



TPM/IPM Weekly Report

for Arborists, Landscape Managers & Nursery Managers

April 1, 2011

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Integrated Pest Management for Commercial Horticulture

www.ipmnet.umd.edu

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

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Regular Contributors:

Pest and Beneficial Insect Information: Stanton Gill and Paula Shrewsbury (Extension Specialists) and Brian Clark (Extension Educator, Prince George's County)
 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 (Regional Specialist, Wye Research & Education Center)
 Design, Layout and Editing: Suzanne Klick (Technician, CMREC)

Weather

On this April Fool's Day, nature pulled off a good one by snowing in several areas of the region. Carroll County received several inches with this storm which also generated ten inches in New England. Overall, the weather has continued on the cool side for this time of year.

Apple Scab Pressure

The Kearneysville, WV orchard group is reporting that by Sunday when temperatures move into the 60 °F range, and it becomes wet and warmer next week expect scab disease pressure to build. If you are going to make fungicides applications to susceptible apples and crabapples it would be next week.



Brown Rot on Flowering Cherries, David Clement and Karen Rane

Spring weather often brings with it the chances of diseases in our landscapes and unfortunately the past few springs have brought a serious disease to our flowering cherries, especially the cultivar 'Kwansan'. This new disease is really an old orchard disease of stone fruit called brown rot. In Maryland landscapes this new problem is caused by the fungus, *Monilinia laxa*.



Brown rot on cherry
Photo: David Clement

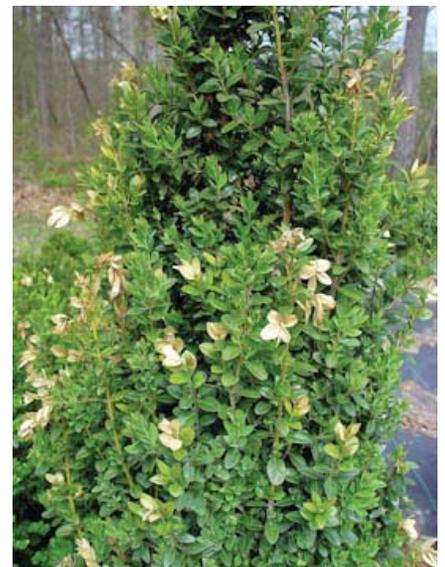
The first symptoms often seen are browning and collapse of the blossoms followed closely by death of the small twigs. The symptoms look like fire blight, but cherries are not susceptible to that disease. If infected blossoms do not drop off, the fungus may grow through the flower stem (pedicel) and into the twig below. Twigs develop elliptical cankers with profuse gumming at the margin between diseased and healthy tissue. Leaves on these infected shoots turn brown and wither, but remain attached. In some instances, twigs are girdled and killed. During wet weather in May and June, the fungus sporulates on the surface of infected twig cankers. Cankers enlarge from season to season, and sporulation may continue on large cankers for 4 years or more. Visible presence of the pathogen is easy under wet conditions and appears as powdery tufts of brown gray spores that are visible on the outside of infected flowers, and on infected fruit or twig surfaces.

Management of this disease in orchards relies on good sanitation and proper timing of protectant fungicides. However, in ornamentals, this disease is a new problem and has not been studied extensively. Pruning of diseased twigs and blossoms would help and fungicides applied at bloom would also need to be applied. The fungicides would be the same as for brown rot management on stone fruit in orchards. Some of the common fungicides that are labeled include some chlorothalonil products, propiconazole, and thiophanate-methyl. Check the product labels for rates and timing.

Winter Damage and Stress Diseases From Last Season, David Clement and Karen Rane

In general most broadleaved evergreens in Maryland will have some evidence of marginal leaf browning this spring caused by winter weather. This damage is caused by frozen soil during periods when the plant is still losing water through its leaves. It is often worse on plants located in windy or in southern exposures. This damage is usually cosmetic and can be pruned out after new growth begins. The usual plants that suffer the most are magnolias, hollies, rhododendrons and azaleas, boxwood, English ivy and mahonia.

Since last year we experienced one of the warmest summers on record combined with dry conditions many of the newly planted landscape plants, especially those located in marginal locations and that received minimal irrigation during establishment will be stressed and will be more susceptible to opportunistic fungi. These stress diseases can be caused numerous fungi, but the most common include *Botryphaeria*, *Cytospora*, *Seridium* and *Kabatina*. Plants to watch will include rhododendrons, blue spruce, leylands, oaks, maples, redbud and junipers.



Cold damage on boxwood

Scales Found in the Landscape

Marie Rojas, IPM Scout, is finding various scale insects on woody plants in Montgomery and Frederick counties this week. The scales are in the overwintering stages. Later in the season, check for the presence of the crawlers before applying 1% horticultural oil and Distance.

Japanese maple scale is one that we have been monitoring closely for several seasons now. It blends in well on tree bark which can make it difficult to spot until the population is high. Marie found many on *Stewartia* and low numbers scattered on maples (*Acer rubrum* and *Acer saccharum* ‘Green Mountain’). Other hosts include Japanese maple, dogwood, zelkova, lilac, yellowwood, pyracantha, privet, holly, euonymus, redbud, stewartia, cherry, magnolia, itea, and styrax. Look for crawlers starting in mid-May. There are overlapping generations so crawlers can be present throughout the summer.



Overwintering Japanese maple scale on zelkova

Minute cypress scale (and spider mites) were found on Leyland cypress. Other plant hosts include arborvitae, chamaecyparis, cryptomeria, junipers, and spruce. One generation of crawlers is present from mid-May to mid-June.



Minute cypress scale

Pine needle scale was found on *Pinus flexilis* and *Pinus cembra*. This scale is similar to juniper scale which has crawlers that are active two weeks earlier. Look for yellowing of foliage and dieback of branches. This scale overwinters as females and eggs. The reddish nymphs are active in May and a second generation is active in July through August.



Pine needle scale

White prunicola scale was present on *Koelreuteria*. It can also be found on magnolia, ligustrum, rhododendron, forsythia, boxwood, and lilac. There are three generations. Crawlers are present in May, mid-July to mid-August and September.



White prunicola scale

Ambrosia Beetle Traps

We received beetles from Marie Rojas, IPM Scout, this Thursday from alcohol-baited Lindgren traps placed out to monitor for ambrosia beetles. Two traps contained ground beetles that were feeding on flies in the trap. Sawfly adults and a midge adult were also found. The third trap contained the ambrosia beetle in the genus, *Xyleborinus*. This ambrosia beetle was also found in a trap in Harford county this week. It is being reported about a month later than usual this year in Maryland. The cold temperatures are delaying insect and plant activity so far this year.

Eastern Tent Caterpillar

We just were not getting any reports of eastern tent caterpillar hatch with the cool weather, but Marie Rojas, IPM Scout, reported the first hatch in Frederick County this week. Paula Shrewsbury is also reporting that they hatched in College Park earlier this week. As of Wednesday, Paula could see trails of 1st instar caterpillars moving from the egg masses on the branch to the branch forks, and noted that there are very small “tents” forming there. Ginny Rosenkranz is also finding small tents in Salisbury.

If you see them hatching in your area call at 410-868-9400 or send an email to sgill@umd.edu.



Eastern tent caterpillars
Photo: Ginny Rosenkranz



Early instar eastern tent caterpillars on crabapple

Spring Fertilization, Andrew Ristvey

Spring time fertility in the landscape has its benefits. As always, obtain a soil test with each planting bed to determine the nutrient needs of the soil to maintain healthy plant growth. Last year, an explanation of nitrogen fertility was given in the late April (2010) edition of this report. Briefly, for newly installed woody plants, a period of time should lapse before initial fertility. If planted in the fall, a spring fertilization would be appropriate. If planted in the spring, wait for at least 6 weeks after planting. The most important factor in plant establishment is water, not fertilizer.

Maryland’s nutrient management program not only includes farms and nurseries, but also the landscape industry. If your company uses fertilizer and manages any state-owned land or 10 or more non-agricultural acres, you are required to have soil tests of each of your sites every three years and to keep those records of nutrient applications for 3 years.

Regardless, you can only benefit from frequent soil tests since many of the planting beds you start to manage probably contain poor soils. Many of you may guarantee your planting installations. It would be wise to know the soil in which you place your guaranteed plants is healthy enough to sustain them. There are many soil amendments to which you have access. The only sure method to determine what you need is to know what you start with. Be proactive and do not wait for problems to occur. Test your planting bed soils!

Your soil should be sampled between 6 and 8 inches in depth. Take many subsamples within the bed, mix them up in a clean bucket and take a sample from that bucket. Contact your soil lab for packaging and sending instructions. If you do not have a lab, please contact me for more information. Feel free to call 410-827-8056 x113.

We have a list of landscape management guides available on-line at <http://extension.umd.edu/publications/>.

Correction to the March 18th Weed of the Week: Several corrections have been made to the **Weed of the Week** information in the March 18th IPM report. The revised report is available at <http://ipmnet.umd.edu/landscape/LndscpAlerts/2011/11Mar18L.pdf>

Canada Thistle Control

We received a question about controlling Canada thistle. Jeff Derr, Virginia Tech, responded with the following:

An effective herbicide for Canada thistle control would be clopyralid. It is sold under different trade names. One formulation that should fit this site (a reforestation site) would be Transline, which can be used in forest and noncrop areas, among



Canada thistle (*Cirsium arvense*) seedling
Photo: Phil Westra, Colorado State University, Bugwood.org



Canada thistle (*Cirsium arvense*) in flower
Photo: L.L. Berry, Bugwood.org

other sites. It is sold under the name Lontrel for turf and ornamental use and under the name Stinger for use in certain crops. It should be applied in the spring to actively growing Canada thistle. Clopyralid is primarily a postemergence herbicide - ensure good coverage of thistle foliage. Do not allow the spray to contact desired plants in the legume, composite or nightshade families. Grasses, most conifers, and certain broadleaf plants are tolerant of this herbicide.

Beneficial of the Week, Paula Shrewsbury

Insect Killing Nematodes as Biological Control Agents for Soil Active Insects

Insect parasitic nematodes (IPNs), also known as entomopathogenic nematodes, may be a good control option for those of you trying to reduce pesticide inputs. IPNs are tiny, clear round worms that are active in most soil systems. Insect parasitic nematodes in the genera *Steinernema* and *Heterorhabditis* kill many key soil insect pests. There are several species of *Steinernema* and *Heterorhabditis* nematodes that attack, and working with their symbiotic bacteria, kill insects. IPNs can be purchased commercially and applied in a fashion similar to pesticides to target active insect infestations.

Steinernema and *Heterorhabditis* nematodes have similar life cycles. It is the non-feeding juvenile stage that searches the soil habitat and locates its host. Once a host is located the nematode enters the insect through its natural body openings such as spiracles, mouth, anus, or areas of the exoskeleton that are thin. Interestingly, each nematode genus is associated with a specific bacterium that it releases into the insect once it enters the body. The bacterium feeds on the insect, grows in population size, and kills the insect. The nematode feeds on the bacterium, not the insect. The nematodes mature and produce hundreds of thousands of juveniles which leave the dead body and search the soil for new hosts. The nematode and bacteria have a mutualistic relationship. The bacterium depends on the nematode to find new hosts. Nematode development depends upon the conditions established in the insect cadaver by the bacterium and the bacterium as food. In addition, the bacterium provides anti-immune proteins to aid the nematode in overcoming host defenses.

Insect parasitic nematodes are versatile in that they can be used against many soil insect pests in a diversity of cropping systems, but remember that certain species of nematodes are relatively specific as to which type of insect it attacks. For example, *Steinernema carpocapsae* is particularly effective against lepidopterous larvae, including various webworms, cutworms, armyworms, girdlers, and wood-borers. *Heterorhabditis bacteriophora* is most useful against root weevils, particularly black vine weevil where it demonstrated excellent results in containerized soil, and white grubs. See the web site listed below for more information on which nematode is most effective against specific insects. One way to determine if an insect is killed by nematodes is to look for a change in color. Insects killed by most steinernematid nematodes become brownish-yellow, whereas insects killed by heterorhabditids become red.

Nematodes are living organisms and require specific conditions to be effective. They are sensitive to desiccation or ultraviolet light. Similarly, nematodes are effective within a narrow temperature range (ex. soil temperatures must be above 50 °F (varies with nematode species), and are affected by impacted soils, suboptimal soil type, thatch depth, and irrigation. For more details on using insect parasitic nematodes as biological control agents and sources to purchase IPNs go to <http://www.oardc.ohio-state.edu/nematodes/>



An armyworm pupae with juvenile stage *Heterorhabditis* nematodes emerging from its body. Photo by Arnold Hara, Univ. of Hawaii (http://www.oardc.ohio-state.edu/nematodes/photo_gallery.htm)

Plant of the Week, Ginny Rosenkranz

Prunus subhirtella ‘Autumnalis’, sometimes called fall blooming or autumn cherry, is one of the most cold, heat, and stress tolerant ornamental cherries available. The semi double to double pink flowers bloom late March to early April and then again in August and September. The buds start out as rose colored, then the 10 or more petals open to a soft pink and fade to almost white before petal fall. The foliage appears after the flowers and is dark green with serrated edges, casting a light shade on the ground. In the fall the leaves turn a soft yellow to bronze color. The flowers turn into small black berries, not visually attractive, but well liked by many native birds. The tree can be a single or a multiple trunk, with very attractive dark brown bark with white horizontal lenticels. The tree is a fairly fast grower that reaches 20-35’ tall and has a rounded spreading crown. Autumn cherry prefers full sun to partial shade and is easily transplanted in very well drained soils with an acidic pH. With its small size, colorful flowers both in the spring and fall, attractive bark and foliage in the summer and fall, autumn cherry is a good choice for small courtyards, a single story home or small town home landscape. Like most trees in the cherry family, it is susceptible to the eastern tent caterpillar, fall webworm and the ambrosia beetle. Diseases include a bacteria leaf spot, twig cankers, and powdery mildew.



Autumn flowering cherry
Photos: Ginny Rosenkranz

PLANT	PLANT STAGE (Bud with color, First bloom, Full bloom, First leaf)	LOCATION
<i>Claytonia virginica</i> (spring beauty)	First bloom (March 22)	Woodstock
<i>Forsythia</i>	First bloom (March 18) Full bloom (March 22)	Columbia Salisbury
<i>Lindera benzoin</i> (spicebush)	First bloom (March 25)	Columbia
<i>Magnolia x soulangeana</i>	Full bloom (March 29)	Salisbury
<i>Magnolia stellata</i>	Full bloom (March 29)	Salsbury
<i>Pyrus</i> (callery pear)	First bloom (March 27)	Davidsonville

Degree Days (As of March 31)

Baltimore, MD (BWI)	63	Dulles Airport	63
Frostburg, MD	7	Martinsburg, WV	44
Mechanicsville, MD	50	National Arboretum	74
Reagan National	76	Salisbury	69

New Poster Series for Lawns, Trees, Shrubs and Perennials for Your Homeowner Clientele

Mary Kay Malinoski and David Clement and have authored 8 sustainable lawn care posters and 15 “Expert Plant Picks” posters that available for download via the Home and Garden Information Center’s website under the Plant Diagnostic section at: <http://plantdiagnostics.umd.edu/content/downloads.cfm>. All of the poster content has been thoroughly vetted by experts from around the Northeast. The lawn posters are available as low res PDF’s and print ready JPG’s which are zip files due to the large file size. The “Expert Plant Picks” are available for download as low and high res PDF files. You will need to fill out our form on use prior to the download page. The purpose of the form is to help us gather use, feedback, and impact data. Feel free to share the link with others who might be interested. They are for educational purposes only and not for resale.

Upcoming Programs

Invasive Species Program

April 12, 2011

Location: Baltimore County Center for Maryland Agriculture, Cockeysville, MD 21030

For a brochure: <http://ipmnet.umd.edu/conferences/index.htm>

Pest Walks:

May 18, 2011

Eastern Shore

Contact: Ginny Rosenkranz, 410-749-6141

June 2, 2011

Carroll County Ag Center/Extension Office, Westminster, MD

Contact: 410-321-8082

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