

PLANT & PEST ADVISORY

LANDSCAPE, NURSERY & TURF EDITION \$1.50

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Plant Diagnostic Laboratory Highlights

Richard Buckley, Plant Diagnostic Laboratory Coordinator

General Interest

Cold, cold, cold! It looks as if we are stuck in perpetual spring! According to Susan Hohenadel, GPU Energy spokeswoman, in an article in the *Trenton Times* on July 24th, this July is one of the three coolest summer months in 50 years. The average daily temperature to date this July is 74°F, compared to an average temperature of 81°F last July. Last year we had 20 days with high's above 90°F in July, this year only one, 91°F on July 10th. For the near future, the trend appears to be a continuation of the cooler, wet weather.

Turfgrass

If you can't grow grass in this weather – how can I say this gently – then maybe you better reconsider your career choice! It sure has been a restful season. This July has brought a reduction in turf submissions to our laboratory by about 30%. In any event, we are still seeing plenty of unthrifty grass.

Anthracnose continues to be the biggest issue in our laboratory. The disease was diagnosed on many samples in July from golf courses in Virginia, New York, Pennsylvania, and New Jersey. The New Jersey courses include samples from Burlington, Camden, Ocean, Monmouth, and Salem counties. Remember that with **anthracnose** it is important to remedy any agronomic or environmental stresses that might predispose the turf to attack. Another point to remember is that upon diagnosis and treatment, the disease will probably get worse before it gets better. Fungicides do not cure infected plants; they protect the plants that are disease-free from infection. Most infected plants must die before things begin to improve. Furthermore, even during favorable weather conditions, it is tough to get the thin or dead areas to recover. Additional fungicide treatments offer no added benefit. Prudent use of the materials at label recommended rates and spray intervals is best. You must be patient and allow the turf time to recover.

Samples with **summer patch** are beginning to be submitted in July. **Summer patch** is well known in golf circles, so most of the samples we get with the disease come from residential lawns. Samples of Kentucky bluegrass lawns with **summer patch** were submitted from Somerset, Morris, Middlesex, and Monmouth counties. Golf greens with **summer patch** came from Atlantic and

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Bacterial Leaf Scorch of Shade Trees

Ann B. Gould, Ph.D., Plant Pathology

Leaf scorching in landscape trees and shrubs occurs when leaves lose water faster than the roots can supply it. When moisture is lacking, the margins tend to dry out first, hence the marginal scorch pattern typically associated with stressed plants. Symptoms of scorch may become evident any time water flow is disrupted within a plant.

Leaf scorching in plants is usually attributed to both biotic (living) and abiotic (environmental) agents. Abiotic agents that can cause scorching in leaves include drought, dehydrating winds, salt, flooding, chemicals, air pollutants, toxic metals, and nutrient extremes. Scorching can also occur when plants are placed in sites where roots do not develop normally (such as in planting islands or in soils with a hard pan layer), or when roots are physically damaged (such as occurs during construction). In most cases, this type of scorching is fairly uniform around leaf edges, affects newer leaves as well as older leaves, and will appear on vast expanses of the canopy. In addition, scorch symptoms may develop soon after a known stress (such as drought or an application of de-icing salt) occurs.

On the other hand, scorching can also occur in plants affected by living or biotic agents. Organisms that can cause this symptom include fungi, bacteria, nematodes, viruses, and insects. Leaf scorching due to biotic agents is not clearly defined. The scorch symptoms on leaves are often irregular in shape, and frequently a yellow or red "band" will appear between green and scorched tissues. In addition, symptoms may appear first on the older leaves of one or more branches, and then spread to other parts of the tree.

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DIAGNOSTIC LAB FROM PAGE 1

Burlington counties. **Brown patch** is another disease that we often get from landscape turf. **Brown patch** is a concern as long as the night temperatures remain above 60°F and there is adequate leaf wetness. **Brown patch** samples were submitted from residential lawns in Bergen, Monmouth, Morris, and Hunterdon counties.

Bentgrass dead spot was diagnosed for the first time this season today (7/26). The disease is often suspected by golf course superintendents, but to date in 2000, had always turned out to simply be **dollar spot**. **Dollar spot** was diagnosed on golf turf from Atlantic and Ocean county golf courses, and from a golf course in Virginia. The **dead spot** sample came from Pennsylvania. For those of you with microscopes, the fungus that causes **dead spot** makes very distinct fruiting bodies at this time of year. Check the June, 1999 *Golf Course Management* magazine for excellent photographs.

Other diseases of interest this month include: **leaf spot and melting out, brown blight, and net blotch**, caused by various species of the fungus *Drechslera*; **take-all** on turf from Virginia; and **root-infecting pythium**. **Pythium root dysfunction** is usually found on samples from new golf courses grown in or on old poorly drained trouble sites. We have also seen **fairy rings, stripe smut, hyperodes weevils, billbugs, and lots of nematode samples**. Something for everyone, but **NO GRAY LEAF SPOT YET!**

Landscape

Many plants with branch dieback are being diagnosed with assorted canker diseases this month. We assume that much of the canker activity is related to temperature and moisture extremes over the last few seasons. **Cytospora canker** is the most common. This disease is most often diagnosed on samples of maple. **Botryosphaeria canker** is also very common. Samples of elm and crabapple are recent submissions with *Botryosphaeria* infection. **Powdery mildew** is on a rampage. The disease is active in sycamore, maple, and dogwood. The disease appears to be most severe in dogwood where it causes interveinal leaf scorching. It is also not uncommon to see **powdery mildew** cause leaf distortion in the sycamores, particularly in the second growth leaves (the new ones after early season anthracnose defoliation). Speaking of **anthracnose**, the form of **anthracnose** found on elm, commonly called **black spot**, is very active this season. **Black spot of elm** used to be our primary concern with the elms before **Dutch elm disease**.

Plenty of insect and mite samples are being diagnosed by the laboratory this month. **Pear leaf blister mite** is active in the ornamental pears again this year. **Greedy scale** was identified on Pieris from Middlesex County and **pine needle scale** was identified on mugo pine from the same landscape. **Lacebug** populations also appear to be very high this season. Samples of oak, sycamore, and azalea have been sent to the laboratory with significant injury and large **lacebug** populations. **Bark beetles** were found in elm samples and white pine from Mercer County. **Aphids** covered a tulip tree with honeydew, which spawned a nice crop of **sooty mold**. Finally, **two-spotted mites** were identified on assorted perennials from an Atlantic County residential garden. □

Diseases of Turfgrass

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

Bentgrass Dead Spot

This disease has recently been identified on sand-based greens and tees on several courses in the Mid-Atlantic Region. The causal agent, *Ophiosphaerella agrostis*, induces small reddish-brown spots 0.5 to 1 inch in diameter. Spots usually do not coalesce and only enlarge to 4 inches in diameter. Affected areas eventually fade to a light tan color. Initially, symptoms may be confused with **dollar spot**, **copper spot**, **black cutworm** and golf ball injury. However, upon close inspection, black flask-shaped fruiting bodies (*pseudothecia*) can be found embedded in necrotic leaf and stem tissue. Active patches often have a 5 inch bronzed outer margin. Roots are unaffected and foliar mycelium is not apparent in the field.

The disease has been identified on numerous bentgrass cultivars and was most serious on high sand content greens and tees. To date, all reports have come from recently established sites (one to four years old). Outbreaks have not been observed on fairways. Environmental conditions that appear to enhance disease development include hot, dry weather. The disease also appears to be more common in sunny locations than in shaded areas. Although little is known about chemical control, Daconil (chlorothalonil), Chipco 26GT (iprodione), Cleary 3336 (thiophanate-methyl) and Fore (mancozeb) suppressed symptom development in a University test conducted in North Carolina last year.

Gray Leaf Spot

Gray leaf spot caused by the fungus *Pyricularia grisea*, has yet to develop in the Tri-State area. This disease devastated perennial ryegrass and tall fescue plantings throughout the Mid-Atlantic States during late summer and early fall months in 1998. If similar environmental conditions develop again this year, we may see a resurgence of this disease during the next few weeks. Symptoms start as tiny, brown leaf and stem lesions covering 1 to 2 inch patches. In severe cases, the leaves curl and lesions may extend the entire width of the blade. As the disease progresses, patches coalesce into large (one to two feet) areas of blighted turf. Extensive foliar blighting may occur during warm (75-85°F), wet weather. Newly established seedlings are more susceptible to infection than mature plantings. When conditions are conducive to disease development, the pathogen produces abundant one to two-celled, pear-shaped spores (conidia). For best results, avoid high rates of nitrogen during July and August and extended periods of leaf wetness (i.e. water in the early morning hours). Fungicide studies conducted in New Jersey, Georgia, Maryland, and Kentucky have shown that Cleary 3336, Compass, Heritage, Spectro, and Zyban were most effective when applied on a preventive basis every 14 to 28 days beginning in mid to late-July. Chlorothalonil (e.g., Daconil) and the DMI (sterol-inhibiting) fungicides, such as propiconazole (Banner), have also provided effective control when disease pressure was moderate.

Summer Patch

This disease, caused by the root-infecting fungus, *Magnaporthe poae*, is prevalent on annual bluegrass, Kentucky bluegrass, and fine fescue turf throughout the State. For those turf managers who are

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Certain New Jersey landscape trees are affected by a disease (a biotic agent) that causes leaves to scorch and is known as **bacterial leaf scorch of shade trees** or **bacterial leaf scorch**. This disease, caused by the bacterium *Xylella fastidiosa*, occurs in regions throughout the eastern and mid-western United States. Hosts affected by *Xylella* include American elm, red, pin, and black oak, sycamore, London plane, red mulberry, and red maple. Of all the shade trees affected by *Xylella*, the hosts most familiar to landscapers throughout the southwestern counties of New Jersey are pin and red oak. This disease on oak is specifically known as **bacterial leaf scorch of oak** or **oak leaf scorch**. Although oak leaf scorch is most prevalent in certain sections of Burlington, Camden, Gloucester, and Salem Counties, its incidence appears to be increasing in Atlantic, Cumberland, Hunterdon, Mercer, Middlesex, Monmouth, and Somerset Counties.

Like leaf scorching due to other biotic agents, leaf scorch caused by *Xylella* is not clearly defined. On oaks, scorch symptoms are often irregular in shape, and frequently a dull red "band" is apparent between healthy and scorched (necrotic) tissues. These symptoms usually occur in mid- to late-summer on leaves of one or more branches in the canopy. Affected leaves may curl and drop prematurely. 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.

Residents in New Jersey should be on the look out for oak leaf scorch. Since there is no cure for this disease, proper management includes the maintenance of tree vigor for as long as possible. Other diseases, insects, and environmental stresses, including last year's drought, enhance the development of bacterial leaf scorch. This disease may also predispose infected trees to other disease and insect problems. Branches that have died due to this disease should be routinely re-

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on a preventive spray program, now is the time to apply the third and perhaps final fungicide application for the control of **summer patch**. For optimum results, apply Banner, Balyeton, Cleary 3336, Compass, Eagle, Fungo, Heritage, Rubigan, or Sentinel, in 4 to 5 gal of water/1000 ft². If fungicides cannot be applied with this much water, irrigate them into the thatch immediately with 1/16 to 1/8 inch of water. Aerification and improved drainage will also aid in disease suppression. Soil pH should be maintained at or slightly below 6.0 for best results.

Yellow Ring

This disease, caused by the fungus *Trechispora alnicola*, is evident on Kentucky bluegrass lawns and sod fields at this time. Patches are 1 to 2 feet in diameter. Affected areas consist of green grass surrounded by 2 to 3 inch diameter yellow rings. Upon close inspection of the thatch, a dense mat of white mycelium is often apparent. Infected turf rarely dies and rings do not always reappear the following year. Symptoms are most apparent during cloudy weather between May and October. The fungus is primarily a saprophyte which colonizes organic matter in the thatch. Since the damage caused by this fungus is purely cosmetic and the turf recovers during cool weather in the fall and spring, control is rarely warranted. In areas where symptom expression cannot be tolerated, turf managers should dethatch affected areas. PCNB has proven effective in university tests but is not currently labeled for use against this disease. Due to phytotoxicity, this fungicide should not be used on cool-season grasses during hot weather.

Turf Field Days

The Landscape Research Field Day will be held on August 2, 2000 at the Turf Research Farm (Ryders Lane) in North Brunswick, N.J. Registration will begin at 8:00 AM. Guided field tours will commence at 9:00 AM and will conclude at 3:30 PM, "rain or shine". The registration cost is \$20 (\$30 with lunch). The Golf Turf Research Field Day will also be held at the Turf Research Farm (Ryders Lane) in North Brunswick, NJ. This event will occur on August 3, 2000 at 12:30 PM (registration) and field tours will run from 1:00 to 5:00 PM. Registration is \$25. Recertification credits will be available at the conclusion of each program. Call Marlene at (732) 932-9400, ext. 339 for additional information. □

moved. Infected trees that are in a severe state of decline should also be removed. Definitive diagnosis for bacterial leaf scorch requires a special laboratory test. For more information on oak leaf scorch, refer to the Rutgers Cooperative Extension fact sheet FS875. This fact sheet is available through your local County Extension office and can also be found on the Rutgers Cooperative Extension web site under agriculture publications at: <http://www.rce.rutgers.edu/pubs/ag/plantscience/pdfs/fs875.pdf>. □

Rutgers Cooperative Extension Web Site

The Rutgers Cooperative Extension (RCE) web site connects growers with various Extension services, programs and publications. By visiting the site at <http://www.rce.rutgers.edu/ag/index.html> you can obtain submission forms and information on RCE's Plant Diagnostic Laboratory and Soil Testing Laboratory. Various programs are detailed including Floriculture, Landscape IPM, If Plants Could Talk – A Gardening Television Series, and the Pest Management Office. Highlights under the Pest Management Office include Pesticide Applicator Training Information and Pesticide Impact Assessment Information. The link to the Center for Turfgrass Science includes educational course information and turf weed identification.

Also at the RCE site is the award winning New Jersey Weed Gallery, a collection of photos and descriptions of weeds found in New Jersey.

RCE publications, including the factsheets often mentioned in this newsletter, are listed in their entirety in the RCE Publications List, available under the general Publications section of the site. Various factsheets can be downloaded from the web site as well. □

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