

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
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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.

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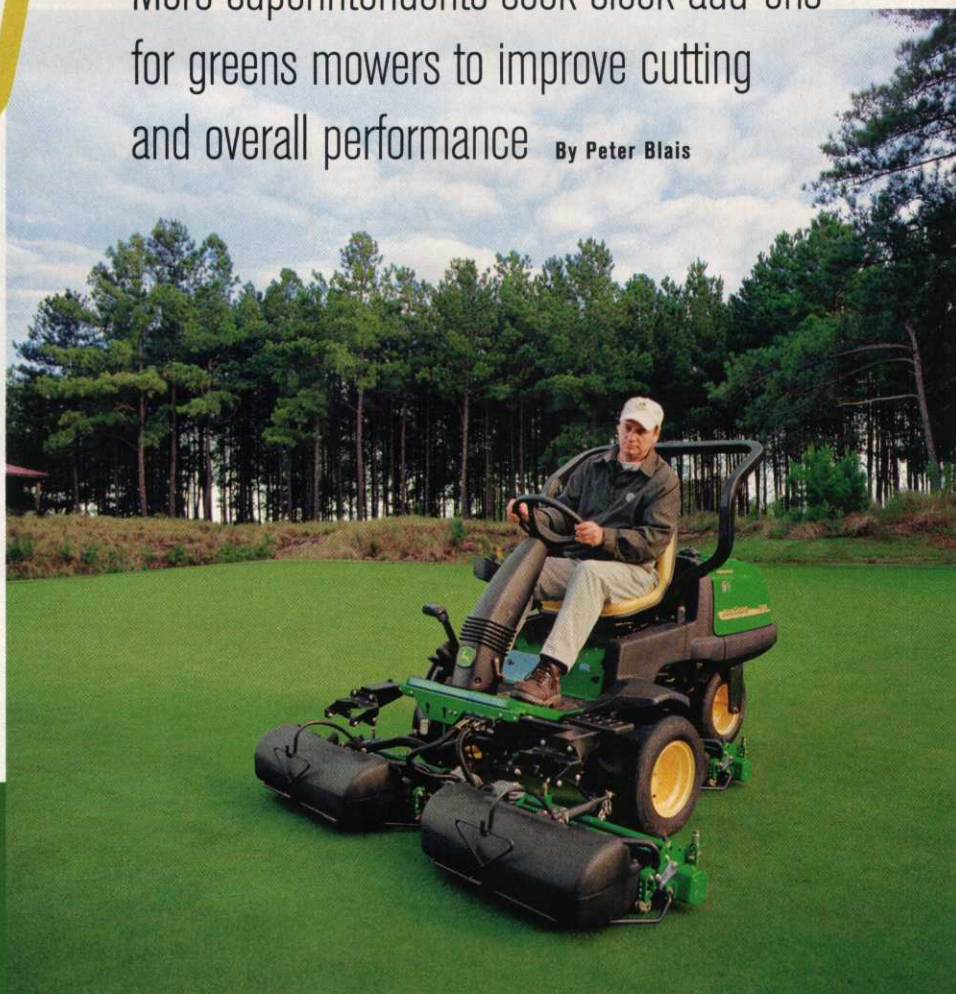
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Accessory City

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

While 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

Continued on page 56

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"We've seen more customers replacing grooming reels with rotating brushes, instead of installing grooming blades."

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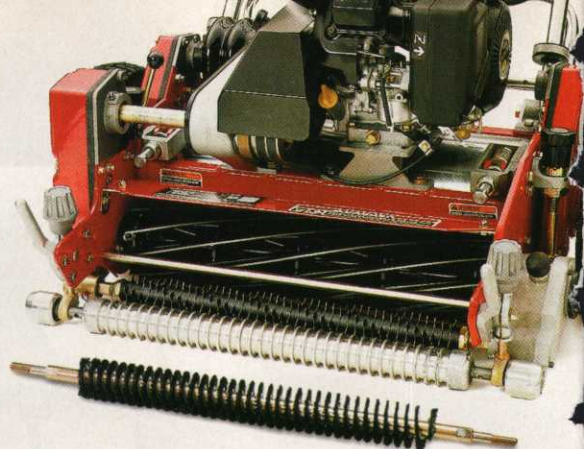
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a flat-out brush," Ullrich says. "That's especially true with walking mowers. We've introduced a push-broom-type brush that goes in front of walkings mowers. It has found a significant audience.

"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 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

Continued on page 58



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

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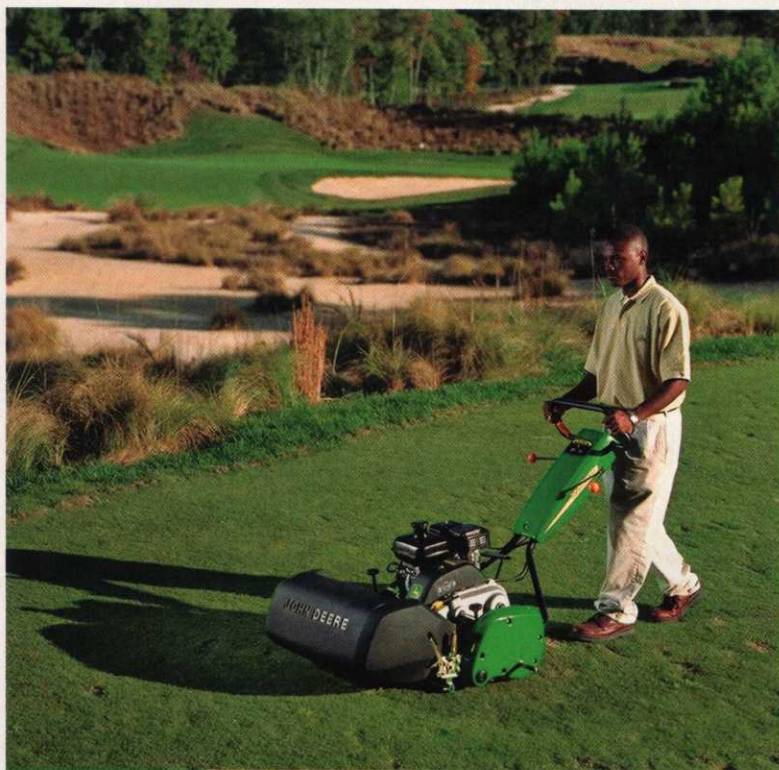
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COURTESY OF JOHN DEERE



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.



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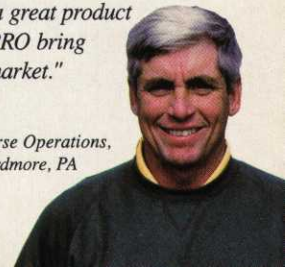
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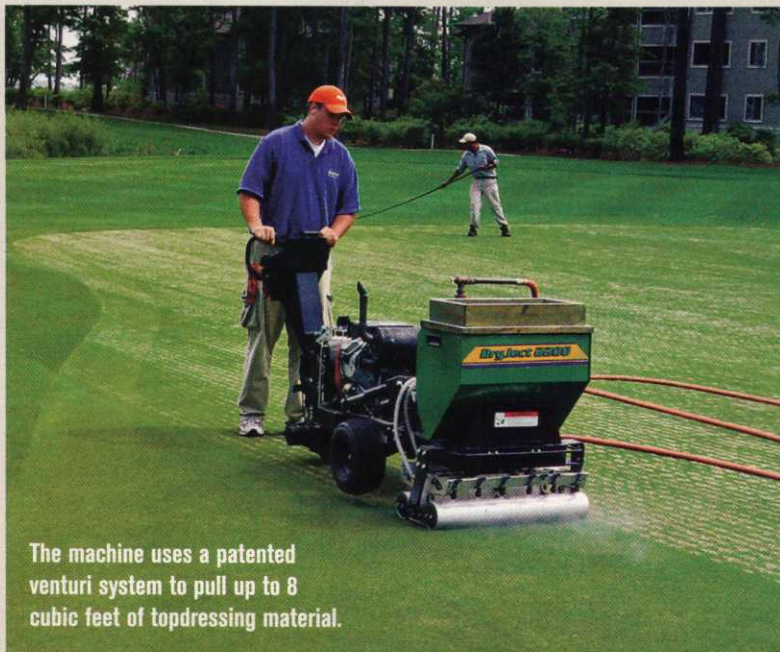
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Director of Golf Course Operations,
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A Healthy Injection for the Greens – and the Economic Good of the Course



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

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.

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For 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