

Commercial Horticulture

June 14, 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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Japanese Beetles

By: Stanton Gill

We had a wet period in 2018 during the egg laying time for Japanese beetles. When soil moisture levels are high, the survival of Japanese beetle larvae in turfgrass areas tends to be high. The result is that we have a healthy population of adult beetles emerge the following season – which would be NOW in June of 2019. Reports are coming in of beetle emergence. Andrew Ristvey found an adult Japanese beetle on *Itea virginica* and *Vitis* sp. that had just emerged in Wye Mills on June 8. Steve Dubik, UME, found one around evergreens in Laytonsville on June 12. Mark Schlossberg, ProLawn Plus, Inc., found them in Ellicott City on June 12. So, watch this week throughout the area and you will find the first emergence of adult Japanese beetles.



Japanese beetle adult beetle activity is just getting started in the area this week
Photo: Andrew Ristvey

It is important to protect highly susceptible plants such as flowering plums, grapes, roses, and birches. Once the adult beetles start feeding, volatiles from

the damaged foliage carry through the air and other adult beetles will focus in on the newly damaged plant. A feeding feast will then start. Brian Kunkel, University of Delaware, and I conducted trials with new systemic insecticides in 2016 through 2017 for adult Japanese beetle control. Acelepyrn and Mainspring as foliar sprays gave excellent control of adult Japanese beetles. We also tested the bacteria, *Bacillus thuringiensis*, subspecies *galleriae* sold under the name beetleGone and at the high rate of 100 oz./100 gallons of water gave fairly good control for 3 – 5 days.

Bagworms

Bagworms have hatched in the area. Steve Dubik found a first instar bagworm on *Salix tristis* in Laytonsville on June 12. Heather Zindash, IPM Scout, found them covering a *Metasequoia glyptostroboides* in Clarksburg. Jeff Lavrusky, Brightview, found hatching larvae in Frederick on June 13. Check where you have infestations or susceptible plants such as arborvitae, spruce and Leyland cypress. Bagworms are also found on deciduous trees and herbaceous plants, but the damage is usually less evident.

At an IPM Scouts' session this week, Steve Clancy, Town Creek Landscaping, brought in a sample of *Thuja* 'Green Giant' with a girdled stem. Last fall, female bagworms produced silk that was wrapped around the stem which caused this damage

Control: It is best to control them while they are still small. Check to make sure eggs have hatched before making any treatments. Bt (Dipel, Caterpillar Attack), Spinosad (Conserve) or Acelepyrn will all give good control of young larvae.



It is best to treat when bagworms are still small
Photo: Heather Zindash, IPM Scout



In the fall, female bagworms apply silk around stems which can cause girdling

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Catalpa Sphinx Moth Caterpillar

Marie Rojas, IPM Scout, found catalpa sphinx moth caterpillars feeding on catalpa in Gaithersburg on June 12. There are multiple generations throughout the season, so look for this caterpillar from June through early fall. Damage from this caterpillar tends to increase as we move into July.

Control: Parasitic wasps help keep caterpillar populations in check. Bt can be used for small larvae and other labelled insecticides for larger caterpillars if needed.



Catalpa sphinx moth caterpillars will be active throughout the summer
Photo: Marie Rojas, IPM Scout

Greenstriped Mapleworm Caterpillar

Marie Rojas, IPM Scout, found greenstriped mapleworm caterpillars on *Acer rubrum* in Gaithersburg on June 12. Look primarily for this native giant silkworm feeding on maples, especially red maple, sugar maple, and silver maple. However, it does also feed on boxelder and oaks especially where grown mixed in with maples. Early stage larvae tend to feed in groups, consuming whole leaves and late-stage larvae tend to separate and feed singly. There are two generations a year.

Monitoring: Look for damage on foliage of lower branches of susceptible maples during the months of May and July.

Control: Greenstriped mapleworms have been shown to be parasitized by several species of insects, but not in great abundance. Normally, chemical control is not necessary. However, if high populations warrant control, use *Bacillus thuringiensis* or spinosad (Conserve).

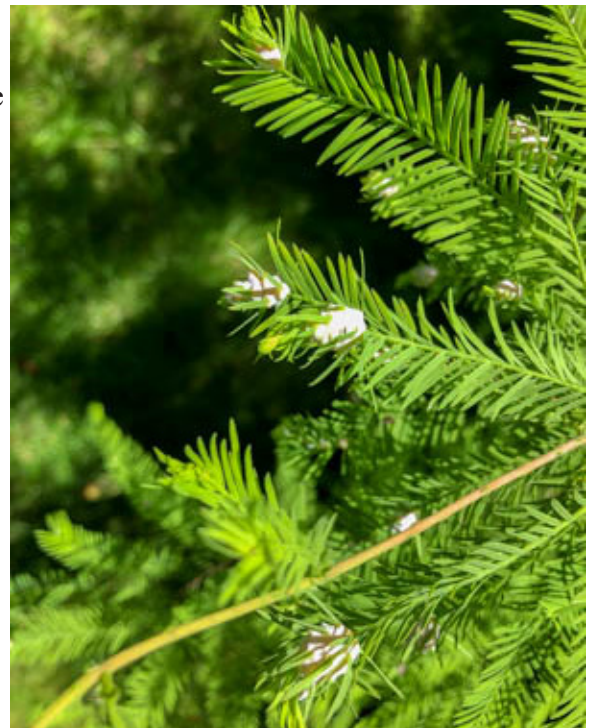


Note the two conspicuous long black spines on the second segment of the thorax
Photo: Marie Rojas, IPM Scout

Twig Gall on Taxodium

Elaine Menegon, Good's Tree and Lawn, found baldcypress twig gall midge on *Taxodium distichum* in Harrisburg, PA on June 11. Marie Rojas, IPM Scout, found these galls in Gaithersburg on June 12. There are two generations per year.

Control: Pruning can be done to reduce the number of galls present. Remove and destroy dropped galls in fall or spring to reduce the numbers of the next generation of adults that will emerge next spring. There are several species of wasps that parasitize gall-forming insects and help reduce the number of galls formed. Pesticides are usually not recommended. Timing of chemical controls is critical because applications need to be made before galls begin to form.



A midge causes these twig galls on baldcypress
Photo: Elaine Menegon, Good's Tree and Lawn

Japanese Maple Scale

By: Stanton Gill

I examined Japanese maple scale in Westminster this week on June 5th and crawlers were out and active. Distance or Talus can be applied if you are finding crawlers in your area.

Dutch Elm Disease

By: Rachel Ross and Karen Rane, UMD Plant Diagnostic Lab

Dutch Elm Disease is a vascular wilt disease of American elm (*Ulmus americana*) caused by the fungi *Ophiostoma novo-ulmi* and *O. ulmi*. DED is typically spread from infected trees to healthy trees by the native elm bark beetle as well as the European elm bark beetle. The pathogen may also spread through the root system of infected trees to nearby healthy elms via root grafts.

The most common symptom expresses in late spring/early summer as individual branches with wilted leaves that progress from yellow to brown (Figure 1). This symptom is called “flagging”. As the disease progresses, larger branches will develop wilted foliage, and leaf drop may occur. Trees may be killed within 1-3 years of initial infection. You may also observe vascular discoloration/streaking on affected branches when the bark is peeled back to expose the wood (xylem) (Figure 2). In cross-section, the discoloration occurs as a dark ring in the outer wood, or a ring of dark spots. If you see this type of streaking, send a sample at least ½ inch in diameter from a recently wilted branch to a diagnostic lab for confirmation.



Figure 1. “Flagging” elm branch due to Dutch Elm Disease.
Photo: Roland Stipes, Virginia Tech, bugwood.org



Figure 2. American elm tree showing typical flagging and dieback symptoms due to Dutch elm disease.
Photo: C. Kaiser, U. of KY, Bugwood.org



Figure 3. Dark brown streaks in wood of recently wilted branch.
Photo: R. Ross, UMD

This disease is extremely difficult to manage. Removal of flagging branches as soon as symptoms are observed can help limit spread of the pathogen. It is important to make pruning cuts several feet below any noticeable streaking in the wood. Fungicide injections can protect high value healthy landscape elms from infection, but requires repeated treatments every 1-3 years by a trained arborist. Sanitation – removal of dead and dying trees – is critical to slow disease spread by removing bark beetle brood sites and a source of fungal inoculum. There are several cultivars of American elms that are resistant to this disease, including cvs New Harmony, Princeton, Valley Forge and Jefferson. Slippery elm (*U. rubra*) another native elm species, varies from susceptible to somewhat resistant. Japanese elm (*Ulmus davidiana* var. *japonica*) and Chinese elm (*U. parvifolia*) are highly resistant.

Information from the UMD Home and Garden Information Center on Dutch Elm Disease can be found at <https://extension.umd.edu/hgic/topics/dutch-elm-disease-trees>. A fact sheet on this disease from the University of Massachusetts can be found at this [link](#).

Tulip Tree and Its Problems in Urban Landscapes

By: Stanton Gill

Last week, we showed a picture of a tulip tree in which high winds snapped off large branches. This week, Heather Zindash, IPM Scout, sent in a series of pictures of tulip tree aphids (*Illinoia liriodendri*). Marie Rojas, IPM Scout, also found these aphids on tulip tree in Gaithersburg on June 12. The aphids are feeding heavily in June and dropping honeydew in large quantities on decks, sidewalks and driveways in residential landscapes. Sooty mold often grows on this high sugar material and turns the surface black. She also sent in pictures of lacewings and ladybird beetles feeding on these aphids at the same time. Marie was also finding beneficials at work. This activity is biological control working to reduce the aphid population. The problem is that there just are not enough of them to make much of a difference in an urban setting. This tulip tree is next to a restaurant, and the honeydew was dripping down on tables, chairs, and customers. You could apply a systemic insecticide early in the season to prevent the aphid build-up, but with large tulip trees, it would be a fair amount of chemical and expense. Tulip tree is a great native plant and belongs in wooded landscapes, but think twice before planting it near buildings, decks, pools, or restaurants.



A nymph (above) and winged adult (right) of tulip tree aphids
Photos: Heather Zindash, IPM Scout



A lacewing larva feeding on a tulip tree aphid
Photo: Heather Zindash, IPM Scout

Fruit Tree Diseases and Insects

By: Stanton Gill

In an IPM Alert earlier in the season, we sent out a notice that the opportunity to treat for disease and insect activity was upon us. This week, we are receiving samples from landscapers with customers who did not treat correctly and are now showing disease and insect damage symptoms on their fruit. Robert Mulloy sent in a picture of an apple tree covered with cedar apple rust. This rust has been very active over the last 60 days, and the symptoms are now showing up in June. The pictures below show peaches with oriental fruit moth damage and plum curculio damage from David Krimis. Several landscapers are reporting that customers' apple, plum, and pear trees are dropping fruit in June. This June drop is common when we move into warmer weather and the plant cannot support all of the fruit it set. It will stop in July.

This apple tree is infected with cedar apple rust
Photo: Robert Mulloy



Oriental fruit moth damage and plum curculio damage are showing up on peaches at this time
Photos: David Krimis

Rust on Fruit

Marie Rojas, IPM Scout, reported a really bad rust infection on the fruit and stems of *Amelanchier x grandiflora*, *A. laevis*, and *A. 'Autumn Brilliance'*. Fungicides had been applied to these plants this spring.

Rust is severely infecting the stems and fruit on serviceberry
Photo: Marie Rojas, IPM Scout



Drone Nursery Update

By: Stanton Gill

We tested out the spray drones at Country Springs Nursery this week. We evaluated water treatments on *Thuja* ‘Green Giant’ to see what sort of spray distribution we can get at pre-determined speeds, gallons per acre, and heights over the plants. The winds were fairly strong (8 – 9 mph) and really impacted the water droplets we got on the spray indicator cards. Each time we do these trials, we learn a little more in perfecting the use of drones in nurseries. Meanwhile, Kirk Floyd tells me that the FAA published a 240-page report that defines the new limitation on drone use in the US. It will require that all drone operators take a test and become certified pilots. It will start being enforced over the next year. This change will tighten up the loose laws around amateurs using drones in the US.



Water is being applied from a drone with a spray tank to test spray coverage on plants using spray indicator cards as shown on the right

Potato Leafhoppers

Marie Rojas, IPM Scout, reports that potato leafhoppers are causing hopperburn on *Acer rubrum* in Gaithersburg on June 12. Look for leafhoppers on plants such as redbud, zelkova, river birch, maple, goldenrain tree, elm, honeylocust, sycamores, and London plane trees. Potato leafhoppers tend to be a problem on nursery trees and are not as likely to be found in high numbers on landscape trees. Potato leafhopper feeding causes the tip growth on maples to curl over and harden which is typically referred to as ‘hopperburn’. The multiple generations keep damaging the new tip growth that flushes out on the maples. If you are growing susceptible trees in the nursery, then now is the time to apply a systemic insecticide.



Potato leafhopper nymph on red maple

Boxwood Problems

Jean Scott was visiting Belvedere Castle in Vienna, Austria this week and wanted to share that boxwood plants even have problems in high profile areas like Belvedere Castle.

On a more local scene: Boxwood leafminers have hatched and are in the 1st instar stage this week in central Maryland. We also found boxwood mites active on upright boxwoods in Clarksville this week.



Problems on boxwood noted in Austria while traveling
Photo: Jean Scott

White Pine Weevil Damage

Marie Rojas, IPM Scout, found white pine weevil feeding causing terminals to flag on *Pinus strobus*, *Picea abies*, and *Picea omorika* in Beallsville and Gaithersburg. Last week, weevils and damage were found on *Picea pungens*. Feeding by larvae causes the tips of white pines and spruces to flag. Larvae pupate in late July within the infested terminal. Adults emerge in late July and August and overwinter in leaf litter. There is one generation per year.

Control: At this time of year, prune out flagging terminals. Next year, monitor for adult activity in March and April. To prevent damage, treat terminal growth when the adult activity is noted among conifers.



Flagging terminal on blue spruce caused by white pine weevils and a close-up of the larvae in the tip
Photos: Marie Rojas, IPM Scout

A Local Pesticide Law Upheld

By: Stanton Gill

We were informed that the Montgomery county pesticide ban on lawns goes into effect immediately. Homeowners cannot use fungicides, insecticides or herbicides on lawns in Montgomery County. They will start enforcement immediately. Anyone applying pesticide to a lawn should be reported to the Montgomery County Environmental Protection agency. This bill passed in Montgomery County Bill 52-14 bans almost all pesticides for use on “lawns.” There was a lawsuit filed in Circuit Court: Complete Lawn Care vs Montgomery County, MD. In this case, the judge overturned the County pesticide ban August 2017. The County then appealed to the MD Special Court of Appeals and the Circuit Court Ruling was overturned by the Special Court of Appeals on May 2, 2019. For more information, contact Paul Wolfe, Integrated Plant Care, at 301-881-8130.

Willow Sawfly

Kevin Jardine, NexGreen, found willow sawflies feeding on hybrid willows in a landscape in Frederick on June 11. There are two generations each year. First generation larvae feed in May and June. A second generation is active starting in July and continues through the end of the season. Heavy populations can cause significant damage and can reduce overall growth, especially of young trees.

Control: For small populations, physically removing young larvae is an option. Insecticidal soap or horticultural oil can be used, but be sure to make contact with the larvae. For heavier infestions, options include spinosad (Conserve) or acephate (Orthene).



Willow sawfly larvae are feeding heavily on this hybrid willow
Photo: Kevin Jardine, NexGreen

Drift or Volatilization?

By: Chuck Schuster

During the last three weeks, I have been receiving phone calls and plant samples with concern over misapplication of products. These photos represent the damage incurred by some of our best indicator crops found in the landscape. Drift occurs when an application moves off target at the time of application. This damage can be from wind speed during application, which should never be above 10 mph or when wind direction is moving toward a susceptible crop, site, or planting. Volatilization occurs after the product has been applied and landed on the desired plant, but later returns to a gaseous form and can move with air currents.

The tomato plant in the top two photos below were in a situation where the application of a herbicide was made, but no drift occurred. After the material dried, the area, which has a building abutting the turf, created a warmer area than the surrounding open areas and the material in question was able to return to a gaseous form and move to the nearby tomatoes. It was initially believed that the problem came from pesticide contaminated soil, but that potential has been eliminated. It should be noted that a broadleaf plant has started to grow in the same soil as the tomato and has not been effected.

The second two photos are an example of what happens to a stand of grapes when certain herbicides are used in the nearby area. These plants may have received drift or volatilization related damage, the complete circumstances are not known. The damage is very characteristic of the growth that has been damaged by either a phenoxy or benzoic acid type of herbicide. 2,4-D is a phenoxy herbicide and dicamba is a benzoic acid type of herbicide. Both of these products are excellent herbicides and do a great deal to help deal with many broadleaf weeds. Care must be taken in utilizing them and making sure they do not harm the landscape plantings near the turf, and also do not damage plant material nearby (up to a half mile away) because of temperature changes. Both drift and volatilization are operator error related. Read the directions carefully in regards to the needed amount of carrier to be used, product rates, the sprayer pressures and particle sizes and also temperatures to be concerned with. Any pesticide can drift, only certain pesticides can volatilize. Use caution and common sense.



Damage to these tomato plants was caused after volatilization of an herbicide occurred

Photos: Chuck Schuster



An herbicide was applied near these grape plants; damage could be from either drift, volatilization, or both

Photos: Chuck Schuster

Maple Petiole Borers

Marie Rojas, IPM Scout, found maple petiole borers feeding on *Acer rubrum* in Gaithersburg on June 12. The damage usually occurs in the spring on new tip growth on 1 to 2 year old maples. This sawfly larvae causes growing tips to flag. There is one generation per year.

Control: Prune out damaged branches.

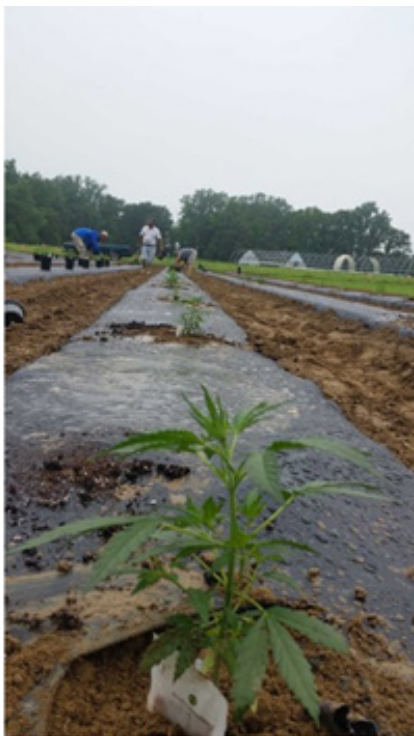
Maryland Industrial Hemp Pilot Program Research Underway

By: Andrew Ristvey

In April, the IPM alert featured an article about the industrial hemp pilot program in Maryland. Since that time hemp plants have been delivered to most of the UMD partners including the plant varieties that we will be studying nitrogen recommendations on. We have noted a few problems already, and not unexpected. First, several growers have experienced stem collapse with cuttings from suppliers outside of Maryland. It is possible that a cultural practice of stripping lower leaves and branches after cuttings are rooted may be introducing disease. At the UMD Plant Diagnostic Lab, botrytis and fusarium were found on the stem tissue and in the roots, respectively.



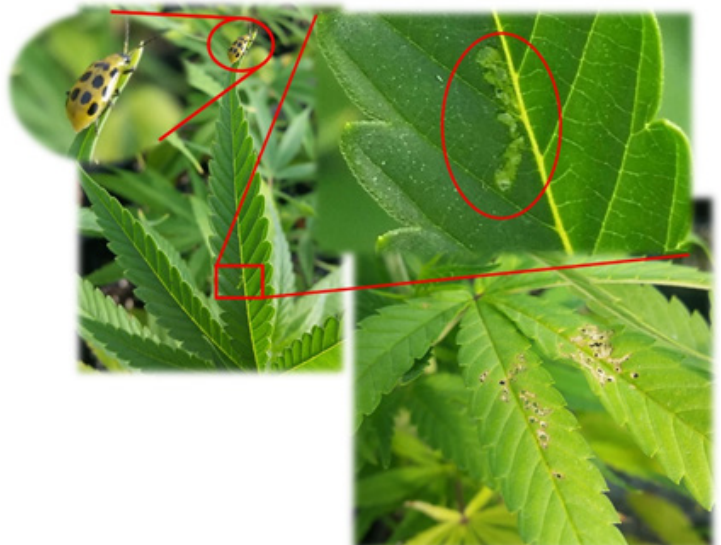
Mechanical damage from stripping branches off stem may introduce disease like botrytis.



Hemp trials for nitrogen rates at a UMD REC.

At one of our research and education centers, our nitrogen rate studies are underway for three industrial hemp varieties. For these varieties, the production method is not different than tomato culture. Plants are placed at 6 foot on center in row to maximize air circulation.

Spare plants in the greenhouse are being monitored. A cucumber beetle was caught in the act of leaf-chewing. This is obviously a new food item for this beetle. At this time, there are no insecticides, herbicides or fungicides that can be applied to this new crop, according to Maryland Department of Agriculture.



Photos by Andrew Ristvey

When pest problems occur, no pesticides can be used at this time according the MDA

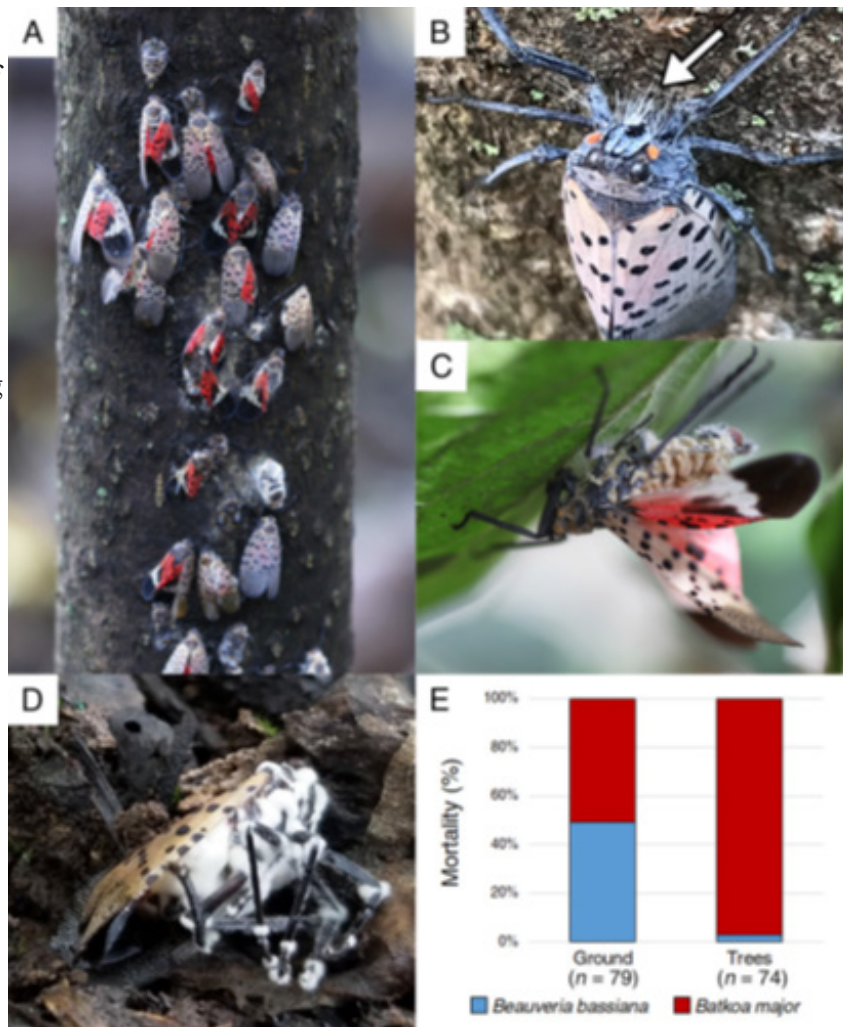
Beneficial of the Week

By: Paula Shrewsbury

Native pathogens attack the invasive spotted lanternfly.

We seem to be hearing about the introduction of new, invasive, non-native pests on a regular basis. Many of which result in extensive detrimental economic and environmental impacts to urban and natural forest, landscape, and agricultural environments. Two major reasons that these invasive insects (and diseases) do so well in their newly introduced range are the lack of natural enemies and plant defenses. Few natural enemies in the introduced range attack the new pest, and they usually do not bring natural enemies from their native range with them. In addition, since the introduced pest and the native plants in the introduced range have no co-evolutionary history, native plants do not have any kind of defense (ex. chemical or morphological) against the introduced pest. The lack of these natural forces that often keep pests at bay, result in a relatively rapid establishment and dispersal of the introduced, non-native pest. Fortunately, with time, **sometimes** native, generalist natural enemies begin to attack the invasive pest and provide some suppression. It appears to be the case with brown marmorated stink bug where there is a native, generalist egg parasitoid and several generalist predators that attack this stink bug and contribute, along with other factors, to their suppression.

One of the most recent invasive insects threatening U.S. plants and agriculture is the spotted lanternfly (SLF), *Lycorma delicatula* (Hemiptera: Fulgoridae). SLF is native to China, India, and Vietnam. It has invaded South Korea, Japan, and most recently the U.S. where it was first detected in Pennsylvania in 2014. Since then SLF has been found in MD (Cecil Co.), DE, VA, NJ, NY, CT, and MA ([map](#)). SLF is a generalist herbivore and feeds on ornamental and fruit trees, hops, grapes, and more. SLF is a sucking insect that taps into the phloem tissue of its hosts and excretes an abundance of honeydew that results in heavy amounts of black sooty mold. Those of you who have not seen images or videos of how large the populations of SLF can be on individual trees, you should go to one of the information sites below. The densities are truly amazing and we are still learning what impact these not so little suckers will have on various host plants. The densities, biology and dispersal to date suggest that this pest has potential to be devastating.



(A) *Lycorma delicatula* (SLF) during the epizootic: only one of these adults was alive and the remainder had been killed by the fungus *Batkoa major*. (B) Rhizoids from *B. major* (arrow) attaching a dead adult to a tree. Image courtesy of Kelly Murman (photographer). (C) Adult cadaver with wings and legs extended outward as *B. major* conidia are released from the abdomen. (D) Adult killed by *Bacillus bassiana*. (E) Percent SLF killed by either pathogen on the trees or surrounding ground. Sample size is below each bar. (From publication: A pair of native fungal pathogens drives decline of a new invasive herbivore. Eric H. Clifton, Louela A. Castrillo, Andrii Gryganskyi, and Ann E. Hajek. *Proceedings of the National Academy of Sciences*. April 22, 2019. <https://doi.org/10.1073/pnas.1903579116>.)

Nevertheless, there is a bright side to this story! Researchers from NY and PA have recently [published](#) the results of their studies on two native fungal entomopathogens (insect killing pathogens) that are infecting SLF that were on tree of heaven (*Ailanthus altissima*) in PA. Two fungal pathogens, *Batkoa major* and *Beauveria bassiana*, were found to cause a co-epizootic that led to the collapse of a localized outbreak of SLF. An epizootic is an outbreak of a disease in an animal population that can result in a collapse of the population at a localized or wide spread level. Since there are two fungi attacking SLF it is referred to as a co-epizootic event. Interestingly, these fungi have partitioned the habitat such that the majority of SLF on the trunks of trees are infected and killed by *B. major* while *B. bassiana* killed the SLF found on the ground (see box E of image). Dead SLF on the trees were attached by fungal rhizoids (see box B of image). You could say the fungi were “sharing” the resource. Also good news was that the fungi killed most female SLF before they were able to oviposit eggs. See the other images to see what signs of infection by *B. bassiana* (see box D of image) and *B. major* (see boxes A, B, and C of image) look like. The studies show promising results for biological control of SLF. More studies and field observations are needed to determine what level of suppression the two native fungi will provide of SLF.

More information on the study of native fungi attacking the non-native spotted lanternfly is in the original [publication](#).

For additional information on spotted lanternfly go to:

Penn State Extension - <https://extension.psu.edu/spotted-lanternfly>

Pennsylvania Department of Agriculture - https://www.agriculture.pa.gov/Plants_Land_Water/PlantIndustry/Entomology/spotted_lanternfly/Pages/default.aspx

MD Department of Agriculture - <https://mda.maryland.gov/plants-pests/Pages/spotted-lantern-fly.aspx>

If you believe you have found SLF in MD, please contact the MD Department of Agriculture at: 410.841.5920 or DontBug.MD@maryland.gov

Weed of the Week

By: Chuck Schuster, UME

Horsenettle, *Solanum carolinense*, a member of the nightshade family, is a perennial plant found in the southeastern United States in turf, nursery, and landscape settings. It currently is in bloom in many parts of Maryland. Horsenettle can grow to a height of three feet, though most often is found growing to less than twelve inches. The leaves are simple, elliptical in shape, occur on a petiole, and are alternate on the stem. Leaves have short thorn-like projections on the midrib and petiole (photo 2). When crushed, the leaves omit an odor similar to a potato. Roots are a deep spreading rhizome. Stems are angled at the nodes (photo 3), become woody as the plant matures and have thorn-like projections and star-shaped hairs. The flowers develop on a flower stalk, have five white to violet petals, and are star-shaped with a cone-shaped yellow center (photo 4). The flower stalk will also have thorn like projections. Horsenettle will have a one half inch diameter berry, starting out green and turning yellow, the fruit that dries to a wrinkled berry containing many small seeds. Similar to clammy groundcherry, yet clammy groundcherry does not have the thorny stems and leaves.



Photo 1: Look for horsenettle in bloom at this time

Control of horsenettle in turf can be achieved by mowing. Dense turf prevents horsenettle from thriving. In landscapes and nursery, prevention is important. For plants that do become established use of post emergent products containing glyphosate is useful as a spot spray. Some of the new non selective materials including Prizefighter Pulverize and Burnout, will require several application's as this is a perennial, but will work. Selective post emergent products are less than successful in control of this weed and can be problematic in a nursery or landscape setting.



Photo 2: Leaves have short thorn-like projections on the midrib and petiole



Photo 3: Stems of horsenettle are angled at the nodes

Photos: Chuck Schuster



Photo 4: Note the yellow, cone-shaped center of horsenettle

Plant of the Week

By: Ginny Rosenkranz, UME

Zizia aurea, golden Alexander, is a native herbaceous perennial that blooms from April to June with clusters of up to 20 tiny bright yellow flowers on a starburst flat topped bouquet about 2-3 inches across. The flowers look a bit like Queen Anne's lace in form. Plants are erect with branching reddish stems, and the medium green basal leaves are compound with toothed leaflets as are the leaves on the stems. The plants can reach a height of 1.5 to 3 feet and spread up to 2 feet and grows best in full sun with moist, well drained soils. Cold hardy from USDA zones 3-8, the plants can be utilized in rain gardens, native plant gardens or in open woodland gardens. Flowers are a good source for cutting and attract a large number of native butterflies while the foliage is plant food for the caterpillar of the black swallowtail butterfly. There are no serious pest problems, but the foliage fades during the heat of summer. Golden Alexander is a short-lived perennial, but makes up for its short life by creating many seeds.



Zizia aurea, golden Alexander, is plant host for the black swallowtail butterfly
Photos: Ginny Rosenkranz

Pest Predictive Calendar “Predictions”

By: Nancy Harding and Paula Shrewsbury

In the Maryland area, the accumulated growing degree days (DD) this week range from about 938 DD (Cumberland) to 1390 DD (Reagan National Airport). 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:

- Japanese maple scale (1st generation) crawlers
- Cottony camellia/taxus scale crawlers
- Calico scale crawlers
- Mimosa webworm egg hatch/early instar
- Japanese beetle adult emergence
- Fletcher scale crawlers
- Indian wax scale crawlers
- Cryptomeria scale (1st generation) crawlers
- Cottony maple scale crawlers

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 June 12)

Due to a calculation error, DDs last week were high. Last week's [report](#) posted online has been corrected.

Abingdon (C1620)	1059
Annapolis Naval Academy (KNAK)	1357
Baltimore, MD (KBWI)	1191
College Park (KCGS)	1104
Dulles Airport (KIAD)	1134
Frederick (KFDD)	1147
Ft. Belvoir, VA (KDA)	1242
Gaithersburg (KGAI)	1081
Greater Cumberland Reg (KCBE)	938
Martinsburg, WV (KMFB)	1024
Natl Arboretum.Reagan Natl (KDCA)	1390
Salisbury/Ocean City (KSBY)	1204
St. Mary's City (Patuxent NRB KNHK)	1314
Westminster (KDMW)	1220

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 calculator Thresholds in: Fahrenheit °F Lower: 50 Upper: 95 Calculation type: simple average/growing dds Start: Jan 1

LIFE CYCLE INFORMATION NEEDED for the PEST PREDICTIVE CALENDAR - PLEASE HELP!

We need information on the timing of activity of the susceptible life stages for key pest insects (ex. first crawler activity of gloomy scale, obscure scale, and magnolia scale; egg hatch of caterpillars; or first activity of two-spotted spider mite). With this information, we can increase the usefulness of our UME [Pest Predictive Calendar](#)

When reporting insects for the IPM report, please be sure to also include the following: Date, Location (city, state), insect stage (if known), and plant host. If you are unsure of the stage or species identification, please get a sample to us. You can mail it to: Stanton Gill, CMREC, 11975 Homewood Road, Ellicott City, MD, 21042 OR Nancy Harding, 4291 Fieldhouse Drive, 4112 Plant Sciences Building, Dept. of Entomology, University of Maryland, College Park, MD, 20742.

MDA Container Recycling Program

See the [MDA brochure](#) for locations and dates for the 2019 MDA Container Recycling Program

CONFERENCES

Maryland Christmas Tree Association Summer Meeting
Saturday, June 22, 2019
Location: Taylor Sines Woodlake Tree Farm, Oakland, MD
For more info contact: Joncie Underwood@410.398.1882

All Day Session on Herbaceous Perennials
July 25, 2019

Location: The Perennial Farm in Glen Arm, MD
Registration info will be posted at the [MNLGA calendar](#)
site when available

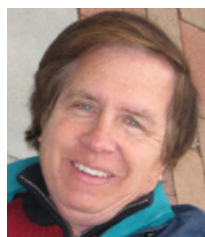
Green Industry Professional Field Day and Trade Show
July 18, 2019, 7:30 a.m. – 2:30 p.m.

Location: American University | 4400 Massachusetts Avenue, NW, Washington, DC 20016
Presented by [PGMS DC Branch](#), NVNLA, VA Cooperative Extension, and in cooperation with the MAC-ISA

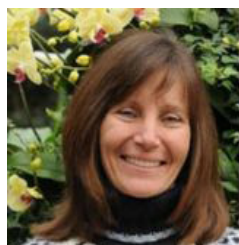
LCA Plant Diagnostic Program

August 14, 2019
Location: Ag Farm Park, Derwood, MD

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Thank you to the Maryland Arborist Association, the Landscape Contractors Association of MD, D.C. and VA, the Maryland Nursery and Landscape Association, Professional Grounds Management Society, and FALCAN for your financial support in making these weekly reports possible.

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