



**TPM/IPM Weekly Report for Arborists,
Landscape Managers & Nursery Managers
University of Maryland Cooperative Extension**

July 2, 2009

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Weed of the Week: Chuck Schuster (Extension Educator, Montgomery County)

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Please call us if you are a commercial horticultural business finding insect, disease, weed or cultural plant problems in the landscape or nursery. Send submissions to Sklick@umd.edu or call Stanton Gill at 301-596-9413.

MNLA Field Day

July 16, 2009

Location: Foxborough Nursery, Street, Maryland

Call 410-823-8684 or go to <http://mnlaonline.com>
for more information

Rudbeckia Leaf Diseases – by Penny Wolkow, UMD Plant Clinic Extension Assistant
Foliar diseases on Rudbeckia are starting to appear. The two most common of these are Angular Leaf Spot, caused by bacteria (*Pseudomonas* and *Xanthomonas sp.*), and Septoria Leaf Spot, caused by *Septoria rudbeckiae*. Microscopic examination of the lesions is necessary to pin down the pathogen. The bacteria are recognized as they stream from cut lesions; the fungi by their reproductive structures and their spores.

Angular Leaf Spot caused by *Xanthomonas* is most common on the popular 'Goldsturm' cultivar of Rudbeckia. The symptoms, angular brown spots that may eventually coalesce to cover entire leaves, begin on lower leaves and progress upward. The bacteria are initially introduced from contaminated plant debris left from the previous season, and can spread by splashing water to infect more plants.

Thank you to the Maryland Arborist Association, the Landscape Contractors Association of MD, D.C. and VA, the Maryland Nursery and Landscape Association and FALCAN for your financial support in making these weekly reports possible. Photographs by Suzanne Klick, Stanton Gill or Shannon Wadkins unless otherwise noted.

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Management: Start with sanitation. In late fall, after foliage browns, remove all above-ground plant material. For the following season, start with clean seed or healthy transplants. Avoid overhead water; water during morning hours. Thin plants to reduce crowding and to provide good air circulation around plants. Tools can be disinfected with 70% alcohol, or trisodium phosphate (TSP). Angular leaf spot can be unsightly, but it does not generally kill the plant. If spraying is necessary, a copper-containing bactericide such as Bordeaux, Kocide, or Phyton 27 may be used. Follow all label directions.

Septoria Leaf Spot symptoms start as small (1/8 inch) round dark brown spots on lower leaves that may enlarge to twice that size and extend to upper leaves as spores are spread by splashing water from rain or irrigation. Plants are not generally killed, and flowers will continue to appear.

Management: As with Angular Leaf Spot, begin control by removing and destroying infected plant material from the previous season. Starting with clean seed or healthy transplants, prevent crowding and promote good air circulation to keep leaf surfaces dry by properly spacing plants and removing volunteers and weeds. Avoid overhead watering. If needed, protectant and preventive spraying may begin by early June with fungicides containing chlorothalonil (such as Daconil) or copper.

Powdery Mildew: At its height later in the summer, when evenings are cooler but days are still warm and humid, the white fuzzy growth that makes powdery mildew easy to diagnose will coat leaves and deform young shoots. The white powder represents the asexual spores and mycelium of the fungus – either *Erysiphe cichoracearum* or *Sphaerotheca fusa*.

Management: This disease does not usually result in plant death. Properly space and thin plants to keep air circulating. The fungus doesn't need a wet surface to start the infection, but does require a humid atmosphere. Remove and destroy infected plant material. Avoid overfertilization, especially with fertilizers high in nitrogen, as new succulent growth is more susceptible to severe infection. Fungicides may be applied as symptoms appear. Suggestions include potassium bicarbonate, 70% neem oil, or thiophanate-methyl (Banrot).

Downy Mildew

Downy mildew is becoming an increasingly important problem in nurseries. The disease is caused by the fungus *Plasmopara halstedii*. A recent report detailed a severe outbreak of downy mildew on Rudbeckia 'Goldsturm' in Virginia Beach nurseries in June 2005 and 2006, when most of the crop was lost, though other Rudbeckia species and cultivars adjacent to Goldsturm were not affected.

The symptoms begin as light green spots on leaves' upper surfaces. These mature into dark necrotic blotches, with fuzzy gray-white hyphae and spores appearing on the lower surfaces. Leaf and shoot distortions may follow.

In warmer areas, the fungus can overwinter as oospores in dead plant material or soil. If it is not warm enough for inoculum to



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survive in infected plant debris or soil, spores will arrive by wind or through introduction of infected plant material from southern areas. New infections begin as water splashes spores to the surfaces of lower leaves. Additional spores produced in these leaves will travel by wind or water to spread the disease. Favorable temperatures for disease development are cool – 58 to 72 °F – with humidity higher than 85% at the leaf surface.

Management: Growers should scout incoming plant material carefully for signs of downy mildew. Infected plants must be removed and destroyed immediately – do not compost these. Keep nighttime temperatures in greenhouses high, and try to maintain humidity lower than 85% by proper spacing and pruning. Avoid overhead watering; keep leaves as dry as possible in the morning and early afternoon as this is when spore release and dissemination are most active. Fungicides should be used preventively. Downy mildews can develop resistance, so a combination of systemic and protectant fungicides will provide best control and avoid development of resistance. A partial listing of fungicides includes Subdue, Heritage, Phyton 27, Kocide, Dithane, and liquid copper. Professional applicators may be required.

Japanese Beetles

We are receiving many reports of adult Japanese beetle activity on a variety of plants. They have been reported on ornamental plums, knockout roses, hybrid roses, grapes, raspberries, and zinnias so far this season. The populations appear to be low to moderate in most landscapes. If the wet weather continues into July we can expect a high survival rate of the larvae which translates into a larger population of adult beetles in 2010.

Control: Permethrins (Astro), Carbaryl (Sevin), Neem (Azatin, Nemmix, Aza-Direct)



Flatheaded Appletree Borer, *Chrysobothris femorata*

We received an adult flatheaded apple tree borer last week. The adults are dark greenish brown on top (dorsal) and brown on the underside (ventral). The wings have two wavy, indented light bands. Look for the adults in sunny locations. You may find adults in the early morning sitting on the bark of a tree. The adults tend to attack stressed apple, beech, dogwood, elm, linden, oak, willows and apple trees. The last two years of drought has stressed many trees in Maryland making them susceptible to attack from this borer. Young, newly transplanted trees can be attacked and killed by this beetle.



Non-chemical Control: Keep trees healthy and vigorous and this beetle will not be a problem. It is easy to say and hard to do in a lot of situations.

Chemical Control: Apply Onyx or Astro to the main trunk of the tree.

Photo of flatheaded apple tree borer by Joseph Berger, Bugwood.org

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Sawflies Attacking Roses – Big Time This June

David Kinderdine, Velvet Touch Rose Care, reports roseslug sawflies are out in large numbers this year and are causing major defoliation of roses, especially Knockout roses. The roseslugs are the larval stage of wasps called sawflies. They are not slimy and do not have rasping mouthparts like true slugs. Even though they also resemble caterpillars, roseslugs do not have crochets (hooks) on their abdominal legs. The crochets help caterpillars to cling on to foliage or twigs. Two species appear to cause the most damage: The roseslug, *Endelomyia aethiops*, and the curled roseslug, *Allantus cinctus*. The roseslug has a smooth body and is pale green. The curled roseslug larva is light green with white dots on its thorax and abdomen and has a light orange head. The young larva starts out by skeletonizing the leaves and as it matures devours entire leaves except the main veins. When ready to pupate the larva bores into the pith of pruned canes. A full grown larva measures up to 3/4 inch long. In Maryland there appears to be two generations per year. In late May and early June, we also found bristly rose slugs, *Cladius difformis*, feeding on wild and cultivated rose bushes.

Control: Roseslugs look like caterpillars but since they are not, some insecticides such as *Bacillus thuringiensis* will not kill them. Conserve or Orthene can be used to control the larvae.



Roseslug sawfly

Photo by John A. Weidhass, Virginia Polytechnic Institute and State University, Bugwood.org



Curled roseslug sawfly larva

Collembola

Mike Ensor, Anne Arundel County Extension office, brought in collembola which are also called springtails. With the recent wet weather, your customers might see them inside their homes.



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Beneficial Insects of the Week

Lacewing Eggs

Nathan Birx, Bartlett Tree Experts, sent us this photo of 17 lacewing eggs lined up on a sweetbox leaf. Eggs can be clustered or scattered on foliage and are laid on silk strands so when the lacewing hatch, it's harder for them to feed on each other before finding other food sources. Larvae feed on small insects including aphids and scale.



Aphidoletes – A predatory midge

On a population of aphids found on asters this week, we also found predatory midges (*Aphidoletes aphidimyza*) feeding on the aphids. This midge will strike an aphid at the leg joint to paralyze it and then it will suck out the contents of its prey. The shriveled, dark remains of aphid bodies can be found stuck on the stems and leaves. This midge does not consume all of the aphids that it kills. Adult midges are very good at locating aphid colonies for laying their eggs. Adults feed on honeydew.



Goldenglow aphids and predatory midge; dead aphids are also present



***Aphidoletes* midges and dead aphids**

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Lady Bird Beetles – The Pupal Stage

Here at the research center, we are seeing many stages of lady bird beetles feeding on aphids. Below are photos that show three views of the pupal stage. Your customers might find them on their plants at this time of year as well. Both the adults and larvae of ladybird beetles feed on insects such as aphids, scale, caterpillar and beetle eggs, mites and thrips.



This pupa was forming as the photo was being taken. A few hours later, it was still yellow and the spots were evident.



By the next day, the pupa had become its more typical orange color.



The 'papery' look to this pupal case indicates that the adult has emerged.

Weed of the Week, Chuck Schuster

Greenbrier, *Smilax spp*, is a difficult to control woody weed of landscapes and nurseries. It is found throughout the United States and is a native. Greenbrier will have an extensive root system made up of rhizomes and a stem with spines. This is a dioecious plant, meaning that there are male and female plants. The females bear fruit that range in color from a deep black, blue to red when ripe. Birds love this plant and thus help to spread it. It is an important plant in the balance of the ecosystem, but as a climbing vine can create havoc in a landscape or nursery setting. Leaves are heart-shaped, can grow to five inches long, and are leathery to the touch. Tendrils help support the climbing growth habit, which is what makes this plant useful for wildlife habitat. Seeds can remain viable for several years.



Control of greenbrier is best done as early after emergence as possible. Remove mechanically taking all the root system. If the plant develops a dense root system, mechanical methods are less than satisfactory. Post emergent herbicides labeled for greenbrier are Campaign, a mixture of 2, 4D and glyphosate, and Finale (glufosinate). Use caution as 2,4D can be a problem in landscape settings. Do not apply either of these products to greenbrier growing around stems, trunks or branches of desirable landscape plant materials. If necessary cut the vine of greenbrier as close to the ground as possible, and immediately apply concentrated solution of glyphosate to the cut stem. Use a 41% concentration if possible.

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Plant of the Week, Ginny Rosenkranz

The Eastern or Canadian hemlock (*Tsuga Canadensis*) is a graceful, pyramidal evergreen tree that can reach heights of 40-70 feet tall and spread 25-35 feet wide and grows comfortably in zone 3 to 6. It is listed as capable of growing in zone 7-8, but the heat during the summers can be devastating to the overall health of the plants. Canadian hemlocks are medium growers, putting on a flush of new growth in the spring and again later in the summer.



The evergreen leaves start out as a light yellow green and mature to dark green on top and striped on the bottom. The small cones start out green for the first year and the second year turn brown and hang like tiny ornaments from the branches. Hemlocks prefer moist, well drained acidic soils and can grow in sandy soils as well. Adding a light layer of mulch will control weeds and cool the soil and roots for better growth. Tolerating both sun and shade, they will need to be planted in rich organic soil and wind protection if located in the full sun. They are not salt tolerant and do very poorly when grown beside roads. Canadian hemlocks are fine textured and can be planted as a specimen tree, as a natural hedge or screen, or they can be pruned to create a formal hedge. Many nurseries shear Canadian hemlock for a more solid look and those will need to be staked for the first year's growth in the landscape. There are a number of cultivars available including dwarf types like 'Beehive', 'Bennet' and 'Jeddeloh', 'Cole's Prostrate' (a groundcover variety), and 'Pendula' (a weeping variety). The woolly adelgid is considered the most destructive insect pest of hemlock, with scale, spider mites, bagworms, gypsy moth and hemlock sawfly coming in second. Diseases include cankers, rust, and sapwood rot. **Photo by Ginny Rosenkranz**

What's in Bloom

Plant	Plant Stage (Bud with color, first bloom, full bloom, first leaf)	Location
<i>Monarda didyma</i> 'Jacob Kline'	Full Bloom (June 30) First Bloom (June 28)	Silver Run Columbia
<i>Monarda didyma</i> 'Gardenview Scarlet'	Full Bloom (June 30)	Silver Run
<i>Monarda fistulosa</i>	First Bloom (June 28)	Columbia
<i>Stokesia</i> 'Purple Parasols'	First Bloom (June 30)	Silver Run
<i>Rhododendron prunifolium</i>	First Bloom (June 30)	Silver Run
<i>Rhododendron</i> 'Lemon Drop'	First Bloom (June 30)	Silver Run
<i>Astilbe myriantha</i>	First Bloom (June 30)	Silver Run
<i>Elliottia racemosa</i>	First Bloom (June 30)	Silver Run
<i>Astilbe</i> 'Granaat'	Full Bloom (June 30)	Silver Run
<i>Aesculus parviflora</i>	Full Bloom (June 30)	Silver Run
<i>Saururus cernuus</i>	First Bloom (July 1)	Ellicott City

*This list may include weeds and other invasive plants.

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Degree Day Information (as of July 1):

Baltimore, MD (BWI)	1333
Dulles Airport	1441
Frostburg, MD	789
Martinsburg, WV	1294
Mechanicsville, MD	1327
National Arboretum	1827
Reagan National	1508
Salisbury	1456

Upcoming Programs

Maryland Arborist Association and University of Maryland Pest Walk

July 7, 2009

Location: Salisbury Zoo, Salisbury, MD

Meet at the Educational Center for lunch and a meeting. The pest walk will start around 1:00 p.m.

Cost: \$20 per person

Contact Ginny Rosenkranz at 410-749-6141 or rosnkrnz@umd.edu to register and for more information.

Cut Flower Farm Tour, July 27, 2009

Location: Farmhouse Flowers and Plants (Brookeville) and Plantmasters (Laytonsville)

Contact: Suzanne Klick, 301-596-9413



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Chuck Schuster



Paula Shrewsbury



Ginny Rosenkranz



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