UNIVERSITY OF MARYLAND EXTENSION

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

Commercial Horticulture **June 28, 2019**

In This Issue...

IPMnet
Integrated Pest Management for Commercial Horticulture

extension.umd.edu/ipm

If you work for a commercial horticultural business in the area, you can report insect, disease, weed or cultural plant problems **(include location and insect stage)** found in the landscape or nursery to sklick@umd.edu

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

No report on July 5th

Due to the Fourth of July Holiday, there will not be a report next Friday, July 5th.

Snakes and IPM

By: Stanton Gill

At this time of year, I start getting stories of snakes active in landscapes. Many species of snakes are mating in June and are moving around landscapes Many landscape managers tell me that their customers are not impressed with snakes hanging around their yards. Some pay PCOs to come out and sprinkle around snake away products that contain cinnamon and clove and other odiferous materials. Snake are sensitive to strong odors and this material is supposed to repel snakes. I spoke with a herpetologist and he told me it is rather doubtful that these products would work outdoors.

I was at a landscape site last week with a landscape manager to look at boxwood problems. The customer was following us around their landscape. I brushed the top of a boxwood and a garter snake (*Thamnophis*) that was sunning itself at the top of boxwood dropped to the ground. The customer ran, yelling most of the way, back to their house where they slammed the door shut. Garter snakes are general feeders and prey on many rodents including mice, voles, moles, and rats. Maybe I should have taken this garter snake back to my barn.

Bernie Mihm, Fine Earth Landscape, sent in this email on Monday:

We were working on a garden in Potomac when some of the people spotted a couple of snakes under a flagstone. The people tend to get very excited every time they see a little snake. I was thinking it was just another harmless garter snake until we looked under the stone. Here is one of the 30-inch long copperheads we found. The other one slithered away into a ground cover bed.

Look for copperheads and other snakes to be active in landscapes
Photo: John Triana, Regional Water Authority, Bugwood.org

I called Ray Bosmans, who is a member of the Maryland Herpetology Society on this issue. He said many snakes, such as the northern brown snake, is often misidentified as a copperhead. If you find a snake, use your camera phone (hold it very steady - stop shaking!) and shoot a clear picture of the head and send it to me and I will pass it along to Ray for identification. Ray did say that copperheads are on the increase in Maryland this year.

Keep in mind that snakes are part of an IPM approach to managing pests in the nursery and landscape. Not everyone appreciates them, but they have a real benefit.

Record Rains

By: Stanton Gill

In 2018, we had record rainfall with over 86 - 88" of rain falling in Maryland. Now, it high rainfall is occurring in the Mid-west. It was just reported that the Mid-west is having the rainiest spring and early summer on record which is not good for the corn and soybean crops.

Stopping the Sale of Neem Products in Oregon

Kentucky Pest News reported that on June 20 the Oregon State Dept of Agriculture stopped the sale of 6 products containing neem due to pesticide contamination. The products are made by Safer, Certis, Bonide and others. Here's the link to the announcements on the ODA website:

https://www.oregon.gov/ODA/programs/Pesticides/Pages/PesticidesCurrentIssues.aspx

Hercules Beetle

Mike Jackson, found a male hercules beetle in Millersville on June 27. Adults of this large scarab beetle feed on fermenting sap and fruits; they fly to lights at night. Larvae feed in rotting logs.

Color on this male hercules beetle varies due to moisture level - the black spots indicate moist areas
Photo: Mike Jackson

Red Thread in Turf

Mark Schlossberg, ProLawn Plus, Inc., reported on June 25 that red thread is still very active in turf in Owings Mills. Red thread is often a problem during periods when it is cool and wet and in low fertility turf situations.

Red thread continues to be active in turf
Photo: Mark Schlossberg, ProLawn Plus, Inc.

Yellow Bear Caterpillar

Marie Rojas, IPM Scout, found a yellow bear caterpillar feeding on *Cornus sericea*. This caterpillar has a wide host range, but usually does not warrant control.

This yellow bear caterpillar is one of the many caterpillars that are found throughout the summer
Photo: Marie Rojas, IPM Scout

IPM and Rodents

By: Stanton Gill

Here is an interesting twist. I tried to start one of my tractors last weekend, and it would not kick over. I had it shipped to the local equipment repair shop. The mechanic called me to let me know that rodents in my metal barn had chewed through the wires that controls the fuel pump thus taking the tractor out of commission. Three hundred and two dollars of damage. How does this situation fit into IPM? Well, I have never been a big cat fan and used to chase away feral cats who tried to hang out at my barn. Since cats are great mousers (at least some are), I will be now seeking out a good feral cat to hang out around the barn. Meanwhile, check your equipment for mice chewing on wires – it can be expensive.

Aphids

Aphids continue to be active this season. Marie Rojas, IPM Scout, is finding a lot of them feeding on the leaves of *Malus domestica* and *Ulmus americana* cultivars in a nursery in Frederick County. Marie noted that "the cool thing was that there were both syrphid fly and lady beetle larvae feeding on the aphids". Marc Vedder found crape myrtle aphids on plants in Georgetown, Washington DC. A lacewing larva was feeding on the aphids. Monitor crape myrtles closely because populations of this aphid can increase very quickly.

Check plants for lacewing larvae (shown) and other beneficials
Photo: Mark Vedder

Syrphid fly larvae (left) and lady bird beetle larvae (right) are preying on aphids to help lower populations
Photos: Marie Rojas, IPM Scout

Slug Sawfly on Black Gum

Heather Zindash, IPM Scout, found slug sawfly larvae on *Nyssa sylvatica* 'Wildfire' (black gum) in Baltimore County on June 21. Heather noted that all trees in the row had a large amount of windowpane feeding damage and larvae on the underside of the leaves. We had a report of slug sawfly larvae on black gum in 2013, but were not able to identify the species. Spinosad products can be used for control if necessary.

Slug sawflies are causing significant damage to *Nyssa sylvatica* 'Wildfire' this month
Photo: Heather Zindash, IPM Scout

Chrysanthemum White Rust

By: Karen Rane

This week in the UMD Plant Diagnostic Lab, we received a sample of chrysanthemum from a home gardener that was infected with white rust. Chrysanthemum white rust, caused by the fungus *Puccinia horiana*, is a quarantine significant pest in the US. While the disease is occasionally found in nursery and landscape chrysanthemums, infected plants must be eradicated when found and the disease is not currently considered established in the US.

Figure 1. Upper (left) and lower (right) surfaces of chrysanthemum leaves infected with white rust
Photo: Florida Division of Plant Industry, Florida Department of Agriculture and Consumer Services, Bugwood.org

Infected leaves develop small yellow spots (less than 5 millimeters in diameter) on the upper surface (Figure 1). On the underside of the leaves, the spore structures of the fungus appear as raised waxy or warty pustules that are whitish, buff or pinkish in color (Figure 2). The infected plants in this most recent case had been in the garden for 3 years – some research suggests the fungus can overwinter in infected plants. Susceptible plants include pot mums, spray mums and garden chrysanthemums (*Dendranthema* x *grandiflorum*). If you see symptoms and signs of white rust, contact your state department of agriculture, county extension office, or university plant clinic. For additional information on this disease, refer to the USDA-APHIS webpage on Chrysanthemum White Rust.

Figure 2. Closeup of *Puccinia horiana* pustules on underside of leaf
Photo: Karen Snover-Clift, Cornell University, Bugwood.org

Bagworms

Continue to monitor for bagworms. Better control is achieved while the larvae are still small with materials such as Bt and spinosad products which are softer on beneficials. Marie Rojas, IPM Scout, found some on Hinoki cypress on June 26.

This Hinoki cypress is infested with bagworms
Photo: Marie Rojas, IPM Scout

Hemlock Woolly Adelgids

Marie Rojas, IPM Scout, found hemlock woolly adelgid adults and old wax that covered the egg masses on hemlocks on June 26. Crawlers were active in April and May. There will be a second generation of crawlers in September. Systemic insecticdes applied as soil drenches can be used for control.

Hemlock woolly adelgid continues to be a problem on the remaining hemlocks in the area
Photo: Marie Rojas, IPM Scout

San Jose Scale

By: Stanton Gill

I examined a San Jose scale population in Littletown, PA on June 24, and they were just finishing the crawler period. There were many settled 1st and 2nd instars present. This scale is found on peach, cherry, apples, crabapples, and pyracantha. You can find the scale on the twigs, trunk, leaves (at this time of year) and on any fruit that has formed on fruit bearing plants. We saw the first crawler activity on this scale on June 9. We should see the second generation crawler period sometime in mid-July. As this point, Talus or Distance works well on this stage of the scale's development.

San Jose scale on a plum

Euonymus Scale

Elaine Menegon, Good's Tree and Lawn Care, found a heavy infestation of euonymus scale on July 24 on a new clients property in Lancaster, PA. First generation crawler activity is finishing up. Look for second generation crawlers in late July into August. A mixture of 1% horticultural oil and pyriproxyfen (Distance) or buprofezin (Talus) can be used when crawlers are active.

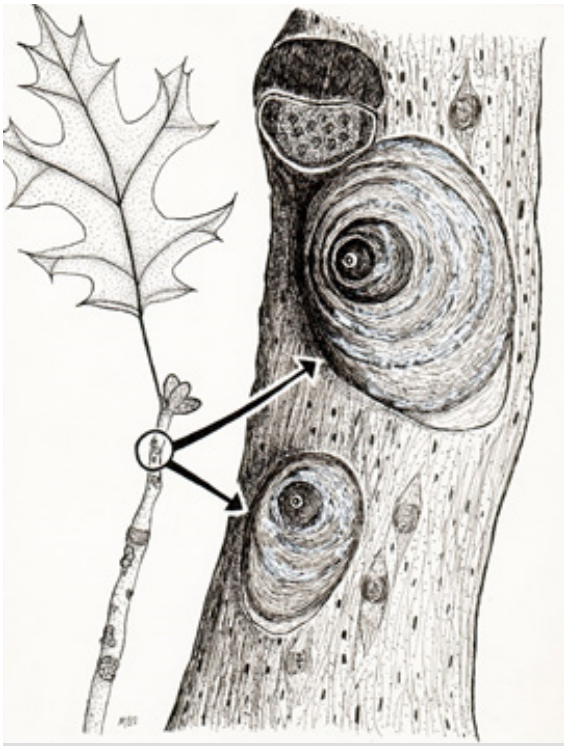
Adult males are white and females are dark brown and oyster shell-shaped
Photo: Elaine Menegon, Good's Tree and Lawn Care

Obscure Scale, *Melanaspis obscura*

By Nancy Harding and Paula Shrewsbury

Monitoring obscure scale on *Quercus palustris* (pin oak) on Monday, June 24 in College Park found the start of egg hatch (Crawlers just started to become active). The accumulated growing degree days in College Park on 6/24 was 1384DD. This native armored scale is a key pest of oaks (*Quercus* spp.) especially pin and willow oaks in urban environments. Other preferred host plants include chestnuts and hickory. It is not a pest of forest trees.

There is only one generation a year with crawlers usually active in late June and July. Female scale covers are circular, gray, slightly convex with a central shed skin that are black when rubbed; male covers are smaller and broadly oval (see drawing). Obscure scale males and females over winter as second instars. They mature and mate in May. Females lay eggs from June into July. Newly hatched crawlers tend to settle under the female covers producing crusted overlapping aggregations of scale covers on severely infested limbs. This behavior and the long period of egg laying/hatching activity increases the difficulty of control.



Obscure Scale: (Large Female and Small Male Covers)
UMD Entomology Dept – Drawing by John Davidson

Monitoring: Check the degree day accumulations in your area, if they are close or above 1247DD, you should look for active crawlers (best to flip over waxy covers of scales to see underneath). The optimal time to control is when crawlers are present and the majority of the eggs have hatched, and if the populations are high. Be sure to continue to monitor for crawler activity after treatment application, since obscure scale has a long crawler activity period a second treatment MAY be needed.

Obscure scale on pin oak
Photo: John Davidson, UMD

Control: Be sure to select insecticides that have reduced risk to beneficials such as those listed here but this is not an exclusive list. Target crawlers with an application of 0.5 - 1% horticultural oil and pyriproxyfen (Distance) or buprofezin (Talus).

Biological control: Obscure scale is known to be attacked by at least 8 species of parasitic wasps, over 15 species of predatory mites, lady beetles, and the pink-scale fungus.

Viburnum Leaf Beetle

By: Stanton Gill

Back in June of 2017, we had reports of activity and damage from the viburnum leaf beetle in Washington County. Steve Sullivan, then of Brightview Company, called in June of 2017 to report viburnum leaf beetle damage on arrowwood viburnum in Columbia. We really have not had any reports of activity of this leaf beetle since these 2017 sightings. If you see activity in your area please contact me at Sgill@umd.edu.

Paul Weston, formerly of Cornell University, did a lot of work on this pest in New York State. He developed an excellent of list of most susceptible viburnums and which ones are more resistant. The native arrowwood is very susceptible to this insect. My favorite viburnums include leatherleaf and doublefile viburnum, which are resistant. Nursery owners need to plant the resistant varieties as this insect spreads in Maryland.

The good news is that viburnum leaf beetles only infest viburnums. They bad news is that viburnums are very popular in the nursery and landscape business. Adult females begin laying eggs in late June (coming very soon) to mid-July and continue laying eggs as late as October, until the first killing frost. They prepare egg laying sites by chewing small holes (about 1 mm in diameter, or about the size of a pinhead) into a small branch or twig. The sites are usually (though not always) on the current season's growth. They complete just one lifecycle each year. Adult females lay up to 500 eggs on viburnum twigs. The eggs overwinter and hatch in spring. Larvae feed on foliage until early summer, then crawl down the shrub and pupate in the soil. Adults emerge from the soil in midsummer, feed again on viburnum foliage, and mate. From egg hatch to adult takes just 8 to 10 weeks.

Dusky Birch Sawfly

By: Stanton Gill

Kevin Nickle, Scientific Plant Service, and Heather Zindash, IPM Scout, both sent in pictures of dusky sawfly feeding on birch foliage. The sawfly is active in late June. Even though the caterpillars feed as a group and do a fair amount of defoliation, birch is a continual flusher of new growth. Usually the tree can flush out new growth that masks the earlier damage. If you choose not to treat, you really will be no worse for the wear.

Dusky birch sawfly, like other sawfly larvae, form an s-shape when disturbed
Photo: Kevin Nickle, Scientific Plant Service

A predatory stink bug is feeding on a dusky birch sawfly larva
Photo: Heather Zindash, IPM Scout

Peachtree Borer

By: Stanton Gill

Baited pheromone traps in Westminster continue to pull in large numbers of peachtree borer males. This week, you might consider applying a protective spray to susceptible trees. Onyx (bifenthrin) can be applied to the trunk and provides 3-4 weeks of protection. Acelepyrn has on the label that it provides control of clearwing moth borers. I have not done a trial of it, but if is is on the label, you could try this systemic insecticide out.

Beneficial of the Week

By: Paula Shrewsbury

A predator in camouflage – debris-carrying lacewings.

Earlier this week, I was at Oregon Ridge Nature Center (Baltimore Co.) observing numerous insects doing their diverse activities (a good day in the life of an entomologist!). I was fortunate to notice what looked like a small (~3/8") piece of white cotton on the leaf of a plant. A closer look confirmed my identification that this was the larva of a debris-carrying lacewing (order Neuroptera: family Chrysopidae). Debris-carrying lacewings are a species of green lacewing. Green lacewing adults are crepuscular or nocturnal and are attracted to lights at night. Adults feed on pollen, nectar, and honeydew, in addition to insects. As the name indicates adults are usually green (~ ½" long) with lacy, net-like wings. Although larvae of many species of green lacewings are "naked", others carry debris. Lacewing larvae are alligator-like in shape and have a pair of hollow, sickle-shaped mandibles used to pierce prey. The life cycle includes the egg (usually laid singly on stalks), 3 larval instars, and a pupal and adult stage.

A debris-carrying lacewing larva can be first noticed when a piece of "lichen" or bits of plant, or insect "debris", about the size of a raisin, begins to move on the plant (see video). Upon closer inspection you see legs and

a pair of sickle-shaped mandibles sticking out from under the debris (see image) indicating this is a lacewing larva. Debris-carrying lacewings are voracious consumers of a variety of soft bodied insects such as scales, aphids, adelgids or mites, and in this case a wax producing insect – likely flatid planthoppers. Lacewing larvae will approach a prey item, quickly stab the insect with their pointy curved mandibles, and inject a salivary enzyme that quickly starts to "digest" the prey turning it into insect soup, which is then sucked up through the lacewing's mandibles.

The underside of a piece of "cotton ball" on a leaf of Monarda showing the body, legs, and mandibles of a debris-carrying lacewing.
Photo: PM Shrewsbury, UMD

The interesting behavior of piling debris, such as pieces of lichen or plant combined with pieces of wax or carcasses of their prey, on their backs likely camouflages the lacewing predator helping it to hide from its own enemies (ex. birds, other predatory insects). For example, as some of you know ants are often associated with honeydew producing insects such as aphids or soft scales. They have a mutualistic relationship where ants obtain food (honeydew) from the aphids or scales, and the ants protect the aphids or scales from predators. In an interesting study by biologist Thomas Eisner, he removed the debris from lacewing larvae and placed them onto a plant with aphids and ants. The ants ran off or tossed off the "naked" lacewings. When lacewing larvae with debris (aphid shed skins, wax, etc.) were placed on the plant with aphids and ants, the ants did not "recognize" them as threats to their food source and did not attack them. The clever disguise of debris-carrying lacewings allowed them to feast undisturbed on aphids. The camouflage likely helps the lacewing predator to hide both visually and chemically… so so clever!

The underside of a piece of "lichen" on the bark of a maple tree showing the fierce predator (debris-carrying lacewing) in hiding.
Photo: MJ Raupp, UMD

Debris-carrying lacewings are but one of multiple species of predators and parasitoids that feed on pest insects. These beneficial insects need to be conserved so they can increase the level of biological control they impose on pest insects. Provide plants with flowers (pollen and nectar resources; see bulletin), and only apply pesticides when and where they are warranted and be sure to select those that have low impacts on natural enemies (see bulletin).

A pupal case of a lacewing on the underside of a leaf
Photo: MJ Raupp, UMD

Lacewing adults are attracted to porch lights in the evenings. A sure sign they are busy eating other insects nearby.
Photo: MJ Raupp, UMD

Weed of the Week

By: Chuck Schuster, UME

Common groundsel, *Senecia vulgaris* L. is a member of the sunflower family. It has yellow disk flowers that are numerous. It is a winter annual, though it may germinate in all seasons. This weed grows from 4 to 24 inches in height, having deeply lobed leaves that have a toothed margin. Upon close examination of the leaves, they can be found to be smooth or hairy, with when present can be long and wavy. Leaves are arranged along the stem in a spiral pattern and are deeply scalloped or lobed on the margin. Upper leaves attach directly to the stem without stalks, while lower leaves have short stalks. Stems are smooth. Yellow flowers appear at the end of stems in clusters and can be one half inch in diameter. This plant can flower through most of the growing year. The flower has small bracts at the base of the flower, with black tips, which will seem attached to the flower head itself. The seed head (fruit) which appears is very similar in appearance to dandelion, with a white puff ball that is easily distributed by the wind. Seeds can germinate throughout the growing season, but this plant prefers the spring and fall. If seed heads are pulled but left, they may produce viable seed. This weed thrives in moist landscapes and lawns and is a prolific seed producer with seeds that do not require cross-pollination

Common groundsel grows from 4 to 24 inches in height
Photos: Lynn Sosnoskie, University of Georgia, bugwood.org

Common groundsel in bloom
Photos: Steve Dewey, Utah State University, Bugwood.org

Cultural control of common groundsel includes reducing fertilizer placement near the surface of landscape beds, not placing fertilizer on the surface of container grown plants, and growing dense turf. Some biological controls have been researched in California using ragwort flea beetle and cinnabar moth larva with some amount of success. Chemical control of common groundsel is achieved using many pre-emergent products that include Snapshot, Surflan, Rout, and Gallery in the landscape. In container nursery crops, the use of Broadstar and Rout provide control in reducing common groundsel by up to 90%. Timing is very important as this plant can be a fall germinating weed. Post emergent control can be obtained using glyphosate products. Control in turf settings can be achieved using many broadleaf post-emergent products.

Plant of the Week

By: Ginny Rosenkranz, UME

***Gaillardia aristata* 'Spintop Orange' is one cultivar in a new series of compact blanket flowers**
Photo: Ginny Rosenkranz

Gaillardia aristata 'Spintop' is a new series of our native Indian blanket flower that is a compact plant that grows 12-14 inches tall, 12-15 inches wide. It is cold tolerant from USDA zones 4-9. The colors of the Spintop series are 'Spintop Red', 'Spintop Orange Halo' and Spintop 'Yellow Torch'. The leaves are hairy and medium to light green in color, 3-6 inches long and narrow in shape. Plants form a low mound that are topped with upright stems of 3-4 inches. The large daisy-shaped flowers have colorful ray petals surrounding a flat button of fertile flowers with prominent yellow anthers. *G*. 'Spintop Red' has dark red serrated flat petals, *G*. Springtop 'Orange Halo' has dark orange serrated petals with a bright yellow band at the tips that forms a halo, and *G*. Spintop 'Yellow Torch' flowers are orange red-tipped with yellow. Plants begin to flower in June and continue to bloom all summer to frost. They are slightly salt tolerant and grow best in full sun with well drained soils. Once established, *G. aristata* 'Spintop' is very drought tolerant and has been listed as resistant to both rabbits and deer. Dead heading will allow the plants to continue to bloom throughout the summer, but by leaving a few flowers to mature in the fall will invite some of the native birds to feast on the seed. Plants should be divided every 3-5 years to encourage new vigorous growth. The common name of Indian blanket flower could be for the bright colors of the petals that are found in the blankets woven by the Plains Indians, but it could also be for the habit of this beautiful native plant that forms colonies that blanket the south western plains. Occasional pests include aphids and leafhoppers that carry the aster yellows virus, and if planted in heavy clay soils root rot may occur along with powdery mildew.

Pest Predictive Calendar "Predictions"

(Nancy Harding and Paula Shrewsbury, UMD)

In the Maryland area, the accumulated growing degree days (DD) this week range from about 1217 DD (Cumberland) to 1774 DD (Reagan National Airport). 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:

- Pine needle scale (2nd generation) crawlers
- Green June beetle adult emergence
- Obscure scale crawlers
- White prunicola scale (2nd generation) crawlers
- Euonymus scale (2nd generation) crawlers

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 June 26)

Abingdon (C1620)	1393*
Annapolis Naval Academy (KNAK)	1758
Baltimore, MD (KBWI)	1553
College Park (KCGS)	1439
Dulles Airport (KIAD)	1478
Frederick (KFDK)	1484
Ft. Belvoir, VA (KDA)	1576
Gaithersburg (KGAI)	1408
Greater Cumberland Reg (KCBE)	1217
Martinsburg, WV (KMRB)	1334
Natl Arboretum.Reagan Natl (KDCA)	1774
Salisbury/Ocean City (KSBY)	1555
St. Mary's City (Patuxent NRB KNHK)	1687
Westminster (KDMW)	1598

*Last week's was incorrect.

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

LIFE CYCLE INFORMATION NEEDED for the PEST PREDICTIVE CALENDAR - PLEASE HELP!

We need information on the timing of activity of the susceptible life stages for key pest insects (ex. first crawler activity of gloomy scale, obscure scale, and magnolia scale; egg hatch of caterpillars; or first activity of two-spotted spider mite). With this information, we can increase the usefulness of our UME Pest Predictive Calendar **When reporting insects for the IPM report, please be sure to also include the following: Date, Location (city, state), insect stage (if known), and plant host.** If you are unsure of the stage or species identification, please get a sample to us. You can mail it to: Stanton Gill, CMREC, 11975 Homewood Road, Ellicott City, MD, 21042 OR Nancy Harding, 4291 Fieldhouse Drive, 4112 Plant Sciences Building, Dept. of Entomology, University of Maryland, College Park, MD, 20742.

MDA Container Recycling Program

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

CONFERENCES

Maryland Christmas Tree Association Summer Meeting
Saturday, June 22, 2019
Location: Taylor Sines Woodlake Tree Farm, Oakland, MD
For more info contact: Joncie Underwood@410.398.1882

All Day Session on Herbaceous Perennials
July 25, 2019
Location: The Perennial Farm in Glen Arm, MD
Registration info will be posted at the MNLGA calendar site when available

Green Industry Professional Field Day and Trade Show
July 18, 2019, 7:30 a.m. – 2:30 p.m.
Location: American University | 4400 Massachusetts Avenue, NW, Washington, DC 20016
Presented by PGMS DC Branch, NVNLA, VA Cooperative Extension, and in cooperation with the MAC-ISA

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

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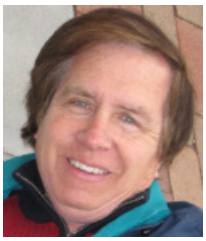

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Photos are by Suzanne Klick or Stanton Gill unless stated otherwise.

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