



**TPM/IPM Weekly Report for Arborists,
Landscape Managers & Nursery Managers
University of Maryland Cooperative Extension
Central Maryland Research and Education Center**

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Go to www.agnr.umd.edu/IPMNET to view past issues of this IPM report and to find about upcoming classes and seminars.

Please call in if you are finding insect, disease, weed or cultural plant problems. Send submissions to Sklick@umd.edu or Call Stanton Gill at 301-596-9413. Thanks! We look forward to hearing from you.

Hemlock Woolly Adelgid

The warm weather this week is stirring up the insect world. We observed female hemlock woolly adelgids creating their white waxy egg sacs. We observed activity in Frederick, Carroll, Washington and Howard Counties this week. The females have not yet started laying eggs but there is a lot of white wax being produced and eggs should follow very shortly.

Control: Applications of a labeled neonicotinoid product (ex. imidacloprid which is Merit in landscapes, Marathon in nurseries) should be made very soon.



Ambrosia Beetles

An IPM scout, Marie Rojas, reported trapping 16 ambrosia beetles in Adamstown and there were two in our trap here at the research center in Ellicott City on March 27.

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Brown Marmorated Stink Bug

We are getting reports of activity from marmorated stink bug this week in Washington County. The adults often overwinter in residential houses and with the sunny weather earlier in the week they are migrating toward windows trying to find a way outside. Look for the white bands on the antennae which are a diagnostic characteristic for this stink bug. This insect is a relatively new exotic species which does a lot of damage to fruit and is reported to damage some ornamental plants. If you see activity in counties other than Washington County send us an e-mail and let us know where you are finding this pesky bug.



Eastern Tent Caterpillars

Ginny Rosenkranz found eastern tent caterpillar (ETC) egg cases and hatching larvae on apple trees in Salisbury on March 25. Brian Clark is also seeing early instar larvae in La Plata this week. Marty Adams, Bartlett Tree Experts, found them on black cherry in Towson on March 30.

Control: Rosaceous trees are the most common hosts of the ETC. Monitor for and prune out any unhatched egg cases. Physically destroy (pull apart) any tents that are being formed in the branch crotches of host trees. This will expose the caterpillars to natural enemies (ex. birds) and harsh environmental factors (cold nights) and reduce their populations.

Japanese maple scale

On visits to nurseries I am finding more and more Japanese maple scale on nursery trees. Take a look at the picture of this scale and check your nursery and in the landscape and see if it is present. It is much easier to spot before the leaves come out and obscure your view. We are finding this scale on Zelkova, American holly, Redbud, *Stewartia pseudocamellia*, *Euonumus alatus*, *Cornus* 'Cherokee Brave', *Prunus* 'Thundercloud', Japanese maple, and American red maple.

Control: Apply 3 % oil to the trunk and branches now. Watch for the announcement in this weekly report for crawler activity. Last year it was in mid June when Hawthorn 'Winter King' was in bloom and when the buds of *Asclepias tuberosa* and *A. syriaca* were showing color. The Insect Growth Regulator Distance can be applied when the crawlers are active. If high populations have resulted in dead branches on trees prune these out before crawler hatch to reduce the number of scales potentially moving onto other branches and trees.



Japanese maple scale on zelkova



Twice stabbed lady bird beetles feedson scale

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Oyster Shell Scale

We received a great sample of an armored scale this month. It was an armored scale called oystershell scale (*Lepidosaphes ulmi*). The armored scale was on sweet gum. This scale is a general feeder (polyphagous) and can be found on maples, beech, crabapples, pears, lilac, birch, ash, ginkgo, and honeylocust, just to name a few. It can be found on 85 different genera of plants. If you are a nursery that ships out of state you are in luck with this species of scale since it is found throughout the United States. Only Arkansas, Alabama, Arizona, Louisiana, New Mexico, South Carolina and Texas have not reported this armored scale in their state.

Biology of the scale: Female oyster shell scale lay eggs August through September under their covers. Females lay between 20 -100 eggs and are the overwintering stage. Eggs should hatch around late April/early May through early June. We will inform you of crawler emergence as it is reported by growers later in the season.



Female oyster shell scale cover



Eggs and eggs dusted with white powder wax produced by perivulvar pores

Control options: At this time of year you can try a 2% horticultural oil application. Since the eggs are under the cover you might not obtain the high control rate you want, especially in a nursery. After the oil application, flip over the female covers in mid April and see if the eggs have discolored. If are not sure send in a sample to our office at CMREC, 11975 Homewood Road, Ellicott City, MD 21042. **Option 2:** When the crawlers emerge apply Distance or Talus. Watch the weekly reports for crawler activity time.

Black Vine Weevil

The larvae of overwintering black vine weevil have started feeding in the last couple of weeks. We had a report of activity in Carroll County with damage on nursery plants. The larvae feed on the roots of herbaceous and woody plants and girdle the base of plants.

Monitor: Look for wilting plants where black vine weevil larvae are feeding on the roots and girdling plants. When adults are active (usually starts in May), you will see notched margins on the foliage from adult feeding.



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Black Vine Weevil Control:

Entomopathogenic nematodes: Entomopathogenic (beneficial) nematodes can be applied as a soil drench to control larval stages of black vine weevil. Nematode species vary in their host-searching behavior and their activity zone in the soil profile. Research confirms that heterorhabditid species are more effective against black vine weevil larvae than steinernematid species. *Heterorhabditis* spp. have an active foraging (cruiser) strategy and move deeper into the soil searching for prey, making them ideal for pests such as black vine weevil larvae and other beetle larvae. *Steinernema* spp. search to a lesser degree and tend to have a nictating (staying stationary and waving back and forth) strategy that's not as effective in locating BVW larvae. Soil temperatures must be between 10 to 30 ° C (50 to 85 ° F) and moist for nematode survival. To time applications of nematodes for optimal control, note new leaf notching in summer, then wait one month before applying *Heterorhabditis bacteriophora* nematodes to give the grubs time to hatch and enter the soil. Also, monitor the soil for larval presence.

Chemical Controls: Acephate (Note that acephate is only labeled for soil application on container-grown arborvitae, azalea, camellia, rhododendron, roses, viburnum, and yew. It is not labeled for field soil application.), Imidacloprid, Bifenthrin, Astro (permethrin), Mavrik (fluvalinate), and Scimitar (lambda-cyhalothrin) are labeled for adult control in nurseries and landscapes.

The University of Maryland Cooperative Extension has published a fact sheet on black weevil that is available on-line at <http://www.agnr.umd.edu/ipmnet/GNFacts.htm>

Boxwood Leafminer

Tony Murdock reported larval activity of leafminer on boxwood in Frederick on March 26. We are also monitoring leafminer activity here at the research center.

Monitor: The foliage is becoming yellow and the leaves are puffing out and appear “blistered” as the leafminer larvae feed within the leaves. Emergence last year was at the start of May in central Maryland when black locust was in bloom.

Control: Soil applications of imidacloprid (Merit in landscapes, Marathon in nurseries). Note that applications of imidacloprid have been shown to result in increased boxwood spider mite activity.



Boxwood Spider Mite

Boxwood spider mite is also being found on boxwood in both Frederick and Ellicott City this week.

Monitor: This mite overwinters as light yellow eggs on the underside of leaves. Eggs hatch in spring / early summer – look for active mites. Check foliage for stippling damage from last year. Active mites are also yellowish in color. There are multiple generations per year.

Control: If mites are at damaging levels apply a horticultural oil spray or a miticide.



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Winter Injury

Marie Rojas reported heavy winter injury on *Ilex* ‘Nellie Stevens’ in Beallsville this week. We are also seeing winter injury on some of the boxwood plants growing here at the research center in Ellicott City.

Plant of the Week

Magnolia soulangiana (Saucer Magnolia) is considered a small tree, growing to a height and width of 20 feet. Often grown as a multi-stem plant, some new varieties are started as a single stem tree. The flowers which open in the very early spring are pure white to pinks of all hues to purple, while the ‘Alexandrina’ and ‘Andre LeRoy’ has dark purple on the outside of the petals and white on the inside. The tree is full of flowers before any leaves unfurl, so the look is spectacular! Unfortunately this magnolia blooms so early in the spring that it can be prone to having all the blossoms freeze and turn into brown mush. The saucer magnolia does get infested with tulip tree scale, but if the tree is planted correctly with plenty of room for roots to grow, the tree will be fine. (Photo by Ginny Rosenkranz)



Beneficial of the Week (by Paula Shrewsbury)

Natural Enemies are Key Players in Pest Management

Natural enemies are predators, parasitoids, and pathogens that attack and kill pests. Common predators include lady beetles and assassin bugs, parasitoids are often tiny wasps or flies, and pathogens that kill insects include specific species of nematodes, bacteria, or fungi. Natural enemies are ubiquitous in our natural and managed ecosystems. There is an abundance of data that demonstrate natural enemies are very important in preventing plant feeding insects (herbivores) from reaching population densities that cause aesthetic and/or economic damage to plants in our landscape and production systems. In managed systems we often implement practices that eliminate or reduce the populations of natural enemies so they no longer can keep herbivore populations from reaching pest outbreak levels. As plant managers the best way to prevent pests from damaging our plants is to avoid practices that are harmful to natural enemies and implement practices that will attract and/or retain natural enemies into our landscapes and production systems. This includes the wise use of pesticides: selecting products that have the least toxic effect on natural enemies, and applying pesticides at a time or by a method that reduces the likelihood of exposure of natural enemies to pesticides. Also maintain managed systems that provide natural enemies with: refuge from unfavorable environmental conditions and hiding places from their natural enemies, and an abundance of food resources (nectar, pollen, and alternative prey). This includes adding flowering plants that provide season long floral resources and adding structural complexity such as

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plants at varying vegetational strata (ex. over and under story trees, shrubs, herbaceous plants, and ground covers).

Because natural enemies are key players in pest management the weekly pest reports will provide information on natural enemies that will allow you to identify these beneficial organisms and become knowledgeable on their life history. You need to take the presence and activity of natural enemies into account when making your pest management decisions.



Lacewing adults, as you see here, are attracted to the outside light of my house and have been active all this past week. These adults will lay eggs on ornamental plants that have insects on them. Lacewings are predators of many soft bodied insects such as aphids and scales. (Photo by Mike Raupp)

Weed of the Week

Lambsquarter, *Chenopodium album* is an erect summer annual. The leaves are 1-2 inches in length, 1 inch wide and are lanceolate in shape, approximately 1 - 2 inches in length and about 1 inch wide. The edges of each leaf are toothed and the tip is pointed. The leaves are found alternately on the stems. The root is a branched taproot. This weed is a common weed found in turf and ornamental beds. Lambsquarter plants produce small black seeds that germinate in late spring to early summer. Each plant can produce up to 72,000 seeds. Prevention of seed production and pre-emergent herbicides are very important in preventing this weed from overtaking a landscape setting.

Lambsquarter found in turf can be controlled with mowing height, not allowing the seed head to form. Turf vigor is important to slow germination in the spring by lessening the sunlight contact with bare soil. Soil pH does not affect growth of lambsquarter. Lambsquarter found in ornamental beds can be controlled with the use of Surflan, Treflan and other translocated glyphosate products. In turf, consider the use of 2,4D and MSMA



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What's in bloom?

Plant	Plant Stage (Bud with color, first bloom, full bloom, first leaf)	Location
<i>Cercis canadensis</i> (Redbud)	Full bloom (March 29)	Salisbury
<i>Chaenomeles speciosa</i> Flowering quince	Full bloom (March 29)	Salisbury
<i>Cornus mas</i> (Cornelian cherry)	Full bloom (March 24)	Columbia
<i>Dirca palustris</i> (Eastern leatherwood)	First bloom (March 30)	Silver Run
<i>Forsythia</i> sp.	Full bloom (March 29)	Columbia, Salisbury
<i>Helleborus</i> 'Phedar Strain'	First bloom (March 30)	Silver Run
<i>Hepatica acutiloba</i>	Full bloom (March 30)	Silver Run
<i>Magnolia x soulangiana</i> (Saucer magnolia)	Full bloom (March 29) First bloom (March 30)	Salisbury Silver Run
<i>Magnolia stellata</i> (Star magnolia)	Full bloom (March 29)	Salisbury
<i>Pyrus calleryana</i> (Callery Pear)	Bud showing white (March 29) Full bloom (March 29)	Ellicott City Salisbury
<i>Spirea prunifolia</i> (Bridalwreath spirea)	First leaf (March 29)	Ellicott City
<i>Stewartia pseudocamellia</i>	Bud with color (March 27)	Adamstown, Beallsville

Degree Day Information (as of March 29):

Baltimore, MD (BWI)	127
Dulles Airport	153
Hagerstown, MD	90
Mechanicsville, MD	137
National Arboretum	145
Reagan National	149
Salisbury	143



Stanton Gill



Chuck Schuster



Paula Shrewsbury

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