

**In This Issue...**

- Weather update
- Wax moth larvae (feed on plastic)
- Gall on oak
- Blister beetles on vegetables
- Carrion beetles
- Barklice
- Fiorinia scale
- Walkingsticks
- Caterpillars

**Beneficial of the Week:**

Accidentally introduced parasitoid (for BMSB)

**Weed of the Week:** Green kyllinga

**Plant of the Week:** *Magnolia grandiflora* 'Little Gem'

**Degree Days**

**Announcements**

[Pest Predictive Calendar](#)



**IPMnet**  
**Integrated Pest Management for Commercial Horticulture**  
[extension.umd.edu/ipm](http://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](mailto:sklick@umd.edu)

**Coordinator Weekly IPM Report:**

Stanton Gill, Extension Specialist, IPM for Nursery, Greenhouse and Managed Landscapes, [sgill@umd.edu](mailto:sgill@umd.edu). 301-596-9413 (office) or 410-868-9400 (cell)

**Regular Contributors:**

Pest and Beneficial Insect Information: Stanton Gill and Paula Shrewsbury (Extension Specialists) and Nancy Harding, Faculty Research Assistant

Disease Information: Karen Rane (Plant Pathologist), David Clement (Extension Specialist), and Joe Roberts (Plant Pathologist for Turf)

Weed of the Week: Chuck Schuster (Extension Educator, Montgomery County)

Cultural Information: Ginny Rosenkranz (Extension Educator, Wicomico/Worcester/Somerset Counties)

Fertility Management: Andrew Ristvey (Extension Specialist, Wye Research & Education Center)

Design, Layout and Editing: Suzanne Klick (Technician, CMREC)

**Finally Sun**

By: Stanton Gill

Most of us forgot what sunshine looked like. The cloud cover was so thick over the last week that it was hard to tell sunrise from sunset and everything in between. At last, the soil might dry out. The impact from the high soil moisture is interesting. We received electronic pictures from landscape managers from central, southern and the Eastern Shore of Maryland of active ambrosia beetles pushing out fresh sawdust tubes in September in chestnuts, maples and redbud. I rarely see this activity at this time of year, but with all of the rain, some plants are producing ethyl alcohol. This alcohol production signals the ambrosia beetles to attack.



On the positive side, we have seen American hollies push new growth out in six separate flushes this season. American hollies appear to love all of this soil moisture. Another interesting impact of the cloud cover and rain is reduced efficiency of solar panels over the last month. With the heavy cloud cover and little direct sunshine, the output from solar panels was way down. If you remember, we had several days in a row where clouds were extremely dense and persistent.

## Plastic Consuming Larvae?

By: Stanton Gill

There is an interesting article in *Scientific American* on insects consuming plastic. Currently the world is producing 300 metric tons of plastic per year. This is a lot of plastic bags, plastic boxes, and greenhouse coverings that are disposed of and jam up the environment.

Researchers in Spain and England found larvae of the greater wax moth, *Galleria mellonella*, which has the potential as a plastic recycler. The greater wax moth also has the common name honeycomb moth and is a moth in the family Pyralidae. If you are a beekeeper, you know these moth larvae feed on bee's honeycomb wax. One other interesting thing about the adult moth is that researchers have discovered that the greater wax moth is capable of sensing sound frequencies of up to 300 kHz -- the highest recorded frequency sensitivity of any animal in the natural world. This has been labeled "Ultrasound". This level is way above what we humans can hear and even dolphins can hear. The use of ultrasound in air is extremely difficult as such; high frequency signals are quickly weakened in air. Other animals such as bats are known to use ultrasound to communicate and now it is clear that moths are capable of even more advanced use of sound. The greater wax moth, *G. mellonella*, is found throughout the world. It is one of two species of wax moths, with the other being the lesser wax moth, *Achroia grisella*.



Wax moth larvae are being studied for their potential to break down polyethylene  
Photo: Susan Ellis, USDA APHIS PPQ, Bugwood.org

The researchers in Spain and England found that the greater wax moth larvae could degrade polyethylene, which accounts for about 40 % of the plastic produced. In the trial, they placed 100 greater wax moth larvae on plastic shopping bags for 2 hours and measured the amount of degradation that occurred. In 2 hours, they had degraded it by 3%. To evaluate if the larval chewing was breaking the polyethylene down or it was enzymes in their gut, they placed ground up larvae on the plastic. After 14 hours, the plastic had lost over 14% of its mass. They are now looking at the enzymes in the gut to see if this can be manufactured to help breakdown plastic. This is a good example of the benefits of some insects. Remember this - "Insects Rule."

## Galls on Oak

Joe Clark found these galls on *Quercus x warei* 'Regal Prince' this week. We have received photos and samples of these 'acorn-like' galls over the years. The galls are caused by a cynipid gall wasp, *Adleria strobilana*. The galls develop after the wasps hatch and begin feeding along the stem. The galls start out yellow, then turn pink to red and eventually turn brown.



These acorn-looking galls are caused by the feeding of cynipid wasps  
Photo: Joe Clark

## Blister Beetles Feeding on Vegetables

Jerry Brust, UME

Normally at this time of year when I talk about any insect problems on solanaceous crops or crucifers, I talk about grasshoppers or harlequin bugs. I have received reports about several fields and even in high tunnels of blister beetles feeding and defoliating several different vegetable crops (fig. 1). The presence of blister beetles now is not unusual as they are often found in large clusters in late summer-early fall. They can arrive in large groups, apparently it seems overnight, and can do a great deal of damage in a short period of time.

Adults are large, oblong beetles with a relatively large head, long neck and usually with some stripes (but not always) (fig. 1). Striped blister beetles are shades of gray and brown with yellow stripes running lengthwise on their wing covers. The ash-gray blister beetle is completely gray. The black blister is completely black. The margined blister beetle is black with a gray to cream band around the edge of each wing cover (fig. 1). Their abdomens usually extend past their leathery wings. Striped blister beetles hide beneath plants during the hotter periods of the day, becoming active when temperatures are more suitable to them. If disturbed when on plants, beetles will immediately fall to the ground and run. Adults begin laying eggs in early summer and continue through most of the season. A female can lay one or two hundred eggs just beneath the soil surface and eggs hatch within two weeks.

If you look up blister beetles, most of the literature deals with the beetles as a threat to horses and livestock. The beetles secrete and contain within them a blistering agent called cantharidin. Cantharidin is toxic if ingested and it persists in beetles long after they are dead. Humans who ingest the beetle can suffer severe damage to the urinary tract and gastrointestinal lining.

Blister beetles begin feeding on the edges of leaves eventually leaving only stems (fig. 2). Blister beetles will feed on just about any leaf that grows in a vegetable field such as tomato and other solanaceous vegetables as well leafy greens, crucifers, spinach and others.



**Fig. 1 Margined blister beetles**  
Photo: G. Brust, UME



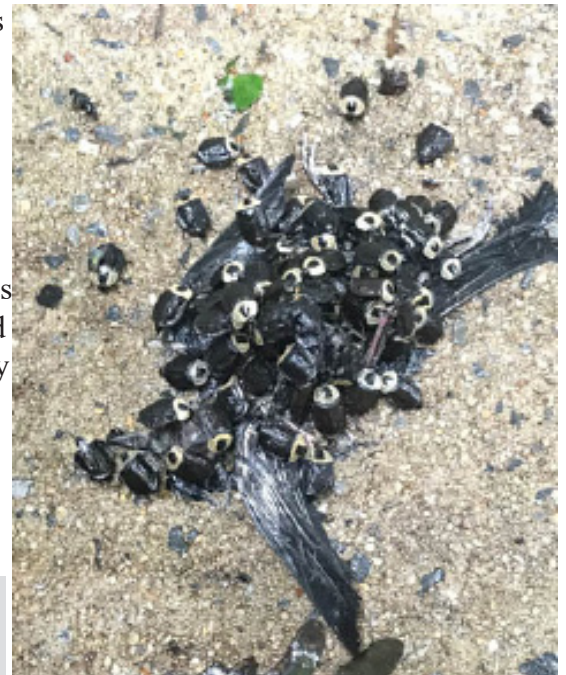
**Fig. 2 Blister beetle feeding resulting in defoliated leaves**  
Photo: D. Paulk

Pyrethroids can be used to control blister beetles on most vegetable crops. Pyrethroids will reduce the damage, but there is often a 7-day pre-harvest interval (phi) with many of the chemicals depending on what the crop is. So be sure to check the label to find the correct phi for the particular product you are using on the particular crop you are using it on. It should be noted that once established, beetles are difficult to eliminate completely. Organic growers have an even more arduous task of managing them. Row covers will keep this pest as well as harlequin bugs off your plants. If row covers are not used, then I often see diatomaceous earth (DE) recommended for beetle control. However, if it rains DE does not work and overall, I have not had much luck with it controlling the beetles. Spinosad alone or mixed with other products such as neem or kaolin clay have been found to reduce feeding damage in 24-48 hours. Having large numbers of grasshoppers near your vegetable fields over the years can increase blister beetle numbers greatly in the general area.

## New Definition of Eating Crow

By: Stanton Gill

Insects tend to specialize. We have insects that feed on plants, insects that feed on other insects, and insects that recycle dead creatures of all types. Carrion beetle, *Necrophilia americana*, is a native beetle that shows up on roadkill. The adults lay eggs on dead animals and the larvae consume and recycle the animal. They are nature's recyclers. The interesting thing is this insect will pollinate two plants found in landscapes. One is the pawpaw and the other is the voodoo lily, which is a perennial generally grown as a curiosity for its interesting foliage and flower. Heather Zindash, IPM Scout, managed to catch this interesting recycling of a crow this week in Montgomery County.



**Carrion beetles lay eggs in dead animals such as this crow**  
Photo: Heather Zindash, IPM Scout

## Barklice

Marty Adams, Bartlett Tree Experts, found barklice on Japanese maples on September 19. The non-winged forms of barklice are generally what you will find on plants, but alates (winged forms) are produced to spread the population. They feed on lichens, decaying organic matter, dead insects, molds, fungi and pollen. No control is necessary.



**Barklice cluster on the trunks of trees feeding on fungi and molds**  
Photo: Marty Adams, Bartlett Tree Experts

## Fiorinia Scale – Elongate Hemlock Scale

By: Stanton Gill

One of my students at Montgomery College brought a hemlock sample to class last Thursday night. It was loaded with fiorinia scale. Crawlers were present and we should see crawler activity through the end of September. Years ago, we conducted field trials using dinotefuran applied as foliar sprays, and it gave good control of this scale species. Distance or Talus would also work. I have not tried them yet, but I would think Altus and Mainspring would be good options for a foliar feeding scale such as this one.



**Crawlers of fiorinia scale (elongate hemlock scale) are active late in the season**

## Walkingsticks

Brett Morgan, Kousa Gardens, found an adult walkingstick on crape myrtle in Braddock Heights. Since they resemble stems and twigs, walkingsticks blend well into their surroundings on woody plants. They are herbivores, but do not cause serious damage to plants. All but one species in the U.S. (found in Florida) are wingless. Since most bats rely on echolocation and not sight, they are very effective predators of walkingsticks.



**Walkingsticks blend in well with woody plants, especially when found in a more wooded setting**  
Photo: Brett Morgan, Kousa Gardens

## An Unusual Caterpillar Active in September

By: Stanton Gill

Nancy Woods, MNPPC, was very perceptive this week in finding a skiff moth (*Prolimacodes badia*) in the landscape. The caterpillar is called a skiff moth caterpillar since the larvae looks like a small skiff boat. You find this caterpillar from New Hampshire down to Florida, usually in September. The larvae feed on leaves of a wide variety of trees and shrubs, including birch, blueberry, cherry, chestnut, oak, poplar, and willow. The moth larvae is a member of the Limacodidae family, commonly called the slug-like caterpillars. The specific epithet (*badia*) comes from the Latin word “badius” which means bay colored or reddish-brown. It refers to the wing color of the adult moth.



**The skiff caterpillar has tan to brown markings that resemble necrotic areas on a leaf**

## More Caterpillars

Fall is when we receive quite a few reports of caterpillar activity. It is late in the season and control is usually not necessary.



This imperial moth caterpillar is feeding on white pine. The imperial moth caterpillar is one of the largest caterpillars found around here. There are also color forms ranging from red to dark brown. Photo: Craig Greco, Yardbirds, Inc.



This question mark was found feeding on an elm in Catonsville last week. It is one of the few butterflies in Maryland that overwinters as an adult. Hackberry, hops, and nettles are also hosts. Photo: Marty Adams, Bartlett Tree Experts



The color of tobacco budworm caterpillars is variable so they blend in well with the flowers on which they are feeding



This caterpillar, likely another tobacco budworm, is feeding within the rose bud  
Photo: Jessica Moore, Velvet Touch Rose Care

Last week, Elaine Menegon, Good's Tree and Lawn Care, found tussock moth caterpillars feeding on blue globe spruce in Hershey, PA. Marie Rojas, IPM Scout, found large, yellow-necked caterpillars on *Quercus robur* 'Skinny Genes' and smaller, yellower ones feeding gregariously on *Betula nigra* 'Dura Heat'. Marie is still finding various sizes of catalpa sphinx moth caterpillars on catalpas. Marie note that many were parasitized.

## Beneficial of the Week

By: Paula Shrewsbury, UMD

### The story of the accidentally introduced parasitoid.

It is about that time of year when the “home invaders” start moving into our homes to find harborage for the winter. There are several of them, but the one that comes to mind today is the brown marmorated stink bug (BMSB). As many of you know from firsthand experience, 5 or so years ago in MD and other Mid-Atlantic states, BMSB densities were extremely high and they were severe economic pests of crops and nuisance pests invading homes and other structures. In more recent years, BMSB populations and their associated damage have been much less. Those of us who have spent years studying BMSB believe that these lower populations are due to a combination of factors (of course biology is never straight forward) such as natural enemies, unfavorable weather, and with increased knowledge better management by practitioners. However, BMSB has now been detected in 44 U.S. states. Their populations vary in these states depending where they are in the “invasion phase” such as early where BMSB has only been around for a few years and damage has not been detected, peak where high amounts of damage and nuisance populations are active, and late where populations are like we have in MD (lower overall with pockets of high populations occurring). What this information tells us is we still have to continue research toward sustainable management of BMSB in the U.S.

So given the current situation with BMSB that I just described, today I would like to talk about parasitoids that are native to Asia, the natural range of BMSB. When exotic pest insects are introduced into the U.S. they usually arrive without any of their natural enemies. Without any biological pressure to suppress the exotic insects, populations quickly build up and cause significant damage in the U.S.. It makes sense that one of the first steps to managing an exotic pest is to examine the possibilities for biological control by studying what natural enemy(ies) control it in its home range. This approach is usually referred to as *Classical Biological Control*. In the case of BMSB, USDA scientists traveled to Asia and searched for natural enemies that were attacking BMSB in that country. Several species of parasitoids that attacked the eggs of BMSB were brought back to the U.S. where they were placed in USDA quarantine facilities. For the past 5-6 years, numerous studies have been conducted in quarantine on these parasitoids to: 1) determine if the parasitoid attacks BMSB at high enough levels to provide control if released; and 2) determine if the parasitoid is likely to have any detrimental impacts on any other species of insect, both herbivores and other natural enemies. Of the egg parasitoid species brought back to the U.S., the most promising species as it relates to biological control of BMSB is *Trissolcus japonicus* (Scelionidae), a tiny wasp that parasitizes eggs of BMSB and other stink bugs. However, studies are still underway to address question number 2 – Will *T. japonicus* have a detrimental impact on other, native insects. These questions have to be answered before the USDA will approve for *T. japonicus* to be released into the environment. To date no releases of *T. japonicus* have been done in the U.S. This approach has been implemented, and parasitoids



A *Trissolcus japonicus* parasitoid adult which is 1-2 mm in size  
Photo: E. Talamas, USDA ARS, D3216-1



This image demonstrates the extremely small size of *Trissolcus japonicus*. No worries that these wasps could sting you.  
Photo: A. Colavecchio, USDA ARS, D3224-1

released, for many other exotic invasive species. For example, other scientists and I are involved in the release and evaluation of parasitoids that attack the exotic emerald ash borer (EAB).

But the story of *T. japonicus* continues with a very interesting twist. In 2014, the exotic, not yet released *T. japonicus* was found emerging from a BMSB egg mass collected from a patch of woody trees bordering agricultural fields in Beltsville MD. What a surprise this find was! These *T. japonicus* wasps were sent to a lab for genetic analysis to determine if these wasps were “related” or from the same population as those in quarantine. That would mean someone made a big oops and there was an escape. However, they were not related to the quarantine population!

What this situation suggests is that somehow *T. japonicus* was also accidentally introduced into the U.S. just like BMSB. It is not often the good insect is introduced accidentally. In 2015, we found *T. japonicus* in nurseries in Laytonsville and Adamstown, MD. Moreover, since first U.S. detection of *T. japonicus* in 2014, it has been detected in 11 other states and Washington, D.C. Genetic testing of these wasps has determined that there are 3 genetically distinct strains of *T. japonicus* in the U.S. What these test results indicate is that *T. japonicus* has been accidentally introduced 3 separate times. This result was a surprise!

Researchers will continue to monitor the exotic *T. japonicus*, native parasitoids and their impact on BMSB populations. Hopefully, the combination of native and exotic parasitoids will lead to significant suppression of BMSB in MD and the other 43 states BMSB has now invaded!

## Weed of the Week

By: Chuck Schuster, University of Maryland Extension

Green kyllinga, *Kyllinga brevifolia*, is a member of the sedge family that prefers warmer locations. It is typically found in the southeast and western portion of the United States as well as in the Maryland region. It is a native of Asia, having found its way into the United States more than 50 years ago. It is a weed found in turf and landscapes, and is often mistakenly identified as purple or yellow nutsedge. This perennial prefers damp locations but will tolerate soils that are dry and partial shade. It is noticeable in turf settings due to its different texture, color and that it grows to 15 inches in height, when not managed, and its flowering stalk. It is dormant in cool months but flowers from May through October. Differing from purple and yellow nutsedge, which grow typically as individual plants, green kyllinga will grow in patches. Green kyllinga has rhizomes; purple and yellow nutsedge do not. Flowers occur on stalks that have a triangular cross section are two to ten inches long. The stalk will have a round sphere-like flower head that is green in color and about 3/8 inch in diameter. Below the flower stalk, one will find a group of three leaves that radiate from the stalk. Each flower will have 30 to 75 spikelets within each flower and is capable of producing up to 5000 seeds per plant per year. Seeds germinate without receiving much soil cover when soil temperatures reach 65 °F. It is a difficult to control weed as it produces seeds and has rhizomes. Green kyllinga will tolerate mowing heights as low as .75 inches.



Green kyllinga is often mistakenly identified as purple or yellow nutsedge  
Photo: Chuck Schuster, UME

Control of Green kyllinga can be achieved using pre emergent products that contain benefin, bensulide, dithiopyr, pendimethalin, and prodiamine. Results are conditional on application timing prior to soil temperatures reaching 60 °F.

Post emergent products will include most sedge products containing halosulfuron, imazosulfuron, MSMA, or trifloxysulfuron. More than one application is necessary with some products and timing is important.



## Plant of the Week

By: Ginny Rosenkranz, UME

*Magnolia grandiflora* “Little Gem” is a smaller version of the large, native *Magnolia grandiflora* which grows 60-80 feet tall while “Little Gem” is compact and grows only 15-25 feet tall and 7-10 feet wide. The glossy evergreen leaves are also smaller (4-5” long) as are the pure white 4” fragrant flowers, keeping the plant in perfect proportion. A very southern plant, it is winter hardy from USDA zone 7-9, but can survive in USDA zone 6B if planted in a sheltered location, happily growing in more than half of Maryland. “Little Gem” flowers when the plant is very young, sometimes when the plant is only 2-3 years old and only 3 feet tall, not like it’s larger relative *M. grandiflora* which needs 10-15 years before it flowers. The fragrant flowers of “Little Gem” grow only 4” across, but they bloom from late spring into the early fall. Once they have bloomed, the fruit matures and splits open to reveal seeds surrounded by a bright red fleshy aril that the birds love. The leaves are glossy green on top and bronze brown and fuzzy on the underside. They prefer to be planted in full sun to part shade in moist, well drained soils, They are tolerant of acidity, slight alkalinity, salt, and once established can be drought tolerant. The evergreen leaves provide shelter for many birds, squirrels, while other animals enjoy the seeds. Then there are the native white tail deer that enjoy the tasty twigs, buds and even some leaves on the tree. These compact trees can be planted near patios to provide some shade and fragrance, as part of a tapestry hedge, or as a screen between houses in subdivisions to provide privacy and sound reduction. Pests include Verticillium wilt, magnolia scale, tulip poplar weevil, and magnolia borer.



*Magnolia grandiflora* ‘Little Gem’ flowers when the plant is young (at about 2-3 years old)  
Photos: Ginny Rosenkranz, UME

## Degree Days (As of September 19)

Aberdeen, MD (KAPG)	3421	Annapolis Naval Academy (KNAK)	4146
Baltimore, MD (KBWI)	3736	College Park (KCGS)	3639
Dulles Airport (KIAD)	3663	Frederick (KFDK)	3655
Ft. Belvoir, VA (KDAA)	3807	Greater Cumberland Reg (KCBE)	3417
Gaithersburg (KGAI)	3557	Martinsburg, WV (KMRB)	3406
Natl Arboretum.Reagan Natl (KDCA)	4216	Salisbury/Ocean City (KSBY)	3832
St. Mary's City (St. Inigoes, MD-KNUI)	3991	Westminster (KDMW)	3747

**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

## Improve Your Diagnostic Skills

By; Stanton Gill

We are working cooperatively with MAC–ISA in conducting a hands-on diagnostic skill building session for arborists and landscapers. The session will be held at Hood College in Frederick, MD. Contact Nancy Herwig, Executive Director, at [exdirector@macisa.org](mailto:exdirector@macisa.org) for schedules and registration information.

### CONFERENCES

#### New Plants for Nursery Growers

October 25, 2018

Location: Country Springs Nursery, Woodbine, MD  
Details will be available later in the summer

#### Trees Matter Symposium

November 14, 2018

Location: Silver Spring Civic Center, Silver Spring, MD

[Registration Information](#)

#### Turf Nutrient Management Conference

December 6, 2018

Location: Carroll Community College, Westminster, MD

#### December Pest Management Conference

December 18, 2018

Location: Carroll Community College, Westminster, MD

#### Advanced IPM PHC Short Course

January 7-10, 2019

Location: University of Maryland, College Park, MD  
Contact: Amy Yaich, Admin. Assist. II, 301-405-3911  
Email: [umdentomology@umd.edu](mailto:umdentomology@umd.edu)

Information: <https://landscapeipmphc.weebly.com/>  
Recertification credits will be posted on the website  
Recertification page listing participating states.

#### Mid-Atlantic Horticulture Short Course

January 15-17, 2019

Location: The Founders Inn, Virginia Beach, VA

#### FALCAN Conference

January 18, 2019

Location: Frederick Community College, Frederick, MD

#### MAA Winter Conference

January 22-23, 2019

Location: Turf Valley, Ellicott City, MD

#### Eastern Shore Pest Management Conference

February 6, 2019

Location: Fountains Conference Center, Salisbury, MD

Contact: Ginny Rosenkranz, 410-749-6141

#### LCA Winter Conference

February 14, 2019

#### Chesapeake Green Horticulture Symposium

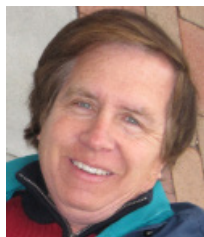
February 20 - 21, 2019

Location: Maritime Institute, Linthicum Heights, MD



[For more information](#)

**CONTRIBUTORS:**



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



Paula Shrewsbury  
Extension Specialist  
pshrewsb@umd.edu



Karen Rane  
Plant Pathologist  
rane@umd.edu



Chuck Schuster  
Extension Educator  
cfs@umd.edu



David Clement  
Plant Pathologist  
clement@umd.edu



Andrew Ristvey  
Extension Specialist  
aristvey@umd.edu



Ginny Rosenkranz  
Extension Educator  
rosnkrnz@umd.edu



Nancy Harding  
Faculty Research Assistant

Joe Roberts, Plant Pathologist (Turf)  
robertsj@umd.edu

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.

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

The information given herein is supplied with the understanding that no discrimination is intended and no endorsement by University of Maryland Extension is implied.

University of Maryland Extension programs are open to all citizens without regard to race, color, gender, disability, religion, age, sexual orientation, marital or parental status, or national origin.