

Plant Health Care Report

Scouting Report of The Morton Arboretum



April 8, 2015

Issue 2016.1

Welcome to the first issue of the Plant Health Care Report (PHCR) for 2016. My name is Sharon Yiesla. I am on staff at The Morton Arboretum Plant Clinic and I will be responsible for compiling the newsletter again this year. If you have any comments or concerns regarding the Plant Health Care Report, please send them to me at syiesla@mortonarb.org.

Our report includes up-to-date disease and insect pest reports for northeastern Illinois. You'll also find a table of accumulated growing degree days (GDD) throughout Illinois, precipitation, and plant phenology indicators to help predict pest emergence. Arboretum staff and volunteers will be scouting for insects and diseases throughout the season. We will also be including information about other pest and disease problems based on samples brought into The Arboretum's Plant Clinic.

We are continuing to use last year's format: full issues alternating with growing degree day issues; focus on more serious pests; minor pests covered in shorter articles; alerts issued for new major pests. Readers who received our email blasts in the past will continue to receive one weekly, either to announce that the newsletter is available or, on alternate weeks, that the growing degree day information is available. To be added to the email list, please contact me at syiesla@mortonarb.org

Quick View

What indicator plant is in bloom at the Arboretum?

Cornelian-cherry Dogwood (*Cornus mas*) (Figure 1)

Accumulated Growing Degree Days (Base 50): 35.5 (as of April 7)

Accumulated Growing Degree Days (Base 30): 636 (as of April 7)

Miscellaneous

- Using growing degree days
- Timing use of fungicides
- Winter weather
- Crabgrass preventer
- ISAM (Invasive Species Awareness Month) workshop

Insects

- Egg masses and more
- Larch casebearer
- Boxwood pests

Diseases

- Cankers
- Cedar rust diseases

Other pests

- Jumping worms (NEW PEST FOR ILLINOIS)
- Animal damage to trees and shrubs



Figure 1 Corneliancherry dogwood (*Cornus mas*)

Oak and Elm Pruning Advisory

Just a reminder - **stop pruning oaks and elms by April 15!** Sap and bark beetles, the insects that spread the pathogens that cause the diseases oak wilt and Dutch elm disease, will soon be active (our traps have been up for two weeks and no beetles have been found yet). The beetles are attracted to pruning wounds. Pathologists differ in their opinions on when to resume pruning. To err on the side of safety don't prune oaks and elms between April 15 and October 15, when the beetles are active. If you must prune close to or after that deadline, seal the pruning cuts immediately.

Degree Days and Weather Information

We are adding a new location, Lisle, on the GDD list this year. Although we have our own weather station here at the Arboretum, we have noted that the Lisle weather station GDD often differs from our readings. So we are offering Lisle readings right above the Arboretum readings. This just goes to show that temperatures can vary over a short distance, which means growing degree days can be quite variable as well.

As of April 7, we are at 35.5 base-50 growing degree days (GDD). The historical average (1937-2013) for this date is zero GDD₅₀. Since January 1, we have had 6.94 inches of precipitation.

Location	B ₅₀ Growing Degree Days Through April 7, 2016	Precipitation (in) April 1-7, 2016
Carbondale, IL*	215	
Champaign, IL*	102	
Chicago Botanic Garden**	31.5	.66 inch (3/30-4/6)
Chicago O'Hare*	53	
Kankakee, IL*	71	
Lisle, IL*	59	1.25 inch
The Morton Arboretum	35.5	
Northbrook, IL**	36.5	
Quincy, IL*	146	
Rockford, IL*	22	
Springfield, IL*	119	
Waukegan, IL*	32	

**Thank you to Mike Brouillard, Northbrook Park District and Chris Beiser, 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/>

How serious is it?

This year, articles will continue to be marked to indicate the severity of the problem. Problems that can definitely compromise the health of the plant will be marked "serious". Problems that have the potential to be serious and which may warrant chemical control measures will be marked "potentially serious". Problems that are seldom serious enough for pesticide treatment will be marked "minor".

Articles that discuss a problem that is seen now, but would be treated with a pesticide at a later date, will be marked “treat later”. Since we will cover weeds from time to time, we’ll make some categories for them as well. “Aggressive” will be used for weeds that spread quickly and become a problem and “dangerous” for weeds that might pose a risk to humans.

Miscellaneous:

Using growing degree days

In every issue of the Plant Health Care Report we list growing degree days (GDD) accumulated at The Morton Arboretum and other sites throughout Illinois. This article will explain what they are and how we can use them.

The development of plants, insects and fungi is dependent on heat. Development speeds up as the temperature rises and slows as temperature decreases. Many plants and insects have been studied in regard to this relationship between heat and development. We can anticipate the flowering of a shrub or the emergence of an insect based on how many growing degree days have accumulated. We can give this information to our scouts and ask them to look for specific problems based on GDD. This helps to refine the process of scouting. Making those GDDs available to our readers helps them plan for pests and disease.

Accumulation of GDD can vary quite a bit from year to year, and by tracking that information we can be more accurate than if we just looked at the calendar. Here is an example: Eastern tent caterpillars hatch out of their eggs when GDD base 50 is between 100 and 200. In 2014 we had accumulated 100 GDD by May 9. We often do expect to see this pest in mid May, so 2014 was fairly ‘average’. In 2012, we had accumulated 100 GDD by March 19 (nearly two months earlier than ‘normal’). If we had gone with the calendar method and waited to deal with this pest in May, we would have missed it completely.

GDDs days are fairly easy to calculate. We use GDD base 50. Add the maximum temperature to the minimum temperature for a day, divide by two, and subtract 50. If the number resulting from this calculation is above zero then that is the number of degree days for that day. If the result is zero or below, then the number of GDD is zero for that day. We use base 50 because 50 degrees F is the temperature at which most plants and pests begin to grow.

Various sources link insect emergence with certain stages in the life of indicator plants. This is possible because plants also respond to heat. A couple of resources include Don Orton’s book Coincide and the following websites:

http://www.ipm.msu.edu/agriculture/christmas_trees/gdd_of_landscape_insects

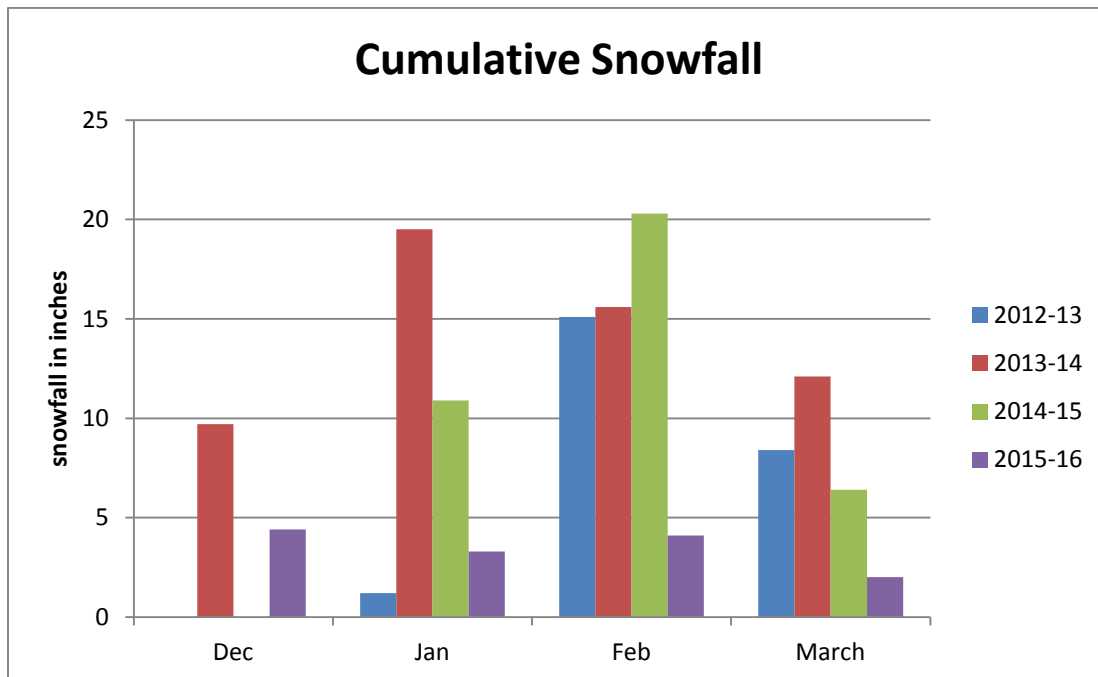
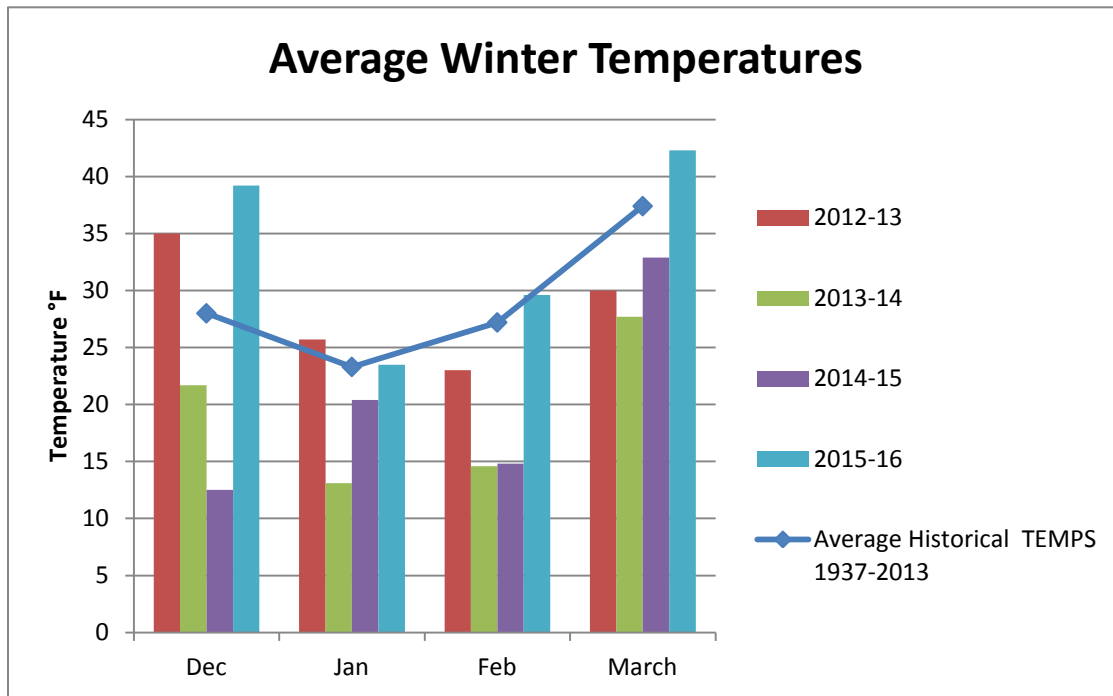
http://extension.unh.edu/resources/files/Resource000986_Rep2328.pdf

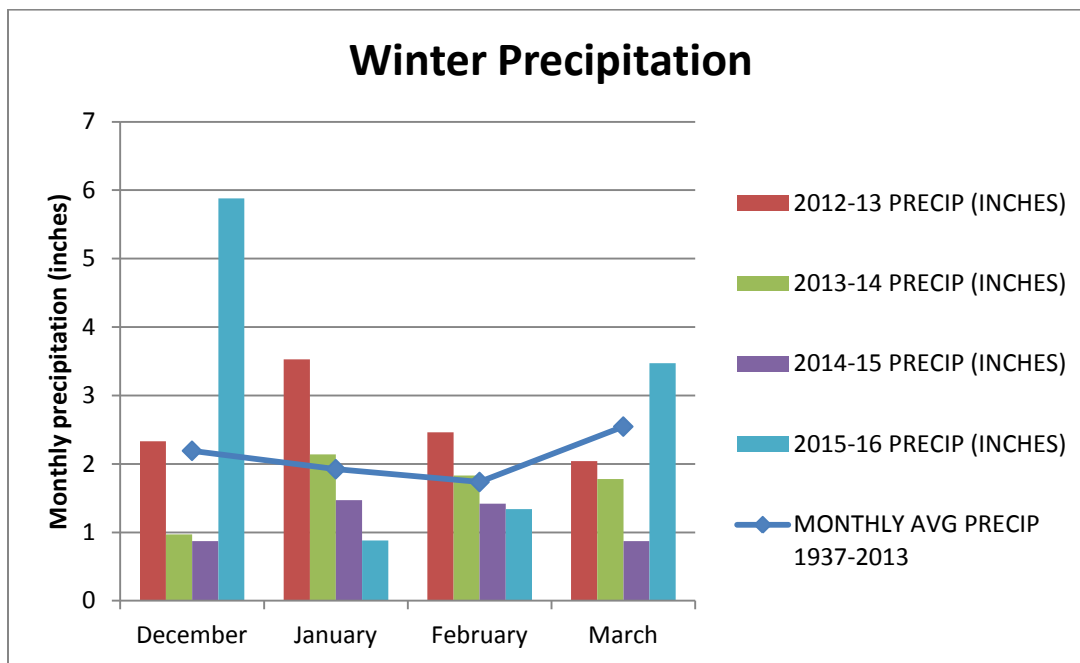
Timing use of fungicides

By the time we write an article on a disease for the Plant Health Care Report, the time to treat has often passed. In the interest of being proactive, let’s talk about fungicide applications. Many fungicides are applied as protectants to keep fungi from penetrating into plant tissue. Often this application process needs to start at the time new foliage is emerging and may require 2 to 3 applications as the leaves continue to emerge. Already we are seeing some leaf buds opening, and additional warm weather will encourage the opening process. So if there are susceptible trees that you treat for common diseases every year, the time to act is now.

Winter weather

The following charts show 2015-16 winter weather and compares it to previous years.





Crabgrass preventer

It is a little early in the spring season, but crabgrass prevention is already on the minds of some homeowners. The stores are full of crabgrass preventers, but that does not mean it is time to put them on the lawn. Crabgrass seed will not germinate until SOIL temperatures are greater than 55 degrees F for 5-7 consecutive days. The air temperature has not yet reached that point on a consistent basis, so the soil temperature certainly is not there. Over the last week or two, soil temperatures in our area have just reached 50 degrees, but have not stayed there for any length of time. In an 'average' year we might be applying crabgrass preventer in late April. We may be slightly ahead of that this year, but not by much. Warm air temperatures are predicted for next week, but soil temperatures usually take longer to change. Crabgrass preventers only last about 60 days, so if you apply now (or applied it in March) you may not get the most use from it. Crabgrass seed can continue to germinate until soil temps get up to 95 degrees F.

ISAM (Invasive Species Awareness Month) workshop

Species on the Move: Updates on Invasive Threats to Urban and Natural Areas

Our workshop will feature experts from the U.S. Department of Agriculture, the University of Illinois Forestry Extension and The Morton Arboretum, to discuss new invasive pests such as jumping worms, wood boring insects, oak problems, updates to the Illinois Exotic Weed Act, and diseases on the move.

Click to [LEARN MORE](#)

Pest Updates: Insects

Egg masses and more

The season is still young, so we may still have some time to look for insects in their overwintering stage. The best time to look for egg masses like those of Eastern tent caterpillar, gypsy moth and bagworm is before the season gets going. Look for egg masses now and destroy them to reduce the population for the coming season.

Eastern tent caterpillar egg masses are dark gray to black and are wrapped around twigs that are about the diameter of a pencil. Prune out branches with egg masses attached. Gypsy moth egg masses are buff colored, covered with hairs, and about 1 1/2 inches long (fig. 2). Each female usually lays one egg mass, which could contain as many as 1,000 eggs. Egg masses can be carefully scraped off bark and destroyed before they hatch. Bagworm eggs spend the winter in the bag that was made by the caterpillar last season. The bags are made from leaves of the host plant and can be found hanging from branches. Pull the bags off the host plant.

Viburnum leaf beetle was showing up quite a bit in our area last summer. This pest overwinters as eggs under 'egg caps' aligned on the surface of viburnum twigs (fig.3). Clip out those twigs and destroy them to minimize populations of this new pest.

Since we will soon be working on spring clean-up in the garden, this would be a good time to look at groundcover euonymus. If yours is infested with scale insects, prune out heavy infestations now. Reducing the population now will make insecticides more effective when it is time to treat.

Now would also be a good time to look at other trees and shrubs for evidence of any type of scale. If we know that a plant has scale now, we can plan whether or not we need to treat later in the season. Check the scales carefully. If small holes are seen on the scale, it means they have been parasitized by beneficial insects and the problem may be less severe. If there is a large number of parasitized scale, treatment may not be needed. If treatment is needed, we can be prepared to do so when the time is right.

Some species of sawfly overwinter as pupae and adults will be emerging soon (GDD 100-200) and laying their eggs. European pine sawfly, however, overwinters as eggs in the needles from last year.



Figure 2 Gypsy moth egg masses



Figure 3 Egg caps on viburnum twig
(Photo: U of I Plant Clinic)

Larch casebearer (minor)

Larch casebearer (*Coleophora laricella*) was found by our scouts recently. The larvae hollow out needles, causing them to first wilt and then bleach to a light off-yellow color. The needles will soon turn reddish-brown and drop prematurely within a few weeks.

The caterpillars of this species are very small and overwinter as larvae within tiny tan-colored cases made of hollowed out needles lined with silk (fig. 4). Larvae emerge and begin feeding in early spring as needle growth begins. They feed for several weeks, pupate on the twigs, and emerge as adult moths in late May and early June. The adults lay eggs on needles and, in a few weeks, eggs hatch (late June and July) and larvae begin to mine inside the needles. Larvae mine the needles for about two months before making their cases from hollowed-out needles. These cases will be carried around on their backs (like a backpack) for the remainder of their larval period.

Management: Unlike most other conifers, larches can develop a second set of leaves. However, repeated defoliation can weaken trees and make them more susceptible to attack by other insects and pathogens. There are various natural controls, such as weather, predators and parasites, and needle diseases that usually keep populations in check. For severe or repeated infestations, insecticides may be needed.

Good websites:

<http://extension.umass.edu/landscape/fact-sheets/larch-casebearer>

<http://na.fs.fed.us/spfo/pubs/fidls/larch/larch.htm>

Boxwood Pests (some minor, some potentially serious)

Our scouts are bringing us boxwood samples with a variety of damage. Some of this damage is from last year, but it is a good reminder to be watching your boxwoods. One sample was being attacked by boxwood leafminer, but also showed old damage from boxwood spider mites. We are also seeing some boxwood psyllid symptoms. We'll do a quick refresher on these three pests.

Boxwood psyllids (minor pest) overwinter as tiny orange eggs in the bud scales of the boxwood. As the buds open, the psyllids hatch and begin to feed. The nymphs are about 1/16th of an



Figure 4 Larch casebearer larva



Figure 5 Boxwood psyllid damage

inch long, yellowish, and partially covered with a white, secretion that protects them from parasitoids and chemical sprays. Their feeding causes cupping of the leaves (fig. 5). Winged adults normally appear in late May to early June.

Boxwood spider mites (potentially serious) are sap feeders, and their feeding leads to marks on the leaves that look like little green squiggles. This mite overwinters as eggs. There can be multiple generations per year. Heavy infestations may lead to defoliation. Boxwood spider mites are smaller than two-spotted spider mites and may be difficult to see. The mites and their eggs are found on the lower side of the leaves. Damage seen now is from last year.

Boxwood leafminers (potentially serious) have already been reported to us a couple of times this spring. They overwinter inside the leaves as larvae. Look for 'blisters' (fig. 6) on the leaves that turn from light green to brownish (as the larvae mature); the larvae are inside. The larva will pupate inside the leaf and emerge as an adult in early to mid-May.



Figure 6 'Blisters' showing location of leafminer larvae

Management: For boxwood psyllids:

Damage is mostly aesthetic. Shearing boxwoods reduces the population as the insect or the eggs are removed in the process. Chemical insecticides can be applied, but if using a spray, it is important to spray inside the cupped leaves. For boxwood spider mites: A strong stream of water from the garden hose can greatly reduce populations of this pest. For heavy infestations, chemical control may be warranted. Treat in late spring when mites are first noticed. For boxwood leafminers: Insecticides can be sprayed when the adults are emerging.

Pest Updates: Diseases

Cankers (serious)

The early part of the season is a good time to scout for cankers, so let's look around to see if any of our trees or shrubs has cankered branches that need to be removed. Removing diseased branches can limit the spread of disease. Some cankers can be very obvious, such as golden canker on dogwood. The stem will turn yellowish and will stand out against the normal green or red stems (fig. 7). Cytospora canker on spruce can also be easily seen. Look for a thin white flow of sap. It will look a bit like whitewash. That flow



Figure 7 Golden canker on dogwood

will originate from the canker. The canker itself is not very obvious. Other cankers may be difficult to see. Some will be sunken in but others may not be. Some cankers may lead to cracked bark or a sap flow (fig 8).



Figure 8 Canker oozing

Cankers are more common on plants that are stressed. We have seen an increase in cankers in the last few years, most likely due to environmental extremes (drought in 2012, flooding in 2013, a wet year in 2014 and two hard winters). Cankers are serious because the tissue under the bark is killed. This is the tissue that carries water to the upper part of the tree or shrub. This leads to dieback of branches. If the cankers occur on the main trunk, a large portion of a tree (or even the whole tree) could be lost.

Management: Avoid wounding trees and shrubs. The pathogens that cause cankers are not very strong and often need a wound to gain entry. Cankered stems should be cut out. When cutting out cankers, go at least 6 inches below the canker to make the cut, as the disease may have spread under the bark away from the original canker site. Clean your tools between each cut to minimize spread.

Cedar rust diseases (potentially serious, but not life-threatening)

Our scouts found galls of cedar-apple rust on junipers. These galls are ready to begin forming their spore horns (fig 9). We are having enough rain for this process to begin. When temperatures rise a bit more, we should have all the factors needed. We also found cedar-quince rust in a state of readiness on junipers. Cedar-quince does not make the round gall like the other rusts. Instead look for swellings on the stems of the juniper (fig 10).



Figure 9 Cedar-apple rust (telial horns beginning to expand)



Figure 10 Cedar-quince rust on juniper

Pest Updates: Other Pests

Jumping worms (NEW PEST FOR ILLINOIS) (Serious)

Jumping worms (*Amyntas* species) have been in Wisconsin since 2013 and have now been confirmed in at least three sites in Illinois as well. These worms get their name from the thrashing, jumping movements they make when disturbed. They are similar in appearance to earth worms, but there are differences. The thickened band (clitellum) found on worms is milky white to gray in color and smooth on the jumping worms (on regular earthworms, the band is raised and the color is similar to that of the rest of the worm). On the jumping worm, the band completely encircles the worm's body; on regular earthworm it does not.

Jumping worms are very effective at working leaf litter and soil, and they can turn the soil into a dry, granular mess that does not sustain plant life. The biology and life cycle of this worm is still being studied. It is thought that the adult worms will not make it through the winter in northern Illinois, but the cocoons that contain the eggs can survive.

Management: The Illinois Department of Agriculture would like to track this pest in Illinois. If you think you have the worms in your garden contact one of these email addresses:

IL Dept of Ag (scott.schirmer@Illinois.gov)
University of Illinois (cwevans@Illinois.edu)

Your email should include the address of the property and specifically where on the property the worms were found. To our knowledge, no inspections are being scheduled at this time.

There are no chemical controls of the jumping worms at this time.

Good website: <http://dnr.wi.gov/wnrmag/2015/06/worms.htm>

Animal damage to trees and shrubs

While winter has been a little kinder to our plants this year, the animals have not. Rabbits, deer and voles have been busy attacking the plants. Voles, which are small, mouse-like animals, can run under the snow and feed on the bark of shrubs and young trees (fig. 11). If the vole girdles the branch or trunk, that branch will die. Vole damage is also being reported on lawns this week. Vole damage usually occurs in winter, especially when we have snow cover. Voles will



Figure 11 Vole damage on shrub

produce shallow runways in the lawn which become obvious when the snow melts (fig.12). This damage will fill in as the lawn begins to grow.

Rabbits often feed higher on the plant as they can run across the surface of the snow. Branches show a distinct 45 degree angle where the rabbit has bitten them off. Deer can feed on branches both high and low. Browsing occurs all year but tends to be more noticeable in winter when food supplies dwindle.



Figure 12 Vole damage in lawn (Photo: S. Yiesla)

Many plants may need some pruning this year to get them back into shape or to simply remove damaged parts. Shrubs or young trees that have had bark chewed or stripped near the base of the plant may not survive. For more information on animal damage go to The Morton Arboretum website: <http://www.mortonarb.org/trees-plants/plant-clinic/horticulture-care/animal-damage>



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The Plant Health Care Report is prepared by Sharon Yiesla, M.S., Plant Knowledge Specialist and edited by Stephanie Adams, M.S. Research Specialist in Plant Health Care; Fredric Miller, Ph.D., Research Entomologist at The Morton Arboretum and Professor at Joliet Junior College; Doris Taylor, Plant Clinic Manager, and Carol Belshaw, Arboretum Volunteer. The information presented is believed to be accurate, but the authors provide no guarantee and will not be held liable for consequences of actions taken based on the information.

Thank you...I would like to thank the volunteers who will be scouting for us this season. They find most of the insects and diseases reported here. The Scouting Volunteers include: LeeAnn Cosper, Anne Finn, Ingrid Giles, Emily Hansen, Ann Klingele, Loraine Miranda, and Bill Sheahan . Your hard work is appreciated. Thanks also to Donna Danielson who shares her scouting findings.

Literature/website recommendations:

Indicator plants are chosen because of work done by Donald A. Orton, which is published in the book Coincide, The Orton System of Pest and Disease Management. This book may be purchased through the publisher at: <http://www.laborofloveconservatory.com/>

Additional information on growing degree days can be found at:

http://www.ipm.msu.edu/agriculture/christmas_trees/gdd_of_landscape_insects

http://extension.unh.edu/resources/files/Resource000986_Rep2328.pdf

The Commercial Landscape & Turfgrass Pest Management Handbook (CPM), for commercial applicators, and Pest Management for the Home Landscape (HYG) for homeowners from the University of Illinois, are available by calling (800-345-6087).

This report is available as a PDF at The Morton Arboretum website at

<http://www.mortonarb.org/visit-explore/news-events/arboretum-news?tid=259>

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 PHCR should be directed to Sharon Yiesla at syiesla@mortonarb.org .

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