Coordinator Weekly IPM Report:
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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)
Fertility Management: Andrew Ristvey (Extension Specialist, Wye Research & Education Center)
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Rain, Rain, Rain
By: Stanton Gill

Several nursery owners have been telling me that we desperately need rain because the ground is so dry that it was cracking in several sites in Maryland. Well, they wanted rain and now they are getting it. We had a strong rainfall on Sunday in several locations. This first week of May continues to be a wet one. Enjoy the rain this week.

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.
Ambrosia Beetle Update
By: Stanton Gill

On Monday, May 2, I checked the alcohol baited Lindgren traps at CMREC. The rain on Friday, Saturday and Sunday really knocked down the adult flight activity of the ambrosia beetles. Our traps had 3 really soaked beetles in it. Ambrosia beetles from a nursery in Carroll County collected last Thursday (April 28th) had a large population of *Xylosandrus germanus* and *X. crassiusculus*. James Becker, who is collecting beetles for us in the Frederick area, sent in samples collected last Friday and there were a couple *Xylosandrus germanus* present and a few *Xyloborinus saxesenii* in the sample. Tony Murdock, Fine Pruning, sent in 3 *Xylosandrus crassiusculus* from his trap, also in Frederick. Since the rain and cooler weather blew in I suspect the activity probably dropped after these sampling dates.

Last week we had a grower report heavy damage from *Xylosandrus crassiusculus* on their figs growing in a high tunnel. I examined figs at my orchard and found similar ambrosia beetle damage at the base of the plants.

Cool weather has kept the adult beetle activity to a minimum this week. On Monday, when it was warm and humid we had two garden center managers report adult females damaging container grown peach, dogwood and redbud trees. Both places treated and the feeding stopped.

All of the nursery growers with whom I talked this week reported good control with their protective sprays of bifenthrin and permethrin on susceptible species. I did receive emails from three different landscape managers reporting damage on yellowwood, redbud and styrax on Friday (April 29) and Monday (May 2). If it warms up next Tuesday, as predicted, we could see additional activity from ambrosia beetles. I will update you early next week on the situation.

A new journal article has just been published on the *Biology, Ecology, and Management of Nonnative Ambrosia Beetles (Coleoptera: Curculionidae: Scolytinae) in Ornamental Plant Nurseries*. The authors are Christopher M. Ranger, Michael E. Reding, Peter B. Schultz, Jason B. Oliver, Steve D. Frank, Karla M. Addesso, Juang Hong Chong, Blair Sampson, Christopher Werle, Stanton Gill, and Charles Krause.

Improving Your Diagnostic Skills

More progressive IPM Practitioners always like to hone their disease and insect detection and diagnostic skills. We are going to help you in this area. Karen Rane, David Clement, Mary Kay Malinoski, Chuck Scharster and I will conducting two on-site diagnostic IPM Skill Building sessions at two locations in Maryland. The first session is on May 12 at Howard Community College in Columbia from 5:00 – dark. We will do a walk around the campus and diagnose insect, disease and weed problems in the landscape. A dinner is provided with this evening session. You can register by going to the [MAA website](https://www.maaonline.org).

The second session will be on May 19 at Hood College in Frederick with the same IPM crew. This session will be an afternoon pest walk from 2:00 – 4:00 p.m. Registration will be posted to the [FALCAN website](https://www.falcan.org). This session is purely diagnostic and no food is provided.
Hawthorn Leafminer and Birch Leafminer
By: Stanton Gill

Two leaf-mining insects are active now in early May; the birch leafminer (*Fenusa pusilla*) and the hawthorn leafminer (*Profenusa canadensis*). These insects do not cause severe plant damage, but they can ruin the aesthetic quality of landscape plants. The adults of both leafminers are flying in central Maryland this week. Hosts of the birch leafminer include gray, European white, and paper birch. Hawthorn leafminer primarily attacks *Crataegus crusgalli*.

The adult insects of both leafminers are in a group called sawflies. The adults are active during the day. They are about (3-mm-long) and basically black in color. Look for them on foliage in the early morning hours before the sunlight warms their wings for flight. Adults are generally present when the new leaves are unfolding.

Female sawflies lay eggs singly in the upper epidermal tissue near the base of a leaf. Eggs are normally laid in the young leaves, almost never in older leaves. The eggs hatch into larvae that feed between the top and bottom leaf layers within the parenchyma cells. The larvae are yellowish orange and grow to 6 to 7 mm long by the final instar stage. They generally feed toward the leaf tip and stay close to the leaf margin, creating brown, irregularly shaped, blotched mines. Heavily infested trees appear scorched, appearing as if hit with a blowtorch. This damage first shows up in June as the temperatures begin to increase. The damage is often mistaken for a foliar disease.

Leafminer management includes planting resistant or tolerant varieties of plants. For example, river birch (*Betula nigra*) and Dahurian birch (*Betula davurica*) are less susceptible to attack by the birch leafminer. Several species of *Crataegus* are tolerant of hawthorn leafminer, but I could not find a list of resistant varieties here in Maryland.

Euonymus Scale
By: Stanton Gill

New growth is pushing out rapidly on euonymus species this week. I examined euonymus scale on *Euonymus fortunei* in the Olney last weekend and crawlers were present.

**Control:** Distance or Talus can be applied now to the foliage and stems to control the crawlers and early instars.
Pine Needle Scale (*Chionaspis pinifoliae*) - armored scale
By: Nancy Harding

Last week we reported the start of the first generation of pine needle scale crawlers on *Pinus mugo* in Bowie. This week, crawlers are still active; therefore, there is still time to treat infested plants. The accumulated degree days is about 326. **Control:** Many lady bird beetles and parasitic wasps feed on this pest; therefore, careful monitoring for predators and parasitoids, as well as using pesticides with little effect on beneficials, can allow biological control to suppress the population. If control is warranted, use a summer rate of horticultural oil or an insect growth regulator (IGR) such as Distance or Talus to target crawlers.

Fletcher Scale: *Parthenolecanium fletcheri*, soft scale
By: Nancy Harding

Fletcher scale was found on *Taxodium distichum* (baldcypress) in College Park this week. Female scales with eggs were found when the scale was flipped over that indicates crawlers will follow soon. We will continue to monitor and report when crawlers are active.

Fletcher scale, sometimes referred to as the arborvitae soft scale, is a native soft scale that prefers arborvitae and yew. It has also been reported to attack a wide variety of coniferous plants such as *Taxus*, junipers, and even baldcypress (*Taxodium* spp.). Occasionally, Fletcher scale is sometimes confused with the European fruit lecanium scale.

This pest overwinters as second instar nymphs. They develop rapidly in the spring. Adult females normally are found on the twigs and stems of the host plant. Females start laying eggs in May. One female may deposit an average of 500-600 eggs. One generation is produced each growing season in Maryland.

Maskell Scale: (*Lepidosaphes pallida*), armored scale
By: Nancy Harding

**CRAWLERS!!** (egg hatch) of the 1st generation of Maskell scale were found on Japanese cryptomeria (*Cryptomeria japonica*) on May 4 in College Park where the accumulated growing degree days were 353DD. There are two generations a year in Maryland. Maskell scales are extremely small and can hardly be seen by the unaided eye. They tend to congregate in the leaf axils. Adult female covers are about 1/16 inch long light brown, narrowly oyster-shell shaped; male covers are similar but smaller; and crawlers are pale-yellow. We will continue to monitor this scale and report when the 2nd generation crawlers are active. **Monitoring:** Look for yellowing and browning of foliage and dieback of branches (see photo). Maskell scale can affect arborvitae, junipers, Leyland cypress, *Chamaecyparis*, *Cryptomeria*, spruce and yew.
Control: If the accumulated degree days in your area are close to 353DD, examine infested plants for active crawlers. If populations are high and warrant control, soil applications of dinotefuran (Safari, Transtect) or buprofezin (Talus) or pyriproxyfen (Distance) applied as a foliar spray will control this scale.

**Maskell scale adults on cryptomeria in College Park are producing crawlers this week**
*Photo by Nancy Harding, UMD*

**Maskell scale insects on cryptomeria cause twig dieback**
*Photo: Sabrina Tirpak, Rutgers PDL*

**Disease Infection Time**
Kari Peter, Fruit Pathologist stationed in Gettysburg, PA, is reporting high spore counts for apple scab and cedar apple rust this week. It has been perfect infection weather with the overcast, rainy weather this week. Protectant sprays should be on now to protect foliage and fruit. Fungicides act as preventative and are not effective once the symptoms show up later in the season.

**Gynmonosporangium Rust Infection**
We have received multiple photos of the gelatinous tendrils expanding from the gymnosporangium rust galls on junipers and cedars. The teliospores will develop on this material. The cool, wet weather is ideal for the development of these rust diseases. See the **April 1, 2016** IPM report for more information.

**Cindy King, Kingstown Farm Home and Garden, is reporting that many homeowners are bringing in samples of rust infection on junipers**

**Todd Armstrong, Davey Tree Experts, sent in this photo of a heavy rust infection in Towson on May 3**

**Ron Rubin, Thrive, Inc., found and photographed the gelatinous mass being produced on the tree trunk**
Beneficial of the Week
By: Paula Shrewsbury

Why are those dead flies stuck to the tips of tree branches?

So far this season has had some pretty wet and cool weather. These wet conditions are favorable to many pathogens which make the risk of plant disease problems more likely. The up side of this weather is that wet conditions are also more favorable for pathogens that attack insects known as entomopathogens. These entomopathogens provide biological control of certain pest insects such as chinch bug, gypsy moth, and seed corn maggot.

Recently, there have been reports and questions regarding dead flies that appear to be stuck to the tips of branches or leaves of trees or shrubs. These flies are adults of the seed corn maggot. The seed corn maggot is a pest of many field and horticultural crops such as soybeans, corn, peas, onions, potatoes and beans. Early in spring adult flies emerge from pupal cases in the soil that have survived the winter months. The flies feed on nectar from spring-blossoming plants and lay eggs in organic-rich soils. The eggs hatch and the translucent white larvae, called maggots, search for food. These maggots usually consume decaying organic matter, but when a cool wet spring delays germination and development of crops, seed corn maggots feed on seeds and the roots of seedlings still in the soil thereby creating significant injury.

While the cool wet spring is favorable for larvae, as temperatures warm risk of infection increases for adult seed corn maggot flies. Although not visible to us, there are infective spores of a fungus called *Entomophthora muscae* on the vegetation of many plants. As the fly lands on vegetation, the tiny fungal spores attach to the surface of its exoskeleton. When just the right temperature and humidity come together, the fungal spores hatch and hyphae penetrate the skin of the fly and establish what will ultimately be a lethal infection. Once inside its host, the fungus manipulates the fly’s behavior in several ways – all which benefit the survival and spread of the fungus. Research conducted on a related species of fly, the house fly, found that infected female flies became highly attractive to males. In the process of male flies “getting...
Both air and soil temperatures are much lower this week with our cloudy and damp conditions. The rainfall has helped narrow the deficit in moisture and has helped activate the pre-emergent herbicides that had been applied during the dry periods of the prior several weeks. Reports of Japanese stiltgrass being found in many areas are also a sign that we are really into spring even if the current temperatures don’t indicate such.

Several requests came in this week for help controlling wild violets. Wild violets (*Viola pratincola*), are starting to show up in both turf and landscape settings this week with the recent rains. The wild violet is a winter perennial found in ornamental beds and turf throughout most of the United States. It will grow 2 to 5 inches in height and reproduces through stolons and rhizomes. Wild violets may also have a taproot or fibrous root system. The flowers of the wild violet can range from white to purple and appear at this time through June.

Cultural control of wild violet includes proper soil fertility. Wild violets thrive in the high nitrogen settings of turf. Remember that clippings can return up to one pound of nitrogen per 1,000 square feet annually. Well established turfgrass does not require as much nitrogen as new young lawns. In turf, frequent mowing seems to help. Strong dense turfgrass is always the best in suppressing weeds. In landscape and other turf settings the use of mechanical removal is difficult.

Burnout can gain control with several applications. Control in turf will require the use of a post-emergent broadleaf herbicide, but may require more than one application. Product mixes that include 2, 4D and Quinclorac with dicamba (Quincept), Turflon Ester Ultra and Triclopyr, have worked well. A newer product on the market in recent years is T Zone SE, which is a combination of triclopyr, sulfentrazone, 2, 4D and Dicamba. Be cautious with these mixes as some can volatilize under some conditions. Control in ornamental beds will require the use of glyphosate products and may require more than one application.
Plant of the Week
By: Ginny Rosenkranz

**Rhododendron ‘Rabatz’** is a large-leafed evergreen rhododendron with 10-11 brilliant cardinal red flowers borne on trusses like a beautiful bouquet. Large-leaved rhododendrons are termed Elepidotes which tend to be large plants without scales on the underside of their leaves. Lepidote describes dwarf or low growing rhododendrons which have tiny scales that cover the underside of some varieties leaves like Rhododendron PJM. Like all rhododendrons, ‘Rabatz’ needs moist, but well drained, organically rich acidic soils. It prefers to grow with morning sun and afternoon shade or filtered shade. The soil pH should be between 5.0-5.5. ‘Rabatz’ will thrive in USDA zones 6-8. It is a compact upright shrub that grows 4x5 feet tall and wide.

The name is German for ‘uproar’ or ‘ruckuses’ which seems to match the fiery red flowers. The breeder of this new cultivar is the German nursery Hachmann. ‘Rabatz’ was awarded Plant of the Year at the Chelsea Flower show in England in 2011. In the landscape it can be used successfully as a foundation plant, a specimen plant, as a mass border, or as a key ingredient to a woodland garden. It is best to prune off the spent flowers to ensure a beautiful bloom the following year. Insect pests include aphids and lace bugs. Botryosphaeria canker, crown rot, dieback, rust, shoot blight and shoestring root rot are diseases that attack rhododendrons.

### 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>
</tr>
</thead>
<tbody>
<tr>
<td>Herperis matronalis</td>
<td>First bloom</td>
<td>Ellicott City (May 3)</td>
</tr>
<tr>
<td>Paulownia tomentosa</td>
<td>Full bloom</td>
<td>Clarksive (April 28)</td>
</tr>
<tr>
<td>Penstemon hirsutus</td>
<td>Bud</td>
<td>Ellicott City (May 5)</td>
</tr>
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**Degree Days (As of May 4)**

<table>
<thead>
<tr>
<th>Location</th>
<th>Degree Days</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baltimore, MD (KBWI)</td>
<td>326</td>
<td>340</td>
</tr>
<tr>
<td>Dulles Airport (KIAD)</td>
<td>353</td>
<td>351</td>
</tr>
<tr>
<td>Fairfax, VA (D4092)</td>
<td>323</td>
<td>422</td>
</tr>
<tr>
<td>Greater Cumberland Reg (KCBE)</td>
<td>233</td>
<td>328</td>
</tr>
<tr>
<td>Martinsburg, WV (C1672)</td>
<td>311</td>
<td>290</td>
</tr>
<tr>
<td>Rockville (C2057)</td>
<td>472</td>
<td>430</td>
</tr>
<tr>
<td>St. Mary’s City (St. Inigoes, MD-KNUI)</td>
<td>366</td>
<td>447</td>
</tr>
<tr>
<td>Westminster (KDMW)</td>
<td>320</td>
<td></td>
</tr>
</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

Model Category: All models
Thresholds in: Fahrenheit
Calculation type: simple average/growing dds

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.
Commercial Horticulture Conferences

Pesticide Recertification Conference (Eastern Shore)
June 3, 2016
Register on-line

US DOT Forum
June 8, 2016: 8:00 a.m. to noon
Location: 6772 Rockawalkin RD, Hebron, MD
Contact Ginny Rosenkranz, Extension Educator, 410-749-6141 to sign up for this free US DOT Forum

Pesticide Recertification Conference
June 10, 2016
Location: Montgomery County Extension Office, Derwood, MD
Brochure is posted online

Maryland Christmas Tree Association Summer Meeting
Saturday June 25, 2016 at Thomas Tree Farm, 3501 Hanover Pike, Manchester, MD
For info: wayne@thomastreefarm.com

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