

The Fringe

INSIDE

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The First Amendment, But...

Though sphagnum peat moss still reigns as the leading greensmix additive, other choices are gaining ground in industry trials

By **Frank H. Andorka Jr.**
Managing Editor

Sand-based greens possess wonderful drainage qualities, but they don't do a good job of retaining water and nutrients. That's why the USGA, in its green construction guidelines, recommends amending the greensmix with materials to improve the growing medium for golf turf.

"I'm a great proponent of using amendments when constructing greens," says Steve Merkel, director of agronomy for Lincoln, Neb.-based Landscapes Unlimited, a golf course construction firm. "I know there are green construction meth-

ods that don't call for them, but I think amendments are important."

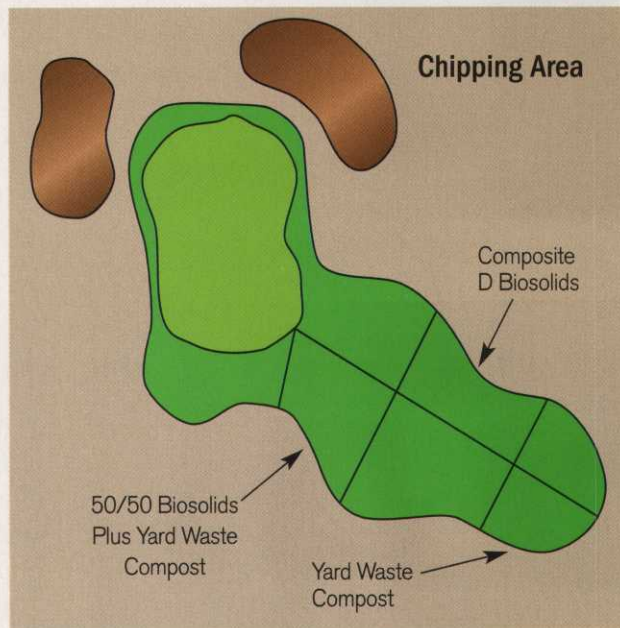
ongoing studies, sponsored by the National Turfgrass Evaluation Program (NTEP) and the USGA, indicate peat may soon face stiff competition from composts and inorganic amendments.

Conventional wisdom

For the last nine years, the USGA maintained consistent standards about the composition of greensmixes. Superintendents are urged to use a mixture of sand (at least 60 percent of which should be coarse- or medium-grained) and an organic amendment. The most common amendment is sphagnum peat moss, which the USGA says should contain a minimum of 85 percent organic matter by weight. (The percentages are determined by a burn test, where the peat is weighed, burned and weighed again. The leftover material is considered inert and of no use to the turf.)

"Peat is currently the most cost-effective amendment," says Jim Moore, director of construction for the USGA. "There's not much variability from batch to batch of peat because the manufacturers have refined its production to ensure good consistency."

Joe Traficano, certified superintendent at Renegade GC at Desert Mountain in



The chipping green at North Shore CC in Glenview, Ill., became a testing ground for a variety of amendments under the care of certified superintendent Dan Dinelli.

Scottsdale, Ariz., says he used peats in his greensmix because they're easy to use.

"Superintendents all have experience with peats, so they have a proven track record," Traficano says. "I'm not saying other amendments aren't good, but there hasn't been as much university research into the others."

Studies show competition

Though peat is the safest choice in amendments, that doesn't mean it always produces the best results. Two studies, conducted independently by the USGA and the NTEP, indicate composted amendments may be a better investment because of the additional nutrients they offer.

Dan Dinelli, certified superintendent at North Shore CC in Glenview, Ill.,

agreed to participate in an NTEP-sponsored study that tested different turf varieties. He furthered the study by adding different rootzone amendments on another section of the research green. Dinelli combined with different amendments. When he constructed his facility's practice green, he divided it into 20 different zones, each with a different combination of sand and amendments.

"We tested them all — peat, composted materials and inorganic amendments," Dinelli says. "We didn't treat it any differently than we did the other greens on the course. We wanted to see how the amendments would react under real-world maintenance practices."

After five years of observation, Dinelli says he believes

PHOTO: JASON NABB/SHUTTERSTOCK



Landscapes Unlimited's Steve Merkel is a great advocate of amending greensmixes.

ods that don't call for them, but I think amendments are important."

Sphagnum peat moss has long been the industry's standard additive because of its stability and ease of use. But

the compost helped the plots mature at least twice as fast as the others.

"The compost-amended plots were consistently denser and greener," Dinelli says. "We also observed slightly less disease pressure."

Dinelli says more research is needed into the long-term stability of those products, and Jim Murphy, a professor of turfgrass science at the Center for Turfgrass Science at Rutgers University in New Brunswick, N.J., may be the man to do such studies. Murphy started his study of amendments in 1997 and plans to continue for the foreseeable future.

"The nutrient-holding capacity of the composts has been good so far," Murphy says. "But we've got a way to go before we can determine their long-term success."

Composts can be inconsistent because the composition of materials can vary from company to company, Murphy says. Before using a composted material, superintendents should test it by a laboratory to see exactly what's in it.

"There are plenty of horror stories out there from superintendents who've used composts with disastrous results," Murphy says. "You need to make sure you know what you're getting. When you find one that works well, stick with it."

Dinelli says the turf industry should institute testing procedures to ensure consistency.

Don't discount inorganics

In the field of amendments, companies that produce inor-

ganic materials must feel like the whole industry is against them. The USGA green-construction guidelines recommend against them in root-zone mixes, and superintendents often complain about their cost. That doesn't mean, however, that they aren't useful, and the USGA may soon change its recommendations. This could overcome the reluctance of some superintendents to use amendments the USGA hadn't approved.

"We're looking to change our recommendations soon to include the possible use of inorganic amendments," Moore says. "It's not that they're bad, but they do tend to be costlier than organics."

Murphy says the longer he studies the inorganics, the more he is starting to recognize subtle differences in the effects they have on the turf. He says he wants to study the data from his project longer before he offers a recommendation on them.

Dinelli says the inorganics he used on his practice green performed well, and the differences between the composted plots and the inorganic plots have finally lessened five years after his study began.

"I'd hesitate to say anything one way or the other about the inorganic amendments," Dinelli says. "It's hard to make sweeping judgments based on tests at one location. In certain soils and under certain conditions, inorganic amendments may be the perfect solution."

Traficano says the debate over amendments will only be settled when more field

tests are done in different regions of the country.

"Amendments are often tested under laboratory conditions instead of the real world," Traficano says. "It makes it difficult for superintendents to evaluate them independently. That often leaves superintendents at the mercy of salespeople who are trying to get you to buy their products."

Examining alternatives

Dinelli says the industry should also establish a protocol for organic products in particular to ensure consistency from batch to batch.

"We need standards so superintendents know what they're getting when they choose an organic alternative to peat," Dinelli says. "It would help alleviate the fears some superintendents have."

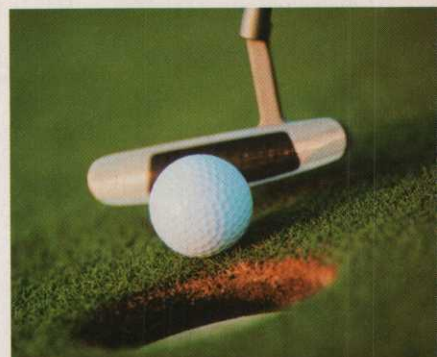
Merkel says the industry may also be missing the boat by not allowing native soil to be used as an amendment.

"Soil is another option that doesn't get a lot of attention, but there may be solid reasons to add it in lieu of another organic," Merkel says. "It's something I'd like to see studied."

Traficano says he doesn't know what the perfect amendment looks like, but superintendents must examine their own needs before making a decision.

"You may discover that there are 150 different microclimates on your course, which may require different amendments for different greens," Traficano says.

"That's the hardest part of making the decision, but it's what we get paid to do." ■



Five Great Things About Modern Greens

By Geoff Shackelford

USGA Greens — They're manageable, they breed healthier turf and nothing better has come along.

Elimination of grain — Except in Johnny Miller's eyes.

They're faster and more consistent — Slick greens are fun and give people something to talk about. Of course, some of the talk says the greens are too slow or inconsistent.

They hold shots — And reward precise, well-struck iron shots.

They're getting larger — Which creates more hole locations for better golf and improved conditioning.

Five Lousy Things About Modern Greens

USGA Greens — They're expensive, difficult to construct and not as reliable as billed.

Elimination of grain — Pete Dye says that negotiating grain used to be one of the most interesting aspects of the game.

They're faster and more consistent — Slick greens slow down play, and more speed means less contour can be constructed.

They hold shots — Which can shift the game to a one-dimensional approach.

They're getting larger — If we could just get architects to build large greens that don't feel so huge and clumsy, like the old architects did.

Effective management of your height of cut requires diligence and focus to get it right

By **Frank H. Andorka Jr.**
Managing Editor

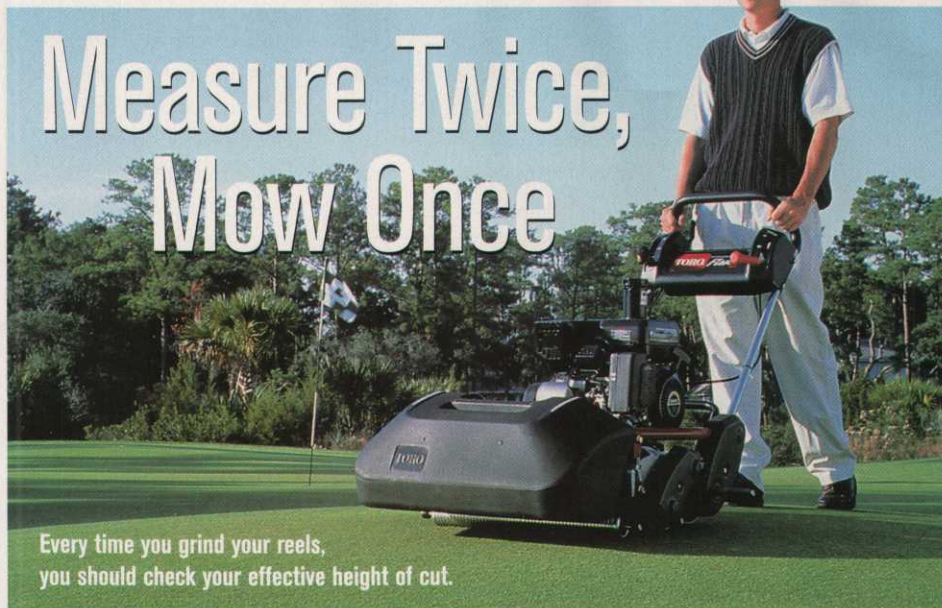
Superintendents' jobs often hang on the quality of their greens.

Golfers can forgive a little brown turf in the rough and even occasionally on the fairway. But when they get to the pin, they expect perfection.

That's why superintendents must closely monitor their greensmowers' height of cut to ensure they're actually cutting at the heights their patrons expect. Here are some tips from the experts about how to get it done:

■ **Know the difference between your bench height of cut and your effective height of cut.**

There's often confusion about the difference between a greensmower's bench height of cut and its effective height of cut, says Tracy Lanier, John Deere's administrative manager of golf and turf market



THE TORO CO.

development. Some superintendents assume that once you've set the bench height of cut, that's all you have to do.

"It's not a situation where all you have to do is set it and forget it," Lanier says.

"The way the mower is transported to the green, the condition of the turf, the type of green — all these factors can change the height of cut after the mower leaves your building."

The cut quality will give you hints about whether it's out-of-whack or not, says Gary Kuhl, product training manager for Textron's Golf, Turf and Specialty Products division.

"If you expect your greens to look like a pool table and you notice the turf looks like shag carpeting, you have a problem," Kuhl

Using a prism gauge allows superintendents to measure their effective height of cut against their bench height of cut.

says. "You have to rely on your own instincts, but you will notice a difference if the machine is out of alignment."

Always remember that the bench cut is merely a guide, Kuhl says. You'll have to get out on the green and measure the effective height of cut to see if you're cutting at the height you planned, he adds.

■ **Do the regularly scheduled maintenance on the machine.**

Don Schnotala, senior program manager in commercial engineering for The Toro Co., says superintendents must perform the scheduled maintenance on their mowers so all parts work as intended.

"The reels will wear down over time as you mow," Schnotala says. "That wear will eventually affect your height-of-cut, requiring you to readjust your height of cut setting."

The same applies to grinding the reels, Schnotala says. Every time you sharpen the reels, you have to check your height of cut. At today's

low mowing heights, thousandths of an inch matter.

■ **Check the alignment of the machine to make sure the bedknives are wearing evenly.**

Your mechanic should align the reels with the front rollers, Kuhl says. If those two components aren't square, the cutting unit should be adjusted until they are.

"The roller should be flat and the reel should parallel it," Lanier says. "You should check those every 30 days."

■ **Understand the effect different attachments have on height of cut.**

The type of roller you attach to the mowers will affect the effective height of cut, Schnotala says. Solid rollers give the overall mower more support, which in turn lessens the pressure on the turf because they disperse the weight over a wider area. Grooved rollers, on the other hand, cause the mower to sink lower into the turf, thereby cutting lower.

"That's something you have to factor into your cal-

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JOHN DEERE



Presenting the Perfect Cup

Experts provide tips and tricks superintendents can use to provide golfers with an ideal hole

By **Frank H. Andorka Jr.**

Managing Editor

It's one of the ongoing struggles of superintendents' lives. When you cut cups in the morning, they're ideal. By the middle of the afternoon, however, you start hearing complaints from golfers that the holes look ragged around the edges and that the cups are dirty. When golfers get cranky, superintendents are often the ones they blame. Fortunately, there are a few tips and tricks a superintendent can use to present the perfect cup to the last golfer of the day as well as the first.

John Kelly, president of Standard Golf, says superintendents should change cup locations daily. "If you leave the cup in one place all the time, it will have a



tendency to get all chewed up," Kelly says.

Darren Davis, director of golf course operations at Olde Florida GC in Naples, Fla., says his club cuts new holes several feet away from old cups that haven't healed yet so golfers don't have their putts interrupted by an old plug.

Second, superintendents should paint the edges of their cups as soon as they cut them, says Steve Garske, president of Par Aide. "You want to keep the hole as visible as possible all day, and

painting the cups will help you do that," he says.

Richard Browne, president of U.S. Golf Hole Target Systems, says keeping the hole visible all day is nearly as important as keeping the edges clean. Visible holes speed players around the course and can increase the number of golfers who play at your course by 10 to 15 percent, he says. "If you're not paying attention to visibility, you're leaving a lot of revenue on the table in unplayed rounds," Browne says.

Garske also recommends inserting plastic rings in the holes into the top inch of the cup, which increases the stability of the sides of the hole. Part of the problem is the composition of sand-based greens, Kelly says. When you don't have a solid soil surface in which to cut the cup, the edges break down quickly. The sand falls into the bot-

tom of the cup, leaving golfers wondering why their balls are covered in gunk after sinking a 30-foot putt.

Keeping your cup-cutter sharp also means a more stable hole, says Joe Traficano, certified superintendent at Renegade GC at Desert Mountain in Scottsdale, Ariz. He also carries a 5-gallon bucket of water with him so he can water the edges of the hole so they don't dry out. "If the green dries out, you're much more likely to have sand fall into the bottom of the cup by the end of the day," Traficano says.

Davis says the cup-cutter should be inserted into the green at a 90-degree angle to ensure the cleanest cut possible. He also says his crew members are instructed to wipe the hole liner clean every time it's placed into the ground to maintain visibility. ■

Continued from page 50
culations," Kuhl says. "If you don't, it can throw off your effective height of cut."

■ **Transport the equipment carefully to the greens.**

It doesn't take much to throw a mower out of alignment, so superintendents should transport their mowers to greens properly, Lanier says.

"If you're taking it out to the green and your operator drops it as he's unloading it from the truck, that will throw it off," Lanier says. "You have to be careful."

Schnotala says superintendents should train crew members to mount the mowers properly for transport to protect against mishaps.

■ **Evaluate underlying conditions on the greens.**

It's not just the mower that can affect height of cut. The conditions of the greens can also give superintendents a less-than-optimal cut as well.

"If the ground is wet, the mower may sink into the green and cut far lower than the superintendent intended," Schnotala says. "You want to make the

mower as light as possible under those conditions."

Kuhl also says the style of green construction can affect the height of cut.

■ **Use a prism gauge to check your effective height of cut.**

The only way to tell for sure if you're mowing your greens at the height you and your golfers expect is to check them with a prism gauge, Lanier says.

"There's no substitute for getting down on your hands and knees and checking the height of cut on a regular basis," Lanier says.

"You're only going to be able to tell whether you're cutting at the height you think you are if you run this kind of check periodically."

Kuhl says superintendents owe it to themselves to avoid the problems of improperly mowed greens by managing their height of cut effectively.

"The greens are the pride and joy of most superintendents, so they should go to great lengths to keep them healthy," Kuhl says. "Height of cut is an important component of that." ■

MIKE KLEMM

Revisionist history is thriving in golf. Did you know that Douglas Rolland's design influence can be seen in Pine Valley, Royal Melbourne and Prairie Dunes? All because he was a golfing buddy of H.S. Colt.

Then there's poor, old Joe Burbeck. After his debut design, the storied Jones Beach Pitch and Putt, Burbeck went on to mastermind Bethpage Black while A.W. Tillinghast and others wrote fictional magazine articles about Tilly's involvement at Bethpage.

And my new favorite: 2002 British Open host Muirfield made sure we all knew that the course only added a few yards to a couple of par 3s for this year's championship. Then before the scoreboard ink was dry on Colin Montgomerie's second round 64, the club announced that because the course was different, Monty had the new official course record, replacing Isao Aoki's 63. I wonder why.

There has been one particularly irritating form of revisionist golf architecture history that keeps getting in the way of much-needed restorations or renovations: the belief that small greens were the old-time architects' best ally, and thus that small greens are a sign of sound design. Big greens are no good. They're too easy.

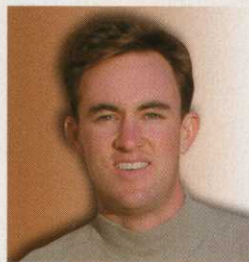
History purportedly tells us that master architects like MacKenzie and Tillinghast purposely designed on the small side. The telltale sign of genius is found in green size. Big greens are for average courses, and small is the sign of greatness.

Not only did the old architects *not* design "small" greens, they certainly never celebrated small greens as something revolutionary. Only occasionally did they build something under 3,500 square feet. Still, after years of subtle shrinkage and plenty of hard evidence to show how things used to be, we still hear golf announcers talk about how tiny greens have so much "old" style and character. Or we listen to everyday golfers, who insist that saucer-plate surfaces make their courses special.

Naturally, the opposite is true. Too many small greens undermine the character of a course. They eliminate interesting hole locations that add day-to-day variety. Increased variety and additional options make golfers

Bigger Is Better in the Case of Greens

BY GEOFF SHACKELFORD



**DON'T LISTEN TO
GOOD GOLFERS
WHO INSIST THAT
SMALL PUTTING
SURFACES MAKE A
DESIGN BETTER**

think, and we all know that makes the game more difficult in a fun and not-so-penal way.

Sure, it's fun to approach a small, tightly bunkered green complex on occasion. Two or maybe three greens under the 4,500-square-foot range can spice things up. But besides the obvious maintenance benefits of larger greens, there is enjoyment in playing well-designed surfaces that offer as many as 10 distinct hole locations. A quick study reveals that many classic green complexes once had fascinating corner hole locations since lost over time. Often they're not restored because the average green committee type insists his course is superior because the greens are petite.

The small green myth has taken on greater significance because modern architects struggle to build large putting surfaces with subtle character. Most modern greens feel bulky, even clumsy, popping up out of the fairway like tombstones.

The real trick is to create something in the 7,000-foot range and make it seem small. Bill Coore and Ben Crenshaw recently pulled it off at their new Hidden Creek GC near Atlantic City, N.J. Superintendent Jeff Riggs has an average of 8,000 square feet of putting surface to maintain, yet the greens don't look or play nearly that large. The contours are bold but stretch out gently, while the greens tie in beautifully to the fairways, disguising their size.

Don't listen to good golfers who insist that small putting surfaces make a design better. Bigger makes for more interesting golf when it comes to putting surfaces. Bigger is also a more accurate description of what the old architects usually built.

Perhaps this is one bit of history we can re-revise in the coming years.

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Real-Life Solutions

■ TURF COVERS

Who says you can't grow in bermudagrass greens in December?

BY LARRY AYLWARD

Editor

“Most golf courses wouldn't sprig bermudagrass greens in December,” Danny Malone insists.

But Malone, certified superintendent of the Squire Creek CC, a new Tom Fazio design in Choudrant, La., decided to challenge that norm and sprig his course's putting and chipping greens last December.

The problem

Squire Creek CC, which opens this month, didn't receive much cooperation during its building phase last year. It rained and rained and rained, Malone says.

“We were so far behind in construction that the putting and chipping greens weren't ready for sprigging until December,” Malone says.

Problem

Squire Creek CC was so behind in construction because of the weather that its putting and chipping weren't ready for sprigging until December.

Solution

Danny Malone, certified superintendent of the course, decided to sprig the greens in December after he discovered that Xton turf covers would take the risk out of the process.



The covers are easy to use and don't hold water.

Take Cover

So Malone had to decide whether to chance it and sprig the greens shortly before Santa came to town or wait until the early spring. He knew the greens might not grow in if he sprigged them two weeks before the start of winter.

The solution

Malone decided to sprig the greens on Dec. 10 — after he was convinced that Xton's turf covers would take the risk out of the process.

Malone heard about Xton's turf covers through research conducted by Mississippi State University. MSU turf professor Mike Goatley and MSU golf superintendent Pat Sneed are conducting a three-year study entitled, *Evaluating Temporary Covers for Winter Protection of Bermudagrass Putting Greens*.

The two men are evaluating 12 different materials and combinations of materials as temporary covers on the practice putting green at MSU's golf course. The cov-

ers are applied in the winter each time the daily minimum temperature is projected to fall below 25 degrees F for at least two consecutive days and are removed when temperatures moderated. Data loggers record temperatures under the covers at the soil surface and at a 4-inch depth at 15-minute intervals.

Xton turf covers have performed well in the study, and Malone opted to try them.

John Locker, president of Xton, has been producing large-scale covers for years at his company in Florence, Ala. Two years ago, a golf course opened next to his company. Locker was not impressed with the spun-bonded, heavy-when-wet polypropylene material the course used to cover its greens in the winter. Locker said he thought his company could make something better.

Today, Locker says his company has and is now a supplier of turf covers to the golf course industry. He says his durable, lightweight golf covers are constructed of woven polypropylene,

which doesn't hold water and allows the covers to be easily placed on and removed from greens.

Locker says he told Malone he would be able to successfully sprig his two TiffEagle bermudagrass greens if he used Xton's white turf covers on them. “I told him the greens would be ready to play in the spring,” Locker says.

Locker says the white covers create a greenhouse effect so turf can grow under them. The covers allow air in and out so moisture evaporates, which inhibits turf disease.

“We covered the two greens every night it got into the 30s,” Malone says. “We stopped using the covers in early April, and the greens were 60 percent grown in. They were completely grown-in in May, five weeks earlier than they would have grown in if we would have waited until the middle of last April to sprig them.”

In the winter, the soil temperature of the two greens at 2 inches deep was 19 degrees

to 22 degrees warmer than the air temperature in the morning, Malone says.

Malone also prefers the covers because they're easy to use. "Four people can put them on in five to 10 minutes," he says. "They also don't retain water, where others can get so heavy you can't move them."

Locker says a 72-foot by 100-foot turf cover weighing about 150 pounds can be installed or removed by two people in less than 10 minutes.

Xton also offers black covers for frost and freeze protection. "The black covers are used mainly for winter protection, particularly

for bermudagrass in the Southeast," Locker says.

While the white covers can be left on greens for several months, the black covers shouldn't be left on for more than a week.

Xton also recently introduced a green and white cover manufactured from knitted polypropylene to help Southeastern golf courses protect their bentgrass greens. "We've found we can lower the temperature of bentgrass greens in the Southeast by 10 degrees to 20 degrees," Locker says, noting the covers are still being tested at MSU.

Locker doesn't recommend ordering form-fitting

covers for greens, although his company won't turn down such orders. Square and rectangular covers are less expensive than form-fitting covers and are easier to use. The cost of standard covers is 15 cents per square foot.

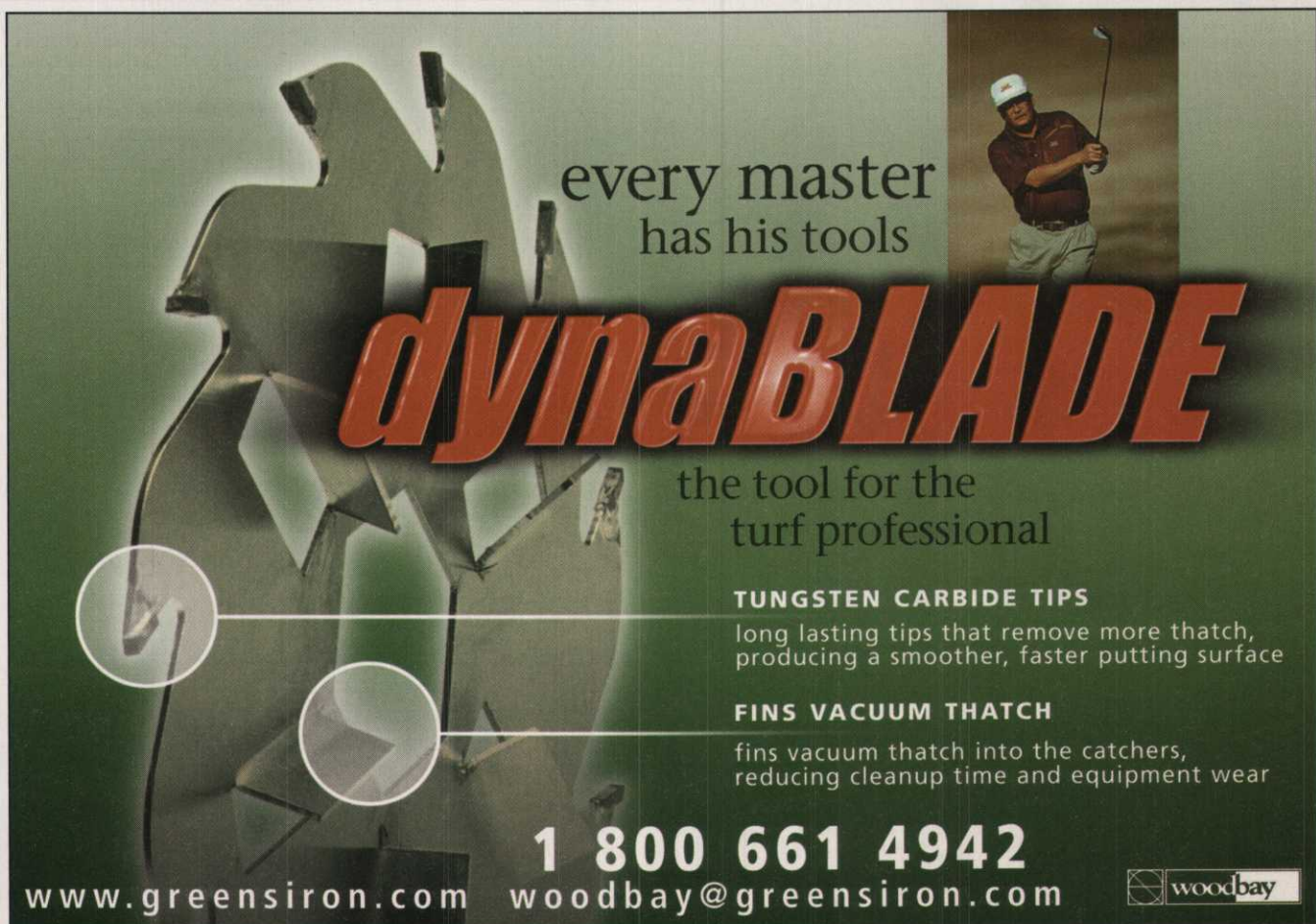
Outlook

Another positive attribute of the turf covers is they can help superintendents avoid overseeding bermudagrass greens, Locker says. If it's 40 degrees or below, the greens should be covered. If it's above 40 degrees, the covers should be removed. If superintendents and their crews follow this daily procedure during the cold months,

they might not have to overseed, Locker says.

Malone says he'll use Xton's white covers on all of the course's greens this winter mainly to protect the turf from winterkill. But he's also happy to know the turf will hold its color long enough so he doesn't have to overseed.

"If we cover them on nights that there's a potential for frost, we can extend their color into January," says Malone, adding that overseeding new bermudas like TifEagle is difficult because the transition is tough on the turf. "Then one painting we'll get us to March, when the greens will green back up." ■



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