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IPMnet
Integrated Pest
Management for
Commercial Horticulture

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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

Coordinator Weekly IPM Report:

Stanton Gill, Extension Specialist, IPM for Nursery, Greenhouse and Managed Landscapes, 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)

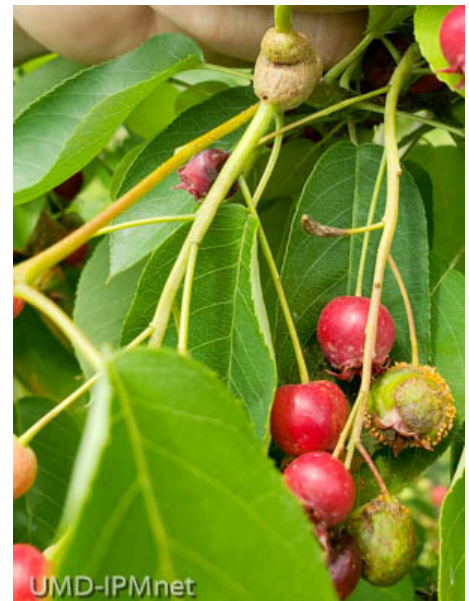
Too Much Rain Water in Too Short of Time

By: Stanton Gill

There have been epic rain events over the last month. Karen Rane and I were discussing the frequent and heavy rains that have occurred and the impact on plants. Many areas experienced standing pools of rain water for several days on end. Flooding was common in many parts of the state and there were mini lakes forming on golf courses and in residential landscapes.

These super-saturated soils of late May and early June will damage root systems of many plants. As the weather turns drier in June and July, we will see many plants with scorching leaves and branch dieback as a result of this high soil moisture period.

Last week, I mentioned that Kari Peter, Penn State Extension, reported very high infection of scab, rust, and fireblight which has continued into this week with high spore counts. Prepare your customers by letting them know the symptoms of many of these foliar diseases because they will be showing up over the summer months.



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Scout for rust like on this amelanchier fruit as well as for many other foliar diseases

Photo: Rachel Ross, UME

Unexpected Impact of the Excessive Rain

By: Stanton Gill

Ok, it's the first time we received a report of this occurrence in a landscape. Bill Stocker reported that after the deluge of rain, snakes moved into the landscape from nearby wooded areas. They had installed netting to protect against chipmunks and squirrels burrowing in the landscape beds. The migrating snakes are getting caught up in the netting. Bill had to rescue a couple of black rat snakes and a king snake that had ensnared themselves in the landscape netting.



**This king snake needed to be rescued from landscape netting
Photo: Bill Stocker**

We had a report from Jay Leonard, a landscape manager in Baltimore County, telling us that two garter snakes moved to high ground in his customer's landscape and were showing up in the upper canopy of a boxwood planting. He had to assure his customer that they were beneficial. The frequent and heavy floods are displacing a lot of wildlife. Tell your customers to stay calm – it's just wildlife.

Caterpillars of Moths – Good or Bad?

By: Stanton Gill

Most nursery and landscape managers think of the caterpillars of moths as “bad creatures”. The larvae of moths are known to feed on many plants in nurseries and landscapes. Some of the moth species do have their beneficial nature. Many moths pollinate a large number and variety of plant species. When other insects go to sleep, moths work the night shift, visiting some of the same flowers as diurnal pollinators, but also night-blooming plants that daytime fliers miss. Voracious eaters, moth caterpillars return important nutrients to the soil through their feces.

Yes, it is necessary to control certain moth larvae to prevent major damage to your customers' plants, but we don't need a scorched earth approach to controlling caterpillars. Generally, the native species do the least damage. Before you try to control moth larvae in the landscape, send me a picture so I can identify it for you before you crank up the sprayer. Contact me at Sgill@umd.edu.

By the way, National Moth Week is July 21 – 29. Maybe we should print up some T-shirts.



The eastern tiger swallowtail caterpillar is a native species that usually isn't a problem; common food plants are tulip tree, cherry, and magnolia

Cottony Camellia/*Taxus* Scale

Cottony camellia/*Taxus* scale is now producing crawlers. Heather Zindash, Mainscapes, Inc., found them active in Rockville and Columbia on June 5. Oscar Peña, Wray Brothers Landscapes, found crawlers on *Hydrangea petiolaris* in Bethesda on June 6. There is one generation a year, but each female can produce over 1000 eggs so populations can build up quickly.

Control: Now that eggs have hatched, treat crawlers with Distance or Talus.

Cottony camellia/*Taxus* scale is now in the crawler stage
Photo: Heather Zindash, Mainscapes, Inc.



Cottony Maple Leaf Scale

Heather Zindash, Mainscapes, Inc., found maple trees along a street in Gaithersburg with cottony maple leaf scales producing egg sacs. In the spring, females move onto the undersides of leaves to produce the cottony egg sacs. Look for this scale on maple, dogwood, and holly. Look for crawlers this month.

Control: When crawlers are active, control options include Talus or Distance with 1% oil.

Cottony maple leaf scale, *Pulvinaria acericola*, produces egg sacs on the undersides of leaves; a similar species, cottony maple scale, *Pulvinaria innumerabilis*, produces egg sacs on branches and twigs.
Photo: Heather Zindash, Mainscapes, Inc.



Predators of Scale Insects

Heather Zindash, found a good population of lady bird beetle nymphs (*Hyperaspis* sp.) eating tulip tree scale on Asiatic magnolias. The larval instar produces a waxy covering that mimics mealybugs. The waxy covering helps reduce predation of this lady bird beetle from other predators. Many of the adults in this genus are often dark colored with red, orange, or white spots. *Hyperaspis* lady bird beetles tend to specialize on soft scales.

Look at the mouthparts to determine if it is a mealybug (sucking) or a lady bird beetle (chewing)
Photo: Heather Zindash, Mainscapes, Inc.



Ambrosia Beetle Update

By: Stanton Gill

Samples from the Eastern Shore (Salisbury – Ginny Rosenkranz) and Frederick from James Becker, combined with the sampling at our research center, are all showing a dramatic drop in flight activity of *Xylosandrus*. By the end of June, we should begin to see activity from the second generation of both species of *Xylosandrus*. Meanwhile, the worst of the damage appears to be over for the spring of 2018. Time to move onto the next bug problems.

Zelkova and Crape Myrtle Dieback

By: Stanton Gill

Thanks for the responses on the zelkova and crape myrtle dieback.



Melissa Grim, Cylburn Arboretum, reported that they have a “grove of ‘Sioux’ crape myrtles on the circle in front of the mansion at Cylburn. About 1/3 or so suffered significantly last winter. A couple of the plants that suffered most were planted later as replacements, but not all of them. For the most part these have been in for 8-10 years.”
Photo: Melissa Grim, Cylburn Arboretum



This zelkova tree in Carroll County has branch dieback due to winter injury
Photo: Leo Hasting

Fire Blight

Fire blight is showing up on landscape and nursery trees at this time of year. Tony Murdock, Fine Pruning, found fire blight infection on ‘Bradford’ pears near Frederick.



Make sure to wait for dry weather before pruning out fire blight infected branches
Photo: Tony Murdock, Fine Pruning

Be Alert for Late Blight Showing up on Tomatoes

By: Jerry Brust, UME

A disease we might be seeing now and in the next week or so is late blight. The weather conditions of the past week have been favorable for its development: cool (for summer temperatures) daytime and nighttime temperatures along with ample moisture. It is important to watch for this disease and treat for it as soon as it is observed or is found in your area. Symptoms of late blight on tomato leaves are irregularly shaped water-soaked lesions that appear on young leaves at the top of the plant. Under humid conditions, these lesions become brown (fig. 1a) and white fuzzy sporulation can be seen (fig. 1b). Eventually the leaves shrivel and die. Brown lesions with sporulation also can occur on stems and leaf pedicels (fig. 1c). The pathogen infects tomato fruit and causes circular greasy lesions. The fruit remains firm but can become leathery and dark brown. Best management practices for late blight control are found in the 2018 Mid-Atlantic Commercial Vegetable Production Recommendations Guide found at: <https://extension.umd.edu/mdvegetables/mid-atlantic-commercial-vegetable-production-recommendations>



A



B



C

Fig. 1. Late blight lesion on tomato leaf (A), sporulation of late blight causing 'fuzzy growth' (B) and late blight lesion and sporulation on tomato stem (C).
Photos: M. McGrath

Jumping Oak Galls

Marie Rojas is finding high populations of jumping oak galls on *Quercus alba*. These galls are caused by cynipid wasps. There are two generations of this gall. Later in the season, when the second generation of galls drop to the ground, the movement of the larva inside the gall causes it to 'jump around'. Heavy populations can cause significant defoliation.

Jumping galls are caused by a cynipid wasp
Photo: Marie Rojas, IPM Scout



Emerald Ash Borer Control

By: Stanton Gill

A question has come up about the impact of injecting ash trees with systemic chemicals and whether the plant walling off the wound impacts future injections. Dan Herms, formerly of Ohio State University Extension and now with Davey Tree, had the following comments:

“I think a key factor to consider is that ash has ring porous xylem anatomy and thus thin functional xylem. In healthy trees annual formation of new growth rings over the injection sites increasingly compartmentalizes the wounds in the interior of the tree in the non-functional xylem. Hence, it may be possible for trees to tolerate multiple cycles of biennial injections by rotating injection sites, and my anecdotal observations seem to support that. Long-term studies on xylem dysfunction and potential for trunk decay would be useful.

My studies found that annual soil drenches and basal trunk sprays were effective on trees in the 20 inch DBH range, but became less so as tree size increased. Hence, I’m not confident they would be consistently effective on larger trees, whereas emamectin benzoate injections made every other year (5 ml / inch) were effective on trees as large as 50 inch DBH even under high pest pressure. I didn’t notice any external evidence of detrimental impact of injection wounds after 3 cycles of treatment.”

Pearleaf Blister Mites

Marie Rojas, IPM Scout, is finding high populations of pearleaf blister mites on callery pears this week. This eriophyid mite causes brownish blisters on pear and apple leaves. The pimple-like blisters start greenish and become red before finally turning brown on pears. The blisters on apples start yellow and never become as red as the ones found on pears. When massed together, these blisters can cover large areas of the undersides of leaves.

Control: There is nothing to do at this time of year. If necessary, treat in the fall before leaf drop to control females before they overwinter.



**Bryan Lilly found emerald ash borers in Leesburg on June 5; Heather Zindash, Mainscapes, Inc., found them in Gaithersburg on June 3
Photo: Bryan Lilly**



**The brown blisters on this callery pear leaf are caused by the feeding of pearleaf blister mites
Photo: Marie Rojas, IPM Scout**

Japanese Beetle - An Incredible Story of One Nursery Managers Stupidity

By: Stanton Gill

Dan Potter of the University of Kentucky sent along an interesting article on Japanese beetles written by Kenneth Frank and published in the journal, *Entomological News* in December 2016. It reads a little like a Steve King horror story. A large, prominent nursery operation that operated outside of Philadelphia and distributed plants across the United States brought in an insect plague with long lasting consequences. In their quest to have the new and best selection of plants they brought the Japanese beetles to the American shores. The pest was brought in on a shipment of Japanese iris plants. Two alert plant inspectors with the department of Agriculture found the pest and had it identified by a USDA entomologist. This new pest, along with several new invasive scale insects that had been brought in resulted in the passing of the Federal Quarantine Act.

No one likes to be told what to do, so the poorly guided and misinformed nursery industry launched a campaign to stop any regulation from being put into place. The [article](#) (for pay) gives a better appreciation why it is important to stop a pest from becoming established.

Lace Bugs

Heather Zindash, Mainscapes, Inc., found an infestation of lace bugs on cotoneaster in Columbia on June 1.

Marie Rojas, IPM Scout, found lace bugs on *Tilia tomentosa* 'Sterling Silver' on June 7 in Laytonsville.

Marie noted that there was a lady bird beetle feeding on the lace bugs. Early in the season, examine newer foliage for stippling damage on upper leaf surface and dark colored fecal spots and active lace bugs on the underside of leaves.

Control: Control options include systemic materials such as Acelypryn or Mainspring, acetamiprid (Tristar), or products with acephate. Non-systemic products such as horticultural oil (avoid days when temperatures and humidity levels are high) should be directed so that the underside of foliage is thoroughly covered.



Nymphs and adults of hawthorn lace bug are feeding on cotoneaster this week
Photos: Heather Zindash, Mainscapes, Inc.



A lady bird beetle has plenty of lace bugs for food on this one linden leaf
Photo: Marie Rojas, IPM Scout

Elongate Hemlock Scale (*Fiorinia*)

Marie Rojas, IPM Scout, found adults and immatures of elongate hemlock scale on hemlock in Laytonsville on June 7. Heather Zindash, Mainscapes, Inc., found them in Potomac this week. This scale is native to Japan and is a pest of eastern hemlock, *Tsuga canadensis*, and Carolina hemlock, *T. caroliniana*, in the Eastern United States. This scale also infests cedars, pines, yews and spruces. Feeding causes foliar chlorosis, needle drop and plant dieback. Look on the foliage for the yellow crawlers of this scale. Elongate hemlock scale completes two generations each year in Maryland. Its life stages are broadly overlapping, so crawlers can be found throughout the spring and summer. Crawlers are the only stage capable of dispersing and establishing new infestations. Dispersal is primarily by wind and birds. **Control:** Distance can be applied to the crawlers. Horticultural oil can be used to control overwintering females. A soil drench of dinotefuran applied as a basal trunk application is another control option.



Now is the time to look for the yellow crawlers of elongate hemlock scale
Photo: Marie Rojas, IPM Scout

Brown Patch in Turf

Mark Schlossberg found brown patch infecting turf in Owings Mills on June 1. Brown patch is most severe in tall fescue, perennial ryegrass, and bentgrass. Brown patch starts as circular spots and spreads out to turn whole areas brown. You may see grass blades with foliar mycelium in the early morning if it is warm and humid in the early stages of the infection process. Look for brown margins with tan centers on infected foliage. Although lawns turn brown they do recoup when the weather cools down.

To reduce the incidence of brown patch in tall fescue lawns avoid applying nitrogen in the spring. Nitrogen promotes soft, succulent growth that is more susceptible to infection by the brown patch fungal pathogen, *Rhizoctonia solani*.



The mycelium of brown patch disease is most noticeable in the morning
Photo: Mark Schlossberg, ProLawn Plus, Inc.

Turtle Activity

We are receiving reports of turtle activity this week. Mark Schlossberg, ProLawn Plus, Inc., found a snapping turtle that looks like it is laying eggs. Brian Scheck, Maxalea, Inc., reported that he found his third turtle in a week that he has helped cross major roads. There were two box turtles and one snapping turtle.



Keep an eye out for turtles like this eastern box turtle, as they move around landscapes and cross roadways
Photo: Brian Scheck, Maxalea

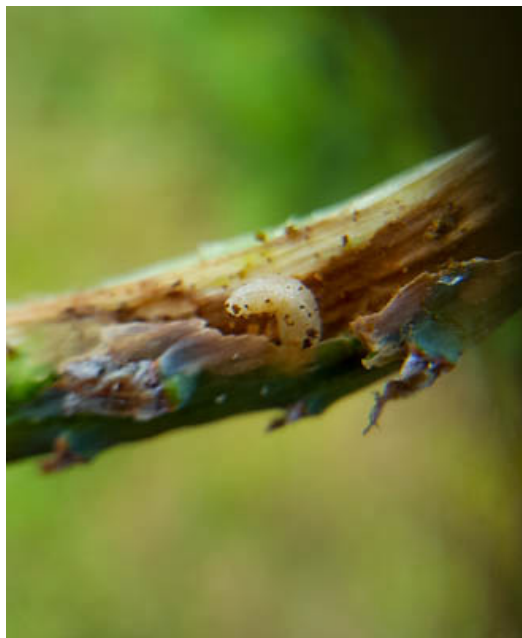


This snapping turtle appears to be laying eggs; it was found in a customer's landscape
Photo: Mark Schlossberg, ProLawn Plus, Inc.

White Pine Weevil

Marie Rojas, IPM Scout, found that the larvae of white pine weevils are active this week in Laytonsville. The larvae are causing the tips of white pines to flag. White pine weevils commonly infest pines and spruces. Larvae pupate in late July within the infested terminal. Adults emerge in late July and August and overwinter in leaf litter. There is one generation per year.

Control: At this time of year, prune out flagging terminals. Next year, monitor for adult activity in March and April. To prevent damage the insect growth regular, Dimilin, can be applied to terminal growth when the adult activity is noted among conifers.



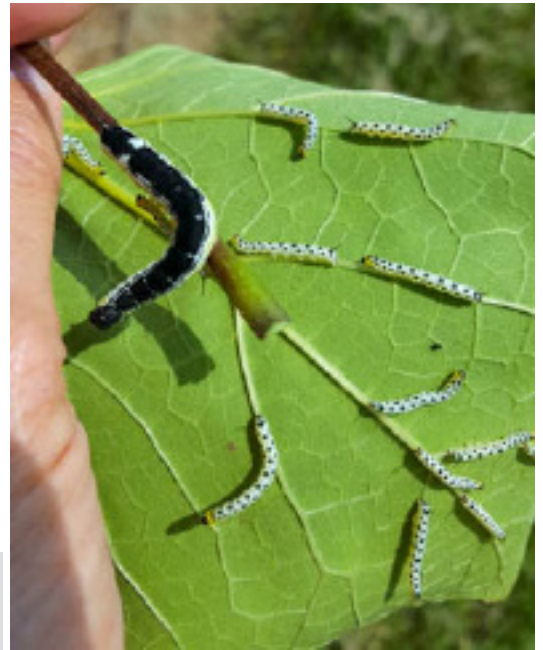
White pine weevil larvae are feeding within the tips of susceptible conifers; they cause the tips to flag
Photo: Marie Rojas, IPM Scout

Catalpa Sphinx Moth Caterpillars

Marie Rojas, IPM Scout, found catalpa sphinx moth caterpillars feeding on catalpa this week. With multiple generations, look for this caterpillar from June through early fall. We usually do not receive reports of noticeable activity of this caterpillar until July.

Control: Parasitic wasps help keep caterpillar populations in check. Bt can be used for small larvae and other labelled insecticides for larger caterpillars if needed.

There are multiple generations, so look for catalpa sphinx moth caterpillars throughout the summer
Photo: Marie Rojas, IPM Scout



Crane Flies

With the wet weather in May into the first few days of June, crane flies have been active in turf and on ornamental plants. Some of the species look like giant mosquitoes. Don't worry, these flies do not feed on humans. Larvae live in areas of moist turfgrass, but do not cause much damage to the turf. Adults rarely feed, if at all. Birds are their main predator. No control is necessary.



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Crane flies only look like giant mosquitoes; they do not harm humans

Beneficial of the Week

By: Rebecca Waterworth and Paula Shrewsbury, UMD

Flashes in the night

It is always this time of the season when I slow down at the end of the day and wait for flashes of light at dusk and early evening. No, I am not talking about thunderstorms. It is a show that is uniquely eastern in its occurrence; our fireflies are putting on their evening "performance."

Fireflies are also known as lightningbugs but are in fact neither bugs nor flies. They are soft-winged beetles (Order Coleoptera) in the family Lampyridae (Fig. 1). The flashes that we see are from the males that are attempting to attract a mate. Light patterns are specific to each species of fireflies. For example, males of the common eastern firefly (*Photinus pyralis*) flash every six seconds. Females watch the light "show" from below. If a display from a specific male is particularly attractive, she will flash a response, but only if it is from the

male of the same species. The male descends to that location to mate with her. In addition to transferring sperm to the female during copulation, the male offers a nuptial gift of rich protein, which the female uses to provision the eggs that will soon start to develop in her ovaries.

The light emitted by a firefly is actually a chemical reaction in the beetle's abdomen. The light organ or lantern has special cells that contain a chemical called luciferin. An enzyme called luciferase combines oxygen with luciferin in these cells to create light. Scientists actually do not know how fireflies regulate their lights to turn them on and off. You might have also noticed how "cold" the light looks. This is because no infrared (or heat) or ultraviolet frequencies of light are emitted. Among the light-producing fireflies, lights are yellow, green, or pale red.

For the common eastern firefly, eggs are laid in moist soil and hatch about a month later. All immature fireflies (or larvae) are called glowworms (Fig. 2). They emit light, too, though it is a low intensity glow used to warn predators that they taste bad. The larvae of our eastern firefly develop over two summers, overwintering twice, before pupating and emerging as adults this time of the year. Larvae are predacious on other ground-dwelling critters, including other insect larvae, slugs, and snails. While eastern firefly adults do not feed, other species are predacious on scale crawlers, aphids, and other small, soft-bodied insects. In one special case with fireflies in the genus *Photuris*, females are predacious on unsuspecting males of other species!

Identifying an adult firefly during the daytime (when they are not flashing) is relatively straightforward. Of the six species known to occur in Maryland, they are all predominantly black with some yellow and red markings. I usually find the males resting on the underside of the leaves of trees. They are relatively long beetles like soldier and blister beetles. However, at rest, the head of a firefly is entirely concealed by part of the thorax that projects forward like a shield (Fig. 3).

The abundance of fireflies is greater east of the Great Plains than in western states. Fireflies that produce light are uncommon in western North America, making our nightly light shows something really special to behold for a few weeks during spring and early summer. We hope that you have a spot where you can go to watch these beetles in action tonight!

We thank Nancy Harding for reporting activity of fireflies last week and inspiring us to write this article.

Did you participate in the identification of the unknown lady beetle from last week?

Answer: *Coleomegilla maculata*, the spotted lady beetle



Fig. 1. An adult of the common eastern firefly, *Photinus pyralis*. This species ranges in size from 9 to 15 mm. In this picture, the head is sticking out from underneath the shield-like projection of the thorax. Photo: Jessica Louque, Smithers Viscent, Bugwood.org



Fig. 2 A larva or glowworm of the common eastern firefly, *Photinus pyralis*. Photo: Mohammed El Damir, Bugwood.org



Fig 3. An adult firefly (*Photinus* sp.). Note that the head is entirely concealed underneath the shield projection of the thorax. The antennae are the only part of the head visible. Photo by: David Cappaert, Bugwood.org

Plant of the Week

By: Ginny Rosenkranz, University of Maryland Extension

Sundrops, *Oenothera fruticosa*, are native herbaceous perennials that bloom from June to September in full sun with dry to medium soils. They thrive on heat and will tolerate poor soils and some drought. Sundrops only grow 1 ½ - 2 ½ tall and spread 1-3 feet wide in a slowly spreading rosette. They also self-seed under good conditions. The bright yellow, 4-petaled flowers are produced on the terminal clusters of the plants so the flowers seem to float over the bright green foliage. The flowers seem to swirl open and they only bloom one day. Although the flowers are short-lived, the plant continues to bloom over 2 or more months. The green leaves can be up to 4 inches long and are slightly hairy. The stems are thin and also hairy with reddish markings. Once the flowers have bloomed, they are quickly followed by a 4-winged seed capsule about ½ long. Plants are winter hardy



Sundrops provide a long season of bloom
Photo: Ginny Rosenkranz, UME

from USDA zones 4-9 and can be planted in sun gardens, at the edges of gardens, in cottage gardens, and native plant gardens where they will sprawl in the sun and bloom almost all summer long. The flowers are pollinated by sphinx moths and other moths, ruby throated hummingbirds, honey bees, and bumble bees. Like many native herbaceous perennials, *O. fruticosa* is listed as deer resistant and slightly salt tolerant, so it could be planted by walkways that receive winter de-icing materials. Some of the cultivars include ‘Erica Robin’ with bright yellow flowers, ‘Fireworks’ with very red stems, ‘Golden Sunray’ with light yellow flowers and dark green leaves, ‘Lady Brookborough’ with lots and lots of bright yellow flowers and ‘Yellow River’ that spreads up to 3 feet and turns mahogany in the winter. There are no serious pests.

Degree Days (As of June 6)

Aberdeen, MD (KAPG)	641	Annapolis Naval Academy (KNAK)	959
Baltimore, MD (KBWI)	929	College Park (KCGS)	904
Dulles Airport (KIAD)	940	Frederick (KFDK)	866
Ft. Belvoir, VA (KDAA)	986	Greater Cumberland Reg (KCBE)	850
Gaithersburg (KGAI)	893	Martinsburg, WV (KMRB)	846
Natl Arboretum.Reagan Natl (KDCA)	1105	Salisbury/Ocean City (KSBY)	953
St. Mary’s City (St. Inigoes, MD-KNUI)	1000		
Westminster (KDMW)	934		

Important Note: We are now using the [Weather Underground](#) 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

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

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