



PUTTING GREEN

a multi-purpose lab

Turfgrass professor and superintendent seek to learn which combination of soils will give Rend Lake greens the thickest, sturdiest, hardiest and fastest putting surface.

by K. C. JAEHNIG

Ken Diesburg's newest research lab is a putting green at Rend Lake Golf Course, Carbondale, Ill. "There are probably a few, but to my knowledge, this will be the only golf course green in the country with the dual purpose of being used for play and for research," says Diesburg, turfgrass professor from Southern Illinois University at Carbondale, who has set up shop at Rend Lake to come up with solutions to putting green problems.

Traffic wear solutions

Diesburg has been at work with regional superintendents since he came to teach at SIU seven years ago. They encouraged Diesburg to follow through on their idea to conduct research on a working green.

Rend Lake superintendent James Ashby, says how practical the notion was.

"We'd go to turf field days and see research plots that look fantastic, but there's no wear and tear on them," says Ashby.

"You can't simulate what ball marks will do, or spikes or someone taking a divot out

of a green when they miss a putt. Traffic is a huge problem for greens, and so is daily maintenance. Field plots may be mowed every two, three, even four days, but on a course you have to do it every day, which makes wear patterns from mowers.

"We want to see what happens to a green that is in play daily."

Tracking leachates

Work on the putting green began last fall, when Belleville resident/business owner Joe Munie of Munie Outdoor Services, Inc., provided the equipment and crewman to dig out the green space.

Kenneth Diesburg with the first stage of his research putting green. Wooden boards between plastic liners separate the soil/grass mixes. They will be removed after the turf takes hold.

The rough grading created a 7,000 square-foot, 16-inch deep 'tub,' elevated and sloped for better drainage. Diesburg lined the tub with heavy-duty plastic, and formed three compartments in the hole. Then, with four-inch plastic pipe and gravel, installed a separate drainage field for each compartment.

Research benefits

The putting green project combines education, industry, management and research, and is also a service to the public, says Ken Diesburg, who will use the green as a teaching tool for his turf management students. When two more identical greens are built at other courses, the results of comparing cultivars and rootzones will hopefully be published in scientific journals. The Southern Illinois Golf Course Superintendents Association will gain valuable information through field days at the green, and through the experimentation. Eventually, the golfing public will have more vigorous greens during the heat of the summer.

"Each rootzone is completely separate from the others, with its own drainage field, to monitor the leachate contents," says Diesburg. "This will enable us to determine the movement of nitrates or pesticides from the rootzones. We will also be able to calculate infiltration rates and water retention. Any water that drains through the root zone has to go out one spot, through the drainage field, where we can collect it," explains Diesburg. "The point is to collect what gets through the root zone."

What's wrong with sand

Diesburg, a 14-year green industry researcher, theorizes that most of the sands being used in his part of the country are comprised of particles that are too small, and, he says, barely meet USGA standards.

"The bulk of the particles are at the smaller end—0.020 to 0.030 millimeters—of the recommended predominant distribution range, which is 0.250 to 1.00 millimeters. Additionally, there is 8 to 16 percent of fine particles, less than 0.020 millimeters."

Diesburg says something must be done to the rootzones to increase water retention in the top inch while increasing the infiltration of excess water.

To test his theory, Diesburg will compare mixtures of sand and peat as rooting media in two of the green compartments. A third will contain a mix of sand and "Profile" porous ceramic.

"We're looking at two rootzones and a sand commonly used in the area. In those two root zones we're looking at two different types of peat. One is from Canada. It's got larger particles, and is more of a sphagnum peat. The other is from the Dakotas. It's more mature, with darker, finer granules.

Diesburg says the "Profile" product

Lots of help

Ken Diesburg was hopeful we'd be able to mention the various contributors to the green construction project, and we're happy to oblige.

► First was the Rend Lake Conservancy District, owners of Rend Lake Golf Course.

"Jim Ashby was going to build a practice putting green anyway," says Diesburg.

"Contributions from other entities simply reduce his cost. He contributed the bulk of manhours from his crew, as well as most of the standard materials."

► The Southern Illinois Golf

Course Superintendents Association contributed \$2000 and backing. SIGCS member Ashby says that if this project is a success, two more identical greens will be built.

► AIMCOR, Buffalo Grove, Ill., donated the "Profile" Rootzone amendment.

► Munie Outdoor Services, Inc., of Belleville, Ill., lent a grader operator to shape the rough grade for the green.

► Modern Distributing of Maryland Heights, Mo., contributed irrigation sprinklers for the green.

► John Wear of Texas contributed a biological derivative from steer manure.

T.M.



From left, Rend Lake Superintendent James Ashby with Ken Diesburg and Todd Thomas, assistant superintendent, in early stages of the research green project.

won't crumble, and is durable like sand.

Diesburg says he often finds greens drying out too fast in the top inch of the rootzone during summer. They're saturated with water just below that top inch.

"Even if the bentgrass would be vigorous enough to grow deeper roots, the roots cannot grow into a water-saturated zone,

and there is no oxygen for respiration."

"It looks like [Profile] has potential as a replacement for peat," says Diesburg. "It adds to the construction cost of a green, but if it works, the savings in green management during the next 20 years would far exceed the initial cost."

Diesburg seeks a turfgrass cultivar with nice green color, quick fill-in capacity, high leaf growth and shoot density and good all-around hardiness. He also wants to observe the differential response of these cultivars to the three rootzones.

The green is seeded with Penn A-4, Crenshaw and Penncross bentgrasses. □

—Additional reporting and contributions by Ken Diesburg and Terry McIver

ROOTZONE SOIL PROPERTIES FOR RESEARCH GREEN

	Sand	Sand/15% Canadian peat	Sand/10% Dakota peat	Sand/15% 'Profile'
Saturated hydraulic conductivity	30.2	18.2	13.0	36.2
Water retention at field capacity	5%	9%	9.7%	7.3%