



BRIEFS



**FAIRY RING DATABASE SOUGHT**

DALLAS — Dr. Phil Colbaugh of Texas A&M University is collecting and cataloguing the fungi associated with fairy ring. This will be used to develop an identification database for future research. Colbaugh is asking superintendents across the United States to send samples of fairy ring fungi to him at Texas A&M University at Dallas, Research & Education Center, 17360 Coit Rd., Dallas 75252; telephone 972-231-5362.

**NEVADA SUPERS RAISE FUNDS**

LAS VEGAS — The Southern Nevada Golf Course Superintendents Association (SNGCSA) will host its annual golf tournament for its scholarship and research fund at Painted Desert Golf Club here on Nov. 11. People may contact Dave Reich at 702-737-0272 for tournament details.



**DAR HONORS RYBICKI**

PANAMA CITY, Fla. — Ted Rybicki of Panama Country Club has been cited by the National Society of the Daughters of the American Revolution (DAR) for his distinguished conservation record. The DAR cited his conservation work over the years and his effort in having Panama CC designated, in May 1997, as a Certified Audubon Cooperative Sanctuary by Audubon International. John Spivak is superintendent at the club. Rybicki has been involved in the preservation of the Florida environment since 1961. Since 1992 he has served on the board of the Bay County Audubon Society and has been chairman of the Panama Country Club Environmental Committee.

**N.Y. TURF CONCLAVE PLANNED**

SYRACUSE, N.Y. — The New York State Turfgrass Association (NYSTA), in cooperation with Cornell University, will hold its annual Turf and Grounds Exposition, Nov. 10-13, at the OnCenter here.



The conference will feature more than 80 business and technical sessions. Speakers will include Bob Alonzi of Winged Foot Golf Club; Joe Hahn of Country Club of Rochester; Dr. Norman Hummel of N.W. Hummel & Co.; Jim Moore of United States Golf Association Green Section; and horticulturists from Hershey Park. For more information call NYSTA at 800-873-8873, 518-783-1229 or write NYSTA, P.O. Box 612, Latham, N.Y. 12110.

GOLF COURSE NEWS

# Study gives fungicides 'green light'

By DOUGLAS PAGE

Fungicide use on golf courses, long suspected of contaminating into surface- and ground-water runoff, has been given a green light by a Purdue University environmental study.

Four years of research at Purdue's Turfgrass Research Center found that fungicides do not seep into surface-water runoff or leach into ground water as previously feared.

"In terms of golf course superintendents, what we've shown is that they can use the chemicals without fear of

huge negative impact on the environment," said Ronald Turco, professor of agronomy and director of Purdue's Environmental Sciences and Engineering Institute. Fungicides, he said, do not present a problem to the environment if they are applied according to the manufacturer's recommendations.

"The reality of any fungicide application to dense turf is that most of the fungicides do not reach the ground," said Turco. "About 90 percent of the fungicide remains on the grass leaf blade, where it is absorbed by the plant within 48 hours."

While fungicides make up less than 10 percent of all the pesticides used in the United States, they are used on many types of plants, including vegetables and fruits. By far their most popular use is on golf course greens and tee boxes. Extensive use in such small areas led to the concerns.

Fungicides are known to cause birth defects and sterility in laboratory animals. Their long-term consequences on plants and animals are unknown. According to recent estimates, homeowners and lawn-care companies apply as much as 70 million

Continued on page 20

## Merrill 9 joins Ross in Maine



Brian Merrill

By PETER BLAIS

LOVELL, Maine — Just in case architect Geoffrey Cornish and *Golf Digest* architectural editor Ron Whitten are interested, here's a new listing for their much-heralded book "The Golf Course."

**Lake Kezar Country Club**  
Lovell, Maine  
Donald Ross

**Lake Kezar Country Club (A. 9)**  
Lovell, Maine  
Brian Merrill

Donald Ross, who designed the original nine at Lake Kezar near the New Hampshire/Maine border back in 1923, is a name most in the golf business likely recognize. But Brian Merrill, who designed the adjacent nine-hole addition that opened this summer, is probably a tad less familiar.

Merrill has served as superintendent of the Western Maine golf club for the past dozen years and it is his new holes that have received considerable acclaim from golfers, the press and his fellow superintendents this summer.

With legendary architects like Ross and Alister Mackenzie placed on such lofty pedestals that golf societies have been



The 16th hole of the Brian Merrill-designed second nine at Lake Kezar Country Club.

formed to protect their works, did Merrill feel any added pressure in designing a new nine next to a Ross original?

"A few of the older members that really hold Ross in esteem would joke about it," Merrill acknowledged. "But there really wasn't much said."

Besides, as with many courses that survived the Depression and the labor shortage created during World War II, the original nine at Lake Kezar has lost several of its Ross-designed features. An abandoned tee next to the No. 2 ladies tee is still visible, but it is impossible to tell which hole it served. Another abandoned tee adjacent to the 3rd green once served either the 4th or 5th hole, "but no one knows for sure,"

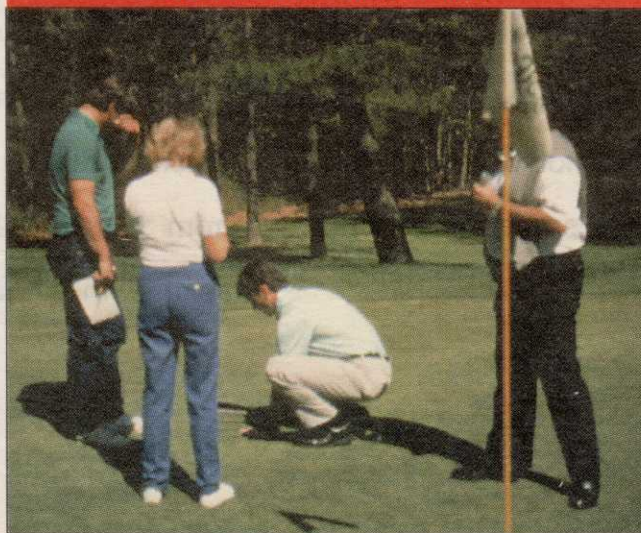
Merrill said. The green on the par-4 6th has obviously been moved back and to the right of its original location. And the putting surface on the current 18th hole, formerly the 9th, was also relocated to make the one-time par-4 into its current par-5.

"The original nine holes are certainly a Ross design, but they have changed over the years," Merrill said.

While Merrill may be a neophyte in the world of golf course design, this isn't the first time he's entered a domain with which he was unfamiliar. He had no formal agronomic training when he made his initial foray into golf course maintenance in 1982.

Continued on page 21

GOLF AND THE ENVIRONMENT



U.S. Golf Association turf visits check agronomic issues.

## There are 'standards,' and then there are standards

By RON DODSON

Setting standards for protecting the environment is a challenging process, and no less so for golf courses. Generally, no matter what environmental standards we discuss, some people demand the highest standards; others claim that if standards are set too high, they will not be economically feasible; and then of course, others believe environmental standards are not necessary at all.

Personally, I'm uncomfortable with the word "standard" and particularly "minimum standard." Why shouldn't we try to do the absolute best we can rather than establish the least we can do? But, even more important, how do we measure our environmental "best," and how do we balance economic concerns with environmental concerns?

Continued on page 24

# Fungicides

Continued from page 17

pounds of pesticide active ingredients to the nation's grass lawns each year. U.S. agriculture uses another 815 million pounds.

Inspired by these concerns, the U.S. Golf Association funded the Purdue study on turf.

"This began about seven years ago," said Turco, who has several years experience studying chemicals and chemical fates. "At that time, there was a lot of concern around golf courses about their potential impact on the environment. People assumed because you use chemicals on the golf course you'd be impacting surface and ground water."

In a series of experiments, Turco and agronomy Prof. Clark Throessell examined where the fungicides went before they were broken down. They discovered the fungicides don't wash off into local water tables.

"Once the course is built and the grass is established, the problems of runoff tend to go away," said Turco. "It's that early time period when you're getting the grass to grow, where you have bare spots and thin stands, that you see problems of pesticide movement off the golf course."

Once the course is established, he said, the whole body of literature around golf courses supports the notion that not many of the chemicals leave the site.

They found the turf protects the ground much the same as the fungicide protects the turf.

"The plant actually converts the fungicides to other things," said Turco. "It has a very active metabolism for these chemicals. The plant breaks them down like a microbe might do in the soil. Or the plant moves them around internally, sequestering them, blowing them off as carbon dioxide, binding them up in cell walls."

The 10 percent of the fungicide that doesn't get absorbed by the grass leaf blade is caught up in the thatch layer. "The thatch layer is a great binding agent," said Turco. "We've never seen any of the fungicides leaching out of the thatch layer. The fungicides get hung up before they reach the soil."

The chemical makeup of the fungicides themselves apparently causes this to happen. "They are large, sticky molecules," he said. "In the laboratory we had to take great caution not to lose them on liners and on our equipment."

Presenting a paper at the Boston meeting of the American Chemical Society in August, Turco said it is the unnatural state of the grass on the putting green that creates the need for frequent fungicide application. "Homeowners don't need fungicides," he said. "They're expensive and the need is not there in taller grass. It's only when you start to cut grass to the short height that putting greens require that you

have to apply fungicides."

For superintendents who must manage these unnatural greens for exacting customers, fungicides are a great asset. "They are one of the few chemicals that you can spray on turf and see a difference within a couple of days," said Turco. "On the other hand, fungi can cause a green to turn brown in eight or nine hours. That can cause great disappointment to golfers and, in

turn, tremendous stress on the golf course superintendent."

There doesn't even seem to be a limit to how much fungicide a plant can take up. Nothing the researchers saw led them to believe that a typical golf course would ever get anywhere near any threshold for absorption.

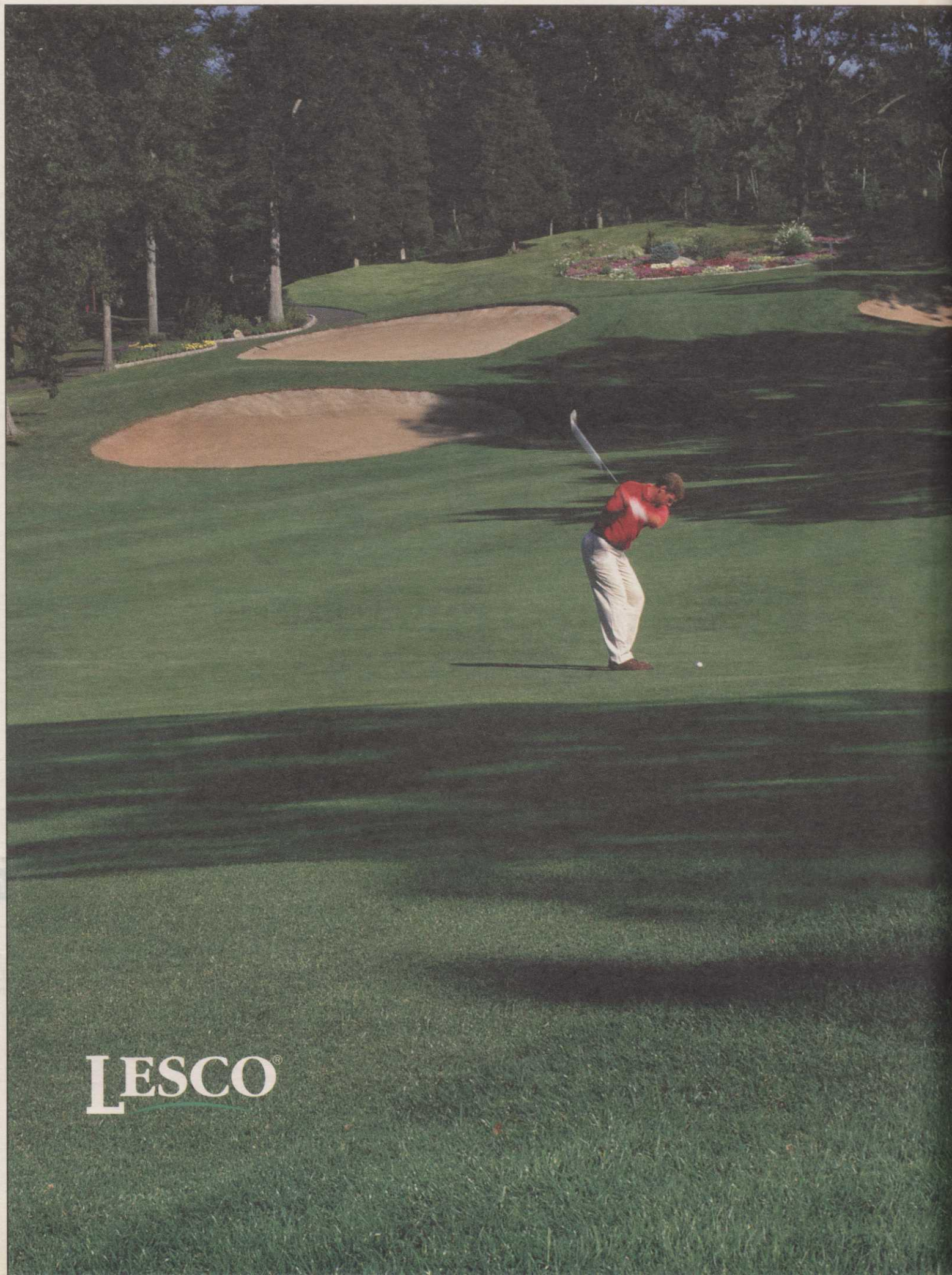
"They've always been able to absorb everything we put on," Turco said. "There probably is a threshold, but we don't approach

it with the rates we work with in the lab studies. My feeling is, you'll probably never see it exceeded in the field when you're actually applying chemistry."

Nevertheless, Turco believes that managing golf courses to use fewer chemicals of all sorts is better than relying heavily on chemicals to control pests and conditions. This awareness, he believes, should start with the design of the course and a pru-

dent placement of trees so the greens can breathe adequately, preventing stagnant air conditions that promote fungi to develop on the turf in the first place. The trees look nice, but they inhibit air circulation.

"If you're building a course you probably want to build it to minimize the potential for air inversion and air stagnation over the greens so you don't need to use a lot of chemicals," he said.



**LESCO**<sup>®</sup>