Commercial Horticulture
June 26, 2015

In This Issue...
- Japanese beetles
- Impatiens downy mildew
- Emerald ash borer found in four more MD counties
- Barklice
- Elm sawfly
- Boxelder bug
- Ambrosia beetles
- Liriope problems
- Powdery mildew
- Spangled gall on oak
- Brown marmorated stink bugs

Beneficial of the Week
Weed of the Week
Plant of the Week
Phenology
Degree Days
Announcements

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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)
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Japanese Beetle Adult Activity
By: Stanton Gill, UME

Thanks to each of you who sent in pictures and reports of adult Japanese beetles recently. We have received reports of adults on the Eastern Shore, in southern Maryland and several locations in central and western Maryland. Dwight Fletcher found them in large numbers on apple trees and in his vegetable garden in Fairplay (Washington County) on June 20. Connie Bowers, Garden Makeover Company, is finding them on roses. She also reports that they are also covering miscanthus and Japanese painted fern. Kevin Nickle and Mark Schlossberg, ProLawn Plus, Inc., are reporting beetle activity in Cockyesville and Reisterstown. In Virginia, Ron Miller, Super Lawns, reported finding a couple hundred on birch in Fairfax on June 24. We have not had any reports of adult activity in Alleghany County or Garrett County yet. If you are in these areas send me an email at Sgill@umd.edu and let me know if you are seeing activity.

Japanese beetles are now active on a variety of plants in the area
Photo: Kevin Nickle, ProLawn Plus, Inc.,

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
It is important to start your control early. When adults feed, many plants give off volatiles that other Japanese beetles pick up and then gather to feed on the same plant. We received several e-mails asking if neem products worked. Six years ago we conducted trials at CMREC on zinnias and roses to evaluate several low risk materials for adult Japanese beetle control. Certis Company supplied a neem product called Neemix. We also tested Neem oil for adult beetle control. The neem oil was not very effective in controlling adult beetles on the zinnias. We found that we could protect zinnias plants for about 3 – 4 days after a foliar application of the Neemix. We had to continue treating every 4 days through the season to keep the plants clean of damage but it worked fairly well.

**Impatiens Downy Mildew Update**
**By: Karen Rane, UME**

I have received two reports of impatiens downy mildew in the landscape, one from Maryland and one from Delaware. In the Delaware case, the infected garden impatiens plants had not been treated with any fungicides to protect against the disease. I have not seen the disease on my own garden impatiens yet, but these were treated with protectant fungicides by the producer before I purchased them. If you are growing garden impatiens (*Impatiens walleriana*) or garden balsam (*Impatiens balsamina*), watch for the subtle symptoms of initial downy mildew infection – slight chlorosis and curling of infected leaves (Figure 1), with white growth of the downy mildew pathogen on the undersides of the leaves (Figure 2). If any of you were brave enough to plant garden impatiens in the landscape this year, I’m interested in knowing if you see this disease. If you suspect you have impatiens downy mildew on your plants, please drop me a line at rane@umd.edu or call me at 301-405-1611.

**Figure 1.** Leaf curl symptom of impatiens downy mildew  
*Photo: Karen Rane, UME*  

**Figure 2.** White sporulation of *Plasmopara obdusa*, the impatiens downy mildew pathogen, on the undersides of infected leaves.  
*Photo: Karen Rane, UME*  

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**MDA Pesticide Container Recycling Program for 2015**

For more information:

ANAPOLIS, MD – The Maryland Department of Agriculture (MDA) has confirmed the presence of the invasive, highly destructive emerald ash borer (EAB) beetle in four more counties, including two on the Eastern Shore: Baltimore, Harford, Dorchester and Queen Anne’s counties. The discovery is expected to bring the state under a federal EAB quarantine.

“We were hoping the EAB would bypass the Eastern Shore, though, frankly we are not surprised to detect its arrival,” said Agriculture Secretary Joe Bartenfelder. “This invasive pest has been aggressive and unrelenting, and we have worked very hard just to slow it down. We will continue to look for new ways to attack this pest and protect these ash trees that are so ubiquitous across Maryland.”

In 2011, MDA enacted a quarantine prohibiting the movement of hardwood from the 14 counties west of the Chesapeake Bay and Susquehanna River to the Eastern Shore. The quarantine was designed to protect the Eastern Shore counties from getting the EAB for as long as possible. The U.S. Department of Agriculture’s Animal and Plant Health Inspection Service (APHIS) once considered EAB state quarantines to be distinct, individual quarantines; however, in 2012, APHIS issued a Federal Order (or policy change) that treated contiguous EAB quarantine areas as a single quarantine area rather than multiple smaller ones, even if it crossed state borders. This policy change allows companies and people to move ash materials within the quarantined area, including across state lines, as long as the entire trip, from start to finish, remains within a contiguous federal quarantine boundary. If, at any point, such a trip leaves a quarantined area, the shipment needs a permit. With the recent discovery of the EAB on the Eastern Shore, MDA expects the State of Maryland to become a part of the federal quarantine. Once that happens, MDA intends to rescind the state quarantine, which will no longer be needed.

Ash products affected include: all ash wood with the bark and sapwood remaining, ash nursery stock, all hardwood firewood, and hardwood chips larger than 1 inch in 2 dimensions.

The EAB is an invasive wood-boring beetle, native to China and eastern Asia. It probably arrived in North America hidden in common wood packing materials. It was first detected in the United States in 2002 and arrived in Maryland in 2003. Since then, the EAB, which is known to travel by attaching itself to hardwood, has steadily made its way across the state, killing, damaging and defoliating thousands of ash trees. Ash trees are one of the most common landscaping trees used in the United States and are common in western Maryland forests. Ash is also the most common tree in Baltimore, accounting for about 5.9 million of the metro area’s 6.6 million trees.

To combat the destructive beetle, MDA began releasing biocontrol agents – that is, other insects that can attack and kill the EAB in 2009. MDA will be releasing them again this year in at least four areas, though a fifth may be added later in the season. The four sites are in Charles, Anne Arundel (2) and Howard counties. MDA has released more than 210,000 parasitoids in eight counties since 2009, with continued releases in the future.

In addition, MDA encourages homeowners, campers, vacationers, and outdoor enthusiasts not to move firewood and, perhaps, accidentally help spread the EAB. When it comes to firewood, burn it where you buy it.
**Barklice**
Ed Chew found barklice on crape myrtle in Bethesda. Ginny Rosenkranz, UME, received a photo of these insects as well. Barklice are often found on smooth-barked trees and shrubs, like crape myrtle. Barklice do not feed on living plants. They feed on lichens, decaying organic matter, dead insects, molds, fungi and pollen. No control is necessary.

**Elm Sawfly**
Craig Greco, Yardbirds, Inc., found elm sawfly on American elm. This sawfly also feeds on willow and sometimes birch, maple and poplar. It is the largest sawfly larva in US (full grown larvae are 1.5 to 2 inches long). When not feeding, larvae roll up into a tight coil. There is one generation per year. This sawfly overwinters in the pupal stage in leaf litter. Adults can girdle the bark of twigs. Sometimes, larvae can defoliate trees. There are many species of predators and parasites that help keep elm sawfly populations low.

**Boxelder Bugs**
Jeff Schwartz, Ashton Manor Environmental, found boxelder bug nymphs active this week. Boxelder nymphs feed on seed pods of boxelder and other maple species. These bugs usually do not cause visible damage to trees and do not warrant control. They can be a nuisance pest when the adults enter homes in the fall to overwinter.

**Ambrosia Beetles**
Joe Luebke reported that he found ambrosia beetles on *Cladrastis* and *Acer palmatum* this week on the grounds of the National Cathedral in Washington D.C..
Liriope Problems
Steve Sullivan, The Brickman Group, is reporting that he has been seeing problems on liriope lately with all the rain. He reports that they do not use ‘Big Blue’ Liriope anymore because he has observed it to be the most susceptible to Phytophthora.

There are several common diseases of this plant that have been diagnosed on clinic samples in recent years. Red leaf spots and leaf dieback are often symptoms of anthracnose, caused by the fungus Colletotrichum sp.. Variegated cultivars are often more severely affected. Rainy weather or overhead irrigation will splash-disperse spores and increase the severity of the disease. The pathogen overwinters on infected leaves. Cutting and removing old foliage in early spring can help reduce disease severity on new plants. Avoid sprinkler irrigation to keep foliage as dry as possible. If the infection is severe, dieback of entire plants may occur and infected plants should be removed. We have also seen crown rot of liriope caused by a Fusarium sp., particularly in drier locations. The soil-borne pathogen attacks the bases of the leaves as well as the crown, resulting in death of foliage and plant collapse. Remove and discard plants with Fusarium crown rot and avoid re-planting with liriope in the same area.

If you are seeing crown rot problems on liriope in a bed that holds a lot of moisture then the culprit may be Phytophthora root rot. Excessive moisture from over-irrigation or poorly draining soils favor the development of this water mold. Crown rot caused by Phytophthora may have a blackened, slimy look to the rotted leaf bases, but symptoms can be very similar to Fusarium crown rot. Infected plants should be removed, and steps taken to improve drainage or alter irrigation practices. Application of a fungicide such as Subdue Maxx may help protect plants for a short time, but for long-term management, improving drainage in the site or altering irrigation practices to avoid excessive moisture is the most effective way to manage Phytophthora crown rot.

To determine which disease is present, get a sample to Karen Rane at the Plant Diagnostic Lab.

Powdery Mildew
Powdery mildew is showing up on dogwoods at this time of year. Severe infections can cause foliage to turn red. Bright, sunny days and cool nights are ideal for powdery mildew infection since the pathogen needs a film of water for the spores to germinate.
Spangled Gall on Oak
Ron Rubin, Thrive, Inc., found a gall week which looks like spangled gall starting to develop on oak. These galls enlarge in August. This cup-shaped gall is caused by a cynipid wasp. Control is not necessary.

Brown Mamorated Stink Bugs
A few early instar nymphs of brown marmorated stink bug (BMSB) are active this week here at the research center in Ellicott City. The overwintering population in our building over the past three years has been very low. If you are seeing BMSB in your area, let Stanton Gill know at sgill@umd.edu. BMSB causes distortion and discoloration on foliage and fruits. *Hibiscus moscheutos* growing here has been heavily damaged by BMSB in the past. Praying mantids, wheel bugs, birds, and spiders are a few of the common predators of these stink bugs. When identifying immature stages of BMSB, be sure to look closely for the characteristic white banding (sometimes hard to see) on antennae and legs.

Beneficial of the Week
By: Paula Shrewsbury, UMD

So many Japanese beetle adults! Do natural enemies attack them?

Wow! Japanese beetle adults started emerging a few weeks ago and now they are out in force! This is the 3rd year in a row that we have had high densities of Japanese beetle adults. We are seeing lots of defoliation damage on a variety of plants to go along with these high beetle densities. I thought this would be a good time to talk about natural enemies of Japanese beetle adults. First, I would like to point out that in general most pest insects are cyclic in their population densities. When conditions are favorable (ex. abundant food resources, weather) herbivore populations will increase. In general, many natural enemies
Note the white tachinid fly eggs that were glued to the beetle by an adult tachinid female. Eggs will hatch and larvae will bore into the Japanese beetle resulting in its death. Eggs can also be found on many species of caterpillars and true bugs. Photo: J. Davidson, UMD

Note the white tachinid fly eggs that were glued to the beetle by an adult tachinid female. Eggs will hatch and larvae will bore into the Japanese beetle resulting in its death. Eggs can also be found on many species of caterpillars and true bugs. Photo: J. Davidson, UMD

One of the more common natural enemies attacking Japanese beetle adults is a group of parasitoids referred to as tachinid flies. Tachinid flies are true flies (Diptera) in the family Tachinidae. There are over 1,500 known species of tachinid flies and they can vary in size (3-14 mm) and color (black, grey, and orange). In general, most tachinid flies are robust and have stout hairs on their abdomen. At first glance many look similar to the common housefly but they are very different animals. Tachinid flies are one of the most important families of parasitic flies providing biological control of numerous insects that are pests in ornamental, turfgrass, and agricultural systems. Tachinids are parasitoids of many caterpillars, sawfly larvae, beetle adults and larvae, earwigs, grasshoppers, and some true bugs. Most importantly for this conversation we frequently see tachinid flies attacking Japanese beetle adults!

Tachinid flies have interesting and variable egg laying strategies. In some species, eggs are laid on foliage near a host insect, the eggs hatch and the maggots are consumed by the host insect when it feeds on the foliage, then the maggots feed on and develop in the host insect – of course killing the insect. In other species, tachinid females have long ovipositors that they use to pierce the skin of the host insect and insert their eggs. In yet other species, the adult tachinid glues her eggs somewhere on the outside body of the host, eggs hatch, and the maggots penetrate into the host’s body. This is the most common strategy we see for tachinids that attack Japanese beetle adults (see the image). Look for the white eggs attached to the outside of the body of Japanese beetle adults. Regardless of the egg laying strategy, all tachinid flies are internal parasitoids of their hosts as larvae and they exit the host body to pupate. Tachinids can have one to multiple generations a year. Adult tachinid flies also feed on liquid such as nectar from flowers and honeydew from aphids and soft scales. In our studies on using conservation strips of flowering plants to conserve beneficial arthropods, we frequently observe tachinid fly adult activity (see image).

Other natural enemies observed attacking Japanese beetle adults include many generalist predators such as spiders, assassin bugs, predatory stink bugs, and birds. Given all of this it seems natural enemies have a hard time suppressing Japanese beetle adults. This may relate to the fact that Japanese beetles are exotic insects, native to Asia. Therefore, their natural enemy complex is likely more limited in the U.S. than in its native range. Keep working towards conserving natural enemies to help their populations “catch up” to and suppress Japanese beetle densities. Also remember there are natural enemies that attack the white grub stage of the beetles which add to the complex of enemies of the Japanese beetle!
Weed of the Week
By: Chuck Schuster

Prickly lettuce, *Lactuca scariola*, is an annual, often 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 plant with prickly leaves found in nursery and landscape and occasionally turf sites. 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 leaves are deeply lobed or in some cases unlobed, 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. The young plant produces a basal rosette until approaching maturity when the flowering stem develops. 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 become progressively smaller the farther up the stem they emerge. The stem of prickly lettuce can reach sixty inches in height, is hollow, and white to light green in color. One single stem will emerge from the rosette and then will branch into several different stems. It has a deep taproot. The plant produces numerous flower heads. The flowers are pale yellow in color and small with 5 or more petals ranging from one quarter to one half inch in width. Flowers produce a seed that moves easily in the wind.

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.
Rudbeckia hirta ‘Cherry Brandy’ is one of the newest cultivars of black-eyed Susan available for the garden. Landscape contractors and home gardeners alike approve of the 4 or more weeks of bloom time, from mid-summer to frost. The deep green compact plants have sturdy stems that grow 2 feet tall with multiple stems topped with a 3 to 4 inch daisy shaped flower. Each flower is cherry red to maroon in color with a dark chocolate eye and does double duty by attracting butterflies and other pollinators to the garden when in bloom and goldfinches when the flower is in seed. Considered deer and rabbit resistant, Rudbeckia hirta ‘Cherry Brandy’ is salt tolerant from both the ocean breezes and the road salt from winter storms. ‘Cherry Brandy’ grows in almost any fertile soil that is moist, but well drained and in full sun. It will survive in USDA zones 5-8. It is very drought tolerant, but produces many more blooms with weekly watering. A short-lived perennial, Rudbeckia hirta ‘Cherry Brandy’ self-seeds true to type and will continue to provide color for many years. Pests include root rot in wet soils and leaf spots, grasshoppers, whitefly, aphids, thrips, plant bugs, leafhoppers and corn borers.

Rudbeckia hirta ‘Cherry Brandy’ is salt tolerant from both ocean breezes and road salt
Photos: Ginny Rosenkranz, UME

### Phenology

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<th>PLANT STAGE (Bud with color, First bloom, Full bloom, First leaf)</th>
<th>LOCATION</th>
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<td>Hibiscus moscheutos</td>
<td>Bud</td>
<td>June 26 (Ellicott City)</td>
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<tr>
<td>Monarda fistulosa</td>
<td>Bud</td>
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<tr>
<td>Saururus cernuus (lizard’s tail)</td>
<td>First bloom</td>
<td>June 26 (Ellicott City)</td>
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**Degree Days (As of June 25)**

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To check degree day (DD) accumulations in your local area go to: http://www.yourweekendview.com/outlook/agriculture/growing-degree-days/. Note: degree days reported in this newsletter use a base temperature of 50 °F, a start date of January 1st, and the date of monitoring as the end date.

**Want to Learn Something New?**

Last week we met with the MNLGA planning committee to develop a conference on new crops and growing methods for greenhouse and nursery growers. The location will be **Brookside Gardens on August 5, 2015**. While Stanton was speaking at the SAF conference this winter he toured a tissue culture lab in Florida that specialized in new plant species. We asked one of the key people with the company to talk about the new plant material they are introducing into the horticultural trade. We lined up a whole series of innovative topics and the day should be education and a fun event. The brochure will be posted soon.

**MAC-ISA Arborist Certification Course**

August 17-19  
NVCC Loudoun Campus, Sterling VA  
Taught by Joe Murray

Class to prepare for the Arborist exam or get 24 ISA CEUs if already certified.

Topics include all domains of the ISA Arborist Test, such as Tree Biology, Soil Science, Pruning, Plant Health Care, etc. Ability to register 1, 2 or 3 days may be available, contact the office.

For more information or to register visit [www.mac-isa.org](http://www.mac-isa.org)  
Questions call **703-753-0499**.
Upcoming Conferences:

Summer Meeting of the Maryland Christmas Tree Association
June 27, 2015
Location: Pine Valley Christmas Trees, 342 Blake Road, Elkton, MD 21921
Meeting includes a 60th MCTA Anniversary celebration. For more information: GaverTreeFarm@aol.com or http://www.marylandchristmastrees.org/

Alternative Greenhouse Crops Conference
August 5, 2015
Location: Brookside Gardens, Wheaton, MD

LCA Hands-on Training Seminar
September 16, 2015
Location: Johns Hopkins University, Montgomery County Campus

Interiorscape Conference
October 1, 2015
Location: Rawlings Conservatory, Baltimore, MD

4th Annual TreesMatter Symposium
November 4, 2015
Location: Silver Spring Civic Center, Silver Spring, MD

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