

Commercial Horticulture

September 9, 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

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Scale on Deciduous Magnolia

By: Stanton Gill

Tuliptree scale on magnolia is in the crawler stage this week. The crawlers are black and moving out onto the newer stems 1 and 2-year old stems of the trees.

Talus or Distance (IGRs) can be applied now for control.



UMD-IPMnet

Tuliptree scale crawlers are active now



Cut Flower Tour September 27, 2022

Locations: Zekiah Ridge Farm, La Plata, MD, and Hertzler Farm, Charlotte Hall, MD

[Schedule and Registration](#)

MNLGA Field Day at Longwood Gardens

Over 150 professionals from the Maryland nursery and landscape industry attended the MNLGA field day on Wednesday, September 7th. The staff at Longwood Gardens did a wonderful job of showing off their display plantings, growing facilities, and plant selection processes.

Kudos to Chelsea Bailey and Vanessa Finney of MNLGA for organizing this event.



Field Day for Nursery Managers at Longwood Gardens, September 7, 2022. Plant breeders, as part of Longwood Gardens' plant research, show some of the new cultivars they are investigating. They are collecting oak species that are more adapted to the changing climate and evaluating them for potential replacement for the red oaks dying out in Pennsylvania.

Photos: Stanton Gill, UME

Disease Season

By: Sheena O'Donnell, UME

With summer coming to an end, the heat dying down a bit and the rains coming in, disease pressure is on the rise. This spring was not particularly a wet one although some areas did get higher than average rainfall during these months, but regardless if disease was present then and the window was missed for early spraying then symptoms should be present by now. If “important” plants are not affected it is still wise to check out any weeds or wild plants growing nearby to at least see what type of pressure is present and make preventative decisions if needed. Keep good maintenance practice such as ensuring circulation (pocket-prune thick shrubs and trees, space plants appropriately), avoiding overhead watering particularly later in the day, and isolating any affected plants or pruning out heavily diseased branches.

Leaf Blotch on Horse Chestnut

One particular disease of concern is *Guignardia* leaf blotch and horse chestnuts are particularly prone to this disease. If you see water-soaked areas on leaves that develop reddish-brown blotches surrounded in a yellow border, it is probably leaf blotch.

Guignardia overwinters in infected leaf debris, and spreads during wet weather in spring or late summer. If symptoms were not present then, they will be more noticeable by now. While the disease does not kill the tree, it can cause defoliation much earlier in the season than is acceptable to most customers. To treat, ensure full clean up and remove the leaves from the area. Begin a fungicide regimen right at bud break next year, time reapplications according to label directions, and maintain your regimen through wet weather periods.

Moving forward, landscapers should plant disease-resistant replacements such as native bottlebrush buckeyes. While the buckeye is not fully immune to the disease, it does hold its foliage in a more acceptable state further into the season when affected and is more tolerant of *Guignardia* in general.



***Guignardia* overwinters in affected leaf debris.**

Photo: Stanton Gill, UME

Powdery Mildew on Dogwood and Crape Myrtle

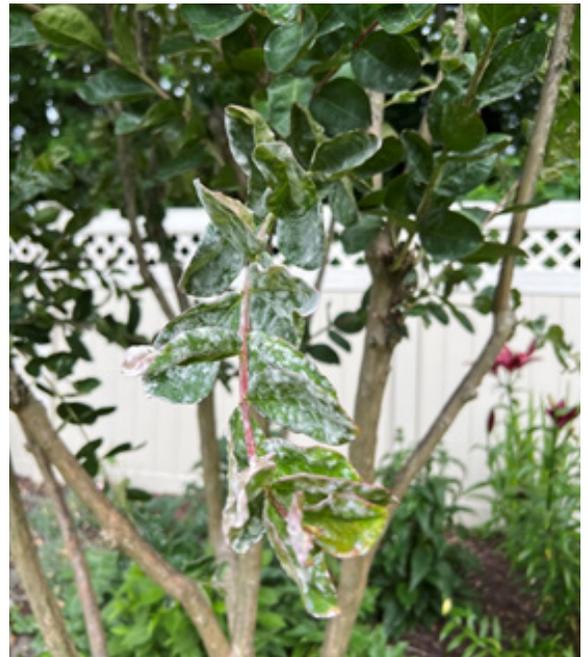
Another fall disease seen in the landscape is powdery mildew. As with most diseases, powdery mildew does not typically kill the plant on its own but it causes an unsightly white powdery residue leading to general necrosis and premature leaf drop (also unsightly). It increases susceptibility to pests due to the general stress it causes to the plant, and studies have shown that it decreases winter hardiness. As such, there are plenty of reasons for any professional to control the spread.

Dogwood is very susceptible to powdery mildew. The PM on dogwoods right now actually started on newly emerged leaves this spring. The leaves start to get covered by the powdery residue, then start showing various signs of stress such as irregular maroon blotches, yellowing, brown patches, scorching leaves, cupping, curling,

and early leaf drop. The disease overwinters in fallen leaf debris and re-infects the plant in the spring.

To avoid damage due to powdery mildew, follow similar preventative measures before budbreak. Prune branches to ensure proper circulation. Young growth is most susceptible and the spores will continue to affect foliage throughout the summer, but particularly during late summer. As such, avoid heavy pruning as well as excessive nitrogen fertilizer or watering during active growth to avoid large flushes of weak new leaves susceptible to infection. Remove suckers and sprouts as they appear since they are easily affected and once affected can serve as a source of further infection.

There are plenty of resistant cultivars such as those put out by the U.S. Arboretum in the 90's (ex. Natchez, Sioux, and Acoma). Choose cultivars based on the site's growing conditions to ensure the least amount of general life stress to the plant. As a rule of thumb, a healthy plant is always less susceptible to any type of pressure damage.



Are you seeing powdery mildew on resistant crape myrtle cultivars?

Photo: Sheena O'Donnell, UME

Powdery Mildew on Crape Myrtle - I have seen several crape myrtles in Gaithersburg, Rockville, Olney, and Silver Spring with powdery mildew pressure. The varieties of crape myrtles I saw PM on are not known so I'm curious to know if the newer resistant varieties are now experiencing pressure or if these are just older varieties. We would be interested to know if anyone else has seen PM on their crape myrtles, and if you know which cultivar it is that would be even better! Send photos/info to sodonne5@umd.edu

Daikon Radish and Soil Improvement

By: Stanton Gill

Part of an IPM approach involves improving soil so trees and shrubs grow better. Adding organic material to soil has plenty of research to back up the benefit of adding it to the soil. It improves soil structure and increases microorganism activity among other benefits.

Sixteen years ago, working with Ray Weil, College of Agriculture and Natural Resources at the University of Maryland, we looked at ways to improve soils in working nurseries. One of the methods that Ray suggested was using daikon radish, *Raphanus sativus* var. *longipinnatus*, planted in the late summer. We did this at two central Maryland nurseries. It is a type of green manure that improves soil structure. Ray Weil had been working with Groff Company in PA.

While we working on these nurseries projects, I asked Ray if anyone had tried seedling daikon radish around blueberry plants in late August. He said, no, not that he knew and he gave me 5 lbs of daikon radish seeds to try out in the orchard. Blueberries benefit from large quantities of organic material applied each year. We seed in late August and when the rains came the seed germinated quickly, less than 5 days, and we had a wonderful rosette of daikon green foliage growing up around the blueberry plants that were turning bright red with fall color. It was actually rather attractive. Daikon radish is allelopathic and suppresses fall weed germination, which adds to the benefit. With the first heavy frost of early November, the daikon radish foliage died down. Around Thanksgiving, when it finally got really cold, the decomposing tap roots did smell like left over sauerkraut. We got past the smelly part in about 2 -3 weeks and now have great organic columns of soil in the root zone of the blueberry plants.

This worked so well that I started seeding daikon radish seed around the base of cherry, peach, plum, and pear trees. I have been doing this ever since with excellent growth on all of my fruit trees. In the spring, white clover grows under these fruit trees, not the blueberries, and the clover makes an excellent carpet that suppresses many weeds (not all). When it gets hot, the clover dies down and releases the nitrogen to the soil. I have healthy trees that require very little fertilization with this approach.

I have to credit Ray Weil for introducing me to daikon radish. Since then, daikon radish has really caught fire and is being over seeded into soybean fields and corn fields in early September to serve as a cover crop to improve soils. Kirk Floyd, Kdrone Company, has been busy using his drones to apply daikon radish over field crops throughout Maryland with great success.

Late August to early September is the ideal time to seed daikon radish. If you get a rain right after seeding, you will see the young sprouts up in 3 – 5 days. It is amazing how fast it grows in the fall and produces a huge tap root that will penetrate 2 – 3 ft into the ground. It will also carry calcium, phosphorus, and other nutrients deep into the soil where tree roots can access them in the spring.

An added benefit is that daikon radish has medical and culinary benefits. My sister-in-law is Korean and she loves to harvest our daikon radish roots in late October and make it into Kimchi. I suspect you could also make a “mean” saurkraut out of it. Daikon radish provides a high level of Vitamin C. Daikon radish also has antibacterial, anti-inflammatory, antiviral, and diuretic properties. It also contains digestive enzymes that help the processing proteins, fats and carbohydrates.

You can use the daikon radish in the nursery rows or in landscapes to add a green organic source to the soil and help improve plant growth.

Volutella on Pachysandra

By: David Clement and Stanton Gill

This week, we found a flourishing infection of Volutella disease on pachysandra. The weather with the hot and humid conditions of the last 10 days has made infection very prevalent in pachysandra beds.

For details on the management of this disease, see the [April 10, 2020 IPM Report](#).



Pachysandra plants under stress are more likely to be heavily infected by Volutella.

Photo: Stanton Gill, UME

Update on Spotted Lanternfly

By: Stanton Gill

At our test site in Harford County, we are seeing mainly adult male and female spotted lanternflies actively feeding. They are producing huge quantities of honeydew this week in different areas. We continue to see hover flies, bumble bees and honey bees feed on the honeydew that is dripping onto the foliage, bark, and any object laying beneath infested trees.

Ray Bosmans (University of MD Emeritus) was in downtown New York City this week. He and his wife were walking on sidewalks there, and Ray said spotted lanternflies were so thick they were covering the walkway. People were stepping on a carpet of spotted lanternflies. The interesting thing is there was mainly paved surfaces in this area and not a tree to be found.

Adult spotted lanternflies were reported this week near College Park. About a month ago, the Michigan Department of Agriculture and Rural Development (MDARD) Director Gary McDowell confirmed the state's first detection of spotted lanternfly (*Lycorma delicatula*) in Michigan. A small population of spotted lanternfly was detected in Pontiac in Oakland County last week with the United States Department of Agriculture (USDA) confirming the finding on August 10. The geographic spread of is continuing to expand.

One interesting observation from this week. Last year when I visited Longwood Gardens, I saw large populations of spotted lanternflies covering trunks of some of the trees. This year during the MNLGA field day at Longwood Gardens, we saw one adult spotted lanternfly. The drop off in numbers was rather stunning.

Late Season Fruit Disease Control

By: Kari Peter, Penn State University Extension, Biglersville Experiment Station

Apple harvest is well underway in Pennsylvania and Maryland. With attention shifting to getting fruit off the tree, folks might think the sprayers can be put away. The first part of September has turned out quite warm and soggy, which are prime conditions for tree fruit pathogens to thrive. Considering we have received several inches of rain this week, this is a reminder that any fungicides that had been applied need to be reapplied, especially since we are in the harvest season. Fruits are still susceptible to fruit rots and sooty blotch, and flyspeck.

In addition, Marssonina blotch is another disease that favors wet conditions. Marssonina blotch can defoliate trees quickly and, if pressure is high, potentially cause fruit issues in storage. It is important that growers remain vigilant and keep fruit covered with fungicides during the harvest period. This is especially important for later harvested varieties and varieties intended to be kept in long-term storage.

Preventing Pre- and Postharvest Apple Fruit Rots

Controlling for preharvest apple rots is critical; however, fungal spores are stealthy and can hitch a ride on apples without causing symptoms, giving growers a false sense that picked fruit are clean. During storage, those



This Argiope garden spider is making a meal out of an adult spotted lanternfly.
Photo: Suzanne Klick, UME

fungi will wreak havoc and cause fruit to decay. Growers need to be thinking about the durability of their final fungicide sprays, especially when large amounts of rain have fallen. It is also important to be thinking about those late-season cultivars that may not be harvested until October or early November. Additional fungicide sprays will be needed for those cultivars in late September or even October, depending on our conditions. This is especially important for any cultivars that will be in cold storage for more than one month.

Since bitter rot has been the primary concern for the last few years, our research has shown that conventional fungicides vary in efficacy. It is important to note that our preliminary research about postharvest rots in the Mid-Atlantic is showing *Alternaria* rot, a disease that begins in the field, is a very important rot occurring during storage. In addition to applying fungicides, some general management techniques to keep in mind to reduce postharvest fruit rots:

- Should rotting fruit be encountered within the tree during harvest, drop fruit to the ground. This will limit disease spread within the canopy and contamination of fruit that may be picked later.
- The more mature a fruit, the more susceptible it is to storage diseases. Harvest fruit at proper maturity.
- Bruised or wounded fruit are susceptible to postharvest fruit rots, such as blue mold and gray mold. While harvesting, handle fruit carefully when picking and transferring fruit from bag to bin to avoid bruising or wounding.
- Inoculum sources for rot pathogens causing disease in storage (if already not hitching a ride on the fruit) come from plant and soil debris. Use clean bins and minimize the amount of soil and plant debris brought in on bins.
- Warm temperatures encourage pathogens to grow. Keep fruit cool after harvest, i.e., keep bins in shade.

Parasitized Caterpillar

Mallory Filar, Howard County Department of Recreation and Parks, found a parasitized caterpillar on a tomato plant at Belmont Manor and Historic Park in Elkridge.



Hornworms on tomatoes can be found with cocoons of wasp parasitoids.
Photo: Mallory Filar, Howard County Dept. of Recreation and Parks

Interesting Moths that Pollinate Native Orchids

By: Stanton Gill

During the MNLGA field day at Longwood Gardens in Kenneth Square, PA, we viewed parts of the plant breeding sections of the facility. One of the presentations was about native orchids, including what are commonly called lady slippers. There is a fear that many of the native orchids are being lost due to climate change and habitat change. Longwood Gardens' researchers are investigating several native species of orchids.

What many people do not understand is how important certain insects, such as Lepidopterous species, are for pollinating some these native orchid species. An example is found in the western prairie. Carrying pollen on their eyes, hawkmoths are pollinators of the western prairie fringed orchid. These insects are important in keeping native orchids in our natural landscapes.

Wasps and Hornets

Luke Gustafson, The Davey Tree Expert Company, reports that he has been seeing a decent amount of wasp/hornet activity in landscapes lately including a number of nests. This bald-faced hornet's nest is used only once. A queen will start a new one next year.



Bald faced hornets were still using this nest this week at a site in Baltimore.

Photo: Luke Gustafson, The Davey Tree Company

Beneficial of the Week

By: Paula Shrewsbury

Megarhyssa – the giant ichneumonid wasps

Parasitic wasps in the family Ichneumonidae are interesting in their morphology and in their abilities to find and parasitize their prey. I wrote about ichneumonid wasps, and particularly the Ophion wasp that parasitizes armyworms and other caterpillars, in the [August 12, 2022 IPM Weekly Report](#). If you recall, Ichneumonidae is the largest family within the order Hymenoptera with over 4,000 named species in North America alone, and an estimated 60,000 – 100,000 species worldwide. All these ichneumonids are providing biological control of a diversity of insects.

Today, I want to focus on some of the most impressive ichneumonid wasps that I have seen, the giant ichneumonid wasps in the genus *Megarhyssa*, other common names include long-tailed giant ichneumonid wasp and stump stabber. Three of the more common species of *Megarhyssa* in Maryland (MD), as noted on the [MD Biodiversity Project website](#), are *Megarhyssa atrata*, *Megarhyssa greenei*, and *Megarhyssa macrurus*. Depending on species, adult *Megarhyssa* have reddish-brown bodies and some have black and yellow-orange stripes with two pairs of membranous wings. *Megarhyssa* have the typical body shape of ichneumonid wasps

with long, slender abdomens that have very narrow “waists” (where the abdomen and thorax meet) and long thin antennae and legs, however *Megarhyssa* are among the largest of the ichneumonid wasps. Female *Megarhyssa* have bodies that are up to 2” long and their extremely long ovipositor (egg laying structure) that extrude from the tip of the abdomen can add another 3” (=5” total length), one of the longest ovipositors in the insect world. Males are slightly smaller and of course have no ovipositor. *Megarhyssa* and its ovipositor are highly adapted to parasitize insects that bore deep into the wood of trees. *Megarhyssa* are parasitoids of certain wood boring caterpillars, wood wasp larvae (Hymenoptera: Symphyta), and other wood boring insects. The “ovipositor” is long and thin and consists of 3 filaments, the inner filament is the actual ovipositor and the outer two filaments protect the ovipositor when it is not inserted into the tree. When the ovipositor is inserted into the tree, the outer two filaments bend out to the side. The ovipositor itself is made up of two parts that interlock and slide against each other, and it has a cutting edge at the tip (see the Aug. 12th IPM Report for more details). This ovipositor makes a thin tube with a channel that the egg moves down. The wasp also has the ability to adjust the length of the ovipositor. There is a membranous sac at the end of her abdomen that expands as the ovipositor is coiled up inside it, adjusting the length of the ovipositor. [Click here to see a pretty amazing video of a female *Megarhyssa* coiling her ovipositor](#) as she works her ovipositor into the wood.



A female *Megarhyssa atrata* found in Baltimore, MD in late May. Note the extremely long ovipositor.
Photo: Mark Johnson, from MD Biodiversity Project



A *Megarhyssa* female searching for prey under the bark of this tree.
Photo: M.J. Raupp, UMD

Females tap their antennae on the wood to locate host larva on which to oviposit. Once she detects a host larva in the wood, she works her ovipositor through the wood until she reaches the host larva, at which time they inject the host larva with a toxin that paralyzes it, and then she lays an egg on the outside of the body of the host larva. The wasp larva emerges from the egg and begins to consume the live, but paralyzed, host larvae eventually killing it. Biological control happens.

Megarhyssa adults can be seen on the bark of trees usually between May into September. Males tap their antennae on the surface “listening” for newly molted adult females chewing their way out of the wood in hopes of being her mate, while females tap their antennae in search for larval hosts and insert her ovipositor into the wood. Once you see a *Megarhyssa* and its long ovipositor, you will be glad they don’t parasitize humans or harm them in any way.

Weed of the Week: Wild Carrot

By: Kelly Nichols

The white flowers of wild carrot, *Daucus carota*, make this week's weed very recognizable at this time of year. Wild carrot is also called Queen Anne's lace, bird's nest, or devil's plague. Wild carrot is a biennial. Seeds will germinate in the spring, and its growth that first year will be all leaves and look similar to our common carrot. Leaves are deeply lobed, or lace-like (Figure 1). The upper leaf surface is without hairs, but there may be hairs on the lower surface.



Figure 1. Lacey leaves of wild carrot.
Photo: Kelly Nichols, UME Ag Agent



Figure 2: Wild carrot flower, made up of clusters (umbels) of individual flowers.
Photo: Kelly Nichols, UME Ag Agent

During the second year, the plant will bolt, or send up a stem with a flat, white flower and seeds. Stems are hollow and hairy. The flower is popular for floral arrangements and can be 2 to 5 inches across (Figure 2). What we think of as one flower is actually clusters (or umbels) of many flowers. Individual flowers have 5 petals and are approximately 1/8 of an inch across. A single purple flower is usually present in the middle of the umbels. The flowers often curl in as they mature, giving it a bird's nest look. Wild carrot can reach up to 40 inches in height during this second year of growth. At the end of the second year, the plant dies, and the seeds are left to continue the population.

Preventing seed production is key for reducing the number of viable seeds. Once the flowers appear, mowing or weed whacking, depending on the setting, can be an effective tool. Chemical control options for turf include broadleaf herbicides such as triclopyr, 2,4-D, MCPA, and dicamba, whether alone or in combination. Take caution if spraying around trees and shrubs since these products have the potential to drive and volatilize. Spot spraying with non-selective, systemic herbicides is also an option for landscape settings. Again, take caution if shallow exposed roots of desired plants are present in the area. Herbicides that are not systemic that provide suppression include Burnout and Pulverize in landscape settings. These products are more effective in the first year of growth when the plant and its root system are smaller.



Figure 3. Wild carrot in the landscape.
Photo: Kelly Nichols, UME Ag Agent

Plant of the Week

By: Ginny Rosenkranz

Heuchera 'Topaz Jazz' is a wonderful nativar herbaceous perennial that has a low mound of colorful leaves that grow 9 inches tall and 12 inches wide. The leaves of 'Topaz Jazz' have five lobes and come in a combination of lime green to honey topaz to gold with the veins a deeper color to match the leaves. The plants are cold hardy in USDA zones 4-9, and in the southern regions of Maryland (zone 7), the beautiful leaves stay bright and colorful all winter long, providing both color and texture into the winter landscapes. The roots are shallow and need to have a light covering of mulch to maintain soil moisture and cold damage. 'Topaz Jazz' can bloom from July into October with thin maroon stems that hold branches of tiny bell-shaped ivory to light yellow flowers. The flowers attract many butterflies and hummingbirds even in the shade. The flowers offer a lovely addition, but if they never bloomed, the brightly colored foliage will always decorate the landscape. Plants thrive in morning sun with afternoon shade, moist but well drained soils. There are no serious pests and they are both deer and rabbit resistant due to the bitter taste of the foliage, but that always depends on the population density.



***Heuchera* 'Topaz Jazz' flowers attract butterflies and hummingbirds, even in the shade.
Photo: Ginny Rosenkranz, UME**

Degree Days (as of September 7)

Aberdeen (KAPG)	3152
Annapolis Naval Academy (KNAK)	3480
Baltimore, MD (KBWI)	3552
College Park (KCGS)	3303
Dulles Airport (KIAD)	3367
Ft. Belvoir, VA (KDA)	3361
Frederick (KFDK)	3160
Gaithersburg (KGAI)	3190
Gambrils (F2488, near Bowie)	3383
Greater Cumberland Reg (KCBE)	3058
Martinsburg, WV (KMRB)	2993
Natl Arboretum/Reagan Natl (KDCA)	3830
Salisbury/Ocean City (KSBY)	3537
St. Mary's City (Patuxent NRB KNHK)	3858
Westminster (KDMW)	3667

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 **2993 DD** (Martinsburg, WV) to **3858 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.

- Fern scale – egg hatch / crawler (2nd gen) (**2813 DD**)
- White prunicola scale – egg hatch / crawler (3rd gen) (**3238 DD**)
- 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.

Conferences

September 27, 2022

Cut Flower Tour

Location: Zekiah Ridge Farm, La Plata, MD, and second site TBD

[Schedule and Registration](#)

September 28, 2022

MAA and MOSH Annual Day of Safety and Health

Location: Howard County Fairgrounds, West Friendship, MD

[For details and to register](#)

September 29, 2022 (9:00 AM to 3:30 PM)

Operator Certification (FTC) for Writing Nursery Nutrient Management Plans for Nurseries, Greenhouses and Controlled Environments

Location: Wye Research and Education Center, 124 Wye Narrows Drive, Queenstown, MD 21658

If you wish to register, please do so before September 23rd, 2022 by emailing Dr. Andrew Ristvey (aristvey@umd.edu). Add your business name and phone contact number. If you have questions please send an email to me or call me at 410-827-8056 x113.

October 19, 2022

FALCAN's Truck & Trailer Safety Seminar

Location: Urbana Fire Hall

[For details and to register](#)

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SOLAR WORKSHOPS

Are you interested in using solar electricity to power your home, farm, or business? If so, you'll want to join one of the University of Maryland's upcoming workshops addressing the opportunities and challenges associated with solar energy. Each workshop will cover important topics that will help you successfully, and sustainably, implement a solar electric system, including discussions of:

- How solar energy works and what role it plays
- How solar impacts you as a homeowner or landowner
- How to finance and facilitate a solar project

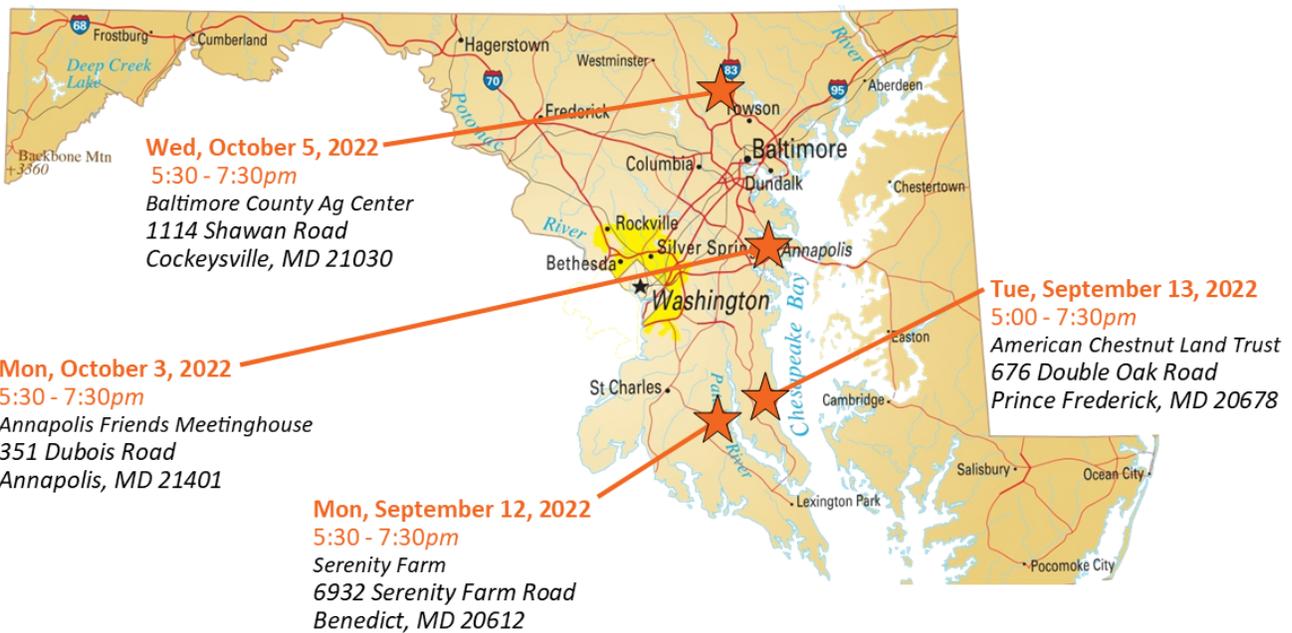
Registration is required to attend any of these free workshops scheduled this fall.

FREE REGISTRATION AT
go.umd.edu/Solar2022



PROGRAM CONTACT

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