UNIVERSITY OF MARYLAND EXTENSION

TPM/IPM Weekly Report

for Arborists, Landscape Managers & Nursery Managers

Commercial Horticulture **September 6, 2019**

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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 sklick@umd.edu

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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)
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Tea Scale – *Fiorinia theae*

By: Stanton Gill

Early in the summer, I mentioned we were seeing tea scale on camellia plants shipped in from south of Maryland. This scale is fairly common in Florida, the Carolinas, Georgia, and Tennessee. This armored scale is a southern species that does not do well with really cold winters. I have seen it surviving in many urban landscapes in Maryland. I obtained some potted camellias infested with tea scale in June. I have been observing the occurrence of crawlers here in central Maryland. On Tuesday, I placed some leaves under the scope and found crawlers had started to emerge over the weekend.

Since this scale is a foliar feeder, systemic insecticides should work on it. Generally, we like to recommend the insect growth regulators such as Talus or Distance when a scale is in the crawler stage. These materials have worked well in our trials on armored and soft scale over the last 7 years.

A few small yellow crawlers are present on this camellia leaf

Pear Trellis Rust

By: Karen Rane

You may notice reddish leaf lesions on ornamental pears at this time of year. If you look carefully, you can see "bumps" on the underside of these lesions. These are the symptoms and developing aecia (spore structures) of pear trellis rust, *Gymnosporangium sabinae*. Like other Gymnosporangium rusts (cedar apple rust and cedar quince rust for example), this rust fungus infects junipers, causing small galls on twigs which ooze orange masses of teliospores in the spring and early summer. These spores are splashed via wind-driven rain to cause infections on leaves of both fruiting pears and ornamental pears. Unlike related Gymnosporangium rusts, however, the leaf lesions may go unnoticed until late summer, when they enlarge, become bright red in color and rounded aecial structures develop on the lower lesion surface. Spores released from these structures in late summer and fall will infect current-year juniper shoots, completing the cycle. In our area, this disease usually does not have a major impact on the health of ornamental pears (some would say "unfortunately"!). However, seeing this disease gives us another chance to contemplate the amazing complexity of fungi and their lifestyles!

Pear Trellis rust on ornamental pear. Left – rust lesion on upper leaf surface. Right – lower surface of lesion showing immature, rounded aecia.
Photos: Karen Rane

San Jose Scale

By: Stanton Gill

On September 2, I examined peaches and plums with San Jose scale in Finksburg, MD and Gettysburg, PA. The 3rd instar females were just starting to lay eggs. We should see crawlers showing up this week and into next week.

Look for San Jose scale to be in the crawler stage in the next week or two

March Flies

By: Stanton Gill

On Labor Day weekend, most people go out and swim, water ski, hike a mountain, or bike the canal. Not Dennis Potts of Potts Consulting. He sent me two emails over the Labor Day weekend while he was visiting friends in Mount Pleasant, South Carolina. Dennis noticed clusters of insects on a side of a building. He immediately started sending me emails with pictures attached.

The picture was of a cluster of march flies, (Bibionidae, *Plecia nearctica*), a southern insect species which has both spring and fall flights. In some areas, they can show up in high enough numbers to be a nuisance pest.

The ones that Dennis observed were clustering on the sides of building in large numbers. He reported that they were just hanging out and crawling all over each other. I suspect it was a mating party. One of the cool things of nature to observe. Nice job Dennis.

Spring and fall are the peak flight periods of march flies
Photo: Dennis Potts, Potts Consulting

Parasitized Hornworm

Mark Schlossberg, ProLawn Plus, Inc., found a hornworm caterpillar on holly that was parasitized by wasps. These parasitic wasp cocoons were sticking out of the body of the caterpillar. They fed on the caterpillar thru August and are now pupating.

Cocoons of parasitic wasps are sticking out of this hornworm on a holly
Photo: Mark Schlossberg, ProLawn Plus, Inc.

Stinging Caterpillars

By: Stanton Gill

For the last couple of years, we have published pictures of the saddleback caterpillar, *Acharia stimulea*, which was very active in July and August feeding on herbaceous and woody plants in the landscape. The bright green covering on the back and the oval brown circle is very distinct. It is so photogenic that we used it on the cover of our book we published "Pests and Diseases of Herbaceous Perennials". Most of you have learned to leave this caterpillar along and not touch it. It has spines on the anterior and posterior of the larvae that are connected to glands inside the body. If you touch the spines, the toxin is injected and will feel like a powerful wasp sting. Most of the larvae we have observed in September are in a silken pupal casing at this point. The adults will emerge next June and start the cycle over.

This week, Nancy Woods, MNCPPC, sent in pictures from plant material in Bethesda. This species is another spined caterpillar with urticating spines. It is called the Io moth larvae, *Automeris io* (Fabricius). When they first hatch, they are reddish brown colored, but as we move through September they are bright green with a stripe running down the side with large, mainly green colored spines. The body is virtually surrounded with scoli bearing green with black-tipped venomous spines. Treat this caterpillar with respect and observe it, but handle it with great care.

This Io moth caterpillar that is feeding on 'Lord Baltimore' hibiscus has stinging hairs
Photo: Nancy Woods, MNCPPC

This color saddleback caterpillar also has painful stinging hairs

Ambrosia Beetles

Late season ambrosia beetle activity continues this week. Spencer Ecker, Potomac Flower & Garden Design, found frass tubes from ambrosia beetle activity on an American holly in McLean on September 3. He noted that the frass tubes were about 10 ft up the tree.

This American holly has a heavy infestation of ambrosia beetles
Photo: Spencer Ecker, Potomac Flower & Garden Design

Leaffolder on Oak

Heather Zindash, IPM Scout, is finding a leaffolder on oak this week. She reported that she found the tell-tale long silk threads that look like stiches, holding the leaves together and noted that they were not rolled like the ones we have been seeing on *Cercis* this summer.

Leaffolder caterpillar activity continues this week on oak
Photo: Heather Zindash, IPM Scout

Asimina Webworm

Dave Keane, Howard County Recreation and Parks, found Asimina webworm on some paw paw trees in Ellicott City. This caterpillar shows up late in the season and makes paw paws look unsightly.

Look inside folded leaves, like on this paw paw, to see if caterpillar larvae are present
Photo: Dave Keane, Howard County Recreation and Parks

Tussock Moth Caterpillars

Paul Thomas, Scientific Plant Service, found white marked tussock moth caterpillars this week. He noted that they totally devoured about 6- 24" cherry laurel shrubs. This caterpillar feeds on a variety of woody plants.

Whitemarked tussock moth caterpillars tend to be more common late in the season
Photo: Paul Thomas, Scientific Plant Service

Correction to last week's crape myrtle bark scale photo:

It incorrectly listed aphid and not scale. The correct photo caption is in the report posted online.

Fall Fertilization: To do or not to do.

By: Andrew Ristvey

Fall fertilization of landscape plants and trees is truly a beneficial practice so long as certain guidelines are followed. This has been a contentious issue with experience on both side challenging fall fertility. Physiologically speaking, even though the tops of plants have gone dormant or have slowed down, fall is an active period for roots. They are still growing and absorbing nutrients for next year's spring flush until soil temperatures inhibit biological activity. All of next year's spring buds will grow from stored nutrients attained this year. So the most effective application of fertilizers for next year's growth is from late September through to the beginning of November. Since we have experienced dry weather this past month in Maryland, holding off on fertilizing until wet weather comes should be considered.

Certainly, the most important growth factor for plants is water, and that was made evident this past month, when plant water stress was potentially high in many parts of Maryland. Most nurseries have the option of irrigation to decrease water stress, but in the landscape, especially when plants do not have the luxury of irrigation, hot and dry weather will stress plants and fertilization should be minimized or stopped until better weather conditions occur.

It is true that an over-application of nitrogen in fall can *potentially* awaken near dormant buds and expose plants to damage from frost which is just around the corner in our region. A study in the Journal of Arboriculture reviewed past research and looked at the effect of fall nitrogen fertility on cold hardiness of 5 landscape trees including Leyland cypress, crape myrtle and red maple in North Carolina. In most cases the researchers found no significant differences in hardiness of spring bud tissue with difference nitrogen treatments for all the species. So there exists some evidence that fall fertilization does not reduce winter hardiness. On the other hand I have seen a heavy application of nitrogen in container grown plants increase vegetative growth in fall resulting in frost damage. However, those plants had not become completely dormant.

Most fall-based fertilizers are low in nitrogen and *may* have higher ratios of phosphorus and potassium. Obviously, any fertilization program apart from nitrogen *should rely upon a soil fertility test* so that adequate amounts of nutrients are applied without risking over-application, runoff, toxicities or antagonisms (one nutrient over-applied can affect the availability of other nutrients). However, in general, a quarter to half rate of a low nitrogen fertilizer should be considered as long as there is no longer any shoot activity. One may consider planning for this in split applications, including a fall fertilization in the total annual amount of nitrogen applied. For example, if a tree requires 2 pounds of nitrogen annually, 1 pound may be applied in the spring, ¾ quarter pound in two or three early summer applications and the last quarter pound in the fall.

In container culture, a very low soluble nitrogen application (with excellent irrigation management to prevent nutrient runoff) may be acceptable periodically until temperatures fall below 55 °F, especially if your controlled release fertilizer prills no longer contain nutrients. Remember that fruit tree nutrition is based on leaf samples which should have been taken before the harvest. Fertilize according to those samples.

Fertilize in the fall with low rates but keep the weather in mind and be careful when and how fertilizer is applied to nursery and landscape shrubs and trees.

Beneficial of the Week

By: Paula Shrewsbury and Mike Raupp

European mantis are snacking in my landscape!

Late summer and early autumn are times when sightings of praying mantises in gardens, landscapes, and nurseries often generate interest here in the DMV region. It's not that mantises have spontaneously generated during this season. Rather, these cryptic sit and wait predators are pretty tough to spot earlier in the season when they are small and blending with foliage of plants on which they hunt. Mantis are in the order Mantodea which contains over 2,400 species from 15 families. That is a lot of mantid diversity! Although it seems a bit strange, praying mantis are closely related to cockroaches and termites. In Maryland, there are 3 species of praying mantis that are common. These are the Carolina (*Stagmomantis carolina*), a native species of mantid that ranges from NJ south to FL and west to AZ; the Chinese (*Tenodera aridifolia sinensis*) which was imported into PA in the 1800's; and the European (*Mantis religiosa*), another exotic mantid that was first detected in the US in 1899 in New York State. It is now widespread east of the Miss. and north to Canada. The most common mantid seen in ornamental environments is the Chinese mantid. This week a student in the UMD entomology department was at my house and came across a European mantid hiding in the garden! We were all very excited. A small black spot, usually but not always with a white center, on the inside of each front leg (see image) provides a quick clue to separate the European mantis from other species found in our region. Adult female European mantises are larger than males and are about 3" in length. These mantis vary in color from brown to green to turquoise (see image).

A small black spot, usually but not always with a white center, on the inside of each front leg provides a quick clue to separate the European mantis from other species found in our region.
Photo: M.J. Raupp, UMD

This brown egg case or ootheca contains scores of eggs that will survive the winter and hatch next spring.
Photo by M.J. Raupp, UMD

As summer becomes autumn, mantises turned their attention toward finding a mate and shortly afterward females produce a spectacular egg case called an ootheca. The ootheca is a styrofoam-like structure deposited by the female mantis on a structure such as a branch or trunk of a tree (see image). A single ootheca may house more than one hundred eggs. Outdoors these eggs endure the inimical season and hatch when the warmth of spring and the return of abundant tasty prey. Mantis are sit-and-wait or ambush predators. Most species are cryptically colored providing camouflage in their preferred habitat. For example, flower mantis mimic flowers and catch pollinators who come to feed on nectar and pollen. Very tricky! Ghost mantis mimic dried leaves. Many mantis, like stick insects, have a "rocking" behavior which mimics the movement of vegetation in the breeze. They sit very still on a branch, and will move with lightning speed reaching out and grabbing prey, who unknowingly wonder too close, with their spiked raptorial legs. Mantises have very good vision, important for

locating prey. Mantises are generalist predators and eat many types of prey items. Young or small mantis eat small flies, crickets, and sometimes each other. Large mantis capture and eat other large insects that are pests of gardens. See the image of the European mantis eating a brown marmorated stink bug (head first). Watch this great video of a European mantis eating a large milkweed bug that it captured on my *Asclepius* plant. Sometimes, however, mantises eat beneficial insects including pollinators such as bees, butterflies, flies, beetles and, yes, there are accounts of them capturing and eating humming birds, in addition to lizards and frogs.

This European mantis finds brown marmorated stink bugs delicious.
Photo by M.J. Raupp, UMD

Mantises are not without their own predators. By day, birds hunt these marvelous insects. By night, as mantises fly about seeking food or mates, they are hunted by hungry bats. Bats use ultrasonic signals to detect prey such as moths and mantises in the dark. One might think mantises are helpless in defending themselves from these stealthy nocturnal predators. But mantises have a clever trick up their sleeve or, more correctly stated, a clever ear on their chest. Many species of mantises have evolved an organ to detect sound, an ear so to speak, on the underside of their thorax. Mantises use this ear to detect ultrasonic "chirps" emitted by hunting bats. When the soaring mantis detects the signals of a hungry bat, it evades the bat by quickly diving to the ground.

Although mantis can be voracious predators they are not particularly known for being good biological controls against pest insects. This is due to their diverse diet that includes non-pest insects. However, a landscape that has mantises in it is usually considered to be a "healthy" ecosystem.

Weed of the Week

By: Chuck Schuster

Turf weed control is changing rapidly. The desire or need to move to non-chemical based turf management is driving the need for a review of options presently available. With the end of summer time rapidly approaching, it is a time to consider adjusting soil fertility and using organic methods to improve turfgrass.

A strong turf is the best first defense in management. Aeration and over seeding is a method of helping shade out weeds. Fall provides a good opportunity to do these tasks. Mowing high utilizing a sharp blade and operating at a speed that allows the turf to be cut well is also important. Dull blades can cause a tearing of the blade surface thus stressing the turf a great deal. Mowing leaves will dull blades faster, so changing and sharpening mower blades may be needed more often.

A soil test can show imbalances in fertility and whether you can use compost to amend lawn soils. Research has provided clear recommendations for nitrogen in turf areas. Maryland and Virginia each have regulations on the amount that can be applied per application and per year, although they are slightly different. Evaluate soil pH and adjust as needed to put the soil for cool season turf in the 5.8 to 6.5 range. Being slightly higher is better than being much lower. Compost and organic materials will help buffer pH and provide microorganisms and nutrients that benefit turfgrass. The use of compost or other organic material can be limiting if the site has a soil analysis that places the phosphate fertility in the optimum or excessive range (residential turf) or the excessive range for sports fields. If soil phosphate levels are in the low or medium category a phosphate can be

added up to the University of Maryland recommendations. This is 2 pounds of phosphate bearing material per 1,000 square feet for a phosphate Fertility Index Value (P-FIV) in the low category and 1 pound of phosphate bearing material per 1,000 square feet for a phosphate Fertility Index Value (P-FIV) in the medium category. Use caution with the material selected as most organic products contain some amount of nitrogen and one can apply to meet the phosphate need yet exceed the nitrogen restrictions (.9 pounds per 1,000 square feet utilizing an organic source).

Building and maintaining a strong turf may take time. One may not have a perfect turf site, especially the first year, but management can help develop an extremely healthy turf over time. Strong healthy turf, mowed at the proper height, and over seeded as necessary to prevent bare or thin areas will decrease the amount of weeds in the turf. This does not mean that it will eliminate all the weeds but will help keep them manageable. Montgomery County provides organic lawn management tips that can be helpful for lawns in similar climates at MontgomeryCountyMD.gov/lawns and the University of Maryland Extension has extensive resources for both conventional and organic lawn management at extension.umd.edu/hgic/topics/lawn-care.

Plant of the Week

By: Ginny Rosenkranz

Lobelia cardinalis 'Black Truffle' is a lovely native cardinal flower that has very dark, almost shiny black foliage in the spring that matures in the heat of late summer into an iridescent dark maroon. Late summer also brings the delicate bright red flowers that line up on thin black stems to attract hummingbirds, butterflies, and many other pollinators, but deer do not seem to like to munch on either the flowers or the foliage. 'Black Truffle' grows 3-4 feet tall and 2-3 feet wide on an upright, full foliaged plant. Cold hardy from USDA zones 3-8, the plants thrive in full sun to light partial shade and need moist soil that never dries out. The brilliant scarlet flowers have 6 thin strap-like petals with the top 3 as a hood and the bottom 3 as a landing pad. The colorful flowers seem to glow against the almost black foliage in the late summer into early fall. There are occasional pests including aphids, leafhoppers, twospotted spider mites and western flower thrips, but none cause significant injury. Botrytis, crown and root rots, leaf spots and rust are also occasional diseases, but with good air circulation and water management most of the diseases can be avoided.

The bright red flowers of Lobelia cardinalis 'Black Truffle' stands out against the almost black to maroon foliage
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 2962 DD (Cumberland) to 4009 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.

White prunicola scale (3rd generation) settled crawlers to 2nd instars
Banded Ash clearwing borer adult emergence (3357)
Tuliptree scale crawlers to settled crawlers (3519)

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 September 4)

Abingdon (C1620)	3320
Annapolis Naval Academy (KNAK)	4009
Baltimore, MD (KBWI)	3600
College Park (KCGS)	3325
Dulles Airport (KIAD)	3411
Frederick (KFDK)	3429
Ft. Belvoir, VA (KDA)	3566
Gaithersburg (KGAI)	3275
Greater Cumberland Reg (KCBE)	2962
Martinsburg, WV (KMRB)	3145
Natl Arboretum/Reagan Natl (KDCA)	3942
Salisbury/Ocean City (KSBY)	3567
St. Mary's City (Patuxent NRB KNHK)	3797
Westminster (KDMW)	3674

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

September 10, 2019
Commercial Cut Flower Tour
Locations: Cool Hollow Flower Farm and Surreybrooke Flower Farm
Registration information

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

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

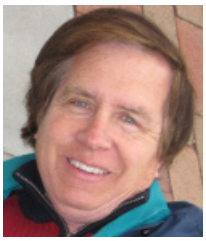
Advanced IPM PHC Short Course
Monday, January 6 - Thursday, January 9, 2020
Location: University of Maryland, College Park, MD
Contact: Amy Yaich, Admin. Assist. II, 301-405-3911, umdentomology@umd.edu
Registration Information: https://landscapeipmphc.weebly.com/
Recertification credits will be posted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

February 19 and 20, 2020
Chesapeake Green: A Horticulture Symposium
Location: Maritime Institute, Linthicum Heights, MD
Organized by and registration through MNLGA

CONTRIBUTORS:



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