UNIVERSITY OF MARYLAND EXTENSION

TPM/IPM Weekly Report

for Arborists, Landscape Managers & Nursery Managers

Commercial Horticulture — May 15, 2020

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

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Disease Information: Karen Rane (Plant Pathologist) and David Clement (Extension Specialist)
Weed of the Week: Chuck Schuster (Retired Extension Educator)
Cultural Information: Ginny Rosenkranz (Extension Educator, Wicomico/Worcester/Somerset Counties)
Fertility Management: Andrew Ristvey (Extension Specialist, Wye Research & Education Center)
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Ambrosia Beetles

By: Stanton Gill

The count of ambrosia beetles in the baited traps was very low on Monday through Wednesday. On Thursday, it was cool and cloudy mixed with some sun, but not enough to get the beetles out and flying.

On Friday, it is going to reach the 85 °F range which is perfect for ambrosia beetle flight. It would be wise to apply protective sprays if you have not done so earlier.

Look for frass tubes (and wet areas) on the trunks of trees

Cold Injury Part II – It Keeps Coming

By: Stanton Gill, Andrew Ristvey, Karen Rane and David Clement

We continue to receive a lot of emails of cold and frost damage to ornamental plants this week. Hydrangeas were hit the hardest but photinia was also reported with heavy damage by several landscapers. We are seeing browning branches on 'Green Giant' and 'Emerald Green' arborvitae from the late frost activity. On Friday, May 8 and 9, the temperatures sunk just below 32 °F causing more injury to landscape plants. Heather Zindash, Paul Wolfe, Dave Young, and several others reported damage to newly emerging foliage on crape myrtles and hollies from the May 7 and 8 frosts. New growth on Japanese maples was also damaged. Plant material that was starting to recover got hit again with the cold on Friday and Saturday. A good example is ginkgo which leafs out early Plants were damaged by the April 17 frost, and started producing new growth that was hit on May 7 and 8 again.

This ginkgo tree was damaged by the third wave of low temperatures
Photo: Stanton Gill

Karen Rane, David Clement, Andrew Ristvey, and I visited some nurseries and landscapes on Thursday to look at plant damage. We were surprised at the number of species that were impacted by the cold with either scorched leaves, browning tip growth, or actual small branch dieback.

We will continue to see this damage showing up in the next week as temperatures increase and cause a drying out of the damaged tissues. The aftereffects will be seen long after many of your customers have forgotten the multiple frost incidences.

We have a gallery of plants damaged by the cold at the end of this IPM report.

Velvet Mite

Jim McWilliams, Maxalea, Inc., found a velvet mite on a *Quercus alba*, 4’ up on the trunk in Baltimore County. This mite usually prefers moist areas. It is a generalist predator that feeds on a wide range of insects. This mite is eye catching with its bright color and large size that lends itself to being photographed.

Velvet mites are generalist predators
Photo: Jim McWilliams, Maxalea, Inc.

100th Year for a Major Event

By: Stanton Gill

Interesting fact: This year is the 100 year anniversary of the first woman to graduate with a four degree from the University of Maryland. Guess what her degree was in? Yes, entomology. Her name was Elizabeth Hook. Elizabeth enrolled in the University of Maryland College Park in 1917 and graduated in 1920. She broke the ice for women in entomology. Elizabeth became a teacher at Hyattsville High School and married Franklin Day (another Terp); You can view the complete article at Maryland Today. https://today.umd.edu/articles/marylands-leading-lady-13908450-7512-4e0c-9d8c-31b555afc903

Anything Can Be Ornamental

By: Stanton Gill

An interesting email with this picture was sent in this week from Russell Bateman, Scientific Plant Service. He saw this ornamental *Toxicodendron radicans* neatly trimmed at a driveway entrance in his travels and thought it would make a good "plant of the week".

Using poison ivy as an ornamental plant by the driveway?
Photo: Russell Bateman, Scientific Plant Service

Basswood Lace Bugs on Linden

Marie Rojas, IPM Scout, reported that lace bugs are just out and mating on *Tilia tomentosa* 'Sterling' in Gaithersburg on May 14. Lace bugs initially cause stippling damage to foliage. Extensive feeding causes the foliage to have a bleached out appearance. Horticultural oil or insecticidal soaps control lace bugs, but be sure to get good coverage of the undersides of the leaves. Systemic insecticides can also be used.

Look on linden foliage for the presence of basswood lace bugs
Photo: Marie Rojas, IPM Scout

Aphids, Aphids and More Aphids: Aphidoidea

By Nancy Harding and Paula Shrewsbury

Aphids have been found on several different plants this week: *Monarda* (bee balm) in Columbia, *Asclepias syriaca* (Common milkweed) (Fig. 1), and Knock Out Roses in Bowie (Fig. 2).

Aphids are small soft-bodied and pear-shaped with two tube-like cornicles projecting out from the hind end of their body. They use their long slender mouthpart to pierce stems, leaves and other plant parts to suck out the phloem sap. Adults can be winged or wingless and range in size from 1/16" to 1/4" long. Color can also vary from green, yellow, orange, red, black or white depending on aphid species. Aphids are parthenogenetic, that is they can reproduce without the aid of a male, and they give birth to live offspring (no eggs). They have several generations a year.

Monitor for aphids by looking for active aphids, white shed skins or plant damage such as leaf curl, stunting, deformation, or large amounts of honeydew and sooty mold.

Although aphids can be found singularly, they usually occur in large numbers. Low to moderate populations usually do not warrant control as there are many natural enemies that will come in for a tasty meal such as lady beetle adults and larvae, lacewing larvae, soldier beetles, syrphid fly larvae, and parasitic wasps (see Beneficial of the Week below). However, if there are large populations of aphids producing significant damage with no signs of natural enemies use a short residual product such as Altus (flupyradifurone), insecticidal soap, horticultural oil or pyrethrum.

Fig. 1. Aphids on Knock Out Rose
Photo by Nancy Harding, UMD

Fig. 2. Aphids on common milkweed
Photo by Nancy Harding, UMD

Boxwood Leafminer Adults

By: Stanton Gill

George Mozal reported seeing flight activity of boxwood leafminer in the Cockeysville area on Monday afternoon. Paul Wolfe, Integrated Plant Care, reported boxwood leafminers were extremely active last week in the Bethesda area. Matt Hirt, Douglas Lawn and Landscape, also reports the emergence of boxwood leafminer adults. The boxwood leafminer has risen to a high level with the heavy use of boxwoods in landscapes. Avid, Endeavor, or Dinotefuran can be applied to foliage now.

Cottony Taxus-Camellia Scale, *Pulvinaria floccifera*

By: Stanton Gill

I appreciate all of the pictures of *Pulvinaria floccifera* soft scale being sent to me. These reports help us see when the eggs are hatching and crawlers are beginning to be active. As of today, here is a lot of white egg sac development this week and we are getting close to hatch, but not yet.

Obscure Scale

Marie Rojas, IPM Scout, reports finding obscure scale on *Quercus robur* and *Quercus coccinea* in Gaithersburg on May 14. Marie noted that there were twice-stabbed lady beetles feeding on them. Look for crawlers from late June through early September. If necessary, a dormant rate oil this fall or at the end of next winter can be applied to keep this scale suppressed.

Control for Scale Crawlers: Apply pyriproxyfen (Distance) or buprofezin (Talus) mixed with 0.5 - 1% horticultural oil for control.

Twice-stabbed lady bird beetles feed on obscure scale
Photo: Marie Rojas, IPM Scout

Gloomy Scale

Marie Rojas, IPM Scout, found gloomy scale on *Acer rubrum* 'Red Rocket' in Gaithersburg on May 14. Look for crawlers of this scale in late June into early July. Infested trees will show a slow decline as the population builds. Examine the bark very closely to see the small raised covers of this armored scale.

Control: Apply either Talus or Distance when crawlers are active.

Look closely on the trunks of red maples for gloomy scale
Photo: Marie Rojas, IPM Scout

Elongate Hemlock Scale

Heather Zindash, IPM Scout, found settled first instars of elongate hemlock scale in D.C. on May 12. Life stages overlap so look for crawlers throughout the spring and summer. Distance can be applied to control crawlers.

The first generation of elongate hemlock scale are moving to the settled first instar stage. Look for crawlers of overlapping generations throughout the summer.
Photo: Heather Zindash, IPM Scout

Minute Cypress Scale

Heather Zindash, IPM Scout, found minute cypress scale on *Juniper thyoides* 'Heatherbun' in DC on May 14. Examine Leland cypress and juniper species for this small, often unnoticed, armored scale that has grown in prevelance in nurseries and landscapes. Distance or Talus can be applied at the crawler stage.

Because it is a very small scale, minute cypress scale can be difficult to detect on Leyland cypress and junipers
Photo: Heather Zindash, IPM Scout

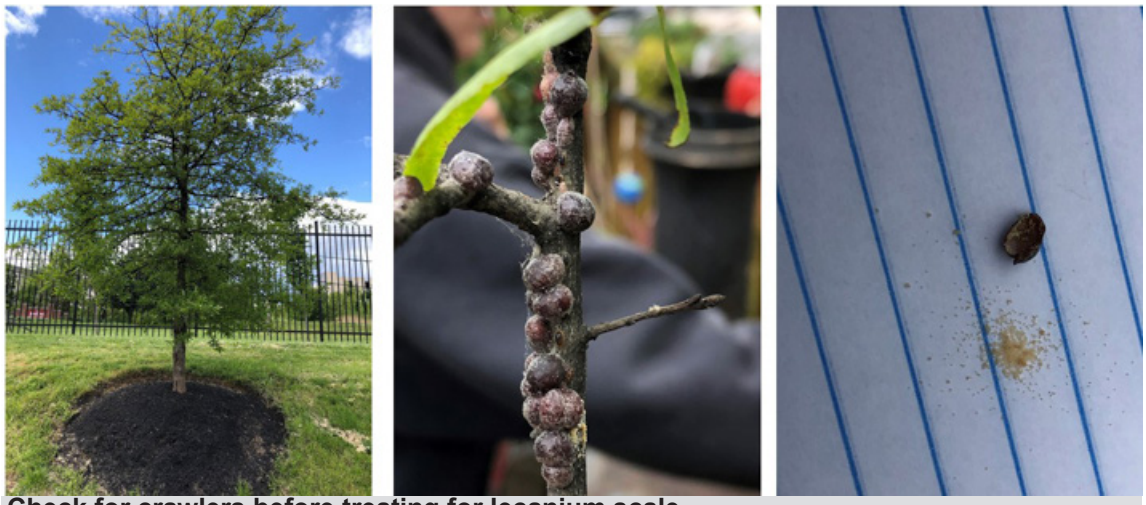
Pine Needle Scale

Heather Zindash, IPM Scout, reported that pine needle scale started hatching in D.C. on May 12. Look for lady bird beetles and parasitic wasps feeding on this pest. Consider using pesticides with little effect on beneficials to allow biological organisims to suppress the population. If control is warranted, use a summer rate of horticultural oil or an insect growth regulator (IGR) such as Distance or Talus to target crawlers.

Crawlers of pine needle scale are now active in D.C.
Photo: Heather Zindash, IPM Scout

Lecanium Scale

Rob Meier, Atlantic Maintenance Group, found lecanium scale on willow oak. Rob noted that there was a lot of honeydew present. Lecanium scales produced a lot of honeydew just before females lay eggs so crawlers should be active in about two weeks. If you find lecanium scales, contact Stanton Gill at sgill@umd.edu about looking at samples to confirm crawler activity. Oak lecanium and European fruit lecanium scales are two common species in this area. The life cycles of these lecanium scales are very similar, but plant hosts vary (include oak, elm, hawthorn, pyracantha etc.).
Control: Apply pyriproxyfen (Distance) or buprofezin (Talus) mixed with 0.5 - 1% horticultural oil for control when the majority of eggs have hatched and/or settled first instars are present.



Check for crawlers before treating for lecanium scale
Photos: Rob Meier, Atlantic Maintenance Group

White Pine Weevils

Marie Rojas, IPM Scout, is reporting that white pine weevils are now tunneled into terminals of *Picea omorika*. Feeding by larvae causes the tips of white pines and spruces to flag. 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, treat terminal growth when the adult activity is noted among conifers.

White pine weevil larvae are feeding within terminals of *Picea omorika*
Photo: Marie Rojas, IPM Scout

Spotted Lanternfly

Sam Hanmer, Good's Tree and Lawn Care, found newly hatched spotted lanternfly in Lancaster, PA on May 15. If you find any spotted lanternflies in Maryland, let MDA know at DontBug.MD@maryland.gov. They have more information on this pest posted at https://mda.maryland.gov/plants-pests/Pages/spotted-lantern-fly.aspx

Spotted lanternflies are hatching in Lancaster, PA this week
Photo: Sam Hanmer, Good's Tree and Lawn Care

Deer Resistant Perennials

By: Stanton Gill

Here are a couple of plants you can put in your customers' landscapes that deer will leave alone.

The first one is horseradish. Yes, horseradish. It is a perennial and produces a beautiful white bloom in May. The plant blooms for about two weeks.

The next plant is voodoo lily which is a member of the *Amorphophallus* genus. It is a perennial corm that puts up flower shoots (seen here) at this time of year. The stem that emerges next is singular and very ornate with mottled colors on the stems and umbrella-like foliage.

The last one is flowering allium. Brent Heath gave me a whole collection of flowering alliums that start blooming in late April and keep going until June. They are very deer resistant. Here is one with purple a flower display in mid-May.
Photos: Stanton Gill

Hemlock Woolly Adelgids

Greg Dionne, Hometown Tree Experts, found hemlock woolly adelgid females creating egg sacs (white color) and crawlers active and spreading out on the plant. Treat at this stage with Endeavor or Dinotefuran. Only use the dinotefuran if there are not flowering plants nearby so the drift would not carry onto the flowers to impact pollinators.

Check egg masses of hemlock woolly adelgids to see if crawlers are active before treating
Photo: Greg Dionne, Hometown Tree Experts

Giant Asian Hornet

By: Stanton Gill

Well, at least insects invading the US give everyone something to talk about other than Covid-19. We have two links for you this week on the giant Asian hornet which has had adjectives added to its name like "Murder" and 'Killer." Here is a link of an article by Mike Raupp, Retired Extension Specialist and NPR Star Entomologist, on this wasp at http://bugoftheweek.com/. The second link is for information from Penn State Extension at https://extension.psu.edu/asian-giant-hornets

Xanthe Shirley, USDA APHIS PPQ in Texas, just put together what I thought was an excellent slide set of AGH look-alikes. It may be a little detailed for the public, but the images can be shared and descriptions of the difference between AGH and other wasps are very helpful. I think it would make an excellent resource for training master gardeners and county Extension agents. She is happy to let anyone use and share the slides. Contact Xanthe Shirley at xanthe.a.shirley@usda.gov

Bristly Roseslug Sawfly

Jim McWilliams, Maxalea, Inc., is finding bristly roseslug sawfly feeding on roses this week. Of the three species found in this area, this sawfly is the most damaging, as it has multiple generations (reported 5 – 6) throughout the season, so control is often necessary. For more information on roseslug sawflies, see the May 1, 2020 IPM Report.

With 5 - 6 generations in this area, bristly roseslug sawfly can cause significant damage to roses
Photo: Jim McWilliams, Maxalea, Inc.

Fruit Tree Update

By: Stanton Gill

Well, the good news is that many of your customers will not have to thin fruit very heavily as we head toward June. The cold fronts with temperatures dipping into the upper 20 °F and lower 30 °F range have killed a lot of the small developing fruit on apricot, peach, cherries, pear, and many apple varieties. Strawberry blooms were killed by the cold so early crops will be knocked back. If your customers were in more urban areas with buildings keeping areas warmer, they may have made it thru without much fruit injury. More rural counties will see a fair amount of small fruits dropping on their own this week and next week from the cold injury. Many fig plants made it through the mild January and February winter, but if they started to leaf out over the last couple of weeks, they likely had cold injury occur. Generally, the figs will recover when it gets much warmer. Hardy kiwis were hit with frost back on April 17. They started to grow out of the injury only to be hit again last weekend which killed back much of the new growth.

Michigan State, which is a huge cherry and apple producers for grocery stores sales had very warm temperatures in early May which forced cherry, apple, peach and pear into bloom. Temperatures sunk down to the 20 °F range last weekend and did heavy damage to many fruits. In Late June, we generally see a lot of Michigan cherries in the grocery stores. They will be there, but in lower numbers this summer.

Here is a strange aftereffect of the extended cool period during bloom. Cherry trees had their blooms open over a longer than normal time. As the fruit swells, we are seeing large fruit that was pollinated early on and clusters of significantly smaller fruit that formed later in the same cluster.

Fresh Sapsucker Damage

By: Stanton Gill

We received pictures of fresh sapsucker damage on foster holly this week. Evidently, the sapsuckers are still very active with the cool spring weather causing plant injury. If the damage is extensive enough, the growth above the wound does dieback quite often. If light damage, the plant recovers.

Sapsucker damage was found on foster holly this week
Photo: Stanton Gill

Andrew Ristvey found a phantom crane fly this week. They have flared sections on their legs that allow them to "ride" on the breezes.

Debra Woodfiel, Casey Trees, found Chinese praying mantid nymphs that just hatched this week. Paula Shrewsbury covers mantids in the October 14, 2011 IPM Report.

Cold Damage: The following are additional photos of cold damage on plants this week.

Cold damage on Japanese maple
Photo: Stanton Gill

Cold damage on Asiatic lily
Photo: Stanton Gill

Cold damage on holly
Photo: Dave Young, Fisher and Son

Frost damage on boxwoods in Harrisburg PA where there were frosts on three days in the last week
Photo: Elaine Menegon, Good's Tree and Lawn Care

Cold damage on *Styrax obassia*
Photo: Suzanne Cholwek

Cold damage on American holly
Photo: Heather Zindash, IPM Scout

Beneficial of the Week

By: Paula Shrewsbury

Aphids and their mummies

At this time of the season there are a number of aphid species active on various plant species. Most commonly we see an abundance of rose (*Macrosiphum rosae*) or potato (*M. euphorbiae*) aphids on roses, spirea aphid (*Spirea spiraecola*) on spirea, spiny witch hazel gall aphid (*Hamamelistes spinosus*) on river birch, and more. Aphids are usually found on the new growth of plants where the growth is soft and filled with amino acids that provide nutritious food for aphids. Aphids have evolved to become quite efficient at reproduction and reach high densities quickly. For example, during the summer season for many species of aphids, all the individuals are females so every aphid in the population is reproducing, they give live birth so no time needs to be spent in the egg stage, and they are parthenogenic so females do not have to mate to reproduce… pretty amazing biologically.

Interestingly, even with these population building attributes, chemical controls are seldom needed for aphids. There is an entire suite of natural enemies that ultimately reduce, and often eliminate, aphid populations. Natural enemies move into ornamental plantings in response to increased "food" availability. The more aphids, the more natural enemies, for a while at least! Last week I discussed the aphids on *Monarda* plants and the brown lacewings that were snacking on them. In addition to aphids and lacewing predators, **aphid mummies** were all over the plants. Aphid mummies are aphids that have been parasitized (and killed) by tiny wasps. Tiny **braconid wasps** (family Braconidae), particularly those in the genera *Aphidius* and *Aphelinus*, play an important role in reducing aphid populations on many herbaceous and woody landscape plants. These wasps only attack aphids and some wasps only attack one species of aphid. These wasp locate plants infested with aphids, the female wasp will then "sting" (lay her egg in) an aphid. Click here to watch as a wasp aggressively attack hapless aphids (video by M.J. Raupp, UMD). Aphids do their best to kick and push the female wasp

away. The wasp's abdomen is articulated and highly mobile allowing her abdomen to curl beneath her body providing a frontal assault on the aphid. At the tip of her abdomen is an ovipositor and as she stings the aphid, her eggs are inserted into the aphid's body. These endoparasitoids feed and develop within the aphid, killing it in the process. The wasp egg hatches, the larva feeds on the insides of the aphid and then pupates. In response, the aphid body begins to swell and change color, usually tan to dark brown, giving it a "mummified" appearance. The color of the "mummy" varies depending on the species of braconid wasp that has attacked it. Once ready, the adult wasp then chews a hole in the top of the aphid mummy from which it emerges. The wasp then moves on to lay eggs in more aphids. A single wasp can parasitize up to 400 aphids in her lifetime.

An Aphidius female wasp stinging (inserting an egg) into a live aphid.
Photo: Peter Bryant, from BugGuide.net

The take home message is: Wait! Don't spray! The natural enemies will come – and they will win over the aphids. If there is a need to treat aphids (ex. high amounts of honeydew, high levels of distorted new growth) then use a short residual product that will reduce the aphid populations and have the least detrimental impact on natural enemy populations. In addition, avoid using high nitrogen, fast release fertilizers. These fertilizers will favor aphids and lead to greater densities of aphids and their damage.

The aphid mummies that you see here indicate that tiny Braconid wasps have parasitized the aphids providing biological control. Holes seen in some of the mummies tell us adult wasps have emerged from them already. Mummies without holes still have wasps developing within them.
Photo: M.J. Raupp, UMD

Aphids do have a good side to them. As I mentioned they attract a large and diverse suite of natural enemies into a landscape or nursery. Once the natural enemies consume the aphids on aphid-infested plants, they will then move onto other plants in the area that have "food" for them. For example, many natural enemies of aphids also feed on scales, spider mites, thrips, or small caterpillars providing biological control of these pests. When possible let mother nature (or her natural enemies) take care of aphid infestations and you will have the added benefit of reductions in other pest species by an abundance of natural enemies.

Weed of the Week

By: Chuck Schuster

A trio of plants often considered difficult to control are seemingly worse this year than in many other years. These fall germinating plants, are all part of the mint family. Ground ivy, sometimes called creeping charlie, henbit, and purple deadnettle will be my focus for the next three weeks. With the very mild winter, these plants are growing well during the moist and cool spring we have had the last several weeks.

Purple deadnettle, *Lamium purpureum,* is or has been in active bloom in recent weeks in landscapes and mixed in areas of turf that are not often managed. Purple deadnettle in bloom (Photo D) is found in many landscapes and lawns. Using the photos below, Photos B, C, D, E, and F are examples of purple deadnettle. It

is a commonly fall germinating, winter annual in the mint family. **Henbit (shown in photo A)**, is also a fall germinating weed that can be found in turfgrass and landscape settings throughout the United States. Purple deadnettle has square, hollow stems (photos E and F), no basal leaves. The leaves of purple deadnettle will be found on a short petiole (photo C), which distinguishes it from henbit, whose upper leaves are sessile or attached to the stem itself. Petiole length of the lower leaves will be longer than that of the upper leaves. The leaves of purple deadnettle will be opposite, slightly pubescent (occurring with hairs), triangular to round in shape with a toothed margin, but are less deeply lobed than henbit. Upper most leaves can be triangular in shape. Leaf color is dark green, with the upper leaves becoming purple or red. The stems are square in shape and can grow up to sixteen inches in height branching from the base of the plant.

Flowers occur in whirls of three to six in the upper leaves and are purple. The root system is fine and fibrous. The plant produces a small berry about two mm in diameter. Purple deadnettle spreads by seed.

The name deadnettle comes from the fact that it will not sting you as opposed to stinging nettle, *Urtica*, which will. The two plants are not closely related, but they do look a little similar. *Urtica* is that formic-acid wielding plant that zaps you with little stingers. Purple deadnettle can be eaten.

Cultural control of purple deadnettle includes proper use of fertilizers to build a strong turf, aeration of the soil to prevent compaction, and in most cases use of mulch to act as a weed barrier to prevent UV light from reaching the soil needed for germination. This is an easy weed to pull. It is not a difficult weed to control in most settings. Soil disturbance in the fall will help this weed germinate, and monitoring at this time can help with removal.

Control of purple deadnettle can be started in the fall. Preventing it from being noticed in the spring starts with potential use of pre-emergent products. Fall application of Dichlobenil (Barrier) (pre emergent) can help prevent this weed from being an issue in the spring. IF this opportunity is missed, or in the case of a wet fall, the plant may be noticed in the early spring, but can be controlled using post emergent products that will include organic products such as pelargonic acid (Scythe), Fiesta, Pulverize (Iron HEDTA (FeHEDTA), Prizefighter, and synthetic products including Imazaquin (Image), Metribuzin (Sencor) turf only, and 2,4 D + MCPP.

Photos: Chuck Schuster

Plant of the Week
By: Ginny Rosenkranz

Amsonia hubrichtii is a long-lived native herbaceous perennial often called threadleaf bluestar. It can grow 2-3 feet tall and wide and thrives in full sun with moist but well drained soils. Once established the Threadleaf Bluestar is drought tolerant, but this plant takes a few years to settle in. Winter hardy from USDA zones 5-8, *Amsonia hubrichtii* blooms in the spring from late April into May with light blue star shaped flowers. The half inch powder blue flowers are arranged into a tall bouquet that tops the ends of the branches, keeping most of the flowers on the top of the plants. Butterflies and other pollinators enjoy the nectar of the beautiful blue star shaped flowers. The bright green foliage has narrow, thread like leaves on straight stems creating a feathery, airy look. In autumn the soft feathery foliage turns a bright golden yellow. The foliage also contains a slightly toxic sap that is unpalatable to both insects, rabbits and deer. After flowering, trim back the stems by a third to prevent the foliage from flopping over later in the season. Plants can be used in herbaceous borders, Cottage gardens and Native plant gardens. *Amsonia hubrichtii* was chosen as the Perennial Plant of the Year in 2011 and continues to be a favorite plant in the landscapes. There are no known pests.

Amsonia hubrichtii bloom in April and May in this area
Photos: 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 193 DD (Aberdeen) to 453 DD (Patuxent River Naval Base). 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.

- Boxwood leafminer – adult emergence (249 DD)
- Spruce spider mite – adult/nymphs (276 DD)
- Azalea lace bug - egg hatch 1st gen (281 DD)
- Pine needle scale - egg hatch 1st gen (283 DD)
- Hemlock woolly adelgid - egg hatch 1st gen (300 DD)
- Spirea aphid - adult/nymph (326 DD)
- Lilac borer - adult emergence (350 DD)
- Emerald ash borer – adult emergence (421 DD)
- Fourlined plant bug - egg hatch/early instar (435 DD)
- Basswood lace bug – nymph (462 DD)
- Lesser peachtree borer – adult emergence (468 DD)
- Maskell scale – egg hatch 1st gen (470 DD)
- Oystershell scale – egg hatch 1st gen (486 DD)
- Gypsy moth – egg hatch (507 DD)
- Euonymus scale – egg hatch (522 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 May 13)

Aberdeen (KAPG)	193
Annapolis Naval Academy (KNAK)	289
Baltimore, MD (KBWI)	323
Bowie, MD	372
College Park (KCGS)	281
Dulles Airport (KIAD)	310
Frederick (KFDK)	262
Ft. Belvoir, VA (KDA)	366
Gaithersburg (KGAI)	266
Greater Cumberland Reg (KCBE)	215
Martinsburg, WV (KMRB)	209
Natl Arboretum/Reagan Natl (KDCA)	439
Salisbury/Ocean City (KSBY)	378
St. Mary's City (Patuxent NRB KNHK)	453
Westminster (KDMW)	312

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

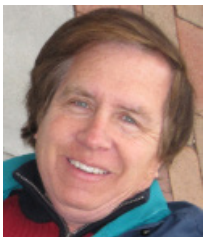
CONFERENCES

June 3, 2020
Eastern Shore Pesticide Recertification Program
Location: This program will be conducted on-line.

Program Recertification:
Maryland - 2 (Forestry), 3A, 3B, 3C (Turf, Ornamental interior, Ornamental exterior), 5 (Aquatics) 6 (Right of Way), 7 (general pest), 10 (Research and Demonstration), 13 (Arial) and Private Applicator
Delaware - 2, 3A, 3C, 5, 6, 10

To register, go to: **https://2020esprocrastinator.eventbrite.com**

CONTRIBUTORS:



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