

# Plant Health Care Report

Scouting Report of The Morton Arboretum

April 2, 2021

Issue 2021.1

Welcome to the first issue of the Plant Health Care Report (PHCR) for 2021. 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. For comments regarding PHCR, or to subscribe to email alerts regarding posting of new issues, contact me at [syiesla@mortonarb.org](mailto:syiesla@mortonarb.org).

Our report includes up-to-date disease and insect pest reports for northeastern Illinois. Due to the ongoing COVID-19 situation, volunteers will not be scouting in the early part of the season. Once the situation improves, both Arboretum staff and volunteers will be scouting for insects and diseases. Plant Clinic staff are working remotely, but still able to answer questions via email at [plantclinic@mortonarb.org](mailto:plantclinic@mortonarb.org) or by phone at 630-719-2424 (Monday thru Friday, 11 am to 3pm).

**Some old and some new:** We are continuing last year's format: full issues alternating with growing degree day (GDD) issues; focus on more serious pests; alerts issued for new major pests. Based on suggestions from last fall's survey of PHCR readers we are implementing some new features. See the article further on in the newsletter for more details.

## Quick View

### What indicator plant is in bloom at the Arboretum? (see article about indicator plants on page 6)

Cornelian-cherry dogwood (*Cornus mas*) is in early flower (Figure 1). It can serve as an indicator for a variety of pests. In early flower (0-30 GDD) it can indicate the time when pine bark aphid is becoming active. In later flowering (50-100 GDD), it can indicate Cooley and Eastern spruce gall adelgid activity.

**Accumulated Growing Degree Days (Base 50): 23.5 (as of April 1)**

## Miscellaneous

- Winter weather
- Using growing degree days
- What do indicator plants tell us?
- Timing use of fungicides
- Crabgrass preventer
- Vole damage to lawns

## Insects/other pests

- Cicadas
- Viburnum leaf beetle
- Egg masses and more
- Magnolia scale

## Diseases

- Snow mold on lawns
- Cankers



Figure 1 *Cornus mas* in flower

# Oak and Elm Pruning Advisory

Just a reminder - **stop pruning oaks and elms by April 15 (or possibly sooner this year!)** Sap and bark beetles, the insects that spread the pathogens that cause oak wilt and Dutch elm disease, will soon be active. 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. Wisconsin DNR offers this guideline about the emergence of the vectors: As a rule of thumb, "temperatures above 60 degrees for 7 consecutive days" is considered to be warm enough for the emergence of *C[olopterus] truncates* [sap beetles]. These are the beetles that can carry oak wilt. We may get this kind of weather in the coming week.

## New features

Based on suggestions from last fall's survey of PHCR readers we are implementing some new features. These will include:

- Extending the season with 2 full issues in September (no GDD issues). The weather is changing and we see a need to follow some pests into the early fall.
- An index that gets updated with each new full issue (rather than at the end of season). This should make it easier to find articles at any time in the season. The updated index will be included at the end of every full issue.
- A list of insects that might be emerging at the growing day range occurring when each full issue is published. Even if we have not found a particular pest yet, this list will give you an idea of what to be expecting.
- Comparisons of current growing degree days (GDD) with the same date in past years. Again, with our changing weather, we are seeing some changes in the timing of GDD accumulation.
- A report on rainfall to look not only at the total for the year, but also the distribution of rain from month to month. Some years with 'normal' or 'average' rainfall often have really rainy months followed by really dry ones, making the true situation less than normal.
- In spring and fall, we will post some soil temperatures. This can help us with determining a good time to apply crabgrass preventer in spring, as well as a guide for best planting times for spring and fall.

## Soil temperatures around Illinois (from Illinois State Water Survey)

This information will be provided in spring and fall issues only. For more data go to <https://www.isws.illinois.edu/warm/soil/> (you will need to set up an account to access data.) Crabgrass does not germinate until soil temps are above 55 degrees for 5 to 7 days (use more shallow depth for this). Root growth on trees/shrubs occurs when soil temps are above 45 degrees (use deeper depth).

Max. Soil temps For April 1, 2021	St. Charles reporting station (north)	Champaign reporting station (central)	Carbondale reporting station (south)
2-inch, bare soil	44.9*	45.7	45.3
4-inch, bare soil	45.3	45.7	46.1
4-inch, under sod	43.6	48.6	50.8
8-inch, under sod	43.6	49.3	50.2

\*This station has reported soil temps above 50 degrees in the past week. The warm weather forecast for the next week could push temps above 55.

## Degree Days (current and compared to past years) and rainfall

As of April 1, we are at 23.5 base-50 growing degree days (GDD). The historical average (1937-2020) for this date is zero GDD<sub>50</sub>. The table below shows a comparison of GDD in different years. We are comparing the GDD reported in this issue with the GDD reported in the first issue of 2020, 2015 and 2014. These years were selected since publication dates of the first issue were within a day or two of each other. Glencoe, Lisle and Waukegan (60085) were not used in 2015 and 2014, so there is 'no report' from those stations.

Location	GDD as of 2021 1 <sup>st</sup> issue 4/2/21	GDD as of 2020 1 <sup>st</sup> issue 4/3/20	GDD as of 2015 1 <sup>st</sup> issue 4/3/15	GDD as of 2014 1 <sup>st</sup> issue 4/4/14
Carbondale, IL*	121	113	86	72
Champaign, IL*	50	31	40	6
Chicago Botanic Garden**	48 (as of 3/31)	No report	.5 (as of 4/1)	No report
Glencoe*	9	0	No report	No report
Chicago O'Hare*	52	12	31	5
Kankakee, IL*	39	18	25	3
Lisle, IL*	52	14	No report	No report
The Morton Arboretum	23.5	6	9.5	0
Quincy, IL*	72	52	64	21
Rockford, IL*	17	6	20	3
Springfield, IL*	63	44	54	19
Waukegan, IL* (60087)	34	4	19	1
Waukegan, IL (60085)	45	7	No report	No report

\*\*Thank you to Chris Henning, 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 <https://gddtracker.msu.edu/>

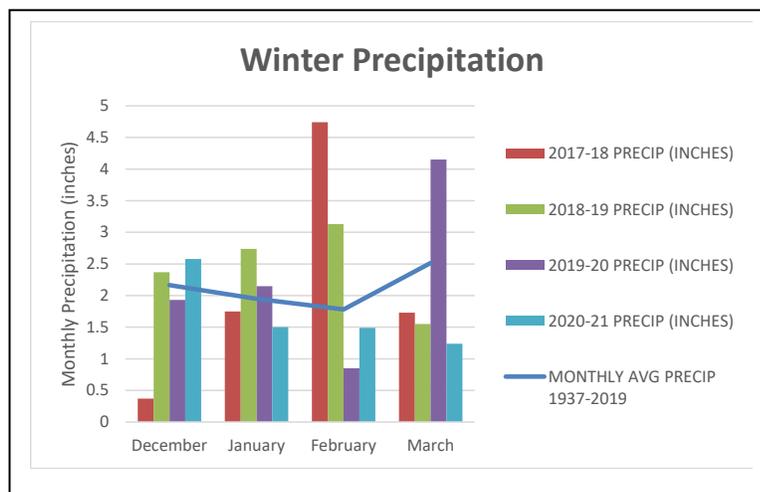
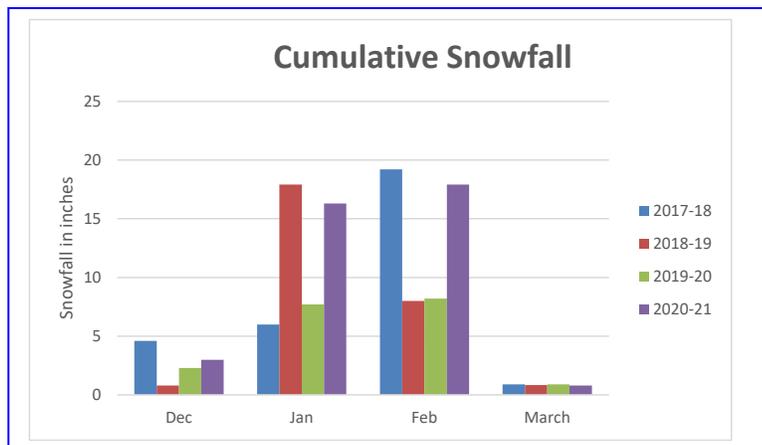
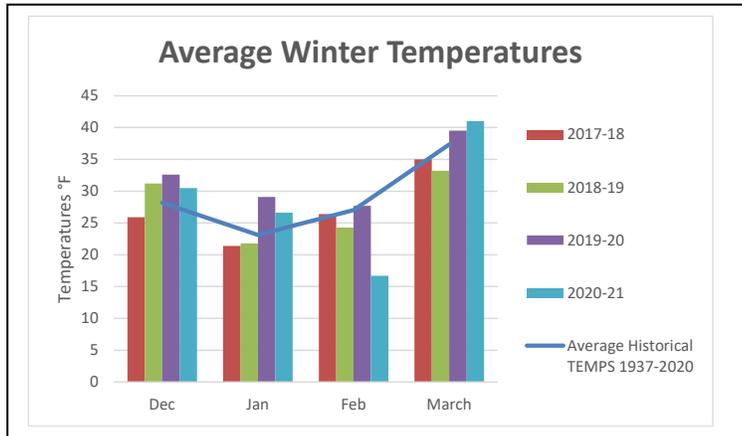
Seasonal precipitation (rain and melted snow) in inches.			
	2021	2020	average
Jan	1.5	2.14	1.952
Feb	1.49	.85	1.769
Mar	1.24	4.15	2.536
April		4.37	3.692
May		8.24	4.194
June		4.91	4.190
July		2.87	3.893
Aug		1.1	3.802
Year to date		28.63	26.03

## How serious is it?

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”. “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:

**Winter weather:** The charts show 2020-21 winter weather and compares it to previous years.



## 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 (units of heat, not actual 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 early 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 (the base number). 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. These growing degree days (again, think of them as units of heat if the word "day" confuses you) are cumulative. When we have accumulated 100 GDD, we expect certain insects to begin emerging (and certain plants to be in flower). When we get to 500 GDD there will be different insects emerging and different plants flowering. 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://www.ipm.msu.edu/agriculture/christmas_trees/gdd_of_landscape_insects)

[http://extension.unh.edu/resources/files/Resource000986\\_Rep2328.pdf](http://extension.unh.edu/resources/files/Resource000986_Rep2328.pdf)

<http://www.ipmofnh.com/wp-content/uploads/2015/02/Insect-Growing-Degree-Days.pdf>

### **What do indicator plants tell us?**

We always give an indicator plant in each issue of the PHCR. These plants tie in with our use of growing degree days (explained above). The development of both insects and plants is controlled by the accumulation of heat units, or growing degree days (GDD). At a certain accumulation of GDD we can expect certain insects to be present at a certain stage of their life cycle. At that same level of GDD, a particular plant will be in flower. Here is an example: Between 100 and 200 GDD (base 50), we can expect to see Eastern tent caterpillars emerging from their eggs. At that same number of GDD we will also see redbud (*Cercis canadensis*) beginning to flower. The redbud can be used as an indicator plant. Its early flowering stage indicates that we have had enough GDD to cause the Eastern tent caterpillars to hatch out. Now we know when to look for them. The redbud, and other indicator plants, are good visual cues that are easy to spot in the landscape.

Indicator plants and GDD work better than dates on the calendar. As mentioned above, we often expect to see the Eastern tent caterpillar around early May. The calendar method has never been very exact and now it is even less so as our weather is anything but typical these days. Early May has been the time to look for these caterpillars because that is when we often actually have accumulated 100-200 GDD. That held true for 2020 and 2019. In 2017, that range of GDD occurred from mid-April through mid-May. In 2012, that range of GDD occurred from mid- to -late March! These variations make the calendar method less reliable. GDD is not perfect, but it does get us closer to the mark.

### **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. So far, the weather has been cool enough to keep leaf buds closed for the most part, but a few days of warm weather could bring about a quick change. Warmer weather is predicted starting this week and extending into next week. Watch the weather and leaf development and be ready to act.

### **Crabgrass preventer**

If you've been in the hardware stores lately, you might have noticed bags of crabgrass preventer (perhaps as early as February or March). Does that mean it is time to put them down? Not necessarily. March offered us some up and down temperatures, as well as some nice days, but the time was not right. Now, April is here and we should be considering it. We do want to get the crabgrass preventer down before the germination starts, but these preventers only last about 60 days, so if you apply in February or March you may not get the

most use from it. Crabgrass seed will not germinate until SOIL temperatures are greater than 55 degrees F for 5-7 consecutive days. We are close to that in northern Illinois (soil temps were above 50 degrees for a couple of days this week). In an 'average' year we might be applying crabgrass preventer in mid-April (hopefully a couple of weeks before germination). This year we might need to do it slightly earlier. Iowa State gives this guideline: "Crabgrass seed germination usually begins ... when redbud trees reach full bloom", and that is often late April into mid-May. Do NOT use forsythia as an indicator plant. Forsythia is not reliable as it tends to flower whenever it feels like it. Depending on the weather, it can start to flower any time between December and April.

One last thought on crabgrass. We often get reports in early spring of green clumps of crabgrass established in the lawn. Crabgrass is an annual, so it died with the frost last fall. If you see green clumps in your lawn right now, it is most likely tall fescue.

### **Vole damage to lawns (minor)**

Voles, which are small, mouse-like animals, can run under the snow and feed on the bark of shrubs and young trees. If the vole girdles the branch or trunk, that branch will die. Vole damage may also be seen in lawns. Vole damage usually occurs in winter, especially when we have snow cover. Voiles will produce shallow runways in the lawn (fig. 2) which become obvious when the snow melts. This year, the Plant Clinic is getting reports of fairly deep runways in the lawn. Normally, vole damage will fill in as the lawn begins to grow. That may happen this year as well, even with the deeper runways. If it does not, the areas may need to be over-seeded a bit.



Figure 2 Vole trails in lawns

### **Pest Updates: Insects**

Examples of insects that may emerge soon in northern Illinois (based on growing degree days)			
GDD (base 50)	insect	Life stage present at this GDD	Type of damage
20-90	Magnolia scale	Overwintering nymphs become active	Feeding on sap
100 (possibly less)	Viburnum leaf beetle	Larvae (may be feeding when leaves are half expanded)	Chewing leaves
100-200	Eastern tent caterpillar	Caterpillars ( <a href="http://www.usanpn.org">www.usanpn.org</a> predicts these may emerge in the next week or two)	Chewing leaves
100-200	Pine sawfly	larvae	Chewing needles
100-450	Gypsy moth	larvae	Chewing leaves

### Cicadas (potentially serious on young trees and shrubs)

There are a lot of reports of an impending cicada attack coming our way this summer. Let's clear this up. The brood that has been mentioned in many sources (from media, to blogs, to village newsletters) will emerge in East-Central Illinois and points further east. The emergence will occur south of the Chicago region and will not impact us. For a good visual of the various broods see this [link](#).



Figure 3 Periodical cicada

The periodical (17 year) cicadas (fig. 3) are not due to emerge in the Chicago region until 2024. However, there are often some early emergers. In 2020 some parts of the Chicago region did see the emergence of a significant number of cicadas from the 2024 brood (this was actually a sub-brood of the 2024 brood). We could see some early emergers in 2021, 2022 or 2023, but there is no way to predict what areas may see them or how many will emerge. The ones that emerged last year came out in late May and were around for most of June. That would be the likely time frame again this year.

**Management:** There is nothing to put on the ground to stop them from emerging and no chemical controls are recommended. We don't suggest postponing planting this year, as this is not a major emergence year. Do be prepared to protect shrubs and smaller trees. They can be covered with tulle as a barrier.

### Viburnum leaf beetle (potentially serious)

Viburnum leaf beetle (*Pyrrhalta viburni*) is becoming a common problem in the Chicago region. It was first reported in Dupage County in 2012. It has been found feeding mostly on arrowwood viburnum (*Viburnum dentatum*) and the American cranberrybush viburnum (*Viburnum opulus* var. *americanum*, formerly *V. trilobum*). We have noted some feeding damage on blackhaw viburnum (*Viburnum prunifolium*) as well.



Figure 4 Egg laying sites as seen over winter into spring

This is a pest of concern because it is a serious defoliator of viburnums. Both the larvae and the adult beetle will feed on leaves, so we can see damage all season. The beetle overwinters as eggs in the tips of stems. The egg-laying damage usually occurs in rows. The eggs are laid in holes chewed by the adult female. The holes are then covered by a cap of chewed bark. These caps are fairly easy to see as they are a slightly different color than the stem. Figure 4 shows the egg-laying sites in fall when they are new, and figure 5 shows them after the larvae have emerged. We may still have time to minimize populations by cutting out and destroying these egg-laying sites. If we can kill them before they hatch, management of this pest will be easier for the rest of the season.



Figure 5 Egg-laying sites after larvae have emerged

When the larvae do hatch, they are tiny. In fact, they are so small that they are easily overlooked. In figure 6, the little spot next to the penny is a very young viburnum leaf beetle larvae. Be looking for them on leaves that are only about half open. The larvae can be found feeding between the veins and doing damage before the leaf has completed expanded. Figure 7 shows a leaf that is only partially expanded, but already being fed upon by newly hatched larvae.



Figure 6 Very young VLB larva below penny

The larvae, when larger and easier to see (about 1/3 inch), may be pale green, pale orange or yellow. They do have a distinctive pattern of black spots along their sides and a row of black dashes running down their backs. At maturity, the larvae are a little less than half an inch long. The larvae chew on the undersides of new foliage.

When mature, the larvae crawl to the ground, usually in mid-June, and pupate in the soil. Adults emerge from the soil (early July) and also chew on the leaves. Their feeding damage forms irregular holes in the leaves. The beetles are about ¼ inch long and brown in color. On close inspection, golden hairs can be seen on the wing covers of the adult beetle. The adult beetles will be mating and laying eggs from summer into fall. There is one generation of the beetle each year. Heavy and repeated defoliation by the viburnum leaf beetle can lead to death of the shrubs.

**Management:** From October through April twigs with eggs in them can be pruned out and destroyed. This is the most effective way to reduce populations and minimize damage and is highly recommended. (If the larvae can't hatch, they can't eat). Trim out only the last few

inches of each twig where egg-laying sites are visible. You do not need to cut the whole stem back.

Insecticides can be used on the larvae from late April through June when they are feeding. Some university websites are suggesting treating larvae with either spinosad or insecticidal soap. To be effective, these products must be sprayed on the larvae (usually found on the undersides of the leaves). Cornell University also suggests a single soil application of imidacloprid in spring to control adults this summer. Because imidacloprid is systemic, it can be translocated into the flowers and pose a hazard for pollinators. If previous damage warrants the use of this product, protect pollinators by applying imidacloprid immediately after flowering ends. Other insecticides can be used in summer when the beetles are out. Insecticidal soap is not effective against the adult beetles. If the larvae are successfully controlled in spring, there will be no adults to treat. The larvae do a lot of damage and are easy to kill, so it is worth attacking that stage of the life cycle.

If you plan to add new viburnums to the landscape, don't plant big groups (remember diversity is the way to go). Plant one or two, and this pest will be easier to manage.

Good websites:

<http://www.mortonarb.org/trees-plants/tree-and-plant-advice/help-pests/viburnum-leaf-beetle>

<http://www.hort.cornell.edu/vlb/manage.html>

### **Egg masses and more**

As with viburnum leaf beetle, we may still have some time to look for other 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



Figure 7 Young viburnum leaf beetle larvae seen on a half expanded leaf



Figure 8 Bagworm bag made from arborvitae needles

inches long. 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 (fig. 8). The bags are made from leaves of the host plant and can be found hanging from branches. Pull the bags off the host plant.



Figure 9 Stems and leaves of euonymus covered with a large number of adult scale

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 (fig. 9). Reducing the population now will make insecticides more effective when it is time to treat in summer.

### **Magnolia scale (potentially serious)**

Populations of magnolia scale (*Neolecanium cornuparvum*) have been high for the last few years. These insects have sucking mouthparts and extract sap from the host plant's branches and twigs. Badly infested trees are weakened and growth is slowed. When infestations are severe, branch dieback can result, and with repeated severe attacks, trees may be killed.

Late last summer into fall, adult females gave birth to live young, called crawlers. The crawlers are tiny, flattened, and vary in color from yellow to reddish-brown (fig. 10). The crawlers settled down on one- to two-year-old twigs to feed and remained there through the winter. They are still there and are most likely already active again (in terms of feeding).



Figure 10 Magnolia scale crawlers (arrows)

**Management:** Check twigs for signs of the tiny crawlers. If they are moving around, they are alive. If they seem dry and fall off easily when you rub them, they are dead. Dead crawlers, means you won't need to treat this spring. It should be noted that adult scale will remain in place even when dead. This often gives the impression that the insecticides did not work. Dead adults will be dry and easy to pick

off. Live scale will ooze liquid when crushed. At any rate, last year's adults should have died from old age.

If you find live crawlers, you can treat the crawlers now (before leaves emerge) with a dormant oil. Check the label for any temperature restrictions. Note that some oils are sold as "horticultural oil" or "multi-season oil" rather than dormant oil. Products labeled this way often come with two sets of mixing instructions: one for use as a dormant oil and one for use as a summer soil (when foliage is present). Select the right set of mixing instructions for the situation. Insecticidal soaps are also effective against the crawler stage. The soap must be sprayed directly on the crawlers.

Good web site: <http://www.mortonarb.org/trees-plants/tree-and-plant-advice/help-pests/magnolia-scale-neolecanium-cornuparvum>

## **Pest Updates: Diseases**

### **Snow mold on lawns (minor)**

As the snow melted this spring, it revealed more than just the trails left by voles. We are seeing patches of lawn that do not look healthy. This is snow mold, a fungal disease. Actually, it is a group of diseases, but we'll just refer this group under the umbrella title of snow mold. We see snow mold in cool, wet weather right after the snows melt. Infected leaves may be tan or grayish and can often be seen in large patches, especially in areas when snow was piled high. The leaves tend to be matted down and covered with a



Figure 11 Snow mold right after snow melt, showing mycelium (photo: S. Yiesla)

grayish webby structure (the mycelium of the fungus, fig. 11). We may be able to see dark, roundish structures on the leaves. These are sclerotia and they help the fungus survive through the season. The gray, webby structure dissipates as the area dries, leaving dead, matted grass behind (which is what we are seeing now).

**Management:** Luckily, even when the leaves die, the roots do not and they can grow new leaves when the weather becomes warmer and drier. Rake out dead foliage to allow for better air circulation. This will allow the area to dry in a timely fashion. If the lawn does not fill in on its own, consider overseeding the area.

Often the lawn can recover without any chemical intervention. Cultural methods can help prevent the disease. Avoid compaction on lawns. Don't pile a lot of snow in one place, if possible. Avoid excessive applications of nitrogen in the fall.

### **Cankers (serious)**

With so much stressful weather over the last 8 to 10 years, we have seen a serious increase in canker diseases. The pathogens that are responsible for cankers are not strong ones. They can only attack stressed or wounded plants. 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 have cankered branches that need to be removed. Cankers are a physical symptom (a wounded or damaged area). Removing these diseased branches can limit the spread of disease. Some cankers can be very obvious, such as golden canker (fig. 12) on dogwood. The stem will turn yellowish and will stand out against the normal green or red stems. 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 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.



Figure 12 Golden canker on dogwood

Cankers are very common on plants that are stressed. We have seen an increase in cankers in the last few years, due to environmental extremes in the last decade (drought, flooding, excessively wet springs, two brutal winters, and several dry, hot summers). 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. Keep trees in good health. Watering during dry times is very important for maintaining good vigor in the tree.



***Bartlett Tree Experts, Presenting Sponsor of the Plant Clinic.***

The Plant Health Care Report is prepared by Sharon Yiesla, M.S., Plant Knowledge Specialist and edited by Stephanie Adams, Ph.D., Plant Health Care Leader; Fredric Miller, Ph.D., Research Entomologist at The Morton Arboretum and Professor at Joliet Junior College; Julie Janoski, 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 all the staff and volunteers that report disease and pest problems when they find them. Your hard work is appreciated.

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.

Additional information on growing degree days can be found at:

[http://www.ipm.msu.edu/agriculture/christmas\\_trees/gdd\\_of\\_landscape\\_insects](http://www.ipm.msu.edu/agriculture/christmas_trees/gdd_of_landscape_insects)

[http://extension.unh.edu/resources/files/Resource000986\\_Rep2328.pdf](http://extension.unh.edu/resources/files/Resource000986_Rep2328.pdf)

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

<https://www.mortonarb.org/news-publication/plant-healthcare-report?tid=259>

For pest and disease questions, please contact the Plant Clinic. At this time due to the COVID-19 situation, the Plant Clinic building is closed. You can still contact the Plant Clinic via email at

[plantclinic@mortonarb.org](mailto:plantclinic@mortonarb.org). Emails will be answered during business hours Monday through Friday.

Plant Clinic can also be reached by phone (630-719-2424), Monday thru Friday 11 am to 3pm. Inquiries or comments about the PHCR should be directed to Sharon Yiesla at [syiesla@mortonarb.org](mailto:syiesla@mortonarb.org).

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## 2021 Plant Health Care Report Index



Following is an index of the various subjects in this year’s report. The number after each subject is the report number. For example, using the chart below, Cankers..... 1 means that it was discussed in the PHC report 2021.01 or the newsletter dated April 2, 2021. The index is updated with the publication of each full issue and is included at the end of each full issue.

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