UNIVERSITY OF MARYLAND EXTENSION

TPM/IPM Weekly Report

for Arborists, Landscape Managers & Nursery Managers

Commercial Horticulture — October 18, 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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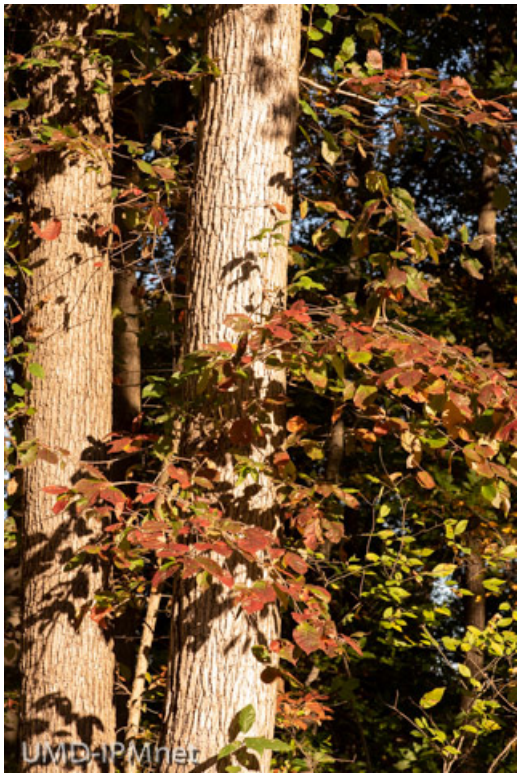
Regular Contributors:
Pest and Beneficial Insect Information: Stanton Gill and Paula Shrewsbury (Extension Specialists) and Nancy Harding, Faculty Research Assistant
Disease Information: Karen Rane (Plant Pathologist) and David Clement (Extension Specialist)
Weed of the Week: Chuck Schuster (Extension Educator, Montgomery County)
Cultural Information: Ginny Rosenkranz (Extension Educator, Wicomico/Worcester/Somerset Counties)
Fertility Management: Andrew Ristvey (Extension Specialist, Wye Research & Education Center)
Design, Layout and Editing: Suzanne Klick (Technician, CMREC)

Rain - Finally

By: Stanton Gill

Steve Black, Raemelton Nursery, told me he did a rain dance on Monday and sure enough the rain showed up Wednesday. By 4:00 p.m. on October 16, BWI measured 1.27", Reagan National had 1.35" (daily record is 1.38"), and Dulles had 1.04" of rain. Thanks Steve. Can you do the dance again and again?



I had some excavation done at my orchard last week and we dug down 4 feet. The soil was powder dry even at a 4 foot depth. We need several rain storms this fall to get the soil moisture levels back up to normal. Meanwhile, keep watering.

Advanced IPM Conference and Re-Certification

By: Stanton Gill

We will hold the IPM and Pesticide Recertification conference on December 6 at the Carroll Community College in Westminster, MD. We have limited seating for this conference so if you are interested register soon. Go to the Eventbrite site to register online. For a brochure with details on the program and to register by check, to the conference page of the IPMnet website.

Biological Control Conference

By: Stanton Gill

We have developed a biological control conference with MNLGA with the date of December 17, 2019. This will be conducted at the Maritime Institute in near BWI Airport. The topics on biological control will apply to nurseries, greenhouses and landscape. The conference will also count for re-certification credits.
Go to the MNLGA website to register for this conference.

Cherry Tree Comment

Steve Sullivan from Landcare Company sent in this email:

You mentioned that it was the Kwanzan cherries hit hardest by the disease. That is wrong. They are very resistant and all of them are completely foliated at this time. It is the Yoshino that gets defoliated about every year. Your picture is of a Yoshino in the newsletter. I can show you pics of them side-by-side with one full of leaves and the other completely defoliated. I have both in my yard and this happens every year. In fact I don't recommend Yoshino anymore since it has been years since it has kept them on past August.

White Prunicola Scale (*Pseudaulacaspis prunicola*)

By: Stanton Gill

Last week, I was visiting a nursery in Central Maryland. The owner said he had white material covering the lower stems of lilac. When I stopped by this week, he showed me the plants. The white material was male covers of white prunicola scale. White prunicola scale just finished up its third crawler period in September. For now, I recommend waiting until the end of October when the foliage has dropped and applying a 3 % horticultural oil. In 2020, watch for the first crawler period in May. Look at our predictive calendar to see when to monitor for the crawlers. When crawlers occur, I would apply either Distance or Talus.

White prunicola scale male covers are evident on this lilac

Lecanium Scale

By: Stanton Gill

We were able to capture the 2nd instars of lecanium scale on the foliage of an oak last week. There were hundreds on each leaf on the undersides of the foliage. Lecanium scale can be reduced in population by applying a 3% horticultural oil in November when temperatures remain above 50 °F for several days in a row.

Lecanium scale is a soft scale that produces honeydew on which sooty mold grows

First instar lecanium scale are present on this maple foliage

Spotted Lantern Fly in California

In a *Wine Business Magazine (October 16, 2019)* article, Ted Rieger reports that California Department of Food and Agriculture (CDFA) inspectors have found to date a total of 11 dead spotted lanternfly adults this year on cargo planes arriving at California airports in Sacramento, Stockton and Ontario on flights that originated from an airport in Allentown, PA. It is believed that the SLF died en route.

Should You Apply Copper in the Fall for Disease Control?

By: Stanton Gill

A nursery was planning to apply fixed copper to the foliage when it falls this November for disease control on peaches, plums and apples. We asked Kari Peter, Fruit Pathologist with Penn State Extension to comment.

From *Fruit Times*, by Kari Peter, Penn State Extension:

Orchard Sanitation: Critical For Keeping Tree Fruit Diseases in Check For 2020

Apple scab, Marssonina blotch, fire blight and fruit rots were problematic for growers during the 2019 season. Considering the numerous disease headaches folks in the region encountered, sanitation will be imperative while preparing for the 2020 season. This is a healthy review of what to have on your radar as you're putting the 2019 season to bed.

Apple scab and Marssonina blotch: Leaf removal is key

This was an exceptionally frustrating season for managing apple scab. Rain events were frequent from late April through May and we recorded very high available ascospore numbers (>10,000 spores) for more than three weeks during this period. If apple scab wasn't bad enough, some folks were hit with a double whammy later in the season of Marssonina blotch.

If you noticed any scab or Marssonina blotch in your orchard this season, you will want to be proactive in mitigating problems for next year. Orchards are self-infecting when it comes to apple scab and Marssonina.

Even if your fruit are clean of apple scab this season, there is still a possibility of leaves being infected. Reducing leaf litter and the spores they contain is an important defense strategy for any good scab and Marssonina management program.

Remove overwintering leaves to reduce sources of infection next season
Photo: Kari Peter, Penn State Extension

Spores need the leaf tissue to survive the winter. To reduce the available spores for next season, growers are encouraged to employ a two-pronged approach this fall: urea applications and flail mowing the leaf litter. Due to very high inoculum in some orchards this year, urea applications will not be enough; urea applications will be aided by flail mowing to ensure complete breakdown of leaf tissue.

Time the urea applications as close to leaf drop as possible. Urea works in breaking down the leaves by the extra nitrogen stimulating the growth of beneficial soil microbes after leaves have fallen on the ground. If urea is applied too early in the fall season, it can be washed off before the leaves hit the ground. Using urea will reduce inoculum by 50 to 80% for the next season; flail mowing the leaf litter after the urea application will reduce inoculum by 95%.

Dissolve 40 pounds of feed grade urea in 100 gallons of water (5% solution), spraying 100 gallons per orchard acre. Feed grade urea is recommended due to the ease of dissolving it in warm water, if available. If you choose to not use urea, be sure your nitrogen comes from an ammonium source. Good coverage of the leaves is desired for leaves to absorb the urea. If the leaves have already fallen off the tree, urea can also be sprayed to the fallen leaves on the orchard floor. Using an off-set flail mower is recommended for shredding leaves. Shredding leaves can be done in the fall or in March (or at both times), before growth starts. When there are no sources of spores on the orchard floor, there is a very low risk of early infections from these diseases.

Comments on defoliating trees

Many growers employ the practice of speeding up the process of defoliating trees in the late fall using copper and nitrogen, or even zinc. Questions about the effect of hardiness have come up. Per communications with Dr. Jim Schupp (Penn State Pomologist), this is what he shared: The leaves sense shortening daylength and chilling, which triggers the processes that lead to dormancy. Defoliating too soon could remove the organ that senses and triggers dormancy. Also, the tree needs carbohydrate reserves to maintain hardiness throughout the winter. Numerous stories about over-cropped and/or unharvested trees being winter killed bear this out. It follows that if one defoliates the trees too soon, then reserve carbohydrates, and hardiness may be lost.

I worked on the effects of fall foliar urea and of defoliation on tree hardiness when I was at the Hudson Valley Lab. Sprays were done in late October to Empire trees. Two sprays of urea at 50 lb per acre had no effect on hardiness. Defoliation had some effect on hardiness, but the loss of mid-winter hardiness was small. Once the leaf has performed the functions of sensing the end of growing season, and of producing reserve carbohydrate, then the leaves have little more to do with hardiness. Wait for the first frost before scheduling defoliation. Late harvested cultivars, such as Pink Lady, should be given a couple weeks after harvest to accumulate carbohydrate before defoliation.

Fire blight and fruit rot: Dormant pruning will be important

When pruning you are fruit trees during late fall and winter, be mindful of cankered wood and mummified fruit lurking in the trees. Both serve as an overwintering source for bacteria and fruit rot spores for next season and should be removed as best as possible to limit future infections during the following season. Cankered wood, which is dead wood, has distinct characteristics that can be easily recognized when pruning.

Be on the lookout for:

- Localized roughened or cracked bark, especially around wounds, branch stubs, old pruning cuts.
- Bark that is darker than the surrounding bark tissue, which is healthy.
- Roughened/darkened areas appearing “wrinkled” or “sunken.”
- Small pimple-like fungal spore forming structures – may be red, dark brown, or black (depending on the fungus).
- Wood-decay fungi, which attack dead wood and often appear as white protrusions growing out of the bark.

When pruning this season, it is best to pay extra attention to those orchard blocks with a known history of fire blight. This may require you to visit orchard blocks more than once, especially during different lighting of the day, to be able to spot cankers that could have been missed during the initial round of pruning. If trees were pruned during the season to remove fire blight strikes, you will most likely see a canker at the site where you pruned. Don’t forget to remove this canker. When you see a canker, prune 6 – 12 inches from the canker’s visible edge into 2-year-old wood or older since older wood is more resistant to the bacteria. This will be easier in larger trees and more challenging in smaller dwarf trees. Judgement calls about whether to remove a tree or not will have to be made for smaller trees depending how severe the infection. Since the bacteria are dormant during the winter, disinfecting pruning tools is not necessary. When it comes to cankered wood, burn the largest limbs that may be too big to be ground up with a mower. Otherwise, leaving the small prunings in the row middles and subsequently brush mowing the debris will be enough.

Cherry leaf spot: Leaf removal is key

Cherry leaf spot and apple scab are very similar when it comes to infection: fallen diseased leaves are the culprit for creating spring infections. Like apple scab, sanitation is critical for effective management. Follow the same sanitation method for managing cherry leaf spot as you would for scab.

Peach leaf curl: Control needed when the leaves have all fallen

When the leaves have fallen from the trees the peach leaf curl spores are exposed which is your only time to manage peach leaf curl. It is important to manage this disease as soon as the leaves have fallen this fall, especially on trees that are early varieties: do not wait until late dormancy (late February - March) to make that fungicide application since we have experienced 80 °F in late February, which may cause early bud swell of these varieties. Spray trees with a fungicide, such as copper, ziram, lime sulfur, or chlorothalonil. If you are unable to spray this fall, fungicides can be applied during late winter before bud swell and before any drastic warm ups during late winter. As a result, you will reduce the chances of getting peach leaf curl in 2020.

Praying Mantid

Look for praying mantid females laying eggs as the warm season ends. This Chinese praying mantid was on a branch in a Japanese stewartia on October 12 in Baltimore.
Photo: Jim McWilliams, Maxalea, Inc.

Beneficial of the Week

By: Paula Shrewsbury

Checkered beetles: an enemy of wood boring beetles

Checkered or Clerid beetles are in the family Cleridae and have a worldwide distribution with over 3,500 species. Checkered beetles can range in size from 3 – 24 mm and are elongate and somewhat flattened in shape, have short bristly hairs, and often brightly colored. Many species are predacious as adults and larvae. Checkered beetles live in a variety of habitats and have diverse feeding preferences. The two major groups of checkered beetles are the "flower visitors" and "tree living species". "Flower visitors" hang out on flowers (obviously) and feed on pollen and insects that visit flowers. The "tree living species" of checkered beetles are associated with trees where they forage for their prey above and below the bark. The most common food of these checkered beetles are bark beetle and other wood boring beetle larvae and adults. We surely have enough bark beetles and other wood boring beetles (ex. EAB) in our trees to keep predacious-checkered beetles well fed for a long time! Adult checkered beetles tend to feed on adult boring beetles above and below the bark, hence their flattened shaped. Females of checkered beetles lay their eggs under the bark of trees. The larvae are predaceous and forage in the galleries of wood boring insects where they feed on bark beetle and other beetle larvae. Some checkered beetles are very voracious feeders and are often key players in biological control.

Larval stage of the predacious-checkered beetle often found under bark feeding on boring beetle larvae.
Photo: G.J. Lenhard, LSU; ForestryImages.org

Adult checkered beetle feeding on a bark beetle. Keep that biological control going!
Photo: G. Lenhard, LSU, Bugwood.org

Weed of the Week

By: Chuck Schuster

The weather has been dry for several weeks, even with the rain on Wednesday, most things have slowed down in growth. Soil temperatures are still in the upper 50's F but day light length is shortening every day. In recent weeks I have had a few inquiries on what is this plant that is growing above many landscapes and in some nursery setting. I first was concerned that I might have palmer amaranth growing in areas not previous exposed to it. But after a quick review of the site I found that it was an old problem plant found often in some of our farm fields and also in some of our margins nears fields.

Johnsongrass, *sorghum halepense*, is showing its ugly seed head in many areas now. Late as it may be, it is being seen. This perennial weed can reach six feet or more in height, has a dense rhizome (photos 1 and 2) and produces a large number of seeds (photo 3). For these reasons this plant is noted on the Maryland Noxious

weed list. These plants are regulated by Maryland and property owners must prevent them from producing seed.

In the southwest, Johnsongrass has been used as a forage, but when moved to the east became a noxious weed quickly. It is very tolerant of many soil conditions and will thrive in both low and high fertility settings. It can tolerate a wide array of moisture conditions and most all pH conditions found in this region. It will survive regular mowing, but mowing will prevent seed head production. Johnsongrass is found throughout the United States in agronomic, horticultural settings and in fringe areas of lower management; it does require management.

For identification purposes, start looking at the growing plant. The leaves are rolled in the shoot and will be without auricles. Each leaf blade can reach twenty inches in length and up to three quarters of an inch in width, **with a prominent white mid vein** (photo 4). Leaf blades are without hairs, but some may be found at the base of the leaf blade. Johnsongrass has a jagged-edged and membranous ligule. The stems are round, but may be flattened, sheaths will be green to maroon in color, and the plant will have a fibrous root system with a dense thick rhizome (photo 1 and 2), and the rhizome will have an orange scales. The flowers/ seedhead is a large open panicle with a reddish to purple color. Seeds are oval and dark red in color. Johnsongrass is similar to barnyardgrass and fall panicum. Johnsongrass will not have hairs on the lower leaf blades as fall panicum does. Also, Johnsongrass has a membranous ligule and neither of the two others do. It may also look like shattercane, but shattercane does not have rhizomes.

Photos 1 and 2: Johnsongrass has a dense rhizome
By: Chuck Schuster

Photo 3: Johnsongrass can grow to a height of 6 feet and produces a large number of seed
Photo: Chuck Schuster

Photo 4: Each Johnsongrass leaf blade has a prominent mid vein
Photo: Chuck Schuster

Control of Johnsongrass can be achieved using several different products. To control Johnsongrass from seed, the use of prodiamine (Barricade, Factor) can be considered. Be cautious as it will damage some varieties of turf. Post emergent control using a glyphosate product can achieve control, but monitoring for seed production the following year is important. Culturally, Johnsongrass can be *managed* using proper mowing, preventing it from going to seed. No concern should be noted in areas with restrictions on pesticide use as this is classified as a Maryland Noxious Weed and can be controlled with appropriate herbicides.

Plant of the Week

By: Ginny Rosenkranz

Tulip tree foliage turns golden yellow in the fall
Photo: Ginny Rosenkranz

Liriodendron tulipifera (tulip poplar, tulip tree, tulip magnolia, or yellow poplar) is one of our native trees that thrives in moist organically rich well drained soils in full sun. The large and stately deciduous trees can grow 60-90 feet tall and 30-50 feet wide with the trunk often bare of lower branches 60% of the height of the tree, giving the tree a light canopy of foliage. The leaves are alternate with 4 lobes and bright green above and pale on the underside. In late autumn, the green leaves change to a golden yellow, brightening up the landscape. The 2 inch flowers are cup-shaped and look very similar to the tulip flowers that bloom from bulbs each spring. They have 6 slightly overlapping petals that are yellow with a bright orange band at the base of each petal and bloom from May to June. Because the flowers are formed at the top of the trees, they are often not noticed until they begin to drop their petals or until the winged seeds begin to fall to the ground. The seeds are held in a dry brown cone-shaped holder which sheds the seeds from late autumn through the winter. Tulip poplars are cold tolerant from USDA zones 4-9 and are resistant to deer and rabbits. They tolerate wet soils and the roots of the black walnut tree. The shallow root system can be poorly branched and the wood can be weak, with a tendency to break apart in high winds and ice storms. These large trees should be planted in landscapes that allow their growth and with space to enjoy their colorful foliage. Pests include aphids which can result in a rainfall of honeydew that can be the cause of sooty mold growing on everything under the tree. Other insect pests that can occasionally bother the tree include scale and the tulip tree spot gall. Diseases include verticillium wilt, canker, powdery mildew, root and stem rot, and leaf yellowing.

Degree Days (as of October 16)

Abingdon (C1620)	4056
Annapolis Naval Academy (KNAK)	4917
Baltimore, MD (KBWI)	4458
College Park (KCGS)	4093
Dulles Airport (KIAD)	4202
Frederick (KFDK)	4200
Ft. Belvoir, VA (KDA)	4403
Gaithersburg (KGAI)	4016
Greater Cumberland Reg (KCBE)	3671
Martinsburg, WV (KMRB)	3848
Natl Arboretum/Reagan Natl (KDCA)	4893
Salisbury/Ocean City (KSBY)	4368
St. Mary's City (Patuxent NRB KNHK)	4691
Westminster (KDMW)	4488

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

October 30, 2019
FALCAN Truck and Trailer Safety Seminar
Location: Urbana Volunteer Fire Hall
4.5 MD LTE Credits
To Register

December 4, 2019
Trees Matter Presents: Green Cities Summit
Location: Kellog Conference Center, 800 Florida Ave NE
For more 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

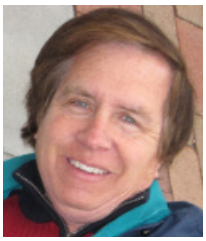
January 20 and 21, 2020
MAA Safety and Pesticide Recertification Seminar
Location: Turf Valley, Ellicott City, MD

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

February 28, 2020
Manor View Farm & Perennial Farm 21st Annual
Education Seminar
Location: Shepard Pratt Conference Center,
Timonium, MD

CONTRIBUTORS:



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