

Commercial Horticulture

October 7, 2022

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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 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)

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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) and David Clement (Extension Specialist)

Weed of the Week: Chuck Schuster (Retired Extension Educator) and Kelly Nichols (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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Cool Weather of Early October

By: Stanton Gill

Hurricane Ian blew in colder than normal weather this last week. We are getting reports from several nursery owners that sugar maples in nursery rows are starting to show their brilliant fall color as of October 1 in the central part of Maryland. Even some of the walnut trees are showing yellow fall color according to Donna Davis, former forester in Carroll County. On October 4, 2022, it was a record cold day for this early in October according to NOAA.

We are seeing a lot of hyperactivity of female praying mantids and female assassin bugs. They are busy feeding like crazy after mating with males. We will start to see the females laying egg masses as October progresses on.



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Look for wheel bug eggs this fall on woody plants

Spotted Lanternfly Update

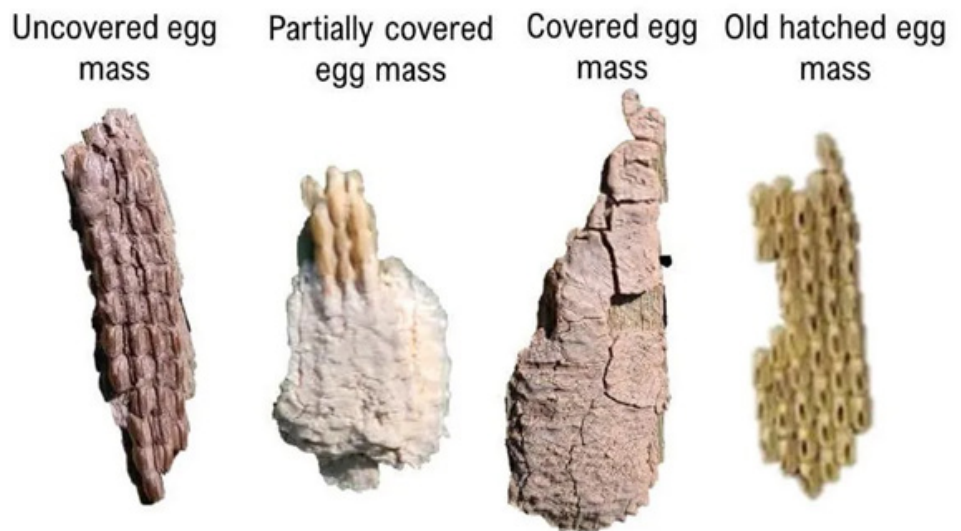
By: Paula Shrewsbury, UMD

This week we continue to see significant spotted lanternfly (SLF) adult activity which includes feeding, excreting honeydew, flying, mating, and the deposition of egg masses. Adult activity is reported to last into November. After that time, you will only see the overwintering stage of SLF – egg masses. Egg masses are covered with a gray-brown substance, flat, and laid on many surfaces, most commonly trees but also structures, stone, wood, and other locations in the landscape and nursery (see images). On trees, egg masses are usually laid on the underside of tree branches, where abundant numbers of egg masses can be found on numerous branches.

Continue to control SLF adults now. Management of SLF should currently consist of monitoring for areas with high densities of SLF adults, as indicated by visual observation especially in areas where there is an abundance of honeydew / sooty mold present on understory plants. If high levels of SLF are present, consider tactics to reduce those populations. In addition to other management tactics, research from Pennsylvania recommend applications of systemic insecticides to **target adults** be applied from July to September. If you haven't applied controls yet, it is getting late. Review the [Spotted Lanternfly Management Guide](#) from Penn State Extension for management options at this time. The more adults you can kill and the sooner you kill them, should result in fewer egg masses that contribute to next years populations.

Target SLF egg masses during the dormant season. An additional management tactic to put in your SLF management plan during the dormant season is to **target the overwintering egg masses**. Physical removal by scraping the egg masses off their substrate will provide the highest rate of mortality (all the eggs you remove die). Unfortunately, research has found that less than 2 percent of egg masses laid on trees are at a reachable height. Research conducted in Greg Krawczyk's lab (Penn State Extension) evaluated a number of insecticides and their ovicidal action against SLF eggs (2018 to present). Although many

synthetic insecticides were evaluated, they found that the most effective products were oils (ex. horticultural oil). All studies were done on intact egg masses (with covering) (see image) between February and April. Greg and his colleagues found: “*When oils were applied at a solution of at least 3 percent, they were effective in killing up to 75 percent of treated eggs. One of the most important parts to getting effective control is to make sure you have good coverage and apply the oil solution directly to the egg masses. The only plant-based oil, soybean oil, had similar control of SLF egg masses when applied at a 50% concentration. Oils, when applied at the correct time and with good coverage, can offer some control of egg masses and have very little non-target effects. The use of oils provides not only a safe, environmentally friendly option but also provides control to some egg masses that are not accessible for physical removal or smashing. However, for egg masses that are within a reachable area, smashing or scraping the egg masses will provide greater efficacy than the ovicides currently available*” (from [What should you do with SLF egg masses?](#)). As always when using dormant oils, follow the label instructions.



Variations in spotted lanternfly egg masses including color (yellow, gray, brown) and their covering.
Photo: Heather Leach, Penn State Extension

To learn more about controlling SLF **adults**, Penn State Extension has put out a helpful online guide, [Spotted Lanternfly Management Guide](#).

To learn more about what can be done with SLF **egg masses** (overwintering stage) to suppress SLF populations, review the Penn State Extension article “[What should you do with spotted lanternfly egg masses?](#)” This includes information on physical tactics and chemical (ovicidal) options.



Spotted lanternfly egg masses on a red maple in a residential landscape in Washington County MD. These were the first SLF egg masses reported in MD this year on Sept. 23rd.

Photo: Josh Warner, Antietam Tree and Turf

Spotted Lanternfly

By: Stanton Gill

Ed Snodgrass, Emory Knoll Farms, pointed out to us that the spotted lanternfly made the Saturday Night Live broadcast last week. This insect is getting a lot of press. We will leave it up to you to if you want to search for the YouTube SNL link.

Armored Scale on Chinese Holly

By: Stanton Gill

John Hochmuth brought in an interesting armored scale on Chinese holly. It is *Chrysomphalus bifasciculatus*, which is a polyphagous scale from Asia. It has two reported generations per year with one in May, and the second one in late July to early August. Horticulture oil applied in early November should help suppress this armored scale. Following up with Talus or Distance in May would be very worthwhile.



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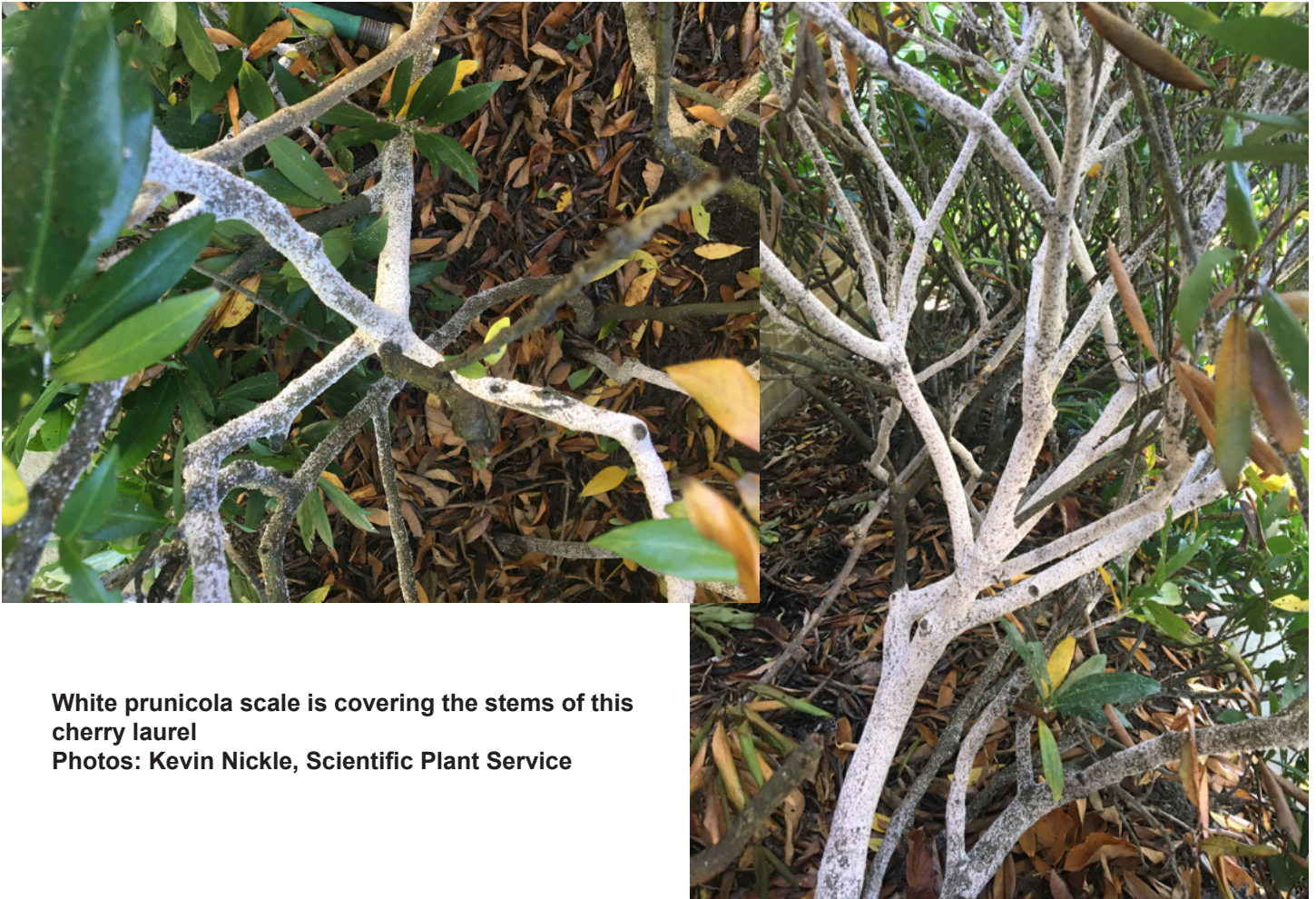
Stages of *Chrysomphalus bifasciculatus* armored scale on Chinese holly.

Photos: Sheena O'Donnell, UME

White Prunicola Scale

By: Stanton Gill

White prunicola scale are mainly in the 1st and 2nd instar stages this week. Kevin Nickle, Scientific Plant Service, sent in great pictures of white prunicola scale heavily infesting a cherry laurel.



White prunicola scale is covering the stems of this cherry laurel
Photos: Kevin Nickle, Scientific Plant Service

Interesting Side Note on Daikon Radish

By: Stanton Gill

Three issues ago in the IPM alert, I wrote an article on using daikon radish in the nursery and landscape. I mentioned that I have been growing it in my orchard for the last 9 years. Don't worry, it still works well. I expanded my use of daikon in 2022 around the trees. In one open field area that had no trees planted, I seeded three, 100 ft rows heavily with daikon radish back on August 15, 2022. It came in thick and beautiful. David Clement and I showed this planting during a diagnostic entomology and pathology class last Saturday how beautifully it had come up and was 12" tall already. We commented on how this fit in with IPM in improving soil structure and fertility.

I walked past an open field planting and noticed the foliage growth was considerably shorter. It turns out this was a salad bar planting for deer. They are loving the tops of daikon radish. I checked under my several thousand trees in the orchard rows and the daikon is fine with no deer feeding. The open field planting is apparently highly attractive to deer feeding. Oh well, this will fatten them, up for hunters to enjoy this fall.

Mite on a Popular Garden Center Group of Plants - Citrus?

By: Stanton Gill

Citrus plants have become a very popular plant for garden centers to sell to homeowners over the last 5 or 6 years. Since citrus greening is taking out citrus in Florida, nurseries in the south are looking for other places to market citrus plants. Many have been wholesaling orange, lemons, and kumquats to retail garden centers to sell on to the public.

Information that should be passed along to these customers is that the citrus is susceptible to several species of mites which are also shipped up when plants arrive in Maryland. When they move their plants indoors in November and hold them in the house over the winter, many times these mite populations explode with the dry air that is common with house plants when the heating system kicks on and the humidity level drops.

Rust mites, spider mites, and broad mites historically cause economic damage to citrus plants. Last week, we mentioned a group of mites called flat mites, (family Tenuipalpidae). Flat mites can be added to the mites that cause damage on citrus plants. Flat mites use their chelicerae to pierce plant cells, causing a silver stippling to foliage. The silver stippling will turn brown as the cell go necrotic.

The citrus rust mite and the pink citrus rust mite are other mites that feed on fruit and leaves, which causes damage to epidermal cells. Spider mites are found primarily on mature leaves. Unlike rust mites, spider mites feed underneath the epidermis in the palisade cell layer. Spider mite feeding causes mesophyll tissue to collapse, resulting in small chlorotic spots called “stippling”.

Broad mites are particularly important in greenhouse settings and on lemons and limes. Broad mites primarily feed on the youngest and most tender leaf flush tissues. New leaf growth is distorted by a toxicant in the saliva that is injected by these mites. These mites actually flourish in the high humidity situations of July though September.

Control options: I grow a fair number of citrus plants at our orchard in 20- to 40-gallon pots. During the summer, we apply 0.5 horticultural oil using a mist blower/sprayer if mite activity is detected. In October, we will lay the potted citrus on its side and hit plants with 1 – 2% horticultural oil to reduce mite populations before they are moved indoors in November. This application will kill many eggs, protonymphs, deutonymphs, and adults with a least toxic approach.

Cooler Than Normal Summer

By: Stanton Gill

The Old Time Farmer’s Almanac predicted that the summer of 2022 would be hot and dry. NOAA’s long-range prediction for the East Coast was cool and wet for the summer of 2022. **NOAA also predicted it** would be hotter and dryer than normal for the west and mid-west. Looks like NOAA won this season. It has been a cooler than normal summer here in Maryland. Sure, we had two or three hot periods of 5 – 7 days, but not a grueling heat where temperatures soared like they did 2 – 3 years ago with temperatures reaching over 100 °F.

It is interesting to note that in the last week I received 3 emails from landscapers managing their customers’ plants who were all noting that their customers were commenting that their figs are smaller and green as we move into October with little ripening occurring. Figs are a Mediterranean crop and love the heat. They grew vigorously with the rains this summer, but with the cooler temperatures it has not been ideal for ripening of this fruit. There are micro-environments in metro areas. I have seen figs ripening in Baltimore City and in Takoma Park, but these city areas retain heat with the building structures creating a good environment to ripen this fruit.

Seedless Grapes That Fit an IPM Approach

By: Stanton Gill

Over the last 20 years, I have been growing seedless grapes. Some are more disease and insect resistant than others. Last week, we harvested the last of the seedless grapes. There are couple of ones that stand out and are winners because of disease tolerance. Keep in mind, they are more disease tolerant, but this does not mean you can get by without applying fungicides during the early part of the season and during rainy summers. These three cultivars all came out of the work by John Clark at the University of Arkansas. The one I have been growing for the longest time is *Vitis labrusca x vinifera* 'Saturn'.



Recently harvested seedless grapes
Photo: Stanton Gill, UME

From the University of Arkansas, these large, reddish, seedless grapes are also proven in the Pacific Northwest, where they ripen in late September/early October (although they are considered a mid-season, they ripen in hotter parts of the US). Fruit is sweet and flavorful; vines have average vigor, good disease resistance, and are very productive. They grow in USDA Zone 6-9.

The other grapes released by John from the University of Arkansas are 'Joy' and 'Faith'. Both cultivars have a little thicker skin that appears to make them a little less susceptible to black rot disease. They both have performed well for me over the last 4 years.

If you are Interested in Fruit Production: Montgomery College, Germantown Campus will be offering a 2-credit class entitled Advanced Fruit Production with IPM Emphasis. The class will be online for the lectures and with 4 Saturday field labs. The course can be taken either for college credit or audit. It will be offered on Tuesday and Thursday evening from 5:30 – 9:30 p.m. from mid-December 2022 to the end of January 2023. The class is listed as January under HORT, Germantown Campus. LNTP 171 Advanced Fruit Growing with Emphasis on IPM. This is part of the Environmental Horticulture and Sustainable Agriculture 2-year degree program. For more information contact Steve Dubik at Steve.Dubik@montgomerycollege.edu.

University of Maryland Extension Job Opening

UME's Home & Garden Information Center has an opening for a part-time Horticulture Consultant to answer gardening, landscaping, and pest questions from Maryland and D.C. residents using the web-based "Ask Extension" platform. Bachelor's degree required. Location is the Central MD Research & education Center in Clarksville, MD. \$20.86/hr. **Send resume or questions to Jon Traunfeld; jont@umd.edu**

Dogwood Sawfly

Rachel Rhodes, UME-Queen Anne's County, found late season activity of dogwood sawfly larvae last week. This sawfly will overwinter in the pupal stage in the soil and leaf litter. Next year, monitor red twigged and yellow twigged dogwoods for feeding activity to control dogwood sawfly early in the season.



There is still some activity of dogwood sawfly larvae
Photo: Rachel Rhodes, UME

Buck Rub

Elaine Menegon, Good's Tree and Lawn Care, noticed buck rub on several ginkgo trees in Mechanicsburg, PA on October 3. She reported that out of 14 trees, they damaged 5 trees and 3 trees may not make because of the damage the deer did.

As deer activity increases, be on the lookout for them as you are driving throughout the area.



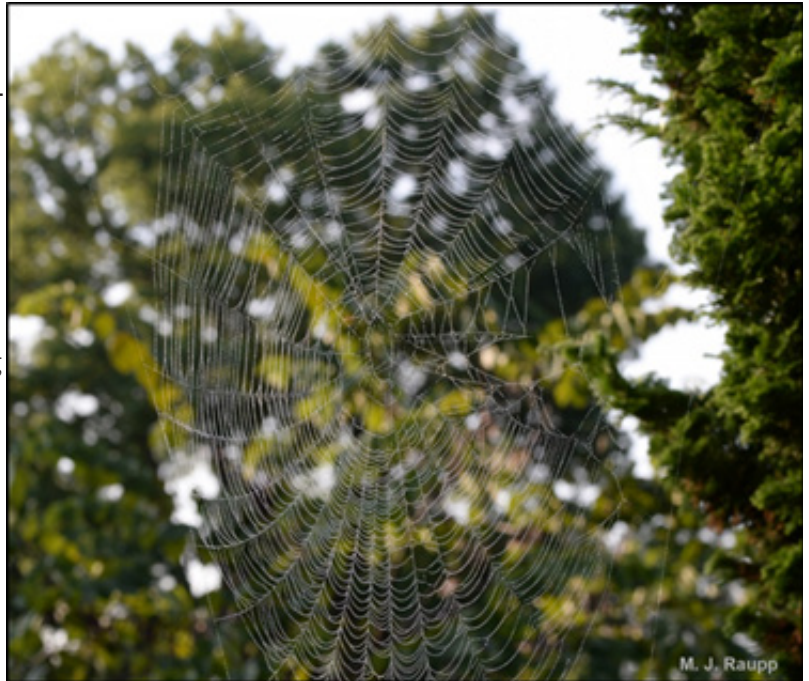
Look for damage on trees from buck rub.
Photo: Elaine Menegon, Good's Tree and Lawn Care

Beneficial of the Week

By: Paula Shrewsbury

It's that time of year to be on the lookout for black and yellow garden spiders and their webs.

During the last few weeks, several people have reported seeing black and yellow garden spiders, *Argiope* species (family Araneidae, known as orb-weavers), and their webs. Both the spider and the web can be quite large and are difficult to miss. *Argiope* spiders, and their orb-weaver relatives, have spent the season consuming an abundance of prey and are now large and mature spiders. Over the next month or so, female black and yellow garden spiders will mate and be producing egg sacs, which is their overwintering stage. The black and yellow garden spider is common and quite noticeable, although some individuals may be unpleasantly surprised if they walk into a web unexpectedly (I know this from experience!). *Argiope* garden spiders have distinctive bright yellow and black markings on their abdomens and are mostly white on their cephalothorax (the head – thorax area). The body of the female ranges in size from about $\frac{3}{4}$ – $1 \frac{1}{8}$ " but she seems much larger due to her long legs.



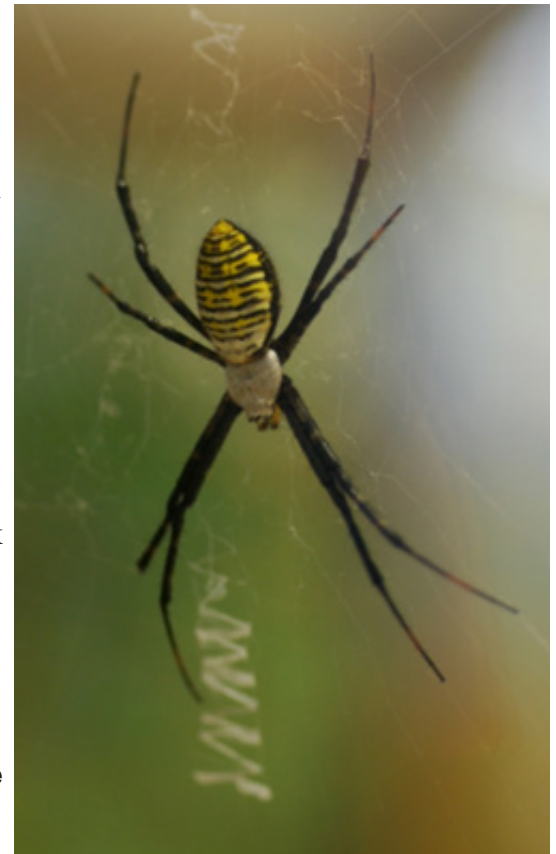
A fine morning mist reveals the beautiful web of an orb-weaver spider.

Photo: M.J. Raupp, UMD

Females are larger and often more colorful than males. Garden spiders often build their webs 2 – 8' above the ground and span them between structures (ex. tree branches or a house and tree or shrub) where they can attach the ends of their web. Their orb web consists of radial silk threads like the spokes of a wheel and spirals of sticky capture-threads that circle around the radial threads (see image). Each capture-thread has a core of silk supporting scores of tiny droplets of viscous glycoproteins. These glycoproteins give the web its stickiness to aid in catching prey. Female built webs are usually larger than male built webs. These webs are often found near light sources since lights attract many insects at night. High insect traffic increases the likelihood of catching prey in your web. A smart and efficient urban adaptation! Garden spiders may be active during the day or at night. Somewhat unique to spiders that hang out on their web (vs hiding somewhere out of sight of their predators) is a zig-zag pattern of thick webbing in the center area of the web called a stabilimentum. The purpose of the stabilimentum is somewhat debated. It may function to camouflage the spider in the web from its predators, it may attract prey, or it may warn birds (or people) that a web is present by making it easier to see - all good hypotheses.

A black and yellow garden spider in her web waiting for lunch to come along. Note the stabilimentum (zig-zag pattern of thick webbing).

Photo: P. Shrewsbury, UMD



The Argiope garden spider has many interesting behaviors. When a prey item lands in the female spider's web, she begins to rhythmically flex and extend her abdomen and legs which gets the large web swaying, almost like a person swinging on a swing. This common behavior of orb weavers is referred to as web-flexing ([see this video of web-flexing](#)) and the movement is believed to cause prey to become further entangled in the web. This behavior likely has other purposes too. The spider then touches several strands of her web with her legs which seems to help her locate the prey. These spiders are known to eat prey, often insects, which can be up to twice their size. When a prey item is caught up in the web, the spider swiftly approaches it, kills it by injecting its venom, and then quickly spins the dead prey while wrapping it in silk. The silk comes from spinneret structures at the tip of the spider's abdomen and the spider uses its legs to maneuver the silk and neatly wrap up its dinner. This all happens amazingly fast and is quite exciting to watch ([see this video of an Argiope spider with its brown marmorated stink bug prey](#))! For those of you who are Lord of the Rings fans you may recall the wicked spider that captured and wrapped Frodo as he was on his journey to return the ring. The spider may devour the prey immediately following wrapping or wait and eat it later. Prey for Argiope spiders include a range of insects such as aphids, bugs, flies, bees and wasps, moths, or other flying insects. Also interesting, the spider consumes the circular part of its web nightly and rebuilds it with new silk every morning. Wow! That seems like a lot of work. The male spider "courts" the female by approaching her web and plucking strands of silk to attract her. Once mating occurs, the male dies and is sometimes eaten by the female. You have to get nutrition where you can! Each female may lay 1-4 egg sacs which are 5/8 – 1" in diameter (about the size of a ping pong ball) which she attaches to her web. Each egg sac may produce over a thousand spiderlings. The egg sacs are often kept near the center of the female's nest where she protects it until she dies. Females die with the first hard frost. Spiderlings hatch in the spring.

Be careful as you are walking between rows of nursery trees or among landscape trees and shrubs. It is a little disturbing to get the black and yellow garden spider's web in your face, and the spider has worked pretty hard to make that web!

Weed of the Week

By: Chuck Schuster

Japanese knotweed, *Polygonum cuspidatum*, is a native of Eastern Asia that was introduced into the United States in the late 1800's as an ornamental. It is an herbaceous perennial that grows in an upright shrub form, reaching heights of ten feet and more. This invasive perennial is found in landscapes, abandoned areas, will tolerate full shade, high temperatures, salinity and even drought, but prefers moist sites.

Leaves are arranged alternately on the stem, being five to six inches long and three to four inches wide, in a broad oval or egg shape with a pointed tip. Rhizomes that produce new plants help promote the thicket growing pattern of this plant. It is often relocated in contaminated soil. Stems are hollow, jointed and when mature will resemble bamboo. Each joint will have a thin membranous sheath encircling the stem. Flowers are small and white in color, are found in clusters four to five inches in length, that are found at the junction of the leaf petiole and the stem.



The rhizomes of Japanese knotweed contribute to the thick-et-growing pattern of this plant

Photos: Ginny Rosenkranz, UME

Prevention is often better than attempting control. Be very cautious about your source of soil and what it may contain. Fill dirt can bring many plants you do not want. Control can be obtained by grubbing out new plants, remembering that any portion of the rhizome left behind will generate a new plant. Cut stem applications work well in most temperatures unless the ground is frozen. Products that can be used include 25% glyphosate, triclopyr (Garlon) with a follow application on new seedlings. Foliar applications can be used for large areas using a 2% glyphosate or triclopyr with a surfactant. This method requires active growth and temperature above 65 °F. Active growth is very important, as when drought stressed the applications of herbicides may not bring results.

Plant of the Week

By: Ginny Rosenkranz

Vernonia noveboracensis, New York ironweed, is a lovely herbaceous native perennial that blooms from August to September. Plants thrive in medium to wet soils in full sun, often found in drainage ditches. New York ironweed is a clump forming upright plant growing 4-6 feet tall and 3-4 feet wide and is cold hardy in USDA zones 5-9. The composite blooms are created by combining many tiny deep pink-purple fluffy flowers in loose terminal clusters that sit on stiff leafy stems. As a native plant, the New York ironweed is visited by many of our native pollinators and birds, providing nectar during the late summer into the beginning of autumn. The flowers mature into rusty colored seed clusters. Leaves grow on the stems in an alternate fashion and look similar to Joe Pye weed. Plants can thrive in rain gardens and in the back of meadows, wildflower gardens, borders and Cottage gardens due to the height of the blooms. There are no serious insect or disease pests and although they are listed as deer tolerant, it depends on the population of the deer.



New York ironweed flowers
Photo: Ginny Rosenkranz, UME

Degree Days (as of October 5)

Aberdeen (KAPG)	no data
Annapolis Naval Academy (KNAK)	3966
Baltimore, MD (KBWI)	4010
College Park (KCGS)	3690
Dulles Airport (KIAD)	3791
Ft. Belvoir, VA (KDA)	3787
Frederick (KFDK)	3551
Gaithersburg (KGAI)	3565
Gambrils (F2488, near Bowie)	3802
Greater Cumberland Reg (KCBE)	3424
Martinsburg, WV (KMRB)	3345
Natl Arboretum/Reagan Natl (KDCA)	4340
Salisbury/Ocean City (KSBY)	3994
St. Mary's City (Patuxent NRB KNHK)	4405
Westminster (KDMW)	4094

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

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 **3345 DD** (Martinsburg, WV) to **4405 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.

- Banded ash clearwing borer – adult emergence (**3357 DD**)
- Tuliptree scale – egg hatch / crawler (**3519 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.

2023 Advanced Landscape IPM PHC Short Course

This is a recertification short course for arborists, landscapers, IPM consultants, horticulturalists, professional gardeners, and others responsible for urban plant management. The course LECTURES will be VIRTUAL (online). In addition, there will be an IN-PERSON LAB held over two days (available to a limited number of course attendees) at the UMD, College Park, MD. Coordinators: Drs. Paula Shrewsbury and Mike Raupp, Dept. of Entomology, University of Maryland

Lecture (virtual) Dates:

Tuesday, Wednesday, Thursday mornings; January 3, 4 and 5 AND January 10, 11, and 12

Lab (in-person) dates: Tuesday and Wednesday January 17 and 18

Course and Registration Information: <https://landscapeipmphc.weebly.com/>

Questions contact: Amy Yaich, 301-405-3911, umdentomology@umd.edu

Conferences

October 19, 2022

FALCAN's Truck & Trailer Safety Seminar

Location: Urbana Fire Hall

[For details and to register](#)

December 8, 2022 (Morning session)

Turf Nutrient Management Conference

Location: Carroll Community College

December 15, 2022

Advanced Integrated Pest Management Conference

Location: Carroll Community College

Program will be submitted for ISA CEUs and Pesticide recertification credits.

January 11-13, 2023

MANTS

Location: Baltimore Convention Center

January 3, 4 and 5 AND January 10, 11, and 12, 2023

UMD IPM Short Course

Lecture times: 7:45 am – 11:30 am Eastern Standard Time

Location: Virtual via Zoom

2 day in-person lab (8:00AM - 3:00PM)

Lab dates: Tuesday and Wednesday January 17 and 18 (8:00AM - 3:00PM)

Location: In person at University of Maryland Campus, College Park, MD

Course and Registration Information: <https://landscapeipmphc.weebly.com/>

Questions contact: Amy Yaich, 301-405-3911, umdentomology@umd.edu

January 17 and 18, 2023

MAA Winter Conference

Location: Turf Valley, Ellicott City, MD

January 27, 2023

FALCAN Conference

Location: Frederick Community College

February 6, 2023

Western Maryland Pest Management Conference

Location: Allegany Fairgrounds, Cumberland, MD

February 15, 2023

2023 Eastern Shore Pest Management Conference

Location: Salisbury, MD

February 16 and 17, 2023

Chesapeake Green Horticultural Symposium

Location: Maritime Institute, Linthicum Heights, MD

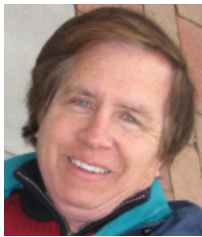
September and October Solar Workshops

Registration is required for these free workshops

go.umd.edu/Solar2022

Commercial Ornamental IPM Information
extension.umd.edu/ipm

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