

Plant Health Care Report

Scouting Report of The Morton Arboretum

March 31 – April 2, 2008

Issue 2008.01

Believe it or not, spring has sprung and with it comes the first Plant Health Care Report of the season.

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 another transition year for the report. Donna Danielson, Plant Clinic Assistant, who had been responsible for the PHC program from 1997 – 2003 and was recalled in 2007, has passed the torch to Trica Barron. Trica is pronounced (Tree-ka), and I share the same passion for insects and diseases as Donna. (editor's note: anyone with a name produced **T**ree-ka is destined to work at an arboretum).

Arboretum horticulturists, a group of hard-working, knowledgeable people who make our grounds beautiful, along with Donna and myself, will be scouting our grounds for pests throughout the season. In addition, we will be adding more information about other pest and disease problems, based on samples brought into the Arboretum's Plant Clinic.

Quick View

What Indicator Plants are in Bloom at the Arboretum?

Vernal witch-hazel (*Hamamelis vernalis*) and snowdrops (*Galanthus nivalis*) are both in full-bloom.



Vernal witch-hazel is in full bloom

Accumulated Growing Degree Days (Base 50): 0

Insects

- Bagworms
- Gypsy Moth Egg Masses
- Zimmerman Pine Moth
- Periodic Cicada Damage

Diseases

- Oak Wilt Advisory

Miscellaneous

- Vole Damage
- Rabbit Damage
- Deer Damage
- Salt Damage

Feature article:

- "The Importance of Indicator Plants and How to Use Them", by Trica Barron, Plant Health Care Technician

Degree Days and Weather Information

As of March 31, 2008, we were at 0 growing degree days. The historical average (1937-2007) for the same date is 27. Last year we were at 114 growing degree days on March 31.

Location	Growing Degree Days through May 8	Precipitation between March 18 to 31 in inches
The Morton Arboretum (Lisle, IL)	0.0	0.93
Chicago Botanic Garden (Glencoe, IL)*	8.5	1.85
Chicago O-Hare Airport*	0.0	1.31
Aurora, IL	5.0	
Bloomington, IL	19.0	
Champaign, IL	21.0	
DuPage County Airport (West Chicago, IL)	7.5	
Midway Airport	10.0	
Danville, IL	35.0	
Decatur, IL	36.5	
DeKalb, IL	3.0	
Moline, IL	2.5	
Palwaukee Airport (Wheeling, IL)	7.5	
Peoria, IL	22.0	
Peru, IL	11.0	
Pontiac, IL	15.0	
Rantoul, IL	19.5	
Rockford, IL	0.5	
Romeoville, IL	8.5	
Springfield, IL	40.5	
Waukegan, IL	1.5	
Lafayette, IN	30.5	
Milwaukee, WI	0.5	
Racine, WI	1.0	
Waukesha, WI	0.0	

*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/>.

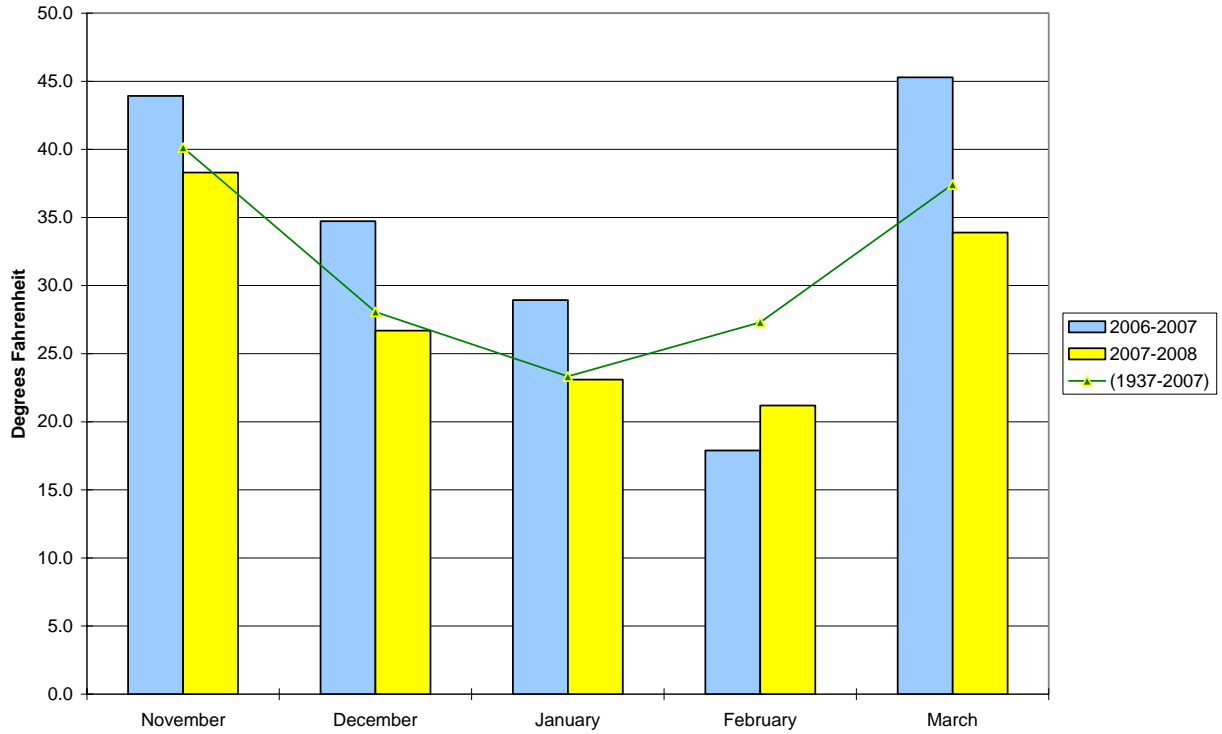
Winter Weather

The charts below and on the following page depict the 2007/2008 winter weather. This was not our best winter. It seemed like February was a lot longer than 29 days. Temperatures were slightly colder than our 71-year average in November through January, but distinctly colder in February and March. Our coldest temperature was -6 F° on February 24 and 25.

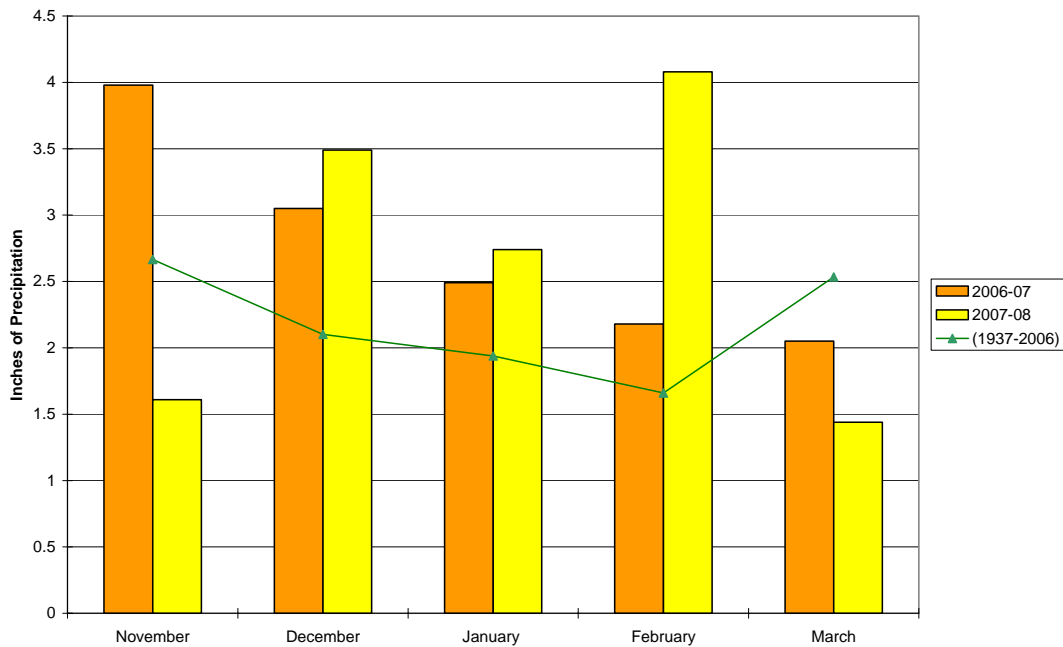
It is not news to anyone that we had a lot more snow than normal. Obnoxious as shoveling the white stuff is, at least snow cover provides great insulation for plant roots and soil dwelling pests during cold periods. Overall, precipitation in December through February was markedly higher than average. November and March each had about an inch less precipitation than average.

So what effect do we expect to see on plants? At this point, we're not expecting much damage from winter. We didn't experience the hot and cold periods that we had last winter, so plants may not have suffered as much. But it's always a bad idea to try to predict weather. If we were that good at it, we'd play the lottery.

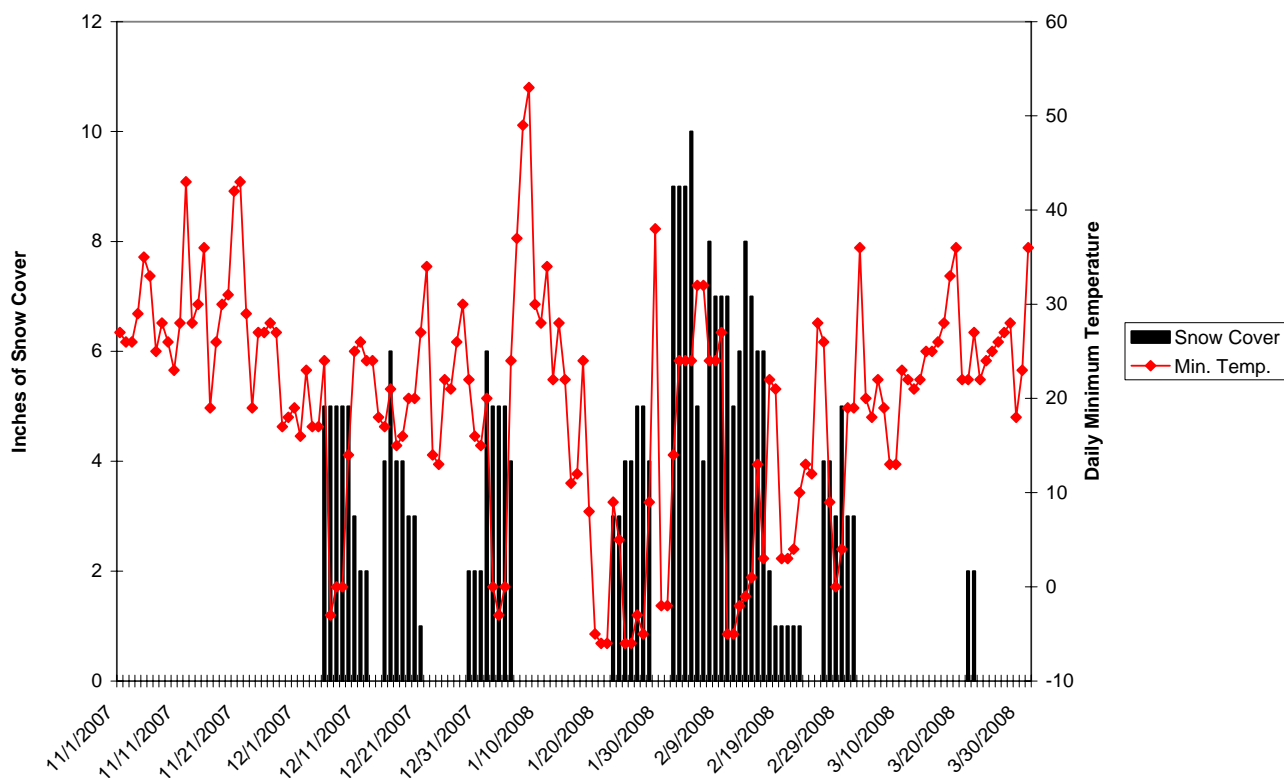
Average Monthly Temperataure - Winter 2007-2008



Winter Precipitation



Winter Weather



This Week's Sightings

Bagworms

We are seeing bagworm (*Thyridopteryx ephemeraeformis*) “bags” that overwintered suspended from twigs of many, many trees including Ames Chinese juniper (*Juniperus chinensis* ‘Ames’), common baldcypress (*Taxodium distichum*), thornless common honeylocust (*Gleditsia triacanthos* var. *inermis*), arborvitae (*Thuja*), and Red Jewel crabapple (*Malus* ‘Red Jewel’). These one and a half inches to two and inch long, spindle-shaped bags are composed of a very strong silken thread covered with bits of host foliage and twigs. Each bag contains between 300 and 1,000 eggs.

After the eggs hatch in June, the larvae feed on the foliage of many evergreens and deciduous trees and shrubs. Bagworms can be especially damaging to conifers, because they do not refoliate. Heavy infestations may result in branch dieback and even death.

We will have more information about bagworms and control measures when the eggs hatch (approximately 650 to 750 degree days).

Control:

Overwintering bags may be handpicked now and destroyed by squashing or placing in a bucket of soapy water.



Good websites:

<http://www.ag.ohio-state.edu/~ohioline/hyg-fact/2000/2149.html>

<http://www.uky.edu/Agriculture/Entomology/entfacts/trees/ef440.htm>

<http://www.entomology.umn.edu/cues/Web/071Bagworm.pdf>



Gypsy Moth Egg Masses

If you haven't looked for gypsy moth (*Lymantria dispar*) egg masses this winter, do so now. Gypsy moth is an invasive species from Europe that has been slowly moving into our area. In its caterpillar stage, it's a serious defoliator of trees. The egg masses are about 1 1/2 inches long and 3/4 inch wide. They are covered with buff to yellow colored insulating hairs, so they look like a piece of felt. Each egg mass will contain 100 to 1,000 eggs and can be found on tree trunks, under loose bark, in woodpiles, on outdoor furniture, and on the undersides of cars and RVs that were in an infested area during egg-laying season (July and August). We'll discuss this pest in greater detail in later issues.

Control:

If you find egg masses, scrape them carefully away from the bark and flush down the toilet or drown in a bucket of soapy water. Wear gloves since some people are allergic to the hairs. Call your county extension office to verify that they are indeed gypsy moth eggs and then call the

Illinois Department of Agriculture at (815) 787-5476 for further instructions.

Good Website:

<http://bedford.extension.psu.edu/Agriculture/FactSheets/Gypsy%20Moth%20Eggs.htm>

Zimmerman Pine Moth

We are finding white to pinkish pitch masses caused last summer by Zimmerman pine moth (*Dioryctria zimmermani*) larvae on ponderosa pine (*Pinus ponderosa*). Larvae damage trees by tunneling just beneath the bark of the trunk and branches. The tunnels can girdle and weaken the trunk or branches, so they are easily broken by wind or snow. Heavily infested trees are often deformed and are sometimes killed. Common hosts include Austrian, Scots, and ponderosa pines.

Larvae overwinter in cocoon-like structures under bark scales. They become active in the spring and tunnel into the tree. In late spring, they migrate to the base of branches, tunneling into the whorl area where pitch masses exude from the wound site. The larvae continue to feed, pupate within the pitch mass, and emerge as adults in August. After mating, female moths lay eggs, often near wounds or previous pitch masses. Eggs hatch in about a week and the larvae feed for only a brief time before preparing to overwinter.

Control:

Larvae are very difficult to detect by scouting, so you have to focus on symptoms and phenological indicators. Damaged wood should be pruned out as soon as dieback and pitch masses are seen. Larvae can be controlled by spraying bark and foliage with insecticides either in April, when saucer magnolia is in pink bud to early bloom (70 –160 GDD), or in mid-August, when paniced hydrangea is pink (2700 – 2900 GDD). For further information about chemical control and timing refer to the *2007 Commercial Landscape & Turfgrass Pest Management Handbook* (CPM) or the *Home, Yard, and Garden Pest Guide* (HYG).



Good websites:

<http://www.ext.colostate.edu/pubs/insect/05591.html>

http://www.mortonarb.org/plantinfo/plantclinic/pests_pinemoths.pdf

<http://www.entomology.umn.edu/cues/Web/227ZimmermanPineMoth.pdf>

Periodic Cicada Damage

I know everyone is going to miss our clumsy, noisy, red eyed visitors that amused us so much in 2007. They did leave their mark as damage to trees and shrubs resulting from egg-laying by the adult female. The damage is done mainly to smaller twigs and branches when eggs are laid in numerous, small, elongate slits made by a knife-like ovipositor (egg-laying apparatus). Heavily damaged twigs and branches may wilt and break off. Some injured branches may not die the first year, but the wounded area is a weak site on the plant and may eventually break off in a wind storm.



Good website:

<http://ohioline.osu.edu/hyg-fact/2000/2137.html>

Oak Wilt Advisory

Just a reminder - **stop pruning oaks soon!** Sap beetles, the vectors that spread the fatal fungal oak wilt, will soon be active. The beetles are attracted to pruning wounds. Oaks should not be pruned from now through at least mid-July. Some pathologists even suggest waiting until the dormant season to prune oaks. We will discuss this disease in a later issue as symptoms appear.

Vole Damage

Vole damage was found on Blackhaw viburnum (*Viburnum prunifolium*). Vole damage usually occurs in winter. Vole damage can occur in landscapes that have natural areas, deep mulches, or groupings of ornamental grasses or ground covers that give the animals shelter. Voles, related to mice, are active day and night year round. They can be confused with moles, which require different control methods. Both make the familiar raised tunnel system in lawns. The difference is in their diet; moles eat insects, earthworms and grubs, whereas voles eat the bark and cambium of many plants during the winter when more suitable food supplies are scarce. If the vole girdles the branch or trunk, the plant above that location dies.



Mulch should be only 2-3 inches deep. Thin out spreading junipers and other ground covers to reduce vole cover. Remove dead stems from ornamental grasses and perennials to reduce winter cover.

Control:

Keep mulch away from the base of trees and shrubs. Place cylinders of hardware cloth of 1/4 inch mesh around plants. The cylinders must be deep enough into the soil to keep voles from tunneling under the screen and at least 18 inches high. Though we think ornamental grasses have excellent winter interest, if you have a vole problem, you might consider cutting them back in fall. Commercial repellents, such as those used to control rabbits, may be effective.

Excellent web site about voles:

<http://www.ianr.unl.edu/pubs/wildlife/g887.htm>

Rabbit Damage

The appetite of a rabbit can cause problems every season of the year. Rabbits eat flowers and vegetables in spring and summer, and damage and kill valuable woody plants in fall and winter.

Rabbit damage was found on Nordine burning bush (*Euonymus alatus* 'Nordine'). Trunks were scarred with paired gouges from the rabbit's front teeth. We found rabbit "poop" (to be indelicate) as further evidence. Rabbits generally feed no more than two feet above the ground or at snow level. Small plants can be severely altered or reduced in size.

Control:

One of the best ways to protect against rabbits is to secure a fence of chicken wire or wire mesh around plants needing protection. The fencing needs to be at least 18-to-24 inches high and should be buried into the ground about 2-3 inches to prevent tunneling underneath. Individual cylinders of hardware cloth or commercial tree wrap can protect valuable trees from damage. The cylinders should extend above the expected snow line and stand one or two inches from the tree trunk.



Chemical repellents discourage rabbit browsing, but only protect the parts of the plant they contact. Repellents are based on several modes of action. Some make plants distasteful, while other repellents give plants a strong, distasteful odor. New growth that emerges after application is not protected. Heavy rains may require reapplication of some repellents.

Brush and tall weeds near landscapes provide food and shelter for rabbits. Removing these will make the area less attractive to rabbits.

Good website: <http://ohioline.osu.edu/hyg-fact/1000/1031.html>

Deer Damage

The degree of deer damage on a property can vary from year to year, depending on deer populations, the availability of food, and weather. Deer love to nibble on leaves, stems, and buds of many woody plants. During spring and summer non-woody plants are a favorite menu item. In late summer and fall fruits, nuts, and acorns become a delicacy. To distinguish



the difference between deer and rabbit damage, as well as to rule out any other wildlife, look at the height of damage from the ground. The damage caused by deer browsing is not difficult to identify either. Usually they leave a jagged or torn area on stems. On the other hand, rabbits are wonderful pruners. They leave a clean cut usually at a 45 degree angle. Other damage done by deer is from the antler-rubbing behavior of males. This is done during the fall and can be particularly damaging to small saplings or valuable ornamental trees.

Control:

Applications of deer repellants, which work as odor and/or taste repellants, should be applied at first sign of damage. Make sure that young trees are fenced in before the fall. Fencing is more effective than repellants in eliminating damage but requires special design feature when it comes to the height requirement needed.

Good websites:

http://www.mortonarb.org/res/CLINIC_selec_PlantsNotFavoredDeer.pdf

<http://web.extension.uiuc.edu/champaign/homeowners/981205.html>

<http://www.wandtv.com/global/story.asp?s=8030390&ClientType=Printable>

Salt Damage

We're seeing lots of damage to evergreens caused by deicing salt as we drive to work. This is a frequent problem on susceptible plants, especially to the side of the plant nearest the road. When salt is blown onto twigs, buds, and needles, it draws water out of plant tissue, causing it to dry and burn. On evergreens, dieback starts at the tips of needles. On deciduous plants, damage may not become apparent until warmer weather. Although more salt injury is caused by air-borne salt than by salt in the soil, plant injury can occur due to salt in soil when salty meltwater runs off into the soil or when salty snow is plowed or shoveled on the root zone of plants. High amounts of sodium and chloride can damage plants when it's taken up by the roots, causing toxicity or dehydration of roots.

Control:

Avoid the use of sodium chloride around plants. Consider using alternative de-icing salts such as calcium chloride and calcium magnesium acetate. Grow salt-tolerant plants in high traffic areas. Susceptible plantings in high traffic areas can be protected by constructing temporary barriers of burlap or a snowfence.

The Arboretum's plant selection brochure, "Salt Tolerant Trees and Shrubs" at http://www.mortonarb.org/res/CLINIC_selec_SaltTolerantPlants.pdf provides information about salt injury as well as a list of salt tolerant plants.

Another good web site: <http://www.extension.umn.edu/info-u/environment/BD564.html>



Photo by Merrill McNicholas

What to Look for in the Next Two Weeks

We will be looking for hemlock rust mites, seasonal needle drop, and larch casebearers.

Feature article:

The Importance of Indicator Plants and How to Use Them

By Trica Barron

Plant Health Care Technician

At the beginning of our Plant Health Care Report we always denote what indicator plant is in bloom at the arboretum. So you may be wondering what is the importance of indicator plants and how can they be used in the landscape.

Tracking indicator plant events, such as bud break, leaf emergence, flowering, fruiting, and growth stages, along with degree day information gives gardeners a useful way of knowing when to look for a particular pest and to manage it in its most vulnerable stage. These plant events are categorized under plant phenology, which is the study of the annual cycles of plants and how they respond to seasonal changes in their environment. The word phenology comes from the Greek "phaino" (to show or appear) and "logos" (to study). The act of plant watching dates back thousands of years. The Chinese are thought to have kept the first written records dating back to around 974 B.C. But it is Robert Marsham and Carl Linnaeus who are the founding fathers of modern phenology recording. Ed Hedborn is our modern day plant recorder.

Indicator plants can be used in two ways. First you can plant a pest-resistant variety where specific pests are present and difficult to manage on other plantings. For example, if you have a crabapple tree that gets attacked by the eastern tent caterpillar, you can plant a saucer magnolia (*Magnolia x soulangiana*) as an indicator plant, which is not attacked by the caterpillar in the landscape. When saucer magnolia (*Magnolia x soulangiana*), is in pink bud to early bloom, the eastern tent caterpillars young larvae are at their most vulnerable and easier to control. So this would be the best time to treat for or remove the eastern tent caterpillar tents. Monitor indicator plants on a regular basis to determine when conditions are favorable for the development of the pest. By doing this, you can detect problems before insects cause damage, and to determine the proper timing for chemical applications or biological control. “First bloom” is defined as the date on which the first flower bud on the plant opens revealing pistils and/or stamens. “Full bloom” is defined as the date on which 95% of the flower buds have opened.

The second way to use indicator plants is by using a highly susceptible plant to a specific pest. These plants act as an “early warning system” to detect and monitor pest problems. For example, if you have a scots pine (*Pinus sylvestris*), with groups of the European pine sawfly feeding on its needles in late April to early May, this is a warning that you should be managing the euonymus webworm’s young larvae. Don Orton’s book *Coincide* has a list of indicator plants. There are certain qualities that Orton uses to select good indicator plants. The plant should be commonly grown, easy to culture, hardy, have a relatively short, well-defined bloom period, and should not be easily confused with similar plants.

Because the development of both plants and insects is temperature-dependent, plants accurately track the environmental factors that affect insect development. Both indicator plants and degree days are meant as an aid to monitoring, not as a substitute for visual confirmation. Improperly timed insect applications are expensive and even make problems worse when they decrease populations of natural predators without impacting the target pest.

Some other fun things to watch for - it is said that...when the locusts bloom in May, it will turn cold and rainy. Crabgrass seeds germinate when forsythia are in bloom. Seeing caterpillars about later than usual in fall, indicates a milder winter. Expect rain when sheep turn face first into the wind, oxen sniff the air, and hogs are restless.

On that note, happy plant watching.



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.