

Genetic Resistance Aids Fight Against Dollar Spot

BY DAVID A. RICKARD

Tim Christ, superintendent at Metedeconk National GC in Jackson, N.J., says that dollar spot is so bad in his area that superintendents have been hammered by the disease. But Christ doesn't lose any sleep over dollar spot on his bentgrass tees, greens and fairways that comprise 27 holes of golf at his course. He saves an average of three to four fairway sprays for dollar-spot control each year because he's planted turf that genetically resists the disease.

It's no secret that the causal agent of dollar spot, the fungus *Sclerotinia homoeocarpa*, can be a real headache on creeping bentgrass greens and fairways. Some superintendents describe the Northeastern quadrant of the United States as a dollar-spot factory. Since environmental restrictions limit the amount of pesticides superintendents in the region can use, using genetically resistant turf against dollar spot makes sense.

The choice

The elements comprising the classic disease triangle — host plant, pathogen and environment — collectively influence disease incidence, severity and duration. All three factors must be considered in making smart-disease management choices.

Trying to force the pathogen and the environment to help the cause is not easy. There's always going to be fungal inoculum, and the weather inevitably favors the disease for some part of the season. So it falls to superintendents to work on the only side of the triangle they have any control over — the choice of turfgrass.

To see how genetic resistance to disease may be an answer to the problem, note that data generated each year in the National Turfgrass Evaluation Program (NTEP) tests show some creeping bentgrass varieties can take on dollar spot and thrive. The two varieties that finished No. 1 and No. 2, respectively, in the 2001 ratings of the *National Bentgrass Test—1998—Putting Green* for "turfgrass quality of bentgrass cultivars grown on greens at three locations without fungicides" were L-93 from Jacklin Seed



and Penn A-2 from Tee-2-Green. In addition to providing good overall quality, their performance at various dollar spot locations in 2001 tells the story of how inherent disease resistance pays off.

At Rutgers University, researchers tested eight bentgrass varieties under field conditions for their susceptibility to major diseases. Two cutting heights and two nitrogen regimens were included. Creeping bentgrass varieties Penn G-2 and L-93 were least susceptible to dollar spot under most nitrogen and cutting height treatments, and required the fewest fungicide applications to control the disease.

In 1996, Texas A&M conducted a study on creeping bentgrass to evaluate the extent of dollar spot control conferred on a blend of varieties with different levels of resistance. Its data on monostands of these different cultivars tells an interesting story, clearly showing how disease resistance affects both the occurrence and degree of dollar spot infection.

Christ's secret to success was to combine genetic resistance with judicious chemical applications to fight dollar spot. Christ reviewed data from the 1994-997 NTEP trials and took recommendations from researchers who have tested many *Agrostis* varieties under severe dollar spot pressure. Christ selected L-93 from among several good options, mainly because of its consistent dollar spot resistance.

Jim Kelley, president of Evergreen Turf, a golf course management, consulting, construction and renovation company, is another proponent of the genetic resistance approach to managing dollar spot. He seeded all 18 greens at Patriot's Glen GC in Elkton, Md., with a dollar spot-resistant bent (L-93) in May-June 2001. Fairways and tees were a Kentucky bluegrass mixture. "The greens have been problem-free ever since seeding," Kelley says.

Superintendents like Christ, Kelley and Berry find it pays to combine the edge they receive from genetic resistance with timely chemical controls. Recent research studies tend to agree. ■

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