiting bodies) produced in the infected tissue. The pycnidia, which are easily seen with a hand lens, produce two kinds of conidia (spores) characteristic of Phomopsis, called alpha and beta conidia. The spores are spread in the spring when they are water-splashed from the previous year's infected tissue onto the new shoots. This disease is not a severe problem on large mature trees, but may dramatically affect smaller seedlings.

Control: Fungicides are available for control, but are only recommended on seedlings or severely infected plants. For minor infections, reduce any environmental stresses on the tree (such as watering or proper mulching).

Butternut canker

Butternut canker was found on butternut (*Juglans cinerea*). Butternut canker is a devastating canker disease recently introduced to the U.S. (another example of an invasive plant pathogen such as chestnut wilt). The fungus, *Sirococcus clavigignenti-juglandacearum*, is killing butternuts throughout their natural range in eastern North America. Like most canker diseases, the fungus infects trees through wounds. However, the trees have no resistance and are soon covered with cankers. Cankers are oval-shaped and form on all parts of the tree. The underlying wood turns dark brown as fungal hyphae spread beyond the bark and kill the cambium. The bark first turns mushy, and finally splits and shreds. Eventually cankers coalesce, girdling the tree and killing it.

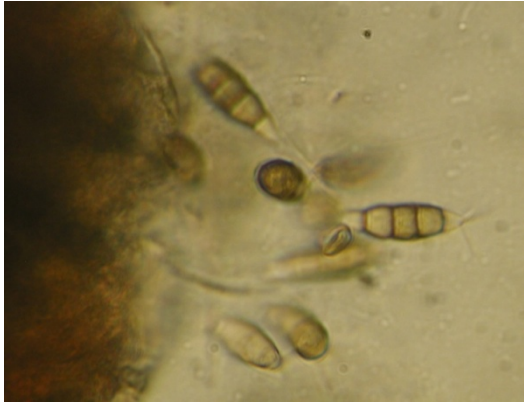
Control: At present there is no control except removal of infected trees. Studies suggest that walnuts may sometimes harbor this pathogen, but they're not much affected by it.

Excellent web site: http://na.fs.fed.us/spfo/pubs/howtos/ht_but/ht_but.htm



Pestalotiopsis blight

Pestalotiopsis blight was diagnosed on both Emerald green arborvitae (*Thuja occidentalis* ‘Smaragd’) and columnar Japanese yews (*Taxus cuspidata* ‘Columnaris’). This fungal blight attacks injured or weakened foliage and causes foliage to turn yellow, then dark brown to almost black. The disease starts at the tips of the foliage and progresses toward the leaf base. Damaged foliage is usually near the base of the plant where snow or mulch has accumulated keeping moisture conditions high.



Conidia under the microscope

Control: This is a minor disease and can be controlled by pruning out the damage as soon as you see it in the spring. Do not allow snow to accumulate at the base of the plant for an extended period of time. Keep mulch about two inches from plant base.



Bullseye leaf spot

Cristulariella leaf spot or bull's-eye leaf spot, caused by the fungus *Cristulariella moricola*, was found on Bokhara fleece flower (*Polygonum baldschuanicum*). This is called bull's-eye leaf spot because the grayish-brown leaf spots have alternating light and dark concentric rings that almost look like a target. The spots have a light center and are up to an inch in diameter. Severely infected leaves turn yellow and drop prematurely. This fungal disease kills plant tissue by creating toxic amounts of oxalic acid. Cool, wet weather in mid-summer favors the disease. Fluctuating summer temperatures and rainfall usually retard the growth of the fungus. There are many common hosts, including black walnuts, magnolias, maples, sycamores, tree-of-heaven, and tulip trees.

Control: Removing and discarding infected leaves will destroy inoculum to prevent secondary infections. Rake up and discard leaves in the fall.



Smooth patch

You know it's the end of the season when we're desperate enough to report that we're seeing smooth patch. There is no perfect definition of plant disease, but one we like is "a condition in which a plant differs from a normal, healthy plant in either structure or function." Technically, smooth patch is a "disease" in that it changes the appearance of bark, but does not harm the tree. It is caused by the fungus *Aleurodiscus oakesii*. The fungus decomposes and sloughs off the outer, dead bark of the tree, usually of American elm (*Ulmus americana*), American hornbeam (*Carpinus caroliniana*), sugar maple (*Acer saccharum*), bur oak (*Quercus macrocarpa*) and white oak (*Quercus alba*). The result of the sloughing is patches of bark that are grayish, slightly sunken, and smoother than the original bark. Patches range from a few inches to

more than a foot across. Smaller patches may coalesce into large patches, and this is what we usually notice. Because this “disease” of the dead bark does not harm the tree, no control is necessary.

Control: Control is not warranted since the fungus does not invade living tissue and does not cause cankers or internal decay.



Stinkhorns

We’ve gotten a few calls from homeowners about stinkhorns in mulch beds. It is a mushroom with green slime covering the top part of the pink mushroom. There is a white cup at the base. It has an unpleasant odor (unless you’re a fly). It is seen in wood debris and leaf litter. No control is necessary.

Web site:

<http://www3.extension.umn.edu/yardandgarden/ygbriefs/p322stinkhorns.html>
http://botit.botany.wisc.edu/toms_fungi/oct2006.html

Weed Note

Common ragweed (*Ambrosia artemisiifolia*)

Along with giant ragweed, this is one of the plants on which you can blame your hayfever. It’s an erect, branching annual that grows one to four feet tall. Most leaves are alternate, but the lower leaves are sometimes opposite on the stems, which have stiff hairs. Leaves are usually twice pinnately compound. The male pollen-making flowers are small and green and organized in tall racemes, with the female seed-producing flowers in the stem axils below the male flowers. The male flowers make large amounts of pollen that is blown about in the wind. Seeds are eaten by birds and small mammals in winter and spring. It is considered a noxious weed in Illinois.

Control: Common ragweed can be pulled or mowed before it flowers. Post emergent herbicides can also be effective. Always read and follow label directions.



Feature article:

An Ounce of Prevention in the Autumn

By Stephanie Adams, M.S.

Research Assistant

Autumn clean-up is probably one of the easiest ways to make the next season in your garden a lot easier. People spend a lot of money on chemicals to inhibit or manage disease during the growing season, while merely removing the infested tissue the year before can prevent chemical applications. Many plant pathogens overwinter in dead infected branches, fruit and leaves, and by removing the infected tissue, one also removes the inoculum for the next growing season.

One important thing to note when discarding the infected tissue is composting it will not kill the pathogens, because most compost piles do not get hot enough to kill them. The best way to dispose of the debris is to remove it from the property by bagging it, taking it to a landfill or burning it, if possible. Composting the infected plant debris will only perpetuate the disease cycle and potentially make it worse.

In gardens, diseases such as powdery mildew (caused by various fungal species), bacterial rots and early leaf blight of tomato (*Alternaria solani*) can be reduced by removing the old dead leaves and stems during the growing season. Also, remove any tissue that looks like it was bored into by insects, removing it may reduce your insect infestations. After vegetable gardens are killed by frost, do a complete clean up of the vegetable garden. Remember to remove weeds too, because they may also harbor insects and pathogens.

Tree diseases such as apple scab (*Venturia inaequalis*), rust (*Melampsora medusa*) on poplars (*Populus* spp.), anthracnose (fungal pathogens are host specific) on several tree species (oak, maple, ash, sycamore and others), and tar spot (*Rhytisma* spp.) on maple (*Acer* spp.) are also managed by removing the infected leaves. For some tree diseases like fire blight (*Erwinia amylovora*) and black knot (*Apiosporina morbosa*, sym. *Dibotryon morbosum*) on cherry (*Prunus*), removing the infected branches and galls is the best management practice. When removing infected rose leaves for black spot (*Diplocarpon rosae*), be sure to remove infected canes as well.

When pruning out infected branches in woody plants, the cuts should be made 8-12 inches below the symptomatic tissue during dry and calm weather. Be sure to sanitize the pruning tools between cuts to ensure that the tools aren't spreading the pathogen. To sanitize tools either dip them in a 5% bleach solution, spray them with isopropyl alcohol, or spray them with Lysol disinfectant spray (70% alcohol). When pruning out the infected tissue, be sure to make proper pruning cuts by not leaving a stump and by keeping the branch collar intact. For more information on pruning and other tree care information, visit the Morton Arboretum's web site at <http://www.mortonarb.org/tree-plant-advice.html> or the www.TreesAreGood.com website (<http://www.treesaregood.com/treecare/treecareinfo.aspx>).

To make the winter landscape a little more aesthetically pleasing, don't cut back grasses, hollies or other berry-bearing plants that may be food for birds, unless they have disease problems. Autumn is also a good time to mulch planting beds and trees. Applying 6-8 inches of hardwood mulch will reduce your need to water next year. Most evergreen species continue to transpire during the winter, which is the process where water is evaporated from aerial plant parts. Giving your trees a long slow watering before the ground freezes helps prevent unsightly scald symptoms in the spring. This kind of watering is easily achieved by using a soaker hose and allowing it to run for several hours until the soil is moist 12-16 inches below the surface.

Once the vegetable garden has been cleaned up, go ahead and till it and then plant a cover crop, such as clover, legumes, and grains such as rye, oats or alfalfa. The cover crops benefit your garden by adding organic matter to the soil, and they shade out weeds in the spring. Using legumes ensures that nitrogen will be added to the soils due to their relationships with nitrogen-fixing bacteria. This will reduce the need to use high nitrogen fertilizers in the following year. Doing a soil test before selecting the cover crop is a good idea to ensure that you soil will benefit from the right mix of plants.

Another important reminder is that the best time to prune oak (*Quercus* spp.) and elm (*Ulmus* spp.) trees is in the winter, between November and February. Open wounds on oaks and elms attract their respective beetles, which vector Oak Wilt

(*Ceratocystis fagacearum*) and Dutch Elm Disease (*Ophiostoma ulmi*). Pruning these trees when the beetles are not active reduces the chances of your trees being infected.

When pruning trees, be sure to keep safety in mind at all times. A hard hat and safety glasses should be worn at all times when pruning over your head. If a chainsaw is being used, be sure to wear chainsaw pants or chainsaw chaps during operation too. Also, be aware of any people or animals that enter the area where pruning is taking place. Don't take on a job that's too big. If you are unsure of what needs to be done with your landscape trees, contact an ISA Certified Arborist for a consultation.

Most people do at least some of these relatively simple maintenance tasks already, so adding a few more tasks to your autumn 'to do' list can make your time spent in your yard more relaxing and enjoyable in the summer. When you think of your yard and gardens try to think more hammock and lemonade rather than weeding gloves and perspiration.

Quotes of the week:

"Your first job is to prepare the soil. The best tool for this is your neighbor's garden tiller. If your neighbor does not own a garden tiller, suggest that he buy one." ~*Dave Barry*

"Apart from painting and gardening, I'm not good at anything." ~*Claude Monet*

Upcoming Classes and Shameless Self-promotion

Since this is the last issue, you won't be wasting so much time reading this rag. Why not take a class or attend a seminar here at The Morton Arboretum? We've got a few great classes coming up.

- On September 19, from 9-11 am, Dr. Doug Tallamy, author of the best-selling book, *Bringing Nature Home*, eloquently explains the link between human well-being, native plant species, and native insects and wildlife. He offers practical recommendations about which plants can support the most wildlife and shows gardeners how they can make a difference in helping to slow the rapid loss of habitat and help sustain biodiversity.
- If you're interested in learning more about insect pests and diseases, please consider enrolling in this winter's class entitled "An Overview of Insects & Diseases of Trees and Shrubs" class which will take place at the Morton Arboretum in February and March. This highly-rated class will be taught by yours truly. It will include a field trip to observe insect pests and diseases on our grounds.

For more information about our education program this fall, see our web site at <http://www.mortonarb.org> or call the Registrar's office at 630-719-2468.

Season Summary

We saw a lot of:

Magnolia scale populations skyrocketed! Four-lined plant bug damage was everywhere. Honey locust plant bug populations continue to be high. If we had a dollar for every winter-damaged boxwood that was brought in, we'd be rich. The cold and rainy spring weather resulted in a lot of anthracnose diseases on ash, maple, and sycamore and many fungal leaf spots on everything this year. Fire blight was fairly widespread, especially on pears. All the various rust diseases, especially cedar-quince rust on hawthorn trees, were very common. Apple scab was wide-spread but most people didn't notice it till their crabapples were nearly defoliated. It seems as though we're seeing more rose rosette .

Insects we saw less of:

There were fewer caterpillars seen, including gypsy moths – we are only guessing that the cold weather killed some and that the cool, wet weather served as a good environment for the fungal diseases that kill them. The past winter was so cold that it killed a lot of bagworms this far north. We are not sad about either caterpillar. A few other insects that weren't observed as frequently included ash flower gall and euonymus scale. We saw less European elm flea weevil damage than previous years.

Thank you, thank you, and thank you!

The Plant Health Care Report is always a team effort. It could not have been written without a whole slew of people. Doris Taylor, Plant Information Specialist, and Dr. Fredric Miller, research entomologist at The Morton Arboretum and professor at Joliet Junior College, both edited the report for content. Carol Belshaw, Plant Clinic volunteer, was the main editor for punctuation and grammar (we was so grateful, for her help). Michael Brouillard, Northbrook Park District, and Chris Henning, Chicago Botanic Garden, reported degree days, precipitation, and sightings in their locations weekly. David Marin, senior grower, dependably supplied us with weather data on our grounds. We were happy to add Stephanie Adams as our diagnostician. Stephanie also wrote some excellent articles for the report. Rita Hassert, Technical Services Librarian Extraordinaire at the Sterling Morton Library, provided us with quotes of the week. Faithful scouts included horticulturists Jesse Dahl, Tiffani Howell, Jaime Horn, Katrina Lewin, Merrill McNicholas, Mary Schmitt, Lyndsay Ploehn, Donna Smith, Brian Malatia, Emma Sommerville, John Sosnowski, and Helen Mlynarski. The following plant clinic volunteers scouted for insects and diseases: Ann Klingele, Bill Coates, Bill Fiedler, Fritz Porter, Kathy Ball, LeeAnn Cosper, Bob Nield, Darlene Robenhorst, Carol Schultz, Emily Galvin, Jack Leider, Julie Moore, Loraine Miranda, Marilyn Witney, and Stu Vogel. John Hagstrom, Plant Clinic Volunteer, was kind enough to let us use his beautiful photos. Trica Barron, former Plant Health Care Technician, prepared the report through the end of June. Donna Danielson, Plant Clinic Assistant, prepared the report in July and August. We truly regret if we left anyone out. It was not intentional.

We are grateful that the Arboretum continues to fund the Plant Health Care program. We continue to be very thankful to Joy Morton, founder of The Morton Arboretum, for without his foresight, this wonderful institution would not exist. We're beginning to sound as though we were accepting an academy award, so thanks to all you readers and we'll end this now.

Have a wonderful dormant season! We hope to see you again next year!

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Following is an index of the various subjects in this year's report. The number after each subject is the report number. For example, using the chart below, Anthracnose, oak 6 means that it was discussed in the PHC report 2009.06 or the newsletter dated May 15 - 21, 2009.

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2009.04	May 1 - 7, 2009	2009.13	July 5 – 10, 2009
2009.05	May 8 –14, 2009	2009.14	July 11 – 17, 2009
2009.06	May 15 – 21, 2009	2009.15	July 18 - 24, 2009
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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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