UNIVERSITY OF MARYLAND EXTENSION

TPM/IPM Weekly Report

for Arborists, Landscape Managers & Nursery Managers

Commercial Horticulture **August 2, 2019**

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Pest Predictive Calendar

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:
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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) and David Clement (Extension Specialist)
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)

Caterpillar Attacking Redbud Foliage

By: Stanton Gill

When this redbud leaf was unfolded, a redbud leaffolder caterpillar was found feeding on the leaf

We were working on our spotted lanternfly trial in southeast Pennsylvania on Tuesday. While we were working, we noticed damage on the foliage of weeping redbuds. We found the leaves folded over and when you unfolded a leaf, a colorful caterpillar almost sprung out and moved very quickly. It was identified as *Fascista cercerisella* (Chambers) (Gelechiidae family). The common name is redbud leaffolder. It is more of a nuisance, aesthetically, than damaging to the tree. They start folding leaves in May and persist (are more abundant) into fall. This one was identified by William Klingeman, PhD, at Tennessee University.

Aster Yellows

By: Karen Rane

Symptoms of aster yellows are apparent now on *Echinacea* (coneflower) (Figures 1 and 2). The pathogen that causes this disease, a phytoplasma, is a bacteria-like microorganism spread by leafhoppers, primarily the aster leafhopper (*Macrosteles fascifrons*). Over 300 plant species can be hosts for this disease, including ornamentals such as asters, zinnia, *Echinacea*, and chrysanthemum, and vegetables such as lettuce, carrot and tomato. Symptoms of aster yellows include stunting, chlorosis (yellowing), and abnormal flower development (green petals, clustered mini-flowers instead of a single blossom, green petal-like tissue in center of flowers). There is no cure for infected plants, so they should be removed.

Echinacea flower distortion can also be caused by an eriophyid mite.

Figure 1. Aster yellows symptoms on *Echinacea*
Photo: K. Rane, UMD

Figure 2. Close-up of green petals and abnormal flower development on *Echinacea* due to aster yellows
Photo: K. Rane

Controlling Leafhoppers and Planthoppers

By: Stanton Gill

In the previous article on aster yellows, Karen mentions that leafhoppers are one of the major vectors of this disease. You can plan out for next season to deal with these sucking insects. For control, I would suggest making a root drench application of either Altus (Bayer Company) or Mainspring (Syngenta Company) early in the season right after you plant in early summer. Mainspring should provide 12 weeks of control when applied at 8 oz/100 gallons of water. Altus is long lasting but I have not yet had enough experience with this newer material to tell you how long a soil drench would provide control. If you prefer to spray, I would use either Endeavor or Aria, which are both stylet blockers. When the leafhopers feed, their stylet is blocked and they cease feeding. It takes a day or two for the insects to die from starvation.

Diagnostic Session with LCA on August 14

By: Stanton Gill

If you are looking to build your diagnostic skills for woody plant problems, there is a session organized by LCA in combination with the University of Maryland Extension on August 14th. Karen Rane, David Clement, Chuck Schuster, Mary Kay Malinoski, and I will be conducting a hands-on session on plant diseases, insects, mites, and weed identification and control options. Visit the LCA website to register for this hands-on session.

Armored Scale – Time for Action This Week

By: Stanton Gill

I examined obscure scale on pin oak from Glenwood on July 28. Crawlers and settled 1st instars were present. This scale also shows up on willow oak and occasionally I get in a sample into CMREC with this scale on red oak.

Look for crawlers and 1st instars of obscure scale Photo: James Solomon, USDA Forest Service, Bugwood.org

San Jose Scale was observed in Biglerville, PA and Westminster on July 27. We found crawlers and settled 1st instars on peach, plum, and apple trees.

San Jose scale is infesting this plum

White prunicola scale from Germantown was examined on July 28 and mainly settled 1st instars were found with a couple of settled 2nd instars present. The scale was on weeping cherry. This scale is most commonly on skip laurels and most of the samples that come into CMREC have this scale on laurels.

White prunicola scale is a common scale problem on cherry laurels

Gloomy scale was found on red maples in Sykesville. Crawlers and settled 1st instars were present.

Fiorinia scale was at a Christmas operation in Anne Arundel County on July 28. There were mainly settled 1st instars present. This scale also shows up on hemlock and spruce.

Scale Control: Since these scales are in crawler and settled 1st instar stages, they are very susceptible to insect growth regulators. I would suggest using either Talus or Distance for control.

Squirrels That Love Zelkova

By: Stanton Gill

Zelkovas have become a popular tree in the last 30 years that replaced elm trees. They have been planted everywhere in the landscape. Four years ago, we had a number of arborists and landscapers send in pictures of their customers' lawns and driveways covered with clipped branches from zelkova trees. The culprits were identified by photos and it was squirrels that were cutting off the ends of the branches and dropping them to the ground. This week, Paul Wolfe, Integrated Plant Care, reported a flurry of squirrel zelkova branch clippings in Bethesda, Rockville, Kensington, and Potomac. We are not clear on why they often pick this species of tree, but it could be the sugars are high enough to make it attractive. It could be an ideal nesting material to pad their summer homes.

As long as we on the subject of squirrels, one of the most frequent complaints that landscapers receive is that when managing peach trees in their customers' landscapes, squirrels strip off just about all of the fruit and carry it away before the customer can get a bite of a juicy peach. It is very frustrating for the homeowners. So far, no one has come up with a brilliant way to prevent this damage. If you have a really fool proof method, we would love to hear it.

Squirrels have clipped a lot branch tips off of these zelkova trees along this street
Photo: Ellen Wolfe

Interesting Weed Control Problem

By: Stanton Gill

Steve Clancy, Town Creek Landscaping Company, called in with an interesting problem this week. His customer had a large planting of liriope installed this spring. With all of the rain, crabgrass, goosegrass, and other grasses moved into the bed in a big way. We checked with Dr. Jeff Derr of VA Tech Experiment Station and Harry Kenney of Nutrien for a solution. Dr. Derr suggested either Fusilade, Envoy, or Segment (also sold under the name Poast). Jeff felt that Fusilade would work well over liriope, but it has caused damage on some other ornamental plants. Harry Kenney said he felt Envoy was the safest material to use in a landscape bed for controlling grasses.

MDA Container Recycling Program

See the MDA brochure for locations and dates for the 2019 MDA Container Recycling Program

Spotted Lanternfly Update

By: Stanton Gill

Brian Kunkel, University of Delaware Extension, Nancy Rechcigl, Syngenta, and I descended on our southeast nursery site in PA on Tuesday to look at the trial plots with spotted lanternfly. We found that they are mainly in the 4th instar nymph stage and many winged adults. We found a fair number on maple and walnut trees adjacent to the nursery. They were just starting to migrate into our test plots, so there is not much to report on control so far.

If you are picking up plant material from the quarantine areas, make sure you take the PA Department of Agriculture online SLF training and display your pass when in PA. We did a thorough inspection of our vehicles before we left, and you need to do the same if visiting southern PA.

Here is a close-up of a 4th instar spotted lanternfly nymph found in PA this week

Caterpillars

Nancy Woods found some small *Calyptra canadensis* (Canadian owlet moth) caterpillars on my *Thalictrum rochebrunianum* on July 29.
Photo: Nancy Woods

Marie Rojas, IPM Scout, found spiny elm caterpillar on *Ulmus* 'Princeton'. She noted that she left them because they turn into mourning cloak butterflies.
Photo: Marie Rojas, IPM Scout

Lauren Greenberger reported that her daugher was weeding plants in her native pollinator garden and came into contact with several lo moth caterpillars that were on Baptisia. These caterpillars have urticating hairs and are one pf the species of 'stinging' caterpillars found in Maryland.

A spined soldier bug was feeding on an orangestriped oakworm that was on a willow oak in Great Falls, VA. We have received many reports of feeding activity by this caterpillar this summer.
Photo: Spencer Ecker, Potomac Flower & Garden Design

Fall Webworms

Reports of the second generation of fall webworms continue this week. Kevin Nickle, Scientific Plant Service, is reporting that this year probably ranks in the top 3 for fall webworm over the 40 years he has been in this business. Marie Rojas, IPM Scout, is reporting a lot of fall webworms in Frederick, to the point where entire trees are enveloped/defoliated, mostly on *Cercis canadensis* and cultivars.

Reports indicate that fall webworms are in high numbers this year
Photo: Kevin Nickle, Scientific Plant Service

Dogwood Sawflies

Dogwood sawflies are continuing to do damage this week. Marie Rojas, IPM Scout, found them defoliating *Cornus sericea* (red twig or red osier dogwood) in Gaithersburg. Elaine Menegon, Good's Tree and Lawn Care, also found them feeding on this species of dogwood in Etters, PA on August 1. Dogwood sawfly will eat all but the midrib of the leaf. These sawflies overwinter in the last instar stage. After the second molt, the bodies of the larvae become covered with a white powder-like material to mimic bird droppings which helps to protect them from their enemies. At their final molt they have a spotted pattern to camouflage them as they crawl over leaf litter. There is only one generation per year.
Control: Options include Conserve and synthetic pyrethroids.

There are several color variations as dogwood sawfly caterpillars move through their different larval stages
Photo: Elaine Menegon, Good's Tree and Lawn Care

One of the dogwood sawfly larval stages mimics bird droppings
Photo: Marie Rojas, IPM Scout

Powdery mildew

Monitor plants for powdery mildew at this time of year. Marie Rojas, IPM Scout, found the diseases on garden phlox in Gaithersburg and on London plane trees in Frederick this week.

Powdery mildew infection is occurring throughout the area
Photo: Marie Rojas, IPM Scout

Potato Leafhopper and Maple Mite Damage

By: Stanton Gill

We are seeing heavy duty damage on red maples from potato leafhopper this week. Some of the infested trees look like poodle trees. We found nymphs and adults present on the branches. Also, we found a fair amount of maple mite damage on foliage. This mite is a minor problem compared to potato leafhopper feeding activity.

Comment from Jerry Brust, UME: "In June you asked me if I thought leafhoppers were invading Maryland earlier than expected and could they be overwintering here and I said maybe. Here is a sentence I wrote in an article about leafhoppers--I found the research in some paper that I can't find now. Anyway, here is the sentence: Potato leafhoppers are generally first seen in late April or early May but are arriving on average 7-10 days earlier in our area than just 20-30 years ago. So they are getting here earlier, but I am not sure if they are overwintering here."

The stippling on this maple is caused by mites

Potato leafhoppers can cause significant damage on maples

Oak Spider Mites

Marie Rojas, IPM Scout, found oak spider mites feeding along the midribs on the upper side of *Quercus rubra* leaves. Heather Zindash, IPM Scout, found mites and damage on *Quercus* Regal Prince. Feeding with their stylet mouthparts causes yellowing and stippling of foliage.

Control: If mites are reducing the growth on plants in a nursery, then use a miticide. In the landscape, control is rarely needed.

Oak spider mites often feed along the midrib of the leaf
Photo: Heather Zindash, IPM Scout

Assassin Bug

Spencer Ecker, Potomac Flower & Garden Design, found an assassin bug on an azalea in Great Falls, VA. Assassin bugs are generalist predators that feed on many small insects.

Monitor plants to see if any predators are present in the area such as this assassin bug
Photo: Spencer Ecker, Potomac Flower & Garden Design

Beneficial of the Week

By: Paula Shrewsbury

Butterflies and bees can't get enough of Cup Plant, *Silphium perfoliatum*!

Plants provide resources in the form of nectar and pollen for beneficial insects such as pollinators and omnivorous natural enemies. Over the years, we have repeatedly discussed the importance of conserving beneficial insects and the services that they provide, and that one of the best way to do this is to include a diversity of flowering trees, shrubs, and herbaceous plants in your nurseries and landscapes. However, not all plants are created equal in the amount and nutritional value of the nectar and pollen they produce. Back in the March 24, 2017 IPM Newsletter I provided web sites with lists of plants that have been shown, through research, to provide optimal floral resources for pollinators and/or natural enemies. These are great resources to use when selecting plants.

***Silphium perfoliatum*, cup plant, provides resources used by a diversity of insects and birds. Note the height (4-8', these are close to 8') and be sure to find the right aesthetic location for these tall, dramatic plants. Click here to see a video of all the insect activity on this cup plant.**
Photo: P.M. Shrewsbury, UMD

Although there are many plant species, both native and non-native on those lists, today I want to talk about one species of plant and the amazing insect activity it supports – *Silphium perfoliatium* (common name: cup plant). I wrote about *Silphium* a few years ago but the plant, and its insect activity, is so amazing I have to write about it again. *Silphium* came into full bloom in my home garden about 3 weeks ago and there has been insect (and some bird) activity every day since. I am actually having trouble getting things done around the house because I am spending so much time observing my *Silphium* and taking pictures of all the insects on it! Go to *Silphium* Flower to see a YouTube of the impressive insect activity on *Silphium perfoliatum* flowers from my yard this week.

Silphium is an herbaceous perennial in the Asteraceae family that is native to most of the U.S. that is east of the Rockies. It is a very tall plant (4-8' is reported, mine is 8-9') so you need to have the right location for it

to work aesthetically in the garden. It is a mid-late season (July – September) bloomer with clusters of bright yellow flowers (~3-4"diam.) near the top of the plant. This plant is sunflower like (same family) in its habit and appearance. It does well in full sun to partial shade and prefers moist to wet soils. *Silphium* has large opposite leaves (up to ~12" long) that attach at their base to the sturdy stem creating a "cup" (hence the common name of cup flower) that collects water when it rains.

It has been a great year for butterflies and they seem to not be able to get enough nectar from *Silphium perfoliatum*. I counted 35 butterflies on the plant at one time!
Photo: P.M. Shrewsbury, UMD

So what is attracted to, and uses the resources provided by, *Silphium*? As I watched the plants in my yard grow taller and taller, the many "cups" produced by the vegetative development attract song birds, in particular gold finch, that drink water from the cups, and later will feed on seed from the flowers. I have also seen predatory wasps drinking from the cups. Now that the flowers are in bloom the plant literally hums from the sounds of the many insects feeding on the nectar and pollen. As many of you have probably noticed this is "the year of the butterfly"! I have seen yellow and black tiger swallowtails (I counted ~35 on the plant at one time!), monarchs, at least 3 species of skippers, and cabbage butterflies. *Silphium* is reported to be the host food for caterpillars of silvery checkerspot, Gorgone checkerspot, and bordered patch and painted lady butterflies. Hymenoptera are also super profuse on this plant! I have seen honey bees, bumble bees (at least 4 species), halictid bees, and leaf cutter bees. Other bees reported on this plant include sweat bees, small carpenter bees, and digger bees. In addition to the many birds and pollinators this plant is documented to attract, it also attracts a diversity of natural enemies. These include several species of parasitic wasps, larger predatory wasps, minute pirate bugs, soldier beetles, predatory plant bugs, ladybeetles, lacewings, long–legged and dance flies (predators), and jumping and crab spiders. Wow!

***Silphium perfoliatum* also attracts several species of bees including these cute bumble bees. Note the pollen on the leg of the lower bee. Photo: P.M. Shrewsbury, UMD**

Silphium perfoliatum or cup plant is ranked high on many plant lists for its ability to attract pollinators, natural enemies, and birds. It also ranks highly on my list as a must for the landscape gardens and conservation strips. *Silphium* is a great supporter of beneficial insects and other organisms and should be integrated into plantings whenever possible, just be sure you have the appropriate space for this "monster" plant.

For more information on *Silphium perfoliatum* (cup plant) go to:
http://www.canr.msu.edu/nativeplants/uploads/files/Cup_plant.pdf

Weed of the Week

By: Chuck Schuster, UME

Japanese Stiltgrass

Hotter weather continues throughout the region. These temperatures are dramatically slowing the growth of tall fescue and promoting the growth of many annual weeds including crabgrass and Japanese stiltgrass. Japanese stiltgrass is growing in many areas in the region in both turf and landscape beds. It is growing well with the occasional moisture being provided and the higher temperatures.

Japanese stiltgrass is a very shade tolerant weed
Photo: Chuck Schuster

Japanese stiltgrass, *Microstegium vimineum*, is a native of Asia, and first appeared in the U.S. in 1919, spreading rapidly throughout the eastern U.S. It is shade tolerant, requiring as little as 5% available light, a summer annual, and is most often found in moist, shady environments. It does well as an understory plant, but will also move into the full sun and thrive. Areas where it can be found include forests, turf, ornamental beds, ditches and damp fields. It will thrive in the warmer dry weather that has occurred in many areas the last two weeks.

Japanese stiltgrass has a fibrous root system, and it will root at stem nodes. Stems are erect or reclining. Its leaves are up to four (4) inches in overall length and one half (.5) inches in width. Each leaf has a white mid vein which divides the leaf into unequal halves. The seed head has 1 to 6 terminal spike branches. A prolific seed producer, each plant will produce up to 1,000 seeds annually. Pre emergent herbicide applications for larger areas are the recommended method of control. The seeds will germinate in late March to early April in the average year, which **is *before*** crabgrass. Flowering occurs in late September to early October in this region. Prevention of seed production is the first line of defense in the control of Japanese stiltgrass for the following year. Wildlife are only marginally interested in this species as a source of food.

Note the distinct white vein on the leaf
Photo: Chuck Schuster

Mowing can be used to limit the spread and development of this weed. It must be kept short from the beginning of the season to prevent seed head formation. This management method is the opposite of what we desire for the desired species of turf in most lawns. Chemical control can be accomplished with the use of properly applied preemergence herbicides. Pre emergent control of Japanese stiltgrass needs to be started very early in the season. Remember the early germination of this weed, before crabgrass, and note that rainfall during this period is necessary to activate these products. Control options are similar to that of crabgrass, start early and reapply in wet years. Barricade (Prodiamine) applied in research plots in December, March, and May provided the highest percentage of control at 86%, with a single treatment in March on the average providing 81% control. All pre-emergent products require moisture to activate. Acclaim Extra has been used successfully as a post emergence herbicide in turf with Envoy being used in turf and selected ornamental beds. When using post emergent products, air temperatures above 65 °F have been found to provide the best environment for success. Use caution when using Envoy, as it has restrictions because of sensitivity of some ornamentals. Prizefighter (Ammonium Nonanoate) has been tested and is effective in spot spraying of landscape beds. Glyphosate products may be used for spot spraying in landscape beds, but remember to use caution as this product will damage ornamentals that come in contact with this product.

Plant of the Week
By: Ginny Rosenkranz, UME

Lagerstroemia indica or crape myrtle can grow into a tree or a shrub depending on the variety. The cultivar, Red Rocket® is a rounded canopied, deciduous tree that can grow 20-30 feet tall and 15-20 feet wide. It is considered one of the fastest growing of the crape myrtles, so it can be used effectively as a flowering hedge. Flowering on new growth, the crinkly cherry-red flowers immerge in mid to late summer and the large clusters can reach almost 2 feet long. The bright red color is fixed as the flower buds are formed. If the day is cool, cloudy or the plant is drought stressed, the flowers will be lighter in color and even turn white or pink, but as soon as the new buds are formed with full sun or the plants are watered, the new flowers will be the bright cherry-red that is expected. Red Rocket® is also affected by glyphosate, and even a whiff of the chemical will cause the flowers to open white or pink without damaging any of the foliage. As one of the Whitcomb introductions, the foliage begins crimson red in the spring, dark green during the summer months and turns orange red in the autumn. The bark is a smooth light brown color with light exfoliation of a lighter brown. Like most crape myrtles, Red Rocket® needs full sun to grow and flower its best. When first planted, the trees should be deeply watered and mulched during the first season. Once established, plants are both very heat and drought tolerant. Red Rocket® is tolerant of clay or sandy soils and is cold tolerant from USDA zones 6- 10. White-tailed deer don't usually browse on crape myrtle, but Sitka deer do. Red Rocket® is resistant to both powdery mildew and Cercospora, especially if the plant has adequate air circulation. It is susceptible to crapemyrtle aphids and Japanese beetles. In extreme drought and heat, spider mites are an occasional pest.

Flower color of Red Rocket® crape myrtle varies depending on factors such as temperature, light, and stress during bud formation
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 2136 DD (Cumberland) to 2925 DD (Annapolis Naval Academy). 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.

- Maskell scale (2nd generation) crawlers (2035 DD)
- Euonymus scale (2nd generation) crawlers (2235 DD)
- Japanese maple scale (2nd generation) crawlers (2508 DD)
- Fall webworm (2nd generation) early to late instars (2793 DD)
- White prunicola scale (3rd generation) crawlers (3270)

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

Degree Days (as of July 31)

Abingdon (C1620)	2407
Annapolis Naval Academy (KNAK)	2925
Baltimore, MD (KBWI)	2628
College Park (KCGS)	2437
Dulles Airport (KIAD)	2495
Frederick (KFDK)	2506
Ft. Belvoir, VA (KDA)	2607
Gaithersburg (KGAI)	2392
Greater Cumberland Reg (KCBE)	2136
Martinsburg, WV (KMRB)	2286
Natl Arboretum.Reagan Natl (KDCA)	2897
Salisbury/Ocean City (KSBY)	2611
St. Mary's City (Patuxent NRB KNHK)	2788
Westminster (KDMW)	2680

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: 95Calculation type: simple average/growing dds Start: Jan 1

CONFERENCES

LCA Plant Diagnostic Program
August 14, 2019
Location: Ag Farm Park, Derwood, MD
Registration

December 6, 2019
Pest Management Conference
Location: Carroll Community College, Westminster, MD

December 17, 2019
Biocontrol Conference
Location: Maritime Insitute, Linthicum Heights, MD

Advanced IPM PHC Short Course
Monday, January 6 - Thursday, January 9, 2020
Location: University of Maryland, College Park, MD
Contact: Amy Yaich, Admin. Assist. II, 301-405-3911, umdentomology@umd.edu
Registration Information: https://landscapeipmphc.weebly.com/
Recertification credits will be posted on the website

January 17, 2020
FALCAN Pest Management Conference
Location: Frederick Community College, Frederick, MD

February 13, 2020
2020 Pesticide and Fertilizer Recertification Conference
Location: Rockville, Maryland

February 19 and 20, 2020
Chesapeake Green: A Horticulture Symposium
Location: Maritime Institute, Linthicum Heights, MD

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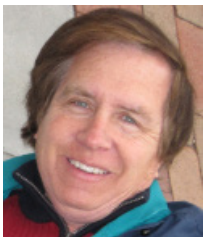

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Photos are by Suzanne Klick or Stanton Gill unless stated otherwise.