Turfgrass Patch Diseases: The El Niño Connection

The 1998 season is turning out to be a bit unusual, in large part to the altered weather patterns brought on by El Niño. I predicted earlier that this would be a strange year for turfgrass diseases and that we would likely see an unusually high incidence of patch disease symptoms on susceptible grasses, regardless of the height of cut. This is expected from the increased accumulation of growing degree days, the high soil moisture levels earlier in the spring, the warmer soil temperatures in April, and the ensuing drought stress, which in some areas we have already seen.

My predictions appear to be coming true. Already this season, nearly 80% of the turfgrass samples that have come into the Plant Disease Diagnostic Laboratory have been diagnosed with some sort of patch disease problem. In some cases these problems have occurred in combination with other diseases. Of the patch diseases that have been diagnosed, Take-All patch has been the most prominent whereas Summer patch has been detected on other samples.

In most years, Take-All patch is not that prevalent a problem in New York State whereas symptoms of Summer patch typically occur during the hot dry months of July and August. The early onset of these diseases is making disease control strategies difficult at best and ineffective in some cases.

To help turfgrass managers with the recognition of these two important disease problems I offer below a description of some of the conditions that tend to favor disease development of both Take-All patch and Summer patch. Since both diseases are characterized by circular to irregular patch-type symptoms, their diagnosis is often based on microscopic observations of infected plants.

Take-All Patch

Take-All patch is caused by the fungus *Gaeumannomyces graminis* var *avenae* where it is usually restricted to bentgrasses, particularly those growing in alkaline soils. Symptoms often appear during cool moist weather and can thus often appear in the spring. However, symptoms are more common in the late summer and early fall. Take-All disease is restricted primarily to creeping, colonial and velvet bentgrasses and is particularly a problem on newly constructed golf courses situated on previously-wooded lands. Although symptoms may persist for many years, usually the disease becomes less severe with time, particularly as microbial activity in soils is increased.

For Take-All patch to be a serious problem, soils must remain quite moist. The Take-All pathogen requires considerably more water for infection than do other patch pathogens and this may also explain why the disease is more common on newly-established golf greens where continuous moisture is applied to achieve a successful grow-in. Additionally, plant stresses brought on by waterlogging, drought, soil compaction, traffic, etc. all tend to exacerbate symptom development. The optimum temperatures for growth of the pathogen are around 70-75ºF and growth is completely inhibited at temperatures of 90-95ºF. All in all, *Gaeumannomyces graminis* var *avenae* is an opportunistic pathogen that is most aggressive when host defenses are low and microbial competition in soil is minimized.

Summer Patch

Summer patch is caused by the root-infecting fungus *Magnaporthe poae* and is one of the most dreaded and destructive diseases of lawn and golf turf in New York State. Varieties of Kentucky bluegrass and fine-leafed fescues are particularly susceptible to Summer patch as are some varieties of bentgrass and annual bluegrass. Plants become infected with *M. poae* when soil moisture is relatively high and soil temperatures reach 60-65ºF. During these conditions, the fungus colonizes the root systems and can suppress root growth but the plants remain asymptomatic. Roots and rhizomes typically will turn brown and brittle as the disease progresses underground without causing any apparent above-ground damage.

Despite fairly high levels of root infection, Summer patch would largely go unrecognized if air temperatures did not exceed 70-75ºF. This is primarily due to the fact that root growth can be quite restricted at temperature above 75 degrees and at these temperatures growth and reproduction of *M. poae* is more ideal. Frequently, Summer patch symptoms are evident when air temperatures are hot (85-95ºF). High soil temperature accompanied by high soil moisture is also important in favoring the activity of *M. poae*. In particular, sites with poorly-drained or highly compacted soils are especially prone to damage as are those areas that have developed a considerable thatch accumulation.

While Take-All and Summer patch are currently important diseases affecting New York State turfgrasses, it is essential to stay on your toes and keep your eyes peeled for other strange

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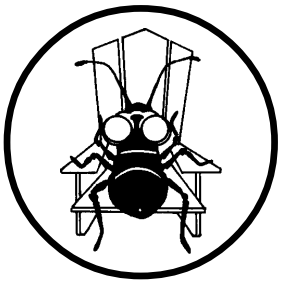

Pest Watch

Altered weather patterns brought on by El Niño would likely cause an unusually high incidence of patch disease symptoms on susceptible grasses due to increased accumulation of growing degree days, high soil moisture levels earlier in the spring, warmer soil temperatures in April, and ensuing drought stress.

Short Cutts

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During the Golf Turf Field Day we will be walking the front nine of the Cornell golf course discussing the current research being conducted under golf course conditions: evaluating biocontrol products for disease control, annual bluegrass exclusion programs, managing tees under shaded conditions, and managing people when the heat is on.

NYSTA in partnership with the Cornell Turfgrass Team presents the 1998 Turf and Grounds Exposition in Syracuse, NY November 10-13.

NorthAmeriCare Park, John LiBurdi from the Town of Colonie, Brian Eshenaur of Cooperative Extension, Dominic Morales of SUNY Delhi, and Bob Emmons of SUNY Cobleskill. At each location, the Stadium Manager will be giving attendees an inside look at the workings of a high profile sports turf facility.

If you'd like more information on the Winning Fields programs, contact the NYSTA office at (800) 873-8873.

Golf Turf Field Day '98

The excitement continues to build here at the Cornell Turfgrass Research and Education Center and the adjacent Robert Trent Jones Golf Course at Cornell University in anticipation of the 1998 Golf Turf Field Day. The Field Day is scheduled for Tuesday August 18, 1998 from 9 AM to 4 PM. This year your Turfgrass Team will be highlighting our research on golf turf issues such as: understanding the new generation of insecticides; establishing and trafficking the new bentgrasses; evaluating the biocontrol aspects of the bioject; integrating biological and traditional disease control methods; and determining the fate of pesticides at establishment. Plus, as an added attraction, we will be walking the front nine of the Cornell golf course discussing the current research being conducted under golf course conditions, specifically: evaluating biocontrol products for disease control, annual bluegrass exclusion programs, managing tees under shaded conditions, and managing people when the heat is on.

To make your day a more enjoyable one, we are currently working with several motor coach companies and industry representatives to sponsor "bus trips" to the Field Day. Sit back and relax while you travel through beautiful upstate NY, arriving relaxed to learn the latest in golf turf management. If you'd like more information about attending or sponsoring a bus, call the Turfgrass Team at (607) 255-3090.

The New York State Turf and Grounds Exposition for 1998

The New York State Turfgrass Association in partnership with your Cornell Turfgrass Team is proud to announce that the final plans are set for the 1998 Turf and Grounds Exposition. Once again, the Exposition will be held in Syracuse, NY from November 10 through 13, 1998. NYSTA is pulling out all the stops to provide you with the latest educational opportunities in turf and grounds management, bringing in leaders from around the world to speak on topics in golf turf, sports turf, lawn and landscape, and grounds management.

Some of the highlights this year include presentations by Jim Moore, the Director of Construction Education for the United States Golf Association; our own Marty Petrovic on golf turf soil management; Andy McNitt from Penn State University speaking on the latest in sports turf design, construction and management for safety; Mary Hirshfeld from the Cornell Plantations on selecting perennials and ornamental grasses; Dr. Mike Raupp from the University of Maryland on insect management in the landscape; our own George Hudler reviewing the year in trees; and as a special treat, the horticulturists at Hershey Park in Hershey, PA will be providing insight into the various horticulture issues at a high profile facility.

The keynote speaker, Jim Tunney, a retired NFL referee is making a return visit to the Exposition this year following his wildly successful motivational talk at the 1994 show. He will likely provide many useful tips for living, as well as some enjoyable stories from the professional playing field. Of all the speakers NYSTA has had to "kick-off" the Exposition, Jim remains one of our favorites.

If you'd like more information on the 1998 Exposition contact the NYSTA office at (800) 873-TURF (8873).

An Apology

Due to the illness of some staff and various other problems that generally fall under the heading of Murphy's Law, we apologize for the lateness of this summer issue of *CUTT*. Though we try to have the newsletter to you at the beginning of each season, sometimes we are foiled. Look for the fall issue quick on the heels of this one.

The El Niño Connection

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diseases that could appear at any time as we continue to experience drastic fluctuations in air and soil temperatures. Should problems arise that you are unable to identify, our turfgrass team of diagnosticians at the Plant Disease Diagnostic Laboratory are available to answer your questions and look at your samples.

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CORNELL UNIVERSITY TURFGRASS TEAM