On the Trail of Gray Leaf Spot

Rutgers breeds naturally resistant varieties to combat turf disease

By Anthony Pioppi, Contributing Editor he most recent epidemic of gray leaf spot came in 1998, but it was a more localized outbreak two years later that could lead to having the biggest effect on combating the

disease that hits perennial ryegrass the hardest but also damages tall fescue, centipedegrass and St. Augustinegrass.

In 2000 the University of Rutgers department of plant biology and pathology found gray leaf spot on its perennial ryegrass turf plots in Freehold, N.J., according to Stacy Bonos, an assistant professor and researcher for the department. When the plots were hit, almost the entire faculty went out to have a look, not exactly sure what they were seeing, although the prevailing opinion was gray leaf spot. Much to their delight, tests revealed it was gray leaf spot and almost immediately department members, including Bonos, went to work breeding naturally resistant varieties. Four were on the market by 2004 — Palmer IV, Paragon GLR, Repell GLS and Protégé. More are on the way and should hit the marketplace in the fall of 2006.

Using resistant cultivars found in the plots, Bonos and others, including Bruce Clark, the director of Rutgers' Center for Turfgrass Science, developed the strains by intercrossing, also known as population improvement. Ironically, earlier attempts by the department to inoculate perennial ryegrass with gray leaf spot so the disease could be studied proved ineffective.

By the end of the first year, Bonos said, researchers had come up with some resistant turf, and seed providers were hot for the improved varieties. That was no surprise, considering that the pathogen has been found as far north as Long Island and also made its way into California in the past two years.

According to Peter Dernoeden, a professor in the University of Maryland plant science department, the number of new or renovated courses using perennial ryegrass in the Mid-Atlantic states since the 1998 outbreak has dropped dramatically with many courses converting fairways and tees to grasses other than perennial rye.

While the disease-resistant grasses scored well in the 2004 National Turfgrass Evaluation Program (NTEP) tests, long-range effectiveness has not been determined. There is some concern because, as Bonos pointed out, the gray leaf spot pathogen is also the pathogen that causes rice blast, the most destructive disease to one of the world's largest food crops, which is classified as a grass. Scientists have bred disease-resistant varieties, but the *Continued on page 82*

Gray Leaf Spot

Continued from page 80

pathogen mutates quickly and within a few years is able to again attack the rice plant, Bonos said.

Paul Vincelli, extension plant pathologist for the University of Kentucky, said although



Systemic	High
Protectant	Not Significant
Systemic	Moderate
Systemic	High
Moderate	Moderate
Protectant	Not Significant
Mesostemic	High
	Protectant Systemic Systemic Moderate Protectant

SOURCE: UNIVERSITY OF KENTUCKY COOPERATIVE EXTENSION SERVICE

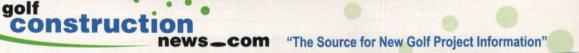
there is no highly accurate way to predict when outbreaks will occur, most of those who study the pathogen believe weather to be the major factor in widespread epidemics. As he points out, since 1998 the existing turf has not mutated and neither has the pathogen, so weather is the one factor that must be behind the dormancy.

In 1998 a large section of what Vincelli calls the "humid transition zone" received prolonged periods of hot, humid days with lots of rainfall and warm nights. It proved to be the perfect catalyst for gray leaf spot.

"We haven't had a season like that in the last few summers," Vincelli said, adding that other turf stress such as compaction can compound the problem.

To stave off outbreaks, Vincelli said, scouting the turf is the key to identifying a problem as early as possible. He also said it is imperative to have a plan of action in hand so it can be implemented when and if the disease is spotted.

Added Dernoeden, "You have to be prepared to address it."



golfconstructionnews.com (GCN) is an online report containing the most current and in-depth information on golf projects in the U.S. GCN keeps tabs on thousands of projects a year to provide the most up-to-date, comprehensive details as they become available. Reports can be ordered for up to eight regions of the U.S. to fit any-sized business.

Features include:

Access to project updates 24/7 via secure, password-protected access

Project tracking from conception to completion, with its status regularly updated

Full details for New & Proposed Projects, Remodels to Existing Courses & Recent Openings

State-of-the-art click-through contact access with developers, course designers and construction companies (if selected), and related parties

Sortable project database - including by state, development phase, type and opening date

Subscribe online now! It's as easy as visiting www.golfconstructionnews.com. Review regularly updated sample projects on the home page and see the power of GCN for yourself.

For additional information, call toll-free 866-640-7170.