

Commercial Horticulture

July 2, 2020

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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
sgill@umd.edu

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Special IPM Alert – Thursday Release

By: Stanton Gill

Since the Fourth of July is on Saturday and many people are making weekend plans, we decided to release the IPM report this week one day early.

Enjoy watching fireworks from your car, in an open field, or on TV this weekend. Remember to wear your mask in public.



Japanese Beetle Adults

By: Stanton Gill

We continue to receive reports of Japanese beetle adults becoming active in the area. The Ladies in the Landscape Association (LIL) members were visiting a nursery in Westminster and noted adult Japanese beetle activity. Julide Aker noted lots of Japanese beetle activity on New Dawn roses. A nursery in the Frederick area reported Japanese beetle adult activity this week feeding on lindens and birches. Jason Hipp, Deeply Rooted Tree Care, is seeing Japanese beetles on river birch and ornamental cherry trees in Maple Lawn. Marie Rojas, IPM Scout, is reporting that Japanese beetles are causing heavy damage on a variety of trees at a nursery in Frederick County.

Last year, Japanese beetle activity was heavy in some areas and practically non-existent in others. Let me know if you are seeing heavy activity, where exactly this activity is occurring, and what plants are being attacked.

Several materials control Japanese beetles. We have tested out several formulations of Azadirachtin and it gave 3 – 4 days of repellency on many plants. It does not kill insects—at least not immediately. Instead, it both repels and disrupts their growth and reproduction. Research over the past 20 years has shown that it is a fairly potent growth regulator and feeding deterrent. In our 2016 and 2017 trials, the systemic insecticides, Mainspring and Acelepryn, applied at 8 oz/100 gallons gave 10 -14 days of control.



Japanese beetles are starting to feed on this cherry tree

Jason Hipp, Deeply Rooted Tree Care



Heavy Japanese beetle damage on *Prunus x 'Snofozam'*

Photo: Marie Rojas, IPM Scout



A Japanese beetle is feeding on a New Dawn rose

Photo: Julide Aker

Japanese Maple Scale

Marie Rojas, IPM Scout, is reporting that the majority of Japanese maple scale eggs she has been monitoring have hatched as of this week. There is a second generation. We will include reports of egg and crawler status later in the season as we receive reports.

Catalpa Sphinx Moth Caterpillars

Marie Rojas, IPM Scout, is reporting that catalpa sphinx moth caterpillar populations are high this year at a site in Gaithersburg. She notes that there are several trees that are nearly defoliated. There are multiple generations throughout the season, so look for this caterpillar from June through early fall. Damage from this caterpillar tends to increase as we move into July.

Control: Rarely does this caterpillar cause enough damage to the trees to warrant a spray application and parasites pretty efficiently take care of this colorful caterpillar. If you have to treat, then use Bt in the early stages.



In high numbers, catalpa sphinx moth caterpillars can cause significant defoliation

Photos: Marie Rojas, IPM Scout

Diseases of Rudbeckia

By: Rachel Ross & Karen Rane

Be on the lookout for two relatively common diseases of Rudbeckia - Septoria leaf spot, a fungal disease caused by the pathogen *Septoria rudbeckiae* and downy mildew, a disease caused by the fungus-like oomycete pathogen *Plasmopara halstedii*.

Symptoms of Septoria leaf spot typically present as small dark lesions on the lower leaves (Fig. 1), progressing to newer growth. Long leaf wetness periods promote infection, and spores move through splashing water from irrigation or rainfall. Cultural practices, such as spacing plants to encourage air circulation and drying of plant tissue, and removing diseased leaves during dry conditions, help reduce disease spread. The cultivar 'Goldsturm' can be particularly hard-hit by this disease, so choosing other cultivars can reduce disease incidence. In nursery production or high-value landscape plantings, protectant fungicide applications may be warranted. Effective products for commercial use include strobilurins (Insignia, Heritage), or mancozeb (Protect DF, Dithane).



Fig. 1: Rudbeckia leaves with Septoria leaf spot.
Photo: K. Rane, UMD

Rudbeckia leaves infected with downy mildew develop angular chlorotic to dark lesions on the upper leaf surface, often centering around the main leaf vein (Fig. 2) and yellowing of foliage. Infected plants can be stunted. White spore structures of the pathogen develop on the underside of infected leaves (Fig. 3). The spores of downy mildew are spread through air currents as well as splashing water. High humidity and cool weather favor this disease. In commercial nursery production, protectant fungicides labeled for control of downy mildew include strobilurins (Insignia, Heritage), cyazofamid (Segway), or mancozeb (Dithane).



Fig. 2: Necrotic angular lesions on Rudbeckia due to downy mildew infection
Photo: Jan Byrne, Michigan State Univ.

Always follow label instruction for chemical applications. Be sure to rotate fungicides with differing modes of actions to reduce risk of resistance.



Fig 3: White mycelium and spores of downy mildew spores on the underside of Rudbeckia leaves
Photo: Penn State Department of Plant Pathology & Environmental Microbiology Archives, Penn State University, Bugwood.org

Bagworms

By: Stanton Gill

Marie Rojas, IPM Scout, reports that bagworms continue to hatch out at sites in Gaithersburg and Frederick County. She noted that they were very small and seem a bit later than usual. Jeff Lavrusky, Brightview, is finding bagworms active in New Market. Elaine Menegon, Good's Tree and Lawn Care, is reporting bagworms in Lancaster, PA, and that they are still really small.

Control: At this early stage of the game, Bt is the probably the cheapest, environmentally friendly and best control available. Spinosad would be my second choice for materials to use in early July. When we move later into the season, then materials such as Acelepryn or Mainspring are very effective, though much more costly.



With an extended cool spring, bagworms seem to be hatching out a little later this year

Photo: Marie Rojas, IPM Scout



A high population of bagworms can cause significant damage to trees

Photo: Jeff Lavrusky, Brightview

Ambrosia Beetle Activity - Downward Trend

By: Stanton Gill

There were very few adult ambrosia beetles in the baited taps this week. We have finished one of the longest 1st generation flight activity periods we have seen since we have been documenting flight times since 2001. As we move into July, watch for activity of the 2nd generation.

Electric Trucks Moving Forward

By: Stanton Gill

The landscape and nursery industry rolls on Ford-150s, Chevy Trucks and Ram diesel trucks. A truck is a necessity in this business. Great, but not very environmentally friendly for something called the green industry. This situation is changing rapidly. On Monday, Nikola Company of Utah opened orders, with the down payment of \$5000, which gets you an all-electric truck sometime this fall. These orders are beating out Tesla, which is releasing its Mad Max style electric trucks this winter. Tesla has taken in a couple thousand pre-orders for \$100 down. Ford is planning on releasing an F-150 series of all electric trucks in the next 24 months. These electric trucks are not only more environmentally sound but also have more pulling power and faster acceleration. If

your company switches to electric trucks, let me know. I am looking forward to seeing a fleet of MAD-Max style electric trucks with a nursery or landscape logo on it. We will put the first ones in one of the upcoming IPM alerts.

By the way, I looked up the origin of Nikola Tesla, inventor and electrical engineer who gave us alternating current electric power. His Slavic name of Tesla meant 'of the axe' or 'Harvester'. It came to mean a tool used to harvest wood. Therefore, this really does tie into the arborist/landscapers/nursery industry. We are a green industry and we are getting greener.

Brown Patch

David Clement

Recently brown patch has started on residential lawns and landscapes, caused by several fungal species of *Rhizoctonia*. Rainy summers are worse, but even drier summers have brown patch disease pressure from moisture that develops from evening dew. Although tall fescue is the recommended turf variety for Maryland homeowners, most cultivars are still very susceptible to this problem disease.

Unfortunately, the types of fungicides that homeowners can purchase aren't that effective especially after they've discovered the disease. Professional lawn care companies have more effective fungicide options, but ideally they require several applications through the summer months.

Tall fescue lawns will recover somewhat in the fall, however during severe summers overseeding in September will help to thicken up thin areas. Choosing recommended tall fescue cultivars with more resistance to brown patch, (see University of Maryland fact sheet TT 77), will also help reduce the overall disease severity next year.

Another easy practice is to inspect your mower blades since dull blades will leave ragged blade tips that will turn white. Dull blades will actually give the brown patch fungus a wounded area to infect the grass blade. The rule of thumb is to sharpen blades after about 10 hours of service.



Rainy periods and evening dew increase the likelihood of infection from brown patch disease species
Photo: David Clement, UME

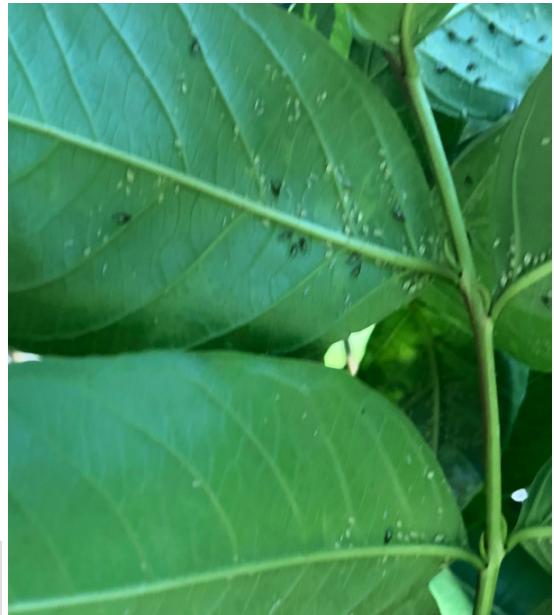
Crapemyrtle Aphid – Heating Up

By Stanton Gill

This week, I am receiving many pictures of crapemyrtle aphids. The increasing heat appears to be increasing their activity. Honeydew is becoming evident putting a shine on many leaves. If the rains come, there will be a lot of sooty mold showing up in July. If you produce crape myrtles in the nursery or have them growing in your customer's landscape, check for aphids this week.

Control: A systemic such as dinotefuran will work. Altus, with true systemic activity, gives good control of this pest. Endeavor is a translaminar material that can be applied to foliage and will travel to the bottom of the leaf. Some field trials have shown Endeavor to be effective as a basal trunk application.

Crapemyrtle aphids can reach damaging levels quickly
Photo: Mark Schlossberg, ProLawn Plus, Inc.



Fall Webworms

Jason Hipp, Deeply Rooted Tree Care, reported that he has been observing a lot of fall webworm activity on deutzia in Mt. Airy. This feeding is part of the first generation of this pest. Look for a second generation later in the summer.

Control: If possible, prune out webbed terminals. Bt, horticultural oil, or insecticidal soap can be used for early instars. There are many predators and parasites that help keep this native pest below damaging levels.

Fall webworms are feeding on this deutzia
Photo: Jason Hipp, Deeply Rooted Tree Care



Leaffooted Bugs

Marie Rojas, IPM Scout, found leaffooted bug eggs on the leaves of *Liriodendron tulipifera*. The bugs have a structure that looks like part of a leaf on their legs which is where they get their name. They cause some damage, but they are usually not much of a problem on ornamental plants. They can be a problem on home and crop fruits.

Leaffooted bugs lay their eggs in a chain along leaves and stems
Photo: Marie Rojas, IPM Scout



Leafminers

Marie Rojas, IPM Scout, is finding a lot of activity by serpenine leafminers on *Magnolia 'Elizabeth'*. The serpentine mines are caused by a caterpillar (*Phyllocnistis magnoliella*). She is also finding another caterpillar, the sweetgum leafminer (*Phyllocnistis liquidambarisella*), on sweetgum trees at multiple nurseries.



Magnolia leafminer is mining this *Magnolia 'Elizabeth'* leaf
Photo: Marie Rojas, IPM Scout

Powdery Mildew

Powdery mildew infections continue on landscape and nursery trees this week. Elaine Menegon, Good's Tree and Lawn Care, is finding powdery mildew on crape myrtle. Marie Rojas, IPM Scout, found it on *Quercus alba* and *Platanus x 'Morton Circle'*.



Powdery mildew is infecting this crape myrtle
Photo: Elaine Menegon, Good's Tree and Lawn Care

Damage From Plant Growth Regulators

Jeff Goldman, Jeff Goldman and Associates, sent in photos from a site he visited. He reported the following: "These photos were all taken at the Kirkwood apts in Hyattsville, Md. The contractor sprayed everything with 'Trimtect' plant growth regulator at a rate of 8 oz per gallon (which is fine for Manhattan Euonymus; but not so good for other plants). I've never seen anything like this before; and if I hadn't been aware that the site had been sprayed with a growth retardant, I would've been totally clueless about what may have caused these symptoms.

From Karen Rane, UME:

I looked at the Trimtect label (see attached), and rates are quite different depending on the plant species. For example, the rate for hydrangea is 1.5-3.0 oz/gal, and for Rhododendron it's 1.5-6.5 oz/gal. So clearly using 8 oz/gal is an overdose on those plants. I can't see how it would be practical to use this product in a diverse landscape - you'd have to mix several different batches at different rates, or just use a very low rate which may not be effective for some plants.



Overall stunting of hydrangea from Trimtect plant growth regulator application



Foliar damage and plant dieback from Trimtect plant growth regulator application on rhododendron (top photos) and mahonia (bottom photos)
All 5 Photos: Jeff Goldman, Jeff Goldman and Associates



Main Peachtree Borer In Flight This Week

By: Stanton Gill

Four weeks ago, I reported we placed out clearwing moth borer traps. For the last 3 weeks, we have been pulling in large numbers of lilac/banded ash clearwing male moths. This week on Wednesday we pulled in the first main peachtree borer clearwing moths. On Monday afternoon, I received pictures of this ornamental cherry tree in a container nursery with damage from main peach tree borer. When the larvae of this moth begin feeding in the cambial tissue, the plant will produce copious amounts of sap trying to expel the larva. Sometimes, a healthy tree will drown the larva. Often, the larva wins and girdles the tree with death ensuing for the tree. I also received a picture of a cherry laurel with similar damage at the base of the plant. We are early in the damage stage, so I suggest growers try a basal trunk application of the systemic Mainspring or Acelepyrn. These materials have a label for clearwing moth borer. For trees that are susceptible but not been attacked yet, you can apply either permethrin or bifenthrin to the trunk of the trees. When the moth lays the eggs on the trunk, she will be killed. If she successfully lays eggs, then the hatching larvae contact the material before they bore into the cambial tissue.

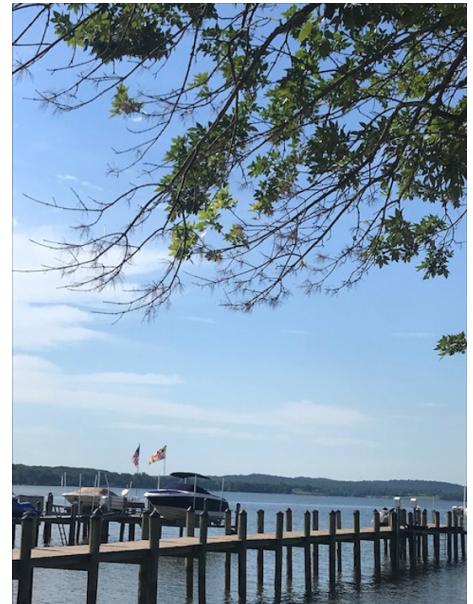


A container-grown ornamental cherry damaged by main peachtree borer

Emerald Ash Borer

Jay Chaffin, J&J Landscape Solutions, found emerald ash borer adults and damage on ash trees in Charlestown in Cecil County. You can inject the tree with emamectin benzoate (Tree-age) into the trunk at the flair. It will provide protection for 2 - 3 year if less than 30% of the canopy has been damaged. With greater damage, then more cambial damage from the larvae and the chemical does not uptake well.

Emerald ash borers are active in Cecil County at this time
Photos: Jay Chaffin, J&J Landscape Solutions



Spotted Wing Drosophila Found in Blueberries and Cherries in Maryland

By: Jerry Brust, UME

A few blueberry and cherry growers in central Maryland have reported fruit damage to their crop from Spotted Wing Drosophila (SWD) this week. If you grow any small fruit such as blueberries, cherries, blackberries, raspberries it would be best if you check these crops for the presence of SWD. This is earlier than we usually see damage from this pest, but it is not totally unexpected. In New York over the years they have been finding SWD earlier and earlier in their traps throughout the state, with many locations recovering SWD throughout June. If you have had problems in the past with SWD and you are not using traps to monitor them and your blueberries are turning from green to purple you should probably think about going on a spray program if you have not already.

The damage starts with the female fly cutting a slit into ripening fruit with her serrated ovipositor, this later looks like a “sting” in the berry (fig. 1). Maggots will then feed by tearing and shredding the interior of the fruit often causing a softened collapsed brown area (fig. 2). When ready to pupate the maggot will exit the fruit causing an exit hole (fig. 1), which can allow entry of microorganisms that cause rot. Fruit should be examined very carefully for any of these signs of SWD presence. Be sure to rotate between materials of different chemical classes to slow the development of pesticide resistance.

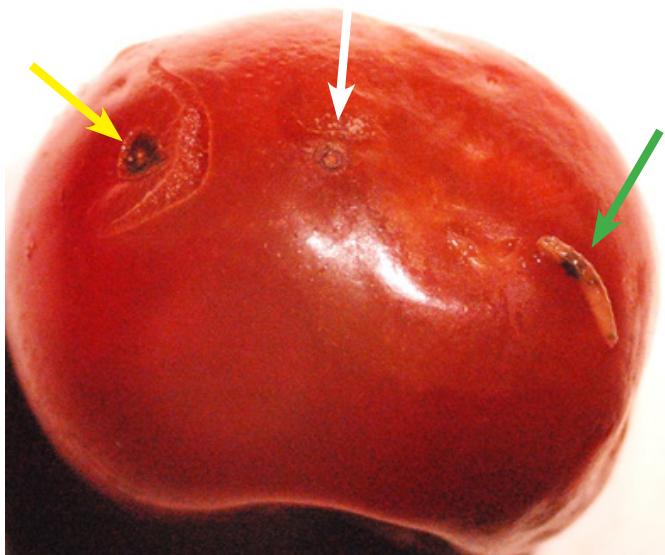


Fig. 1 Cherry fruit with SWD oviposition sting (white arrow in middle), exit hole of maggot (yellow arrow on far left) and the maggot (green arrow on far right).
Photo: Jerry Brust, UME



Fig. 2 Brown collapsed area on cherry fruit due to SWD maggot feeding.
Photo: Jerry Brust, UME

Field Trials – Adapting to New Environment

By: Stanton Gill

With Covid-19, we have all had to learn to adapt. This is very true with our field research projects this summer. There are so many restrictions on activities on the University of Maryland campus this summer that we had to move our field research projects off campus. Last week, we initiated a trial to evaluate several new low risk pesticides for control of root aphids. We are working with Marrone Company of California and Syngenta Company in these trials. We moved our trials to an outdoor location where we could keep 6 feet apart while using field scopes to take our counts with masks on and sterilizing all surfaces. See the crew giving you a special HAPPY JULY 4th wave on the next page



Making adjustments regarding locations to work on a root aphid control trial
Photo: Stanton Gill

Beneficial of the Week

By: Paula Shrewsbury

Parasitic wasps can penetrate the tough bags of bagworms

Since early June, there have been several reports of bagworm, *Thyridopteryx ephemeraeformis* (common bagworm, Lepidoptera: Psychidae), caterpillars hatching from their overwintering egg stage. This means that when monitoring, you are likely going to see active bagworms and their feeding damage on a diversity of evergreen and deciduous trees. Since bagworms are considered key pests (cause significant damage that frequently warrants control) and can kill trees, I thought it would be good to discuss management tactics and biological controls.

Optimal suppression of bagworms involves an approach that integrates different control tactics (integrated pest management, IPM). For bagworms, management should start with mechanical tactics whenever feasible. This would include hand removal of bags (made from plant parts webbed together to form a protective bag) which contain the caterpillars. This task is well worth the effort since each female bag contains 500 to 1000 eggs. The best time to hand remove the bagworms is now while the caterpillars (and their bags) are small and little feeding damage has occurred. Caterpillars are active until about early August when they pupate in the bags. The longer you wait to pick off the bags the more feeding damage will occur. Be sure to drop the picked off bagworms into a bucket of soapy water or squish them. Do not just drop the bagworms to the ground or the caterpillars will crawl back



An adult female *Itoplectis conqueror*, an ichneumon wasp that is a generalist parasitoid attacking a wide range of Lepidoptera species including bagworms
Photo: Henry Burton, BugGuide photo# 1044915

(dragging their bags with them) onto the tree. Also do not put them in a plastic bag which they are known to chew their way out of to escape (personal experience). If there are only a few trees infested with bagworms and the bags are within reach, then hand removal is a feasible and cost-effective approach. If bagworms are infesting a greater number of trees, then other options should be considered. The next management approach on the list would be the use of a product containing the bacteria *Bacillus thuringiensis* (Bt) to target the early instar caterpillars. Now should be the optimal time to use Bt on the early instar caterpillars. Bt is a biopesticide, which are pesticides that are made from a biological organism, also known as formulation biocontrol. Another formulated biological control that can reduce bagworm survival are entomopathogenic nematodes,

particularly *Steinernema carpocapse*. When the nematodes are sprayed onto the bags, they move into the bags attacking the caterpillar inside. Other chemical controls used when caterpillars are later instars, should be selected by taking into account their impact on natural enemies. Products such as Conserve (spinosad, a biopesticide), Acelepryn (chlorantraniliprole), or Confirm (tebufenozide, an IGR) should have reduced impact on natural enemies and provide good control of bagworms (thorough coverage of the foliage is important; read the labels!). The reason for this selection is that there are a number of natural enemies that attack bagworm caterpillars and we want to conserve as many of them as possible.

There are over 11 species of parasitic wasps that attack bagworms. Today I will discuss a parasitoid that is commonly found attacking bagworms, *Itoplectis conquisitor* (Hymenoptera: Ichneumonidae). Just the name sounds powerful! *Itoplectis* is indigenous to North America and a generalist parasitoid known to attack and parasitize the pupal stage of many Lepidoptera (butterflies and moths) hosts, including bagworms. It is also recorded to attack some beetle and sawfly species. *Itoplectis* is considered to be a solitary endoparasitoid. This means the wasp larva develops inside its host and only one wasp emerges from any given single host. Studies in Ontario found 5 generations per year occur. Female *Itoplectis* insert their ovipositor through the protective bag of pre-pupal and pupal bagworms (and other host insects) and then inject an egg into the bagworm pupa. The egg hatches, and the wasp larva consumes the bagworm pupae. A study in northern VA by UMD researchers identified about 10 species of parasitic wasps attacking the pupal stage of bagworms. *Itoplectis conquisitor* accounted for 58% of bagworm parasitism. The researchers found that smaller “bags” were parasitized at a greater rate than larger “bags”. Since male bagworms are usually smaller than female, rates of parasitism of males was higher than females. Interestingly, the study determined that the ovipositor of *Itoplectis* was not long enough to penetrate the bags and reach the pupae of larger bags explaining why smaller, male bagworm pupae are parasitized more than larger, female bagworms. *Itoplectis* combined with a suite of other parasitoids and predators can have a suppressing impact on bagworms. In another study, researchers demonstrated that the addition of flowering plant species to landscapes can increase parasitism by *I. conquisitor*, in addition to other parasitoids and predators. In addition to parasitoids, predators such as birds and mice attack bagworms. So as usual, remember plant diversity and floral resources are important towards the conservation of a diversity of natural enemies and increasing their biological control services.



Curtis E. Young, OSU Extension®
Late season bagworms in protective bags with an adult female *Itoplectis conquisitor* on the outside of the bag (left bagworm). *Itoplectis conquisitor* is known to parasitize bagworm pupae. Photo: Curtis E. Young, OSU Extension

For more information on bagworm biology and management go to: <http://entnemdept.ufl.edu/creatures/> or [OSU Extension Bagworm](#)

Correction From Last Week's Report

Gaye Williams, MDA, pointed out that the first photo in the Weed of the Week is *Mollugo verticillata*, not *Gallium aparine*. Gaye noted that *M. verticillata* has "reddish stems, smooth leaf edges, non-square stems, and 5-petaled flowers. *Gallium* comes with rough leaf edges, square stems, and 4 petalled flowers."

Plant of the Week

By: Ginny Rosenkranz

Kniphofia 'Primrose Beauty' is a red hot poker that glows bright yellow, resembling the common name of torch lily. The dark evergreen foliage is grass-like but very sturdy, growing almost 2 feet tall and wide. The flower spikes soar up from the center of the plant on strong stalks to bloom 3 feet tall. Like many perennials, *Kniphofia* starts blooming from the bottom of the flowering area towards the top. The traditional red hot poker flowers start out bright red or orange and as they mature the color softens to a lighter red, orange or yellow, looking like a bright torch in the garden. 'Primrose Beauty' tubular flowers start out a bright sunny yellow and hold their color even as they mature. *Kniphofia* 'Primrose Beauty' flowers cover the top of the stalk from 6-10 inches long and last up to 2 weeks. Plants bloom in succession from June to September. If the flower spikes are pruned off after blooming the plants will re-bloom to add more sunny drama to the landscape. The plants may look tropical but are cold tolerant from USDA zones 5-9 and thrive in full sun and rich, evenly moist, but well drained soils especially in the winter months. Plants are drought tolerant when established and also salt tolerant, making them safe to plant near sidewalks and roadways that need de-icing in the winter months. The blooming flowers are favorites of hummingbirds, butterflies, and other pollinators, and although deer and rabbits might take a nibble, they usually leave the plants and flowers alone. The only disease is crown rot if the plants are grown in wet soils.



***Kniphofia* 'Primrose Beauty' flowers hold their color even as they mature**
Photo: Ginny Rosenkranz

Pest Predictive Calendar "Predictions"

By: Nancy Harding and Paula Shrewsbury

In the Maryland area, the accumulated growing degree days (DD) this week range from about **1066 DD** (Cumberland) to **1592 DD** (Reagan National). 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.

- Mimosa webworm – egg hatch 1st gen (1002 DD)
- Japanese beetle – adult emergence (1056 DD)
- Fletcher scale – egg hatch (1105 DD)
- Indian wax scale – egg hatch (1145 DD)
- Cryptomeria scale – egg hatch 1st gen (1190 DD)

- Cottony maple scale – egg hatch (1194 DD)
- Fall webworm – egg hatch/active caterpillar tents 1st gen (1530 DD)
- Pine needle scale – egg hatch 2nd gen (1537 DD)
- Green June beetle – adult emergence (1539 DD)

See the [Pest Predictive Calendar](#) for more information on DD and plant phenological indicators (PPI) to help you better monitor and manage pests.

Degree Days (as of June 30)

Aberdeen (KAPG)	1111
Annapolis Naval Academy (KNAK)	1308
Baltimore, MD (KBWI)	1395
Bowie, MD	1458
College Park (KCGS)	1319
Dulles Airport (KIAD)	1332
Frederick (KFDK)	1340
Ft. Belvoir, VA (KDA)	1414
Gaithersburg (KGAI)	1242
Greater Cumberland Reg (KCBE)	1066
Martinsburg, WV (KMRB)	1148
Natl Arboretum/Reagan Natl (KDCA)	1592
Salisbury/Ocean City (KSBY)	1400
St. Mary's City (Patuxent NRB KNHK)	1528
Westminster (KDMW)	1340

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 calculatorThresholds in: Fahrenheit °F Lower: 50 Upper: 95 Calculation type: simple average/growing dds Start: Jan 1

Climate and Sustainability Webinars, 2020

Dr. Sara Via, Professor & Climate Extension Specialist, University of Maryland, College Park
Every other Wednesday, June 17 – Aug. 26, 3:30pm

Upcoming Programs:

July 15, 2020 Regenerative landscaping

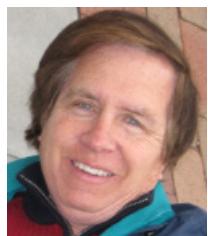
July 29, 2020 What can the pandemic teach us about being (un)prepared for climate change and other global disasters?

Aug. 12, 2020 The power of individual choice: what can individuals do to combat climate change and how much difference will it make?

Aug. 26, 2020 Climate change is bad for your health

[**See the brochure**](#) for more information and a link to register.

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Thank you to the Maryland Arborist Association, the Landscape Contractors Association of MD, D.C. and VA, the Maryland Nursery, Landscape, and Greenhouse 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.

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