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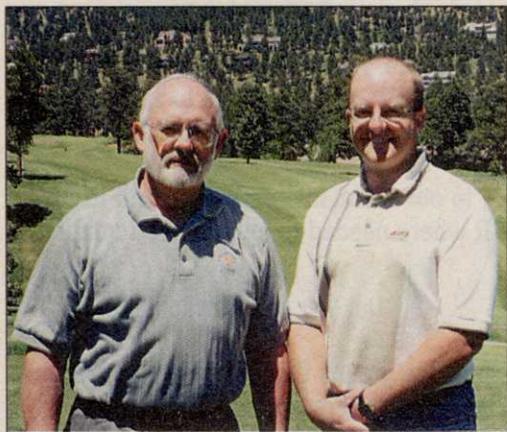
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Existing varieties improved, new types are on the developmental horizon.. 17-19



MOUNTAIN MEN

Dick Phelps, left, and son Rick have earned much of their reputation designing golf courses in the mountains. But they have also left their mark on the lowlands, and continue to do so. See Q&A with Dick Phelps, page 21.

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Of ants, flies and other friendly pests

By MARK LESLIE

FAR HILLS, N.J. — Ants that devour the eggs and larvae of cutworms, grubs and other pest insects. Parasitic flies that kill mole crickets. The risks, or lack thereof, associated with golfer exposure to pesticides.

The U.S. Golf Association (USGA) Green Section will reveal the results of investigations into these and many other matters in a soon-to-be-released report on the latest USGA-funded research projects. The research covers a gamut of topics from course construction practices and integrated turfgrass management to turfgrass germplasm enhancement, the environmental impact of golf and the Wildlife Links Program.

But key to the entire program are naturally occurring biological controls, which are becoming more

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Sports & Fitness expanding its portfolio

By PETER BLAIS

MANCHESTER, Mo. — It's going to be a busy summer for Sports & Fitness Management, the Missouri-based golf and health club management firm.

Sports & Fitness will open Fred Couples/Gene Bates-designed Stone-Bridge Golf Club in Bossier City, La., later this summer and recently agreed to purchase Garden Valley Golf Resort in Tyler, Texas. The firm is also about to break ground on a Gary Kern-designed course near St. Louis called Aberdeen and is negotiating a three-course purchase with a management firm operating facilities in Louisiana and Texas, according to Vice President

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Ocean Trails Golf Course suffers landslide between the 12th and 18th fairways, losing a bulldozer into the chasm.

Oceanside course trying to stay out of the water

By ANDREW OVERBECK

RANCH PALOS VERDES, Calif. — Southern California's answer to Pebble Beach suffered a massive setback June 2 when a 200-by 400-foot section of the 18th hole shifted out 50 feet from the rest of the course, leaving behind a 60-to 90-foot-deep ravine between the 18th and 12th holes.

The section of the course that shifted sat on an ancient landslide, which was bisected by an aging Los Angeles County sewer line. It is widely speculated that a leak in that sewer line touched off the land movement.

The Ocean Trails Golf Course, designed by Pete Dye, was only weeks away from opening and develop-

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Tests reveal good & bad of ultradwarfs

By A. OVERBECK

BELTSVILLE, Md. — As ultradwarf Bermudagrass continues to find its way onto golf course greens across the United States, independent research and on-site testing suggest that best management practices for these "super dwarfs" are radically different than for standard Bermudas.

In cooperation with the United States Golf Association and the Golf Course Superintendent's Association of America, the National Turfgrass Evaluation Program (NTEP) is currently in the second year of a five year ultradwarf test at eight courses across the

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WEISKOPF BUSY IN MICHIGAN

Cedar River Golf Club at Shanty Creek joins The Legend, Schuss Mountain Golf Club and Summit Golf Club at the four-season golf and ski resort. See story, page 26.

Pebble Beach megasale being worked out

MONTEREY, Calif. — Pebble Beach has changed hands for the fourth time this decade. A group of investors that includes Arnold Palmer, former baseball commissioner Peter Ueberroth, actor Clint Eastwood, former United Airlines CEO Richard Ferris and General Electric Pensions agreed June 17 to purchase

the Pebble Beach golf resort for \$820 million.

Pebble Beach was bought for \$841 million in 1990 by Japanese businessman Minoru Isutani, who turned around two years later and sold it to Taiheiyo Club, Inc., a Tokyo-based resort company, for

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Ultradwarfs

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Southern United States. The 1998 findings from the NTEP trials offer preliminary information and establishment data on five ultradwarfs and two standard-entry Tifdwarf Bermudagrasses (see table).

"With this trial we allow superintendents at each club to manage the turf the way they would manage the rest of their golf course greens," said Kevin Morris, NTEP's national director. "While management practices differ quite a bit, we hope to get good data on the differences between the ultradwarfs and the Tifdwarfs and establish the differences between the ultradwarf varieties."

Ultradwarfs have created a lot of interest because they combine the hardness of a Bermuda with similar density and low mowing height of bentgrass. "These are for courses that have used Tifdwarf, but would like to mow it closer," said Morris. "Or for those who have had bentgrass but who are in the South and would like to try something else."

However, while ultradwarfs have their advantages, they also require attentive management. "They are finer and more upright than Tifdwarf and they look a lot like bent," said superintendent Keith Ihms at Bent Tree Country Club in Dallas, one of the eight testing sites. "But hopefully

nobody has the impression that they will be any easier to maintain."

Experts say since ultradwarfs have an aggressive growth pattern and a greater shoot density, they are more prone to developing thatch. Therefore, they require more frequent and light top dressing, frequent verticutting and must be kept at or below 1/8 inch mowing height.

"It takes more intensive management to keep the thatch under control," warns Dr. Richard White of Texas A&M University and sponsor of the on site test in Houston. "Ultradwarfs are not for every golf course."

A careful eye must also be kept on fertilization practices, especially with nitrogen levels. While the high density provides a better putting surface, it also makes overseeding difficult and could result in a significantly altered root-zone profile.

"If I had to say one word about maintaining ultradwarfs it would be 'verticut,'" said Dr. Beth Guertal of Auburn University, who is sponsoring the on-site test in Birmingham, Ala. "If you don't have the budget to verticut twice a month and top dress twice a month, you shouldn't consider an ultradwarf."

The on-site superintendents agree. "We have had to verticut them a lot more often, weekly or bi-weekly, as well as top dress them," said Ihms.

Mike Sandburg, superintendent at

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NTEP Bermudagrass test in Houston (Lakeside CC)

Name	Genetic Establishment		QUALITY RATINGS			
	color	rating	Aug.	Sep.	Oct.	Mean
Mini-Verde	5.0	7.7	5.0	5.7	5.7	5.4
Champion	4.3	6.0	5.0	5.7	5.3	5.3
Floradwarf	4.7	6.3	4.0	4.7	5.7	4.8
MS-Supreme	3.3	7.3	3.7	5.0	5.7	4.8
Tifeagle	3.0	6.3	3.3	4.7	6.0	4.7
Tifdwarf	3.3	7.0	2.3	3.3	5.0	3.6
Tifgreen	1.0	7.3	1.0	1.0	1.0	1.0
LSD Value	1.9	0.8	1.6	1.3	1.1	1.2

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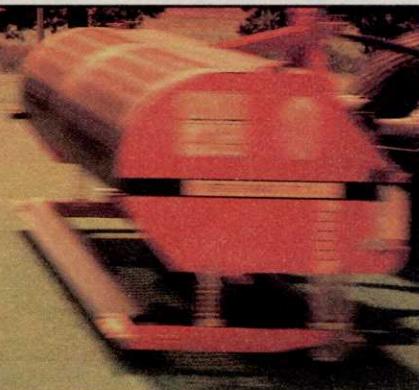
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Ultradwarfs

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year," said White. "In fact, above 10 pounds we start to see problems because of the aggressive thatching tendencies."

Mowing height is also critical, with 1/8 inch being the ideal height of cut. "Even at 5/32s thatch begins to be a problem and there is considerable scalping," said Dr. Bryan Unruh of the University of Florida, and sponsor of the on-site test in Mobile, Ala. "If the mechanic can't get a mower to cut true at 1/8 then there is going to be trouble."

While these maintenance practices help ensure proper turf health and growth, they may also adversely affect long term turf quality. As a result of light top dressing, root-zone profiles could be altered because the ultradwarfs act as a filter, allowing only fine sand to pass through.

"I am seeing a lot of black layer on established ultradwarf greens as a result of improper water infiltration," said Dr. Milt Engleke of Texas A&M University and sponsor of the on-site test in Dallas.

Bermudagrass

Continued from page 17

inch. But only MiniVerde and TifEagle produced higher quality at a mowing height of 0.187 inch.

• At Mississippi State University, Dr. Michael Goatley Jr. is in the second year of a \$72,790 three-year study to determine the origin of the off-types that arise in hybrid Bermudagrass golf greens.

"Off-types of hybrid Bermudagrass putting green varieties are a persistent problem in Southeastern golf courses," Goatley said. "They disrupt green uniformity and interfere with ball roll. Their effects sometimes necessitate green replacement."

His goal is to learn if their formation has a genetic and/or cytological basis.

• At North Carolina State University, Dr. Rongda Qu is in the second year of a \$125,000 five-year project to obtain transgenic plants of hybrid Bermudagrass that express nematode-resistant genes.

• At Oklahoma State University, Dr. Charles M. Taliaferro is in the midst of a \$125,000 five-year study that will assess the cold-hardiness of advanced breeding lines of Bermudagrass, and isolate and characterize cold-regulated genes responsible for conferring freeze tolerance.

Taliaferro reported substantial progress toward isolating and characterizing cold-regulated genes from Midiron Bermudagrass.

In 1998 Taliaferro began a \$124,978 five-year project of breeding and evaluating Bermudagrass varieties.

"This is a red flag. Bermuda is not Bermuda anymore. We are going to have to start doing things differently than we used to."

With that in mind, research on ultradwarfs is continuing.

Even with constant verticutting and top dressing, White admits that thatch control is still not as effective as it should be. "We are going to look at core aeration in addition to verticutting and top dressing to control thatch accu-

mulation and see if we can be more effective," he said.

Guertal and Unruh are starting tests on cold tolerance and how to deal with established thatch.

Unruh has a 14,000-sq.-ft. green of TifEagle at his research facility that has about 2-1/2 to 3 inches of thatch and he plans to start a thatch remediation study in the coming months. "Everybody is going to plant these ultradwarfs and they will thatch,

so we have to look at how you get rid of it," said Unruh.

However, the advantages of ultradwarfs may outweigh the added maintenance headaches, according to Ihms and Sandburg.

Sandburg is working with Tifdwarf greens and intends to convert to an ultradwarf within the next three to five years. "We are going to wait until years three, four and five to decide which ultradwarf to go with," he said. "So far there is not a

favorite, but all the members agree that they are more acceptable than the Tifdwarf surfaces."

Ihms, who is working with bent greens, is also studying at the ultradwarfs. "When bent is good, nothing can beat it," said Ihms. "The question is, how often is that? Look at what you have to do to get there, running fans, etc. How much sense does that make, especially when these ultradwarfs are peaking while bent is down?"

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