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**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 [sgill@umd.edu](mailto:sgill@umd.edu)

**Coordinator Weekly IPM Report:**

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

**Regular Contributors:**

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

Disease Information: Karen Rane (Plant Pathologist), David Clement (Extension Specialist) and Fereshteh Shahoveisi (Turf Pathologist)

Weed of the Week: Chuck Schuster (Retired Extension Educator) 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)

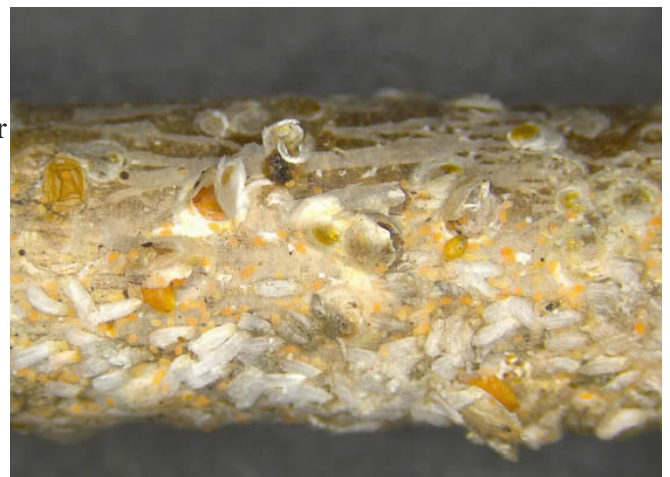
Design, Layout and Editing: Suzanne Klick (Technician, CMREC)

**White Prunicola Scale**

By: Stanton Gill

When we were setting up trials last week for using drones to apply two low risk materials for white prunicola scale, we found very early emergence of white prunicola scale crawlers. Sheena O'Donnell and I took additional scale this week and we are seeing that many eggs are hatching now.

Tim Waller of Rutgers' University Extension reported finding white prunicola scale with crawler emergence in the last 2 weeks in central New Jersey. In both cases, we were seeing crawlers at 375 to 400 degree days. This is early for this insect. We normally don't see crawlers until around 500 degree days. This wacky spring weather appears to have accelerated the crawler activity.



**Many hatched crawlers on May 15 on cherries in Montgomery County**  
Photo: Sheena O'Donnell, UME

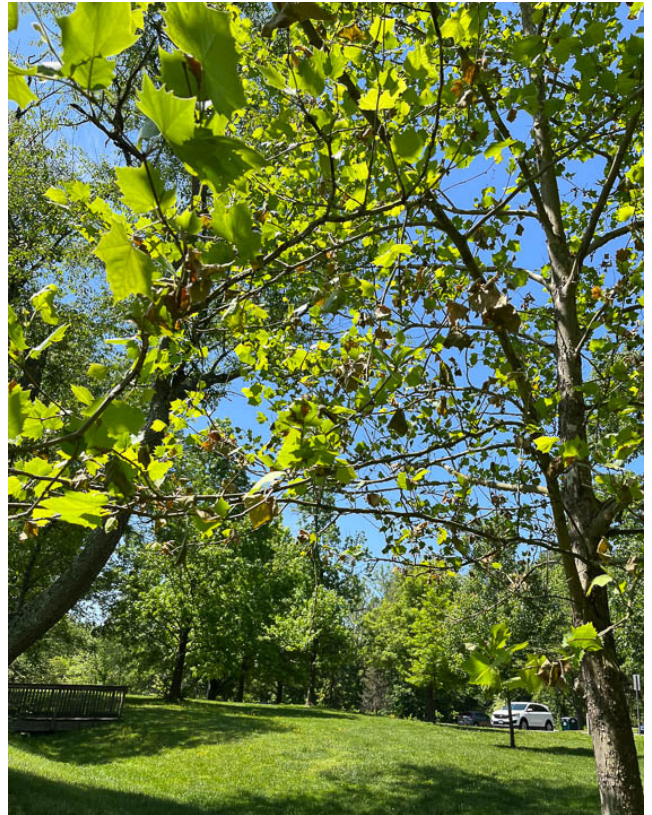
## Sycamore Anthracnose

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

The recent rains and warmer weather has initiated the onset of sycamore anthracnose. The fungal pathogen, *Apiognomonia veneta*, is in a group of related fungi that cause anthracnose diseases of our common shade trees. The disease is most severe on American sycamore while the London planetree cultivars, *P. × acerifolia*, exhibit varying degrees of resistance, and the Oriental planetree, *P. orientalis*, is considered resistant.

This season the disease has started later than normal because of our cooler and drier spring weather patterns. The disease has three phases that start with twig and corresponding bud mortality, followed by shoot blight and then leaf blight. The fungal pathogen overwinters in cankers that form at the bases of twigs during autumn, and continue to enlarge during mild winter conditions and into early spring. Fungal growth in the cankers kills girdles the twigs and the buds. Fungal colonization of older branches creates perennial cankers.

Temperatures below the mid 50's during bud break prolong twig tissue susceptibility however, temperatures in the 60's promote faster shoot growth which is less susceptible to shoot blight. Shoot blight may resemble late spring frost damage. The foliage infection cycle is most active during



**Anthracnose infection symptoms on tree.**  
Photo: Karen Rane, UMD



**Sycamore anthracnose symptoms on the upper and lower side of a sycamore leaf**  
Photos: Karen Rane, UMD

rainy conditions when temperatures rise into the 60's. Leaf blight starts in the lower canopy and moves up the tree during rainy periods. Leaf lesions typically extend along veins and can also cause irregular marginal lesions before blighting the entire leaf resulting in defoliation. The disease will slow when temperature rise through the summer months and the weather becomes drier.

### Management

Reduce tree damage by planting resistant cultivars of London and Oriental planetrees. Practices that increase air flow and sunlight penetration, such as thinning, can help to inhibit the pathogen by accelerating the drying of foliage after rain. Remove fallen leaves and prune infected twigs and branches, if possible, to reduce inoculum in the canopy. Pruning is not practical for large mature trees.

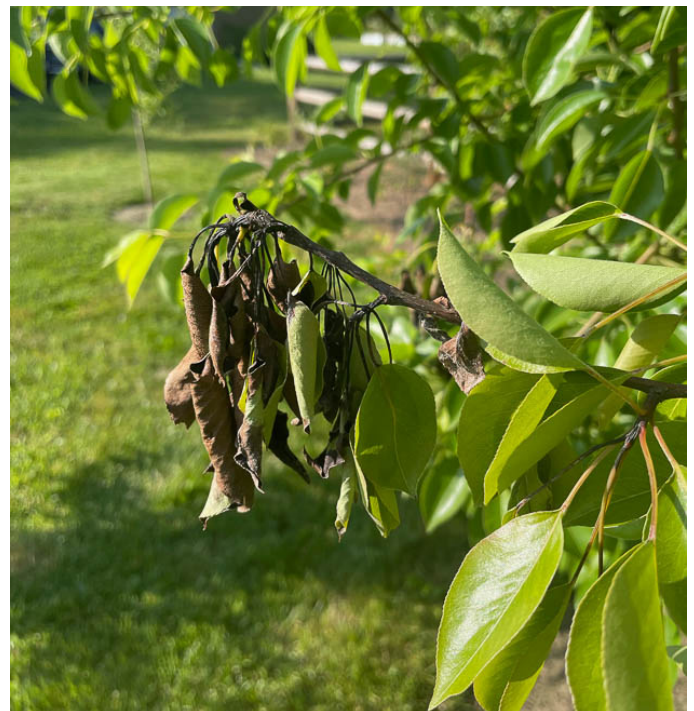
Even when disease severity is high during wet springs, sycamores will typically produce a full set of foliage by late summer. Therefore, chemical control is only warranted in select cases such as young trees suffering from transplant shock, repeated insect defoliation, or other site related stresses. Preventative applications should be applied at bud break and on labeled intervals until foliage is fully expanded or dry weather prevails. Injections of labelled systemic fungicides can also be performed for large mature specimen trees.

### Fire Blight on Apples - Winners and Losers

By: Stanton Gill

Four weeks ago, I put in the IPM Alert that it looked like most pear and apple plantings you installed and tend to for your customers made it through the weather period when fire blight was active. This was true for the winners of the world. The rest were not so lucky this year. If your customers had trees in bloom during this ideal weather periods, then you'll likely see infection damage. We are getting reports of fire blight in tip growth of some apple and pear varieties. If the pollinators were actively carrying this bacterial disease from bloom to bloom during the short, warm, moist period, your customers' trees might have experienced, then you will see tip dieback.

Prune this off immediately, cutting off branches 12 - 18" below the fire blight infected area that is blackening and the tip growth is slightly curling. Get the cut branches away from the apple trees.



**Fire blight infection on Bartlett pear in Jarrettsville on May 16.**

**Photo: Todd Armstrong, The Davey Tree Expert Co.**

### July 2023 – Recreational Marijuana

Here is the response we received from the Maryland Cannabis Commission about production:

*Thanks for your message. No, a greenhouse may not sell cannabis plants to nurseries for resale. Additionally, Maryland Cannabis Administration-licensed growers will only be allowed to sell cannabis plants to other licensees. Licensed dispensaries may sell cannabis plants directly to adult use consumers and patients. For greenhouses that are not licensed growers, [federal guidelines](#) prohibit the sale of cannabis plants or any part of the plant with a THC content higher than 0.3% on a dry weight basis to any person.*

If greenhouse growers have any questions about selling cannabis plants they should reach out to the [commission](#).

## Lilac Borer – Clearwing Moth Activity

By: Stanton Gill

We are picking up lilac borer males this week in some areas of central Maryland. In our trap here at the research center, we had no activity of adult males in our baited pheromone traps this week for lilac borer. If you have lilacs that are susceptible to lilac borer, then this week is the time you want to apply protectant sprays of bifenthrin or permethrin.

## Ambrosia Beetles

By: Stanton Gill

Our traps at CMREC did not have any adult *Xylosandrus* ambrosia beetle activity this week

## New Pest for Central Maryland on Red Maple

By: Stanton Gill

Marie Rojas, IPM Scout, found an interesting true bug in the family Miridae (thanks Matt Batrone, NC State, for this family ID) last week. It was feeding on tips of red maples in a central Maryland nursery and causing damage to new growth on the red maple. Early in the week, we only had nymphs and ID was only possible to the family level.

We have lots of Miridae bugs feeding in May with the early spring weather that we normally see feeding in June. This was not one of the frequently found ones. Marie reared out an adult and sent a photo to us at CMREC this week. Thanks Marie for being so observant.

It is *Neolygus vitticollis*. This bug is recorded in Garrett County of Maryland. It is active in Garrett County in June of most years. I suspect with the early spring and central Maryland being about 2 weeks ahead of Garrett County are the reasons for the early activity.

Here is the link for identification of this bug with a map showing previously reported activity of this bug in Maryland. <https://marylandbiodiversity.com/species/viewSpecies.php?species=15356&showAll=1>

If you find this bug active in your nursery, please send pictures of the insect and damage to [Sgill@umd.edu](mailto:Sgill@umd.edu) or contact the Plant Protection Division of MDA in Annapolis.



*Neolygus vitticollis* plant bug found on red maple.

Photo: Marie Rojas, IPM Scout

## What We Are Testing at the University of Maryland Extension – Disease Resistant Cultivars of Hazelnut

By: Stanton Gill

On Wednesday, David Clement, Andrew Ristvey, and I, drove to New Jersey to pick up new hazelnut cultivars bred by Oregon State University and Rutgers University. We will establish test plots at CMREC and WYEREC, University of Maryland Experiment stations, to evaluate ‘The Beast’ (Oregon State University, and ‘Somerset’ (Rutgers University). We will feature these new cultivars in future field days we will hold at our research facilities.

### Giant Willow Aphids

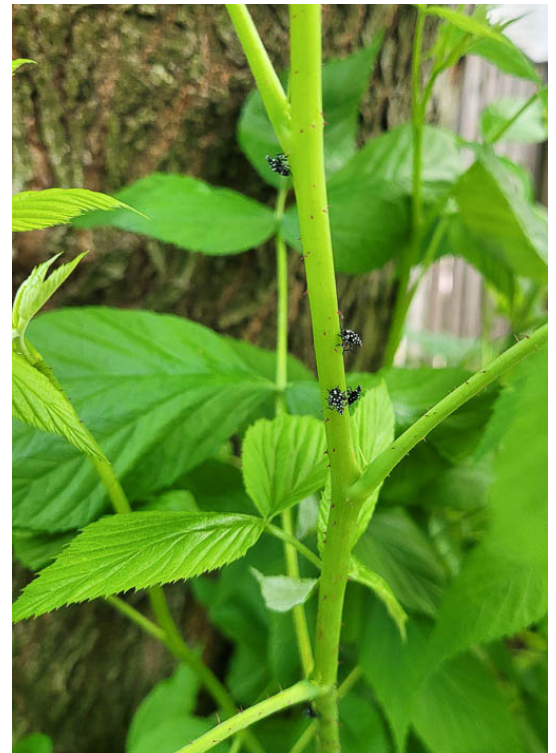
Marie Rojas, IPM Scout, found giant willow aphids on both a red oak and willow in Frederick County. These aphids will continue to be active throughout the season. They can produce a lot of honeydew, but are not a problem for the overall health of a tree. Control is usually not necessary. Predators and parasitoids keep this aphid under control.



**Giant willow aphid is one of the larger aphids found in Maryland.  
Photo: Marie Rojas, IPM Scout**

### Spotted Lanternfly

Luke Gustafson, The Davey Tree Expert Company found spotted lanternfly nymphs on a property in Baltimore City near Raven's Stadium this week. We are seeing first and second in several counties at this time.



**Early instar spotted lanternfly nymphs on growth at base of a tree.  
Photo: Luke Gustafson, The Davey Tree Expert Company**

## Aphids on River Birch and Hellebores

Todd Armstrong, The Davey Tree Expert Company, found aphids on river birch in Lutherville this week. On the river birch, Todd noted that there was "so much that honeydew was raining down". Todd also found a very heavy infestation of aphids on hellebores in Jarrettsville. Reports of heavy populations of aphids on hellebore have been increasing for the last 7 years. In July 2016, we received a sample of hellebore leaves with an entomopathogenic fungus that was attacking the aphids. The fungus looked unsightly, but it was helping to control the aphids.



**Aphid populations can be heavy on hellebores. Parasitic wasps are active - several of the aphid mummies are by the arrows. Photos: Todd Armstrong, The Davey Tree Expert Company**



**This entomopathogenic fungus is another naturally occurring biological control organism for aphids. Photo: Suzanne Klick, UME**

## Crapemyrtle Bark Scale

On plants that we have checked in Rockville and Ellicott City, we are still seeing eggs of crapemyrtle bark scale. Monitor your crapemyrtle bark scale infestations closely for crawlers. Please let us know when and where you are seeing them. Send reports to [sgill@umd.edu](mailto:sgill@umd.edu). Thanks.

## Exobasidium Gall on Camellia

Jon Cholwek, Pogo Tree Experts, found an exobasidium gall on camellia. Last week, we had several reports of these galls on azaleas and *Camellia japonica* in Bethesda.



An Exobasidium gall infection on camellia.  
Photos: Jon Cholwek, Pogo Tree Experts

## Parasitic Wasp Laying Eggs

Marie Rojas, IPM Scout, found a wasp laying its own eggs in a cluster of eggs (possibly stink bug eggs). The wasp egg will hatch and the larva will feed on the host.



Parasitic wasp laying eggs in host eggs.  
Photo: Marie Rojas, IPM Scout

## Beneficial of the Week

By: Paula Shrewsbury

### Mantispids – They look like a mix of a praying mantis and a lacewing

Mantispids (Family Mantispidae) are a very cool predatory insect in the order Neuroptera (same as lacewings and antlions). There are 3 sub-families, 7 genera, and 11 species of mantispids in North America. Mantispids go by several common names, including mantisflies, mantidflies, mantis lacewings, and mantid lacewings. This week, Mike Raupp (Entomology, UMD) came across an adult mantispid in Columbia, MD. Although these insects are not categorized as rare, it is not one that is seen very often so this was pretty exciting. The mantispid that Raupp found was the green mantidfly, *Zeugomantispa* spp. *Zeugomantispa* are light green and the wing venation is green.

Mantispids resemble praying mantis which are in the order Mantodea. They have wings that look like those of lacewings (clear with venation throughout) and raptorial front legs and head similar in appearance to praying mantis. They have a long prothorax (area behind the head and pronotum) where the front pair of raptorial legs are found. The middle and back pair of legs are on the other thoracic segments and are used for walking, while the front raptorial legs are usually held up and used for catching and holding prey. Their raptorial legs have spines to assist in catching prey. The head is triangular in shape with large eyes, similar to the head of a praying mantis. Most mantispids are relatively small with adults being less than 15 mm (0.6 inches) in length. The female mantispid lays eggs on clear stalks in clusters up to 1000 on the underside of leaves.

Both adults and larvae of mantispids are predacious and provide biological control services reducing populations of several plant pests. Similar to praying mantis, mantispids are ambush and stalking predators so they have an intense sense of vision and smell. Adults eat small insects, caught with their raptorial front legs. The different sub-families of Mantispidae are known to feed on different types of prey. For example, larvae in the subfamily Mantispinae are only known to feed on spider eggs within egg sacs of spiders. First instar larvae either seek out and penetrate a spider egg sac directly, or hang out on a leaf and attach to spiders as they move by and then wait for the opportunity to enter egg sacs as the spider spins them. Larvae in the other subfamilies (i.e. genera *Plega* and *Nolima*) have been reared on immatures of Coleoptera (beetles), Lepidoptera (moths and butterflies), Hymenoptera (bees, ants, and wasps),



Green mantisfly, *Zeugomantispa* spp.. laying eggs on a window pane.

Photo: Betsy Betros, BugGuide.net



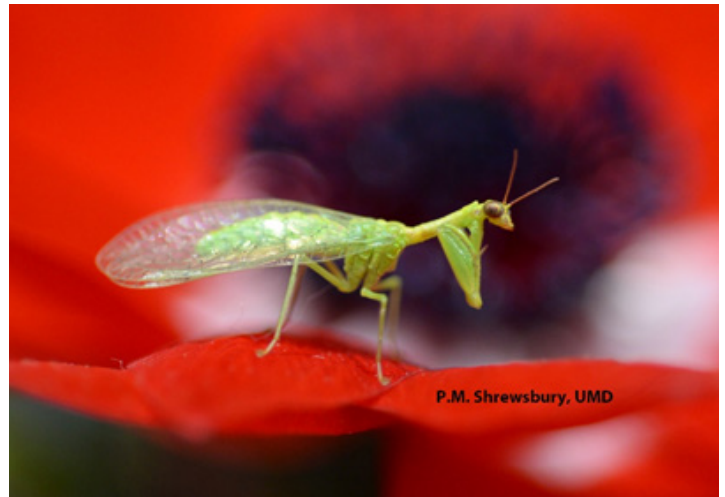
Green mantisfly, *Zeugomantispa* spp. egg mass with newly hatched 1st instar larvae.

Photo: Betsy Betros, BugGuide.net



Diptera (flies), and Isoptera (termites) spider eggs and paralyzed spiders removed from sphecid wasp cells.

A common question is “Are mantispids and praying mantis related?”. Interestingly, even though mantispids and praying mantis have morphological and behavioral similarities, no evolutionary relationship has been found between the two so far. It is believed the physical resemblance between praying mantis and mantispids is likely the result of convergent evolution. This is when independent evolutionary paths result in similar features on unrelated species.



**Green mantidfly, *Zeugomantispa* spp., adult on a flower. Note the lacewing like wings and the raptorial legs and head that look similar to a praying mantis. Photo: P.M. Shrewsbury, UMD**

### **Weed of the Week**

By: Mark Townsend, UME-Frederick County

Yellow nutsedge, *Cyperus esculentus*, is nothing short of prolific. Commonly misunderstood to be a member of the grass family, yellow nutsedge is in a class of plants known as the sedge family. Sedges are grass-like monocots, but are only distantly related to grasses. No less, yellow nutsedge v-shaped, narrow, triangular-tipped, and vertically growing foliage lend the impression that it must be a grass! To distinguish, always remember that “sedges have edges”.

As a result of this misconception, yellow nutsedge can be difficult to control with approaches that are better suited for grasses. In this, some agricultural circles see yellow nutsedge as a serious challenge to weed control in crop production. The sedge family is quite large with some 5,500 known species distributed across the globe. Though we are most often faced with yellow nutsedge in the Mid-Atlantic, with purple nutsedge being commonly found in the Southeastern United States.



**Photo 1: Yellow nutsedge primarily reproduces by tubers. Photo: Chuck Schuster, UME Ag Agent, Emeritus**

Most generally however, sedges tend to be associated with wetter soils. Some sedge species are hydrophilic, meaning they are well adapted to living in low-oxygen soil conditions as they have developed alternative means of collecting oxygen. We may often observe yellow nutsedge in historically wetter regions like low-lying areas of a field where water collects.

Yellow nutsedge is a perennial weed that reproduces by both seed and rhizome—underground stems. Nutsedge gets the “nut” in its name as the plant propagates from a tuber that resembles a small nut. At the top of the plant, Yellow nutsedge produces small spikelets ranging from .5 cm - 3 cm long tawney yellow or brown in color. Plants are estimated to produce millions of seeds per acre; however the seeds have quite a low germination rate range of about 5-40%.

## Control/Management Strategies

The adage, “the best weed control is dark” holds true for yellow nutsedge. Cultural control methods that promote crop health and canopy development to shade weeds remains one of the best practices in preventing yellow nutsedge from becoming a problem.

Yellow nutsedge prevalence has been reported to be correlated with low soil test phosphorus and calcium. Though not scientifically validated, this is seemingly plausible. Low-lying, nearly anaerobic soils with poor microbially mediated nutrient mineralization rates have limited phosphorus availability. These soils may also exhibit “tightening” as cations, calcium in particular, are washed through the soil profile wherein yellow nutsedge may outcompete other species.



**Photo 2: Yellow nutsedge seed head and overall plant.  
Photo: Chuck Schuster, UME Ag Agent, Emeritus**

Given how yellow nutsedge primarily propagates through tuber development, any physical removal of the entire plant (tuber included) from the soil offers an effective option of management. This would include tillage or cultivation (6-8”) in agricultural systems and hand-weeding in garden applications. Interestingly, some waterfowl species of birds have been observed digging nutsedge to consume its tuber. Similarly, the inclusion of hog-grazing in agricultural systems laden with yellow nutsedge has been reported to show reductions in yellow nutsedge populations as the swine root up the shallow tubers.

In turf applications products that contain sulfentrazone like Dismiss® have been shown to provide both pre-emergence and post-emergence control, though it is not labeled for pre-emergence. Proflam, in products like Barricade® plus sulfentrazone is labeled for pre emergence control. Sulfentrazone plus quinclorac (Solitare®) is effective as a post emergent product, but will require more than one application, in some cases 30 days apart. Other products containing sulfentrazone include Q4 Plus®, Surge®, SureZone®, and TZONE®, but these products are labeled for suppression as they contain lower concentrations of the active ingredient. Other products labeled are bentazon found in Basagran®, which is labeled for use in tall fescue, the predominant species in this region; halosulfuron-methyl found in Sedgehammer® and Sedgehammer+® (Sedgehammer+ contains a surfactant), S-metolachlor found in Pennant Magnum®. Mesotrione (Tenacity®) is also labeled for post emergence control in Kentucky bluegrass, perennial ryegrass, and tall fescue. This product causes a bleaching of the weeds. Read the label to determine if a nonionic surfactant is needed. Control generally takes more than one application. Halosulfuron products are rated the best for control of this difficult weed in many studies.

In landscape and nursery settings, it was found that Pennant Magnum® (s-metolachlor), Sedgehammer®, and Casoron® (dichlobenil) worked well. Check labels to determine plant species that are safe for use with each chemical. Casoron® as a granular product (4G) can be applied as a pre-emergence product during the dormant season in nurseries but not in the container themselves. It requires moisture following application. Sedgehammer® works well in landscapes but should not be sprayed onto desired species of plant material.

When controlling yellow nutsedge in turf, always remember the following 5 points. 1) Follow label directions exactly. 2) Do not mow turf 2 days prior to application of the herbicide. 3) Use the proper volume of water and do not apply when the turf is stressed. 4) Be cautious near transitions of turf to ornamental beds as some herbicides can cause damage to desired ornamentals. And lastly but not the least is 5) Repeat application according to label instructions.

## Plant of the Week

By: Ginny Rosenkranz

*Lonicera sempervirens* or trumpet honeysuckle is a native honeysuckle deciduous vine that grows up a trellis, along fences and can make a colorful groundcover. Plants are winter hardy in USDA zones 3-9 and thrive in full sun in moist, but well drained, organically rich soils. The vine twines up supporting fences and trellis to reach heights of 10-15 feet tall. Blue-green oval leaves with an entire margin are space opposite of each other. It is the spectacular 1 ½ - 2 inch long trumpet-shaped, non-fragrant narrow scarlet flowers with a soft yellow inside that steal the show in late spring, and are a magnet for hummingbirds, butterflies and other pollinators. The flowers bloom in late spring, growing in a whorled spike, with 4-5 flowers at the ends of each shoot. The flowers mature into small red berries that are attractive and enjoyed by many native birds. There are many cultivars including 'Alabama Scarlet' with dark red flowers, 'Pam's Pink' with pink and cream colored flowers, and 'Sulphurea' with lovely pure yellow flowers.

Leaf spots and powdery mildew can occur in hot humid summers, while aphids and leafminers can sometimes be problematic.



Trumpet honeysuckle blooms in late spring.  
Photos: Ginny Rosenkranz, UME

## Degree Days (as of May 17)

Abingdon (C1620)	480
Annapolis Naval Academy (KNAK)	572
Baltimore, MD (KBWI)	619
College Park (KCGS)	586
Dulles Airport (KIAD)	591
Ft. Belvoir, VA (KDA)	565
Frederick (KFDK)	501
Gaithersburg (KGAI)	515
Gambrils (F2488, near Bowie)	571
Greater Cumberland Reg (KCBE)	434

Perry Hall (C0608)	455
Martinsburg, WV (KMRB)	360
Natl Arboretum/Reagan Natl (KDCA)	745
Salisbury/Ocean City (KSBY)	622
St. Mary's City (Patuxent NRB KNHK)	778
Westminster (KDMW)	592

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 **360 DD** (Martinsburg, WV) to **778 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.

Spongy moth (formerly gypsy moth) – egg hatch (**373 DD**)  
Holly leafminer – adult emergence (**375 DD**)  
Hemlock woolly adelgid – egg hatch (2<sup>nd</sup> gen) (**411 DD**)  
Basswood lace bug – 1<sup>st</sup> adult activity (**415 DD**)  
Emerald ash borer – adult emergence (**421 DD**)  
Locust leafminer – adult emergence (**429 DD**)  
Honeylocust plant bug – egg hatch, early instar (**433 DD**)  
Fourlined plant bug – egg hatch, early instar (**435 DD**)  
Lesser peachtree borer – adult emergence (1<sup>st</sup> gen) (**468 DD**)  
Oak erricoccin scale – egg hatch / crawler (**469 DD**)  
Maskell scale – egg hatch / crawler (1<sup>st</sup> gen) (**470 DD**)  
Oystershell scale – egg hatch / crawler (1<sup>st</sup> gen) (**486 DD**)  
Minute cypress scale – egg hatch / crawler (**511 DD**)  
White prunicola scale – egg hatch / crawler (1<sup>st</sup> gen) (**513 DD**)  
Euonymus scale – egg hatch / crawler (1<sup>st</sup> gen) (**522 DD**)  
Bronze birch borer – adult emergence (**547 DD**)  
Bagworm – egg hatch (**602 DD**)  
Potato leafhopper – adult arrival (**603 DD**)  
Black vine weevil – adult emergence (**607 DD**)  
Twospotted spider mite – egg hatch (**627 DD**)  
Cottony camellia/Taxus scale – egg hatch (**649 DD**)  
Mimosa webworm – larva, early instar (1<sup>st</sup> gen) (**674 DD**)  
Juniper scale – egg hatch / crawler (**694 DD**)  
Calico scale – egg hatch / crawler (**765 DD**)  
Oak lecanium scale – egg hatch / crawler (**789 DD**)  
Rhododendron borer – adult emergence (**815 DD**)  
Japanese maple scale – egg hatch / crawler (1<sup>st</sup> gen) (**829 DD**)  
Dogwood borer – adult emergence (**830 DD**)  
European elm scale – egg hatch / crawler (**831 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.

## Environmental Horticulture and Sustainable Agribusiness - Applied Technologies/Montgomery College

**Summer Classes 2023: Summer Session I:** For further information, contact Stephen Dubik (240) 567-7803. Steve.dubik@montgomerycollege.edu. Register by Web: [www.montgomerycollege.edu](http://www.montgomerycollege.edu)

### **HORT 135 Stormwater Maintenance** (*Lecture and lab meet face-to-face at the Takoma Park Campus*)

1 semester hour. Instructor Rick Scaffidi how to perform inspection, minor repairs and maintenance of plant materials surrounding bio-retention facilities and similar Low Impact Development (LID) techniques according to Montgomery County and Maryland State guidelines. Other topics include planning reading and developing a maintenance plan for bio-retention facilities. Portions of the lectures may be held at outdoors. ***Class meets face-to-face at Takoma Park campus***

Thur. 6/22	CRN 41250	Lecture	8:00 a.m. - 3:15 p.m.
Thur. 6/29 & 8/6	CRN 41251	Lab	8:00 a.m. - 3:15 p.m.

**HORT 244 Herbaceous Plant Materials** (3 semester hours - *Lecture and portion of lab meets on-line, portions of lab instruction will be offered remotely during the times indicated.*) Explore the world of herbaceous plant materials. We'll cover annuals, perennials, and ornamental grasses and focus on their uses in the landscape. Course requires three mandatory field trips to U.S. Botanic Gardens (06/17/23), Brookside Gardens (07/8/23) and Longwood Gardens (07/22/23). Alternative field trips include tours to McCrillis Gardens and the Demo Gardens at the Germantown Campus. ***Class meets on-line from 6/5 to 8/13/23***

Monday	CRN 40630	Lecture	6:00 – 8:30 p.m.
Monday	CRN 40631	Lab	8:35 – 10:00 p.m.*

As the course has required field trips class will be shortened to 9:05 pm.

**Conferences: Go to the [IPMnet Conference Page](#) for links and details on these programs.**

**May 24, 2023**

[IPM Scouts' Diagnostic Session](#)

Location: CMREC, Ellicott City, MD

**June 16, 2023**

[Montgomery County Procrastinator's Conference](#)

Location: Montgomery County Extension Office

**June 20, 2023**

[Cut Flower Program](#)

Location: Castlebridge Farm, Ellicott City, MD

**Commercial Ornamental IPM Information**  
[extension.umd.edu/ipm](http://extension.umd.edu/ipm)

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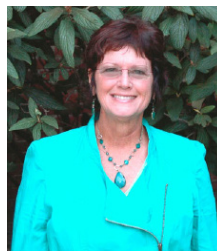
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