UNIVERSITY OF MARYLAND EXTENSION

TPM/IPM Special Report
for Arborists, Landscape Managers & Nursery Managers

Commercial Horticulture **April 12, 2024**

In This Issue...

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 sgill@umd.edu

Coordinator Weekly IPM Report:
Stanton Gill, Extension Specialist, IPM and Entomology for Nursery, Greenhouse and Managed Landscapes, sgill@umd.edu. 410-868-9400 (cell)

Regular Contributors:
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 Fereshteh Shahoveisi (Turf Pathologist)
Weed of the Week: Chuck Schuster (Retired Extension Educator), Kelly Nichols, Nathan Glenn, and Mark Townsend (UME Extension Educators)
Cultural Information: Ginny Rosenkranz (Extension Educator, Wicomico/Worcester/ Somerset Counties)
Fertility Management: Andrew Ristvey (Extension Specialist, Wye Research & Education Center)
Design, Layout and Editing: Suzanne Klick (Technician, CMREC)

Ambrosia Beetles – Out Big Time This Week

By: Stanton Gill

We placed ethyl alcohol baited Lindgren traps at CMREC, Broookeville, and Marie Rojas, Professional IPM Scout, placed one in Darnestown, MD two weeks ago.

Marie checked her trap on Monday, April 8, 2024, and it was empty. She called Wednesday afternoon to report that a lot of ambrosia beetles were in the trap. She sent photos of the collection, but I will need samples to confirm if *Xylosandrus* species are among the ambrosia beetles collected. Since it has been rainy this week and warm and humid, the chances are we are seeing early activity of several ambrosia beetles including *Xylosandrus* species.

I suggest applying a protectant treatment of either bifenthrin or permethrin to the trunk of susceptible trees species such as styrax, yellowwood, birch, zelkova, and redbud.

We have had a plethora of rain over the last 2 weeks which has increased soil moisture levels to a high level. These are conditions that promote activity from these deadly exotic ambrosia beetles.

An ICON is Leaving US and YOU

By: Stanton Gill

For eighteen years, the commercial horticulture industry has been blessed with one of the best diagnostic plant pathologists, Dr. Karen Rane. She has announced she is leaving her career as the Director of the University of Maryland Extension Plant Diagnostic Lab, College Park, MD.

Karen has been a very important part of our IPM University of Maryland team. She has conducted many lectures and been part of all of our IPM diagnostic plant sessions at field days. Karen has been a regular contributor to the IPM Alerts and done fantastic job of keeping those in the horticulture industry up-to-date on the latest diseases impacting the industry.

We're losing a dear friend and wonderful diagnostic pathologist. We wish all the best in retirement.

The Plant Science Department and Entomology Department on campus are working jointly to set up interviews with a new diagnostic pathologist this spring and will hopefully have someone in place later in 2024.

Karen Rane presenting at the June 2023 cut flower program at Castle Bridge Farm in Ellicott City.
Photo: David Clement, UME

Rane Rane and Dave Clement demonstrating using a virus test kit at the IPM Scouts' Training in April 2023.
Photo: Suzanne Klick, UME

Looking for WHITE OAK TREES that have JUMPING OAK GALL

If you have white oak trees that have / had jumping oak gall please contact John Tooker (tooker@psu.edu; an entomologist from Penn State Univ.). John would like to sample jumping oak galls on your trees for research.

If you want to learn more about what jumping oak gall looks like or its biology click here. I know some years jumping oak galls are big problems in the MD area. Thanks.

LOCATIONS NEEDED for RESEARCH on SLF EGG MASSES

We are conducting studies to evaluate myco-insecticides targeting the egg masses. I am looking for locations with an abundance of SLF egg masses on trees (2-4 per tree minimum), where the trees are accessible, and the egg masses are accessible (not too high), and we need to be able to treat the trees in these locations.
Please email me (pshrewsbury@umd.edu) ASAP if you have potential locations that could be used for the research, and / or when you start to see SLF eggs hatching.

Spotted lanternfly egg masses on a red maple in a residential landscape in Washington County MD. Photo: Josh Warner, Antietam Tree and Turf

Spotted Lanternfly Update

By: Paula Shrewsbury, UMD

There is not much new to report on spotted lanternfly (SLF) this week. We are waiting for SLF egg hatch to begin. For those who follow degree day (DD) accumulations to monitor for pests, SLF eggs hatch at ~ 270 DD. Last year I saw the first eggs hatching on April 26th in Hagerstown, MD. Presently, you should be monitoring for eggs and egg hatch. Although scraping egg masses from trees was thought to be a good tactic to reduce SLF populations (and may be satisfying), research has found that ~98% of SLF egg masses are beyond reach in a tree so most egg masses will be missed with this practice. Studies have found that treating egg masses with horticultural oil (3%) will reduce SLF populations. This is the recommended strategy at this time.

Tip Blight on Juniper

Marie Rojas, IPM Scout, found tip blight on *Juniperus* 'Spartan' (pic). Marie noted that it is not nearly as bad as in previous years. For more information on tip blights, see this Cornell University fact sheet.

Tip blight on juniper. Photo: Marie Roajs, IPM Scout

Landscape Anthracnose Diseases

By: David L. Clement, Extension Specialist, and Karen K. Rane, Plant Clinic Director

The recent rains and predicted warmer weather next week could initiate anthracnose fungal diseases of many of our common landscape trees, especially on sycamores, oaks and maples. Landscape tree anthracnose diseases include, *Apiognomonia veneta,* on sycamores, *Apiognomonia errabunda ,* on oaks, (previously known as *A. quericina* and *Discula quercina*), and *Aureobasidium apocryptum ,* (syn. *Kabatiella apocrypta*), *Discula campestris* and *Colletotrichum gleosporoides*is on maples.

Sycamore anthracnose infection.
Photo: Suzanne Klick, UME

In general, anthracnose diseases are often minor and reduce the aesthetic value of infected trees. Young recently transplanted trees are more susceptible to lasting damage while older, established trees typically suffer only minor growth losses. Healthy trees that are defoliated early in the growing season are often able to flush a new set of foliage and recover.

Anthracnose fungi usually overwinter within dead leaf tissue, infected twigs and buds. In the spring, fruiting bodies are produced and spores are spread by wind and splashing rainwater. Leaf symptoms are characterized by dark-colored, irregularly-shaped lesions, or blotches along the leaf midrib, primary veins and margins. Anthracnose fungi produce asexual spores (conidia) within pads of fungal tissue known as acervuli. These are easily visible within infected leaf tissue and can be found on the upper, or lower surfaces. Spores are produced whenever environmental conditions are favorable especially during cool rainy spring weather. Most anthracnose fungi have limited activity during mid-summer, when conditions are often warmer and drier. Symptoms can occur on twigs and buds and young shoots may be killed. In autumn, when cooler rainy weather returns, anthracnose pathogens often infect, and overwinter in senescing foliage as well as leaf buds, and younger twig tissue.

Management

Remove fallen leaves and prune infected twigs and branches, if possible, to reduce inoculum in the canopy. Pruning is not practical for large mature trees. Maintaining tree vigor through adequate fertilization, watering, mulching and pruning will help lessen the impacts of disease.

Reduce disease damage to sycamores by planting resistant cultivars of London plane trees and Oriental sycamores. Practices that increase air flow and sunlight penetration, such as thinning, can help to inhibit the pathogen by accelerating the drying of foliage after rain.

On young or stressed trees preventative fungicide applications should be applied at bud break at labeled intervals until foliage is fully expanded, or until dry weather prevails. Injections of labelled systemic fungicides can also be performed for large mature specimen trees.

Powdery Mildew Big on Euonymus Now

By: Stanton Gill

Paul Wolfe, Integrated Plant Care, reports seeing lots of powdery mildew on euonymus in the Rockville-Bethesda ares this week. The warm days and cool nights in March made perfect conditions for powdery mildew infection.

Eastern Tent Caterpillars

Paul Wolfe, Integrated Plant Care, found eastern tent caterpillars on a tree in Bethesda. Paul is not seeing many caterpillars this spring. Mechanical control works well. Reach into the tent, tear it open, pull out the caterpillars, and toss them in a bag and dispose of them. If necessary, you can also spray foliage with Bt or Conserve which give good control with minimal impact on beneficials.

Scale Insects

Before all of the trees leaf out is a good time to check trees closely for scale populations. Marie Rojas, IPM Scout, is finding Japanese maple scale on a variety of trees and white prunicola on species of *Prunus*, *Cladrastis*, and *Cornus* in nurseries this week. The first generation of Japanese maple scale crawlers will be active in late May to early June. Marie also found overwintering immature (2nd instar) tuliptree scale on *Magnolia* 'Dr. Merrill'. This scale and magnolia scale do not produce crawlers until later in the summer.

Distance or Talus can be used when crawlers are active.

Japanese maple scale on the trunk.
Photo: Marie Rojas, IPM Scout

Tuliptree scale overwinters in the second instar.
Photo: Marie Rojas, IPM Scout

Cicadas are NOT coming, cicadas are NOT coming!

By: Gaye Williams, MDA

Well, not the synchronized, red-eyed, periodical ones, anyway. Wrong insect information is swarming the news. Here is the real 411.

Except for a tiny, tiny, localized population in extreme Southern Maryland, our State will NOT experience any red-eyed emergence in 2024. Maryland's next BIG DEAL will happen in 2038. So, if you want to observe a periodical cicada event this year, you will need to head south and west. However, do remember that Maryland hosts several species of annual, non-coordinated cicadas that you will hear from June to mid-September.

* see map at cicadas.info/?page_id=96 or https://www.cicadas.info/wp-content/uploads/2021/04/map2021-scaled.jpg

Painted Hickory Borer

Tom Rojas found an adult painted hickory borer in a conservation planting on a farm in Montgomery County. This borer emerges in the spring. It looks a lot like the locust borer adult that emerges in late summer. You can find the painted hickory borer is stressed or recently cut hickory or other hardwoods. Don't be surprised if you see an adult emerging from cut firewood in your home.

Painted hickory borer adults are active in spring. Photo: Tom Rojas

Growing Season Fertility Management: Monitoring Root Zone Electrical Conductivity (EC) and pH

By: Andrew Ristvey

Once again, another growing year is upon us. Before long, we'll be in the thick of the summer heat; albeit this spring has been cool and wet. Given both weather conditions, I want to remind those managing container production systems, the importance of routine monitoring for soluble salts and pH. Being proactive is the easiest way to check the fertility status for container-crops and can save dollars when problems are caught early. Our plants held over from last year and top-dressed, or those newly potted with incorporated controlled release fertilizer may not be getting enough nutrients for spring growth because of cooler temperatures or because they are getting leached out from the rains.

Measurements of soluble salts or electrical conductivity (EC) of the substrate can help elucidate any fertility problems. While EC does not tell exactly which nutrients are available, it can assist in decision making about fertility and irrigation programs. There are several methods to choose from, which include Pour-throughs, tip tests, and media extracts like one-to-one or saturated media extracts (SME). These are also ideal for measuring

the substrate pH at the same time, which will aid in determining nutrient availability and will alert you as to whether potential deficiencies or toxicities may show up.

The Pour-Through procedure is easy. You simply wait about an hour after an irrigation event when containers are at water holding capacity. Simply find three to five containers randomly from a block or irrigation zone and tilt them at an angle sufficient enough to have water come out the bottom of the container. Collect the released water from each container in a small cup. Sample each container individually. You need only enough water to cover the EC and pH probes for an accurate reading. If you cannot retrieve a sample, simply pour a small amount of water evenly over the top of the container to displace the water at the bottom of the container. You need just enough the get that sample out the bottom of the pot.

Dr. Ted Bilderback from NC State University suggested EC's between 0.5 to 1.5 dS/m if you are using controlled release fertilizer and between 1.0 – 1.5 dS/m if you are using soluble fertilizer through your irrigation system. Don't forget to check the EC's of your irrigation water and subtract that value from your pour-through EC readings. For example, if you have an EC reading of 0.7 dS/m and your irrigation water is 0.2 dS/m, then your actual reading is 0.5 dS/m from the EC contribution of the fertilizer. If you are lower than 0.5 dS/m, you may be over-watering or your fertilizer isn't releasing enough for the plant's spring growth. However, if your EC's are *far above* the suggested value, you may need to irrigate. See the table below. A sustained level of 4.0 dS/M will cause root damage. Irrigate and dilute that sort of salt build-up in the containers. An EC of 1 dS/m in the morning can easily jump to 4 dS/m in the afternoon as plants pull more water than nutrients (salts) out of the potting medium, especially during warm days with high evapotranspiration potential. Remember to try and keep your leaching fractions (fraction of applied water that comes out the bottom of the pot) to less than 15% whenever possible.

A saturated media extract (SME) is done by taking a portion of the substrate from the lower half of the pot, and using distilled water, make a wet paste. Let sit for at least 30 minutes and squeeze a sample of liquid to measure. Do this with several containers to get an average. A one-to-one can be done by taking equal volumes of substrate and water, making an extract to measure similar to the SME.

The table below shows EC readings from these three methods and their indications.

1:1	SME	Pour-Through	Indication
0 to 0.35	0 to 0.50	0 to 0.50	Low - Nutrient levels may not be sufficient for some plants. High-end of range suitable for seedlings and salt sensitive plants.
0.35 to 1.25	0.50 to 2.0	0.50 to 2.0	Normal- Standard root range for most established plants. Lower-end range typical for normal fertility.
1.25 to 2.5	2.0 to 3.5	2.0 to 4.6	High- Suitable for salt tolerant plants but mid to high end of this range may damage roots.
2.5 to 3.50	3.6 to 4.5	4.6 to 6.5	Very High - May result in salt injury, reduced growth and root death. Dilution or leaching by irrigation necessary.
>3.5	>4.6	>6.6	Extreme - Immediate leaching required.

Disease Weather

By: Stanton Gill

Marie Rojas, IPM Scout, is reporting teliospore structures formation on native junipers in several locations in Montgomery County. We are seeing similar swelling in Carroll and Howard counties this week. If you are applying a preventative fungicide, then this is the time to get an application applied.

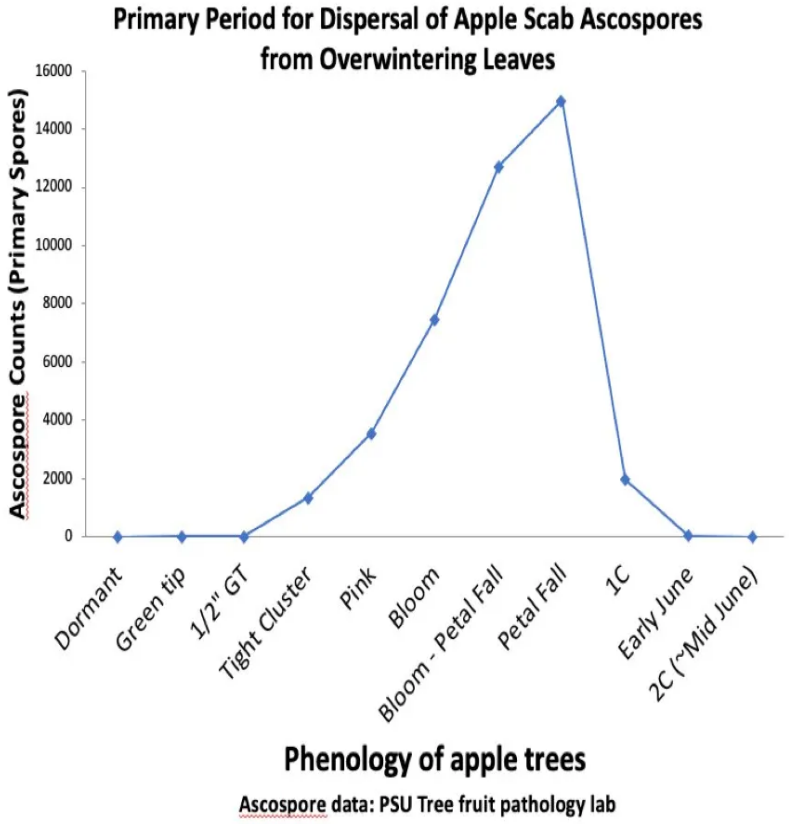
Kari Peter, Plant Pathologist, Penn State Extension, is reporting high rust and scab spore counts in her fruit report, so preventative fungicides need to go on now. Kari is also reporting powdery mildew on fruit trees, which is very early season infection occurring. Take action now.

2024 Disease Update:
Apple Scab and Brown Rot Blossom Blight Conditions Predicted for April 10 – April 12

By: Kari Peter, Penn State Extension

An apple scab infection event is forecasted for April 10 through April 12. Conditions are also favorable for brown rot infection of blooming stone fruit trees, so protection is necessary. It's déjà vu this week with another multi-day rain event. The conditions will favor apple scab for apple trees and brown rot blossom blight for stone fruit trees with blossoms open. Growers need to have trees protected with fungicides.

According to the apple scab model for orchards in southcentral and southeastern Pennsylvania, this week will be a major ascospore discharge for mature apple scab spores from overwintering leaves. We are not at peak spore maturity yet in these regions (this coincides with bloom); however, the number of available mature spores in the overwintering leaves ranges from 30–60% in these locations by April 12. This will be a major apple scab infection event. General tips for disease management during this time are discussed in this article.



Fruit Trees and Fertility

By: Stanton Gill

Fruit trees such as nectarine, apricot, peach and plums all benefit from an application of calcium nitrate in April. This shot of calcium and nitrogen is rapidly taken up with the new growth pushing out on these fruit trees this spring. We are starting our calcium nitrate application in our orchard this weekend. Now is a good time for similar applications in your customers' home orchards.

Get Ready for Spruce Spider Mites

By: Stanton Gill

Spruce spider mites were found on cryptomeria in Gaithersburg. (There is also a Maskell scale cover in the photo)
Photo: Heather Zindash, The Soulful Gardener

Degree days are starting to accumulate quickly with the warming weather this week. Reaching the predicted degree day level soon in many parts of the state, one of the mites that will be out very shortly is the spruce spider mite. Today, we received the first report of spruce spider mites. Heather Zindash, The Soulful Gardener, found them on cryptomeria in Gaithersburg. It overwinters as eggs and the protonymphs will be hatching soon. An excellent mite growth regulator we have used on this mite is Hexygon. TerraSan would also work as a mite growth regulator. Both of these products are ovicidal and control proto and deutonymphs stages. In our trials, we found 10 -14 days of activity against mites. Since new growth has not started on most junipers, Leyland cypress, and spruce, which are often infested with this pest, then a 1-2% horticultural oil could also be used.

Sapsucker Damage

Marie Rojas, IPM Scout, found yellow-bellied sapsucker damage on a row of Honeycrisp apples in Montgomery County. We also commonly receive reports of sapsucker damage on hollies and viburnums. In early spring, sapsuckers drill small, circular holes to get to sap flow in the xylem. Later in the season, they will make shallow, rectangular wells to feed on sap in the phloem. Sapsuckers also feed on insects and spiders.

Sapsucker damage on an apple tree trunk.
Photo: Marie Rojas, IPM Scout

Follow up to Caterpillars in Turfgrass

By: Stanton Gill

Well, the jury is in and the caterpillars are probably some type of cutworm, but definitely not fall armyworms which overwinter as pupae, not caterpillars.

Here is input form David Shetlar, retired entomologist with OSU:
This isn't the common armyworm, but one of the cutworm species. Our common armyworm overwinters as pupae and can emerge as adults early in the season, just in time for seeded corn to be attacked though I've seen them also attack winter wheat early in the season. I don't see the pebbled surface that is characteristic of the black cutworm that also flies in from the south and doesn't overwinter north of the Gulf States. So, it's too early to have common armyworms, black cutworms or fall armyworms in turf. I don't see the characteristic chevrons that would be expected with the winter moth (a new invasive that sometimes causes trouble in turf), nor the stripes characteristic of the bronzed cutworm (another winter-active species), or the series of white dots down the mid-dorsal line that is typical of the dingy cutworm.

I have had rare instances of the clay-backed cutworm and white cutworm causing damage during mild winter months, but the cutworm in the images doesn't have the characteristics of either of those cutworms. I would recommend that you get some of the caterpillars to a UDSA-APHIS identifier to get a correct identification and hope it's not a new invasive!

Here is input from Matt Batrone, Plant Diagnostic Clinic at NC State:
I don't know what it is, but it doesn't look like Mythimna (true armyworm): https://bugguide.net/node/view/10901 They do not have as distinct pinnacle and should have a white subdorsal line (also note the three thoracic stripes in Mythimna)

Remove the Twine

Joey Burke, Good's Tree and Lawn Care, found a newly planted tree in Harrisburg, PA, last week. He noticed that the twine was left around the base of this tree. Be sure to remove the twine when planting to prevent future girdling of the tree.

The twine left on at the base of this tree will cause girdling at the base of trunk as the tree grows larger.
Photo: Joey Burke, Good's Tree and Lawn Care

Beneficial of the Week

By: Paula Shrewsbury

***Bacillus thuringiensis* (Bt) – a formulated biocontrol for caterpillar control**

We are early in the season and so far, have seen Eastern tent caterpillar active and defoliating cherries and other tree species. One thing we can be sure of is there will be several other caterpillar species throughout the season with the potential for becoming pests and causing significant damage. Therefore, I thought it would be good to discuss *Bacillus thuringiensis* (Bt), a bacterial pathogen that kills certain insects. Bt is found in nature on leaves and in soil and is produced commercially. Commercially produced Bt is referred to as a formulated biological control. There have been biologically-based commercial products (also referred to as bio-pesticides) with *Bacillus thuringiensis* (Bt) strains as an active ingredient on the market for many years and sold under various product names. For example, the most commonly used products contain Bt *kurstaki* which target early instar caterpillars, and Bt *israelensis* which target fly larvae such as mosquitoes, black flies, and fungus gnats. Bt's are usually not considered "true" biological controls since they use toxins (crystalline endotoxins) that are produced from the bacterium, rather than the microbe itself. It is the toxin that is present in products sold commercially.

Bt *kurstaki* products are applied to foliage and when caterpillars consume the foliage, they ingest the crystalline endotoxin. When these endotoxins are eaten by a susceptible caterpillar, the endotoxin dissolves, toxins are released inside the caterpillar's gut, gut paralysis follows, and the caterpillar stops feeding. Death usually results from toxemia, bacterial infection, starvation or predation and may take 2-5 days to occur. In general, younger and smaller caterpillars are most susceptible to Bt *kurstaki*. However, caterpillar species also vary in their susceptibility to Bt *kurstaki*. Caterpillars that have high gut pH are the more susceptible. These include tobacco hornworm, cabbage looper, imported cabbage worm, cankerworm, bagworm, red-humped caterpillar, spruce budworm, spongy moth, and others.

It is nice to have a bio-insecticide "tool" in the pest management tool box for managing caterpillars, especially one that is caterpillar specific and less toxic to non-targets such as other natural enemies that also help to keep caterpillar populations from outbreaking.

The caterpillar on the top is infected with *Bacillus thuringiensis kurstaki* and the bottom caterpillar is not.
Photo from https://hort.extension.wisc.edu/

Weed of the Week

By: Nathan Glenn

As you are driving on country roads this spring, you may happen to see agricultural fields full of beautiful yellow flowers—or you may just see a few bunches on the side of the road here and there. This is yellow rocket, *Barbarea vulgaris*, is a common winter annual weed (and occasionally a biennial). Found throughout the eastern United States, it is member of the mustard family. This weed can reach a height of 30-90cm and can be found in lawns, landscapes, nurseries, and agricultural crops. Yellow rocket germinates in the cool, moist soil of the spring or fall, develops numerous stems branching from a basal rosette, goes to seed from May to June and usually dies due to the heat and drought of the summer. Seeds can persist in the soil for many years. It can become one of the early weeds that is noticed in the spring. The seedling leaves are egg-shaped and are attached to the rosette on long stalks. The leaves will have a small notch near the tip. True leaves are alternate, dark green and shiny, and become toothed with maturity. The terminal lobes have a heart-shaped base. Leaves can be two to eight inches in length and differ from wild radish as the radish will have stiff hairs covering the leaf. Yellow rocket has a taproot, with fibrous hairs radiating from it.

Basal rosette of yellow rocket.
Photo courtesy of Virginia Tech

Control can be achieved through deep tillage, hand pulling, proper mowing/grazing management (mow it right before seed set or flowering) and chemical control. There are no pre-emergent herbicides available to use against Yellow Rocket. Post emergent herbicide applications that have proven to be effective against this weed include 2,4D + MCPP + dicamba, diquat, flumioxazin, and glyphosate. Remember to always read and follow the label of any pesticide that you are using. The label is the law.

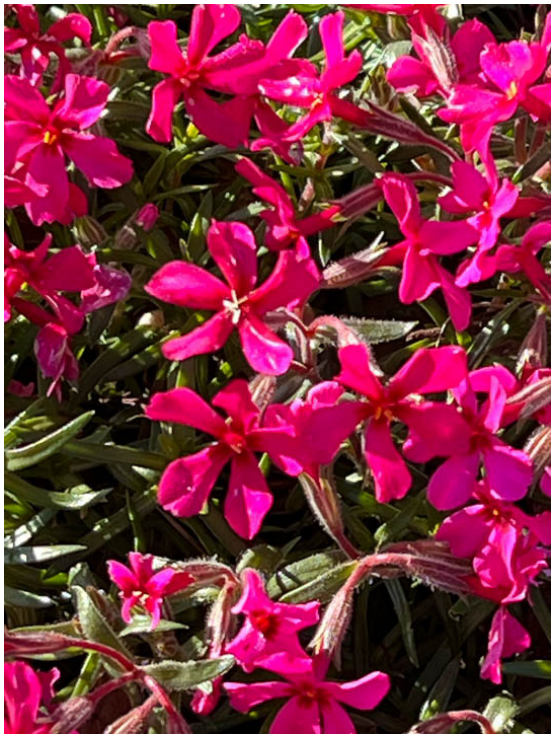
Seeds of yellow rocket can persist in the soil for many years.
Photo courtesy of Pete Landschoot, Penn State

Plant of the Week

By: Ginny Rosenkranz

Phlox subulata 'Scarlet Flame' is a colorful native herbaceous perennial that welcomes spring by blooming from mid-February into April, complementing the spring tulips and daffodils. *Phlox subulata* has many common names including moss phlox, creeping phlox and even alpine phlox to show off its winter hardiness from USDA zones 3 to 9. These hardy, semi-evergreen plants blanket the ground, growing 4- 6 inches tall and spreading 1 to 2 feet. They thrive in full sun and well-drained, hummus sandy or gravel soils. Afternoon dappled shade in the warmer zones is helpful, and the plants can be trimmed back up to half their height to encourage new growth. The tubular, lightly fragrant, scarlet-red 5-petal flowers have a distinctive notch on the outer rim. Many pollinators including bees and butterflies flock to the carpet of flowers. Because moss phlox naturalizes so well, these plants are excellent additions to sunny steep slopes where mowing grass could be difficult. They can also

be planted in rock gardens, in front of foundation plantings, and cascading slightly over low walls. The evergreen foliage has awl-shaped leaves. Plants are tolerant of deer, drought, and air pollution. Pests include spider mites in hot dry conditions and foliar nematodes damage the plants in wet conditions. Unlike the garden phlox, moss phlox is not susceptible to powdery mildew.



***Phlox subulata* 'Scarlet Flame' attracts early season bee and butterfly pollinators. Photo: Ginny Rosenkranz, UME**

Pest Predictive Calendar "Predictions"

By: Nancy Harding and Paula Shrewsbury, UMD

In the Maryland area, the accumulated growing degree days (**DD**) this week range from about **81 DD** (Martinsburg) to **221 DD** (St. Mary's City). The Pest Predictive Calendar tells us when susceptible stages of pest insects are active based on their DD. Therefore, this week you should be monitoring for the following pests. The estimated start degree days of the targeted life stage are in parentheses.

White pine weevil – adult first activity **(84 DD)**
Eastern tent caterpillar – egg hatch **(86 DD)**
Boxwood spider mite – egg hatch **(141 DD)**
European pine sawfly – larva, early instar **(154 DD)**
Woolly elm aphid – egg hatch **(163 DD)**
Inkberry holly leafminer – adult emergence **(165 DD)**
Spiny witchhazel gall aphid – adult/nymph **(171 DD)**
Boxwood psyllid – egg hatch **(184 DD)**
Tea Scale – egg hatch / crawler (1st gen) **(195 DD)**
Hemlock woolly adelgid – egg hatch (1st gen) **(197 DD)**
Viburnum leaf beetle – first egg hatch **(210 DD)**
Azalea lace bug – egg hatch (1st gen) **(214 DD)**
Birch leafminer – adult emergence **(215 DD)**
Elm leafminer – adult emergence **(219 DD)**
Roseslug sawfly – egg hatch / early instar **(230 DD)**
Honeylocust plant bug – egg hatch **(230 DD)**
Elongate hemlock scale – egg hatch / crawler (1st gen) **(232 DD)**
Boxwood leafminer – adult emergence **(249 DD)**
Hawthorn lace bug – first adult activity **(259 DD)**

See the Pest Predictive Calendar for more information on DD and plant phenological indicators (PPI) to help you better monitor and manage these pests.

Degree Days (as of April 10)

Annapolis Naval Academy (KNAK)	125
Baltimore, MD (KBWI)	140
College Park (KCGS)	131
Dulles Airport (KIAD)	164
Ft. Belvoir, VA (KDA)	162
Frederick (KFDK)	130
Gaithersburg (KGAI)	117
Greater Cumberland Reg (KCBE)	121
Martinsburg, WV (KMRB)	81
Millersville (MD026)	103
Natl Arboretum/Reagan Natl (KDCA)	208
Perry Hall (C0608)	103
Salisbury/Ocean City (KSBY)	157
St. Mary's City (Patuxent NRB KNHK)	221
Susquehanna State Park (SSQM2)	116
Westminster (KDMW)	162

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 map Model Category: All models Select Degree-day calculatorThresholds in: Fahrenheit °F Lower: 50 Upper: 95 Calculation type: simple average/growing dds Start: Jan 1

Conferences

April 19-20, 2024
Youth Arboriculture Career Expo
Location: Gallaudet University
For more info: 202-826-6314

May 2, 2024
Pest Walk in Salisbury
Location: Salisbury University

May 22, 2024
MAA Pest Walk
Location: CMREC, Ellicott City, MD

June 4, 2024
MNLGA Program: Focus on Garden Centers
Location: Ladew Gardens, Monkton, MD

June 5 and 6, 2024
Biological Control Conference for Greenhouses, Nurseries, and Landscapes
Location: Central Maryland Research and Education Center, Ellicott City, MD

June 14, 2023
Eastern Shore Pesticide Recertification Conference
Location: via Zoom

June 20, 2024
UMD Extension and MNLGA Technology Field Day for Nurseries
Location: Ruppert Nurseries, Laytonsville, MD

June 28, 2024
Procrastinator's Pesticide Recertification Conference
Location: Montgomery County Extension Office, Derwood, MD

September 17 and 18, 2024 (rescheduled from March)
Cut Flower Program
Locations: Central Maryland Research and Education
Center, Ellicott City, MD and locations in Howard Co.

October 9, 2024
MNLGA Retail Day
Location: Homestead Gardens, Davidsonville, MD

Go to the IPMnet Conference Page for links and details on these programs.

Sustainable Horticulture Program at CCBC - Dundalk and Hunt Valley

Below are all the upcoming offerings from the Sustainable Horticulture Program. It may seem early to be thinking about summer and fall classes, but some classes are already filling up! Links to each attached flier are in the information below.

Summer classes: Start June 4th and end August 9th. (10 weeks). Two classes are offered: HORT 111 Herbaceous Plants on Tuesday evenings at CCBC Hunt Valley and HORT 134 Landscape Installation, Construction, and Maintenance on Fridays at CCBC Dundalk. Link to flier: Summer classes
Fall classes: Start August 26th, ends December 8th (15 weeks). Link to flier: Fall classes

The Basic Horticulture Technician Certificate Program: the Sustainable Horticulture Department is again offering full Scholarships for the Basic Horticulture Technician Certificate Program for the 2024 Fall Semester at CCBC Dundalk. This is an excellent way for a student to get started in Horticulture. Classes are every Thursday and Friday, for the fall semester (15 weeks total). Students take 4 courses, for a total of 12 college credits. Applicants must be college ready and academically prepared to take 4 college courses in 1 semester. Basic Hort. Technician Certificate.

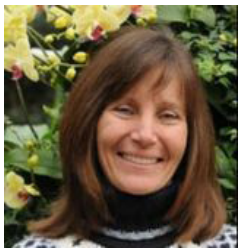
The "Earn and Learn" opportunity with CCBC, called the American Landscape Institute or ALI for short. ALI is a scholarship program for high school graduates that combines paid employment with an 80% tuition scholarship to take horticulture classes. When students complete the 8 semester, 39 credit-program, they earn their Certificate in Landscape Design, Installation and Maintenance from CCBC. And after completing the program, each graduate receives their 20% tuition contribution back in the form of a check. They graduate debt free! Visit the ALI website to learn more about this unique program and to download the application: americanlandscapeinstitute.com Or contact me, Martha Pindale 410-688-5115 mpindale@ccbcmd.edu
For information on all of CCBC Sustainable Horticulture Certificates and AAS Degree, please contact Winny Tan. She will gladly answer questions and help with the registration process. Office: 443-840-3787 or wtan@ccbcmd.edu

Full Time (9-Month) Teaching Faculty Position in Horticulture and Landscape Design.**Northern Virginia Community College, Loudoun Campus**. For the full job description and to apply visit: https://jobs.vccs.edu/postings/71216. The *deadline to apply is May 19th, 2024.* This position would start in August for the Fall 2024 semester. The Horticulture Technology Program at Northern Virginia Community College (NOVA) in Sterling, VA, is looking to fill a full time (9-month) teaching faculty position. We are seeking qualified applicants with a variety of subject matter expertise including in Horticulture, Landscape Design and Landscape Architecture. Ideal applicants will be able to teach some of the following course subjects: Introduction to Horticulture, Plant Propagation, Plant Identification, Plant Pest Management, Woody Plant/Tree Identification, Site Analysis, Planting Design, Plant Composition, Landscape Design, Landscape Drawing Applications. Our state-of-the-art facilities include a modern 5,200 sq. ft. greenhouse, teaching gardens and dedicated classrooms with studio and laboratory spaces for horticulture and landscape design. The program offers students two different degree plans: a Horticulture Technology AAS and a Landscape Design Specialization AAS. For more information on the Horticulture Technology Program at NOVA, please visit: https://www.nvcc.edu/academics/programs/horticulture-technology.html

---

CONTRIBUTORS:

Stanton Gill
Extension Specialist
sgill@umd.edu
410-868-9400 (cell)



Paula Shrewsbury
Extension Specialist
pshrewsb@umd.edu

Karen Rane
Plant Pathologist
rane@umd.edu

Chuck Schuster
Retired, Extension Educator
cfs@umd.edu

David Clement
Plant Pathologist
clement@umd.edu

Andrew Ristvey
Extension Specialist
aristvey@umd.edu

Ginny Rosenkranz
Extension Educator
rosnkrnz@umd.edu

Nancy Harding
Faculty Research Assistant

Fereshteh Shahoveisi
Assistant Professor
fsh@umd.edu

Kelly Nichols
Extension Educator
kellyn@umd.edu

Thank you to the Maryland Arborist Association, the Maryland Nursery, Landscape, and Greenhouse Association, Professional Grounds Management Society, and FALCAN for their financial support in making these weekly reports possible.

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