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Ore.-based Turf-Seed which produces the Penn As and Penn Gs, defends his bentgrass for their many strengths and adds that improvements are coming.

"We intend to improve them in herbicide resistance and more disease resistance," he says. "We're not far away from resistance to Roundup or glufosinate. When we get there, it will be possible to take out Poa annua and Poa trivialis [without killing the bentgrass]. That's the big one.

"In the meantime, our bentgrass are so good that we have three-year data showing that, with time, they crowd Poa out on their own," he says.

Meanwhile, as the plant breeders of the world do scientific battle, superintendents are reaping the benefits. According to Kevin Morris, director of NTEP, the newer grass will stand up better than the older grass over time. The older grass is material from the last test which ended in 1998 — a testament to how quickly progress is being made. The first results of the newest test were released in June, illustrating that breeders are edging nearer to perfection in creeping bentgrass and are even making progress with velvet and colonial bents.

"There's no doubt the As and Gs and a few others are a lot better in the heat than a few years ago," says Jim Snow, national director of the USGA Green Section. "We're slowly moving toward greater stress and pest resistance, particularly disease resistance in the North. Maybe biotech research will come up with larger breakthroughs in disease resistance, salt tolerance and other stress problems that bentgrass has."

Snow notes that Roundup- and glufosinate-resistant bentgrass await approval from regulatory agencies. Turf-Seed's Rose points to great improvements resulting from a regimen of subjecting all the company's grasses to the harshest stress situations possible — cold, heat, salt, drought and herbicides. That makes them stronger plants, he says.

"It's not surprising," Rose adds. "When you make a stronger athlete, they get stronger at everything. We're finding that if our plants are strong in one severe test, they are strong in the others."

The biggest difference between the newer grasses from the older established varieties, Buchen says, is that they handle the lower mowing heights — even thrive on it. L-93, the As and Gs and SYNs are excellent for low mowing heights and have excellent color. They are a high-maintenance grass, however, Buchen notes.

"They save money on water because they have such good root systems, and they save money on fertilizer," he says. "But more money is spent on grooming, verticutting and topdressing compared to the older standbys."

Engelke said when the As and Gs first came on the scene, USGA research director Mike Kenna "asked me when I would come out with high-density bentgrass."

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"We're finding that if our plants are strong in one severe test, they are strong in the others."

— Bill Rose, Turf-Seed

MIKE KLEMME

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"I said, 'Do you mean high-maintenance bentgrass?' I thought our approach was to develop bentgrass that's easier to manage," he says.

"We want to be more friendly to the environment," Engelke adds. "With the SYN 96 series, 96-1 and 2 have a little higher density than Crenshaw, but not to the extent we see in the As and Gs. We have upright growth and disease resistance."

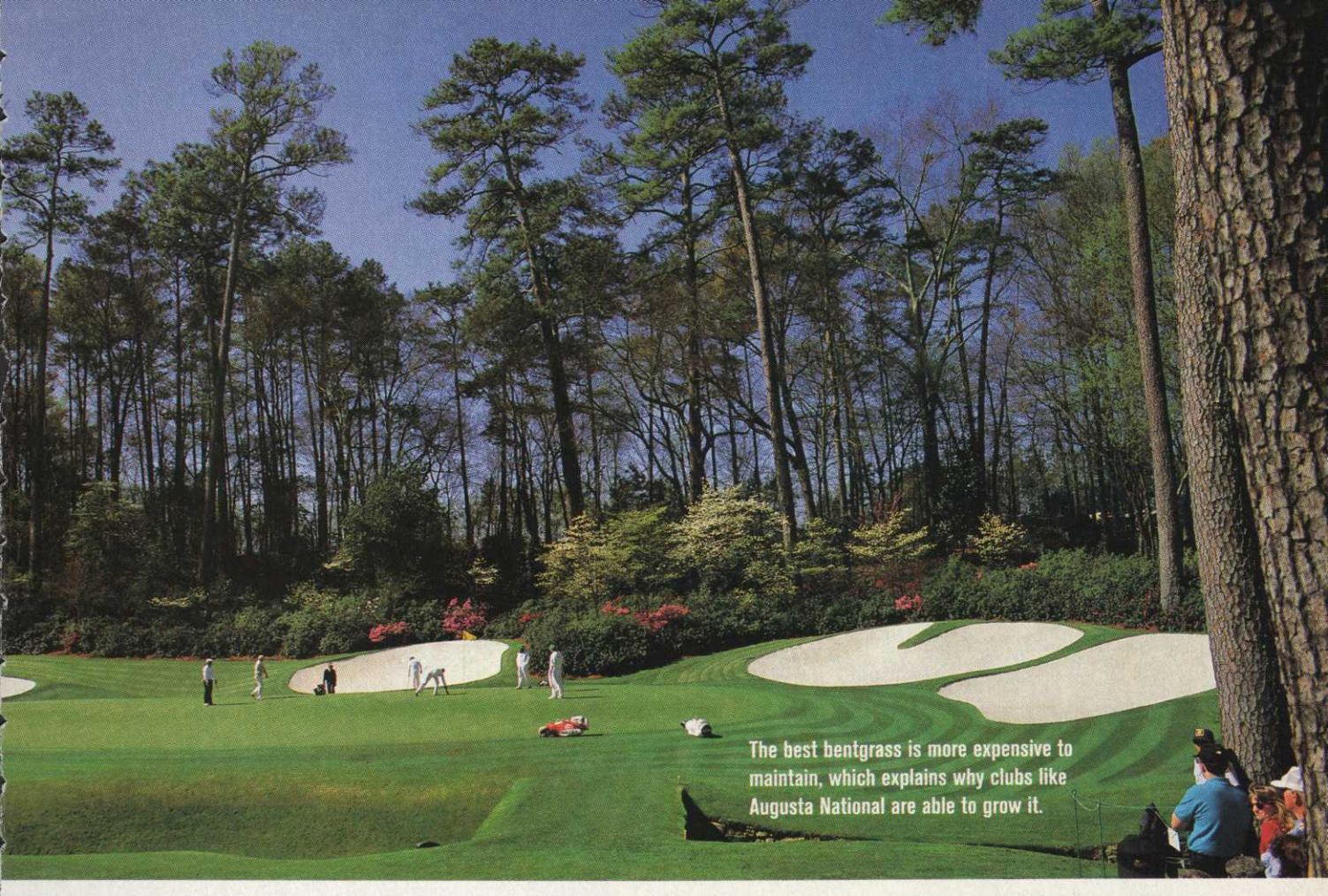
Meanwhile, the seventh-ranked L-93, which once sat atop the NTEP trials, is not as dense as the As and Gs but does have good disease resistance, Morris says.

"It stays up there because of the disease resistance," he adds. "It has the good color, too."

Velvet is smooth

While researchers push expectations higher for creeping bentgrass, progress is also reported in velvet bentgrass. Three velvets are in the new trial, and while "they don't show up high in the book, they look pretty good in some places," Morris says.

"In the Northern tier they have done



The best bentgrass is more expensive to maintain, which explains why clubs like Augusta National are able to grow it.

well and have a lot of utility," he adds. "They tend to have less disease problems. They will survive where maintenance is lower and on push-up greens. How they do on sand greens is yet to be told.

"The only tricky thing is that they are susceptible to seedling diseases — Pythium, generally," Morris notes. "It looks like you will need to treat the seed with a fungicide or apply fungicide to protect it in the beginning."

Morris says a velvet bentgrass could be an option to reduce pesticide use. Also, more research is being done on colonial bentgrass, which are only used in the NTEP fairway trial.

"They haven't been used that much," Morris says, "but they have generally fewer disease problems. They are good on dollar spot, not so good on brown patch. They may work on a lower-budgeted course or be mixed with fine fescues on fairways, which has been done in the upper Midwest."

Stan Zontek, director of the USGA Green Section's Mid-Atlantic Region, which is arguably the most difficult area

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to grow turfgrass, suggests three things for superintendents to consider in choosing a bentgrass:

- First, watch the NTEP trials.
- Then find out what grows better in your area, and visit others who have bentgrass fairways.
- Third, blend your grasses.

"More and more people are throwing compatible blends of bentgrass onto fairways," Zontek says. "Make sure you can manage the varieties the same way."

On fairways and tees, Buchen agrees, the popular thing is to grow with two mixes, such as 50 percent Pennlinks and 50 percent Penneagle. "The blends do very well, one for cold and the other for heat," he adds.

The crystal ball

Scientists hold high hopes that they will capture perfection in bentgrass. They will continue to interject genetic research into traditional breeding programs and attempt to defy nature and produce bentgrass that can live ever closer to the equator, and they may succeed.

The advent of ultradwarf bermudagrass, which has been lauded, may stem the tide of bentgrass moving south and may make headway into the Southern transition zone.

"There will be golf courses that had gone to bentgrass earlier that will switch back to ultradwarf bermuda," Snow says. "On the balance, we will see more bermudas moving north than bents moving south.

"The relative cost of trying to maintain bentgrass vs. bermudagrass for most clubs will be a no-brainer," he adds. "Compared to bermuda, bent is super high maintenance."

But Rose counters: "Ultradwarf bermudas still turn brown in the winter, and that's when it's play time, so that gives us the edge. Our putting quality is hard to beat."

Perhaps the new question should be: What would happen if you were to cross bentgrass with bermudagrass? ■

It's Back to the Future at Texas A&M

Saying his greatest obstacle is that "too many people can only think in the world of the bag of seed," Milt Engelke of Texas A&M intends to produce a high-quality vegetative bentgrass and have it on the market in five years.

"I've been working on this for eight years," Engelke says. "We have varieties right now. The grasses are already in the ground, and we're in the advanced stages of testing."

The thought of vegetative bentgrass takes people in the turfgrass industry back to the 1950s. So why go back?

"We're going to reinvent the wheel," Engelke says. "You always get better quality out of vegetative plants. They do not segregate. That was one of the reasons Toronto bentgrass were always great grasses because they were very uniform."

Engelke says vegetative plants have an advantage over vegetative material 50 years ago because "our support technology has changed in a lot of ways and we can do things differently. We can move sod across the country now."

Engelke acknowledged that the USGA Green Section hasn't supported new research into vegetative bentgrass.

As Green Section national director Jim Snow says: "We came up with the first vegetative bentgrass back in the 1920s, and they were immensely successful. But there were no improved seeded types. If Penncross was the option and you had a vegetative type, you could sell it. But what are you going to find that is any better than the As and Gs bentgrass and other varieties that are available?

"Certainly, there are lot of good vegetative bents, but they'd have to be an awful lot better than the As and Gs to justify the cost of establishing them," Snow adds. "You have to grow big nurseries of sod and cut them from sprig and sod or plant by sprig. It's a lot more expensive than seed at $6 a pound."

– Mark Leslie

Tread Lightly

BY FRANK H. ANDORKA JR., ASSOCIATE EDITOR

Alternative spikes have relieved courses from the heavy damage of traditional metals, but new cleat designs have some superintendents concerned

Walter Montross remembers the day when his club banned metal golf spikes. It was four years ago, and he says it revolutionized the way he cares for his greens.

Montross, superintendent at Westwood CC in Vienna, Va., says metal-spiked golf shoes damaged his greens daily. By the time the last groups hit the course for their early evening rounds, the greens were virtually unputtable. But Montross says alternative spikes have changed all that.

"After four years of using alternative spikes, my members would hang anyone who came in here with metal spikes," Montross says. "Since the changes, I can now almost guarantee that I will have the same putting surface at the end of the day that I have in the morning."

But all is not perfect. While no one has applauded the advent of alternative spikes more than superintendents, concerns are growing that alternative spikes may be taking a step backwards in the name of increasing traction — and some superintendents worry that all the gains they have made could be lost.

SOFTSPIKES

Developed to protect turf

Alternative spikes were developed in 1992 in Boise, Idaho, when a winter metal spike ban was endorsed by several Western golf associations. Golfers wanted to play, but the courses wouldn't let them unless they wore shoes without metal spikes. A Boise inventor named Faris McMullin wanted to help golfers continue playing in the winter months, so he created a removable alternative spike made from plastic. From that invention, the original Softspikes brand evolved.

"People could see the difference in damage almost immediately," says Kelly Elbin, vice president of communications for Softspikes, the Gaithersburg, Md., company that pioneered the spikes. "You aren't left with the little hills made by metal spikes."

More than 9,000 U.S. courses have banned metal spikes, according to Elbin — so many, in fact, that the company doesn't bother keeping track anymore. Other companies, such as Etonic and Nike, have all but eliminated metal spikes from their shoe lines, and Softspikes has an exclusive contract with Footjoy to provide it with alternative spikes for its shoes. "Alternative spikes are quickly becoming the standard across the industry," Elbin says.

Corey Eastwood, CGCS at Stockton Golf & CC in Stockton, Calif., says there's no reason golfers need spikes at all — alternative spikes or otherwise. Still, alternative spikes are better than metals, and he notes that 50 percent of professionals have switched to alternative spikes. He hopes that as more professionals use them, average golfers will follow suit.

"I don't know why golfers need spikes of any kind," Eastwood says. "In most cases, shoes with soft soles or tennis shoes are just as good."

Traction concerns

Rick Tatum, director of golf operations at Shadow Wood CC in Bonita Springs, Fla., says some superintendents might have questions about the traction capabilities of alternative spikes, particularly those who have many wooden bridges on their courses — alternative spikes don't grip wood well. But he adds that there are traction control devices that can counteract potential slips and falls.

"The only people still wearing metal spikes are the professionals," Tatum says. "Metal spikes remain an advantage only for those who understand how to take advantage of the added traction. Right now, that applies to only a handful of pros and not to most weekend golfers."

Concerns about traction have dogged

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Why Black Widows Won't Kill Your Greens

Golfdom asked Jon Hyman, Softspikes' CEO, to address the concerns some superintendents have about the company's new Black Widow spikes:

1) How do Black Widow cleats by Softspikes differ from the company's other offerings?

The Black Widow's trademark dynamic cleat technology (DCT) allows the legs of the Black Widow to flex or move with every step a golfer takes, which makes the spikes green-friendly.

2) How do you respond to some superintendents' concerns that Black Widows represent a shift back to the aggressiveness of metal spikes?

When we heard late last year that certain courses were having [problems] with the Black Widow, we polled our customers to see if there was a real issue. We formed an advisory board of some of the most respected superintendents in the country to test the product and give us their feed-

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alternative spikes from the beginning. According to Elbin, courses were afraid that golfers using the new cleats would injure themselves while playing and would hold clubs responsible.

Those fears have proved largely unfounded, according to Gary Christ, a sports and entertainment lawyer in Palm Beach Court, Fla. He says that when alternative spikes came on the market, he strongly advised courses against banning metal spikes completely because of potential lawsuits. But in the seven years since alternative spikes were introduced, Christ's concerns have diminished.

"The onslaught of cases that everyone expected hasn't materialized," says Christ, who is also general counsel for the National Golf Foundation. "I'm sure there have been a few slip-and-fall type lawsuits, but not too many. Besides, as the technology has evolved, the traction has improved."

But most agree that alternative spikes still don't offer the same traction as metals — and therein lies the rub. In an effort to answer traction concerns, Softspikes introduced Black Widows 18 months ago. Elbin says Black Widows provide better traction than other alternative spikes (see sidebar), but some superintendents, including Montross, worry that the new spikes may also tear up turf the way their metal forebearers did.

"When the new spikes came out, my greens committee chairman asked me if I wanted to ban them," Montross says. "I didn't, but that doesn't mean I'm not concerned that this move might start a trend. I'm taking a wait-and-see attitude."

Elbin noted that Softspikes heard concerns like Montross' and re-evaluated the Black Widow design. The company changed it to make it more greens-friendly and re-released the spikes at the GCSAA show in February. The response from superintendents has been good, he says. "We will always be concerned about what superintendents think of our product and will work to allay any concerns they might have," Elbin says. ■

Continued from page 67

back. Our research showed no significant effect on greens from the Black Widow, but we did see that it could be an issue under certain conditions. So we developed a more pliable material for the Black Widow that still provided the same level of performance and comfort, but improved the greens friendliness of the product. We introduced the revised Black Widow at February's GCSAA show, then mailed a complete set to every superintendent who signed up at the show.

Since that time, we've grown our list of accounts. For example, ClubLink Corp., the largest owner, operator and developer of golf courses in Canada, recently announced a two-year exclusive agreement with Softspikes to carry only our brand cleats. This represents a major shift for ClubLink, which last fall announced it would not permit the use of the Black Widow cleat at any of its courses.

SOFTSPIKES

Black Widow spikes have raised damage concerns for some superintendents.

3) Do you have plans to market these spikes more aggressively so you can answer some of these concerns?

From day one, superintendents have been our top allies. They have helped position Softspikes as the market leader in a category that has brought so many positive changes to their profession. We will do everything we can, at the national and local levels, to make sure we educate superintendents that our designs are good for the game.

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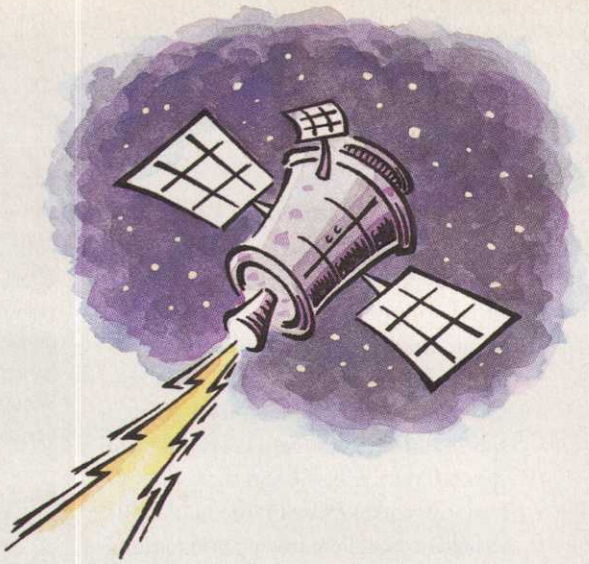
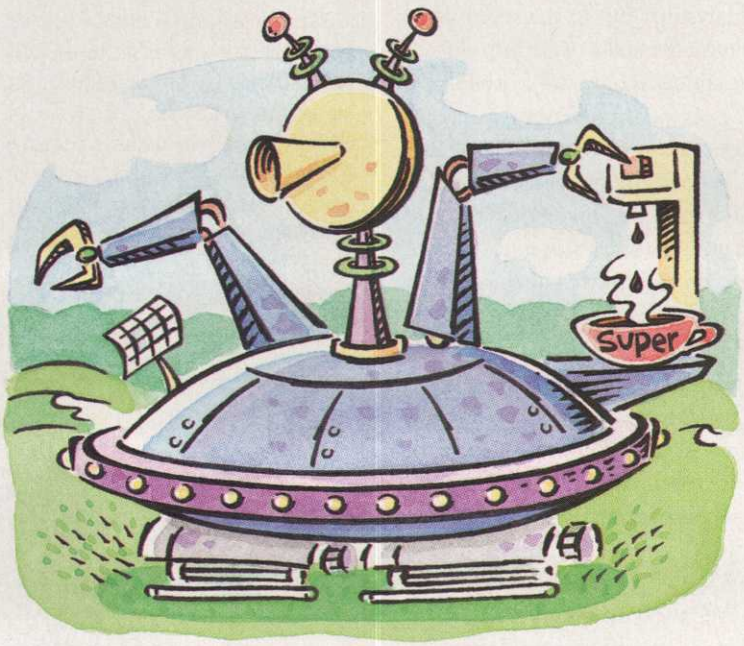


High-tech features top the list of what superintendents expect from tomorrow's greens mowers

BY FRANK H. ANDORKA JR.,
ASSOCIATE EDITOR

In a country where Buck Rodgers and Captain Kirk fueled expectations of what technological advances future centuries might hold, it's no surprise that superintendents expect greens mowers in the 21st century to follow a similar path.

Superintendents want future mowers to cut with lasers, be controlled by satellites and fix themselves. Heck, one superintendent even wants his greens mower to *make coffee* for him in the morning.



LEO MICHAEL

While the coffee idea might be a stretch, the rest of the high-tech gadgets superintendents expect to see on greens mowers might not be so pie in the sky. Companies are conducting intense research into alternative power supplies, disease-sensing monitors and the possibility of integrating mower controls with the Global Positioning System (GPS).

Experts say the real question is not *if* these innovations are possible, but *when* will superintendents be able to start using them.

Helmut Ullrich, marketing manager for Toro's Greensmasters line of mowers, says one superintendent with whom he spoke described the perfect mower of the future.

"He said the perfect greens mower should be a solar-powered hovercraft with a laser that will cut the grass to the ideal height to get the most speed on the greens," Ullrich says. "We're not quite to that point, but we're definitely making strides on a lot of fronts."

Ullrich says mowers in the new century will probably move from fixed cutting decks to flexible ones, and he said mowers will have narrower profiles as well. Those adjustments will help superintendents mow at lower heights because the machines will hug the contours of the greens more closely. It's the same theory that propels most razor innovations — the closer the blade hugs the surface, the closer the cut.

Mowers will also become more operator friendly, a factor that's increasingly important in a world of frequent employee

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