

# PLANT & PEST ADVISORY

LANDSCAPE, NURSERY & TURF EDITION \$1.50

SEPTEMBER 6, 2007



## Diseases of Turfgrass

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

### General

**Dollar spot, brown patch, copper spot, fairy ring, slime mold, summer patch, and anthracnose** are all active at this time. Refer to recent issues of this newsletter for complete disease control information.

### Gray Leaf Spot

This has been a banner year for **Gray leaf spot** on perennial ryegrass throughout the region. Many recent seedings have been severely damaged by the causal agent *Pyricularia oryzae*. 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. When conditions are conducive to disease development the pathogen produces abundant one to two celled, pear-shaped spores (conidia). 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>, 1G<sup>2</sup>, 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. 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 QoI (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.

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# Late Summer Turf Management and Dry Weather

James Murphy, Ph.D., Specialist in  
Turf Management

We are now in the midst of the “ideal” time to rejuvenate cool season turfs. However, the dryness of the recent week or so is beginning to stress turf (as well as shrubs and trees), especially those plants growing on shallow or compacted soil. So you will note more wilting and some leaf firing on plants in the coming days, if it isn't already visible.

For high priority landscape areas it will be important that water (irrigation) be applied - without water those turfs and or plants will be delayed in any recovery or rejuvenation from summer stress.

Late-summer and autumn are the best timing for N fertilization - 0.5 to 1.5 pounds of N per 1000 sq. ft. could be applied to many general and sports turfs at this time. Typically fertilizer rates greater than 0.66 pound should contain some fraction of N as a slowly available source. Decisions on other nutrients should be determined from a soil test. Without rain, fertilizer will need to be watered-in to make the nutrients available to the plants. □

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## TURF DISEASES FROM PAGE 1

### Stem and Crown Rust

Both of these diseases are evident on susceptible Kentucky bluegrass and perennial ryegrass cultivars, respectively, at this time. As rust intensifies, the turf prematurely yellows and orange pustules called uredia (reproductive structures) appear on affected blades. To control both **stem and crown rust**, maintain adequate fertility and soil moisture and apply Armada, Banner, Bayleton, chlorothalonil, Compass, Eagle, Headway, Heritage, Insignia, mancozeb, thiophanate-methyl, or Trinity per manufacturer's recommendations. □

# Plant Diagnostic Laboratory Highlights

Richard J. Buckley, Laboratory Coordinator

## Turf

Early-September and the lingering dry weather conditions have brought diseases on turfgrass to a halt. This time of year often brings tropical warm and wet weather and the **gray leaf spot** watch, but so far we haven't been so lucky! In fact, our only gray leaf spot in the last two weeks came from a golf course in Arizona. We think it was the first incidence of the disease in that state, so we welcome them to the party! **Anthracnose** continues to cause some trouble on area golf courses. It is not uncommon to see this disease fester or flare-up late in the season as preventive fungicide programs run out and stress periods linger. Several samples of the disease were sent to the laboratory from sites in Connecticut, New York and New Jersey.

## Landscape

Red oak and pin oak with **bacterial leaf scorch** (BLS) are the main focus of the laboratory at this time. Symptoms on trees known to be infected are quite spectacular this year. BLS is a slow killer, so sadly we can watch the decline of large specimens over time. To date, all of the new samples with positive tests come from trees in and around Trenton and Princeton in Mercer County. Other diseases of note include: **ver-ticillium wilt** on maple samples from Burlington County; and **common canker** on roses from Union County.

## Greenhouse and Nursery

Samples from the nursery brought a positive test of **hosta virus x** in a large crop of hosta. Hosta virus x is a relative newcomer to hosta production that can cause significant loss. The early symptoms of infection often appear to be variegation. Interestingly enough there have been named varieties of hosta that were later determined to be virus infected. This time of year also brings the obligatory chrysanthemum samples infected with **pythium crown and root rot**. Insect pests include the **black stem borer**, *Xylosandrus germanus*, in dogwood from a Burlington County nursery; **Japanese maple scale**, *Lopholeucaspis japonica*, on *Stewartia* from a Monmouth County nursery; and **peachtree borer**, *Synanthedon exitiosa*, on cherry from a Cumberland County operation. □

# Unraveling Some of the Mysteries of Plant Biostimulants

Steven K. Rettke, Ornamental IPM Program Associate

## What are Plant Biostimulants?

Fertilization of urban plants (especially N-P-K) has become fully accepted by all landscapers. However, the use and value of plant biostimulants is often viewed with suspicion. Stated simply, biostimulants are materials (often natural) that promote plant growth when applied in small quantities. Although our understanding of biostimulants and how they work is still limited, this article will attempt to explain why they can be of value to the plant manager in certain situations.

Examples of some of the commonly used biostimulants include natural products such as humic substances, amino acids, yucca juice, and fortified seaweed extract. Others are formulated with synthetic mimics of natural chemicals. Various formulations of these materials are designed to supplement the normal production of plant hormones, thereby improving growth, vigor and stress tolerance. It is the influence on plant hormones that usually play the most important role as to why biostimulants work. There are several major groups of hormones (i.e., auxins, gibberellins, and cytokinins) that are important in numerous functional processes within plants (cell division, cell enlargement, root branching and growth, etc.).

The hormones mentioned above can also support the production of increased levels of antioxidants within plants. These are particularly valuable during drought conditions. Antioxidants help to reduce the rapid senescence or aging of plant cells by removing excessive free radicals (oxygen atoms with an extra electron in the outer shell). Similarly, some people take vitamin E and C supplements in the hopes they will increase the amount of antioxidants within their bodies and therefore decrease the number of free radicals.

## The Value Biostimulants Can Provide

It is important to realize that biostimulants are not the type of fertilizers that improve the color or shoot growth that is normally expected from standard fertilizers. Much of the plant stimulation is below ground or within the plant cells and is often not detectable from the surface. Biostimulants should not be used as fertilizer substitutes, but rather supplements that help to stimulate roots and improve standard fertilizer use effectiveness. It is important to understand that it takes time for these chemicals to improve plant growth and development.

## Plant Stress and Biostimulants

Under favorable growing conditions, plants synthesize hormones in sufficient amounts and do not require additional supplements. However, when plants are subjected to various stresses (i.e., mechanical, chemical or environmental) the normal production of these important plant hormones can be compromised. Research studies have shown that biostimulants improve plant quality, especially when they are under harsh, stressful conditions. Research at Penn State and Virginia Tech have shown that root growth enhancement (root length and root dry weight) of plants supplemented with biostimulants occur during the greatest stress periods of the summer. In addition, improved root strength appears to be a major benefit of biostimulants. Improved mechanical stress tolerance can be of particular value on athletic fields.

Further studies have also shown that biostimulants have increased chlorophyll content and photosynthetic capacity of plants, especially during periods of stress. Tests have shown the common turf disease Dollar Spot can be suppressed by up to 50% by some biostimulants. However, it is important to be aware that during non-stress periods, control plots (where no biostimulants were added) showed no significant differences in the above tested qualities when compared to plants receiving biostimulants.

Therefore, biostimulants can prove most important to plants when their functional processes are disrupted by less than favorable growing conditions. They can be particularly important when managing high valued ornamentals. Some typical examples where biostimulants are most practical include golf courses, sod farms, athletic fields, and during the transplanting of small trees and shrubs. They are also of use when managing exclusive residential and commercial turf areas when the quality of turf needs to be maintained during stressful periods.

In many respects, biostimulants and turf endophytes are similar in their abilities to perform as "insurance policies" by improving stress tolerances of the grass plants. Little value is gained when all conditions are optimal, but when less than ideal situations occur, then the endophytes and biostimulants can enhance plant functions and reduce the loss of turf/plant quality.

## Dosage Rates and Timing of Biostimulants

The dosage and timing of various biostimulant applications can be quite variable. Some product usage and recommendation labels indicate only 1/5 fl.oz./1000 sq.ft. of the product to be applied twice per year. Other products suggest ten times that amount at 2 fl.oz./1000 sq.ft., applied at monthly intervals. Furthermore, the best dosage and timing

SEE *BIOSTIMULANTS ON PAGE 4*

when using certain biostimulants is not always known with certainty and it is possible to damage plants by applying too much of a biostimulant. The best results appear to occur when these products are applied in smaller quantities at shorter intervals. Biostimulants can be applied any time the plants are actively growing and are best applied before the onset of plant stress. When dealing with highly valued turf or ornamental plants, this could be part of the normal plant maintenance program.

### Final Thoughts

Although golf courses and sod farms will continue to be the predominant users of plant biostimulants, there continues to be an increased trend in their usage by other turf and ornamental managers within the green industry. Motivated by pride in their work and the search for an edge over the competition, some landscapers are looking at plant biostimulants with less skepticism. As the demand for high quality turf and ornamentals increase, the health and vigor of plants can be enhanced with the help of additional tools like plant biostimulants. Using such additional alternatives to promote plant health care is what landscape IPM is all about.

*(Reference: LESCO information fact sheet by Steven Jedrzejek, "Understanding the What, When, Why and How of Plant Biostimulants.")* □

## NJDEP Pesticide Applicator Credits: Get What You Need at Your Convenience!

Rutgers Cooperative Extension of Somerset and Hunterdon Counties are happy to announce an agreement with the NJDEP Pesticide Control Program to offer NJDEP Commercial Pesticide Applicator License recertification credits in conjunction with our weekly Master Gardener Volunteer Training classes this fall. Please choose from any of the following dates and topics to complete your recertification needs:

- #015417 September 25, 2007 "How Plants Grow" 2 credits in 3A and PP2
- #015418 October 4, 2007 "Intro to Entomology" 4 credits in 3A and PP2
- #015419 October 9, 2007 "Soils" 1 credit in 3A
- #015420 October 11, 2007 "Safety with Pesticides" 4 credits in CORE
- #015421\* October 16, 2007 "Turf Establishment" 3 credits in 3B and PP2  
\* held at the Snyder Research and Extension Farm in Pittstown, NJ
- #015422 October 18, 2007 "Landscape Pests" 4 credits in 3A and PP2
- #015423 October 23, 2007 "Pests and Diseases in Turf" 4 credits in 3B and PP2
- #015424 October 25, 2007 "Intro to Plant Pathology" 4 credits in 3A and PP2
- #015425 October 30, 2007 "Common Lawn Weeds" 2 credits in 3A, 3B and PP2

Classes are held from 10 am – 12 noon at the Somerset RCE Office at 310 Milltown Road in Bridgewater, NJ, with the exception of Oct 16 class as noted above. Registration for commercial applicators is \$20 per class, with a limit of 10-15 per class, all on a first come, first served basis. Please call Carolyn Morella at 908-526-6293 to register for any of the above classes.

### The Virtual Classroom:

#### Get 2 CORE credits online whenever you have time!

In addition, we are still offering online classes at [www.recert.rutgers.edu](http://www.recert.rutgers.edu) where 2 CORE Credits are available for NJDEP and NYDEC licensed applicators (additional neighboring states coming soon!). Go online anytime of the day or night, click on "commercial user," register with your email address and ID number (your pesticide applicator license number), answer a short series of questions, and you are on your way to a 30-minute presentation on either pesticide safety and storage or personal protective equipment for pesticide applicators (your choice). Follow the prompts for each page, listening and reading as you go through each learning module, and follow the directions at the end to complete the survey, print out the registration page, and send that in with your payment for your credit.

Please call Nick Polanin at 908-526-6293 if you have any difficulties with this web site or have any further questions regarding these recertification opportunities. □

# Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged above normal, averaging 70 degrees north 71 degrees central and 72 degrees south. Extremes were 90 degrees at Canoe Brook on the 31st, and 48 degrees at Charlotteburg and Newton on the 3rd. Weekly rainfall averaged 0.04 inches north, 0.00 inches central, and 0.00 inches south. The heaviest 24 hour total reported was 0.17 inches at Flemington on the 30th to 31st. Estimated soil moisture, in percent of field capacity, this past week averaged 79 percent north, 63 percent central and 55 percent south. Four inch soil temperatures averaged 70 degrees north, 71 degrees central and 72 degrees south.

Weather Summary for the Week Ending 8 am Monday 9/3/7										
WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON %FC
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	
CANOE BROOK	.00	42.53	16.53	90	57	72.	5	2719	461	68
CHARLOTTEBURG	.00	30.60	4.34	87	48	69.	5	2357	563	68
FLEMINGTON	.17	32.86	7.86	87	49	70.	2	2566	249	75
NEWTON	.00	27.36	3.10	84	48	68.	3	2328	285	79
FREEHOLD	.00	31.79	7.40	88	54	71.	2	2795	329	64
LONG BRANCH	.00	31.12	6.38	83	57	71.	2	2566	177	46
NEW BRUNSWICK	.00	37.47	12.82	87	51	70.	-1	2719	141	72
TOMS RIVER	.00	26.25	.99	84	51	70.	0	2629	253	46
TRENTON	.00	26.98	3.61	89	55	72.	2	2849	173	45
CAPE MAY COURT HOUSE	.00	16.51	-5.33	85	55	71.	-1	2739	369	46
DOWNTOWN	.00	19.87	-3.21	87	52	71.	1	2865	183	47
GLASSBORO	.00	23.71	-.36	87	56	74.	4	3132	472	44
HAMMONTON	.00	20.14	-3.93	87	51	72.	2	2944	281	43
POMONA	.00	20.89	-1.29	86	54	71.	2	2884	401	45
SEABROOK	.00	21.16	-.91	86	56	73.	3	3145	448	44
SOUTH HARRISON	.00	23.99	.28	86	55	73	NA	3030	NA	NA
WES KLINE -- GDD BASE 40 PINEY HOLLOW LAST WEEK 215 (Ending 8/27/07) THIS WEEK 222 (Ending 9/3/07)										



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**Pesticide User Responsibility:** Use pesticides safely and follow instructions on labels. The pesticide user is responsible for proper use, storage and disposal, residues on crops, and damage caused by drift. For specific labels, special local-needs label 24(c) registration, or section 18 exemption, contact RCE in your County.

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