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Sowing the Seeds R&D

Companies continue to search for top turfgrass species

BY PETER BLAIS

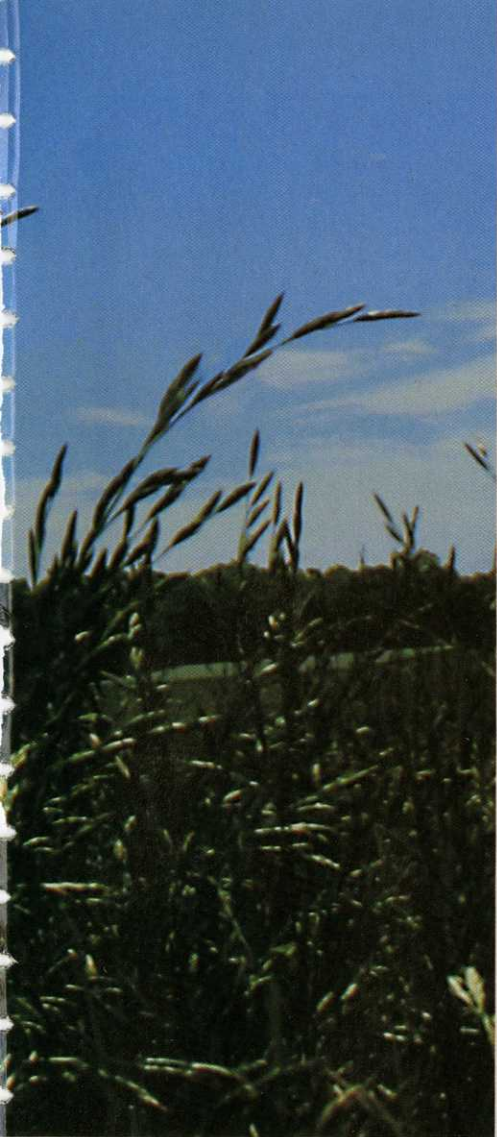
Seed companies are working diligently to improve all types of golf course turf, although recent headlines have focused on the efforts of The Scotts Co. and Monsanto Co. to gain government approval of a genetically engineered bentgrass that is resistant to the herbicide Roundup.

According to a recent *New York Times* article, an Environmental Protection Agency (EPA) study showed that the genetically engineered bentgrass pollinated test plants of the same species as far away as 13 miles downwind from a 400-acre Oregon test farm. Natural growths of wild grass of a different species were pollinated nearly nine miles away. Previous studies had measured pollination between various types of genetically modified plants and wild relatives at no more than about a mile.

The study has heightened concerns that the

grass could spread to areas where it is not wanted or transfer its herbicide resistance to weedy relatives. Because of the environmental questions, a decision on a U.S. Department of Agriculture petition for commercial approval of the bioengineered bentgrass will likely take at least another year because the department has decided to first produce a full environmental impact statement.

Scotts' Director of Communication Jim King said the outcome of the EPA study was not overly surprising. "Grass creates pollen that is very, very light," he says. "When you get a lightweight pollen up in the air with sustained winds, clearly it's going to travel. This was our production field, so we were fully involved with this study and cooperated with EPA every step of the way. The study showed pollen flowed farther than we had documented in the past. The main reason that was true was because pollen flow



LARRY KASSELL

A major goal for seed companies is to develop varieties that overcome various stresses.

had never been tested from such a big production field. [Previously] we had tested it from just a few plants. Other than that, there was nothing about the study we found too surprising. We remain fully engaged in the regulatory process.

“While there have been questions raised about pollen flow and some technical questions about the petition and our technology,” King added, “there has been no debate we are aware of that there are some real environmental [benefits] and market benefits to RRCB [Roundup Ready Creeping Bentgrass]. We believe — and to this point no one has disputed the fact — that the product will result in significantly less use of more-toxic chemicals to manage weeds and other issues for golf courses.”

The RRCB debate has deflected

attention away from the short-term (one to two years into the future) and long-term (10 years and more) efforts of researchers at Scotts and other seed companies as they look down the road for ways to overcome various stresses placed on turfgrasses and improve overall playing conditions.

In the short-term

“Water use will continue to be the No. 1 issue on golf courses,” says Wayne Horman, director of seed sales and marketing with Scotts, which is looking at bluegrasses that would use less water and grow slower. “We are making advancements in traditional breeding. For instance, we have taken a Kentucky bluegrass and crossed it with a Texas bluegrass that gave us a new hybrid [called Thermal Blue]. By doing this, we pushed the transition zone south. If you are in Memphis [Tenn.], Birmingham [Ala.] or Knoxville [Tenn.] and tall fescue is your current grass choice, it may

not be as much fun [as bluegrass] to hit out of, is not as attractive, does not repair as well and is susceptible to brown patch. Now you are able to use bluegrass.”

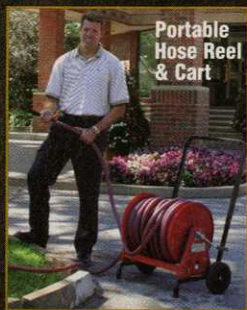
Barenbrug USA Director of Research Devesh Singh says his company is concentrating on salt tolerance, particularly in the South and Southwest, as well as shade tolerance and turf recovery, especially on tees.

“Generally we are not looking at one variety, but at mixtures,” he says. “We’re working with courses here in the Northwest on fine fescues that blend well with perennial ryegrasses.”

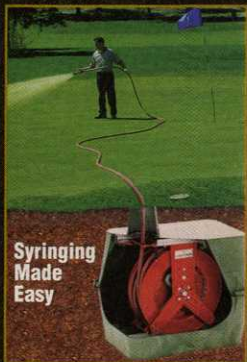
An annual ryegrass called Canterra is drawing a lot of interest at Barenbrug.

“It’s good for sports and turf fields, but it can be used on golf courses in the South,” Singh says. “It’s fairly inexpensive and, with perennial ryegrass so expensive, it is a good overseeding alternative. You don’t have to spray to

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Seeds of Change

Continued from page 53

remove the annual ryegrass since it will die off anyway. It makes a beautiful golf course turf and has good wear tolerance. The perennial ryegrasses are getting so persistent they are hard to remove. We are looking for even more wear tolerance and darker color in the annual ryegrass."

Seed Research of Oregon Technical Agronomist Skip Lynch says his firm is making strides on dollar spot resistance and will introduce three new bentgrass varieties next year that are resistant to the disease. The Corvallis, Ore.-based company has also cross-bred bluegrasses to develop a variety called Cheetah that's fine-textured, upright and aggressive.

Lebanon Turf recently introduced Declaration and Independence creeping bentgrasses and Legendary velvet bentgrass, according to Turfgrass Marketing Manager Murray Wingate, who is particularly intrigued with Legendary.

"The velvets have a limited geography,



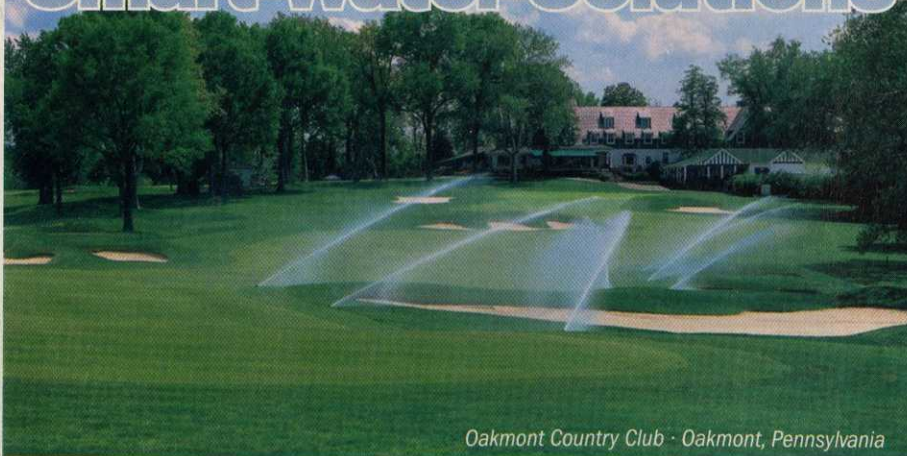
JASON STAHL

Researchers are continually investigating drought-resistant and salt-tolerant turfgrass types.

adapted primarily to the Northeast, Upper Midwest and Pacific Northwest," he says. "But that could change as some of these new varieties of velvet bentgrass come out.

The velvets use fewer inputs and have better dollar spot resistance than many of the bentgrass varieties out there. They are dense, keep *Poa annua* out and provide a

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nice putting surface without a lot of chemicals or water. With the potential loss of some fungicides down the road, you could see a real resurgence of velvet bentgrass."

Finding a way to combat brown patch in tall fescue is another point of emphasis at Lebanon. "We are getting some fescues that are starting to look more like bluegrasses, with finer texture, darker color and denser canopies," Wingate said. "But a denser canopy may exacerbate brown patch potential. So you need to look for more brown patch-resistant grasses at the same time."

Russ Nicholson, Pennington Seeds national sales manager for the Professional Turfgrass Group, says his company is looking at ways to further improve bermudagrass, including Princess 77, considered among the leaders in the growing seeded bermudagrass market. The firm is also a player in bluegrass and bentgrass.

"With the bermudagrasses, we are trying to improve shade tolerance, drought tolerance, texture and make it more economical to establish," Nicholson says. "With the bluegrasses, we are increasing drought tolerances and stress resistances that coincide with those species so we can take it down to a half-inch in the fairways and still be strong enough to recuperate from divot and cart damage. With bentgrasses we are looking at improved disease and drought tolerance so we don't need to apply as many chemicals as in the past."

In the long-term

Strides made in research over the past 10 years have allowed superintendents to mow greens lower than ever. But some wonder whether lower is better and look for the emphasis to change over the next decade.

"You can't get much lower with green cuts," Nicholson says. "They are down to one-tenth of an inch in many places. Green design may have to change. Years ago the classic courses had very undulating greens. With the ultradwarf bermudagrasses and bentgrasses [cut so short], it has become difficult for the average golfer to enjoy a round of golf on that type of

putting surface. Speed can be controlled by other things than height of cut."

Nicholson says smoothness in greens has much to do with speed.

"With the bermudagrasses, we are trying to improve shade tolerance."

RUSS NICHOLSON
PENNINGTON SEEDS

"Topdressing and rolling are important," he adds. "That way you can allow the turf to actually grow and not scalp it down so close to the crown that the turf is always under stress. You need to breed plants that are very efficient in using and storing energy from the sun."

Adds Lynch: "There is no agronomic reason to mow greens as tightly as some are being mowed today. If you can develop a variety that germinates quickly, establishes quickly and can give you a putting surface that does not have to be cut below one-eighth inch, why wouldn't you do it? The tighter you mow, the more accentuated the flaws of the greens, including spike and ball marks. I would hope greens will be cut longer in 10 years."

Lynch also believes the increasing emphasis on renovating existing courses rather than building as many new ones will encourage the development of putting-surface grasses that establish quickly. "Owners do not want to be closed down for a long time. So if you have varieties that you can seed and have open in less than 10 weeks, that's a direction you have to go." ■

Blais is a freelance writer from Monmouth, Maine.



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Designs on Golf

■ ARCHITECTURE

The real culprit of slow play? Players pacing off yardages to and from sprinkler heads. Or so says the peddler of Laser Link, a \$239 hand-held rangefinder that picks up a signal from flagsticks with embedded prisms.

In a matter of seconds, the Laser Link tells the golfer how many yards he has to the hole.

Jack Nicklaus and Arnold Palmer endorse the Laser Link. "Knowing the exact distance to the hole is a key element in hitting a good shot," Nicklaus reasons. "There's nothing as disappointing as hitting a good shot with the wrong yardage. Eliminating doubt allows a player to fully concentrate on shot execution."

In addition, USGA Executive Director David Fay told *Golfweek* last year that he's a "big fan" of the Laser Link.

These heavyweights donned their Laser Link cheerleading sweaters because the device will cut 10 minutes to 15 minutes off the average 300-minute round. At least, that's according to the company.

This assumes that enough golfers buy the device while courses purchase the \$900 set of flagsticks. (And courses budget for replacement sticks in anticipation of pranksters carting them off in the night, or when Judge Smails cracks the prism with his putter).

The product works fine and looks cool. What's not to love for gadget lovers?

Actually, plenty. As with all "progress" in golf, there is underlying cost. Not only is the device an unnecessary expense for the average golfer, the debate over rangefinders takes us back to the question of what constitutes "too much information?"

As the pace-of-play plague is killing the sport, the USGA executive director endorses a commercial solution to the problem.

Why? Because this is easier to implement than addressing the distance issue, which is about longer courses and more rough. Increased distances are logjamming golfers on designs not meant to handle 15-handicappers waiting to reach 545-yard holes in two.

Thankfully, they haven't lost their minds yet over in Scotland.

"As I look out my window over the links of

Too Much Tech, Not Enough Sense

BY GEOFF SHACKELFORD



JUDGMENT IS
SUPPOSED TO BE
A KEY COMPONENT
OF THE GAME. SO IS
LOCAL KNOWLEDGE

St. Andrews," says Peter Dawson, secretary of the Royal and Ancient Golf Club, "the last thing I want to see is a golfer with a bag over his shoulder coming up the 18th fairway and stopping to pull a bloody telescope out of his pocket to measure the distance. What's next? A windmill to measure wind currents?"

Fay answers that concern just as he and the USGA Executive Committee have been addressing the distance issue: "Stop it right there."

Yeah, right. We'll make this one compromise, but all others we'll stop.

Fay points to the information golfers already have and that rangefinders are just a natural extension of yardage markers on sprinkler heads, Global Positioning Satellite (GPS) systems and yardage books.

He's right. But this is the point: The golfer has too much information already. Judgment is supposed to be a key component of the game. So is local knowledge.

A golfer who learns to play a course through osmosis, or actually pacing off yardages, should have an advantage. Information overload strips the sport of subtlety and creativity.

Still, the rangefinder trend takes the issue to a new level. The information we are talking about comes with a much steeper price tag than a \$7 yardage book or \$10 cart rental complete with GPS.

At a time when the USGA claims to be doing its best to grow the game by endorsing various programs that include all-important efforts to make golf less intimidating to newcomers, here they go again rubber-stamping just another commercial solution that adds cost and strips the sport of its integrity.

Where does it end?

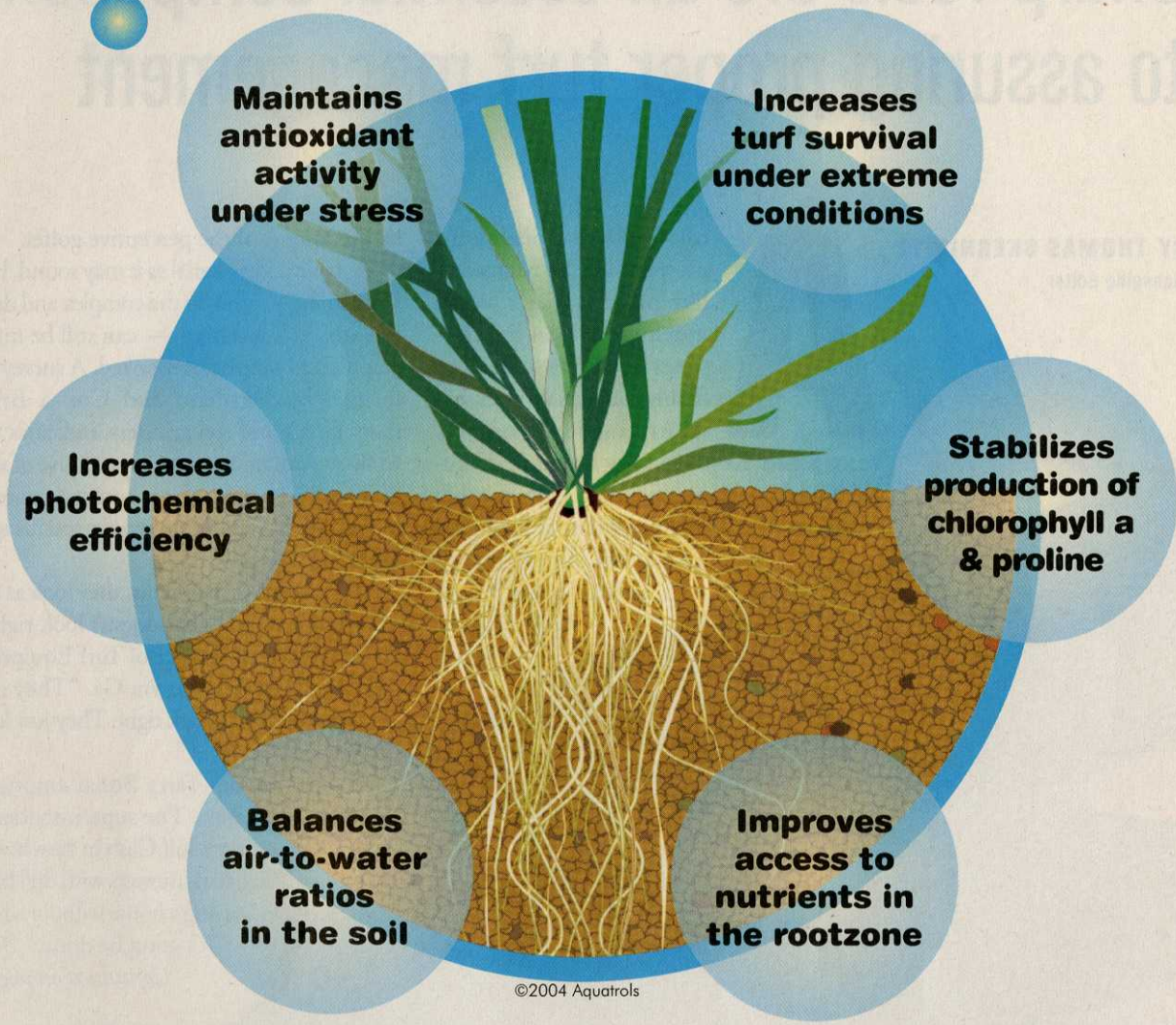
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Clear-Cut Conclusion:

Sharp reels are an essential component to assuring proper turf management

BY THOMAS SKERNIVITZ
Managing Editor

Armed with dull blades, the mower with the Mercedes-like price tag isn't worth much more than the clippings left in its wake. The freshly cut grass survives, but its striking luster quickly turns ashen; its uniformity becomes irregular. The damage is done, even if every other aspect of turf management is faultless.

Guilty is the simple reel or bedknife that wasn't half as sharp as will

be the tongue of the perceptive golfer.

As basic and essential as it may sound, blade sharpening — even in the complex and detail-oriented golf industry — can still be underemphasized or even overlooked. A survey performed by Bernhard and Co., a British manufacturer of reel grinders, indicates that, while superintendents are appreciative of sharp reels, only 18 percent of them associate the method of sharpening as a process specific to the health of their grass.

"A lot of superintendents, they look at their grass and just say, 'That doesn't look right,'" says Jay Rehr, the owner of Turf Equipment Consulting in Grovetown, Ga. "They don't know *why* it doesn't look right. They just know it doesn't look right."

Don't count Terry Bonar among the unenlightened. The superintendent at Canterbury Golf Club in Beachwood, Ohio, likens mowers with dull blades to "having a house without a roof."

"It's gotta be done," Bonar

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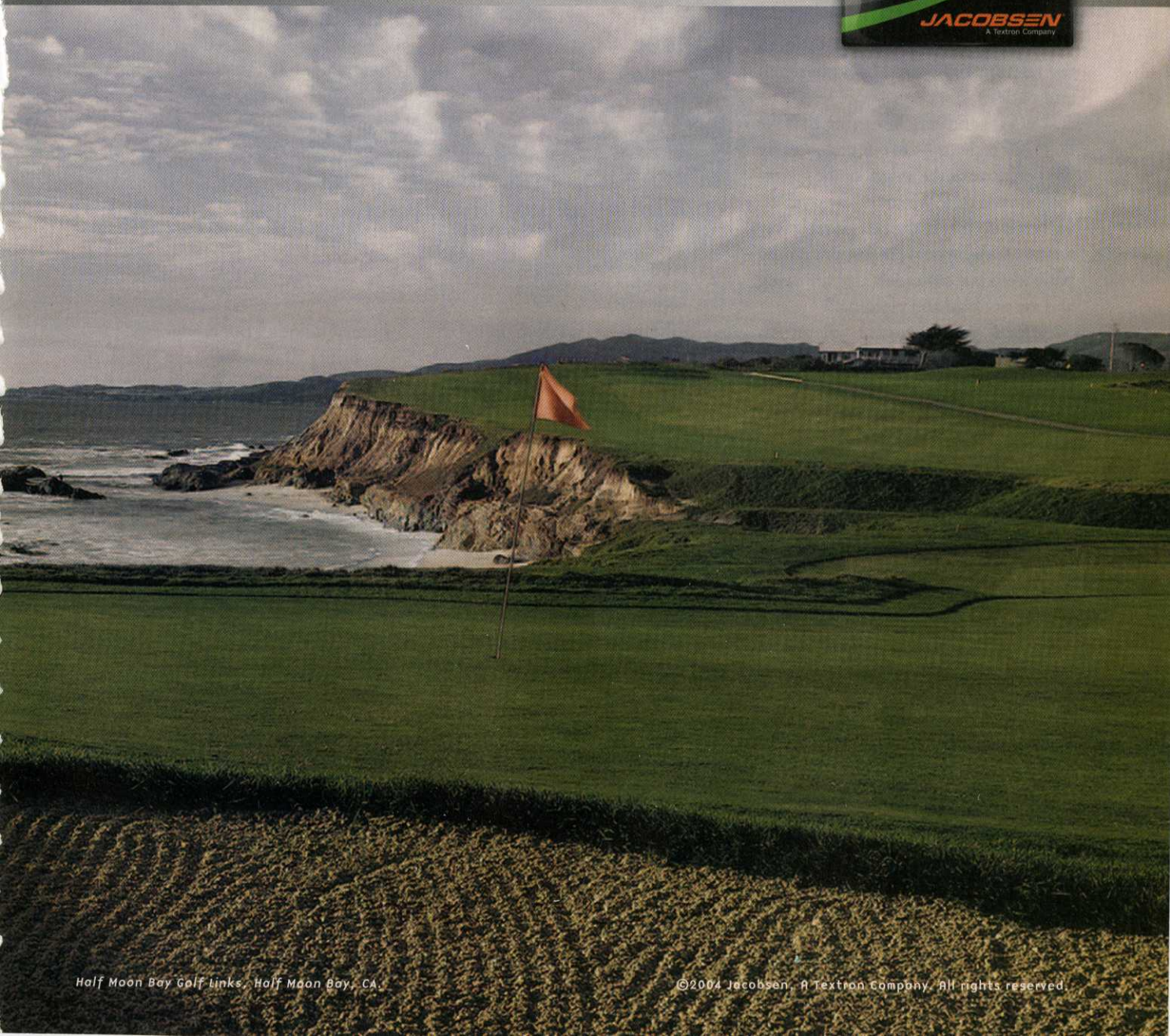
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can turn to ruins
if mower blades
are less than
sharp.**

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Clear-Cut Conclusion

Continued from page 58

says. "And you gotta do it right."

Bernhard and Co. is one of more than a half-dozen blade sharpening companies that aims to ensure that the task is performed accurately.

"You need to regularly resharpen," owner and president Stephen Bernhard says. "And don't wait until the reel becomes so dull that the grass starts screaming at you, 'I'm being torn! I'm being damaged!' Sharpen it before it reaches that stage. This is simple, common sense, but people don't seem to realize it. They wait until things are showing signs of damage, and then they rectify it."

Bernhard analogizes the superintendent's mowing responsibilities to the relationship shared by a physician and patient.

"What's the very last thing that we do to our patients — to our turf — every day before we let the judges, or the golfers, loose on our turf? We cut it," he says. "So we better do that in the best possible way we can. Otherwise we're just presenting patients to our customers that are dying and are troubled and bleeding."

Often an accurate diagnosis depends on a thorough examination of the damaged turf, says Rehr, the former maintenance facility mechanic at Augusta National.

"The first thing we do is look at the grass because the grass will tell you a lot," he says. "You're going to drive up to it, get a feel for it from afar. You're going to walk it. You may even get down and look at it on your hands and knees. You're going to look at it from the 6-to-12 (clock) position, then the 3-to-9, then the 12-to-6, so you're going to get all the different looks at how that mower is doing."

A dull mower blade will tear away the tip of the grass, causing it to immediately bleed and eventually turn a brownish-gray.

"A trained eye can see a brownish cast looking out across the turf," Bonar says. "Maybe the members don't know, but a trained eye can see it. And it doesn't look good. It's not a clean cut."

At this point, Rehr says, it's important

TIPS ON SHARPENING

Bernhard and Co., a reel grinder manufacturer based in Rugby, England, offers these technical tips to keep mower blades sharp:

- Grind groomers regularly for sharpness and uniformity to ensure the health of the crown and horizontal stolons.
- For the same reasons, sharpen verticut reels to reduce load and minimize mechanical damage to rhizomes and root hairs. The side edges of groomers and verticut blades should be dead square. That's where the cutting actually takes place.
- Consistency across the green is as important as consistency from green to green. Imagine a triplex greensmower with one set of rollers square, one egg-shaped, and one properly round. One unit would hop-hop-hop across the green, the middle one would wobble-wobble-wobble and the third would roll-roll-roll.



STEPHEN BERNHARD

Blades must be sharpened regularly for sharpness and uniformity to promote the health of turf.

■ Reface bed bars to align new bedknives properly. Truing up a bedbar can save half the life of a tournament bedknife.

■ Reconsider the timing of your reel sharpening. Sharpening reels just prior to high stress periods can reduce disease conditions.

to take the mower into the shop and clean it so the machine and reel blades can be inspected in a variety of ways. "Does it look sharp, feel sharp and sound sharp?" he asks.

Exactly how sharp is sharp enough? If the answer is commensurate to the ever-falling cutting heights and the desire for increased green speed, there may never be such a thing as "too sharp."

"We're mowing at between a third and a quarter of the height of cut that we were at 15 years ago," Bernhard says. "We're now cutting grasses somewhere between 90 and 120 thou,' with 100 thou being a 10th of an inch."

Kim Stegh, Canterbury's horticulturist and designated blade sharpener, says green speed is a never-ending concern at Canterbury. "I'm always asking Terry what the greens are Stimping."

In turn, Bonar's crew opts to use its cutting equipment more often than many courses.

"We double-cut greens every day. So we cut them 14 times a week and 60

times a month," Bonar says.

Trying to increase green speed isn't the only obstacle that superintendents face in their quest for sharp blades and ideal cuts, according to Bernhard.

"We're using different fertilizer programs. We're using sand, I'm guessing, at six to 10 times the volume and frequency of distribution that we did 10 years ago. And we're using grass varieties that are dramatically different than those we used 10 or 15 years ago," he says.

As owner of a reel grinder company, Bernhard advocates spin grinding as opposed to the more traditional method of backlapping (or lapping). "It is a very, very controversial subject," he says.

Rehr corroborates, saying there are "five or six controversies out there" specific to blade sharpening.

"What I tell people is, 'You do what works for you.' A lot of guys in Florida, they strictly grind. There are golf courses in Ohio that strictly grind. And if you

Continued on page 62