

# GOLF COURSE NEWS

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## DNA fingerprinting pegs rogue cultivars

By LARRY KIEFFER

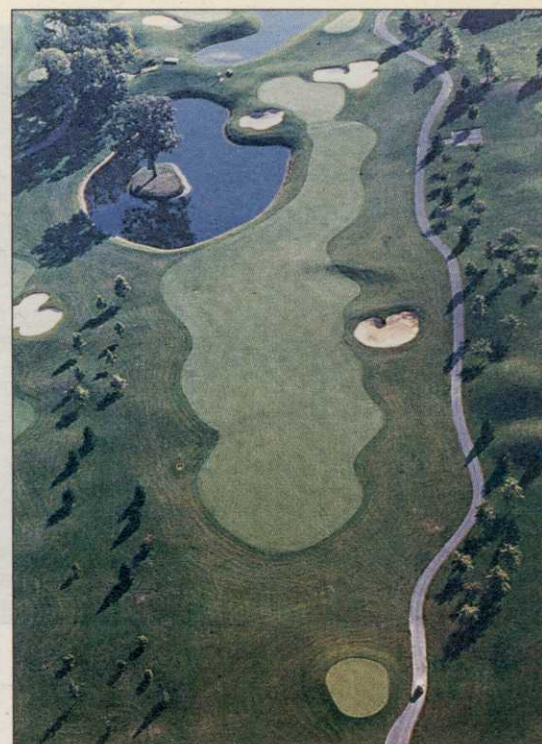
TAMPA, Fla. — Developing techniques to identify "off-types" of Bermuda grass through DNA analysis has become a market-driven research project in Florida. Superintendents in the state increasingly face job insecurity as these off-types appear on their golf courses, particularly on the greens.

The objective is to find a reliable means of verifying a cultivar before it is planted. With his job on the line, the superintendent wants to make sure he is getting what his boss

is paying for.

"We have found that DNA fingerprinting has proved to be a powerful tool for identifying off-types in Tifway Bermuda grass," said Dr. Phil Busey, one of four researchers with the University of Florida's Institute of Food

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### FERTIGATION OVERVIEW

This blimp shot of the 10th hole at Bent Creek Country Club in Lancaster, Pa., was taken last August at the height of heat and humidity season. How did superintendent H. James Loke maintain such color and plant vitality? The answer is fertigation. See this month's Super Focus on page 22.



### THE GAME'S THE THING

Architect Ken Kavanaugh said he won't compromise the game for appearance's sake. See story page 29.

## Biosolids gain favor

By MARK LESLIE

OGUNQUIT, Maine — Nutrient-rich, disease-suppressant "biosolid" compost is gaining support and becoming a player in the world of golf course design and maintenance.

Some took notice when Firestone Country Club used a biosolid compost to rebuild its greens two years ago. Others have watched as several courses in Ohio purchased the Kurtz Bros.' sludge compost product, Technigrow.

Now courses are contracting companies like Kurtz and Brown & Ferris Industries (BFI) to provide biosolids for the root-zone mix on greens in new course construction and

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Forum Update  
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### U.S. OPEN GOES PUBLIC IN 2002

Score another victory for public-access golf in America: The U.S. Golf Association will, for the first time, conduct its Open Championship at a publicly-owned facility: the Black Course at Bethpage State Park on Long Island (the par-3, 17th is shown here). For story, see page 3.

### COURSE MAINTENANCE

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## Course marketing entering new media

### • The Internet

By PETER BLAIS

ST. GEORGE, Utah — Developers of a golf and residential community in southwest Utah have started their own web page to keep the 2,000 investors informed about the project's status on a daily basis.

Golf Ventures Inc., a publicly traded company specializing in golf and related real-estate development, is building Red Hawk International Golf Community, located 30 minutes from Zion National Park and 90 minutes from Las Vegas.

Through its web site — www.gvim.com — GVI



keeps investors apprised of daily developments at the 670-acre project, home to a 27-hole Fred Couples/Gene Bates-designed golf course, clubhouse, tennis facilities and 945 residences. The first phase, 18 holes and 114 dwelling units, should be completed by spring 1998.

"We use a digital camera to take photos and update them on the web page on a regular basis," com-

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### • TV and Radio

By MARK LESLIE

LINCOLNSHIRE, Ill. — Intimidated by the mere thought of doing a television or radio commercial — the dynamics, the costs, the stage fright — most golf course operators flee exclusively to other media to promote their facilities.

Resist no longer, urges Vince Alfonso Jr., president of Alfonso Creative Golf Enterprises in Williamsville, Ill. Alfonso will conduct a one-day seminar, "Marketing Your Course on TV and Radio," following the Public Golf Forum here this month.

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# Mini-dwarf Bermudas may end debate over bent

By MARK LESLIE

WESLACO, Texas — If the bentgrass experiment isn't over already in the deep South, some new mini-dwarf Bermudagrasses may be ending the debate themselves. Course architect Jeffrey Brauer of GolfScapes, whose new Tierra Santa golf club here sports Champions Bermudagrass, sings the praises of this "mini-dwarf" variety.

"Champions," he said, "looks very promising. It has shorter nodes, so it can be cut even shorter than Tifdwarf — almost down to 1/10th inch. That allows it to begin to approximate the putting qualities of bentgrass. It stands straight up and is very fine-bladed.

"Champions promises the environmentally friendly aspects of Bermuda, but with a better putting quality."

Saying he sees "a trend here in Texas of replacing bentgrass greens with Bermudagrass," Brauer said several courses in the Dallas area have converted.

"It [trend] is something I fully support," said Dale Miller, director of maintenance at Barton Creek Club & Conference Center in Austin, the first facility in the region to convert its greens to Champions. "This grass opens a lot of doors, makes life a little easier environmentally, and still provides great conditions."

Bentgrass is the universally preferred putting surface, but as a cool-season turf it often dies in this hot region. Miller found himself using several temporary greens for two or three months a year, "which is unacceptable" at his two courses — one private, one resort.

Since converting the Fazio course at the 36-hole Barton Creek last year, Miller said he has "talked to 30 to 40 supers, GMs and greens chairmen from Georgia and Florida throughout the South to Palm Springs [Calif.] about what you have to do, timing, all kinds of issues dealing with conversion."

In the case of Champions, Coastal Turf in Bay City is the only place that has the grass, and owner Morris Brown owns the patent on it, Miller said.

Miller estimated the cost savings in converting from bentgrass to the new mini-dwarf Bermudagrasses range from \$40,000 to \$50,000 per year.

"A lot of the expense is in chemicals," Miller said. "And labor-wise, it's cheaper because you don't have guys out hand-watering nearly as much. Plus, I don't know how to put a dollar figure on the time I and my assistant had to put into [dealing with bentgrass problems]. Maintenance took a lot of people with knowledgeable eyes on bentgrass — far more so than on Bermuda."

Bermuda, he said, needs to be aerated twice a year instead of the five times required for bentgrass here. And while Bermuda uses more water and fertilizer

than bentgrass, Miller said that is "not a big cost factor because you're only talking about 3 acres."

"From a mowability standpoint," he said, "we mow this grass at 1/8-inch or lower all summer long. With the bentgrass, we had to mow at 3/16-inch. Now we have a good, fast putting surface in the summer versus a real slow, soft one. This grass doesn't spike up. You can make it as firm or fast as you want. You can make it as fast or slow as you want."

"So you really dictate what conditions you are going to provide instead of the bentgrass dictating them."

Miller said the new mini-dwarf Bermudagrass is "much more dense than the old standard dwarf. It's definitely more aggressive. It rivals most of the bents in shoot density, and that's always been one of the biggest arguments against Bermuda."



**BRAUER COURSE DEBUTS UP NORTH**

The Jeffrey Brauer-designed Giants Ridge Golf Course in Biwabik, Minn., has opened for play after several years of environmental wrangling with state and local environmental officials (GCN August 1994). Lanny Wadkins was the co-designer.

# DNA test exposes 'off-type' Bermudas

Continued from page 1

and Agricultural Sciences working on the DNA project funded by the Florida GCSA and the Florida Turfgrass Research Foundation. Busey was speaking at the annual FTRF Research Report in conjunction with the Florida Turfgrass Association's annual Conference and Show Aug. 25.

"On the other hand, the current DNA technology is not effective in distinguishing genetic differences among the off-types that appear in Tifdwarf putting greens," Busey said. "This finding, of course, is consistent with speculation prior to the research—that the off-types on greens are most simply explained as mutations. A mutation involves a very, very small part of the entire genome and is not easily detectable with existing DNA technology."

In a follow-up interview, Busey noted that researchers at the University of Tennessee have made progress in distinguishing genetic differences between Tifgreen and Tifdwarf, but the procedure is not yet practical for extensive use under field testing.

The Florida team is using the random amplified polymorphic DNA (RAPD) method to produce the fingerprint patterns.

Even though genetic differences among the putting greens Bermudagrasses could not be established, a collateral morphological study of the off-types confirmed the existence of two cultivar groups with growth habits that differ markedly from each other and from Tifdwarf.

The morphological profile of one group of "off-types" closely resembled that of Tifgreen, a Bermudagrass also used on putting greens, and the other was dubbed an "ultradwarf."

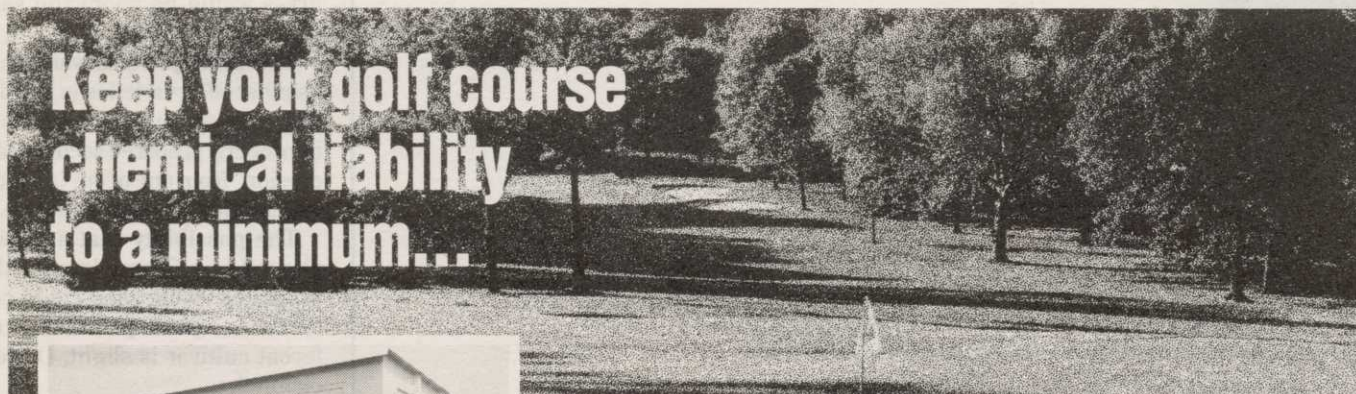
"The fact that these off-types have appeared consistently on several different golf courses indicates that the mutation probably occurred before the grass was planted," Busey said.

Furthermore, he noted four of the cultivars morphologically similar to Tifgreen came from commercial suppliers who had presented their samples as Tifdwarf.

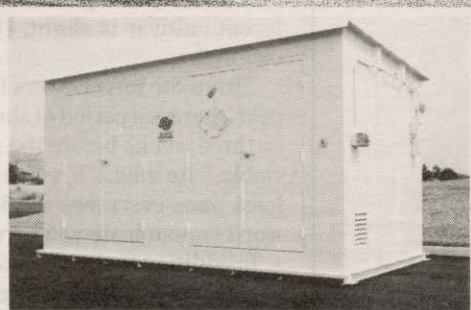
Since genetic testing currently cannot detect the existence of the mutations, the superintendent's only defense are the normal precautions against contamination, such as using a certified source on sterilized soil.

"The single best defense is to make sure your grass was grown from a single sprig," Busey noted.

Busey, a breeder at the IFAS Research and Education Center in Fort Lauderdale, is joined on the research team by Dr. Nigel Harrison, a plant pathologist also at Fort Lauderdale, and two researchers at the university's main campus in Gainesville — Drs. Al Dudeck, a breeder, and Charles Guy, a physiologist and biochemist. Harrison and Guy supervise the DNA sampling, while Dudeck and Busey are growing the grasses and conducting the morphological study.



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