UNIVERSITY OF MARYLAND EXTENSION

# TPM/IPM Weekly Report
## for Arborists, Landscape Managers & Nursery Managers

**Commercial Horticulture** **May 11, 2018**

### In This Issue...



**IPMnet**
**Integrated Pest Management for Commercial Horticulture**

**extension.umd.edu/ipm**

If you work for a commercial horticultural business in the area, you can report insect, disease, weed or cultural plant problems **(include location and insect stage)** found in the landscape or nursery to 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)

## Ambrosia Beetle Activity

By: Stanton Gill

The warm weather last week finally brought out the ambrosia beetles in a "BIG Way" this week. We are finding sawdust and frass tubes showing up now. I examined apple trees that had wet areas on the trunks and the beginning sawdust on the trunks from *Xylosandrus* activity.


***Xylosandrus* spp. of ambrosia beetles are very active. Now is the time to look for frass tubes and wet areas on the trunks of trees**

Samples came in from two sites in Frederick (Tony Murdock and James Becker). We also have samples in from Ginny Rosnekranz on the Eastern Shore. All of the trap counts were high for both species of *Xylosandrus* species this week. Make sure protective sprays of bifenthrin or permethrin go on the trunks of susceptible trees.

If you see frass tubes, send in some pictures and let me know where you are seeing the activity – Sgill@umd.edu.

## Herbicide Time

By: Stanton Gill

If you are a nursery owner, check your plants to make sure that herbicide drift has not occurred from neighboring farm fields this spring. With the cool weather, many applicators are trying to squeeze in herbicide applications on agricultural fields between the bad weather. Unfortunately, they are sometimes picking days in which the wind is above 10 mph. In 2017, we had a couple of nurseries suffer damage on nursery stock when Dicamba drifted from neighboring farms into their nursery plants. Despite the problems with Dicamba applications in 2017, Roundup Ready 2 Xtend soybean and cotton acres increased in 2018. The hope is that applicators are going to pay a lot more attention to what is adjacent to their fields. We all hope this is true.

If a farm adjacent to your nursery uses dicamba tolerant soybeans, they face more restrictions this year per EPA's label changes:

- Products are restricted use, which means only certified applicators can apply them, and they must have dicamba-specific training.
- Farmers must maintain records regarding use of dicamba products.
- Dicamba can only be applied when wind speed is below 10 mph.
- Reduction in time of day dicamba might be applied (specifics not stated).
- Clean-out language has been added to prevent cross contamination.
- Awareness of risk to nearby sensitive crops has been heightened by enhancing susceptible crop language and record keeping.

Hopefully, no responsible certified pesticide applicator farmer is going to misapply dicamba in 2018, but you do need to be vigilant and watch your nursery plants over the next couple of weeks. If you see damage on your plants, contact MDA Pesticide division. They can review the applicators pesticide records and make sure the applicator is following the letter of the law. If they are not, you have rights as a nursery business owner.

## Is This Too Cool or What?

By: Stanton Gill

I was searching through bio-companies for serological test kits and I ran upon an on-site test kit for *Solenopsis invicta* - commonly called the red imported fire ant. At first, I could not comprehend how a test kit could identify an insect. Agdia has information on their website on how this product, InvictDetect™, works. Or, you could just let the fire ant bite you; it is so distinct you would know in a second it was fire ant, but if this method is not your preference, I guess the kit would be useful for a non-entomologist.

## Termite Alates

By: Stanton Gill

Mark Schlossberg, ProLawn Plus Inc., sent in a picture of insects from one of his customers who found them on a windowsill. It was cluster of insect bodies with equal length wings. They are the winged (alate) stage of termites. When the weather gets warm and we have a rain storm, like last week, the winged termites come out to mate and develop new colonies.

**Winged termites (alates) are active at this time**
**Photo: Mark Merrick, Genesis Turfgrass**

## Black Locusts Are In Bloom! Emerald Ash Borer Adults Should Emerge Anytime!

By: Paula Shrewsbury, UMD

If you look at the Pest Predictive Calendar on the IPMnet web site, you will note that when black locust in full bloom is a Plant Phenological Indicator (PPI) for adult emergence of emerald ash borer (EAB). You can also use Growing Degree Days to predict EAB adult emergence. When your location reaches about 400 DD, EAB should start emerging from overwintering in trees. Well, get ready for EAB! Black locust came into full bloom this past week in College Park. You will see the beautiful white drooping flowers on locust trees that are abundant on the sides of the road.

**Black locust is mostly still in bud here at the research center in Ellicott City**

Please remember that PPIs and DDs are scientific based estimates of activity. You should still monitor your trees for signs of EAB adult activity. Signs would include active adult beetles, new "D"-shaped holes in the trunks of ash trees, and/or defoliation of ash foliage by adult beetles.

**Adult emerald ash borer on ash foliage that recently emerged from under the bark of an ash tree where it spent the winter as a larva and pupa. Note the defoliation of the ash leave where the beetle had been feeding**
**Photo: Leah Bauer, USDA Forest Service Northern Research Station, Bugwood.org**

So what should you be doing if you want to save your ashes! Hopefully by this time you have done plant inventories and/or identified the ash trees that you want to save. At this time in areas where EAB is abundant (most of MD west of the bay), ash needs to be treated with an appropriate systemic insecticide to protect it from being killed by EAB. Now, once your ash trees are done flowering, is the time to treat trees with a systemic insecticide. The most common insecticide used is emamectin benzoate which should be applied in the spring and give up to 2 years of control. Imidacloprid is also used and the rate applied influences the amount of time the trees are protected (ex. 1-2 years). Others who want to use a biorational insecticide will use Azadirachtin. Be sure to read the publication "Insecticide Options for Protecting Ash Trees from Emerald Ash Borer" (available free at: http://www.emeraldashborer.info/documents/Multistate_EAB_Insecticide_Fact_Sheet.pdf). This bulletin provides excellent information on product choice, application method, and at what stage of tree decline products will or will not likely work to control EAB.


**Chewing damage on ash foliage by adult emerald ash beetles**
**Photo: P.M. Shrewsbury, UMD**

Of course there are other IPM practices that should be integrated with pesticide

applications to manage EAB and protect ashes. For good information on this topic go to: http://www.emeraldashborer.info/. These include practices such as cutting down/removing EAB infested ash trees, creating trap (girdled) trees to attract EAB, and not moving ash products (wood) to uninfested areas. Assist in releases of biological control agents if the opportunity arises. Release and assessment of biological control agents has been ongoing in Maryland since about 2009. Although biological control agents are attacking EAB at somewhat low rates, results that we see are promising that with more time, this program will provide long term sustainable suppression of EAB. In the meantime protect the ashes you want to keep with insecticides.

**"D" shaped exit holes are a diagnostic clue that adult emerald ash borers emerging from your ash tree**
**Photo: M.J. Raupp, UMD**

## Winter Damage Shows Up Now

By: Stanton Gill

In the first IPM Alert of this season, I wrote an article on the cold injury from the extreme cold of January. In the article, I mentioned the damage would show up later in the spring. It is time – the damage is showing up. When the temperatures reached 90 °F on May 3 and 4, we started getting in pictures of browning crypotomeria and southern magnolia. This weekend it is supposed to reach 90 °F again. We will likely see more plants browning up as an after effect of the January cold injury.


**Cryptomeria are showing dieback this month**
**Photo: Patty Tracy, J&P Lawn Service, Inc.**


**The tips of these cryptomeria are showing cold injury**
**Photo: Marie Rojas, IPM Scout**

## 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.

## Viburnum Leaf Beetle

Amanda Armstrong found viburnum leaf beetle already causing damage to *Viburnum trilobum* and *V. dentatum* in Monkton. Paul Weston, formerly of Cornell University, developed a list of the most susceptible viburnums and which ones are more resistant at http://www.hort.cornell.edu/vlb/. The native arrowwood is very susceptible to this insect. Nursery owners need to plant the resistant varieties as this insect spreads in Maryland.

Viburnum leaf beetles only infest viburnums, but the viburnums on which they feed are very popular in the nursery and landscape businesses. The beetles overwinter in the egg stage and larvae start feeding in the spring. Egg laying occurs from late June through October. Adult females lay up to 500 eggs in small branches or twigs. Eggs are often laid on the current season's growth. There is one generation per year. From egg hatch to adult, it takes 8 to 10 weeks.

**Management:** If feasible, pruning is an effective way to control this beetle. Prune after egg laying ends in October and through early spring. Insecticides labelled for leaf beetles can be used on larvae when they first appear in late spring.

**Early feeding damage from viburnum leaf beetle larvae**
**Photo: Amanda Armstrong**

**Look for small beetle larvae on the undersides of leaves**
**Photo: Amanda Armstrong**

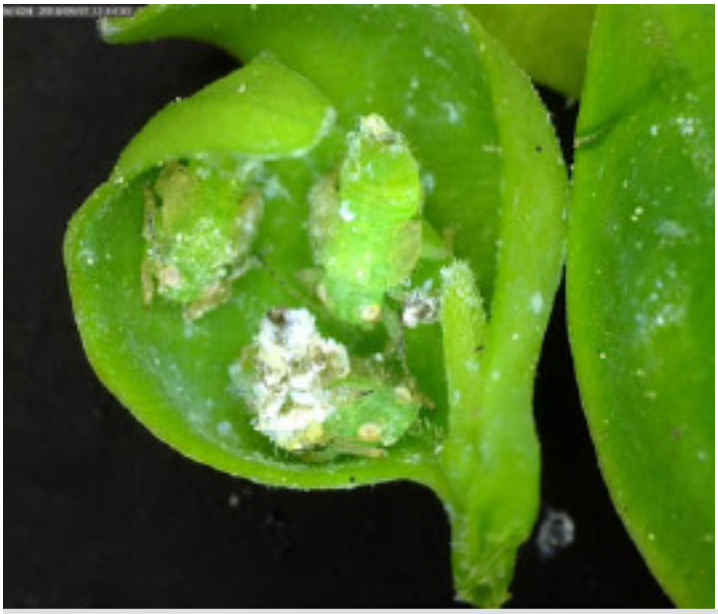
## Ground Bees

We are receiving reports of activity by ground bees from the families Halictidae and Andrenidae from landscape managers. These native ground bees look like miniature honey bees. They excavate tunnels into lawns and usually hillsides in May. A favorable site may host hundreds of individual nests. In a 2015 report, Sam Droege, USGS, noted that "ground bees do not defend their nests (only bumblebees do...and not very strongly at that) and most of the ground bees are physically unable to sting because their sting can't penetrate our skin (bee in the genus Andrena)." Tell customers to leave them alone since they are beneficial pollinators. Their activity will cease as we move into summer months. Paula Shrewsbury covered a group of ground nesting bees in the April 8, 2016 IPM report which notes that habitat modification (e.g. turf renovation) can reduce these nests in highly traveled areas.

## Boxwood Psyllids

We have received many reports of boxwood psyllids activity this week (from Greg Dionne, Heather Zindash, Olivia Leseman, and Tom Rippeon). Paul Wolfe, Integrated Plant Care, is reporting that he is seeing the largest numbers of psyllids in his career showing up in Chevy Chase and Bethesda. The boxwood psyllid causes tip growth to cup and curl. Look for a white, waxy material that the psyllids produce within the cupped leaves. Damage is rarely significant enough to warrant treatment. If necessary, Endeavor is an option.

**Boxwood psyllid activity is fairly high this week**
**Photo: Greg Dionne, Hometown Tree Experts**



**Close-ups of boxwood psyllid nymphs (left) and an adult (right)**
**Photos: Heather Zindash, Mainscapes, Inc.**

## Woolly Elm Aphids

Marie Rojas, IPM Scout, is finding woolly elm aphids on *Ulmus americana* 'Princeton' in Laytonsville. These aphids produce waxy secretions giving them a fluffy cottony appearance that serves as a deterrent to predators. Look for woolly aphids on the undersides of leaves of distorted tip growth. There are a number of natural predators like lacewings, lady beetles, hover flies and parasitic wasps that feed on these aphids. If necessary, to reduce large infestations, insecticidal oil or soap sprays in the spring can be used.

**Look on the undersides of curled elm leaves for the woolly elm aphid**
**Photo: Marie Rojas, IPM Scout**

## Leaf Galls on Elm

Marie Rojas, IPM Scout, is finding galls caused by eriophyid mites on *Ulmus* 'Patriot' in Laytonsville. The damage is already done so there is nothing to do about it now. Since most of the time galls do not affect the overall health of the tree and treatment timing (bud break for many gall makers) is so critical, control is not recommended.

**Eriophyid mites are causing spindle galls on elms**
**Marie Rojas, IPM Scout**

## Southern Red Mite

Marty Adams, Bartlett Tree Experts, found southern red mites on rhododendron this week. Southern red mites are reddish brown and darker than most red spider mites found on woody ornamentals. The southern red mite is usually active in spring and again in the late summer when we start to have cool nights and warm days. The southern red mite can also be found on holly, boxwood, hibiscus and cotoneaster.

**Monitoring:** Use a light colored paper on a clipboard and place it under branches and tap them sharply. The mites, if present, should be easily seen running around on the light colored surface.

**Control:** There are several products labeled for mite control including Akari, Aza-Direct, Abamectin (Avid), and Forbid.


**Southern red mite has caused the typical stippling damage on this holly**

## Obscure Scale

Marie Rojas, IPM Scout, is finding obscure scale on *Quercus* 'Green Pillar' in Laytonsville. A twicestabbed lady beetle was feeding on the scale. Obscure scale is an armored scale that is a key pest on oaks, especially pin oaks. They are usually crowded together and overlap each other on branches and sometimes the trunks of trees. There is only one generation per year with crawlers active in late June and July. Distance or Talus can be used later in the season to treat the emerging crawlers.

**A twicestabbed lady beetle was found feeding on obscure scale infesting an oak**
**Photo: Marie Rojas, IPM Scout**

## Honeylocust Plant Bug

Steve Sullivan, Brightview, found honeylocust plant bug activity in Lorton, VA on May 11. Look closely at distorted new leaf growth for the newly hatched nymphs. A good way to check for nymphs is to tap the foliage over a white piece of paper. Honeylocust plant bugs overwinter as eggs just below the bark surface, usually on twig growth. The eggs hatch just as the vegetative growth of the honeylocust starts to open. The nymphs move from the woody twig tissue to the newly emerging green growth and start to feed. Damage includes distortion, stunting, rolled leaves, and discoloration. Damage can be extensive when there is a high population of plant bugs.

**Control:** Use a 1% rate of horticultural oil or apply soil applications of dinotefuran (Safari).

**Honeylocust plant bugs can cause extensive damage on honeylocust foliage**
**Photo: Steve Sullivan, Brightview**

## Cottony Camellia/Taxus Scale

The females of cottony camellia/taxus scale are starting to enlarge, but so far, no reports of egg masses yet. Look for the fluffy white egg masses over the next few weeks.


**Enlarged female cottony camellia/taxus scale are starting to produce wax for the egg mass (May 2005 photo)**

## Roseslug Sawflies

We will continue to see rose slug sawflies feeding and damage throughout the spring and summer. Jake Murphey, Savatree, is finding them this week causing windowpane damage on rose foliage. Look closely on the undersides of foliage for these small larvae. Conserve or horticultural oil are options for control.

**Early instar roseslug sawlfies cause the "windowpane" damage on foliage because they do not feed all of the way through the leaf**
**Photo: Jake Murphey**

## Gymnosporangium Rust on Serviceberry

Steve Sullivan, Brightview, has found rust infecting serviceberry (*Amelanchier*) in Lorton, VA this week. Timing is critical for good control on the pomaceous hosts (apple, hawthorn, etc). The sprays have to be applied when spores are being shed from the junipers, usually starting in mid-March. No chemical control is usually advised to prevent infection of the junipers. Infection of the junipers is happening all summer and into the fall from spores produced on the pomaceous plants (e.g. apples, serviceberries) which would require many sprays all season. The period during which the pomaceous plants are infected is short (from the start of the infection period through May). Spray susceptible crabapples, apples, quince and hawthorn with a labeled fungicide.

**Gymnosporangium rusts are now infecting pomaceous hosts, like these fruits on serviceberry**
**Photo: Steve Sullivan, Brightview**

## White Prunicola Scale

Marie Rojas, IPM Scout, is finding white prunicola scale on *Prunus* 'Kwanzan' and 'Okame'. Marie notes that they are eggs under covers. There are three generations per year. The first crawler period will be active this month so monitor plants with infestations closely over the next few weeks. When crawlers are active, it is time to treat.

**Monitoring:** The adult female has a distinctive "fried egg" appearance and clusters of males give the bark a fluffy appearance. Note that white peach scale looks very similar to white prunicola scale, but they have different host plants.

**Control:** When crawlers are out, apply pyriproxyfen (Distance) or buprofezin (Talus) mixed with 0.5 - 1% horticultural oil for control.


**Female covers have the appearance of "fried eggs". Look under these covers to see if eggs are present**

## Beneficial of the Week

By: Paula Shrewsbury and Mike Raupp, UMD

Bee Fly: the Dr. Jekyll and Mr. Hyde of the insect world

This past week I was observing the insect activity on the flowers in a garden (a common past time for me) and I saw a very cute blonde colored insect that I thought was a bee. Its wings were rapidly beating as it was busy feeding on the nectar and pollen of the flowers it was visiting. Upon closer inspection I realized this little fuzzy animal was not a bee. It had aristate antennae and only 1 pair of wings which makes it a fly. The close resemblance of these hairy flies to pollinators such as honeybees and bumble bees has earned them the name bee fly. Bee flies are in the family Bombyliidae and this one was in the genus Systoechus. Bee flies are quite interesting to observe. They have a remarkably long mouthpart called a proboscis which has been modified through evolution to be able to reach deep into flowers to sip the carbohydrate rich nectar which is an important source of energy that bee flies need to power muscles, in particularly their flight muscles. Bee flies appear to

be hyperactive fliers. Wings of a bee fly beat about hundreds times / minute. You can see a fascinating video of a bee fly busily flying and feeding on flowers (go to: https://youtu.be/mHuX-_hUnl4).

**Bee flies are beautiful, but deadly**
**Photo: Mike Raupp, UMD**

Although bee flies do not deliberately collect pollen as a source of food for themselves or their young as do bees, their hairy body traps pollen and provides convenient transport of pollen from one plant to another (Dr. Jekyll). The fact that bee flies are common around flowers during times of high bee activity is more than just happenstance. Bee flies have a sordid side that often proves deadly for solitary bees (Mr. Hyde).

When solitary ground nesting bees such as halictids, colletids, and andrenids visit a flower and get a full load of nectar and pollen, they head back to their nest (a burrow or gallery that they dug in the ground) to provision it with food (floral resources) for their young. The sneaky and agile bee fly however, follows a bee back to its nest and deposits an egg in or near the burrow of the bee. After hatching, the fly larva wriggles into the gallery of the bee. Some species of bee flies first consume floral provisions left behind by the solitary bee before turning their attention to the developing baby bees. The fly larva attaches to the skin of the larval bee and suck its blood, which is the source of nutrients for the developing larva of the bee fly.

Yikes! Bee flies are a large diverse group known to attack and kill caterpillars, eggs of grasshoppers, and larvae of beetles as well as baby bees. Fortunately, these bee flies are much smaller than humans!

### Weed of the Week

By: Chuck Schuster, University of Maryland Extension

The landscape is blooming; the blooms, some of which one wants, others not as much. We have seen the callery and Bradford pears show themselves this spring. Brian Scheck, Maxalea, Inc., is reporting that crabgrass is emerging in Towson this week. Some reports are indicating that the wide expanse of soil warming has created some havoc with pre-emergent herbicide products doing a satisfactory job. The problems are related to timing of application, moisture to activate the products, and if the weed seed had germinated.


**There is this variegated form of goutweed as well as a form with light green leaves**
**Chuck Schuster, UME**

Goutweed, *Aegopodium podagraria* L., is a plant being found in landscapes currently throughout Maryland. Soils have been warm enough to start this plant off for the season. Goutweed will sometimes cause concern with its growing habit of "leaves of three", but this plant is in a different family altogether. Goutweed, also known as bishop's-weed and snow-on-the mountains is from the carrot family (Apiaceae family). It is considered a desired plant by some, and it is classified by others as an aggressive invasive. It is a creeping perennial that can grow to three feet in total height. It prefers moist shaded areas in most cases, but has been found in open areas of full sun. One of the reasons it is considered an aggressive herbaceous plant is that it has rhizomes which increase the difficulty to obtain control. It is classified as invasive in some states.

The leaves are found in groups of three with each having three leaflets, called triternate. This plant is one that some people will love and will purchase to plant. The plant can be found variegated and sold in garden centers, the weed form having a lighter green leaf color. White, five-petaled flowers are small in size, and can be found in bloom now and will continue to bloom through mid to late summer. These flowers are on a leafy stem which can be up to three feet tall. Seeds are similar to carrot seeds, maturing in late summer. In understory settings, flowering stems rarely develop. This plant produces a long, white rhizome, which branches often. Goutweed produces a dense cover or canopy often preventing other vegetation from emerging. In the cultivated form, it is often used as a ground cover.

**Goutweed is a creeping perennial**
**Photo: Cathy Lonas**

Goutweed is difficult to control by mechanical means including pulling. The rhizomes, once broken will create a new plant. Chemical control in landscape settings is possible using glyphosate products that will translocate into the roots/rhizomes. Remember to use extreme caution near desired plant materials. Carefully use where root to root contact may occur. Covering early in the season (mulch or landscape fabric) to prevent photosynthetic action can be a method of control. This method depletes the carbohydrate reserve, thus weakening the plant. This needs to be done early in the season prior to the plant storing reserves for the fall and winter. Use of contact herbicides is ineffective as this plant will leaf out readily after defoliation.

## Plant of the Week

By: Ginny Rosenkranz, University of Maryland Extension

*Salvia nemorosa* 'Blue Marvel' also known as meadow sage is a lovely, compact cultivar with bright blue-violet flowers held atop of sage green foliage. Flower bracts start out as violet pink until the bright dark and light blue flowers open, giving the plant a two-tone look. The flowers bloom for over 4 weeks and are larger than most other salvia. The flowers are borne on a 4-sided stem, giving color from every angle. After the flowers have finished blooming, prune off the spent stems and *Salvia* 'Blue Marvel' will often rebloom. Like all salvia, 'Blue Marvel' can handle full sun and the high heat of summer. These vibrant flowers attracts butterflies, and hummingbirds. It is bee and other pollinators friendly, and is said to be deer and rabbit resistant. The plants grow 10-12 inches tall and wide and are USDA cold tolerant from zone 4-9. Plants prefer moist but well drained soils and can tolerate a neutral, acetic or alkaline pH. Excellent drainage during the cold winters is critical. These bright perennials are excellent as a border or as an edging and thrive in containers as well. Occasional pests include slight susceptibility to powdery mildew, botrytis, rust, aphids, whitefly, mites and slugs.

**Salvia 'Blue Marvel' flowers vary from blue to violet in color**
**Photo: Ginny Rosenkranz, UME**

## Phenology

| PLANT | PLANT STAGE (Bud with color, First bloom, Full bloom, First leaf) | LOCATION |
|---|---|---|
| *Baptisia* 'Purple Smoke' | First bloom | Ellicott City (May 10) |
| *Penstemon hirsutus* (hairy beardtongue) | First bloom | Ellicott City (May 11) |
| *Rhododendron austrinum* | Full bloom | Howard County (May 11) |
| *Robinia pseudocamellia* (black locust) | Full bloom<br><br>Buds (with a few in first bloom) | College Park (May 9)<br>Salisbury (May 9)<br>Ellicott City/Columbia (May 11) |

## Degree Days (As of May 9)

| | | | |
|---|---|---|---|
| Aberdeen, MD (KAPG) | 278 | Annapolis Naval Academy (KNAK) | 405 |
| Baltimore, MD (KBWI) | 372 | College Park (KCGS) | 360 |
| Dulles Airport (KIAD) | 361 | Frederick (KFDK) | 291 |
| Ft. Belvoir, VA (KDAA) | 399 | Greater Cumberland Reg (KCBE) | 296 |
| Gaithersburg (KGAI) | 344 | Martinsburg, WV (KMRB) | 305 |
| Natl Arboretum.Reagan Natl (KDCA) | 462 | Salisbury/Ocean City (KSBY) | 397 |
| St. Mary's City (St. Inigoes, MD-KNUI) | 429 | | |
| Westminster (KDMW) | 350 | | |

**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

**Eastern Shore Pesticide Recertification Confernce**
June 1, 2018
Location: Wye Research and Education Center, Queenstown, MD
Contact: Ginny Rosenkranz, rosnkrnz@umd.edu

**2018 Procrastinators' Pest Management Conference**
June 8, 2018
Location: Montgomery County Ext. Office, Derwood, MD
Contact: Chuck Schuster, cfs@umd.edu
DC— pending; MD—CORE, 3A, 3B, 3C, 5, 6 and 10
VA— 3-A, 3-B, 5-A, 60; MD Turf NM Credits—2 CEU's

**Brochure:** https://extension.umd.edu/sites/extension.umd.edu/files/_docs/Procrastinator%20Brochure%202018a_0.pdf

**Eventbrite link:** https://www.eventbrite.com/e/23rd-annual-procrastinators-pesticide-and-urban-nutrient-management-conference-tickets-45519688614?aff=efbevent

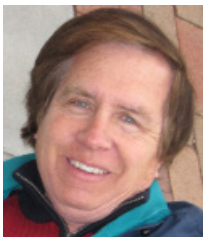
**Conference information is posted at:**
**http://extension.umd.edu/ipm/conferences**

**The Pest Predictive Calendar** is a monitoring tool to assist in predicting when susceptible life stage(s) (stage you want to target for control measures) of pest insects are active by using plant phenological indicators (PPI) and growing degree days (GDD). This tool will lead to improved timing of management tactics and more effective pest management.

**Check it out at [Pest Predictive Calendar]**

---

## 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.