Japanese Beetles
By: Stanton Gill

It was interesting that in the beginning of the week I was getting several reports to say that Japanese beetle adult activity was greatly reduced during the first few days of July. I visited a couple of sites with roses and lindens that had not been treated, and sure enough, adult beetles were present, but they were mainly sitting on foliage and not very active. The temperatures were cool for several of the days and wet and cool for two days. The adult beetles appear to be most active when it is hot and muggy. As the weather heated up by the middle of this week, there were reports of high numbers and heavy activity. Paula Shrewsbury, UMD, and Nancy Harding, UMD, reported seeing a significant amount of Japanese beetle adult feeding on linden trees in College Park this week. Expect to continue to see adult feeding on susceptible plants over the next few weeks.
White Prunicola Scale and Lecanium Scale  
By: Stanton Gill

I looked at a commercial planting of skip laurel on Tuesday and the white prunicola scale was just starting in the crawler stage. This population is the second generation for this season. Look for crawlers on plants at your job sites. I also examined pin oak in the Germantown area on Tuesday and crawlers and settled 1st instar lecanium scale stages were present. For both scale insects, Talus or Distance will be best to apply in the next week or two.

Pine Needle Scale, *Chionaspis pinifoliae* (armored scale)  
By: Nancy Harding, UMD

Monitoring pine needle scale on mugo pine (*Pinus mugo*) in Bowie found females with eggs indicating the second generation crawlers will soon follow. There are two generations a year. As of Thursday, July 7 the accumulated Growing Degree Days in Bowie were 1435DD. We will continue to monitor this scale and let you know when the crawlers are active. 

**Host Plants:** Mugo and Scotch pine are preferred, but other pines and spruce are frequently attacked.

Biological Control of Aphids on Hellebores  

We have received many reports of heavy aphid infestations on hellebores this year. Last week, we received a sample of hellebore leaves with an entomopathogenic fungus that was attacking the aphids. The fungus can look unsightly, but it is controlling the aphids.

**The MNLGA and UMD Extension present Herbaceous Perennials Diagnostic Training 2016!**

**Registration is now open!**

**July 20, 2016**  
**Location:** The Perennial Farm, 12017 Glen Arm Road, Glen Arm, MD 21057

The sessions will feature topics ranging from diagnosing plant problems, to water quality, to biological control, and much more! This event also features a tour with The Perennial Farm’s head grower, Kelly Hermann. This workshop is a great opportunity to learn more about herbaceous perennials from Maryland’s experts.

**Speakers include:** Stanton Gill, Karen Rane, Andrew Ristvey, David Clement and Mary Kay Malinoski.
**Predators of Aphids**
Paula Shrewsbury discusses midge predators of aphids in the ‘Beneficial of the Week’ today. Lacewings and lady bird beetles are two other predators feeding on aphids in the landscape.

![This early instar lady bird beetle larva is feeding on an aphid](image1)

![Lacewing larvae are also busy feeding on aphids this week](image2)

![Also check plants for the nonfeeding pupal stage of lady bird beetles](image3)

**Fairy Rings in Turf**
Ginny Rosenkranz, UME, found mushrooms associated with fairy rings coming up in turf. Fairy rings are caused by soil-inhabiting fungi that create rings of dead areas or dark green rings or arcs in turf. These rings are more prevalent in dry soils during dry months in summer and fall. There are three types of fairy rings. Type 1 fairy rings that kill or badly damage the grass make the soil hydrophobic which causes drought stress, thinning, and death of turf. Type 2 fairy rings stimulate the grass and cause formation of rings of dark green turf. The third type does not cause damage, but does produce mushrooms or puffballs in arcs or rings. All of the commonly cultivated turfgrass species are known to be affected by fairy ring fungi. Fairy ring fungi can be suppressed by keeping turf well-watered and by fertilizing it. Fungicides (flutolanil and strobilurins) may help suppress some fairy rings.

![Fairy ring mushrooms can show up in all of the commonly cultivated turfgrass species](image4)

*Photo: Ginny Rosenkranz, UME*
Impatiens downy mildew (caused by the water mold pathogen *Plasmopara obduscens*) appeared on landscape garden impatiens in Montgomery County last week, and may be present elsewhere in the state as well. The first symptom (Fig. 1) is a slight downward curling of infected leaves – the white sporulation of the downy mildew pathogen is visible on the undersides of the curled leaves (Fig. 2). Defoliation quickly follows, leaving bare green stems (Fig. 3). Once symptoms begin, there is no cure for infected plants. Garden impatiens (*Impatiens walleriana*) and perennial garden balsam (*Impatiens balsamina*) are susceptible, while New Guinea impatiens (*Impatiens hawkeri*) and their hybrids are resistant. Dr. Jo Anne Crouch and colleagues at the USDA are collecting infected impatiens for genetic studies – if you are interested in submitting samples to this project go to the Crouch lab website and click on the “Disease Samples Needed” tab.

![Fig. 1 - Leaf curl symptom of Impatiens downy mildew](Photo: Karen Rane, UMD)

![Fig. 2 – White, slightly fuzzy sporulation of downy mildew on the underside of leaf](Photo: Karen Rane, UMD)

![Fig. 3 - Defoliation due to Impatiens downy mildew](Photo: Karen Rane, UMD)

**Green June Beetles**

Paula Shrewsbury, saw green June beetle adult activity in Keedysville this week. They were also reported in Frederick County. If you have trees with wounds, you might find green June beetles feeding on the sap. At this time, adults are hovering over grassy areas looking for mates. Green June beetles are usually not a pest on trees, but sometimes they can be found feeding on ornamental plants such as the Rose of Sharon or on fruit. These beetles are more of a problem in turf.
A Word About Powdery Mildew
By: Karen Rane

We are receiving reports of powdery mildew on a number of landscape plants (such as dogwood, rose, phlox and sycamore). “Old School” wisdom states that powdery mildew infects upper leaf surfaces only, and if you see white fungal growth on the undersides of leaves, it must be downy mildew. This is not necessarily true – powdery mildew can sometimes occur on both upper and lower leaf surfaces, as shown in these photos of infected sycamore leaves, taken by Nancy Harding, UMD faculty research assistant.

Bagworm and Deer
Mark Schlossberg, ProLawn Plus, Inc., sent in this picture of an arborvitae getting hit from both ends - deer feeding on the bottom and bagworm feeding on the top of the plant.

MDA Regulation Effective July 12, 2016
A person may not sell or offer for sale at a retail outlet a Tier 2 invasive plant unless the retail outlet posts in a conspicuous manner in proximity to all Tier 2 plant displays. Required signage and more information can be found on MDA’s AgBrief. A person may not provide landscaping services to plant or supply for planting a Tier 2 invasive plant unless the person provides to its customer a list of Tier 2 invasive plants. The following are designated as Tier 2 Invasive Plants: Euonymus alatus (burning bush), Ligustrum obtusifolium (blunt-leaved or border privet), Wisteria sinensis (Chinese wisteria), Wisteria floribunda (Japanese wisteria), Wisteria x formosa (floribunda x sinensis hybrids).
Soil or Soilless Media: Choosing the Appropriate Analysis
By: Andrew Ristvey

Several times this year, I have been asked to interpret substrate or compost analyses and each time, I have found that the incorrect analysis procedures were performed. Soils and soilless materials need different analysis protocols for correct interpretation. To start, as we may have learned from nutrient management education talks, especially those concerned with soils; application of nutrients like phosphorus depends on the FIV (Fertility Index Value) of the nutrient. If the FIV is over 150, phosphorus is not to be applied (some exceptions exist). All farmers and nurseries working with soil know this and the turf industry is similarly restricted. The FIV is a method to normalize the different analysis results that arise from different nutrient extraction protocols between soil analysis laboratories. These various extraction protocols use different chemicals (buffers) to pull nutrients from the soil particles. The results simulate what nutrients the plant root may have available for uptake. It does not necessarily show all of the nutrient in the soil. For instance, the amount of iron shown in an analysis may not be all the iron in the soil. The analysis result shows what iron has been pulled off the soil particles by the extraction buffer. There may be more iron in the soil that was not removed.

Different soils have different abilities to hold nutrients, some more effectively than others. Clay soils can hold nutrients more tightly than sandy soils. Clay soils from different regions like the mid-Atlantic and the Midwest have different chemistries and soil analysis laboratories in the mid-west have different extraction protocols than here in the Mid-Atlantic. Also, different interpretation needs to be used to understand what is available to the roots and what is not. A soil analysis of phosphorus from one laboratory may be different than another laboratory, hence the need for the FIV. Typically, the iron oxide-based clay soils of Maryland are analyzed with a rather powerful extraction buffer protocol called Mehlich 3. It tends to pull off nutrients like iron, manganese, boron, copper more effectively (maybe too well), so interpretation of the analysis needs to be done with care.

That being said, a similar issue is the case between analyses of soils and organic substrates like potting media and composts. Compost and potting media analysis use an extraction chemical called Pentetic acid or diethylenetriaminepentaacetic acid (DTPA for short). It is what we call a “ligand”, or a molecule that binds to or “chelates” metals; and of course, many plant nutrients, especially micronutrients, are metals.

DTPA has an affinity for metal cations. It is necessary to use since organic substrates have some cation exchange capacity. However, if an extraction buffer for soils is used on potting media or compost, incorrect nutrient values will be shown and usually, those values are much higher, overestimating what is actually available to the root.

That is the case in the following table, where a potting soil and a compost were analyzed using either soil protocols or organic media protocols. Note the differences in nutrient values.

It is very important that when you send your substrate or compost sample in for analysis, you inform the lab that it is an organic material, without soil. The laboratory will treat your sample differently. If you have a mix of soil and more than 50% compost, request an organic media analysis. To be sure, there are horticultural laboratories that are very aware of this. If you are using a laboratory from the mid-west, or a one that does not specialize in horticultural testing, make sure that they using the correct protocols.
Lastly, the soil analysis is your first line of inquiry into your soil’s nutrient status. What really informs you of what is available in your soil is your plant. Leaf analysis tells the true story. Use both analyses in conjunction with each other. Also, you do not have to wait for problems before you chose to analyze your plants for nutrient sufficiency.

For more information and good references for understanding plant nutrient status, feel free to contact me at aristvey@umd.edu.

Table 1 shows analyses of a compost and a potting media analyzed by both Mehlich-3 (Soil) and DTPA (Organic) protocols. With the soil protocol, more metals and other nutrients were pulled from exchange complexes in the media and where made available for ICP MS analysis.

### Beneficial of the Week
By: Paula Shrewsbury, UMD

**Predatory midges: maggots eat aphids more!**

Midges are true flies (order: Diptera) and many are in the family Cecidomyiidae. Some Cecidomyiids are gall making midges and attack plants, while others are predatory and feed on spider mites and aphids. An example of a common plant feeding midge is boxwood leafminer which often is considered a pest. Two common predatory midges are *Aphidoletes aphidimyza* which feeds on aphids, and *Feltiella* spp. which are great predators of spider mites. Adult midges are “mosquito-like” in appearance. They are about 2-3 mm in length and have long legs and long thin antennae. Immatures or midge larvae, a.k.a maggots, are legless and tend to be tapered in appearance. The wider end is the posterior and the pointier end is the anterior where the mouth is located. There are 3 instars (larval stages) which start off very tiny and in the last instar reach only 2-3 mm in length.

*Aphidoletes aphidimyza* larvae feed on over 60 species of aphid and are often referred to as the aphid midge. Aphid midges are frequently used in augmentative biological control programs in greenhouses. In addition, in nature aphid midges occur on a variety of cropping systems and plant types including ornamental plants. The larvae are most commonly noticed on plants in mid-late season that are infested with aphids. There can be several generations of aphid midges per season. As adults they are active at night (nocturnal) and therefore seldom seen. Adults feed on honeydew excreted from phloem feeding insects (ex. aphids). Adults live up to about two weeks and an individual female can lay about 70 orange colored eggs either singly or in clusters on leaves of plants during her life time. Adult females are very good at finding plants that have aphids to lay her eggs, ensuring a food source for her larvae when the hatch (a good Mom!). The orange colored midge larva
attacks the leg joint (knee) of aphids, paralyzes them, and then sucks the insides out of the aphid. The circle of life sounds a little torturous! The remaining aphid body turns dark in color and often stays attached to the leaf. A single larva may eat up to 80 aphids. Aphid midges will drop to the ground where they pupate and emerge as adults in 2-3 weeks depending on temperature. As day length becomes shorter they begin to diapause (an insect’s form of hibernation) and will overwinter as larvae in cocoons in the ground.

Aphid midges, especially the adult stage, are susceptible to a range of pesticides. As a rule of thumb for most aphid infestations I recommend waiting (do nothing) and let the aphid midges, along with aphid parasitoids, lady beetles, and syrphid flies come in and feast on the aphid populations. This suite of natural enemies can usually eliminate an aphid infestation.

**Weed of the Week**
By: Chuck Schuster

Yellow nutsedge (*Cyperus esculentus L.* ) seems to be a topic of conversation in the landscape industry currently. This troublesome perennial weed is widely found in turf, nurseries and landscape beds. Yellow nutsedge becomes more problematic during summers with above average rainfall. The seedling is very inconspicuous and looks very much like the grasses we want to find in our turf. The color is light green with flat slender cotyledons (seed leaves). Yellow nutsedge can produce seed but also reproduces through tubers and bulbs (noted by red arrow). The mature stem is triangular in shape which will help distinguish it from any member of the grass family. **Remember sedges have edges to help you identify it from grasses.**

Control can be obtained by maintaining a dense stand of turf with proper fertilization. If yellow nutsedge becomes established it can be controlled using bentazon found in Basagran, Halosulfuron-methyl found in Sedgehammer, S-Metolachlor found in Pennant Magnum, newer products include sulfentrazone, found in Dismiss and Sulfentrazone with Quinclorac found as Solitaire herbicides. Control generally takes more than one application.

![Photos](Chuck Schuster, UME)
Cercis x ‘Merlot’ redbud is a cross between Cercis canadensis ‘Forest Pansy’ and Cercis Canadensis var. texensis ‘Texas White’, resulting in small leaves that help with heat and drought tolerance. In the spring the trunk, branches and stems are covered with bright pink to lavender pea-shaped flowers that are self-cleaning, reducing the amount of fall seed pods. The flowers brighten up the landscape before the foliage begins to emerge. The thick, shiny dark purple foliage is said to slow transpiration, assisting with the drought and heat tolerance. The leaves will turn green as they mature. Like all native redbuds, ‘Merlot’ grows best with morning sun and light shade in the afternoon. Plants grow 12-15 feet tall with a semi upright growth habit with excellent branching, thriving in USDA zones 6-9. ‘Merlot’ prefers average soils that range from 5.5 to 7.5 in acidity and are moist but well drained. Insect pests of all Cercis include treehoppers, caterpillars, scale insects, and leafhoppers. Disease pests include Verticillium Wilt and leaf spots.

The early purple foliage of Cercis x ‘Merlot’ becomes green as the leaves mature
Photos: Ginny Rosenkranz, UME

Plant Phenology Indicators

<table>
<thead>
<tr>
<th>PLANT</th>
<th>PLANT STAGE (Bud with color, First bloom, Full bloom, First leaf)</th>
<th>LOCATION</th>
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<tbody>
<tr>
<td>Eutrochium fistulosum</td>
<td>Bud</td>
<td>Ellicott City (July 7)</td>
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<tr>
<td>Monarda fistulosa</td>
<td>First bloom</td>
<td>Ellicott City (July 5)</td>
</tr>
<tr>
<td>Saururus cernuus</td>
<td>First bloom</td>
<td>Ellicott City (July 6)</td>
</tr>
<tr>
<td>Veronicastrum virginicum</td>
<td>First bloom</td>
<td>Ellicott City (July 5)</td>
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**Degree Days (As of July 6)**

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<tr>
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</tr>
<tr>
<td>College Park (KCGS)</td>
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<tr>
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<td>Frederick (KFDK)</td>
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<td>Gaithersburg (KGAI)</td>
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</tr>
<tr>
<td>Salisbury/Ocean City (KSBY)</td>
<td>1488</td>
</tr>
<tr>
<td>Westminster (KDMW)</td>
<td>1528</td>
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</tbody>
</table>

**Important Note:** We are now using the [Online Phenology and Degree-Day Models](#) site.

Use the following information to calculate GDD for your site at the [Online Phenology and Degree-Day Models](#) site: Select your location from the map

<table>
<thead>
<tr>
<th>Model Category: All models</th>
<th>Select Degree-day calculator</th>
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<td>Start: Jan 1</td>
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</tr>
</tbody>
</table>

Once you know the GDD and/or plant phenological indicators (PPI, what plants are blooming) in your location, you can go to the [Pest Predictive Calendar](#) to determine what pests you can expect to be active soon in that location.

**2016 Conferences**

**Hands-on Perennials Diagnostic Workshop**
July 20, 2016
Location: The Perennial Farm, 12017 Glen Arm Road, Glen Arm, MD 21057
Contact: 410-823-8684, office@mnlga.org

**FALCAN 2016 Truck & Trailer Safety Seminar**
August 10, 2016, 8:00 to 2:45
Location: Urban Fire Hall, Urbana, MD

**Topics include:**
State and Federal laws as they apply to our various industries.
Pick-up, one-ton, and larger truck requirements, as well as inspection points.
Permits, licenses, covers, tie-downs, and fuel.
Real truck and trailer demonstrations done on site.

All instruction provided by Maryland State Police and Safety Industry Representatives.
Added Feature Topic: Commercial Drone Technology Registration Information - under seminars and forms

**Biological Control for Greenhouses and Nurseries**
August 18, 2016
Location: Brookside Gardens, 1800 Glenallan Avenue, Wheaton, MD 20902
Contact: 410-823-8684, office@mnlga.org

**5th Annual Trees Matter Symposium**
October 19, 2016, 7:30 AM – 4:00 PM
Silver Spring Civic Building
Details are available online

**Maryland Department of Agriculture: Pesticide Container Recycling Program**

MDA has posted its schedule of collection sites for the [2016 Pesticide Container Recycling Program](#). Triple-rinsed (or equivalent) will be collected on the scheduled days and times at the sites. See the brochure for details.
IPMnet Has a New On-line tool: The Pest Predictive Calendar

This Pest Predictive Calendar is intended to assist landscape managers, growers, IPM professionals and others in predicting the appearance of pest insects and mites in order to make more timely management decisions. By using the Plant Phenology Indicators (PPI) and Growing Degree Days (GDD) on this table you can anticipate when the susceptible life stage(s) (stage you want to target for control measures of pest insects and mites are active.

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