UNIVERSITY OF MARYLAND EXTENSION

TPM/IPM Weekly Report
for Arborists, Landscape Managers & Nursery Managers

Commercial Horticulture **May 4, 2018**

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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 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), David Clement (Extension Specialist), and Joe Roberts (Plant Pathologist for Turf)
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)

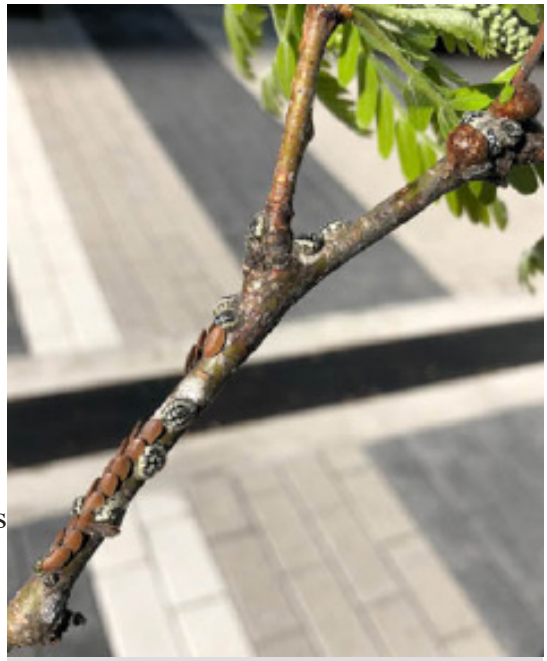
Calico Scale

By: Stanton Gill

John Ford, Chapel Valley Landscape Company, sent in a picture on May 1 of calico scale females swelling up on honeylocust trees in Reston, VA. We should be seeing crawler activity for this soft scale later in May in Central Maryland.

If anyone has samples of this scale, please send them to me so I can check for crawlers at CMREC, 11975 Homewood Road, Ellicott City, MD 21042. If you see crawlers in your area, email me at Sgill@umd.edu.

Control: Systemic insecticides work well as soil drenches for this soft scale since it is a phloem feeder. The other course of action is Distance or Talus during the crawler period.



Calico scale are sharing space on this honeylocust with katydid eggs that are lined up along the stem
Photo: John Ford, Chapel Valley Landscape Company

Ambrosia Beetle Activity

By: Stanton Gill

The warm weather of Wednesday through Friday increased the flight activity of *Xylosandrus crassiusculus* and *X. germanus*. We received samples from Salisbury (Ginny Rosenkranz), the Frederick area (Tony Murdock), and Montgomery County (Marie Rojas and Steve Dubik) and all had both species in the traps this week. The counts in our CMREC traps were also high this week. Marie Rojas, IPM Scout, is reporting today that she found ambrosia beetles just starting to drill in on styrax in Montgomery County. She notes that they're hitting old pruning cuts where the trees were limbed up last year. Make sure protective sprays of bifenthrin or permethrin go on the trunks of susceptible trees.

If you see frass tubes send in some pictures and let me know where you are seeing the activity – Sgill@umd.edu.

Ambrosia beetles are actively boring into this pruning cut from last year on styrax
Photo: Marie Rojas, IPM Scout

Fire Blight and Brown Rot Field Trial in Maryland

By: Stanton Gill

We have seen an increase in the number of nurseries growing fruit trees for landscape customers. We are also seeing an increasing number of landscape managers who are managing high end landscapes where they prune and spray fruit trees.

At the Biological Control Conference we held on February 1, we were approached by several landscape managers asking if there were any good organic controls, especially for disease control, for fruit trees. David Clement and I contacted BioWorks of New York and Certis of Columbia to see what they had that we could test out in the field for disease management on fruit trees that fit the organic biofungicide approach.

Certis has three materials for fire blight control that we decided to test out in 2018. All have OMRI approval. One is a liquid copper; the second is a product called Double Nickel, and the third is a new product called LifeGard. We had two nursery sites make the copper applications just at green tip stage on apples and pears. The LifeGard (*Bacillus mycoides* isolate "j") was applied at bloom this week. This treatment will be followed up with another copper application then 7 days later with LifeGard again. We will evaluate if this is effective in dealing with fire blight using biofungicides that are OMRI approved.

The second material we are testing is from BioWorks, and it is a bacteria sold under the name BotryStop. We are having two nursery sites make weekly applications of this bacteria, which colonizes the stems and leaves, and will potentially control brown rot on fruit trees. We are testing this material on plums, sweet cherries, plumcots, and tart cherry trees.

Preparing For the Fire Blight Season

By: Kari Peter, Plant Pathologist Penn State University Extension

Management strategies are discussed for fire blight, as well as for other important tree fruit diseases occurring during the month of May. UPDATED: APRIL 25, 2018

The 2018 season has been slow to start compared to 2016 and 2017, but the fruit trees are wide awake and diseases are ready to go. The disease I'm most concerned about is fire blight. During 2014 and 2015, our apple trees bloomed during the first week in May, which coincided with warm, wet weather that stuck around. Both of those years were also bad fire blight years. There is a chance we may encounter similar conditions during 2018. I recently saw info from the University of Tennessee about widespread fire blight incidence showing up in ornamental pears in Middle Tennessee. This isn't a good sign; however, commercial growers have a lot of tools to use to stay ahead of a potential fire blight fiasco.

Don't get caught with your plants down: watch out for fire blight conditions during bloom
Photo: K. Peter, Penn State

Preventing a fire blight epidemic

Monitor weather conditions closely during bloom: average temperatures >60 °F and wetting events (rain, heavy dew). Commercial fruit growers are encouraged to remain on guard not only during bloom but during petal fall. In years when the warm conditions persisted post bloom for a significant period (2014 and 2015), fire blight exploded and caught everyone off guard. Based on the forecast next week, summer will arrive, and bloom might occur in a hurry.

Here is a plan for growers during bloom:

- If bloom begins slowly, consider applying a biological (Serenade Opti, Serenade ASO, Double Nickel) during 10-20% bloom. Approximately 48 hrs later, apply a streptomycin spray since more blossoms will have opened, and trees may be near full bloom.
- Streptomycin still is effective. Use it during bloom: it works. Four sprays are allowed during a season; however, save one spray if a trauma event (hail, high wind) occurs during the season post bloom.
- Incorporate Actigard (2 oz/A) in your last streptomycin bloom spray. Actigard is a plant immune system inducer and will offer about seven days protection post application. This is an expensive product; focus on the most susceptible varieties. This will be important for that tricky period post full bloom.
- Consider low rates of Apogee/Kudos (2 oz/A) beginning during late bloom/petal fall on susceptible dwarf trees that have filled their space. Our research has shown any rate (as low as 2 oz/A) of ProCa will suppress growth. However, if it is a bad fire blight year, a grower will need to determine their priority: keeping the tree alive vs. getting optimal growth. ProCa will significantly decrease fire blight severity by hardening off the shoots 10-14 days post application. Multiple applications may be needed.
- Apogee/Kudos (full rate) is a must for susceptible semi-dwarf trees.
- If Apogee/Kudos is not preferred for dwarf trees, regular sprays of Cueva (2 qt/A) beginning at petal fall is recommended. We have observed reduced shoot blight using frequent Cueva applications post bloom. Applications are only necessary until mid-late June or when the trees reach terminal bud set.

- In cover sprays post bloom, another consideration is incorporating Vacciplant or Regalia for young, dwarf trees. We are still researching the utility of these products to mitigate shoot blight, but the early results are promising.

Just a word to the wise: If this year ends up being an exceptionally challenging fire blight year, typically "resistant" varieties will get fire blight if the disease pressure is high enough.

Plum Curculio

By: Stanton Gill

Several people have sent in e-mails asking if we have seen plum curculio activity yet. The insect overwinters as an adult. Greg Greg Krawczyk, Penn State, notes that "Plum curculio adults are already active in Pennsylvania and will feed and oviposit for the next 4 to 6 weeks. Cornell models says they are able to cause damage to fruit from petal fall to cumulative 308 DD base 50." They damage peaches, apricots, apples, pears and plums. Weevils are more active on warm, damp, cloudy days and in thick, heavy stands of trees that provide abundant moisture in the center of the orchard. Curculio activity nearly ceases when temperatures drop below 60° F; however, if temperatures reach 70 to 75° F for two days before petal fall, the weevils may begin to feed and mate.

At this time, plum curculio adults are leaving their overwintering sites (in trash on the ground, woodlots, or hedgerows), and migrating to fruit trees. Migration into the orchard may last up to six weeks after bloom, with the greatest amount of movement occurring within the period up to 14 days after petal fall.

Damaged areas on fruit damaged by plum curculio are crescent-shaped
Photo: Clemson University - USDA Cooperative Extension Slide Series

Pine Bark Adelgid

In Frederick County, Marie Rojas, IPM Scouts found that pine bark adelgids are out on the newly-expanding candles. Marie noted that lady beetles were already present and feeding on them. This adelgid overwinters as nymphs on the bark of its hosts. Pine bark adelgid has several generations per year.

Monitoring: Visually monitor the bark and larger branches of pines for fluffy white wax. It often starts at the base of needles. Black wingless adults will be within the wax along with yellow eggs. When populations are high, trunks of trees can be almost covered with white wax. Trees can generally tolerate relatively high levels of this pest. They are sucking insects so they remove plant sap.

Control: Pine bark adelgids are often kept at low populations by a number of different generalist predators (flower fly larvae, lady beetles). Horticultural oil can be applied now or at most times of the year to reduce populations of adelgids. The horticultural oil should help conserve the natural enemies to help prevent adelgid populations from returning to high levels. Wait for egg hatch if you decide to apply a chemical.

PIne bark adelgids are now active
Photo: Marie Rojas, IPM Scout

Aphids and Sawflies on Roses

Rose aphids were found feeding on the buds of Knockout roses in Gaithersburg on May 3. Look to see if predators are present and monitor pest levels. Predators are starting to become more active as more plants come into bloom. If necessary, a systemic insecticide can be used to control the aphids.

Sawfly feeding on roses is now being reported. They were active on Knockout roses in Gaithersburg on May 3. Olivia Leseman, Savatree, found bristly rose slug sawfly larvae in McLean, VA on May 3. Oscar Peña, Wray Brothers Landscapes, found sawfly damage on roses in Chevy Chase and Nancy Harding, UMD, found very early instars of sawflies on roses in Bowie on May 4. There are three species of sawflies in Maryland that cause damage to roses: the bristly roseslug sawfly, the roseslug sawfly, and the curled roseslug sawfly. The roseslug sawfly is the species that has only generation per year. It is active early in the season. The other two species have several generations and can be controlled with Conserve (spinosad).

Look for sawfly larvae when you see window pane damage on rose foliage
Photo: Oscar Peña, Wray Brothers Landscapes

Bristley rose slug larvae feeding has begun; there are several generations
Photo: Oliva Leseman, Savatree

Rose Rosette Disease

By: Karen Rane, UME

Early symptoms of rose rosette disease include reddish foliage and shoots, excessive thorniness and abnormally elongate leaves. As new growth is emerging, branches with rose rosette symptoms are quite noticeable. Rose rosette disease is caused by a virus which is spread by eriophyid mites. The virus moves systemically throughout the plant over time – the plant in the photo was most likely infected last year, and pruning out symptomatic branches will not rid the plant of the virus infection.

Rose rosette symptomatic branch among healthy foliage on a Knockout rose
Photo: K. Rane, UMD

Spiny Witchhazel Gall Aphids

Marie Rojas, IPM Scout is finding spiny witchhazel gall aphids starting to feed on the newly expanded leaves of birch in Montgomery and Frederick Counties. Marie noted that lady beetles were on the scene to take care of them. Witchhazel is the alternate host for this aphid where it causes a spindle gall on the top side of foliage. This aphid causes red puckering damage to the foliage of birch and the woolly aphids can be found on the undersides of the leaves.

Control: Most often, control is not necessary. Many natural enemies such as lady bird beetles, syrphid flies, soldier beetles, and parasitic wasps are active this time of year and usually move into the area to reduce the aphid populations. If populations are high, use a low impact material like horticultural oil to minimize the impact on the beneficial insects that are present.

The puckering and red foliage on birch is caused by spiny witchhazel gall aphids
Photo: Marie Rojas, IPM Scout

Woolly Aphids

Marie Rojas, IPM Scout, found woolly aphids on on the newly expanding leaves of Hawthorn 'Winter King' in Laytonsville on April 30. Woolly aphids are small pear-shaped insects and produce waxy secretions giving them a fluffy cottony appearance that serves as a deterrent to predators. This aphid causes the foliage to curl and turn purplish red. Heavy infestations rarely occur as their numbers are kept low with natural predators like lacewings, lady beetles, hover flies and parasitic wasps. However, if necessary, to reduce large infestations, insecticidal oil or soap sprays in the spring can be used.

Woolly aphids feeding on hawthorn cause the foliage to curl and turn red
Photo: Marie Rojas, IPM Scout

Boxwood Leafminers

Steve Sullivan, Brightview, found adults of boxwood leafminers active in Bethesda. Avid, Mainspring GNL, or a synthetic pyrethroid can be used when the adults are flying. Adults lay their eggs in the foliage and larvae will hatch within 2 weeks after laying. The larvae feed in May until it becomes hot, then they go into a resting stage. A systemic insecticide can be applied to the soil now so the hatching and feeding early instar larvae would be killed.

Boxwood leafminer adults stand out with their bright orange bodies

Northern Flicker Damage in Turf

Norther flickers are woodpeckers that prefer to dig in the dirt to find food. Their digging can tear up patches of turf as they search for insects, especially ants.

Northern flickers can damage turf areas while searching for insects
Photo: Mark Schlossberg, ProLawn Plus, Inc.

Roots on Cherry

Brian Scheck, Maxalea, Inc., found these roots developing on a cherry. It looks like the roots are trying to grow from the scion wood down into the soil.

Photo: Brian Scheck, Maxalea, Inc.

Mulberry Whitefly

Heather Zindash, Mainscapes, Inc., found mulberry whitefly pupae on the undersides of *Ilex* leaves. The white fringe is distinctive of the pupal stage. Other hosts include mahonia, hackberry, mountain laurel, sweetgum, maple, dogwood, sycamore, and mulberry.

Contol is not necessary.

Mulberry whitefly pupae stand out with their white fringe
Photo: Heather Zindash, Mainscapes, Inc.

Elsinoe on Dogwood

By: David Clement, UME-HGIC

Marty Adams, Bartlett Tree Experts, found elsinoe on dogwood this week. Symptoms of spot anthracnose, appear as tiny (less than 1/8" diameter), circular lesions with purple borders and lighter, almost white, centers on bracts and leaves. This disease is caused by the fungus *Elsinoe corni*. In general, white cultivars of dogwood are more susceptible than pink cultivars. In seasons when environmental conditions are conducive to disease, spots on bracts and foliage may be numerous, and leaves or bracts become puckered or distorted around the spots as the leaves expand.

Generally, cultivars with white bracts are more susceptible to spot anthracnose (*Elsinoe*)
Photo: Marty Adams, Bartlett Tree Experts

Elsinoe corni survives the winter on twigs, in buds, or on infected fruit and leaves that remain on the tree. New infections occur in early spring. In most years, spot anthracnose causes little damage. However, in very cool, wet springs, symptoms can be severe.

Management: In most years control is not necessary. Spot anthracnose can be controlled preventatively with chlorothalonil or thiophanate methyl plus mancozeb. Spraying should begin as buds begin to open and repeated when the bracts have fallen, four weeks after bract fall, and in late summer after flower buds have formed.

Boxwood Psyllid

Marie Rojas, IPM Scout, found boxwood psyllid nymphs starting to feed this week on terminal growth of boxwood. The boxwood psyllid causes tip growth to cup and curl. Look for a white, waxy material that the psyllids produce within the cupped leaves. Damage is rarely significant enough to warrant treatment.

Look for boxwood psyllids on growing tips and within cupped foliage
Photo: Marie Rojas, IPM Scout

Weed of the Week

By: Chuck Schuster, University of Maryland Extension

Last week an herbicide was mentioned that no longer has registration in residential turf. Velocity carried a Supplemental Label for residential use and it was not renewed, expiring 1/18/2018. Product that is still available can be used on sod and golf courses. Please note this change.

Leaves of European stinging nettle have small needle-like hairs that will "sting" and cause a skin irritation
Photo: Chuck Schuster, UME

This tractor mounted box grader is almost hidden by a stand of European stinging nettle
Photo: Chuck Schuser, UME

European stinging nettle, *Urtica dioca*, also called great nettle, is a problem of the mid-Atlantic area of the United States. It is found in nurseries and landscapes. It prefers damp, fertile soils, and can grow in areas of partial shade to full sun. It is also considered a plant of value by many for its medicinal benefits. Remember that a weed is nothing more than a plant out of place.

European stinging nettle can grow in areas of part shade to full sun
Photo: Chuck Schuster, UME

Stinging nettle has a rhizamatous root system
Photo: Chuck Schuster, UME

This perennial plant has an upright growth habit, reaching to six feet in total height. With a rhizomatous yellow/white root system, its un-branched growth habit will produce leaves with small needle like hairs that will sting and cause skin irritation lasting several hours. The leaves will be two to six inches in total length on petioles, oval- to heart- shaped, serrated, and opposite up the stem with stipules. These stipules will be from one quarter to one half inch in length. Flowers occur below the petioles, and will be longer than the petioles themselves. The flowers are branched, green to greenish white in color, with up to four spikes per node. Male and female flowers are produced on the same plant but on different nodes.

This plant reproduces by rhizomes and wind dispersed seed. It grows in dense clumps that will compete with desired plant material. Cultural control of this can be obtained through continual mowing in turf or non-crop areas. It can be controlled using oxadiazon (Ronstar), and Oxyfluoren (Goal) are effective pre- emergent products and glyphosate can be used post emergent. In locations where landscape plants are not a concern, 2, 4-D can also be used. Never use 2, 4-D near any desirable landscape plantings.

Plant of the Week

By: Ginny Rosenkranz, University of Maryland Extension

Hosta 'White Feather' is an unusual hosta as it emerges from the soil in the springtime completely white to cream in color. Due to its lack of chlorophyll, Hosta 'White Feather' needs to be planted in compete shade to prevent the white foliage from burning in the sun. It makes quite a statement in the early spring with its ghostly color. After a few weeks the white foliage begins to green up along the veins, and as the plants begin to mature a bit more, the color floods the foliage to a soft green. The plants can grow 18-24 inches high and wide and they are cold tolerant in USDA zones 3-9. Mid-summer brings the lightly fragrant lavender blooms that can reach 20 inches high. Hosta, in general, needs to be planted where plants can receive the afternoon shade in rich, moist well drained soils. Deep watering once a week seems to fit their growth better than light watering a few times a week. Once established, hosta do not need a lot of fertilizer to thrive, just a small amount of slow release fertilizer as the leaves begin to spear up through the soil. As much as the gardeners love hosta, they are also unfortunately enjoyed by deer, voles, slugs, snails and black vine weevils, all of which either eat the foliage completely, eat the roots completely or destroy the foliage with holes.

Foliage of Hosta 'White Feather' is completely white when it first emerges in spring
Photo: Ginny Rosenkranz, UME

Marty Adams reported that is small tree, *Xanthoceras sorbifolium* (Yellowthorn) is in bloom now in Elkridge. More information is available at the Missouri Botanic Garden website
Photo: Marty Adams, Bartlett Tree Experts

Phenology

PLANT	PLANT STAGE (Bud with color, First bloom, Full bloom, First leaf)	LOCATION
Deutzia gracilis 'Nikko'	First bloom Full bloom	Bowie (April 28) Bowie (May 3)
Syringa vulgaris (common lilac)	Full bloom	Bowie (April 28)
Xanthoceras sorbifolium (yellowthorn)	Full bloom	Elkridge (May
Wisteria chinensis	First bloom	Salisbury (April 27)

Degree Days (As of May 2)

Aberdeen, MD (KAPG)	175	Annapolis Naval Academy (KNAK)	274
Baltimore, MD (KBWI)	274	College Park (KCGS)	241
Dulles Airport (KIAD)	246	Frederick (KFDK)	188
Ft. Belvoir, VA (KDAA)	279	Greater Cumberland Reg (KCBE)	189
Gaithersburg (KGAI)	232	Martinsburg, WV (KMRB)	203
Natl Arboretum.Reagan Natl (KDCA)	318	Salisbury/Ocean City (KSBY)	281
St. Mary's City (St. Inigoes, MD-KNUI)	302		
Westminster (KDMW)	221		

Important Note: We are now using the Weather Underground site for degree days. It changes some of the locations available.
1. Enter your zip code (not all locations are included, check nearest weather station to your site) and hit enter
2. Click the "custom" tab/button below the date
3. Enter the start date below the word "from" (ex. Jan. 1) and the end date below the word "to" (current date)
4. Hit the get "history" button
5. Read your growing degree days (base 50) in the 'Sum' column (=Cummulatlive DD to date for the year)

CONFERENCES

2018 Maryland Urban & Community Forestry Summit
Organized by the Maryland Forestry Foundation
May 11, 2018
4.5 Maryland Licensed Tree Expert CEUs
Location: Patuxent Wildlife Vistor Center, Laurel, MD

Eastern Shore Pesticide Recertification Confernce
June 1, 2018
Location: Wye Research and Education Center, Queenston, MD
Contact: Ginny Rosenkranz, rosnkrnz@umd.edu

2018 Procrastinators' Pest Management Conference
June 8, 2018
Location: Montgomery County Ext. Office, Derwood, MD
Contact: Chuck Schuster, cfs@umd.edu
DC— pending; MD—CORE, 3A, 3B, 3C, 5, 6 and 10
VA— 3-A, 3-B, 5-A, 60; MD Turf NM Credits—2 CEU's

Brochure: https://extension.umd.edu/sites/extension.umd.edu/files/_docs/Procrastinator%20Brochure%202018a_0.pdf

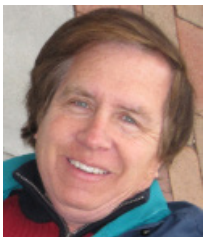
Eventbrite link: https://www.eventbrite.com/e/23rd-annual-procrastinators-pesticide-and-urban-nutrient-management-conference-tickets-45519688614?aff=efbevent

Conference information is posted at:
http://extension.umd.edu/ipm/conferences

The Pest Predictive Calendar is a monitoring tool to assist in predicting when susceptible life stage(s) (stage you want to target for control measures) of pest insects are active by using plant phenological indicators (PPI) and growing degree days (GDD). This tool will lead to improved timing of management tactics and more effective pest management.

Check it out at [Pest Predictive Calendar]

CONTRIBUTORS:



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