UNIVERSITY OF MARYLAND EXTENSION

TPM/IPM Weekly Report

for Arborists, Landscape Managers & Nursery Managers

Commercial Horticulture — April 5, 2019

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IPMnet
Integrated Pest Management for Commercial Horticulture

extension.umd.edu/ipm

If you work for a commercial horticultural business in the area, you can report insect, disease, weed or cultural plant problems **(include location and insect stage)** found in the landscape or nursery to sklick@umd.edu

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Pest and Beneficial Insect Information: Stanton Gill and Paula Shrewsbury (Extension Specialists) and Nancy Harding, Faculty Research Assistant
Disease Information: Karen Rane (Plant Pathologist), David Clement (Extension Specialist), and Joe Roberts (Plant Pathologist for Turf)
Weed of the Week: Chuck Schuster (Extension Educator, Montgomery County)
Cultural Information: Ginny Rosenkranz (Extension Educator, Wicomico/Worcester/Somerset Counties)
Fertility Management: Andrew Ristvey (Extension Specialist, Wye Research & Education Center)
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Ambrosia Beetles

By: Stanton Gill

Look for wet areas on trunks and the start of frass tubes

The largest number of emails this week ask if we are seeing any adult ambrosia beetle flight activity. We have traps set up from western Maryland throughout central Maryland and one in Wye Maryland on the Eastern Shore. So far (April 2), the alcohol traps have all been empty. We had a couple of very short warm periods, but not enough sustained warm weather to really get the ambrosia beetles flying.

I have some nursery owners reporting that they are not waiting and are applying permethrin or bifenthrin to the trunk of susceptible trees. I guess they want to be to the prom early. I can only hope they are choosing to apply on a non-windy day which has been hard to find in the last 2 weeks when the sun is shining. The band is not playing yet, so hold off until we start to get some action in our alcohol traps.

On Thursday, I received a call from a nursery in the northeast part of Virginia.

They had trees with wet areas on the trunk of styrax indicating adult beetle activity. An alcohol baited Lindgren trap placed at the UMD WYE Research and Education Center in Queenstown pulled in several ambrosia beetle adults. Andrew Ristvey brought a sample to our CMREC lab on Thursday afternoon. The trap caught 1 *Xylosandrus crassiusculus* (granulated ambrosia beetle), 3 *Xylosandrus germanus*, and 3 *Xyleborinus saxeseni*.

If you are in northern VA or on the Eastern Shore of MD, consider applying bifenthrin or permethrin with a spreader sticker to the trunk of susceptible plants such as redbud, styrax, and yellowwood. If you are in central Maryland, wait and we will see what shows up next week. We are usually 7 - 10 days later then the Eastern Shore. We will update you during the week if we start catching adults in central Maryland

Note: Last week's forsythia image on page 1 should have been attributed to Heather Zindash.

Gloomy Scale

By: Stanton Gill

Gloomy scale is an armored scale that is found damaging red maples. Look for it on the trunk and main branches of red maples. Infested trees will show a slow decline as the population builds. You have to examine the bark very closely to see the small raised covers of this armored scale. Mark Schlossberg, Pro Lawn Plus Inc., found gloomy scale on a customer's maple this week. The crawlers of this scale do not show up until late June to early July in most years.
Control: If the population is not too heavy, I would go ahead and make a dormant rate application of horticultural oil now. You can come back at crawler period in June and apply either Talus or Distance.

I am looking for samples of gloomy scale in June that can be sent to our CMREC lab at 11975 Homewood Road, Ellicott City, MD, 21042. We can examine the females to see when egg laying is occurring and crawlers are emerging.

Gloomy scale can be difficult to detect on red maple bark
Photo: Mark Schlossberg, Pro Lawn Plus Inc.

Winter Injury

By: Karen Rane

Cold damage to evergreen ground covers is often revealed when gardeners begin spring clean-up activities. Such damage to overwintering foliage is usually not a significant problem, because the growing point (bud) in the crown of the plant remains unaffected and new foliage will develop as spring progresses.

Cold injury to overwintering ajuga foliage
Photo: K. Rane, UMD

Degree Day Map for Spotted Lanternfly Emergence

By: Stanton Gill

The United States Department of Agriculture has set up a degree day model for hatching of spotted lanternfly, *Lycorma delicatura*. First nymphs are likely to be observed at 200 accumulated degree days. Peak nymph emergence would likely occur at 355 accumulated degree days. First adults are likely to be observed at 1160 accumulated degree days. Peak adult emergence would likely to occur at 1584 accumulated degree days.

Deer in Urban Areas

By: Stanton Gill

Deer populations have grown to ridiculous levels in many parts of Maryland. The amount of damage is phenomenal in urban communities and in agricultural growing areas. Maryland has some of the highest insurance rates due to the number of deer run-ins with cars in urban environments. I was examining a site in Rockville this week with two foresters with the City of Rockville. The one forester mentioned that they have witnessed deer waiting at road crossings for the traffic light to change before crossing the road. These are deer with URBAN Smarts.

The University of Maryland Extension is conducting an in-service session on Deer Management on April 24 in College Park to discuss the various options. I wish I could tell you there was one magic way to solve this furry pest problem, but there just is not anything new on the horizon. Yes, I do know that boxwood and cherry laurel are resistant to deer browsing. If you have other really new and novel solutions, pass them along to us and we will share them in upcoming IPM alerts.

Lichen on Trees

By: Stanton Gill

With the record breaking rains in 2018, we saw an uptick in the amount of lichen growing on tree trunks. Lichen does not harm the tree, but several landscape managers called in reporting that their customers did not like the look of the lichen. We told them there was not much to do for lichen control. One of the chemical company reps sent in an email asking if I looked at the label on Badge SC from Gowan Company. Badge is a copper based fungicide/ bactericide. On the label, it has rates for controlling lichen on tree branches and trunks. So, if you really need to control lichen look, at Badge as a potential candidate.

Lichen thrives in moist locations

Note: There is an article on lichen by Andrew Ristvey in the August 30, 2013 IPM Report.

Customers With Fruit Trees

By: Stanton Gill

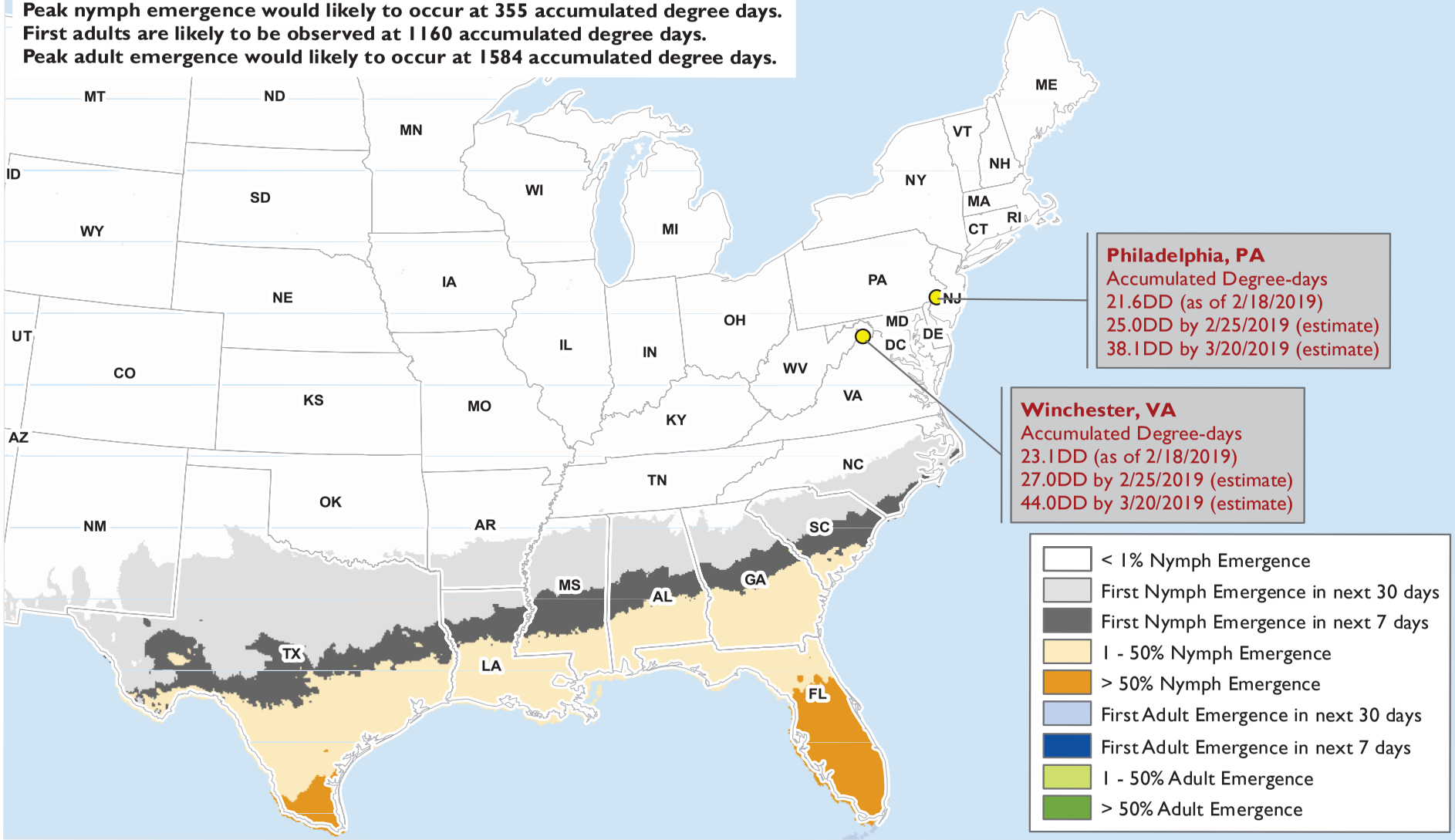
We have several landscape managers who are taking care of their customers' fruit trees. This week you should be applying either lime sulfur or a fixed copper product (Cueva, Badge SC, Nu-XLR and several more). This application helps suppress diseases such as peach leaf curl, bacterial leaf spot, scab, and fireblight (copper only). Apply before blooms are open. On apples, it is best to treat at green tip stage. You will also want to note that apricots and plums were in flower bud stage when the temperatures dipped to 20 °F in central Maryland overnight on March 31. The temperatures again sank to the upper 20 °F range on April 3 in the early morning hours. These low temperatures may impact the fruit set which would show up as poor fruit later in the season.

USDA United States Department of Agriculture

PEST FORECAST: 2/19/2019 - 3/20/2019

Lycorma delicatura (White): Spotted Lanternfly

First nymphs are likely to be observed at 200 accumulated degree days.
Peak nymph emergence would likely to occur at 355 accumulated degree days.
First adults are likely to be observed at 1160 accumulated degree days.
Peak adult emergence would likely to occur at 1584 accumulated degree days.



Lower Threshold Temperature: 8.14°C
Upper Threshold Temperature: 30.0°C

0 220 440 Miles
0 440 880 Kilometers

Data Source:
SAFARIS, 2019; PPQ, 2017
NDFD, 2019; PRISM, 2019
Coordinate System:
USA Contiguous Albers Equal Area Conic

Date Created:
February 19, 2019

NCSU CIPM
1730 Varsity Dr. Suite 110
Raleigh, NC 27606
USDA APHIS PPQ
Sacramento, CA

Filbert Blight Resistant Hazelnuts

By: Stanton Gill

Both Rutger's University and Oregon State University researchers have been conducting breeding work to develop disease resistant hazelnut trees. Tom Mollner at Rutger's tells me he is about a year or two out from releasing disease resistant hazelnuts. Meanwhile, Oregon State University has brought Dorris Hazelnut onto the market as a resistant variety. I am planting some Dorris this spring to test out if it truly resistant in Maryland climate.

Here is the description of Dorris Hazelnut: *Newest OSU (Oregon State Univ) variety with complete resistance to Eastern Filbert Blight. A fairly large, round nut useful for inshell marketing or processing. The kernel quality is such that it will command a premium price. The flavor is exceptionally good, it blanches and has very few blank, defective or moldy kernels. Dorris Hazelnut is a naturally small tree, only 10-12 feet, yet as productive as a Barcelona tree twice its size. Pollinates with all listed varieties except Barcelona and Sacajawea.*

New Bugs Shows Up in California

By: Stanton Gill

In Maryland, we have the boxelder bug and the golden raintree bug that overwinter in people's house. In California, they found a closely related insect called the Mediterranean red bug, *Scantius aegyptius*. This bug is is a species of red bug in the family Pyrrhocoridae. Hopefully, it does not make its way east to Maryland.

See photos of the Mediterranean red bug at [https://bugguide.net/node/view/299939/bgimage.](https://bugguide.net/node/view/299939/bgimage)

Boxelder bugs can be a nuisance in homes

Horticultural Oil

By: Stanton Gill

The warming trend this week is making it perfect to apply horticulture oil for scales, overwintering mites eggs, and overwintering aphid eggs. With the warming temperatures, the respiration on eggs and insects goes up so the oil is more effective.

Apple Scab

By: Karen Rane

Spring is the time to begin applications of protectant fungicides to susceptible crabapples and apples to protect against apple scab. Three factors must align for disease to occur: the release of spores from overwintering structures on fallen leaves, the susceptible growth stage of the tree, and the weather conditions favorable for spores to infect. The most favorable weather conditions for apple scab spores to cause infection are when average temperatures are 61-75 F with 6 hours of leaf wetness, but infection may occur with temperatures in the 50s with longer leaf wetness periods (7-9 hours). Growth stage of the tree is also important - Initial infection in crabapples can occur at the green tip stage (when new leaves are emerging) through full leaf expansion. For fruit-bearing apples, the most critical early season infection growth stages are pink through petal fall. Obtaining good control during this early infection period is essential for management of the disease throughout the season. Fungicides should be rotated among different modes of action (FRAC codes) to avoid resistance development. Spray intervals vary by product, and should be narrowed during periods of wet weather. Keep in mind that

fungicides used for ornamental crabapples may not be labeled for use on bearing apple trees, and always follow label instructions. Planting resistant crabapple cultivars is the best way to manage scab in the landscape.

Symptoms of Apple Scab Photo: UMD Home and Garden Information Center

For more information on apple scab in crabapples, check out these links:

Pacific Northwest Handbook (includes a list of resistant crabapple varieties): https://pnwhandbooks.org/plantdisease/host-disease/crabapple-malus-spp-scab

University of Minnesota Extension fact sheet: https://extension.umn.edu/plant-diseases/managing-apple-scab-ornamental-trees-and-shrubs#fungicides-1165362

For information on apple scab in fruit-bearing apples, check out these links:
Penn State Fruit Research and Extension Center website https://agsci.psu.edu/frec
Dr. Kari Peter, Penn State tree fruit pathologist, has a fact sheet on apple scab: https://extension.psu.edu/apple-disease-apple-scab

The New York State Integrated Pest Management Program's Network for Environment and Weather Applications has a website where apple disease models are posted to provide disease forecasting based on weather. Check it out at http://newa.cornell.edu/index.php?page=apple-diseases

Beneficial of the Week

By: Paula Shrewsbury

Solitary bees are buzzing!

Bees, bees, and more bees! Over the last 15 or so years there has been an amazing amount of research and educational outreach conducted addressing various aspects of bees. This includes honey bees, bumble bees, and solitary bees. All this research has resulted in a tremendous increase in our knowledge and the availability of information about bee health, threats to bees, bee behavior, ecosystem services provided by bees, identification of plant resources and other practices to conserve bees, and more. Not to suggest that we know everything or even enough about bees yet!


Male mason bees emerging from galleries in wood where they overwintered. The bee chews through the mud seal that the mother bee closed the gallery with last year. Photo: P. Shrewsbury, UMD

Since many pollinator species are in decline it is important to conserve these beneficial insects. Therefore, I will be discussing various pollinators throughout the season. Today I would like to spend some time on solitary bees, in particular the mason bees. Solitary bees differ from their cousins the European honeybee that maintain perennial colonies that are maintained from year to year, and bumble bees that have annual colonies which a queen restarts every spring. Honeybees and bumble bees also have division of labor within the colony (ex. foragers, soldiers, brood

care, etc.). With solitary bees each individual female of a species maintains her own individual nest where she raises her own brood.

Bee tubes and galleries drilled in fire wood (~1/4 – 5/16" in diameter and 4-8" deep) provide suitable nesting sites for various solitary bees. Different diameter holes attract different species of mason bees. Photo: P. Shrewsbury, UMD

It happened last Tuesday at my house (Howard County). Mason bees (family Megachilidae) began emerging from their overwintering galleries! In general, mason bees are early spring pollinators, but a few species emerge in late spring or early summer. Mason bees nest in hollow stems of plants, reeds or galleries in wood left behind by wood boring insects. Mason bees get their name because of their habit of making brood compartments in their galleries that are separated by mud.

Mason bees are well known for the pollination benefits they provide, especially of early blooming plants. It is estimated that just 250-300 mason bees can pollinate an acre of apples or cherries. Mason bee males emerge first and females emerge a few days later. This phenomenon, called protandry, is relatively common in the world of insects. It seems that female mason bees are a highly sought after "commodity" and males that emerge early in a season are more likely to find and hook up with mates. Once a male and female mate, the male bee then hangs out on the female's back for a bit and fights off other males that would also like to mate with his partner. This "guarding behavior" ensures sperm from the original male are used by the female. Mated female mason bees spend many hours and days gathering pollen and nectar from which they create pollen cakes or balls. They fill hollow plant stems or wooden galleries with these pollen cakes. After collecting pollen from plants, the female returns to her nest and enters the nest tube head first, deposits the pollen cake (this may take several trips to get enough pollen for one cake), exits the tube, turns around and enters the tube abdomen first so her ovipositor can reach the pollen cake. She then oviposits (lays) an egg onto the pollen cake. She then seals that section of the tube or gallery with mud that she collects. The female repeats this process until the tube contains several pollen cake – egg compartments and is filled. She plugs the entrance with mud and may then search out another nesting site. Eggs that are destined to be females are laid in the back of the tube, and male eggs toward the front (remember males emerge first). Mason bee adults are active about 4 weeks and the females will fill as many nests (tubes) as she can in that time. The eggs hatch into bee larvae that consume the cake as they develop and grow during summer and fall. They complete their development (pupa and adult stages) during fall, settle down for winter, and are ready to emerge just in time for the return of spring. Mason bees do not produce honey, are not aggressive and do not sting. I stand for long periods of time in the midst of the 100's of bees busy around their nesting site in my yard and am always entertained by these beauties, and have yet to be harmed.

Mason bees provide valuable ecosystem services by pollinating a variety of native and non-native flowering plants, many of which are fruits that we consume or flowers of plants in natural and managed landscapes that provide resources and habitat for animals at other trophic levels. However, habitat fragmentation and destruction is one of the factors that lead to decline of pollinators. For those of you who would like to become active in the conservation of mason bees you can provide solitary bee nesting habitats. At my house I have purchased commercially available "bee tubes" and drilled holes into firewood (see the images). Not only can you enhance ecosystem services of pollination by providing habitat, but you create a great learning environment for children and adults. I highly suggest you try buying or making habitat for these beneficial, educational and entertaining insects. There are many resources on line that can inform you of best practices for creating habitat and raising these beneficial insects. Do a web search for mason bees or bee tubes. NOW is the time to set up nesting sites!

Weed of the Week

By: Chuck Schuster, UME

Temperatures are all over the spectrum, much like a roller coaster. Air temperatures into the 70's and down into the 30's. Snow was observed on Monday in Frederick, and that was not an April Fool's joke. Soil temperatures are also moving up and down quite a bit with cloudy days, windy days, and still sunny days occasionally.

In the purple deadnettle article last week, it was listed to use a fall application of Dichlobenil (Barrier) (pre emergent). This product can only be used in landscapes as it will be extremely harmful and eliminate the desired species of turf.

Photo 1

This week the weeds are really showing themselves. Many different weeds are out depending on how warm your soil has gotten. In locations closer to the populated areas, one will find lesser celandine, in other areas it is a wave of hairy bittercress that is showing itself. Dandelions are also starting to show up in the turf. I have had several emails this week asking me to identify this weed. The weed in question is hairy bittercress (photo 5).

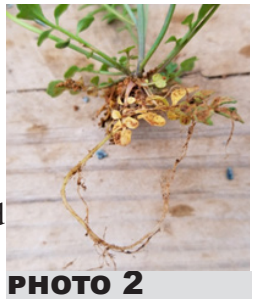


PHOTO 2

Hairy bittercress, *Cardamine hirsute*, is a weed found throughout the northeast. Currently, it is showing itself along many road edges and in many lawns and landscapes. Harry bittercress is a summer annual, but will often be found as a winter annual in landscapes and turf. Hairy bittercress is one of several weedy plants in the Mustard family that is native to Eurasia. It is not newly germinating now or even within the last several weeks. It has been hiding out as a basal rosette in the turf or even the landscape. Yes it is an edible plant, with the leaves used by many. Harry bittercress has a taproot, (Photo 2 and 3) and branches that are erect and reach twelve inches in height. This plant will have alternately arranged leaflets occurring in two to four pairs. The leaflets are rounded, emerging from a petiole that is hairy. Leaf size decreases as they emerge higher on the stem. The flower of this weed will be in clusters at the end of flowering stems, are two to three mm in diameter, and will be made up of four petals (photo 4). The fruit of this weed is a silique, a narrow capsule that is designed to release the seeds held within in an explosive manner, spreading the seed up to eight feet from the plant. In one research study, the average plant produced 68 of these silique or seed pods with an average of 29 seeds per pod, that is a mere 1,972 seeds per plant to help establish next season's crop. It is a quick growing plant and can have several crops or generations in one season. When mowing turf, determine if the proper mowing height has been selected. Mowing too short will promote this plant. Shady areas also seem to promote this plant's vigor.

Photo 3

Photo 4

Often identification is a problem, hairy bittercress is sometimes confused with Calepina (*Calepina irregularis*), but upon close examination it will be noted that calepina does not have 2 to 4 pairs of round leaflets like hairy bittercress. Waxy bittercress can also be confused with hairy bittercress. The flowers of hairy bittercress have 4 stamens, while the flowers of wavy bittercress have 6 stamens.

Photo 5

Photos:
Chuck Schuster

Control of this weed is difficult especially with having it germinate this time of year. Cooler temperatures can make post emergent control harder without the plant being in active growth. Hairy bittercress control can be accomplished with the use of pre-emergent products that include oxadiazon (Ronstar), flumioxazin (Broadstar) or isoxaben (Gallery). Post emergent products can provide excellent control in turf, they include, 2,4D and triclopyr (Chaser) Metsulfuron (Blade), Speedzone (tri-mec + Quicksilver) works better in the cooler weather. Use caution with the post emergent products that have potential to volatilize near landscape materials to prevent potential for damage.

Plant of the Week

By: Ginny Rosenkranz, UME

***Cornus mas* brightens up the Indscape in erly spring**
Photo: Ginny Rosenkranz

Cornus mas, Cornelian-cherry dogwood, is a non-native small deciduous tree or large shrub that is one of the first plants to bloom in the early spring. The bright butter yellow star-shaped flowers are small and are on short stalks bundled together into a rounded bouquet that spreads out about ¾ of an inch. Flowers bloom mid-February to March before the leaves develop, leaving the flowers to glow brightly against the dark rich brown of the exfoliating bark. Each bouquet or umbel is surrounded by 4 small yellow bracts, similar to the large white bracts that surround the flowering dogwood. The flowers mature into bright cherry red, one seeded fruit the same color as the gemstone carnelian (or cornelian). The fruit is edible and usually made into preserves. The dark glossy green foliage of summer often hides the abundant fruit, but the birds still manage to find them. Unlike flowering dogwood, Cornelian-cherry dogwood foliage is not as colorful and often abscises or leaves the trees in the autumn still green. The plants can grow 20-25 feet tall and 15-20 feet wide and prefer to grow in full sun with rich well drained soils. They are winter hardy from USDA zones 4-8, said to be deer resistant, and tolerant of many soil types. Some *Cornus mas* have a tendency to sprout suckers that must be pruned out to maintain the tree form and prevent the plant from spreading into a grove. There are some excellent cultivars including 'Spring Glow' with bright yellow flowers and leathery dark green foliage that thrives in the more southern areas, and Spring Grove®, a non-suckering tree with abundant bright yellow flowers and lustrous green leaves. 'Redstone' has excellent resistance to diseases and insect pests and Yellow™ is a tree that has both yellow flowers and yellow fruit. As a small tree, they can be planted under power lines or used as a hedge or a specimen. The Cornelian-cherry dogwood is listed as a very pest free from dogwood Anthracnose and borers when planted in the right locations.

Degree Days (as of April 3)

Aberdeen, MD (KAPG)	41
Annapolis Naval Academy (KNAK)	77
Baltimore, MD (KBWI)	54
College Park (KCGS)	52
Dulles Airport (KIAD)	50
Frederick (KFDK)	42
Ft. Belvoir, VA (KDA)	67
Gaithersburg (KGAI)	51
Greater Cumberland Reg (KCBE)	34
Martinsburg, WV (KMRB)	39
Natl Arboretum.Reagan Natl (KDCA)	89
Salisbury/Ocean City (KSBY)	70
St. Mary's City (Patuxent NRB KNHK)	96
Westminster (KDMW)	49

Important Note: We are using the Online Phenology and Degree-Day Models site. Use the following information to calculate GDD for your site: Select your location from the mapModel Category: All models Select Degree-day calculatorThresholds in: Fahrenheit °F Lower: 50 Upper: 95Calculation type: simple average/growing dds Start: Jan 1

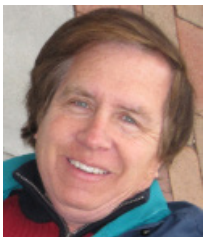
CONFERENCES

Maryland Pesticide Re-certification Session
April 18, 2019
Location: Cumberland, MD

Pest Diagnostic Clinic for Arborists
May 22, 2019
Location: Woodmont Country Club in Rockville
When availabe, the schedule and registration information will be posted on the Maryland Arborist Association (MAA) website.

All Day Session on Herbaceous Perennials
July 25, 2019
Location: The Perennial Farm in Glen Arm, MD.

CONTRIBUTORS:



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Photos are by Suzanne Klick or Stanton Gill unless stated otherwise.