

# PLANT & PEST ADVISORY

LANDSCAPE, NURSERY & TURF EDITION \$1.50

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Oak with Bacterial leaf scorch. The thinning canopy and scorched leaves are characteristic symptoms of this disease.

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## Bacterial Leaf Scorch of Oak

*Ann B. Gould, Ph.D., Specialist in Plant Pathology*

**B**acterial leaf scorch (BLS) of oak appeared relatively early in many plantings of red and pin oak this year. Diseased trees with characteristic marginal necrosis have been easy to spot while driving through affected neighborhoods.

BLS is caused by the xylem-limited bacterium, *Xylella fastidiosa*. In New Jersey, BLS affects landscape populations of red and pin oak in most counties, but is particularly troublesome in certain sections of Burlington, Camden, Gloucester, Salem, Mercer, and Middlesex. In ground surveys conducted for BLS in several Middlesex, Mercer, and Monmouth communities, 15 to 30% of street-side red and pin oak trees were symptomatic for this disease last year. Although BLS affects shade trees such as elm, red maple, sweet gum, sycamore, London plane, and flowering dogwood, the incidence in these hosts in New Jersey is extremely rare. The subspecies of *Xylella* that causes leaf scorching in shade trees is closely related to another disease that those who follow the California grape industry may know of, Pierce's disease of grapevine.

### Symptoms

The primary symptom associated with BLS is a marginal scorch of affected leaves on one or more branches in the canopy. This symptom appears later in the growing season (mid-August through October). The scorching is often irregular in shape, and frequently a dull red or yellow band is apparent between healthy and scorched (necrotic) tissues. Affected leaves may curl and drop prematurely, leaving much of the canopy relatively transparent. As the infection progresses over several years, branches die and the tree declines. Affected trees eventually decline to the point where they must be removed. The process of tree decline may occur quickly or slowly depending on the tree or the environment. What is interesting about this disease is that it may appear randomly around the canopy of a tree, or within a planting, may affect individual trees in a random pattern.

### Disease Spread

As its name suggests, *Xylella fastidiosa* colonizes the xylem and is spread from host to host by xylem-feeding insects such as sharpshooter leafhoppers. These insects subsist on the fluid within xylem vessels and pick up bacteria when feeding on infected trees. When an insect carrying the bacterium subsequently feeds on a healthy tree, the new tree becomes infected. Both nymphs and adults can spread the dis-

SEE BLS ON PAGE 2

ease; adults remain infective for the remainder of their life, nymphs are infective only until their next molt.

## Diagnosis

Symptoms of BLS are very similar to those caused by agents such as moisture stress and excessive salt. It is not surprising, therefore, that the disease is frequently misdiagnosed. To diagnose this disease, submit a small branch specimen (pencil-width in diameter), with scorched leaves attached, to the Rutgers Plant Diagnostic Laboratory for analysis; do not wrap the sample in plastic. The laboratory will identify BLS through the use of a selective antibody (ELISA) technique. Proper sampling is necessary for an accurate diagnosis; the best samples have leaves that are symptomatic for the disease. For more information on mailing and fees, see the following link: <http://njaes.rutgers.edu/plantdiagnosticlab/> or see Turf Disease article on page 4 for further contact information.

## Management

Care-takers of the New Jersey urban forest should look for the canopy thinning and marginal scorch characteristic of BLS from now through mid-October. Since there is no cure for this disease, proper management strategy includes the maintenance of tree vigor for as long as possible. If possible, water affected trees during times of water stress to reduce the debilitating affects of this disease. In addition, other diseases, insects, and environmental stresses (including drought) enhance the development of BLS. Branches and infected trees in a severe state of decline should be routinely removed as they are potential hazards. Expensive tree injections reduce symptom development, but do not cure the disease and must be repeated. In areas known to be affected by this disease, replace affected trees with species that are not known hosts of the bacterium. □

# Landscape IPM Pest Notes

Steven K. Rettke, Ornamental IPM Program Associate

## ✓ PRAYING MANTIDS: Are They Valuable Landscape Predators?

Contrary to popular belief, these well known predators do *not* have a significant impact towards the suppression of any key landscape pests. Praying mantids are generalist predators and should *not* be promoted to clients as viable control agents in the landscape or garden. They are indiscriminate feeders and will consume both pest and beneficial insects, including honeybees, ladybeetles, butterflies, and lacewings. Furthermore, they are cannibalistic and highly territorial. As these insects molt/grow and develop during the season, it is rare for them to maintain their numbers at densities high enough to contribute to major biological controls in the landscape.

An old urban myth, apparently sometimes promoted by elementary school children, is that state laws protect praying mantids. There have never been any official state laws protecting this insect anywhere in the country. However, the destruction of this insect is not being endorsed when observed. Its only crime is that they have incorrectly been awarded high status as valuable predators.

✓ **ANTS & HONEYDEW PRODUCERS vs. PREDATORS:** Various pests such as aphids, soft scales, mealybugs, and whiteflies are plant feeders that insert their piercing-sucking mouthparts into vascular tissue (phloem) to remove plant sap from leaves or stems. Since phloem sap is not nutrient rich in proteins, plant pests must withdraw large quantities to maintain growth and reproduction. As a result, to avoid blowing-up into “Macy’s Thanksgiving Day Balloon Floats” these insects must also expel copious amounts of unwanted waste called honeydew. The predigested honeydew still contains a lot of sugary carbohydrates and is valued by ants, wasps, bees and other vespids as a food source. The honeydew is often easily observed as a clear, shiny and sticky material on foliage. The honeydew usually darkens over time as a black sooty mold fungus grows on the liquid droppings.

Numerous predators and parasitoids including ladybeetles, lacewings, flower flies and wasp parasites typically attack and consume honeydew-producing pests. Carpenter ants and other colony ant species have waged vicious wars for “eons” against predators of honeydew producers. Certain ant species will expend a lot of energy and effort to protect honeydew producers and prevent effective biological control. As a result, to help restore the predator vs. prey balance in the landscape, it may be necessary for the pest manager to intervene and seek out ant colony locations to apply controls.

✓ **SYMPTOMS vs. SIGNS:** Occasionally plant diagnosticians will mistakenly use symptoms and signs interchangeably when describing plant problems. It is important to distinguish the difference in meaning when describing each term. Being consistent when communicating plant diagnostics will help reduce confusing an already complicated process.

Symptoms can be defined as the abnormal appearance of a plant after successful pest attack (e.g., stippling, defoliation, skeletonization, notching, chlorosis, necrosis, etc.). A common error arborists sometimes make is classifying woodborer exit holes as signs. In actuality it is proper to call them symptoms.

Alternatively, signs can be defined as the actual presence of the pest (the causal agent) or pest related byproducts (e.g., active insects, mites, or cast skins, eggs, webbing, honeydew, sooty mold, fruiting bodies, mycelium, etc.). For example, since signs are observed causal agents, it would be correct to call tree damaging girdling roots as signs.

SEE IPM PEST NOTES ON PAGE 3

✓ **OBSCURE SCALE (1500-2500 GDD = crawlers):**

An armored scale that is an important landscape pest of oaks (especially pin oaks or other red oak group species). This scale should be listed as a key pest of oaks. It will also be found on dogwood, willow, chestnut, maple, hickory, and beech. As the common name of this pest implies, it is *not* easy to observe obscure scales. Even highly experienced arborists often do not recognize the symptoms or signs of this scale species.

Initially inspect 3 to 4 year old wood when scouting for the presence of obscure scales. When grouped together in large numbers, they often cause sunken areas on branches or trunks similar to cankers. The scale covers are circular (1/10 to 1/8 inches in diameter) and its silvery gray to dirty gray coloration often blend in well on bark. This species does not feed on foliage. Although there is only one generation per year, the crawler emergence period extends for 2 months or longer. Early egg hatch begins in July, but crawlers can continue to emerge into the middle of September. The early season crawlers typically settle beneath old, dead scale covers to feed. The later season crawlers will usually settle within non-infested bark areas.

**Controls:** The extended crawler period, waxy cover, and settling behavior under the protection of old, dead scale covers all complicate the control of obscure scales. They overwinter as yellow, immature nymphs. The use of dormant horticultural oils will not provide satisfactory suppression, because of the protective waxy cover. As a result, it is important to target the vulnerable crawlers with insecticides during the July, August, September months. Summer oil sprays applied to infested branches and trunk will provide good controls if adequate coverage is achieved. However, because of the long crawler emergence, multiple applications will be required (usually 2 or more sprays). To reduce applications the addition of a pyrethroid may be suggested. However, if many holes in covers are observed, then this indicates the presence of beneficial parasitoid wasps. Pyrethroids are highly detrimental to parasitoids/predators and will eliminate them from the area for many weeks. Consider not using pyrethroids if beneficials are numerous.

✓ **SAFARI (Dinotefuran)=A Promising New Armored Scale Control:** Unlike Merit, the new neonicotinoid insecticide named Safari (dinotefuran) is showing promise as an effective control against armored scales. Although both Safari and Merit (imidacloprid) have systemic capabilities with the same general mode of action, Safari is significantly more water-soluble. The high water solubility is thought to be the reason for the increased armored scale controls.

Armored scales primarily feed by inserting their piercing-sucking mouthparts into parenchyma cells containing chlorophyll. Since Merit predominately moves through plants by vascular tissues (phloem and xylem), it does not readily enter into cells where armored scales feed. Consequently, Merit has not shown good efficacy against pests that feed within plant cells (typically less than 30-40% control).

Recent University efficacy trials have shown dramatically improved results against armored scales with soil injection or drench applications of Safari insecticide. Although this material continues to be translocated by vascular tissues, it also appears to have the ability to permeate through cell walls and membranes. Some early efficacy trials have shown controls exceeding 80%! Additional efficacy trials will substantiate these early results.

✓ **PITCH MASS BORERS and LACBALSUM**

**WOUND DRESSING:** Pitch Mass Borers are wood boring caterpillars. As adults they are called clearwing moths and are in the same family with lilac borers, rhododendron borers, peachtree borers, banded ash borers, dogwood borers, as well as others. Pitch mass borer adults are "on the wing" during the months of June and July and typically deposit eggs near wounds on several different pine and spruce species. The usual pine trees attacked include Austrian, Scotch, and eastern white. The common spruce trees attacked include Norway, white, and Colorado blue.

The pitch mass borer is primarily a nuisance in home landscapes or public park areas. Rarely do these borers create a plant health concern by girdling trunks or branches. They will take 2 to 3 years to mature and feed within the inner bark and outer sapwood. However, these shallow tunneling caterpillars do produce copious amounts of pitch. This pitch can potentially rain down on picnic tables, backyard decks or parked cars.

The pitch mass borer, as well as all clearwing moths, requires a wound to successfully penetrate and bore into a tree. Therefore, pitch mass borer attacks will often increase after pruning wounds are made (proper pruning cuts included). Several years ago, some studies performed by Cornell University researchers unintentionally showed that pitch mass borer attacks could be reduced on recently pruned pines or spruces by applying a wound dressing. They applied a new generation wound dressing called Lacbalsum (has a flat gray color) over the fresh pruning cuts. The conifers receiving the wound dressing showed no evidence of pitch mass borer infestations after 2 years. Apparently the Lacbalsum acted as a protective barrier and/or did not attract egg deposition. On the other hand, 30% of the conifers not receiving the wound dressing showed evidence of pitch mass borer activity one or two years later (Note: proper experimental protocol was not followed in determining these results).

Actually the goal of the Cornell research was to determine the health affects on conifers after applying the new Lacbalsum wound dressing. A couple of decades ago, the late Dr. Alex Shigo had made a strong case against the use of some tested wound dressings, demonstrating that they increased wood decay. Although the Lacbalsum wound dressing did not decrease wood decay in the pruning cut areas, the study also showed it did not increase wood decay either. Therefore, the Cornell research indicated that this new generation wound dressing could be safely used to improve the aesthetics after pruning without harming conifer trees. □

# Diseases of Turfgrass

Bruce B. Clarke, Ph.D., Specialist in Turfgrass Pathology

## General

**Dollar spot** has redeveloped on golf and landscape turf due to the recent cool, wet weather (August 18-23, 2007). Expect this disease to continue to be a problem through October. **Copper spot, summer patch, fairy ring, slime mold** and **anthracnose** are also active at this time. **Pythium** and **brown patch** can still be troublesome if the hot, humid weather returns so maintain preventive sprays. Refer to recent issues of this newsletter for further disease control information.

## Gray Leaf Spot

Gray leaf spot, caused by the fungus *Pyricularia oryzae*, is really starting to intensify on susceptible perennial ryegrass overseedings. This disease has devastated many new perennial ryegrass and tall fescue plantings throughout the Mid-Atlantic States over the past few years. Symptoms start as tiny, brown leaf and stem lesions within a 1 to 2 inch patch. In severe cases, the leaves twist and curl in a "J-shape" and lesions may extend the entire width of the blade. As the disease progresses, patches coalesce into large (1 to 2 ft diameter) areas of blighted turf. Extensive foliar blighting may occur during warm (70-85°F days and 60-75°F nights), wet weather. Newly established seedings are more susceptible to infection than mature plantings, so be sure to use a mixture of perennial ryegrass cultivars with improved resistance to **Gray Leaf Spot** (e.g., 1G<sup>2</sup>, 1G2, All\*Star 3, Apple GL, Charismatic II GLSR, Dart, Derby Xtreme, DP-1, (Soprano) Exacta II GLSR, Fiesta 4, GL-2, Harrier, Manhattan 5 GLR, Palace, Palmer IV, Palmer GLS, Palmer V, Panther GLS, Paragon GLR, Prelude GLS, Primary, Protégé GLR, Regala 5, Repel GLS, Revenge GLX, Secretariat II GLSR, SR 4600, and Stellar GL) when overseeding or establishing new areas. When conditions are conducive to disease development the pathogen produces abundant one to two-celled, pear-shaped spores (conidia). To suppress this disease, avoid high rates of nitrogen (i.e., do not apply more than 0.25 lb N per 1,000 sq ft) during July and August and avoid extended periods of leaf wetness (i.e., do not water between 6 PM and midnight). Fungicide studies have shown that Armada, Compass, ConSyst, Disarm, Headway, Heritage, Insignia, Spectro, Tartan, and thiophanate-methyl have been most effective when applied on a preventive basis every 14 to 28 days from mid-July to late-September. Chlorothalonil (e.g., Daconil) and the DMI (sterol-inhibiting) fungicides (e.g., Banner or Bayleton) may provide effective control when disease pressure is moderate. Isolates of *P. oryzae* resistant to the Qol (Strobilurin) fungicides and strains with reduced

sensitivity to the DMI's have been reported in New Jersey, so alternate fungicide chemistries whenever possible to reduce the potential for fungicide resistance.

## Marasmius

There have been numerous reports recently about the appearance of small mushrooms protruding from brown leaf blades. These structures, belonging to the fungus *Marasmius*, are approximately 1/2 to 3/4 inch in length, and consist of a dark brown stem and a small tan to orange colored cap. **Marasmius** often appears in areas that have been thinned by brown patch. Although this fungus may appear to be pathogenic, it is actually invading dead and dying tissue and thus is not a threat to the surrounding turf.

## News Release: Dollar Spot Samples Needed

Ms. Jo Anne Crouch, a doctoral student working with Dr. Bruce Clarke (Extension Specialist in Turfgrass Pathology), is collecting samples of turf infested with dollar spot. The purpose of this research is to confirm the "true" identity of the dollar spot fungus and to determine the geographic origin of this aggressive pathogen. Turf samples are being requested from all regions of the United States as well as from other countries throughout the world. Your help is needed to help get this project underway!

If you encounter dollar spot during the next few months, please send a sample of the infested turf to Rich Buckley at the Rutgers Plant Diagnostic Laboratory:

U.S. POSTAL SERVICE only:

Plant Diagnostic Laboratory

Rutgers, The State University of New Jersey

PO Box 550

Milltown, NJ 08850-0550

OTHER DELIVERY SERVICES:

Plant Diagnostic Laboratory

Rutgers, The State University of New Jersey

Ralph Geiger Turfgrass Education Center

20 Indyk-Engel Way

North Brunswick, NJ 08902

Telephone: 732-932-9140

FAX: 732-932-1270

E-mail: [clinic@rcrc.rutgers.edu](mailto:clinic@rcrc.rutgers.edu)

Website: [www.rcrc.rutgers.edu/plantdiagnosticlab](http://www.rcrc.rutgers.edu/plantdiagnosticlab)

Be sure to indicate the type of turf infested, the location where the sample was taken, and your contact information. If you should have any questions please contact Jo Anne Crouch at [jcrouch@eden.rutgers.edu](mailto:jcrouch@eden.rutgers.edu) ((732) 932-9375 x 334) or Bruce Clarke at [Clarke@aesop.rutgers.edu](mailto:Clarke@aesop.rutgers.edu). (x 331). □

# Plant Diagnostic Laboratory Update

Richard J Buckley, Laboratory Coordinator

## Turfgrass

The turf disease rush from last time continued up until today when the cold rain finally put a damper on most diseases. In fact, it has been so rainy and cold over the last day or two that I wouldn't be surprised to see some **snow mold** or **yellow patch** pop up here and there. Diseased samples from golf clientele this period include **summer patch** from Pennsylvania, Bergen, Burlington, Morris, and Somerset County; **anthracnose** from golf

courses in Utah, Pennsylvania, and Connecticut; and **pythium root dysfunction** from several golf courses in New Jersey, Delaware, Pennsylvania, and New York. In home lawns we are seeing more of the same: **summer patch**, **dollar spot**, **brown patch**, and **red thread**.

## Ornamentals

Ornamental samples submitted this period were mostly from greenhouse and nursery operations. Cherry trees from a Monmouth County nursery were diagnosed with **phytophthora crown and root rot**. Chrysanthemums from a Burlington County operation had **pythium crown and root rot**. Both of these diseases are not uncommon on their particular hosts and are quite happy with hot and wet weather. ☐

## Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged near normal, averaging 69 degrees north, 73 degrees central and 75 degrees south. Extremes were 93 degrees at Pomona on the 14th, and 47 degrees at Canoe Brook on the 19th. Weekly rainfall averaged 0.77 inches north, 1.86 inches central, and 0.52 inches south. The heaviest 24 hour total reported was 2.73 inches at New Brunswick on the 17th to 18th. Estimated soil moisture, in percent of field capacity, this past week averaged 86 percent north, 74 percent central and 53 percent south. Four inch soil temperatures averaged 70 degrees north, 74 degrees central and 75 degrees south.

Weather Summary for the Week Ending 8 am Monday 8/20/07

WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON %FC
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	
CANOE BROOK	.85	40.37	16.55	87	47	70.	0	2430	434	90
CHARLOTTEBURG	.11	29.27	5.23	85	53	68.	1	2111	535	73
FLEMINGTON	2.06	30.81	7.83	89	54	69.	-2	2301	254	100
NEWTON	.08	25.85	3.68	83	54	68.	0	2087	272	75
FREEHOLD	1.77	30.46	8.08	89	53	73.	1	2521	339	100
LONG BRANCH	1.67	29.86	7.30	89	58	72.	0	2287	184	100
NEW BRUNSWICK	3.30	35.48	12.96	89	56	72.	-1	2441	172	100
TOMS RIVER	1.60	24.10	.99	89	56	72.	1	2349	262	100
TRENTON	.97	25.48	4.05	90	58	74.	1	2556	183	76
CAPE MAY COURT HOUSE	.62	15.08	-4.87	89	58	74.	0	2441	391	68
DOWNSTOWN	.53	18.32	-2.78	91	57	74.	1	2568	190	61
GLASSBORO	.35	22.29	.23	90	57	75.	2	2822	466	53
HAMMONTON	.35	18.48	-3.61	91	59	75.	2	2641	282	52
POMONA	.76	18.60	-1.68	93	58	75.	3	2582	382	65
SEABROOK	MISSING									
SOUTH HARRISON	.65	22.38	.45	88	61	75	NA	2725	NA	NA
WES KLINE -- GDD BASE 40 PINEY HOLLOW	LAST WEEK 272 (Ending 8/13/07) THIS WEEK 239 (Ending 8/20/07)									

## EPA Web Site Lists Regulations Impacting Ag

*Reprinted from Pennsylvania Agriculture Alliance Issues Update, Pennsylvania Farm Bureau, July 2007*

EPA announced a new Web site containing an easy and succinct look-up tool listing federal environmental regulations that could potentially apply to agriculture. Knowing these regulations beforehand will allow farmers to address these issues before they become problems.

This Web site is an outgrowth of EPA's National Strategy for Agriculture, signed by EPA Administrator Stephen L. Johnson in May 2006, which aims to improve communication, collaboration and innovation with the agricultural community to build a more environmentally productive relationship.

The Web site was developed by EPA's Cross Media Agriculture Team, which regularly brings senior level management staff from different agency offices together to discuss issues and develop comprehensive strategies for reducing farmers' environmental footprints.

More information on the agriculture regulatory matrix: <http://www.epa.gov/agriculture/llaw.html> or contact Dave Ryan at 202-564-4355 or [ryan.dave@epa.gov](mailto:ryan.dave@epa.gov). □

## Salem County Offers Free Recycling Program for Pesticide Containers

The Salem County Utilities Authority has partnered with Helena Chemical, of Woodstown, NJ to promote a free program, recycling plastic pesticide containers. This new and innovative recycling program will start this September on the following scheduled dates: Friday, September 14<sup>th</sup>, Friday, October 12<sup>th</sup> and Friday, November 9<sup>th</sup>. Collection times are 9am to 3pm at Helena Chemical, 440 North Main Street in Woodstown.

This program is offered to agricultural, professional and commercial pesticide applicators, along with Helena Chemical customers who hold NJDEP pesticide licenses. Also, state, county and municipal government agencies may also participate. One core credit will be given to pesticide license holders who follow the few simple processing steps below and bring their license with them at time of collection.

Here's how the program will work. Helena Chemical will accept non-refillable, high-density polyethylene #2 (HDPE) containers that are no larger than 55 gallons and that have been *triple rinsed*. You must make sure containers are dry inside after they are rinsed out and either cut a 6-inch slit in the bottom, or drill a ¼ inch hole in the bottom of the container to insure it will not hold liquids. Lids must be removed. Foil seal must also be removed. Containers that are 30 gallon size must be cut up into 4 pieces using a sawzall, chainsaw, circular saw, etc. 55 gallon containers must be cut up into 8 pieces accordingly. Non-waxy cardboard will also be accepted during this collection program, since most of these products are sold in cardboard boxes.

Helena Chemical will not accept containers if they have held any type of petroleum oil product or antifreeze. Pesticide containers with any liquid or dried residue will not be accepted. No mini-bulk, saddle tanks or nurse tanks will be accepted, as they may be made of fiberglass. Karen Kritz, Recycling Program Manager from the New Jersey Department of Agriculture will be on-site at each collection to insure containers are prepared properly and to issue one core credit to those who qualify.

For more information contact the following: Karen Kritz, NJDA Recycling Program Manager, 609-984-2506; Helena Chemical, 856-769-0147 or SCUA, 935-7900. □

