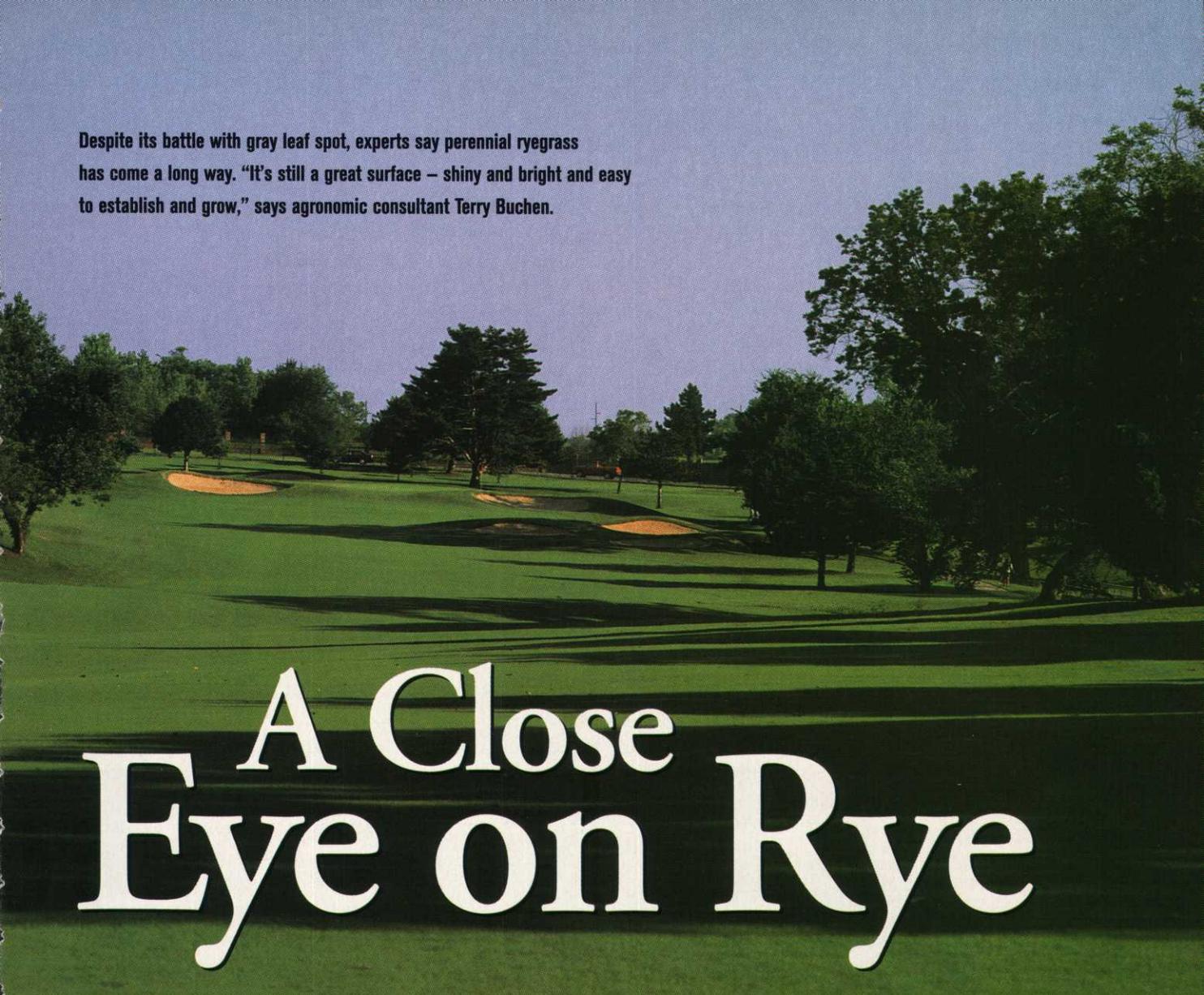


Despite its battle with gray leaf spot, experts say perennial ryegrass has come a long way. "It's still a great surface – shiny and bright and easy to establish and grow," says agronomic consultant Terry Buchen.



A Close Eye on Rye

The future of perennial ryegrass may hinge on its resistance to deadly gray leaf spot

BY MARK LESLIE

It has been a Dr. Jekyll-and-Mr. Hyde existence for perennial ryegrass the past few years. Some experts wonder if perennial ryegrass will go the way of the Dutch elm in some U.S. regions while its popularity soars in others.

The menace in what was otherwise an idyllic world for ryegrass is gray leaf spot, a disease which appears during high heat and humidity in the midst of drought. Gray leaf spot jumped from grain crops to ryegrass in 1972 when an epidemic was diagnosed in Mississippi and Louisiana. With the exception of one case reported in Maryland in 1985 and another by Penn State University professor Peter Landschoot in 1992, it remained relatively silent until a horrendous summer in 1995 caused severe outbreaks in Maryland, Pennsylvania, Virginia, New Jersey and Kentucky.

There was no fungicide at that time to fight the disease.

Nevertheless, those outbreaks were mere precursors to 1998, when the culprit virtually wiped out ryegrass golf courses, especially fairways, as far north as Rhode Island and Iowa and as far west as Kansas, Oklahoma and Nebraska, according to agronomic consultant Terry Buchen of Williamsburg, Va. The disease also invaded wide swaths of roughs, where it's most evident, says Jim Snow, national director of the USGA Green Section.

Blindsided by the 1998 epidemic, many superintendents panicked and began converting their courses to other grasses. In the transition zone, where courses were hurt the most, superintendents are using bentgrass, zoysiagrass or bermudagrass to replace ryegrass. In the cool-season zone, the choice is bent-

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grass. In both zones, some are using Kentucky bluegrass.

As National Turfgrass Evaluation Program national director Kevin Morris underscores: "We can always use more disease resistance with ryegrasses, especially against brown patch and gray leaf spot. My guess is we're not there with gray leaf spot."

The disease is even a problem in the fall when superintendents seed in October and November, Morris says.

"Generally, it starts in the rough where the grasses are higher and have more leaf area, and then moves to the fairways," he says. "So a lot of guys are spraying their roughs."

The epidemics were all the more devastating because of the promise shown in perennial ryegrass breeding. Giant leaps had been taken toward near perfection.

"I'm amazed by the improvement in this last four-year period," says William

Meyer, director of the turfgrass breeding program at Rutgers University, where nine of the top 10 germplasm in the NTEP ratings originated. "The new ryes made a two-rating jump — from five to seven on a scale of nine. Superintendents want to mow rye tight and have it wear-tolerant, and these ryes are just beautiful."

Morris says perennial ryegrass keeps getting denser and more dark. "I thought we had pushed the limit on that, but the types that once were the darkest and densest are on the back burner now," he adds.

Buchen says perennial ryegrass has come a long way.

"It's still a great surface — shiny and bright and easy to establish and grow," he notes. "You can cut it to almost any height, and it can be used for overseeding on greens and for divots. The color is phenomenal — dark green and terrific for striping because one side of the leaf is more shiny than the other."

But even Buchen admits gray leaf

spot setback is a bad sign for the the state of perennial ryegrass.

Dealing with it

Buchen hopes gray leaf spot outbreaks don't cause superintendents in the transition and cool-season zones to abandon ryegrass en masse because the disease can now be controlled — at a cost.

"There aren't many fungicides that work on gray leaf spot, so it gets pricey," Morris says. "Just think about [the immensity of] spraying all your roughs. But if you want to control it, you have to control it in the roughs."

On fairways alone, Buchen adds, preventative applications of fungicide will cost between \$20,000 and \$40,000 a season per golf course.

"Bentgrass uses a lot of fungicides, too, but not to this extent," he says. "So superintendents will have to bite the bullet and spend the money on fungicides or spend the money to convert."

Yet one of the constant costs of perennial ryegrass is that it only lives about four years in the transition zone. Once a stand is three or four years old, it needs to be reseeded every year, even if it's the predominant grass, Buchen says.

"It just can't handle the heat," he notes. "Up north, you have to reseed rye every second or third year."

Meyer, meanwhile, hopes breeders can produce a gray leaf spot-resistant ryegrass into the marketplace in two to three years.

"We planted a trial for NTEP between 12-foot plastic walls that we will heat up and see what happens," he says. "We're screening all the germplasm we can find. We have a range of reactions (and some) indicate resistance."

Different story in the South

The counterpoint to the rethinking going on in the transition and cool-season zones is in the South, where ryegrass is more popular than ever. The oddity is that gray leaf spot has never struck ryegrass in Florida because rye is used there to overseed in the winter months when it's not hot and humid.

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"For winter overseeding on bermudagrass, the rye is almost too good," says John Foy, director of the USGA Green Section's Florida Region. "It doesn't die when you want it to. It's hanging on longer, into late spring and early summer, and that creates more transition problems [back to bermudagrass]."

Responding to this, scientists are breeding intermediate ryegrasses, which are hybrids between an annual and a perennial rye, especially as an overseeding turf. "They don't have the heat tolerance of the perennials, so they transition better in late spring and early summer," Foy says.

Intermediate ryegrass, Meyer says, is a concept that has merit, but it depends

on ryegrass market prices, which are going down again.

"When perennial rye is high-priced, there's a spot in the market for intermediates," he adds. "When the rye price goes down, it puts price pressure on that type."

Meyer adds that some people have learned to manage ryegrasses in the springtime

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Rye, Bluegrass a Good Fairway Marriage

A mixture of ryegrass and Kentucky bluegrass on fairways could be the best solution for vigorous turf, according to Kevin Morris, national director of the National Turfgrass Evaluation Program.

"I like a bluegrass-ryegrass combination," Morris says. "If you have a bluegrass base, you can overseed rye into it."

Morris notes that ryegrass can be competitive with bluegrass, but superintendents can manage it. If you don't use as much water, and if you cut back on fungicides and fertilizers, bluegrass has a bit of an advantage, Morris adds.

"You can achieve a balance," he explains. "With both healthy, you can have better resistance against diseases."

Some bluegrasses tolerate half-inch mowing, Morris says.

"The one thing we don't know is how well they will survive summer patch," he adds. "That has been a problem in Kentucky bluegrass for a long time and is a main reason people turned to ryegrasses back in the late 1970s and early '80s. Ryegrasses were easy to seed and didn't have summer patch problems. A lot of golf courses didn't have fairway irrigation back then. But with irrigation and increased budgets, people are using more fungicides to fight summer patch."

Morris said NTEP is between trials for perennial ryegrass. The new test seeds were planted last fall at sites around the country, and the first results will be published in 2001.

Last year, after the final year of a four-year test, data collected from sites across North America ranked Palmer III as the top perennial ryegrass in the trials. One-tenth point below Palmer III, and thus in a statistical tie, were Brightstar II, Secretariat, Calypso II and Premier II.

— Mark Leslie

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Eye on Rye

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with plant growth regulators and herbicides, causing it to die.

"The problem is that in making a [hybrid], you lose brown patch resistance," he adds. "They look poor if you have a brown patch epidemic. So how much are superintendents gaining if they have to spray a fungicide to control brown patch?"

While overseeding fairways and

There has been a trend away from *Poa triv* to rye because of its durability.

roughs with ryegrass is a trend around the state, Foy says *Poa trivialis* is losing its dominance as the choice for overseeding greens in Florida. For the past 10 to 15 years, *Poa triv* alone or in com-

ination with bentgrass has been standard. But there has been a trend on heavily used golf courses away from *Poa triv* to rye because of its durability, Foy says.

"*Poa triv* is nice, but if you get 200 to 300 rounds per day, it doesn't stand up well," he explains. "In south Florida, bermudagrass doesn't go dormant, but it doesn't grow for two to four months in the wintertime, and the cart traffic beats it down. Every winter, I hear complaints that the fairways are too tight and they have lost definition between fairway and rough cuts."

The bottom line: Will the world of perennial ryegrass return to the idyllic? With optimism over conquering gray leaf spot, Rutgers' Meyer is positive about its status. "There are certainly some striking changes going on," he says. ■

Mark Leslie is a golf feature writer and president of Blais & Leslie Communications in Monmouth, Maine.

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Hats Off to the Settlers – and Rutgers

When William Meyer travels to Europe, it's not to see the Arc de Triumph or Big Ben. His eyes are gazing downward, scrutinizing the grass below – mostly in sheep pastures.

"We're trying to go back to the origin of the species and find new ryegrasses," says Meyer, director of the turfgrass breeding program at Rutgers University. "All the ryes originally came here with settlers from Central and Eastern Europe, so they crossed it in their pastures."

Since Rutgers supplies many of the top-rated ryegrasses that make it to the American marketplace, Meyer feels a special responsibility to the rest of the turfgrass research community. In the 1995-98 ryegrass test run by the National Turfgrass Evaluation Program, nine out of the top 10 varieties were cooperative projects with Rutgers – and the Rutgers germplasm came from Europe.

Leaving Pure Seed Testing in Oregon to join the Rutgers staff in 1996, Meyer started working in Central and Eastern Europe, including Poland, East Germany, Bulgaria, Finland and Norway as well as England.

Today, his research is integrating the ryegrasses he brought back from Europe. More than 100 germplasms found on his trips are being tested in "a large program to intercross – most of it from old sheep pastures in Europe," Meyer says.

"We're looking for characteristics from Europe, where we think we have a more diverse genetic makeup, and trying to integrate them into the pool of material we have here," he adds. "It has worked well."

He notes the impressive results from Bulgarian ryes and vigor improvement from varieties that are 25 percent Polish and 75 percent Rutgers.

Unfortunately, none of this new/old European germplasm is in the current NTEP trials, and the next trial begins in 2004. So the varieties probably won't be available to superintendents until 2005 or 2006.

– Mark Leslie