Commercial Horticulture

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Beneficial of the Week

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)

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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.

For example: When swamp milkweed, Asclepias incarnata, starts blooming, check susceptible plants for egg hatch of fall webworm (1st generation) and egg hatch of pine needle scale (2nd generation). Check the calendar to find out what will be active next.
Gymnosporangium Rusts

We are receiving reports of the telia structures of gymnosporangium rusts on junipers. Jessica Frakes, Thrive, Inc., is finding them on junipers in D.C., Paul Wolfe, Integrated Plant Care, is finding them in Chevy Chase, and Dave Freeman, Oaktree Property Care, is finding rust galls in McLean, VA. We also received a sample of amelanchier from a nursery which had cedar-quince rust cankers on the stem. This rust species produces an orange ooze in cracks in the juniper bark. We have not had reports of spore germination yet this season. Be sure to monitor galls closely after rain moves through the area.

The gymnosporangium rusts require two kinds of plants to complete their life cycle. They overwinter on junipers such as the Eastern red cedar as leaf galls or shoot cankers. In cool, wet periods in the spring these galls produce orange gelatinous tendrils upon which the teliospores are found. The teliospores germinate to produce colorless basidiospores. The basidiospores are carried on air currents to infect the pomaceous hosts (apple, Amelanchier, some pears).

• Cedar-apple rust is caused by the fungus: Gymnosporangium juniperi-virginiana. The fungus alternates between many species and varieties of cedar, (Juniperus species) and many pomaceous plants such as apple, pear and hawthorn. Leaf spots are produced on the pomaceous plants.

• Cedar-hawthorn rust is caused by the fungus: Gymnosporangium globosum. Small galls are seen on the junipers, and leaf spots are seen on the pomaceous plants.

• Cedar-quince rust is caused by the fungus: Gymnosporangium clavipes. Shoot cankers are seen on the juniper and fruit and twigs are infected on the apples and hawthorns. This is considered the most destructive of the gymnosporangium rusts because of the damage to twigs and fruit.

Control: Timing is critical for good control on the pomaceous hosts (apple, hawthorn, etc). The sprays have to be applied when spores are being shed from the junipers, usually starting in mid-March, but happening later this year due to the colder temperatures. No chemical control is usually advised to prevent infection of the junipers. Infection of the junipers is happening all summer and into the fall from spores produced on the apples which would require many sprays all season. The period during which the pomaceous plants are infected is short (from the start of the infection period through May). Spray susceptible crabapples, apples, quince and hawthorn with a labeled fungicide.
**Ambrosia Beetle Update**
By: Stanton Gill

We did had the first emergence of a single *Xylosandrus crassiusculus* this week in central Maryland. Most of the samples are *Xyleborinus alani* and *X. saxesenii*. The weather is predicted to be cool next week so I doubt we will see much flight activity out of *Xylosandrus* early next week.

**Apple Scab Update From Penn State**
Kari Peter, Penn State Extension, has posted an [update on apple scab](#). Kari notes that “It’s been “iffy” this week, but the models are finally pointing to a potential apple scab infection period from late March 31–April 1.” View the update for infection details and management options.

**Carpenter Bees**
Carpenter bees have been active over the last few weeks. On March 29, Brian Scheck, Maxalea, Inc., found a carpenter bee digging a hole in a play house structure in Park Heights. You may see male carpenter bees buzzing around the landscape and dive bombing each other to establish their territory. The carpenter bees are drilling into exposed wood surfaces to establish their nests for the season. Carpenter bees do not eat the wood they tunnel in. They feed on pollen and nectar.

**Control:** Paint exposed surfaces to reduce the drilling activity of carpenter bees. Once they bore into wood an aerosol spray can be applied into their hole after dark then plug the hole with a piece of steel wool.

**Boxwood Leafminer**
Jessica Frakes, Thrive, Inc., Tony Murdock, Fine Pruning, and Marie Rojas, IPM Scout, are finding leafminers within the leaves of boxwood plants in D.C., Frederick County, and Montgomery County. Marie noted that they were already in the pupal stage which is a little early this year.

If you see puckered areas on the undersides of boxwood foliage, check for leafminer larvae and pupae within the leaves.
**Eastern Tent Caterpillars**

Tony Murdock, Fine Pruning, found early instar eastern tent caterpillars in Frederick on March 29 while pruning a peach. They have started to produce small tents. Marie Rojas, IPM Scout, found small caterpillars and tents in the crotches of various *Malus* species in Frederick.

**Control:** Prune out the tents if possible. Spinosad, Bt or Acelpryn will all give good control of these caterpillars.

**Cherry Shot Shole Diseases**

By: David Clement

Every year at this time all of the various cultivars of flowering cherries in the landscape look their best and people are happy and talk about how beautiful spring is. Then the problems start…..A quick glance at an assortment of university publications on cherry problems list about 11-12 diseases, about 9-11 insect and mite pests and then add 3-4 abiotic problems and you have about two dozen common problems that commonly occur on flowering cherries in Maryland. Why do we continue to plant cherries? Re-read the first sentence of this paragraph!

Last year we had many comments and inquiries about flowering cherry trees with severe leaf spots, yellowing leaves and early defoliation. These very common foliar diseases are collectively called “Shot-Hole diseases” because of the “holes” left behind after the infected spots fall out. This is a catch-all symptomatic phrase and the two pathogens that commonly cause these symptoms are bacterial leaf spot caused by the bacterium, *Xanthomonas pruni*, and cherry leaf spot caused by the fungus, *Blumeriella jaapii*.

Foliar symptoms begin as brown or reddish-brown leaf spots. Both diseases are favored by wet weather (you might remember how it rained almost every day through June 2015!), and infected leaves will turn yellow and drop from the trees in mid-summer if infection is severe. These diseases will also continue to infect leaves throughout the growing season if rainy weather persists.

Based on samples we saw in landscapes and what was sent to the UMD Plant Diagnostic Lab last year, the fungal cherry leaf spot was more common in our area, but we also did see a few cases of bacterial leaf spot.

Management of these “Shot-Hole” diseases in the landscape is difficult because unlike commercial fruit orchard managers who routinely have a preventative spray program aimed at protecting the foliage throughout the growing season, landscape managers can’t get around to all of their clients properties on a regular schedule in time to spray preventive fungicide sprays. Fortunately most landscapes have fewer trees than commercial
orchards and so some of the cultural methods of reducing disease inoculum can help. Remove older heavily
damaged or poorly growing trees. Try to adjust tree spacing and use proper pruning to allow better air
circulation to promote faster leaf drying and remove fallen leaves in the fall to reduce overwintering pathogens.

On high value trees or with a history of severe fungal leaf spot the use of fungicides may help. Be aware
however, that these treatments will only provide preventative disease management or slow down the rate of
disease development and will not cure already infected leaves. Therefore early sprays have to start as the new
leaves are expanding and continue while rainy periods persist. A practical approach might be to apply two
sprays, just as leaves are expanding and again when new leaves have reached full size. This approach will
reduce the amount of disease and could give extended control in typical years.

Three fungicides for landscapes include Eagle (mcylobutanil), Protect DF (mancozeb) and Cleary’s 3336
(thiophanate methyl). Be Sure to Check all Label Instructions. Also, note that commercial orchards have
different fungicide labels for edible cherries and these are not interchangeable with landscape usages.

Spruce Spider Mites, *Oligonychus ununguis* (Jacobi)

By: Stanton Gill

I received a phone call on Thursday asking if spruce
spider mite was active. The answer is - yes. The
spruce spider mite is cool season mite that injures the
foliage of spruce, arborvitae, juniper, hemlock, pine,
Douglas-fir, and occasionally other conifers. Dwarf
Alberta spruce, *Picea glauca* ‘Conica’, is one of this
pest’s preferred host plants. This mite overwinters as
brown eggs tucked in and around bud scales and at
the base of needles. These eggs hatch in the spring,
usually before new growth starts. Early instar nymphs
are light colored. Do a tap test on plants to see if mites
are present.

Control: Since they are just hatching, it is a good
time to use a mite growth regulator such as Hexagon
or Tetrasan. 2% horticultural oil will also work.

General Permit for Composting Facilities

From: Tariq Masood, PMP, Project Manager, Resource Management Program, Maryland Department of the
Environment

The Maryland Department of the Environment (the “Department”) has finalized permit conditions for the
General Permit for Composting Facilities (GPCF). With the finalization, the GPCF is now available as a permit
option for existing composting operations wishing to obtain a permit and continue composting operations
in 2017. The GPCF and GPCF Notice of Intent (i.e., GPCF application) are available on the Department’s
Organics Diversion and Composting web page at www.mde.maryland.gov/composting.

As was previously detailed by the Department, the Department recommends that a GPCF Notice of Intent be
submitted to the Department by May 31, 2016, to ensure application processing in time for a GPCF to be issued
by December 31, 2016. Also available as an option, an Individual Composting Facility Permit Application
should be submitted to the Department as soon as possible, to ensure processing by the December 31, 2016
deadline.
Beneficial of the Week
By: Paula Shrewsbury, University of Maryland

The tigers are out hunting already!

Last Monday (March 28th) was a great day to take a walk outside – warm and sunny with a breeze. As usual when I am outside, I was watching for signs of insect activity. As I walked along a trail I saw a small green flash go by me on the ground. To my surprise it was a tiger beetle! Nancy Harding (UMD) spotted a few tiger beetles in College Park on Tuesday. Tiger beetles are appropriately named since they are hunters of their prey and voracious predators. There are about 2000 species of tiger beetles (Coleoptera: Carabidae: Cicindelinae) world-wide and over 100 are found in North America. Species vary in color but most have a metallic hue to them and are ground foraging predators. Various species can be found in diverse habitats such as wooded paths, stream edges, along sea and lake shores, sand dunes, clay banks, and saline flats. The six-spotted green tiger beetle, Cicindela sexguttata, is the species I most commonly see and it has begun its hunting already this season. From this time of year into early July you will frequently see the six-spotted green tiger beetle active during the day in the sunny patches of hiking and biking trails in somewhat wooded areas. Six-spotted green tiger beetle adults are about 10-14 mm long, and have 6 white spots on their metallic green elytra (front wings). This species occurs across the entire eastern half of the U.S. with the exception of the very South and the Florida Panhandle. As you approach a tiger beetle on the trail they will take flight and land about 5 – 10’ away. Unlike assassin bugs which are “sit and wait predators”, tiger beetle adults are “active hunters”. They actively stalk, chase, and capture their prey along the ground. Tiger beetles have quite long legs for running and large eyes and extremely good vision that enable them to search their surroundings for any signs of movement and find potential food or danger. An interesting piece of research by Cole Gilbert at Cornell University, examined the speed at which tiger beetles could move – which is very fast! One species can sprint up to 5 miles per hour (or 120 of its body lengths in 1 second). A person would have to run about 480 miles per hour (comparable speed relative to body size). The funny part of this story is that the beetle runs so fast the environment becomes a blur and the beetle cannot “see” well. To compensate, the beetle may have to stop to locate its prey again and then continue the chase.
Most intimidating are their jaws. They are powerful with very prominent “teeth” or mandibles which they use to grab, crush, and slice their prey – yikes! Both adult and immature tiger beetles are carnivorous. Adult tiger beetles live about 6 weeks. Shortly after emerging as an adult, female beetles are mated by males. The males climb onto the back of the female where he grabs onto her thorax with his mandibles. After mating he remains on the female to prevent other males from mating with her. This behavior is referred to as mate guarding and increases the likelihood that male’s sperm will be used for the female’s progeny. The eggs of tiger beetles are laid in the soil, where once hatched, the larvae build an underground burrow. The larva waits in the burrow for an unsuspecting prey (or dinner) to pass by. When this happens the tiger beetle larva jumps at the prey, grabs the prey with its powerful jaws, pulls it into the burrow and enjoys a feast. The larvae have hooks located on the back of their abdomen that help to anchor them into their burrows. Larvae can take 2-4 years to reach adulthood. These beautiful insects are interesting to watch. Due to their immense speed an insect net is often needed to catch a tiger beetle adult. If you do have the opportunity to hold one in your hands beware – they have been known to draw human blood with their sharp, slicing mandibles.

**Weed of the Week**
By: Chuck Schuster, University of Maryland Extension

Soil temperatures are slowly warming up this year. On Friday morning (4/1/2016) at 7:00 a.m. the temperature at the site checked in Westminster was 52 °F. As it has been shared the last two weeks, temperatures vary greatly across the region so monitor what is happening in your area to help decide when to apply pre-emergent products to get the control desired. If you miss the pre-emergent window consider products that have a pre- and post-emergent label. Crabgrass has been noted in at least two areas in Central Maryland.

In some areas the turf and woodland borders are blooming with lesser celandine. Lesser celandine, *Ranunculus ficaria L.*, also known as fig buttercup and pilewort, is a perennial flowering herbaceous plant that is in bloom in many of the warmer soil locations. I know that this is an updated report, but I have received reports of it being out in full luster this week from the lower shore and from Baltimore County. This spring ephemeral appears early in the season, often near forest fringe areas and creates a dense carpet thus preventing native ephemerals that include bloodroot, wild ginger and others from surviving. The dense growing pattern makes this plant an invasive weed that competes and eliminates native understory plant species. It is also a plant that competes in turf areas if allowed, causing the turf to become very thin. When lesser celandine dies off later in the spring it leaves bare spots for summer germinating weeds to move in.

This plant has a basal rosette of dark green and shiny stalked leaves that are heart to kidney shaped. The flowers bloom above the leaves on a delicate stalk, are yellow in color, and have eight petals (rarely more). The center of the flower is slightly darker in color. Most flowering occurs in this region from March through May. The plant has pale cream colored bulblets that occur along...
the stem axils that will become noticeable with close observation after the flowering period is complete. These bulblets make mechanical removal difficult. Lesser celandine spreads primarily by vegetative means through abundant tubers and bulblets. No other cultural or biological control agents are currently noted for this plant. It is considered invasive in many areas. It may be misidentified as marsh marigold *Caltha palustris*, which does not produce the tubers found on lesser celandine.

Control of lesser celandine is difficult. Cultural methods for control of this plant are limited to mechanical removal only. Manual methods can achieve success with small patches, but will take careful removal of all bulblets and removal from the site to either a landfill or other means of destruction. This will be extremely difficult in larger turf areas.

Chemical control can be achieved using glyphosate (Rodeo is labeled for wetland areas) products early in the season, Mid February to early April, as long as the air temperature is 50 °F and no rain is anticipated within 12 hours. Waiting beyond this period of time may cause damage to many native wildflowers that share some sites. In this area it is recommended to wait until half the plants are in bloom to start control. In turf/lawn settings products containing at least two of these herbicides have been found effective. The herbicides to look for are MCPA, triclopyr, and dicamba that will remove many broadleaf weeds. Use caution with these products near ornamentals. The potential for volatilization does exist. These products should not be considered near delicate landscapes or vegetable gardens. Glyphosate products are non-selective and will destroy desired plant species. Glyphosate will take seven to fourteen days, adequate soil moisture and air temperatures.

**Plant of the Week**

By: Ginny Rosenkranz, University of Maryland Extension

*Cornus sericea*, red twig dogwood, is a native multi-stemmed deciduous shrub grown primarily for its brilliant red stems that blaze against the winter snow or a background of dark green evergreen plants. They are cold hardy in USDA zones 3-7 and are not picky about the soil pH. They do demand moist, rich soils for their best health. In nature they grow along the banks of streams or ponds and in boggy areas where the soil stays moist, so in the landscape they can be utilized in low spots, rain gardens and by streams and ponds. Red twig dogwoods prefer full sun. They flower best in full sun, but will grow in partial shade. They will grow 6-9 feet tall. Red twig dogwoods are a 4 season plant. In the spring, the tiny fragrant yellow white flowers bloom on a flat cluster and attract many pollinators, then the flowers mature into fruit that starts out a waxy white that matures to a small blue ball. In summer the red twig dogwood is covered in dark green leaves that change color to red-orange in autumn. Winter shows off the glowing red stems! The plants can spread by roots to form colonies. If this spread is not desired, prune out the suckers. To maintain the bright red stems, the older, duller stems need to be pruned.
out. This result can be achieved in 2 ways: trim out 25-30% of the older stems each year, leaving only the young bright red stems; or, the entire plant can be pruned to the ground every 2-3 years. They are listed as deer resistant, and with their dense root system, they prevent soil erosion on the banks of streams and ponds. Some cultivars include ‘Carinal’ and ‘Artic Fire’. Leaf spot, leaf and twig blight and cankers are the diseases that can affect *Cornus sericea*, and scale, leafminer and bagworms are listed as occasional insect pests.

**Phenology**

<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><em>Acer platanoides</em> (Norway maple)</td>
<td>First bloom</td>
<td>College Park (March 29)</td>
</tr>
<tr>
<td><em>Lindera benzoin</em></td>
<td>Full bloom</td>
<td>Ellicott City (March 30)</td>
</tr>
<tr>
<td><em>Sassafras albicidum</em></td>
<td>Full bloom</td>
<td>Ellicott City (March 30)</td>
</tr>
<tr>
<td><em>Spirea vanhouttei</em> (bridal wreath spirea)</td>
<td>First bloom</td>
<td>Ellicott City (March 28)</td>
</tr>
<tr>
<td><em>Viola papilionacea</em> (common blue violet)</td>
<td>First bloom</td>
<td>Ellicott City (March 30)</td>
</tr>
</tbody>
</table>

**Degree Days (As of March 30)**

<table>
<thead>
<tr>
<th>Location</th>
<th>Degree Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annapolis Naval Academy (KNAK)</td>
<td>101</td>
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<tr>
<td>College Park (KCGS)</td>
<td>122</td>
</tr>
<tr>
<td>Ellicott City (E247)</td>
<td>112</td>
</tr>
<tr>
<td>Frederick (KFDK)</td>
<td>66</td>
</tr>
<tr>
<td>Laytonsville (C2463)</td>
<td>62</td>
</tr>
<tr>
<td>Natl Arboretum.Reagan Natl (KDCA)</td>
<td>176</td>
</tr>
<tr>
<td>Salisbury/Ocean City (KSBY)</td>
<td>153</td>
</tr>
<tr>
<td>Westminster (KDMW)</td>
<td>102</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:**

Select your location from the map  
Model Category: All models  
Select Degree-day calculator  
Thresholds in: Fahrenheit F  
Lower: 50   Upper: 95  
Calculation type: simple average/growing dds  
Start: Jan 1

View the [Pest Predictive Calendar](#) for help anticipating which pests will be active next during the season.
Commercial Horticulture Conferences

National Firewood Workshop
Thursday, April 21st, 2016
8:30 am—4:30 pm
Continuing Education Credits approved by ISA, SAF, ML
http://extension.umd.edu/events/thu-2016-04-21-0900-national-firewood-workshop

Pesticide Recertification Conference (Eastern Shore)
June 3, 2016

Pesticide Recertification Conference
June 10, 2016
Location: Montgomery County Extension Office, Derwood, MD

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