

Plant Health Care Report

Scouting Report of The Morton Arboretum

April 3 – 18, 2008

Issue 2008.02

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.

April showers bring May flowers, but the temperatures have been less than desirable. This spring the only thing that has kept me warm was the hug I received from Johnny Depp (the actor famous for his role as Jack Sparrow in *Pirates of the Caribbean*), who was in Aurora at the Paramount Theatre filming *Public Enemies*.

Arbor Day!

Next Friday, April 25, is our biggest holiday of the year, ARBOR DAY! Be sure to plant a tree in celebration. No, wait, plant lots of trees!

Arbor Day was started by J. Sterling Morton, father of Joy Morton, the founder of The Morton Arboretum. Sterling, who moved to the treeless plains of Nebraska, suggested that a day be set aside to plant trees. An estimated one million trees were planted on the first Arbor Day, April 10, 1872. The date of Arbor Day celebrations varies from state to state because of differing climates. Nationally Arbor Day is celebrated the last Friday in April.

Quick View

What Indicator Plants are in Bloom at the Arboretum?

Cornelian-cherry dogwood (*Cornus mas*) is in full bloom

Accumulated Growing Degree Days (Base 50): 13.5

Insects

- European Pine Sawfly

Diseases

- Volutella blight
- Witches' Broom of Hackberry
- Dothistroma needle blight
- Cytospora canker on spruce

Miscellaneous

- Seasonal Needle Drop



Feature article

- So what are degree days and why do we care about them anyway?

Degree Days and Weather Information

As of April 17, 2008 we are at 13.5 growing degree days. The historical average (1937-2007) for the same date is 72. Last year we were at 96 growing degree days on April 17.

Location	Growing Degree Days through April 17	Precipitation between April 3 to 17 in inches
The Morton Arboretum (Lisle, IL)	13.5	2.27
Chicago Botanic Garden (Glencoe, IL)*	18.5	2.7
Chicago O-Hare Airport*	2.5	5.27
Aurora, IL	14.5	
Bloomington, IL	31.5	
Champaign, IL	43.0	
DuPage County Airport (West Chicago, IL)	22.5	
Midway Airport	30.0	
Danville, IL	76.0	
Decatur, IL	65.5	
DeKalb, IL	13.5	
Moline, IL	31.0	
Palwaukee Airport (Wheeling, IL)	28.0	
Peoria, IL	43.5	
Peru, IL	38.0	
Pontiac, IL	28.5	
Rantoul, IL	44.0	
Rockford, IL	18.5	
Romeoville, IL	20.0	
Springfield, IL	62.0	
Waukegan, IL	20.5	
Lafayette, IN	72.5	
Milwaukee, WI	19.0	
Racine, WI	18.5	
Waukesha, WI	19.5	

*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 Virtual Arborist web site. For additional locations and daily degree days, go to <http://virtualarborist.com>.

This Week's Sightings

European pine sawfly

We're finding the eggs of European pine sawfly larvae (*Neodiprion sertifer*) on red pine (*Pinus resinosa*) and expect that they will hatch in a few weeks. The eggs look like yellow dots, are about an eighth of an inch long, and aligned longitudinally in rows along pine needles. Removing the needle with the eggs on them will get rid of the pest, if you can find them! We'll discuss this pest in more detail when eggs hatch and other control methods are needed.

Good website:

<http://www.entomology.umn.edu/cues/Web/128EuropeanPineSawfly.pdf>

http://bugs.osu.edu/~bugdoc/Shetlar/factsheet/christmasstree/european_pine_sawfly.htm



Volutella stem and leaf blight

Volutella blight was diagnosed on ornamental ground cover Japanese pachysandra (*Pachysandra terminalis*) on our grounds. This is a serious, destructive stem and leaf blight. Volutella blight, caused by the fungus *Volutella pachysandricola*, will cause leaf blight and stem cankers on most pachysandra species. Symptoms, first noticed in early spring as brown to tan leaf spots, can be confused with winter desiccation. The spots will enlarge and may eventually cover the entire leaf. Concentric circles form within the spots and are diagnostic for this disease. Leaves eventually turn yellow and fall off the plant. Stems turn dark and die. During extended wet periods, orangish-pink fungal spore masses may be visible. Eventually, large patches of the ground cover may become infected and die.



Volutella is an opportunistic pathogen. It can infect a plant any time during the growing season but is more common during periods of rainy weather. Infections tend to diminish as the weather becomes drier in the summer, but the high humidity created by densely planted and heavily mulched beds can promote the blight. Stress from overcrowding, too much sun, winter injury, and shearing may increase susceptibility to stem blight. Older and injured plant parts of Japanese pachysandra are more susceptible to the disease than young succulent tissue. Bottom line: consider whether the site is one in which pachysandra can thrive.

Control:

Purchase healthy plants that are free of disease. The native Allegheny pachysandra (*Pachysandra procumbens*) is reported to be more tolerant.

Pachysandra prefers filtered sun or full shade more than full sun conditions, and will be stressed by the latter and more susceptible to blight.

Plants should be watered during dry periods by using drip irrigation and/or by watering early in the day to allow foliage to dry out.

Avoid working with plants when they are wet to prevent the spread of disease.

Remove and discard diseased leaves and plants as soon as symptoms are visible to limit spread to healthy plants.

Clean up fallen leaves and other debris that may have accumulated on top of ground covers.

Thin, prune, and divide overcrowded plants in early spring, when weather is dry, to improve air circulation.

Avoid over-fertilization, which causes dense foliage that encourages infection.

For chemical recommendations, refer to the *2007 Commercial Landscape and Turf Management Pest Handbook (CPM)* from the University of Illinois if you are a commercial applicator in Illinois or *Home, Yard and Garden Pest Guide (HYG)* from the University of Illinois if you are a homeowner.

Web site:

http://www.umassgreeninfo.org/fact_sheets/diseases/volutella_blight.pdf

<http://counties.cce.cornell.edu/suffolk/HortFactSheets/factsheets/Leaf%20Blight%20of%20Pachysandra.pdf>

Witches' broom of hackberry

Witches' brooms were found on Windy City hackberry (*Celtis occidentalis* 'Windy City'). This is a common disfiguring disease of hackberry caused by two organisms working together: a powdery mildew fungus and an eriophyid mite. In fact, some people think the witches' brooms are a characteristic of hackberry because it is so common. Each broom is a compact cluster of twigs caused by the repeated killing of twigs.



Control: Pruning out the brooms is of limited value unless done before many brooms have developed. The brooms don't seem to hurt the tree but are unsightly. Or you could think of the brooms as winter interest as we do. Chinese hackberry (*Celtis sinensis*) and Jesso hackberry (*Celtis jessoensis*) are resistant

Web site:

<http://www.ipm.uiuc.edu/diseases/series600/rpd662/>

Dothistroma needle blight

Dothistroma (*Dothistroma pini*) infections initiated last year have been found on needles of limber pine (*Pinus flexilis*) throughout the tree. We are also seeing the next stage in which the tips of needles progressively turned light green, tan, and then brown, while the base of the needles remained green. Initial infection symptoms of brown to red-brown spots and bands are evident on needles. Black, elongated, fungal fruiting bodies were visible protruding through the needles. Conidia (fungal spores) are released from these structures during wet weather and transported by rain throughout the growing season. New infections can occur from May to October as long as there is rainfall. The host range also helps to differentiate this disease from others caused by needle cast fungi. Austrian and ponderosa pines are reported to be the most common hosts of Dothistroma in the Midwest. Limber pine is a common host in the West. Red and Scots pine are usually resistant.



The base of the needles stay green and you can notice the fruiting bodies in the brown areas.

Control:

The fungus resides in infected, cast needles, so remove fallen needles as much as possible. Give plants ample spacing and prune to improve air flow and allow for faster needle drying.

Once a tree exhibits symptoms throughout the canopy there is little that can be done except removal. For less severe situations, and to protect nearby healthy trees, one to two applications of a fungicide controls this disease, but timing is critical. Sprays should be applied just before buds begin to elongate/swell (usually early May) and once again when new needles are fully expanded. If wet weather continues late into spring and summer, additional applications may be needed. For further information on chemical controls refer to the CPM or HYG.

Good web sites about Dothistroma needle blight:

<http://learningstore.uwex.edu/pdf/A2620.pdf>

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

Cytospora canker of spruce



Infections caused by *Cytospora kunzei* (*Leucostoma kunzei*) were seen on common koyama spruce (*Picea koyama*). This is a common fungal disease of stressed Colorado and Norway spruces that can be diagnosed driving past the tree up to 40 miles an hour. It also attacks Douglas fir, hemlocks, larches, and balsam fir. Cytospora canker rarely affects trees that are younger than 15 to 20 years old or that are less than 20 feet tall. The disease usually starts on the lower branches of the tree and progresses upwards. Needles first turn purple (this is what we are seeing now, even though the branch was probably infected last year or during the winter), then brown and finally drop, leaving dry, brittle twigs and branches. The fungus enters the tree through wounds and creates cankers within the

bark. A thin coating of white resin is often found on infected twigs and trunks.

Another problem that can be confused with Cytospora canker is too much shade. Spruces need full sun, so when the bottom branches get shaded out by other plants, those bottom branches die. But an older spruce in full sun that has the lower branches die is most likely a victim of Cytospora canker.

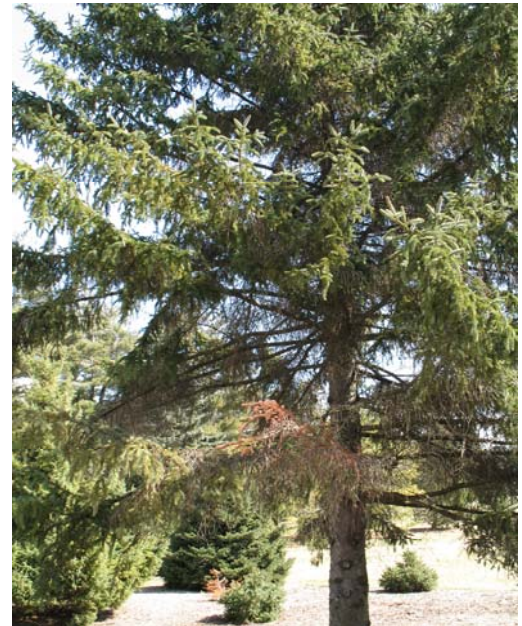
Control: Cytospora canker is a stress-related disease, so, at minimum, trees should be kept mulched and watered well during dry periods. Remove infected branches promptly during dry weather to reduce the spread of the disease. It is imperative to disinfect pruning tools between cuts. Give spruces adequate space when planting as dense planting is another common predisposing stress factor. There is no effective chemical control.

Good web sites:

<http://ohioline.osu.edu/hyg-fact/3000/3033.html>

<http://ipm.uiuc.edu/diseases/series600/rpd604/index.html>

<http://plantclinic.cornell.edu/FactSheets/cytospora/cytotwig/cytotwig.htm>



Seasonal needle drop



Many homeowners think that needles stay on evergreens forever, but after a few years, older needles turn yellow-brown and fall off the tree. Some species drop their older needles gradually, while others lose them all at once. The older (inner) needles on Hornibrook Austrian pine (*Pinus nigra* 'Hornibrookiana') have turned brown and will soon drop off the tree. This casting of older foliage is normal and doesn't hurt the tree. If the outer needles that formed last year were falling off a tree now, it would not be normal seasonal drop. In such a case, the tree may have underlying diseases or stress problems and should be diagnosed accordingly. In a few weeks, expect to see the older (inner) needles of yews (*Taxus spp.*) turn yellow and fall off due to their normal spring-time needle drop.

Good websites:

<http://learningstore.uwex.edu/pdf/A2614.pdf>

http://www.msue.msu.edu/objects/content_revision/download.cfm/item_id.208024/workspace_id.-30/OC0282%20Evergreen%20Needle%20Drop.pdf/

What to Look for in the next two weeks

In the next two weeks we will be looking for larch casebearer and hemlock rust mites.

Feature article:

So what are degree days and why do we care about them anyway?

By Donna Danielson, M.S.
Plant Clinic Assistant
The Morton Arboretum

We list the growing degree days we've accumulated at The Arboretum, The Chicago Botanic Garden, and other sites around the state near the beginning of each report. Just what are degree days and why do we care about them?

Accumulated degree days are very important tools used for scouting insect pests. Many living organisms, including plants, insects, and fungi are dependent on heat energy from their environment to develop. They develop faster as temperatures increase and slower as temperatures decrease. You know from your own experience that plants bloom earlier when we have warm springs compared to cool springs. Insects and many diseases develop earlier when the weather is warmer, too. In fact, many plants and pests have evolved together. So, a tool for measuring this environmental heat can be helpful for determining when to scout for pests. That's why we use accumulated degree days to determine the appearance and growth of insect pests.

Insects don't have calendars, although they probably would like the Far Side calendars created by Gary Larson. Pest outbreaks can be predicted with much more accuracy using growing degree days than the calendar. For example, here at The Morton Arboretum in 1997, we found European pine sawfly larvae hatching around May 12. In 1998 we discovered them hatching on April 16, nearly four weeks earlier. Why? Spring 1997 was much cooler than spring 1998. On May 12, 1997 we were at **159.5** degree days base 50, whereas on April 16, 1998 we were at **165** degree days base 50. Essentially, insects don't care what day or month it is.

How are degree days calculated? The easiest way to determine daily degree days base 50 is to add the maximum temperature to the minimum temperature for a day, divide by two, and subtract 50. If the resulting number is greater than 0, then that is the number of degree days for that day. Otherwise the number of degree days for that day is zero. For example if the high of the day is 62 and the low is 42, we add 62 to 42 and divide by 2. The result is 52, the average temperature for the day. If we subtract 50 from 52, we end up with 2 degree days. If the result was below 50, we would assign 0 degree days to that day. We add up the total of the daily degree days since January 1, although usually we have very few base 50 degree days until April. That is the number we use to look for many insect pests. 50 degrees F. is used as a base because many plants, most insects that feed above the ground, and pathogens begin to grow and develop when the temperature is above 50 degrees F (or 10 degrees C).

Don Orton's book *Coincide* is a great reference for use in northern Illinois to determine what pests to look for at various degree days. In his book, Don also lists indicator plants, which relate pest life cycles to life cycles of common ornamental trees and shrubs. For example, when wild black cherry (*Prunus serotina*) is blooming, hawthorn leafminers, juniper tip midges, lilac borers, and oystershell scale (brown race) are susceptible to control. The second edition, published last year, includes information about common plant diseases.

Coincide is published by Labor of Love Conservatory at 723 Dawes Avenue, Wheaton, IL 60187. Their phone number is (630) 668-8597.

Quote of the day: “God made rainy days so gardeners could get their housework done. “ ~Author Unknown



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.

Copyright © 2008 The Morton Arboretum
Printed on recycled paper