Plant Health Care Report

The Morton Arboretum

Scouting Report of The Morton Arboretum

March 21 – April 3, 2009 **Issue 2009.01**

Welcome back! Two sure signs of spring have arrived, when you see your first robin and the first Plant Health Care Report of the season.

The arboretum website is being redesigned this April, so watch for the new link and update your bookmarks!

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.

Arboretum horticulturists, a group of hard-working, knowledgeable people who make our grounds beautiful, along with 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?

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

Accumulated Growing Degree Days (Base 50): 28
Accumulated Growing Degree Days (Base 30): 426

Insects

- Bagworms
- Gypsy moth egg masses
- European pine sawfly eggs
- Pine bark adelgid
- Hemlock needleminer

Diseases

- Witches' broom of hackberry
- Dothistroma needle blight
- Oak wilt advisory

Miscellaneous

- Vole damage
- Rabbit damage
- Deer damage
- Winter damage
- Salt damage

Degree Days and Weather Information

As of April 2, 2009 we were at 28 growing degree days. The historical average (1937-2008) for the same date is 30. Last year we were at 13 growing degree days on April 2.

Location	Growing Degree Days through April 2	Precipitation between March 21 to April 2 in inches
The Morton Arboretum (Lisle, IL)	28.0	1.7
Chicago Botanic Garden (Glencoe, IL)*	10.0	1.7
Chicago O-Hare Airport*	22.0	2.0
Aurora, IL	14.0	
Champaign, IL	59.9	
DuPage County Airport (West Chicago, IL)	23.5	
Carbondale, IL	146.5	
Decatur, IL	69.4	
Moline, IL	27.5	
Peoria, IL	38.5	
Quincy, IL	64.5	
Rockford, IL	12.0	
Waukegan, IL	8.0	
Wheeling, IL	13.9	

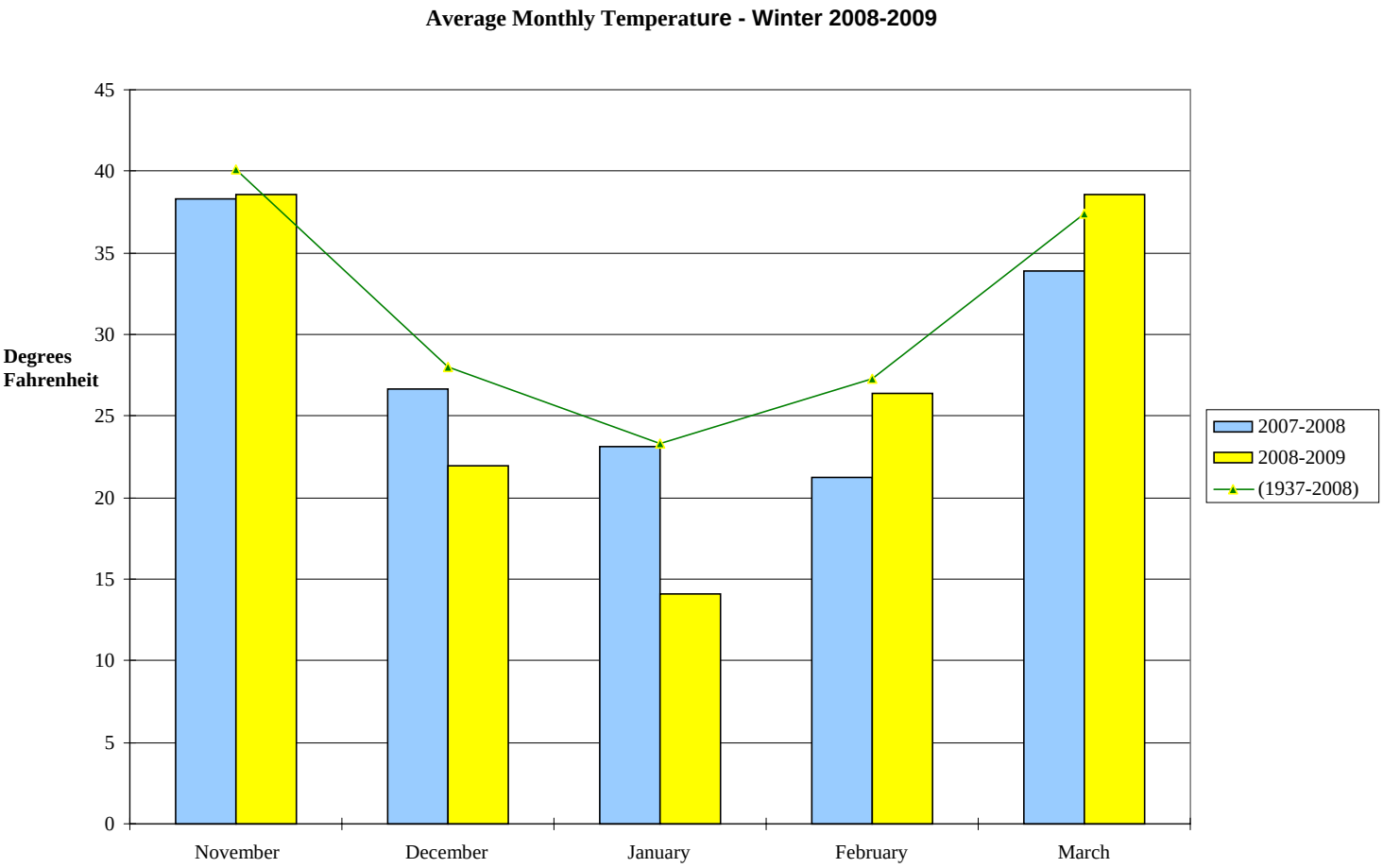
**Thank you to Mike Brouillard, Green Living, Inc., and Chris Yooning, Chicago Botanic Garden, for supplying us with this information.*

Winter Weather

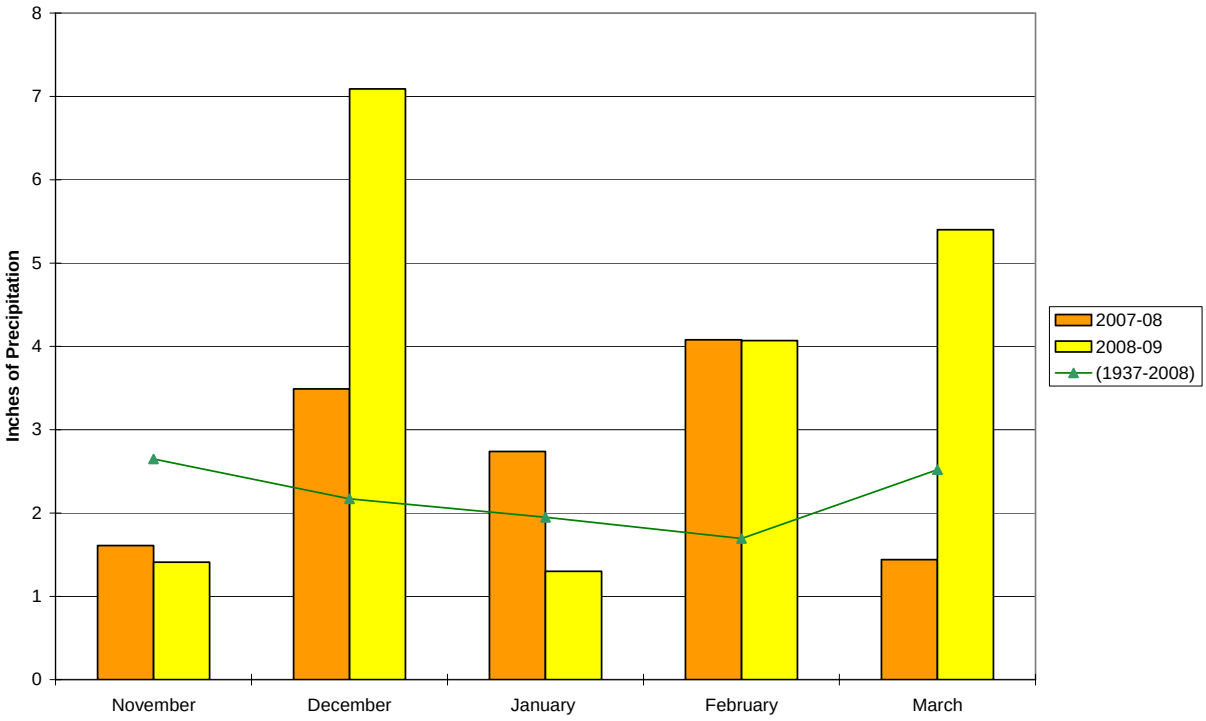
The charts below and on the following page depict the 2008/2009 winter weather. It was another harsh winter for us. It seemed like the snow would never melt. Temperatures were much colder than our 72-year average in November through January, but above average in March. Our coldest temperature was -21 F° on January 17.

It was another year of above average snow fall. Overall, precipitation in December through March was markedly higher than average. February and March each had about 2.5 inches of more precipitation than average. According to chief meteorologist Tom Skilling at WGN TV the 5.2 inches of precipitation recorded at O'Hare in March made it the fifth-wettest since1871.

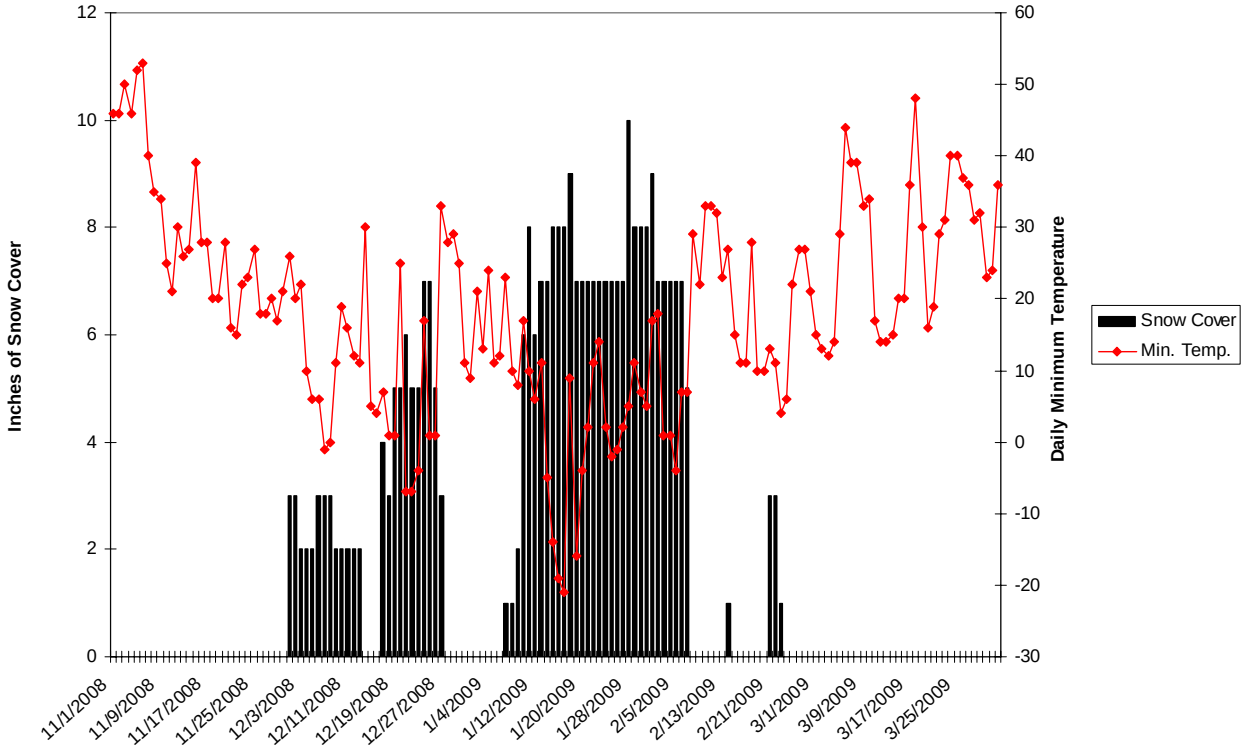
So what effect do we expect to see on plants? All I can say is that so far we are seeing the normal salt and winter damage on susceptible plants.



Winter Precipitation



Winter Weather



This Week's Sightings

Bagworms

We are seeing bagworm (*Thyridopteryx ephemeraeformis*) "bags" that overwintered suspended from twigs of many trees including baldcypress (*Taxodium distichum*), arborvitae (*Thuja),* spruces (*Picea*), and dwarf dogwood (*Cornus pumila*). The bags are one and a half inches to two and inches long, spindle-shaped, and 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 late May to early 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.h=tml
http://www.uky.edu/Agriculture/Entomology/entfacts/trees/ef440.htm

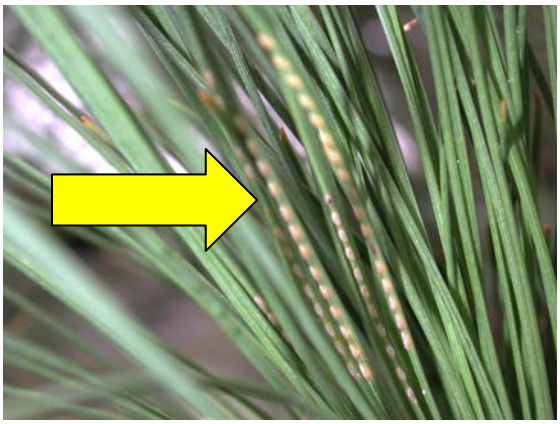
Gypsy moth egg masses

We strongly advise everyone to look for gypsy moth (*Lymantria dispar*) egg masses now. Gypsy moth is an invasive species from Europe that is a widespread problem in our area and will continue to be. In its caterpillar stage, it's a serious defoliator of trees. The egg masses are about one and a half inches long and three quarters inches wide. They are covered with buff to yellow-colored insulating hairs, so masses 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 or the Arboretum Plant Clinic to verify that they are indeed gypsy moth eggs or for more information.

Good website:
http://www.na.fs.fed.us/SPFO/pubs/fidls/gypsymoth/gypsy.htm
http://learningstore.uwex.edu/Gypsy-Moths-Identifying-and-Managing-Gypsy-Moth-Egg-Masses-P486C110.aspx

European pine sawfly eggs



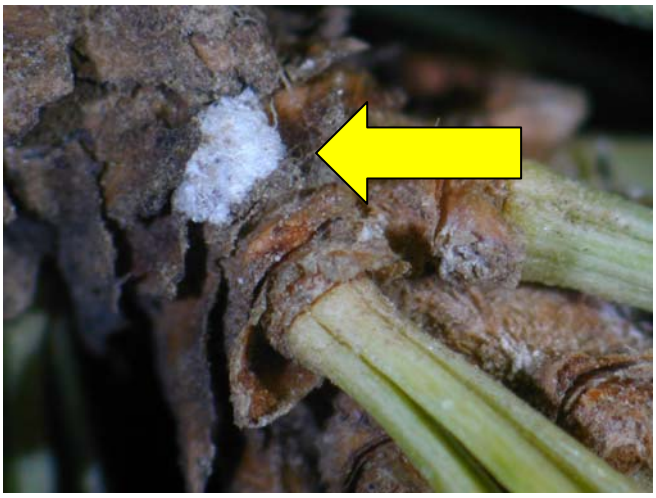
We have found European pine sawfly eggs (*Neodiprion sertifer*) on red pine (*Pinus resinosa*) and expect that they will hatch in a few weeks, usually in April through mid-May. The eggs look like yellow dots, are about an eighth of an inch long, and aligned longitudinally in rows along pine needles.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

Pine bark adelgid

Pine bark adelgid (*Pineus strobi*) has been found on Corsican pine (*Pinus nigra* var. *maritma*).They overwinter as immature females on the bark and branches. Adult females secrete a protective white, woolly mass, which covers the light yellow eggs found at the bases of needles and on the bark of limbs and trunks. Crawlers should begin to emerge in early spring. The adelgid prefers white pine but also attacks Scots *(Pinus sylvestris)*, Ponderosa *(Pinus ponderosa)*, and Austrian *(Pinus nigra)* pines. On healthy and older trees, the damage is purely aesthetic.

Control:
Eggs could be washed off with a high-pressure water spray. Do the same to the crawlers if you see them. In severe or repeated infestations, an insecticidal spray can be applied when the crawlers are out. Lady beetles, hover flies, and lacewings feed on adelgids, so if these predators are present, it is best to use an insecticidal soap or high pressure water spray. For specific chemical recommendations, refer to the *Commercial Landscape and Turfgrass Pest Management Handbook 2007* (CPM).



Good websites:
http://bugs.osu.edu/~bugdoc/Shetlar/factsheet/christmasstree/pine_bark_adelgid.htm
http://www.entomology.umn.edu/cues/Web/178PineBarkAdelgid.pdf
http://woodypests.cas.psu.edu/factsheets/InsectFactSheets/html/Pine_BarkA.html

Hemlock needleminer

We found hemlock needleminers (*Coleotechnites macleodi*) on Eastern hemlock (*Tsuga canadensis*). The term "needle miner" describes the larval feeding habits of insects that bore into and feed on the soft internal tissue of evergreen needles. These tiny caterpillars hatch in July, enter leaves near the base, and feed on green tissue inside the needle, leaving the epidermis of the needle intact. They bind needles together with webs, so you see clusters of brown, mined needles throughout the tree, which is what we are seeing now. The insect overwinters as a larva and resumes feeding in the spring.

Control: Hemlock needleminer is considered a minor pest and control is usually not necessary.

Good website:
http://www.forestpests.org/caterpillars/brownhemloc_k.cfm

Clusters of mined needles bound together with webs.

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. It is so common that some people think the witches' brooms are a characteristic of hackberry. 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. Chinese hackberry (*Celtis sinensis*) and Jesso hackberry (*Celtis jessoensis*) are resistant.

Good website:
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*). 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 are 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 *(Pinus nigra)* and ponderosa *(Pinus 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 (*Pinus resinosa)* and Scots *(Pinus sylvestris)* pine are usually resistant.

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 websites:
http://learningstore.uwex.edu/pdf/A2620.pdf
http://na.fs.fed.us/spfo/pubs/fidls/dothistroma/doth.htm

Oak wilt advisory

Just a reminder - **stop pruning oaks April 15th**! Sap beetles, the vectors that spread the fatal fungal disease oak wilt, will soon be active. The beetles are attracted to pruning wounds. Oaks should not be pruned from April 15th through at least mid-July. But some pathologists 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)*. Most often damage, which usually happens in winter, occurs 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 and are rare in our area. 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 two to three inches deep and kept away from the trunk. 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 quarter 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 websites:
http://www.ianrpubs.unl.edu/epublic/pages/publicationD.jsp?publicationId=100
http://web.extension.uiuc.edu/wildlife/directory_show.cfm?species=vole

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 burning bush (*Euonymus alatus*). Trunks were scarred with paired gouges from the rabbit's front teeth. 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 two to three 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 that the chemical contacts. 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://www.extension.iastate.edu/Publications/WL47.pdf
http://urbanext.illinois.edu/news/news.cfm?NewsID=12391

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 because 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 occurs during the fall and can be particularly damaging to small saplings or valuable ornamental trees.

Control: Many applications of deer repellents, which work as odor and/or taste repellents, should be applied at first sign of damage. Make sure that young trees are fenced in before the fall.

Good websites:
http://www.mortonarb.org/res/CLINIC_selec_PlantsNotFavoredDeer.pdf
http://web.extension.uiuc.edu/champaign/homeowners/9_81205.html

Winter Damage

This season's cold, snowy winter has been difficult for many evergreens planted in exposed locations. Alberta spruce (*Picea glauca* 'Conica') and hollies (*Ilex* spp.) have noticeable winter damage. The brown or scorched foliage that we see in early spring, as well as uniform branch dieback throughout the plant, are symptoms of winter injury. Winter sun, harsh winds, and cold temperatures can dry evergreen needles or leaves, and injure or kill branches, flower buds, and roots.

Foliar damage normally occurs on the south, southwest, and windward sides of the plant, but in severe cases the whole plant may be affected. Yew, arborvitae, and hemlock are most susceptible, but winter browning can affect all evergreens. New transplants or plants with succulent, late season growth are particularly sensitive.

There are several ways to minimize winter injury. Hemlocks (*Tsuga canadensis*) and arborvitae (*Thuja* spp.) should not be planted on south or southwest sides of buildings or in highly exposed (windy, sunny) places. Water all evergreens in late fall.

Applications of anti-transpirants, also called anti-desiccants, help reduce transpiration and minimize damage to the foliage. At least two applications per season, one in December and another in February are usually necessary to protect plants all winter.

If an evergreen has suffered winter injury, wait until mid-spring before pruning out injured foliage. Brown foliage is most likely dead and will not green up, but the buds, which are more-cold hardy than foliage, will often grow and fill in areas where brown foliage was removed. If the buds have not survived, prune dead branches back to living tissue. Fertilize injured plants in early spring and water them well throughout the season. Provide appropriate protection the following winter.

Frost heaving is another issue we are having this season. Repeated freezing and thawing of soil in fall or spring causes soil to expand and contract, which can damage roots and heave shrubs, perennials, bulbs, and new plantings out of the ground. A three to four inch layer of mulch will help reduce heaving by maintaining more constant soil temperatures.

Good websites:
http://www.extension.umn.edu/distribution/horticulture/DG1411.html
http://www.ext.vt.edu/departments/envirohort/arti-cles/woody_ornamentals/avdwntrd.html
http://www.mortonarb.org/res/CLINIC_hort_WinterInjury.pdf

Salt Damage

We're seeing damage to evergreens caused by deicing salt as we drive to work. This is a frequent problem on susceptible plants, especially on the side of the plant nearest the road. Damage can occur on plants located up to 50 feet away from a heavily salted area. 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 onto 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 in late fall. Spring rains can help leach the salts out of the soil if drainage is adequate or if it is dry you can water by hand to flush it out.

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 website:
http://www.extension.umn.edu/info-u/environment/BD564.html

What to Look for in the Next Two Weeks

We will be looking for pine needle scale, seasonal needle drop, and larch casebearers.

Quote of the week: "All the flowers of all the tomorrows are in the seeds of today." ~Indian Proverb

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.