

Commercial Horticulture

June 22, 2018

### In This Issue...

- Japanese beetles
- Another ambrosia beetle
- Watch out for deer
- Main peachtree borer
- Bagworms
- Nutsedge
- Galls on elms
- Yucca bugs
- Tough places for plants
- Rust on callery pear
- Mosquitoes
- Emerald ash borer
- Powdery mildew
- Fall webworms

Beneficial of the Week  
Weed of the Week  
Plant of the Week  
Phenology  
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)

### Japanese Beetle Activity

By: Stanton Gill

Thanks for all of the reports on Japanese beetle activity:

Alexandre DeLacotte, American Plant Food in Bethesda on roses on June 20, Melissa Harmel on June 19 in the Frederick area, Janet Terry on plums in Silver Spring on June 20, Steve Castrogiovanni, Mead Tree Experts, in Montgomery County, Zach Brewer, Blades of Green, saw the beetles littering a vacant lot in Huntingtown on June 20, Matt Fuller on compact holly in McLean, VA, Heather Zindash, Mainscapes, Inc., on red twig dogwood in Crofton on June 21, and one other report in Forest Hill.



Japanese beetles are showing up throughout the area now  
Photo: Zach Brewer, Blades of Green

Adult control: Options include Mainspring and Acelepryn (4 - 8 oz/100 gallons of water as a foliar spray). Control on highly susceptible plants needs to start before damage gets ripping.

## Another Exotic Ambrosia Beetle Joins the Mix

By: Stanton Gill

Last week, I received a sample of an ambrosia beetle from a nursery in Maryland. It appeared to be a *Xylosandrus* species when I ran it through an ambrosia beetle key. We sent pictures to Dr. Robert Rabaglia, since he is the KING of ambrosia beetle ID. Bob is a national entomologist with the USDA Forest Service in Washington, D.C. He identified the ambrosia beetle as another introduction from Asia.

Eight years ago, I was at a meeting with southern nursery managers and the topic came up about *Xylosandrus* species of ambrosia beetles. In the south they had a relatively new ambrosia beetle, camphor shoot borer (CSB) which at that time had the latin name, *Xylosandrus mutilatus*. Since then, the taxomists have changed the genus name to *Cnestus*. It is now *Cnestus mutilatus* while retaining the common name, camphor shoot borer.



This ambrosia beetle is native to Asia and was found in Mississippi, Alabama, Georgia, Florida, Tennessee, and Texas in 1999 to the early 2000. Kimberly Rice, MDA, said that a confirmed catch of this beetle in Carroll County was made in May of 2017 and Wicomico County in 2016. It was found at our Exotic Woodboring Beetle survey sites. Per Cooperative Agricultural Pest Survey (CAPS) survey data, from 2011 until now, it has been found in NJ, PA, DE, VA, IN, IL, LA, MO, and FL. In China, it has been reported to cause extensive damage to Chinese chestnuts. *C. mutilatus* is a polyphagous ambrosia beetle and is indigenous to at least 10 countries in eastern and southern Asia, including Japan and India.

The adult beetles are black, with reddish-brown legs and antennae. The males are all flightless. The females fly about the same time in the spring as the *Xylosandrus* species we have been monitoring for the last 16 years. In Tennessee, Frank Hale and other entomologists have noted that sweetgum appears to be a preferred host. CSB attacks have been associated with plant stressors like herbicide injury, poorly drained soil, trunk and branch damage, and inadequately managed container production. CSB attacks have been found on black walnut, goldenraintree, red maple, sweetbay magnolia, tulip poplar, and white oak by injecting tree trunks with ethanol.

## Main Peach Tree Borer Adults Are Out

By: Stanton Gill

Males of main peachtree borer, *Synanthedon exitiosa*, were picked up in pheromone baited delta traps in Westminster and Brookeville on June 17 and 18. When males are caught, it means they are seeking out females. Once they mate, females generally lay eggs onto cherry, peach, apricot, and plum trees. The larvae hatch and chew through the bark into the cambium of the tree. With many of the stone fruits, this boring activity will show up as a gummy sap, which is the trees trying to drown the young larvae.

If you are using protectant sprays of bifenthrin or permethrin, then the next week or so is a good time to treat. For the last 4 years, I have been using disruption pheromones to pull males to an area away from females moths. The material is called Isomate. I have been very successful with this material, but it has to be used on an area at least 2 acres or more. It is rather expensive (around \$400 for the dispensers). It is feasible in commercial nurseries and orchards with a lot of susceptible tree species, but it is not really financially practical in small landscapes at this time.

## A Lot of Deer Activity this Week

By: Stanton Gill

We are getting reports from several locations in Maryland that deer have been very active near roadways over the last 2 weeks. I thought it was the rainy and warm weather making them restless. I spoke with Donna Davis of DNR to get her insights. She said that the female does are birthing fawns at this time of year. The one year olds that were hanging around momma are being pushed out and driven away from feeding sites for the momma and new fawns. These restless young deer are wandering out to find their spot in life, and unfortunately, they are not good at not wandering near roads.

We got to experience this last week when a young deer ran in front of my sport utility barely being missed by inches. I was driving at 30 mph so avoiding the deer was not too bad. My wife was traveling in her Honda civic about 2 hours later on Rt. 97 and R.t 32 and a deer flew onto the roadway. With a Civic driving at 50 mph the deer is not going to win. Neither did the car with over \$4000 of damage done. The message is to watch out for deer in mid-June. The young, unexperienced deer may wander into your path. Be ready to hit the brakes quickly.

## Bagworms on Deciduous and Evergreen Plants

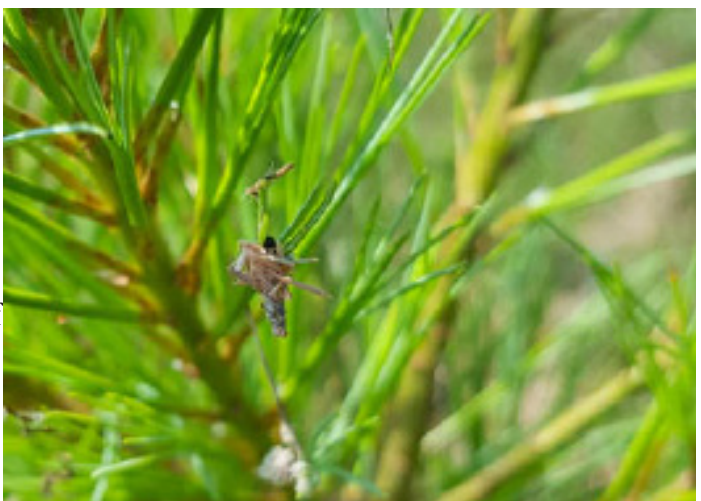
By: Stanton Gill

We received a report from a nursery grower of young bagworm larvae feeding on a European beech. We have seen feeding on deciduous plants in other years, with heavy feeding on European beech and purple leaf plums. Marie Rojas, IPM Scout, reports that she finally found them on conifers in Darnestown on June 19. Jeff Lavrusky, Brightview, found them on conifers in Walkersville.

**Control:** Bagworms are still susceptible to many insecticide sprays at this stage of the summer. As we move into July, they will be larger and more difficult to control. *Bacillus thuringiensis* (Bt) is very effective on early instar bagworms, but use a sticker with the application. Another choice is spinosad sold under several names including Conserve. These two materials have minimal impact on beneficial organisms (when used according to the label), but effectively control bagworms. Acelepryn and Mainspring would both control bagworms, but at a much higher cost. Again, both materials have the least impact on beneficial organisms, but control the caterpillar. An older class of chemistry, acephate, will control bagworms, but there is a wider spectrum beyond the target pest of what it will also kill. In light infestations, hand picking off bags is an option.



UMD-IPMnet  
Bagworms feed on deciduous trees, like European beech



Bagworms are easier to control when small  
Photo: Marie Rojas, IPM Scout

## Nutsedge Thriving Amidst Recent Weather Patterns

By: J.R. Doherty and J.A. Roberts, UMD

With the recent deluge of rain over the past few weeks soils have remained near saturation. These wet soil conditions are very favorable for the proliferation of both purple and yellow nutsedge in addition to kyllinga.

Both forms of nutsedge thrive in wet and/or poorly drained soils (Figure 1), however, they can also survive dry areas as well. While sedges may look like grassy weeds, it is extremely important to differentiate them as management of sedges is very different than management of grasses. The easiest way to differentiate sedges from grasses is by feeling the stems of the plant, as sedges have three-sided, or triangular, stems (Figure 2). Yellow nutsedge has more pointed tips and a lighter green color than purple nutsedge. Sedges can be difficult to manage, and the largest contributing factor for nutsedges are the tubers that these weeds produce. Both yellow and purple nutsedge produce tubers, although yellow nutsedge produces tubers at the tips of rhizomes while purple nutsedge produces tubers in chains along the length of a rhizome. These tubers will lead to additional weed problems in future years. As such, control strategies should take place before tuber production which begins in late June and early July.

**Control:** With the tuber production of these weeds beginning in late June and early July, control measures should be made prior to this time. Cultural practices for management of this weed are limited to improving drainage of areas where soils are constantly wet or poorly drained or roguing of the weeds. However, roguing may prove inefficient as both nutsedges prolifically produce tubers that survive in the soil for many years. Pre-emergence herbicide controls are limited to either mesotrione or sulfentrazone + prodiamine. Post-emergence herbicide control has more options with imazosulfuron, halosulfuron, sulfentrazone, sulfentrazone + imazethapyr or sulfentrazone + metsulfuron. Be sure to consult the labels for use restrictions and grass safety when considering an herbicide application. Efficacy will be contingent on growth stage of target species and proper application methods.

## Galls on Elm

Sean Baldwin, Bartlett Tree Experts, found galls on elm foliage in Westminster. Causes of plants galls include feeding by mites, wasps, aphids, and psyllids. Most often, the galls cause little overall damage to the health of trees. Chemical control is usually not necessary. Control is also difficult because timing of applications early in the season is so critical.



**Figure 1. Nutsedge thrives in wet and/or poorly drained soils**

**Photo: Joe Roberts, UMD**



**Sedges, nutsedge, has triangular stems**

**Photo: Joe Roberts, UMD**

**Galls can make plants look unsightly, but usually do not have a negative impact on the overall health of the tree**  
**Photo: Sean Baldwin, Bartlett Tree Experts**



## Yucca Bugs

By: Stanton Gill

You might have thought yucca plants were bulletproof. Nothing stays bug free forever. Yuccas can be infested by the yucca plant bug, *Halticotoma valida*, which is active this week in Central Maryland. The nymphs are reddish colored and are found on the upper and lower leaf surfaces. They pierce the foliage and cause the cells to collapse causing a stippling damage. Since the nymphs are on open foliage, low risk materials such as insecticidal soap can make contact and provide good control. A systemic insecticide will also work.

## Tough Places for Plants



Concrete mulch - the ultimate weed control program?  
Photo: Paul Thomas, Scientific Plant Service



Here's a tough spot for a holly to grow  
Photo: Heather Zindash, Mainscapes, Inc.

## Rust on Callery Pear

Bryan Lilly, Natural Elements, LLC, found cedar quince rust on the fruit of callery pear. This fungual pathogen also infects other rose family plants such as hawthorn, quince, serviceberry, crabapple, apple, and mountain ash. A common alternate host is the eastern red cedar.



Fruit on a callery pear is infected with cedar quince rust  
Photo: Bryan Lilly, Natural Elements, LLC

## Mosquitoes Everywhere

By: Stanton Gill

Kelly Billing, who designs and advises on aquatic ponds, reported that one of her newly designed ponds in Bethesda was drained this week because mosquito larvae were out of control. The tiger fish in the pond could not keep up with the large number of mosquito larvae. It has been hot and humid which caused a booming mosquito population. If you have customers with small ornamental ponds, put in Bti (mosquitoes dunks) or treat the water with the insecticide growth regulator Methoprene, sold under names such as Altosid and Pre-Strike.

## Emerald Ash Borer

Mark Schlossberg, ProLawn Plus, Inc., found a neighborhood in Owings Mills where the ash trees have been heavily infested by emerald ash borers and many trees are almost completely defoliated at this time. Communities have had to weigh the costs and then decide which trees to spray and which to remove each year.

**Emerald ash borers have heavily infested these ash trees in Owings Mills**  
Photo: Mark Schlossberg, ProLawn Plus, Inc.



## Powdery Mildew

Mark Schlossberg, ProLawn Plus, Inc., found *Cornus florida* in Phoenix heavily infected with powdery mildew. This disease can cause new growth to be distorted. With favorable weather conditions, this disease will continue to infect plants throughout the summer. Severe infections can cause foliage to turn red.

**Photosynthesis is impacted by this heavy infection of powdery mildew**  
Photo: Mark Schlossberg, ProLawn Plus, Inc.



## Fall Webworms

Joanne Mead, Mead Tree Experts, found webworm on hollies in Woodbine this week. This activity is still part of the first generation of fall webworms. This native caterpillar had a wide host plant range. There is a second, usually more damaging, generation later in the summer. Control materials include spinosad (Conserve), Acelepryn, and Mainspring. Bt works well if the caterpillars are caught in the early instar stage.

**First generation fall webworms are finishing up activity as we move into July**  
Photo: Joanne Mead, Mead Tree Experts



## Beneficial of the Week

By: Paula Shrewsbury, UMD

Japanese beetle adults are active! Are there natural enemies that attack them?

We have had several reports of Japanese beetle adult activity this past week or so. It will be interesting to see what the populations and damage will be like this season. Last season was not too bad relative to some years. I thought this would be a good time to talk about natural enemies of Japanese beetle adults. First, I would like to point out that, in general, more natural enemies attack the larval (white grub) stage of Japanese beetles than the adult stage. One of the more common natural enemies attacking Japanese beetle adults is a group of parasitoids referred to as tachinid flies. Tachinid flies are true flies (Diptera) in the family Tachinidae. There are over 1,500 known species of tachinid flies and they can vary in size (3-14 mm) and color (black, grey, and orange). In general, most tachinid flies are robust and have stout hairs on their abdomen. At first glance many look similar to the common housefly, but they are very different animals. Tachinid flies are one of the most important families of parasitic flies providing biological control of numerous insects that are pests in ornamental, turfgrass, and agricultural systems. Tachinids are parasitoids of many caterpillars, sawfly larvae, beetle adults and larvae, earwigs, grasshoppers, and some true bugs. Most importantly for this conversation we frequently see tachinid flies attacking Japanese beetle adults!

Tachinid flies have interesting and variable egg laying strategies. In some species, eggs are laid on foliage near a host insect, the eggs hatch, and the very tiny maggots (larvae) are consumed, unknowingly, by the host insect when it feeds on the foliage. Then, the maggots feed on and develop in the host insect – of course killing the insect. In other species, tachinid females have long ovipositors that they use to pierce the skin of the host insect and insert their eggs into the host's body. In yet other species, the adult tachinid glues her eggs somewhere on the outside body of the host, eggs hatch, and the maggots penetrate into the host's body. This strategy is the most common strategy we see for tachinids that attack Japanese beetle adults (see the image). Look for the white eggs attached to the outside of the body of Japanese beetle adults. Regardless of the egg laying strategy, all tachinid flies are internal parasitoids of their hosts as larva and they exit the host body to pupate. If you ever see a Japanese beetle adult that looks like its abdomen has been blown out, it was likely killed by a tachinid fly. Tachinids can have one to multiple generations a year. Adult tachinid flies also feed on liquid such as nectar from flowers and honeydew from aphids and soft scales. In our studies on using conservation strips of flowering plants to conserve beneficial arthropods, we frequently observe tachinid fly adult activity (see image). Other natural enemies observed attacking Japanese beetle adults include many generalist predators such as spiders, assassin bugs, and predatory stink bugs. Birds such as grackles,



**Note the white tachinid fly eggs that were glued to the beetle by an adult tachinid female. Eggs will hatch and larvae will bore into the Japanese beetle and feed on its insides resulting in its death.**  
Photo: J. Davidson, UMD



**A tachinid fly feeding on the floral resources provided by buckwheat flowers, demonstrating that “if you grow the right plants, natural enemies will come”. Note the bristly hairs on the abdomen that are characteristic of tachinid fly adults.**  
Photo: Kerry Costlow, UMD

meadowlarks, starlings, cardinals, and catbirds have been reported as significant predators of Japanese beetle adults. Also remember there are natural enemies that attack the white grub stage of the beetles which add to the complex of enemies of the Japanese beetle! Ants and ground beetles eat eggs of Japanese beetles. It seems natural enemies still have a hard time suppressing Japanese beetle adult densities. This situation may relate to the fact that Japanese beetles are exotic insects, native to Asia. Japanese beetles were first detected in the U.S. in 1916 in NJ. Over the years, 8 species of tachinid flies from Japanese beetles native range in the Far East have been released in the U.S. However, only 3 species are known to have established, mainly in New England. Therefore, their natural enemy complex is likely more limited in the U.S. than in its native range. Keep working towards conserving natural enemies to help the beneficial populations “catch up” to and suppress Japanese beetle densities.

## Weed of the Week

By: Chuck Schuster, UME

The news has recently reported about the finding of giant hogweed in neighboring states. This weed is problematic and has the potential of causing harm to individuals. I have received a great numbers of calls, texts, and emails regarding this weed in the last two weeks. It is very important for those of us working in the landscape, and potentially in industrial and right-of-way weed control, really know what weeds they are up against. Proper identification is the key tool. I want to do a comparison of three different plants that can be mixed up.

The first plant I will cover is poison hemlock, *Conium maculatum*. It is a biennial plant with a tall erect growth habit. In the first year poison hemlock produces a basal rosette, which is often missed in some settings. In the following year, it produces a flower stalk that is what becomes most noticeable. This stalk can reach heights approaching or exceeding ten feet. This plant is found throughout the United States and is very poisonous to livestock. The leaves are alternate with a basic triangular outline, five to fifteen inches in length, and pinnately compound, and occur on a petiole. Each of the individual leaflets are lanceolate in outline and one eighth to one quarter in length. The flowering stalk is hollow, ridged, and has purple spots. White flowers are one and one half inches to two and one half inches in diameter, arising from flower stalks.

These flowers are made up of a cluster of smaller flowers, all arising from a common point. The root system is a white, solid thick taproot. This plant is very similar to giant hogweed. Control of poison hemlock may be achieved in turf and right-of-ways using 2,4-D compounds or products containing 2,4-D and dicamba. In landscape and nursery settings, glyphosate will provide control. Remember to be very cautious when using glyphosate close to the stems of landscape shrubs and trees.

**Note the purple spots on stems of poison hemlock**  
**Photo: Joseph M. DiTomaso, University of California - Davis, Bugwood.org**



UGA5203100

The flowering stalk of poison hemlock is hollow  
Photo: Pedro Tenorio-Lezama, Bugwood.org



Copyright © 2007 The Regents of the University of California. All rights reserved. 5374191



Wild carrot or Queen Anne's lace is our next plant for comparison. Wild carrot, *Daucus carota*, is a biennial weed that can be found in many nurseries, landscapes, right-of-ways and new lawns throughout the United States. The first year's growth appears very similar to that of the common carrot, and during the second year it will bolt and produce a tall stalk with a flat-topped white flower. This flower is collected by many and used in dried flower arrangements. Wild carrot produces a thick taproot, a stem during its second year that is hollow, and leaves that are a lobed rosette the first year and are alternate and lobed the second year. Very similar to common yarrow, wild carrot produces leaves with hairs on the underside during the second year. Control can be obtained in the turf and right-of-way settings with many of the post emergent selective broadleaf herbicides doing a very good job. These products include 2,4-D, MCPA, dicamba and combinations of these materials. Around trees and shrubs, great care should be used with these products due to potential drift and volatilization. Selective control can be obtained using a spot spraying technique with non-selective translocated products which are known to work well in landscape settings. Use caution to avoid any contact with shallow exposed roots, lower limbs and trunks.



The flower of Queen Anne's lace is produced the second year  
Photo: Chuck Schuster, UME

The last plant for discussion is giant hogweed. Giant hogweed, *Heracleum mantegazzianum*, is a noxious weed as listed on the federal noxious weed list. It is up and currently visible in many areas. This plant can grow to heights of twelve to fifteen feet. **Do not touch the sap of this plant as it can harm you.** Hogweed has a biennial life cycle, though it can live for several years as a rosette. When it produces seed (up to 20,000) it will die. It produces a dense taproot. It was brought into the United States in the early 1900's from Europe as an ornamental plant. It has a hollow stem and white hairs at the nodes and the base of the petiole. The stem is green with purple blotches. It produces a cluster of small white flowers that is similar in shape to that of an umbrella. It is very similar to hemlock which was highlighted recently. **Control of giant hogweed needs to start with caution. The sap can cause extensive skin burns in the presence of sunlight and sweat.**



Giant hogweed grows up 12 - 15 feet  
Photo: Terry English, USDA APHIS PPQ, Bugwood.org

Control is important. It can be cut down or dug up. Use of triclopyr (Garlon 4A or Pathfinder) and glyphosate have been very effective, while 2,4-D and combination products are only effective at damaging the top growth, but not effectively killing the roots.

While all three are biennials, they are different in appearance, potential to cause harm, and in control methods. If in doubt, seek help in getting the proper identification.

## Plant of the Week

By: Ginny Rosenkranz, University of Maryland Extension

Hosta ‘Paul’s Glory’ is a medium sized hosta with quilted leaves, bright golden yellow to chartreuse leaves and a deep green uneven border. The new foliage starts out a light medium green with the dark blue green border. As the plants grow, the foliage turns a lighter, brighter gold in the centers. The colors vary with the amount of sun and shade as well as the season. This herbaceous perennial plants grow 2 feet tall and up to 4 feet wide in a sturdy mound. It thrives in USDA zones 3-9. Like many cultivars of hosta, ‘Paul’s Glory’ grows best with morning sun and afternoon shade. Average to moist well drained soils are important, and a neutral soil pH works best. The light lavender, trumpet shaped fragrant flowers bloom in summer, attracting hummingbirds, songbirds, bees, and butterflies. Flowerscapes can grow up to 3 feet tall, and should be trimmed back after flowering is done. Hostas can be used in the landscape as a groundcover, as an edging plant, and in containers. ‘Paul’s Glory’ is said to be more slug resistant and grows well despite urban air pollutants. Some sources claim it is both rabbit and deer resistant, but that probably depends on the population of the animals. If planted in sandy soils, weekly watering will provide needed moisture.



The foliage color of Hosta ‘Paul’s Glory’ vary depending on the amount of sun and shade as well as the season

Photo: Ginny Rosenkranz, UME

### Degree Days (As of June 20)

Aberdeen, MD (KAPG)	923	Annapolis Naval Academy (KNAK)	1316
Baltimore, MD (KBWI)	1239	College Park (KCGS)	1197
Dulles Airport (KIAD)	1258	Frederick (KFDK)	1179
Ft. Belvoir, VA (KDAA)	1316	Greater Cumberland Reg (KCBE)	1148
Gaithersburg (KGAI)	1198	Martinsburg, WV (KMRB)	1141
Natl Arboretum.Reagan Natl (KDCA)	1470	Salisbury/Ocean City (KSBY)	1275
St. Mary’s City (St. Inigoes, MD-KNUI)	1345	Westminster (KDMW)	1259

**Important Note:** We are now using the [Weather Underground](https://www.weatherunderground.com/) site for degree days. It changes some of the locations available.

1. Enter your zip code (not all locations are included, check nearest weather station to your site) and hit enter
2. Click the “custom” tab/button below the date
3. Enter the start date below the word “from” (ex. Jan. 1) and the end date below the word “to” (current date)
4. Hit the get “history” button
5. Read your growing degree days (base 50) in the ‘Sum’ column (=Cummulatlive DD to date for the year)

## CONFERENCES

### MNLGA Nursery Field Day

June 27, 2018

Locations: Chesapeake Nurseries, Inc. and Marshalls'  
Riverbank Nurseries Inc., Quantico, MD

[For more info](#)

Conference information is posted at:  
<http://extension.umd.edu/ipm/conferences>

### 2018 MDA Pesticide Recycling Program

The Maryland Department of Agriculture is offering the empty plastic pesticide container recycling program in 2018. You can view the locations and requirements in the [online brochure](#).

Montgomery County is a new location this year and will also accept clean containers from Prince George's County as well as D.C., as they do not have a collection.

---

## 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.