

On the Trail of Gray Leaf Spot



By Anthony Pioppi,
Contributing Editor

The 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

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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

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." ■

Targeting Gray Leaf Spot

Some fungicidal materials for control of gray leaf spot on perennial ryegrass.

Fungicide	Mobility Within Plant	Risk of Resistance
Azoxystrobin	Systemic	High
Chlorothalonil	Protectant	Not Significant
Propiconazole	Systemic	Moderate
Thiophanate methyl	Systemic	High
Triadimefon	Moderate	Moderate
Mancozeb	Protectant	Not Significant
Trifloxystrobin	Mesostemic	High

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