UNIVERSITY OF MARYLAND EXTENSION

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

Commercial Horticulture **August 31, 2018**

In This Issue...

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:
Stanton Gill, Extension Specialist, IPM for Nursery, Greenhouse and Managed Landscapes, sgill@umd.edu. 301-596-9413 (office) or 410-868-9400 (cell)

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)

Interesting Scale Sample

By: Stanton Gill

Eric Wenger, Healthy Plant, brought in an interesting scale on viburnum last week. The scale was killing back a viburnum in a landscape setting. The scale caused a slight pitting on the stems. I had a guess which species this one was, but needed confirmation from John Davidson, the father of Scale ID. It is called false pit scale, *Lecanodiaspidae prosopidis*. This scale has one generation per year and overwinters as eggs. No one has really studied this scale in our area, so we are not exactly sure when in the spring or early summer that the eggs hatch. We hope to keep up on the sample and follow it through into 2019 to see when it hatches.

The crawler period for false pit scale in this area is not known

Cut Flower Farm Tours in Southern Maryland (St. Mary's County)
September 12, 2018

Locations: Loveville Produce Auction (Mechanicsville), Weaver's Cut Flower Farm (Mechanicsville), and Hertzler Family Cut Flower Farm (Charlotte Hall)

A brochure and registration information are available on the IPMnet Conference page.

Foliar Nematodes in Landscape Perennials

By: Karen Rane

In late summer, symptoms caused by foliar nematodes become noticeable, especially in shade-loving perennials like hostas, hellebores, begonias, and ferns. These microscopic roundworms overwinter in the crowns of living plants or in plant debris. In the spring, nematodes move upward through films of water to feed on buds and enter leaves through stomates or small wounds.

Foliar nematodes are native to the US and are commonly found infesting ferns in natural areas. They feed by inserting a hollow, straw-like stylet into plant cells and removing cell contents. Symptoms of foliar nematode infection can vary from distorted foliage to necrotic blotches and angular yellow or brown lesions bordered by main leaf veins.

In hosta, foliar nematode lesions are elongate "stripes", while in ferns, hellebores and other plants the lesions are more angular or wedge-shaped. Sanitation is key to managing foliar nematode problems in the landscape as there are no effective products that will eradicate the pest. The best management tactic is to avoid introducing foliar nematodes to the landscape – carefully examine plants and avoid purchasing those with typical symptoms. Removing plants when symptoms are first observed, avoiding overhead irrigation and increasing plants spacing to minimize leaf wetness periods can help reduce foliar nematode problems in the landscape.

Hellebore with angular lesions caused by foliar nematode
Photo: K. Rane, UMD

Brunnera with foliar nematode
Photo: K. Rane, UMD

San Jose Scale: Another Scale to Watch Out for in Late August

By: Stanton Gill

Earlier in the summer, I put out an article on an armored scale that is showing up more and more on plums, pears, apples and peaches. Several of you are maintaining fruit trees for customers and you will want to check their fruit trees for San Jose scale as we move into the end of August and early September. The third generation of this scale will be occurring very soon. The crawlers of this 3rd generation often migrate out onto the fruit itself, such as apples and pears that are maturing in September and October. Your customers would find small round circles on the fruit. Look for discoloration around the scale cover as a result of feeding activity. Reddish blemishes on fruit at harvest indicates potentially damaging numbers on the trees. San Jose scale can kill the entire tree in a couple years if it is not controlled.

When feeding, San Jose scale injects a toxin into the fruit causing a deep red coloration around it

Females do not produce eggs. They give birth to live crawlers. A few days after the tiny yellow crawlers settle down, crawlers secrete a waxy covering over their body that protects them from pesticides. Females will remain in place for the rest of their life cycle. At maturity, winged males will search for females.

The third generation is occurring as me move into September. Monitor for crawlers. Talus and Distance can be used on ornamentals. These same chemicals are found in products labeled for use on fruit plantings in orchards.

Maskell Scale

By; Stanton Gill

Heather Zindash sent in great close-up pictures of maskell scale this week. She found the scale on cryptomeria plantings. What you are looking at is the 3rd instar test (cover). Actually, you can see the 1st, 2nd and 3rd instar cover in the photo. Unfortunately, a large number of cryptomeria I examine with landscapers is usually infested with this scale. This first generation of crawlers are active around 470 DD (late May into June); look for the second generation of crawlers at 2035 DD (August).At this point in the time of the year, I would wait until November when temperatures are in the 50 – 60 °F range and apply horticultural oil at a 1 – 2% rate.

In this photo of a third instar Maskell scale, note that all three instar covers can be seen
Photo: Heather Zindash

Mimosa Webworm

Steve Sullivan, Brightview, sent in photos of first generation mimosa webworm damage on honeylocust from late July. The mimosa webworm feeds primarily on the leaves of mimosa and honeylocust trees. There are two generations of this pest in Maryland. Females lay eggs on the terminal leaves and small twigs. The second generation of larvae will be active into early September. Pupae from this second generation overwinter inside cocoons within the web or in bark crevices.
Control: It is late for control. Monitor trees next season. Control options include Acelepyrn, Mainspring, or Spinosad (Conserve) applications.

These honeylocusts were defoliated by heavy feeding of first generation mimosa webworms in late July; the second generation will feed into early September
Photo: Steve Sullivan, Brightview

Ambrosia Beetles

Marty Adams, Bartlett Tree Experts, found active frass tubes of ambrosia beetles on dogwoods this week so we are still seeing activity from these beetles. It is too late in the season for control measures to be effective. Next year, look on trunks of trees for wet areas and the frass tubes to determine when to treat.

Ambrosia beetles are still active late in August
Photo: Marty Adams, Bartlett Tree Experts

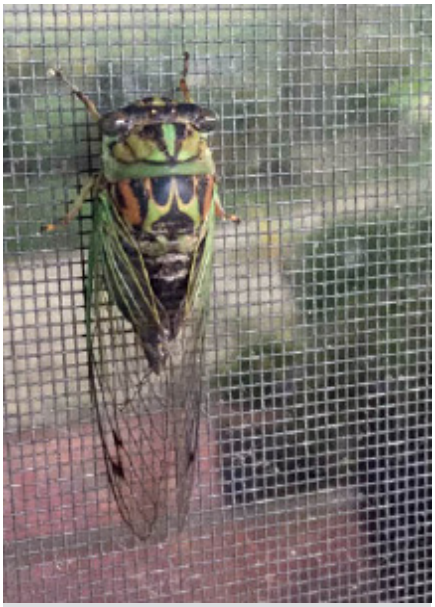
Interesting Science Development

By: Stanton Gill

This topic has nothing to do with bugs, but it is an interesting science development. Researchers at Wisconsin University-Madison and University of California, Davis campus, are working as team on a corn species that has been grown in Mexico for the last 150 years with little notice outside this small growing area. The corn produces bizarre fingerlike roots sticking out of their stalks. The roots excrete a goopy muscus in which a bacteria lives that fixes nitrogen from the atmosphere. They found the corn could grow in very sterile soil and still grow to 16 ft height. The group collected plants from the Sierra Mixe of Oaxaca in 2010. Researchers have been searching for corn that produces its own nitrogen. Nitrogen inputs into corn fields is tremendous. The researchers are now seeing if they can breed this trait into other corn.

Dog Day Cicadas

Through July and August is when many cicadas (*Tibicen canicularis*), called annual or dog day cicadas, are found dying on the ground after mating and egg laying. You can hear the annual cicadas at night. Look for the predaceous female cicada killer wasp that takes the paralyzed cicada back to a burrow to feed its young. No control is necessary.



This dog day cicada landed on a door screen
Photo:Ginny Rosenkranz, UME

This female cicada killer wasp is taking this cicada back to her burrow as food for a larva

Woolly Apple Aphids on Pyracantha

Marie Rojas, IPM Scout, found woolly aphids feeding on *Pyracantha coccinea* in a landscape in Gaithersburg this week.This aphid feeds on pyracantha, as well as other woody plants including apple, pear, hawthorn, mountain ash, and elm. Adults are reddish-purple and have a waxy covering. When monitoring, look for honeydew on shrubs and trees. This aphid feeds on both roots and on new terminal growth which can cause the leaves to curl and form rosettes.

Check to see if the aphids are dead since predators such as lady bird beetles, syrphid fly larvae and lacewing larvae feed on the aphids, leaving the waxy residue behind. If control is warranted, horticultural oil and insecticidal soap can be used which have a reduced impact on beneficial insects if they are present.

Check under the waxy coverings for dead aphids to determine if predators are active
Photo: Marie Rojas, IPM Scout

Bagworms

Marie Rojas, IPM Scout, sent in photos of late instar bagworms on *Chamaecyparis nootkatensis* 'Pendula', showing one of the caterpillars girdling a growing tip. It's too late in the season for control. Hand pick bags if feasible.

A bagworm has girdled the tip of this *Chamaecyparis* stem
Photo: Marie Rojas, IPM Scout

Another Stinging Caterpillar

Denton Weber, Sunny Meadows Garden Center, forwarded a photo of a brightly colored caterpillar for identification. It is a white flannel moth caterpillar that was found feeding on redbud. It's another one of the caterpillars found in Maryland with stinging hairs. It is often found on redbud, but also look for it on honeylocust, mimosa, and hackberry.

Control: Control is usually not necessary for this caterpillar.

The white flannel moth caterpillar is another caterpillar to avoid touching because of its stinging hairs
Photo: Shawn Eby, Sunny Meadows Garden Center

Beneficial Insects

Marie Rojas, IPM Scout, found two predators while scouting a nursery in Frederick County.

Argiope spiders are a common sight in the fall landscape
Photo: Marie Rojas, IPM Scout

This digger wasp, *Scolia bicincta*, is another digger wasp that feeds on beetle grubs
Photo: Marie Rojas, IPM cout

Beneficial of the Week

By: Paula Shrewsbury, UMD

Parasitic wasps kill armored scale pests

When I think of the key pests in our industry, scales are always near the top of the list, especially the soft (Coccidae) and armored (Diaspidae) scales. As you look over the weekly IPM reports there is hardly a week that goes by where we don't mention at least one, usually more, scale species. For example, some of our more pestiferous armored scale species include Japanese maple scale on many hosts, gloomy scale on maples, white prunicola scale on *Prunus* spp., lilac, and privet, elongate hemlock scale on hemlock, and several others.

Note the discrete circular hole in the obscure scale covers. These holes indicate parasitic wasp adults have emerged from the scale after it consumed and killed the scale.
Photo: J. Davidson, UMD

Even though scales can be very abundant and sometimes damaging, things could be worse. Fortunately, there are many species of parasitic wasps (Hymenoptera) that kill scales. Many of the parasitoids that attack armored scales belong to the families Aphelinidae and Encyrtidae. For example, we (Shrewsbury lab, UMD) have surveyed the parasitoids that emerge from Japanese maple scale in MD. We collected about 5 species of wasps in the family Aphelinidae and one in the family Encyrtidae. Parasitoids in these families are tiny wasps that are usually no bigger than 0.5 mm in length. Adult female wasps will insert their ovipositor under the cover of an armored scale and insert an egg into the soft bodied scale underneath. A single wasp usually lays 1 egg per scale insect but may oviposit in numerous individual scales. The number of scales a wasp will attack varies with wasp species. The wasp egg hatches inside the scales body and the wasp larvae proceed to consume the scale, ultimately killing the scale. The wasp develops within its scale host, pupates, and emerges as an adult – then the cycle starts again. Wasps may have one or multiple generations per year, again depending on the species.

An Encyrtid wasp adult (*Encarsia pernciosi*) searching for a host on a leaf infested with San Jose scale
Photo: Inra-Hyppz, Invasive.org

How do you know if parasitoids are attacking the scales on your trees and shrubs? It usually is NOT by seeing adult wasps – they are very, very tiny - making them difficult to see. Adults are fast moving and the immature stages often develop within its insect host making it difficult to monitor for parasitoid activity by watching for adults or larvae. You have to look for "signs" of parasitism. When some insects such as aphids or whiteflies are parasitized there is often a change in color and/or size of the insect. Think of aphid mummies where the parasitized aphid looks "bloated" and usually tan or darkened in color. Unfortunately, most scales do not change in size and color. A more universal sign is a discrete circular hole in the cover of the armored scale (see image), or body of the soft scale. When wasps reach the adult stage within their host's body, they then chew their way out through the scale cover to freedom. This chewing results in a circular hole in the scale cover. So when you are monitoring your plants and find scales, be sure to look at the scale covers for circular holes which indicate parasitoids are active in your scale population providing biological control. If you see natural enemy activity, which we commonly find, take this into account when you are selecting which pesticides to apply for scale suppression. Select products that have less detrimental impact on natural enemies like oils or insect growth regulators.

Weed of the Week

Chuck Schuster, University of Maryland Extension

A phone call with a claim by someone of having the tallest dandelion led to this Weed of the Week. I did not have to search far myself to find a sample. Prickly lettuce, *Lactuca scariola*, is an annual, often a winter annual weed of the United States. It is found throughout the United States except in southern Florida, Maine and the higher mountain elevations. Introduced from Europe, it is a broadleaf with prickly leaves, found in nursery and landscape and occasionally turf sites. It is often called compass plant, as its leaves will develop on the north –south direction, perpendicular to the sun. The leaves are alternate, from two to fourteen inches in length, lobed and clasp the stem at the base. The young plant produces a basal rosette until approaching maturity when the flowering stem develops (Photo 1). The leaves are deeply lobed or in some cases unlobed, presenting with prickly edges and will twist on the stem. A distinguishing characteristic is the row of prickly bristles on the lower midrib and on the leaf margin (Photo 2). The leaves that formed the original rosette may have declined and may not be visible at the time that the flowers emerge. The leaves emit a milky substance when cut and will become progressively smaller the farther up the stem they emerge. The stem of prickly lettuce can reach sixty inches in height and is hollow and white to light green in color (Photo 3). One single stem will emerge from the rosette, and then will branch into several different stems. It has a deep taproot (Photo 4). The plant will produce numerous flower heads. The flowers are pale yellow and small, with 5 or more petals, ranging from one quarter to one half inch in width. Flowers will produce seed that moves easily in the wind.

Photo 1: Prickly lettuce starts out as a rosette

Photo 2: Prickly lettuce has bristles on the lower midrib and leaf margin

Control of this weed can be obtained using most systemic weed control products. In open areas 2,4D containing products work very well. In landscape and nursery settings, Dicamba (Banvel D), and Bentazon (Prompt) are labeled to control this weed as post emergent herbicides. Ornamental Herbicide 2 (pendimethalin plus oxyfluorfen) and Rout (oryzalin plus oxyfluorfen) are noted to be useful as pre-emergent products. Note that some herbicide resistance has been noted in the agronomic sector.

Photo 3: The stem is hollow

Photo 4: Prickly lettuce has a deep taproot

All Photos: Chuck Schuster, UME

Plant of the Week

By: Ginny Rosenkranz, University of Maryland Extension

Chamaecyparis thyoides, Atlantic white cedar, is a native evergreen with green to blue green foliage that is light and airy in texture. In nature it is found in fresh water swamps and bogs and along stream banks, so they are very well suited for large water retention or rain gardens, but they also adapt well to normal garden sols. The trees are upright and grow 40-50 feet tall and 20-30 feet wide. The foliage is boat-shaped with sharp pointed scales when mature and needle-like when young. Plants grow best in full sun and are winter hardy in USDA zones 4-9. There are a lot of cultivars available that have bluer foliage, greener or golden foliage or more compact growth habits. No serious pests or diseases but are occasionally bothered by bagworms, juniper blight and root rot.

***Chamaecyparis thyoides* is well suited for water retention areas and rain gardens**
Photos: Ginny Rosenkranz, UME

Degree Days (As of August 29)

Aberdeen, MD (KAPG)	2911	Annapolis Naval Academy (KNAK)	3515
Baltimore, MD (KBWI)	3189	College Park (KCGS)	3107
Dulles Airport (KIAD)	3126	Frederick (KFDK)	3111
Ft. Belvoir, VA (KDAA)	3324	Greater Cumberland Reg (KCBE)	2912
Gaithersburg (KGAI)	3044	Martinsburg, WV (KMRB)	2904
Natl Arboretum.Reagan Natl (KDCA)	3613	Salisbury/Ocean City (KSBY)	3237
St. Mary's City (St. Inigoes, MD-KNUI)	3378	Westminster (KDMW)	3240

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 calculator
Thresholds in: Fahrenheit °F Lower: 50 Upper: 95
Calculation type: simple average/growing dds Start: Jan 1

2018 MDA Pesticide Recycling Program

The Maryland Department of Agriculture is offering the empty plastic pesticide container recycling program in 2018. You can view the locations and requirements in the online brochure. Montgomery County is a new location this year and will also accept clean containers from Prince George's County as well as D.C., as they do not have a collection.

CONFERENCES

Cut Flower Operation Tour
September 12, 2018
Location: St. Mary's County (Loveville and nearby sites)
Brochure and Registration

New Plants for Nursery Growers
October 25, 2018
Location: Country Springs Nursery, Woodbine, MD
Details will be available later in the summer

Turf Nutrient Management Conference
December 6, 2018
Location: Carroll Community College, Westminster, MD

December Pest Management Conference
December 18, 2018
Location: Carroll Community College, Westminster, MD

Advanced IPM PHC Short Course
January 7-10, 2019
Location: University of Maryland, College Park, MD
Contact: Amy Yaich, Admin. Assist. II, 301-405-3911
Email: umdentomology@umd.edu
Information: https://landscapeipmphc.weebly.com/
Recertification credits will be posted on the website Recertification page listing participating states.

Mid-Atlantic Horticulture Short Course
January 15-17, 2019
Location: The Founders Inn, Virginia Beach, VA

FALCAN Conference
January 18, 2019
Location: Frederick Community College, Frederick, MD

MAA Winter Conference
January 22-23, 2019

Eastern Shore Pest Management Conference
February 6, 2019
Location: Fountains Conference Center, Salisbury, MD
Contact: Ginny Rosenkranz, 410-749-6141

LCA Winter Conference
February 14, 2019

Chesapeake Green Horticulture Symposium
February 20 - 21, 2019
Location: Maritime Institute, Linthicum Heights, MD

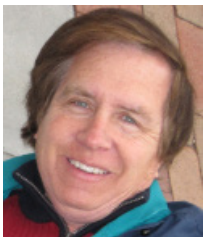
Learn How to Diagnose Plant Problems

By: Stanton Gill

If you would like to hone your diagnostic skills for insect and mite problems, we will have two sessions this fall and winter. The first one will be held in Frederick, MD on October 8 as part of the MAC-ISA Fall meeting. Go to the MAC-ISA conference page to register.

The other session is January 22, 2019. Karen Rane, David Clement, Mary Kay Malinoski, and I will hold a multiple-hours session on diagnosis of disease and insect problems in landscapes. This session will be part of the Maryland Arborist Association winter conference at Turf Valley, Ellicott City, MD. Details and registration information will be available on the Maryland Arborists' website when the program is completed.

CONTRIBUTORS:



Stanton Gill
Extension Specialist
sgill@umd.edu
410-868-9400 (cell)

Paula Shrewsbury
Extension Specialist
pshrewsb@umd.edu

Karen Rane
Plant Pathologist
rane@umd.edu

Chuck Schuster
Extension Educator
cfs@umd.edu

David Clement
Plant Pathologist
clement@umd.edu

Andrew Ristvey
Extension Specialist
aristvey@umd.edu

Ginny Rosenkranz
Extension Educator
rosnkrnz@umd.edu

Nancy Harding
Faculty Research
Assistant

Joe Roberts, Plant Pathologist (Turf)
robertsj@umd.edu

Thank you to the Maryland Arborist Association, the Landscape Contractors Association of MD, D.C. and VA, the Maryland Nursery and Landscape Association, Professional Grounds Management Society, and FALCAN for your financial support in making these weekly reports possible.

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

The information given herein is supplied with the understanding that no discrimination is intended and no endorsement by University of Maryland Extension is implied.

University of Maryland Extension programs are open to all citizens without regard to race, color, gender, disability, religion, age, sexual orientation, marital or parental status, or national origin.