

Plant Health Care Report

Scouting Report of The Morton Arboretum

April 17 – April 30, 2009

Issue 2009.03

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.

It seems like we are finally warming up. Last Friday we had our first 80 degree temperatures of the year. Last year we had to wait until June second for our first 80 degree day. Now if only the sun would shine. We should have beautiful May flowers with all the April showers we have had.

The warm weather along with our Arbor Day celebrations has everyone in the mood to plant. Beware-- the danger of frost still lingers! The Morton Arboretum average frost date is May 2nd. But the average last frost date varies greatly from year to year. The best advice to follow is to wait until May 15th to plant those tender annuals, seeds, perennials, and veggies.

Quick View

What Indicator Plants are in Bloom at the Arboretum?

Koreanspice viburnum (*Viburnum carlesii*) is beginning to bloom.

Accumulated Growing Degree Days (Base 50): 80.5

Accumulated Growing Degree Days (Base 30):887.5

Insects

- Caterpillars and sawfly larvae
- Eastern tent caterpillar
- European pine sawfly
- Arborvitae leafminer
- Oystershell scale

Diseases

- Apple scab
- Cryptodiaporthe canker (golden canker)

Miscellaneous

- Seasonal needle drop



Feature article:

- Weeds!
By Trica Barron, Plant Health Technician

Weed Note

- Dandelion
- White clover

Degree Days and Weather Information

As of April 30, 2009 we were at 80.5 growing degree days. The historical average (1937-2008) for the same date is 56°F. Last year we were at 115 growing degree days on April 30.

Location	Growing Degree Days through April 30	Precipitation between April 17 to April 30 in inches
The Morton Arboretum (Lisle, IL)	80.5	2.09
Chicago Botanic Garden (Glencoe, IL)*	48.5	3.41
Chicago O-Hare Airport*	69.5	3.58
Aurora, IL	81.0	
Champaign, IL	197.6	
DuPage County Airport (West Chicago, IL)	105.8	
Decatur, IL	213.4	
Moline, IL	124.0	
Peoria, IL	164.6	
Quincy, IL	216.4	
Rockford, IL	89.6	
Waukegan, IL	51.5	
Wheeling, IL	70.5	

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

This Week's Sightings


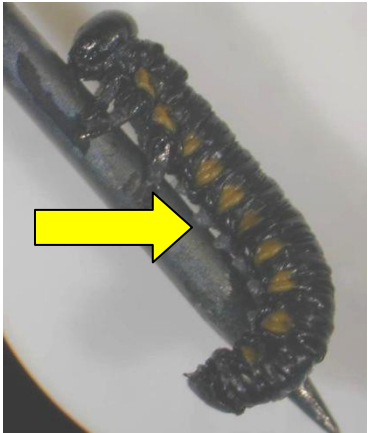
Caterpillars and sawfly larvae

As our season progresses, we will begin to see a number of different caterpillars and sawfly larvae. It is important to correctly identify them, especially if you're using some kind of chemical or biological control. How can you tell the difference between the two? Like adult insects, both caterpillars and sawfly larvae have three body parts: the head, thorax and abdomen. Hard, jointed legs are attached to the thorax, and a set of fleshy, unjointed prolegs (hind legs) is attached to the abdomen. If there are six or more pairs of prolegs, it is a sawfly larva. If there are five pairs or less, it is a caterpillar.

Have you ever tried to pick a caterpillar off a branch and it seemed to stick to it? Caterpillars have hook-like structures called crochets at the end of their prolegs, while sawfly larvae do not. Crochets are difficult to see. A good hand lens is necessary to see them.

Control: When control is necessary, we prefer hand picking of both caterpillars and sawfly larvae. However, *Bacillus thuringiensis* var. *kurstaki* (*Bt*) can be sprayed on the young larvae of caterpillars, but is not as effective against mature larvae. *Bt* does not kill sawfly larvae.

The following chart may be helpful:

	Caterpillars	Sawfly larvae
Number of pairs of prolegs	5 pairs or less 	6 pairs or more 
Presence of crochet hooks on prolegs	Yes	No
Adult stage	Generally moths and butterflies (Lepidoptera)	Wasp-like (Hymenoptera)

Good website:

<http://www.ipm.msu.edu/woodylandscape/distinguishingbetweenecaterpillarsandsawflylarvae.htm>

Eastern tent caterpillar

Eastern tent caterpillars (*Malacosoma americanum*) have been brought into the plant clinic. The caterpillars grow to two inches long and are hairy with white stripes down their backs and blue spots between longitudinal yellow lines (they are beautiful caterpillars). The larvae gather at a fork in a tree and build a web or "tent". They leave the web to feed during the day, but return at night. Since they create a strand of silk wherever they go, the web enlarges as the caterpillars eat. Severe defoliation only occurs when populations are high.



Eastern tent caterpillars prefer trees in the rose family, such as wild black cherry, apple and crabapple, plum, and peach, but occasionally will feed on ash, birch, willow, maple, oak, and poplar.

Control: The safest way to control the caterpillar is by tearing out or pruning out the webs. This should be done on cloudy or rainy days or at night when the caterpillars are in the nest and not out feeding. Another option is to remove the overwintering egg masses before spring if you can find them (good luck with that – we’ve tried it and it isn’t easy). The egg masses are dark gray to black and are wrapped around twigs that are about the diameter of a pencil. Bt can also be sprayed on young larvae but will not kill mature larvae. For chemical control, 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 the *Home, Yard and Garden Pest Guide (HYG)* if you are a homeowner.

Good web sites:

<http://www.ca.uky.edu/entomology/entfacts/ef423.asp>

<http://www.ag.ohio-state.edu/~ohioline/hyg-fact/2000/2022.html>

<http://learningstore.uwex.edu/pdf/A2933.pdf>

European pine sawfly

European pine sawfly (*Neodiprion sertifer*) larvae are just hatching and beginning to feed on needles of Pyrenean pine (*Pinus nigra* var. *cebennensis*). These are one of our favorite insects because they’re so amusing to watch. Groups of sawfly larvae rear up their heads simultaneously when disturbed, making the group to appear to be one much larger organism. This is a great defense mechanism. Right now the larvae are less than a quarter of an inch long, but already you can see their black heads. When fully grown, the sawflies will be about three quarters to one inch long and will have several light and dark green stripes on each side of their bodies. Their heads and the first three pairs of legs are black. Their mouths are so small after hatching, they can only eat one side of each needle, and therefore the chewed-on needles look like straw. Eventually as the insects mature, they are able to eat entire needles. The larvae feed for weeks on old conifer needles but are finished feeding before current year’s needles emerge. Then they drop down to the ground to pupate, emerging in September as adults to mate and lay eggs. The eggs look like small gold dots, in a row, along the needles. In an extremely heavy infestation, trees could be entirely defoliated or stunted. But because new growth is rarely attacked, the trees survive.



Control: Birds feed on the larvae and rodents eat the pupae in the soil, but these predators are usually inadequate to control the larvae. At the Arboretum, we usually use the pick and squish method. If you can find the needles before the larvae hatch, remove the needles. European pine sawfly larvae are not caterpillars, so Bt does not control them. In severe infestations, insecticides are also effective if applied now. For chemical recommendations, refer to the University of Illinois CPM if you are a commercial applicator in Illinois or the HYG if you are a homeowner.

Good websites:

http://woodypests.cas.psu.edu/FactSheets/InsectFactSheets/html/European_Pine_Sawfly.html

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

Arborvitae leafminer



Arborvitae leafminer (*Argyresthia thuiella*) larvae are becoming active and feeding on eastern arborvitae (*Thuja occidentalis*). The larvae are an eighth of an inch long and pale yellowish-green with dark brown to black heads. They tunnel into the tips of needles where they will remain and feed for most of the year. The heaviest feeding occurs in fall and early spring resulting in browning of needle tips. After pupation, adult moths begin to appear in late May to early June (400-600 GDD). Eggs are laid during late summer, and upon hatching, the tiny caterpillar tunnels into the arborvitae scales.

Control: In light infestations, prune off infested tips. With heavy infestations, chemical treatments are effective in controlling larvae and should begin in early May (150-260 GDD). There are over 25 parasites (natural enemies) that have been recovered from arborvitae leafminer larvae and pupae. The use of insecticides may actually increase the leafminer numbers by destroying these natural enemies. Use chemicals sparingly.



Feeding damage on arborvitae (*Thuja spp.*)

An arborvitae leafminer feeding preference study performed at the Arboretum by Donna Danielson, Lisa Nakomoto, and Dr. Fredric Miller found that generally, the shorter, denser arborvitae cultivars such as ‘Hetz Midget’ were attacked less than the taller cultivars or the straight species.

Good website:

http://www.umassgreeninfo.org/fact_sheets/leaf_miners/arborvitae_leaf_miner.html

Oystershell scale

Oystershell scale (*Lepidosaphes ulmi*) samples were brought into the plant clinic on river birch (*Betula nigra*) and red-twig dogwood (*Cornus sericea*). The oystershell scale attacks over 130 trees and shrubs including lilac, beech, and viburnum. The scale overwinters on twigs and branches as eggs under the females’ waxy scale cover, which closely resembles one-half of an oystershell. In late spring (275-500 GDD), minute pale-yellow crawlers emerge and attach themselves to the bark of twigs and branches to feed. As crawlers mature, they develop their scale cover. The fully developed scale cover is elongated, curved, and is about one eighth of an inch long with brown or gray concentric bands. Adults cluster together and in severe infestations, may cover the bark of branches completely.

Oystershell scale feeding causes cracked bark and chlorotic, stunted foliage. Twig and branch dieback occurs in heavy infestations. Occasionally, a plant will die from an infestation.

Control: Reduce scale population by pruning out heavily infested branches. For oystershell scale, insecticidal soaps, summer oils, or insecticides should be applied to newly hatched crawlers in early June. Additional applications are typically recommended. For further information about chemical control and timing, refer to the CPM if you are a commercial applicator in Illinois or the HYG if you are a homeowner.



Good websites:

<http://www.forestpests.org/vermont/oystershellscale.html>

http://www.ipm.uiuc.edu/landturf/insects/oystershell_scale/index.html

Apple scab

If you haven't sprayed for apple scab yet, start right away. We have been having a cool, wet spring and apple scab is a fungal disease that is very common in springs with wet weather and moderate temperatures. If a susceptible crab already exists in the landscape, protective fungicide sprays are the most effective way to attain good control. Fungicide applications need to start when buds are breaking and leaves are still tiny. Applications need to be continued at regular intervals based on label directions, until approximately 2 weeks after petal fall. Once the leaves begin showing the typical symptoms of fuzzy, olive green to brown spots, it's too late for control efforts. The best long-term control is to plant resistant varieties.

Crabapples vary in their susceptibility to scab. Our web site lists common crabapple cultivars, including susceptibility to apple scab and fire blight at: <http://www.mortonarb.org/tree-plant-advice/article/858/crabapples-for-the-home-landscape.html>

We will discuss scab in greater detail when symptoms begin to appear.

Cryptodiaporthe canker (golden canker)

Golden canker caused by the fungus *Cryptodiaporthe corni* was found on pagoda dogwood (*Cornus alternifolia*) and giant dogwood (*C. controversa*). Infected branches turn golden-yellow and are speckled with orange fungal fruiting bodies. Other symptoms include wilting and death of leaves on infected branches, followed by branch dieback. This disease can be fatal if the main trunk of a tree becomes infected, but it usually takes out one branch at a time.

Control: Prune the cankered branches during dry weather four to six inches below the discolored bark. The infected branches are the source of spores for many months. To prevent spread of the fungus, don't forget to disinfect pruning tools after each cut by dipping them in alcohol or similar disinfectant.



Good website:

www.uwex.edu/CES/wihort/gardenfacts/XHT1125.doc

Seasonal needle drop



The older needles on Hornibrook Austrian pine (*Pinus nigra* 'Hornibrookiana') have turned brown and will soon drop off the tree. Needles of conifers do not remain attached indefinitely to a tree. Seasonal needle drop is often mistaken for a disease problem. It is completely normal after a few years for older, inner needles of conifers to discolor and drop. Most evergreens shed their inner foliage in the fall, but a few shed their needles in spring and summer. In a few more weeks the inner needles of yews will begin to yellow then drop.

This casting of foliage is normal and doesn't hurt a tree. However, if the outer needles are yellow, brown, or wilted, the tree may have underlying diseases or stress problems and should be diagnosed accordingly.

The arboretum has an informational leaflet about seasonal needle drop available at http://www.mortonarb.org/?option=com_content&view=article&id=685&Itemid=6

Good websites:

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

What to Look for in the Next Two Weeks

We will be looking for cedar rusts, spruce spider mite, and elm bark beetle.

Feature Article:

Weeds!

By Trica Barron

Plant Health Care Technician

The official definition of a weed is a plant that is not valued where it is growing and is usually of vigorous growth and tends to overgrow or choke out the more desirable plants. Basically a weed is one's personal opinion of a plant; it may be considered desirable to one person and a weed to another. For example, one gardener may love to grow spearmint mint (*Mentha spicata*) in their garden. This plant is an herb, not a weed. It may be considered a weed by definition because it has an aggressive growing habit and has a tendency to pop up in areas of the garden where it would be considered undesirable.

Besides giving the landscape an untidy, unmanaged appearance, weeds compete with other plants for moisture, nutrients, light, and space. They can harbor insects and diseases. Some, such as poison ivy (*Toxicodendron radicans*), can present a health hazard to us humans. An integrated weed management program should include the following:

- Proper site preparation, like eradicating weeds before planting either mechanically or by applying a translocated herbicide like glyphosate (Roundup®). This systemic type of herbicide moves throughout the plant, whether it is taken in by the foliage or the roots.
- Plant selection, proper spacing, and groundcovers are great for keeping weeds under control. Where there is bare soil a weed is sure to grow.
- Address soil issues, like drainage and nutrients.
- Good cultural practices include watching your mowing height; a good rule of thumb is to mow often enough so that you never cut off more than one third of the height of the grass blades. Mulching planting beds will help suffocate the weeds.
- Mechanical controls include tilling, hand weeding, and hoeing out the weeds. Make sure to pull out all of the weeds root systems.
- The use of herbicides may also be considered part of your weed management. Weeds vary in their vulnerability to herbicides and the timing of application can affect the degree of control. For further information on chemical controls, please refer to the University of Illinois *Home, Yard and Garden Pest Guide*.

Knowledge and proper identification of the weed can help you choose the best control measures available. There are three basic types of weeds: grass type (crabgrass, foxtail), grass-like (yellow nutsedge, wild garlic/onion), and broadleaf (ground ivy, dandelion). Weeds also have different types of life cycles: annual, biennial, or perennial.

Annual weeds complete their life cycle in one growing season. These weeds are classified as winter annuals and summer annuals. Winter or cool-season annuals like chickweed, speedwell, knotweed, wild mustard, bedstraw, groundsel, and henbit germinate in late summer/fall, overwinter, grow and flower in spring/early summer, and die. The recommended time to use an herbicide on these types of weeds is the fall. Apply a pre-emergence herbicide to affected areas before the weeds emerge. If you apply this herbicide too early, it will dissolve before the weeds start to germinate. If applied too late and the weed has already germinated, the herbicide will not be effective. Summer or warm-season annuals like morning glory, crabgrass, ragweed, purslane, wood sorrel, spurge, and sweet clover germinate in spring, grow, and flower in summer, and die. The recommended time to use an herbicide for these types of weeds is the spring. You can apply a preemergence or use a postemergence herbicide. Postemergence herbicides are applied to the foliage of weeds and must remain on the foliage for several hours to be effective. These types of herbicides should be applied on warm sunny days, when plants are actively growing, temperatures are between 45°-85°F, and there is adequate soil moisture. Use care when applying this type of herbicide around any desirable broadleaf plants (perennials, shrubs, trees). Any drift can kill or damage them.

Biennial weeds complete their life cycle in two years. During the first year of growth, the weeds complete their seedling and vegetative growth as they remain as rosettes or clumps of leaves (bull thistle, garlic mustard, wild carrot). Seed production and maturity are completed during their second year of growth. After the plant produces its seedhead, it will begin to die. It is better to control these types of weeds in fall or early spring during their first year of growth.

Perennial weeds usually complete all growth stages in one year with their life cycle continuing from year to year. Most of these weeds reproduce by seed (dandelion, plantain, chicory, and curly dock), but there are many that are able to spread and reproduce vegetatively (bindweed, ground ivy, and quackgrass). This means that a new plant develops from underground stems (rhizomes), above-ground stems (stolons), bulbs, corms, and tubers. These types of weeds are more difficult to manage because of their persistent root system. Perennial weeds are best controlled in their seedling stage.

Weeds always have and always will be a part of our gardening lives. Regular monitoring and control of new weeds before they become established will help minimize labor (sore knees and backaches) and reduce management costs.

Weed Note

To help you identify and better understand how to control the weeds in your garden, we are adding a “Weed Note” section to our Plant Health Care Report. This section includes weed description, growing habit, control methods, and color images.

Dandelion (*Taraxacum officinale*)

This is a perennial broadleaf weed that is currently blooming everywhere. The flowers are a bright yellow; a field of blooming dandelions is quite picturesque. Leaves are clustered in a rosette at the base of the plant. Dandelions reproduce from seed almost year round. Seedheads are round with each plant being capable of producing thousands of seeds that float easily in the wind. They can also re-grow from their tap roots which grow down several inches into the soil. When you are trying to remove this weed, be sure to get the entire root of the plant. When this plant is cut, it exudes a milky substance.

Control: Mechanically remove or hand pull dandelions before they go to seed. If you are considering a chemical treatment, dandelions are best eradicated by using a spot treatment with an herbicide like glyphosate (Roundup®) before they produce seed. Use caution when using Roundup® it is a non-selective herbicide and will kill both desirable and undesirable plants. For further information about chemical control and timing, refer to the CPM if you are a commercial applicator in Illinois or the HYG if you are a homeowner.



White clover (*Trifolium repens*)

White clover is a type of creeping broadleaf perennial. It blooms from May through September with white to pinkish-white flowers that form a ball-shaped cluster. The leaf consists of three leaflets that are dark green with faint white, crescent-shaped markings, and are one quarter to one half of an inch long. Three to six seeds are borne in a pod and are round, smooth, and dull yellow to orange-brown. They need a soil temperature of at least 50°F for germination to occur. This plant also produces roots at the nodes (joints in the stem) to form large patches. This weed occurs in moist areas that have low-fertility soils and is drought sensitive because of its shallow root system.

Control: Mechanically remove or hand-pull clover. Apply post-emergence herbicides in mid-spring to early summer and/or mid to late autumn. For further information about chemical control and timing, refer to the CPM if you are a commercial applicator in Illinois or the HYG if you are a homeowner.



Quote of the week: “Crabgrass can grow on bowling balls in airless rooms, and there is no known way to kill it that does not involve nuclear weapons.” - Dave Barry



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.

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