



*Golfdom's* annual  
guide on green  
maintenance

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# Reckless

## Op?

The push to increase green speed hasn't slowed down, which could mean there's an accident waiting to happen

By Thomas Skernivitz  
Managing Editor

**T**om Athy, a certified superintendent with a rep for quick greens, reluctantly takes the Gale Sayers approach when admitting who exactly dictates green speed:

*The club is first.  
The playing majority is second.  
And I am third.*

Athy accepts this, even if it means sometimes putting aside the best interests of his 18 pampered possessions at Omaha (Neb.) Coun-

try Club. Ever the realist, he goes as far as to amend Arnold Palmer, who once said that in order to succeed in the golf business, one must identify what the majority of otherwise finicky golfers wants and provide for it.

"For the most part that is an excellent quote," Athy says. "In reality, though, you need to find the course conditions that the 'power' within the club would like to see and provide for them. Then you hope this group doesn't change too often. Otherwise you can look pretty bad."

Change is one thing. Superintendents roll with it. But when it comes to the green



When it comes to the green speed dilemma, sooner or later healthy greens – and reputations – are going to suffer.

MEDIOMAGES/CARRIE PARKHILL

speed issue, those powers that be have taken change to the nth degree. And sooner or later — if not already — healthy greens are going to blemish, along with the reputations of their keepers.

“I don’t know if it’s gotten worse in the last year, but I would say that it’s still probably the biggest issue that’s facing us,” says Don Sutton, the certified superintendent at Kinsale Golf Club in Powell, Ohio. “I don’t think it’s gone away at all.”

Will it ever disappear?

“You would think at some point we would have to hit a limit to where these greens are able to survive and stay healthy over a five- or 10-year period,” Sutton says.

With that bar still rising (and turf heights going the other way), many superintendents are at the mercy of their managers, who often cater to the wants — realistic or not — of their customers.

“I would say in most cases it’s probably from hearing the pressures from the golfers,” Sutton says. “There’s that fear at most courses that if they’re not as fast as the neighboring courses, they’re going to lose rounds of golf.”

It doesn’t help that ordinary players desire pro-worthy conditions. It’s gotten to the point where some are even caught packing their own Stimpometers.

“If somebody plays the course down the street and it’s at a 12 (on the Stimpometer), it kind of gets blown out of proportion that that’s what its greens are rolling every day,” Sutton says. “And it kind of spreads like wildfire through the golfers. They’ll make claims that they just played a course and the greens were 13, so why aren’t ours? Or what can you do to get them there? And the reality is most golfers can’t tell the difference between a 9 and a 10 or a 10 to a 13 Stimpometer reading.”

Worse yet, it’s almost futile, according to Athy, to try and convince someone that speed kills.

“Good luck!” he says. “I know that, for myself and most of my colleagues at the private clubs in Nebraska, slow greens are the *fast track* to a new position.”

### Majority rules

Michael Morris believes the paying public would be far more receptive if superintendents approached them with data. The certified superintendent at Crystal Downs Country Club in Frankfurt, Mich., performed a study in 2001-02 that helped establish the ideal green speed for his course, based on customer response. Now, when low handicappers complain about a green being too slow at the same time lesser golfers are claiming just the opposite of the same hole, Morris can turn to the study results and remind everyone of the proven consensus.

“All we have to do is show them the survey and say, ‘Here’s how the golfers of this club rated the green speeds.’ And the problem has essentially gone away,” Morris says. “Is that person happy? Probably not. But for whom do we take care of the golf course? A customer satisfaction rating of 70 percent or above is what our target is. We’re not going to make everyone happy.”

The problem, Morris says, is that more than 90 percent of U.S. golf courses and their

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## Reckless Op?



MIKE KLEMM

Don Sutton, of Kinsale Golf Club (shown here) outside Columbus, Ohio, says the green speed issue hasn't "gone away at all."

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superintendents don't know what their customers want. "They haven't even asked them," he says. "We've left the golfer out of the equation, and we have to be a little more diplomatic."

Gone, he adds, is the day of the old "it's-my-way-or-the-highway Scottish stereotypical superintendent."

"I'm trying to serve the golfers," Morris says. "They pay a lot of money to play here. They want conditions a certain way. I need to find out what conditions they want, and I need to communicate to the powers that be the resources I need to provide those conditions. I'm trying to get our customer satisfaction rating up around 70, 80, 90 percent. This is a whole different way of looking at it."

In the end, Morris says, superintendents regain control of their greens.

"The problem doesn't go away, but we've developed a method of addressing it, and our greens are alive and well," he says. "We're given the funding we need to improve the putting green quality and we're all communicating on the issue."

"No one tells me what heights to mow. It's up to me to decide how to get the greens in

the best condition that pleases the most golfers. ... And we've actually raised our height of cut and still maintain the putting green speeds that satisfy most of our golfers."

### **Agronomic techniques**

The last thing Morris wants to do to improve green speed is lower his mowing height. And he frowns upon depriving his greens of water for long durations. Hence, he relies on rolling, plant growth regulators and altered fertilizer practices.

"We have to look at it as an integrated approach and not just turning off the water and mowing the greens down to the dirt. Any idiot knows that those things will kill grass," he says. "We found that one of the very most important things that gave us the biggest bang for our buck was to improve our mower sharpening and grinding. And we purchased rollers. We implemented use of PGRs."

Athy's favorite techniques include regular verticutting; topdressing lightly at least every two or three weeks during the season; rolling Thursday to Sunday during a normal week and possibly the entire week for special events; spoon-feeding; and the use of PGRs and some potassium silicate formulations. The one thing he doesn't rely upon is double-cutting.

**"We've left the golfer out of the equation, and we have to be a little more diplomatic."**

MICHAEL MORRIS, CRYSTAL DOWNS CC

"It is a rarity anymore to double-cut greens," he says. "We have researched the increase in ball roll, double-cut vs. rolling, and have found that rolling is the equal to double-cutting and at times increases speeds even more than double-cutting. Plus, I'm not too excited about double-cutting greens every day for a week, whereas I will roll greens for a week."

Sutton topdresses about every two weeks at

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### “Anything lower than 0.1 inch is an accident waiting to happen.”

TOM ATHY, OMAHA CC

*Continued from page 40*

Kinsale and aerifies in the spring and fall. He runs a grade-and-verticut machine at least once a year with a possible move to twice annually.

“What I feel that does is gives us a very firm putting surface because it’s removing excess thatch from our putting surface, and I think that’s a real key,” Sutton says. “That adds not only to the ball speed but also to the difficulty of sticking a shot on the green. That’s a challenge to the low- and high-handicappers.”

Sutton also singles out the implementation of L-93 on his greens.

“The development of some of the new grasses has helped green speeds. L-93 is a denser, tighter growing grass that gives a better putting surface. It’s also a grass that does tolerate being mowed at an eighth-of-an-inch. It handles it very well, and you can actually go lower with it.”

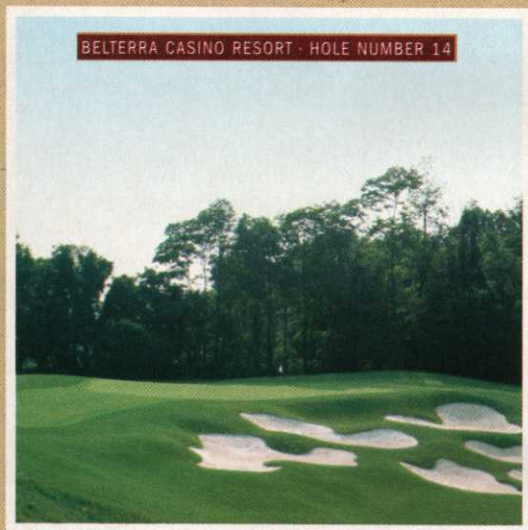
As for heights of cut, Athy says they generally range across the country in the 0.125-inch to 0.1-inch range. “Once in a while you

hear of lower heights,” he says. “But most of us feel that the superintendent is either fudging the number or has just recently updated his resume. Anything lower than 0.1 inch is an accident waiting to happen.”

Disaster might have already occurred, says Sutton, had it not been for mild summer conditions in 2003 and 2004. Similarly moderate temperatures might allow superintendents to remain at 0.1 inch or lower.

“But I’m wondering when we have our first hot-dry or hot-wet summertime what’s going to happen with some of the very low mowing heights,” Sutton says. “That’s going to be a big test in the future.”

“My course is only 1 year old ... and with the undulations on my greens, (golfers) are probably going to think that they’re rolling a lot faster anyway. But I hear it from other superintendents in the (Columbus) area that are now mowing down at a 0.1-inch. We’re still at 0.125-inch right now, but I’ll probably go a little bit lower this year to try it.” ■



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# Prevent Defense

The best way to control dollar spot on greens is to not let it surface in the first place, technical experts say

By Larry Aylward  
Editor in Chief

**T**echnical experts from some of the nation's top chemical companies put their money on preventive control to successfully treat dollar spot on putting greens. The remaining option, curative control, could be a losing bet for superintendents who want great-looking greens throughout a golf season, they say.

It's vital not to get yourself behind the eight ball when managing dollar spot, says Kyle Miller, senior technical specialist for BASF Turf & Ornamental. That means not waiting for dollar spot to begin in the first place.

"Dollar spot is a tough disease to control [after it has started]," Miller adds. "So if your courses have strong [management] programs to keep dollar spot out from the start, your lives will be much easier."

The big problem is that dollar spot leaves blemishes on putting greens, which need time to heal. Hence, the greens can look unsightly in spots and lack a uniform putting surface. The bigger the dollar spot problem, the worse a green will look and play.

And if the greens aren't healthy, superintendents can take it to the bank that golfers will complain about them.

"There will be lesions on the greens, and

they will take time to grow back," says Dave Ross, turf and ornamental technical manager for Syngenta Professional Products. "So [superintendents] will have to live with that."

Dollar spot is more severe in some areas of the country than others. "[In some areas], dollar spot can damage turf all the way down to the soil," Miller says. "In other parts of the country, dollar spot injury is more on the surface."

In areas where dollar spot is more severe, such as on the East Coast and in the Mid-Atlantic, it can take up to three weeks for turf to heal and for greens to return to their normal uniformity.

Perhaps dollar spot wouldn't be so much of an issue if it weren't for the pressure the industry — golfers and superintendents included — has placed on itself for having near-flawless golf course conditions.

"We've created an image in the United States that we want perfect putting greens," Ross says. "Obviously, that's part of the problem."

But the pressure on superintendents to deliver the best putting greens possible is not the sole reason that Ross, Miller and other experts advise them to adhere to preventive

In some areas where dollar spot is more severe, it can take up to three weeks for turf to heal.

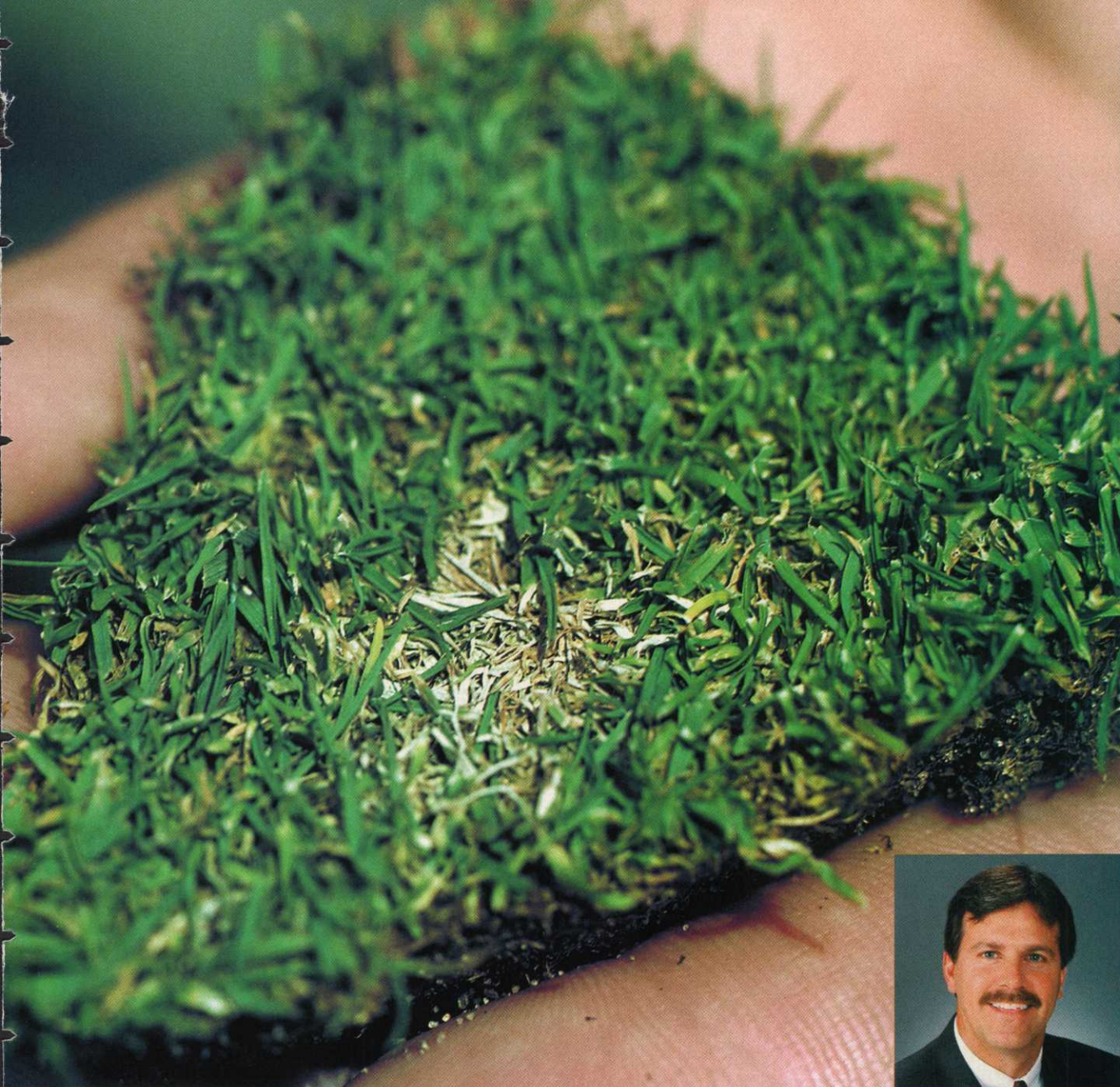


PHOTO COURTESY OF OKLAHOMA STATE UNIVERSITY



programs for treating dollar spot. The bottom line is that preventive programs make more economic sense than curative programs, the experts say.

Preventive programs will help superintendents save time and money in the long run because such programs will enable superintendents to use less fungicides. Yes, we did say less.

### Locked up

By treating preventively, superintendents can keep the tiger in the cage, so to speak, says Rich Hanrahan, senior technical development manager of fungicides for Bayer Environmental Science. The key is to keep the disease population below the critical mass, Hanrahan says. That's achieved by knocking the population

back with preventive applications. "You want to knock back the population so it doesn't explode on you," he adds.

Ross also believes superintendents should take action to stop the disease from starting. "Because once you do, you'll allow more inoculant to be produced, you'll have many more spores, and you'll allow more opportunities to move that disease around your golf course and infect other areas," he adds.

Hanrahan says more superintendents are turning to preventive programs because they've found that dollar spot has become tougher to manage curatively.

"They've found they do have to put in more time, effort and material to manage it [cura-

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**"[In some areas], dollar spot can damage turf all the way down to the soil."**

KYLE MILLER, BASF



**“You want to knock back the population so it doesn’t explode on you.”**

**RICH HANRAHAN, BAYER ES**

*Continued from page 47*  
tively],” Hanrahan says. “And then they still might not be able to get rid of it.”

It’s a misconception to think that more pesticide is used and more money is spent on preventive programs than curative ones, the experts say.

“Curative” doesn’t really mean what it sounds, Ross says, pointing out that a superintendent who treats greens with dollar spot will have to make more than one curative application.

Preventive programs also equate to lower application rates. “Almost every fungicide you look at is going to say, ‘For curative applications, use the highest labeled rate.’” Miller says.

Ross notes that the preventive rate for a Syngenta brand fungicide is 2 ounces compared to 3.5 ounces for the curative rate. “So it’s going to take almost twice as much product to stop a disease than it is to prevent it in the first place.”

Preventive applications not only require lower doses, they can be applied more days apart. “You can stretch out an application further because you’re not really dealing with the disease — you’re dealing with the pathogen population and keeping it below that critical level,” Hanrahan says.

### Anticipation

John Price, an account manager for Dow AgroSciences, points out that dollar spot is most threatening between late April and early July when temperatures climb to 75 degrees Fahrenheit or above. The threat of the disease wanes in the hot summer months but returns in the fall.

But dollar spot control goes in hand with superintendents’ ability to forecast when the disease might break out. So the challenge is for superintendents to anticipate dollar spot, Price says.

Their instincts to do so will improve over time, like once a superintendent has spent several years at the same course. “The person who’s in his first year at a course and is inexperienced is more apt to struggle than someone who has been at that course for five years,” Price says.

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Price's advice to superintendents to help them better predict dollar spot flare-ups is to keep a close watch on air temperature and moisture patterns, as well as know the history of dollar spot breakouts on the course.

The lay of the land, the number of trees and air movement on a course all dictate disease pressure. "There are certain places on a course where there will be more trouble than others places," Price notes.

When to treat for dollar spot differs from region to region. "It varies from place to place, but as a general rule I say to get one or two sprays down before your typical disease period begins," Hanrahan says.

Early spring and late fall preventive treatments are crucial to control dollar spot on greens, Miller says.

It's vital to make a fungicide application in the early spring about two weeks before the usual first application. Miller says studies reveal that early applications lessen dollar spot occurrence.

A late fall application is also crucial, Miller says, to rid turf of any remaining dollar spot inoculum left over from the summer.

In essence, superintendents must make two extra fungicide applications during the year if they adhere to Miller's idea of a preventive program. Miller realizes some superintendents might gripe at the cost associated with two extra fungicides sprays, but he points out the sprays only encompass on average about 3 acres of greens, not 30 acres of fairways. "In the grand scheme of things, I don't think the money outlay is that significant," he says.

### What else?

There are other things to keep in mind in the battle against dollar spot, the experts say.

Ross warns superintendents to stay within label guidelines when treating dollar spot. Some superintendents think they need to spray preventively with a higher rate than what the label recommends. "That would be a waste of product," he adds.



**"We've created an image in the U.S. that we want perfect putting greens."**

DAVID ROSS  
SYNGENTA

Price stresses that dollar spot be treated preventively on all fronts, not just with fungicides. Superintendents should adhere to proper fertilization as well as other cultural practices to keep the disease at bay. "I'm a big proponent of total management, not just being dependent on one tool," Price adds.

Regarding proper application for total effectiveness, Miller advises superintendents to avoid applying contact fungicides on dew-covered turf, even if they want to spray early to beat the golfer rush. That's kind of like painting your house when it's raining, he adds.

"Dollar spot is a foliar disease," Miller says. "You need to make sure that the contact fungicides reach the turf foliage where the disease has the

potential to occur. If you're spraying dew-covered turf, it's possible some of that product could roll off and not be as effective, especially if it's a contact fungicide like chlorothalonil.

"There isn't one formula for controlling dollar spot," Miller adds. "There are some best practices, but superintendents really need to experiment on their own courses to find what works best for them."



**"I'm a big proponent of total management, not just being dependent on one tool."**

JOHN PRICE, DOW AGROSCIENCES

As bad as dollar spot can be, superintendents could have it worse, Ross points out.

"The nice thing about dollar spot is that it's not like some diseases that kill larger patches of turf; it occurs in smaller areas of turf," he says. "So even in a bad situation, you can plug sod into spotted areas." ■

# Poa Shakedown

Clemson professor offers 10 tips on how to disarm annual bluegrass

By Thomas Skernivitz  
Managing Editor

**A**s *Poa annua* paranoia creeps across U.S. courses nearly as fast as the invasive turfgrass itself, some clubs are implementing player checkpoints at the front gate. And whereas *No Shirt, No Shoes, No Entry* once was enough to weed out most of golf's bad element, the bigger worry these days is what's on those soiled shoes.

"Some courses have gotten so picky that they request golfers — before they allow them on the golf course — to wash off the bottom of their shoes and their clubs to help prevent the spread of *Poa* from previous courses played," says L.B. (Bert) McCarty. "That's kind of going to an extreme, but there are some courses that are bound and determined to not have *Poa* on their golf courses."

McCarty is just as intent to help those courses come clean. The professor of horticulture at Clemson University has researched *Poa annua* and its ever-growing impact on the sport.

"Certainly, the players know what *Poa* is today much more so than they did years ago," McCarty says. "The commentators on TV have picked up on *Poa* — good and bad — and, of course, when they start talking about it on TV at major tournaments, then Joe Blow golfer picks up on it and thinks he has a problem now. And when they know there's a prob-

lem, then of course, they start tapping on the superintendent's back more so than if they hadn't recognized it."

Compounding the situation, putting greens have become more susceptible to *Poa* because of decreased mowing heights combined with increases in mowing frequency, soil compaction and the amount of sunlight hitting the soil. Meanwhile, newer fungicides have aided *Poa* growth, while some mercurial- and cadmium-based fungicides that once kept *Poa* in check have been banished.

"Trying to keep *Poa* populations under control throughout a golf course is hard to do," McCarty says. "Out-of-play areas, in bunkers, on the lips of bunkers, around irrigation heads — those are areas that *Poa* can get very prolific. And obviously it can get tracked onto greens by machinery, golfers, a pitching wedge. ..."

The Roundup-Ready Creeping Bentgrass technology currently being tested would definitely aid the battle against *Poa*, McCarty says, but no one knows for sure when the product will receive regulatory approval. "We thought it would be here in '03, and here it is '05," he says. "We're hoping it will be here in '06 ... but maybe '07?"

Until then, *Golfdom* asked McCarty to expound on the 10 tips on how to control *Poa annua* on golf greens that he offers in his book, "Best Golf Course Management Practices."

**1 Fumigate all soil mix before planting.** “*Poa* is such a cosmopolitan plant that even though you think the soil may be clean, unless it comes from a very deep pit, chances are you’re going to have some *Poa* in it. So anything that you apply to greens in either construction or topdressing thereafter — certainly if it sits in the soil bed for a long period of time — needs to be fumigated. Fumigation is easy to do, obviously, if you’re constructing. If you’re not constructing, if you’re just using it for topdressing, then it’s more difficult. What I would do is probably put the sand in black plastic and let the sun heat it up. That will help reduce the viability of the *Poa* seed that may be present.”

**2 Begin with and retain good drainage to prevent soil compaction and excessive soil moisture, which favor *Poa*.** “There are a lot of push-up greens still out there. And members are griping about aerification more so than ever. Fewer aerifications and native soil greens help compact soil, and wet compact soil certainly favors *Poa* more so than bentgrass and can thrive in those kinds of conditions. That’s where we often see it.”

**3 Use certified seed, sprigs or sod free of *Poa* when planting.** “This kind of goes back to No. 1. Especially with seed, the ban-the-burn in Oregon has increased *Poa*; not only *Poa annua* but also *Poa trivialis*. *Poa* is ubiquitous — you find it everywhere — so just for good housekeeping, make sure you obtain blue-tag seed, blue-tag sprigs and sod to give you a reasonable assurance that you’re going to minimize *Poa* in those particular propagation techniques. That’s another good housekeeping thing to try to prevent a problem by not introducing it vs. having it there afterward.”

**4 Obtain and maintain good turf density to reduce *Poa* invasion.** “That’s easier said than done obviously. Anything to reduce sunlight that reaches the soil surface is going to reduce the optimum germination environment for *Poa*. Therefore, having a good dense turf almost always helps  
*Continued on page 52*

Unfortunately for the superintendent, everyone knows about *Poa annua* these days, according to Clemson professor Bert McCarty.



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reduce the ability of crabgrass and goosegrass as well as *Poa* to germinate.”

**5** **Aerate consistently to relieve soil compaction.** “This goes back to No. 2. Superintendents aerify for several important reasons, and a major one, of course, is to relieve soil compaction and provide drainage. Otherwise, the population shifts to those species that can stand higher soil water, therefore less soil oxygen, and *Poa* certainly is one of those dominant species.”

**6** **Use fumigated sand/soil when topdressing.** “Especially if it sits in a bin for a long period of time, there’s always outcroppings of *Poa* plants floating around in cracks of sidewalks and the corners of buildings. And when they flower, *Poa* seed can be transported very easily to those soil bins. And then if you topdress, you introduce them into the turf stand.”

**7** **Use pre-emergent herbicides in spring and fall.** “The annual biotype of *Poa* germinates in late summer/early fall, so if you can get a pre-emergent herbicide out prior to germination, you’re ahead of that curve. In most cases, you’re

going to have a second flush of germination sometime in winter or early spring. Therefore, having a second application is often necessary because the initial application is broken down by the environment by spring. Thus, it’s not at sufficient levels to control subsequent germination.

Pre-emergent herbicides help maintain if not reduce the *Poa* pressure present. Perimeter areas on the course where routine mowing is lacking and herbicides are not normally used should be inspected for wild populations of *Poa* seeding. If not controlled, these seed are easily tracked back onto the golf course.”

**8** **Use PGRs in spring and fall to reduce *Poa* competition and seed head development.** “PGRs in today’s world — particularly paclobutrazol or Trimmit (2SC) or TGR (Turf Enhancer 2SC) — provide selective reduction in *Poa* growth, at least more so than it does bentgrass. And so the *Poa* kind of shrinks itself, for lack of a better term, and is not very competitive. Yet the bentgrass is less affected and therefore it can still grow and out-compete the *Poa*. As for the second part of this statement, obviously, if you can prevent seeds from developing, you have reduced the inoculum source for the next generation. So we do have PGRs such as Embark and Proxy that not only reduce competition from *Poa* but also can reduce or eliminate seedhead development if applied in a timely manner.”

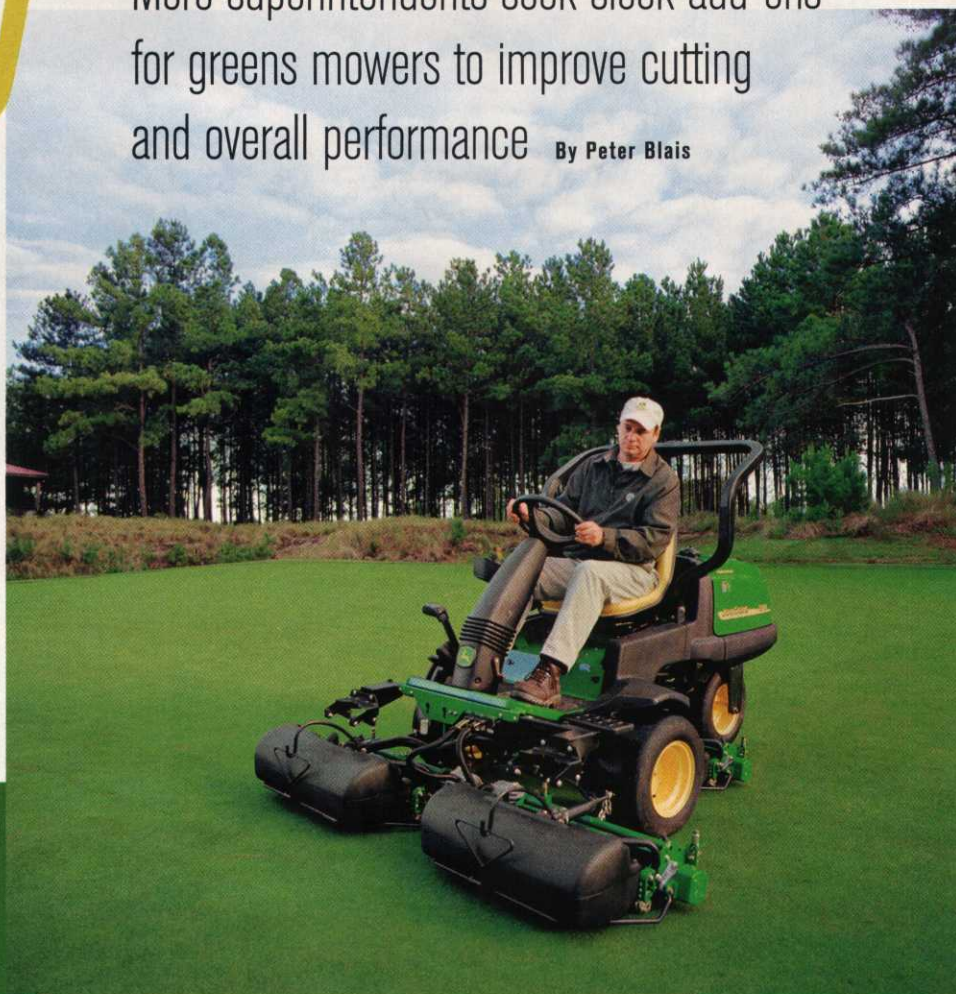
**9** **Hand-pick or wick nonselective herbicide (e.g., glyphosate) on small (e.g., 1-inch diameter) *Poa* plants.** “The bingo-blotter type technique that came out several years ago has become very popular, where they use a bingo-blotter or a shoe-polishing bottle and put Roundup in it and just dab it right on the plant. It’s such a small diameter of death or injury to the plant — about the size of a nickel to a quarter — that most people just think it’s a ball mark. So the average player just doesn’t recognize it as being an herbicide application. They just think it’s ball mark damage. So, if you don’t have an excessive amount of *Poa*, that’s a good way to try to stay ahead and keep it from getting out of hand. And it’s pretty easy and cheap to do.”

**10** **Plug larger spots with *Poa*-free turf.** “With perennial *Poa*, it starts to spread by short stolons. So superintendents will take those areas — and we’re talking about a *Poa* plant 3 inches to 6 inches in diameter roughly — and they’ll go to the nursery to replace it. And if they don’t want to use PGRs or the *Poa* has gotten too big to spot treat with Roundup and it’s causing a pretty serious eyesore, they’ll go in with a regular cup cutter or one of the bigger-type turf replacers and take it from the *Poa*-free turf in the nursery and extract the *Poa*-turf from the greens and discard it.” ■

**The bingo-blotter type technique of applying Roundup results in such a small diameter of death or injury to the plant that most people just think it’s a ball mark.**

# Accessory City

More superintendents seek sleek add-ons for greens mowers to improve cutting and overall performance **By Peter Blais**



Riding mowers, such as John Deere's 2500E Tri-Plex, have basically the same options as walk-behind greens mowers when it comes to accessories.

COURTESY OF JOHN DEERE

**W**hile basic greens mower technology has changed little in the past 20 years, accessories aimed at improving turf conditions are becoming increasingly popular, manufacturers say.

With more and more courses being converted to modern turfgrass cultivars — like the new bentgrasses, ultradwarf bermudagrasses

and salt-resistant paspalums — mowing equipment has to be able to both cut low and groom turf better than ever before, according to Helmut Ullrich, marketing manager for greens products with The Toro Co.

“Although groomers have been around for some time, what I have seen lately is more people trying to brush, whether that’s with a rotating brush replacing the grooming reels or

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**“We’ve seen more customers replacing grooming reels with rotating brushes, instead of installing grooming blades.”**

HELMUT ULLICH,  
THE TORO CO.

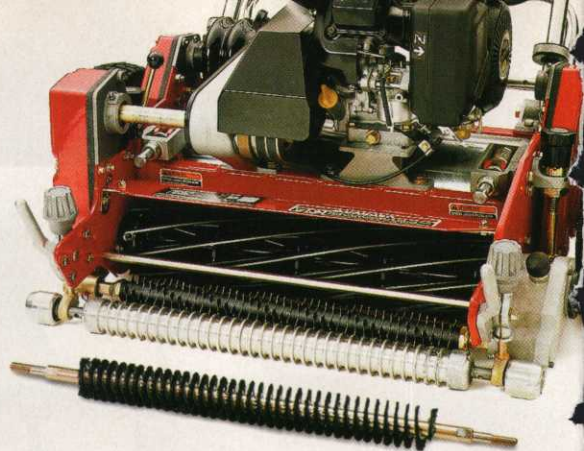
*Continued from page 54*

a flat-out brush,” Ullrich says. “That’s especially true with walking mowers. We’ve introduced a push-broom-type brush that goes in front of walkings mowers. It has found a significant audience.

“We’ve seen more customers replacing grooming reels with rotating brushes, instead of installing grooming blades. By using rotating brushes, people are removing more grass-blade material. The steel blades only slice the grass. But the brushes lift the grass blades into the reel and allow the blades to be cut better. ... The rotating brush is used with both walkers and riders.”

Another trend, Ullrich says, is the use of carbide-tipped blades for thatching reels or verticut reels. Carbide-tipped blades stay sharp longer, cut cleaner and therefore disturb the green less than common verticut blades, while also removing enormous amounts of organic material compared to traditional blades.

“You end up with firmer, speedier greens over time,” the Toro executive explains. “In addition, the topdressing is able to work its way better down to soil level. Carbide blades



**Toro’s grooming reel and rotating brush are interchangeable.**

THE TORO CO.

the height of cut. Also, if that [dirt and clippings] builds up on the rear roller, it may fall off in clumps and leave an unsightly mess on the

greens and tees. The brush disperses the grass before it builds up, and clumps begin falling off the roller.”

While walking greens mowers have not changed for many years, there are many optional accessories superintendents can order for their particular situation or individual applications, according to Mike Koppen, John Deere’s golf and turf products group marketing manager.

For example, Deere offers certain reels for mowing greens and others for tees and collars; different bed knives for different heights of cut; front-mounted rotary brushes that stand the grass up before it is cut, which controls runners and reduces grain; Greens Tender Conditioners, basically small knives that go in before the reel to slice the stolon, promote new growth, reduce thatch and reduce grain; smooth or grooved front rollers; transport wheels and trailers; and light kits to illuminate late-evening or early-morning mowing.

“What you have also seen in the last 10 years is the evolution of more safety features on walk-behind greens mowers,” Koppen says. “Operator-presence systems have safety bails. If the machine gets out of the control of the operator, he simply releases the safety bail. The engine continues running, but cutting and traveling stops.”

Riding greens mowers have basically the same options as walk-behind greens mowers, with a similar push for reductions in noise, more stability and operator-safety devices, Koppen says.

The golf market is seeking a reduction in hydraulics on greens and other turf-equipment

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THE TORO CO.

**Toro offers a push-broom-type brush that flips down in front of the mower and helps stand up grass for a better cut.**

are much more expensive than traditional blades. But they are well worth the investment for the performance, lasting five to 10 times longer.”

Rotating rear-roller brushes are becoming more popular to keep rear rollers clean on riding mowers, Ullrich adds. They attach to the frame, are adjustable and are driven by a belt of the reel shaft.

“Keeping the rear rollers cleaner accomplishes two things,” he says. “First, if you are in a wet green or tee area, the dirt and clippings may build up on the roller and change



COURTESY OF JOHN DEERE

Deere's new 2500E eliminates 102 potential hydraulic leak points.

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applications, the Deere representative adds. Deere introduced a new greens mower recently called the 2500E, which basically eliminates 102 potential hydraulic leak points. The reel circuit is now all electric, whereas in the past it was all hydraulic. This reduces the chance of leaks on the green and enables the operator to mow at about half-throttle, which reduces noise by a few decibels.

"In the future, we will probably be moving toward all-electric machines," Koppen says. "Noise and emission standards, not only in North America but also worldwide, are becoming much stricter."

Ryan Weeks, Jacobsen's director of product management, agrees the trend is toward electric-powered mowers and reels, noting that his company offers all-electric-powered riding and walking greens mowers. Jacobsen has a gas-powered floating-head walking greens mower that is popular and the company will release an electric version toward the middle or end of the year. The electric unit should provide cost savings and improved quality of cut.

"One of the things you can do with a unit like that is vary the speed of your reel from the speed at which the mower travels," Weeks says. "That helps ensure you get the right quality

of cut. That cannot be done with a standard gear-driven mower with a drive system linked up one-to-one with the reel system."

Typically, bed knives are held on with 13 screws. About a year ago, Jacobsen came out with the MagKnife system that eliminated the screws and replaced them with bed knives that can be held onto the bed bar with magnets. The MagKnife allows blades to be changed in a matter of minutes rather than a half hour, Weeks says. Jacobsen introduced an improved version called the MagRazor at the Golf Industry Show. The thicker MagKnife can only be removed with a specialized pair of vice grips or pliers, although it can still be done quickly. The MagRazor gives the user the ability to remove the blades with just a pair of gloves.

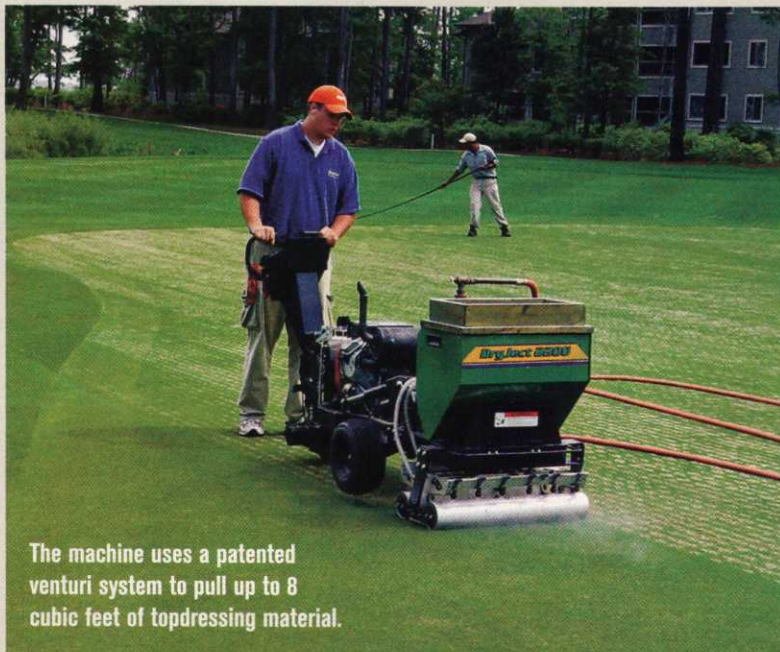
"With the magnetic system," Weeks says, "you can take the blades off the reels while they are still sitting there beside the mower. You don't have to take it back to the bench, turn it upside down, take all the screws out and go through the whole sharpening process. The MagRazor, because it is a true knife held to the reel with the magnetic system, means you do not have to go through those long, drawn-out operations to get a sharp blade on the reel. There are big labor savings associated with that, as much as 30 minutes per reel in changing or sharpening blades.

Right now the MAG system is not factory-optional but is available in conversion kits. For the first couple quarters in 2005, Weeks says, it will continue to be available as a conversion kit. Toward the middle of the year, it will become available as a factory option on some Jacobsen greens mowers. "That is where the MagRazor will see its first use. Farther down the road, we envision all our mowers coming out of the factory with a reel that will also have a MAG system."

Jacobsen, Weeks adds, is a big proponent of vertical mowing. "Along with the groomers on our reels, we sell verticutters. They allow you to create a healthier plant by not only cutting the top of the grass, but also cutting down into the grass to promote vertical growth of the plant and eliminate the runners that grow under the surface. We offer that with our reels." ■

*Peter Blais is a freelance writer from Monmouth, Maine.*

## A Healthy Injection for the Greens – and the Economic Good of the Course



PHOTOS COURTESY OF DRYJECT 21ST CENTURY AERATION

The machine uses a patented venturi system to pull up to 8 cubic feet of topdressing material.

**Machine uses high-speed, water-based system that's changing the way superintendents handle routine aeration**

**BY SHANE SHARP**

holes about the size of a little finger through the rootzone. Both the spacing (3 inches to 10 inches) and the depth (up to 10 inches) are adjustable. The machine uses a patented venturi system to pull up to 8 cubic feet of topdressing material (or soil amendment) per 1,000 square feet without disrupting the surface.

"It's an excellent new technology to incorporate sand into the upper rootzone," says Patrick O'Brien, Southeast regional director of the USGA's Green Section. "The sand incorporated can be counted in the overall total of topdressing applied to the greens annually for the purpose of the organic matter dilution program. The technology can incorporate large amounts of dry sand through the cones of the machine with high-pressure water."

### Striking gold

The DryJect machine and its sand injection technology were not designed by a couple of rocket scientists with an inexplicable penchant for golf course maintenance.

Rather, DryJect as it exists today is a product of the blood, sweat and tears of a mining engineer from Sweden and his American partner. In 2000 Peter van Drumpt and Chris des Garennes purchased the license, patent and parts for what would

*Continued on page 62*

**F**or superintendents, the sales pitch is becoming increasingly difficult to resist. Imagine a machine that injects 500 to 700 pounds of topdressing per 1,000 square feet of turf — up to 250 percent more than a traditional application. Now imagine three of these machines knocking out all 18 greens in one day. Lost revenue? What lost revenue? All 18 putting surfaces will roll as smooth as the hood of a newly waxed car in just under an hour. Oh, and if the upper rootzones need some soil amendments or nutrients to go along with the sand, no problem. Consider it done.

The apparatus in this proposal comes courtesy of DryJect 21st Century Aeration. DryJect utilizes a high-speed, water-based injection system that's changing the way superintendents handle routine aeration.

A Zamboni-like machine with a row of 10 high-pressure injectors blasts aeration

### The Challenge

As superintendents will attest, aerating greens always poses challenges, from communicating to golfers what's going on to having to shut down the course to complete the project.

### The Solution

Imagine a machine with a row of seven high-pressure injectors that blast aeration holes and then injects topdressing. And the machine does it fast and leaves a smooth putting surface.





**One USGA agronomist says DryJect is an excellent technology to incorporate sand into the upper rootzone. Bob Graunke (right), certified superintendent of Tidewater Golf Club, uses gypsum in the machine to help soften the soil.**

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become DryJect from Land Pride, a division of Great Plains Manufacturing. The partners then set out to put theory into practice by fine-tweaking the design to make it more durable and efficient.

“They had the machine and technology, they just couldn’t get it to work,” van Drumpt says. “Whenever you are dealing with a machine that uses water, it is tricky business. We redesigned it, and we’ve made it work.”

Not only have they made the machine work, they have developed a successful business model that is capturing significant market share along the East Coast. Aware that it would be cost-prohibitive for courses to purchase the maintenance intensive DryJect machines, van Drumpt and des Garennes grow the business by selling franchises. Twenty-four DryJect franchises are sprinkled along the East Coast, the majority in Pennsylvania, New Jersey and Ohio.

“We’ve also penetrated the Carolinas, and we are starting to go after the Southern California market,” van Drumpt says.

### **Take your best shot**

Bob Graunke wasn’t hit over the head with the DryJect sales pitch. He did, however, end up having a fateful conversation with a DryJect franchiser at a conference in Orlando, Fla., about using the machine for injecting

greens with something other than sand.

“I wanted to know if you could use gypsum in the machines to soften the soil and move water through quickly,” says Graunke, certified superintendent at Tidewater Golf Club in Cherry Grove Beach, S.C. “Because of our proximity to the [Atlantic] ocean, that’s a big issue for us.”

Big enough that Tidewater is on its third set of greens in 15 years. After two unsuccessful attempts at growing bentgrass, Tidewater officials opted for TiffEagle bermuda two years ago. The hardy ultradwarf has been a success so far, says Graunke, but a chemical application issue shortly after the installation left him and his staff scrambling for a remedy.

“We were applying a lot of charcoal to combat it so we started to get charcoal buildup,” Graunke says.

After the DryJect representative confirmed he could use gypsum as a soil amendment in the machine, Graunke contracted with a South Carolina-based franchise for a test run. After a few weeks, the buildup was virtually eradicated. But Graunke also noticed the late-spring transition from *Poa trivialis* to bermudagrass was smooth.

“In 3 acres of green surface we put down 23 to 25 tons of topdressing,” Graunke says. “We are able to run golfers through the course as we are doing it. The beauty of the hydrojet is that once you inject the material you are able to blow off the excess material, water the greens, roll them, and they are ready to putt. We even do it during peak season because we don’t have to worry about forfeiting the revenue.”

Not forfeiting revenue was also a major concern for Todd Gribbling, golf course manager at the Timers at Troy in Elkridge Md. The greens on the Alt Clark/Ken Killian-designed course had started to develop significant amounts of black layer three years ago, despite being only 8 years old at the time. Regular aeration wasn’t eliminating the problem, so Gribbling contacted a local DryJect franchiser about testing the machine on the chipping green.

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"We were able to get down 10 inches into the green," Gribling says. "With regular aeration we were getting down 6 inches, and we just couldn't get to the black layer. We decided to try it on all 18 greens. Two hours after we did it, the greens were playable. We were able to get down about 9.5 inches on all the greens."

By having playable greens just two hours after the DryJect treatment, Gribling says the course saved around \$10,000. And while the black layer has almost been eradicated, Gribling says he will continue to use the DryJect treatment even after it's gone.

"It really firms up our greens because we get the amount of material in there we need, and it is packed with water pressure," he says. "It is good preventative maintenance."

### **Continue aeration**

Both Graunke and Gribling agree that DryJect is not a replacement for routine aeration.

Rather, the machine can be used to strengthen the green, apply soil amendments and, in Tidewater's case, ease the transition between cool-season and warm-season grasses. O'Brien believes this is a prudent approach, and he cautions superintendents about looking at DryJect as a complete aeration solution.

"Since it does not remove any organic matter from the rootzone, it is not a substitute for aeration," he says. "It is technology to incorporate sand into the upper rootzone."

"I believe the DryJect technology is more of a topdressing practice and not truly an aeration of the greens," he continues. "The hole made by the sand blasting into the rootzone does provide added air and water movement where it occurs, but it is the sand added into the upper rootzone that dilutes the organic matter that is the major benefit." ■

*Shane Sharp is a freelance writer based in Charlotte, N.C.*

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