

INSIDE The Fringe

SPECIAL SECTION: THE PUTTING SURFACE

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Make Mine a (Walk-Behind)

The Big Three manufacturers discuss the time and effort (but not the dollars) they spend to bring new walk-behind machines to market

By Frank H. Andorka Jr., Managing Editor

An indication of how competitive the walk-behind greens mower market is that none of the Big Three manufacturers will reveal how much it costs them in research and development to bring one to market.

"I don't think I want to talk about those numbers," says Helmut Ullrich, senior marketing manager for The Toro Co.'s Greensmaster products. "The market's more competitive than ever."

"We're not at liberty to disclose specific numbers," says Jon Gorman, group product and brand marketing manager for John Deere Co.

"We hold those numbers very closely," says Shawn Daly, product manager for Jacobsen. "I'm sure you can understand why."

What is becoming increasingly clear is that the demand for high-quality turf maintenance has fueled a demand for walk-behind greens mowers. Superintendents like them because they offer a better quality of cut than the average triplex. In turn, there's mounting

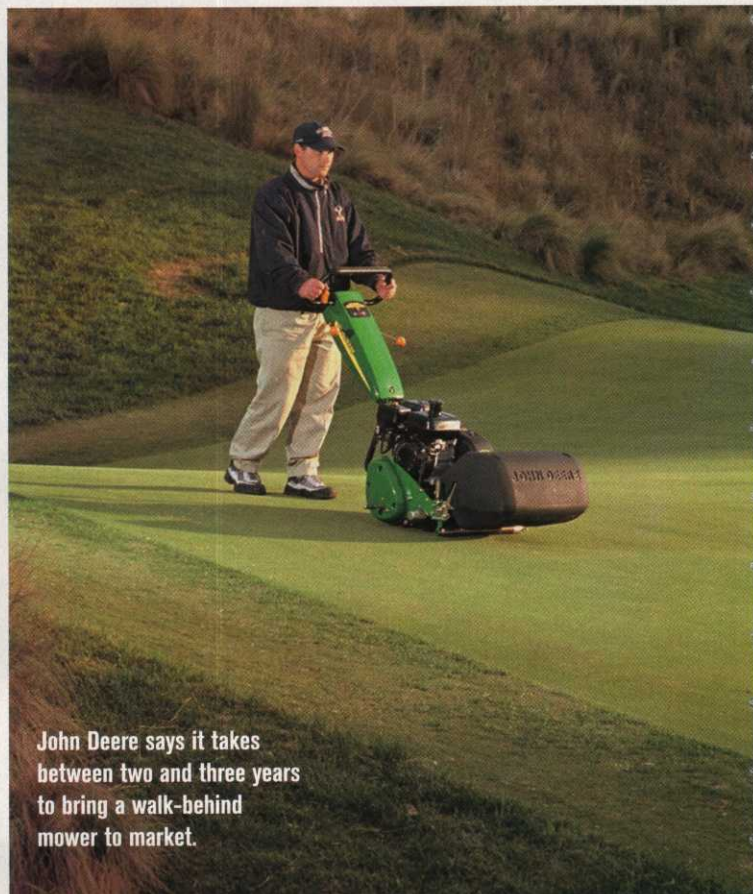
pressure on the manufacturers to put new products on the market as quickly as possible. But if manufacturers produce them too fast, they may contain mechanical defects. Those problems can alienate superintendents who value reliability above all else.

"You don't want to bring a product to market just to say you did it," Daly says. "You want to make sure you do it right. After all, the reputation of your company is at stake. If you lose that in this segment, you lose a lot."

What's driving the competition

While the mower business has always been competitive, it's become more intense in the past couple of years because the number of newly built courses has plummeted to 248 in 2002, according to a National Golf Foundation study. That's half of what it was just four years ago, and the slide is expected to continue.

"It requires you to take a look at your existing walk-behind products and whatever new ones you



John Deere says it takes between two and three years to bring a walk-behind mower to market.

want to put in the pipeline," Daly says. "You need to meet your customers' needs exactly because you can't afford to miss in a tight market."

Ullrich says new grass cultivars have also fueled the growth in the walk-behind mower market. Some dwarf varieties allow superintendents to cut the greens at lower heights, and that's required a rethinking of the manufacturing approach to mowers.

"We've got a model that can go down to one-sixteenth of an inch," Ullrich

says. "That was unheard of a few years ago. But the market demanded it, so we met its expectations."

Tracy Lanier, Deere's product manager for golf and turf, says newly designed golf courses also have more contoured greens than older courses, and those new contours require that mowers be lighter and smaller in footprint. Walk-behind mowers fit the bill for those conditions.

But in the end, nothing has driven superintendents to walk-behind mowers like the increased demands of

Mower



JOHN DEERE

golfers. Mike Koppen, Deere's national sales manager for turf, says the old adage about the greens making the golf course remains as true today as it was in the days of Old Tom Morris. "That's how golfers measure the course, and walk-behind mowers give superintendents a better quality of cut at lower heights," Koppen says.

Sweating the details

So how do manufacturers decide when to pursue new ideas? All three mower companies says they don't reach

that step until they've spent extensive time with customers and distributors to find out what niche is missing in the market.

Toro's Ullrich says he's on the road frequently with superintendents and turf professionals to find out the latest challenges in golf course maintenance. That's how some of the latest Toro walk-behind technologies became reality.

"I like to keep in constant touch with our end-users," Ullrich says. "Sometimes we bring people to us to discuss new ideas we have. When I feel there is a market position we can meet, I sit down with our engineers and brainstorm how to meet it."

Daly says he and his colleagues at Jacobsen are always talking to dealers, distributors, end-users and mechanics (from whom Daly insists the company gets some of its most important feedback). The conversations focus on how current Jacobsen walk-behind mower lines are meeting superintendents' needs and to see what the company can do to improve its products. He also says he starts most of his conversations with the unconventional question, "What are we doing right?"

"It's important that we know what we're doing right in addition to what we should change," Daly

says. "After all, we don't want to change a feature of our machines just for the sake of changing it. If what we're making is working for the customer, why mess with it?"

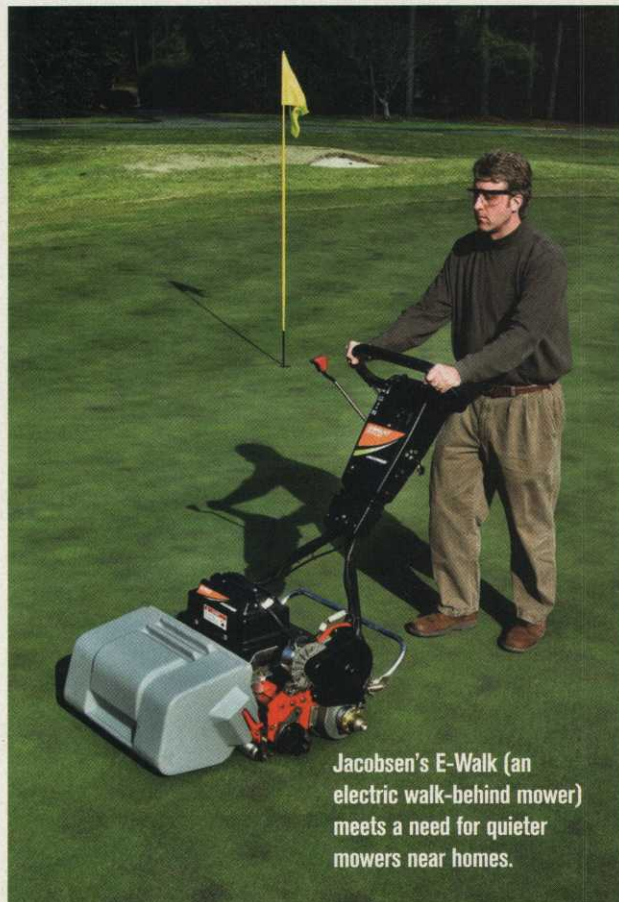
Deere's Koppen says his company has formalized programs to bring customers to its Raleigh, N.C., headquarters to talk with them about new products and show them the prototypes. Gorman says Deere strives to have personal relationships with the people it brings in to look at its equipment. The company

wants them to feel comfortable criticizing a design if it makes no sense.

"We don't hide our engineers from customers," Gorman says. "We bring the two groups face to face so they can hash out any problems. It's a great exercise that keeps our production people connected with the market."

The manufacturers agree the time frame on bringing a new walk-behind mower from the drawing board to the market is between two and

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Jacobsen's E-Walk (an electric walk-behind mower) meets a need for quieter mowers near homes.

JACOBSEN

Walk-Behind Mowers

Continued from page 71
three years. Toro's Ullrich was the only one to reveal how long it usually takes before the company sees a full return on investment, putting it at between five to seven years. "For some of our products, the payoff takes longer," Ullrich adds. "For others, it's shorter."

But how well a walk-behind mower performs on greens is what ultimately determines its success, Ullrich says.

"It all depends on how well you know your customers and how well your products fit the niche," he adds. "It takes time, but it can make or break your product line, so you'd better do it right the first time." ■

THE TORO CO.



The Toro Co. expects its investments in walk-behind mowers to pay off in five to seven years.

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Bring On the Baking Soda

Two Ohio superintendents discovered an innovative solution to moss problems on their greens after other solutions produce mixed results

BY FRANK H. ANDORKA JR., MANAGING EDITOR

The hardest part of controlling moss on greens is that there's no sure-fire way to eradicate it. Some superintendents use iron sulfate. Others swear by ammonium sulfate or copper sulfate. The use of Ultra Dawn (the dishwashing soap) has spread quickly to many parts of the country. Unfortunately, there's no one method that works perfectly for all superintendents.

That's what spurred superintendents Tom Vogel and Rob Miller to try a radical solution as moss populations expanded on their course's greens.

Vogel, certified superintendent at Portage CC in Akron, Ohio, had persistent moss problems on about six greens. His treatments ran the entire gamut of the methods mentioned earlier, and he still couldn't get a consistent kill that would leave the greens undamaged.

"I wasn't getting as much control as I needed, and the members were starting to ask questions," Vogel says. "After having met with limited success with other methods, I decided I needed a new solution."

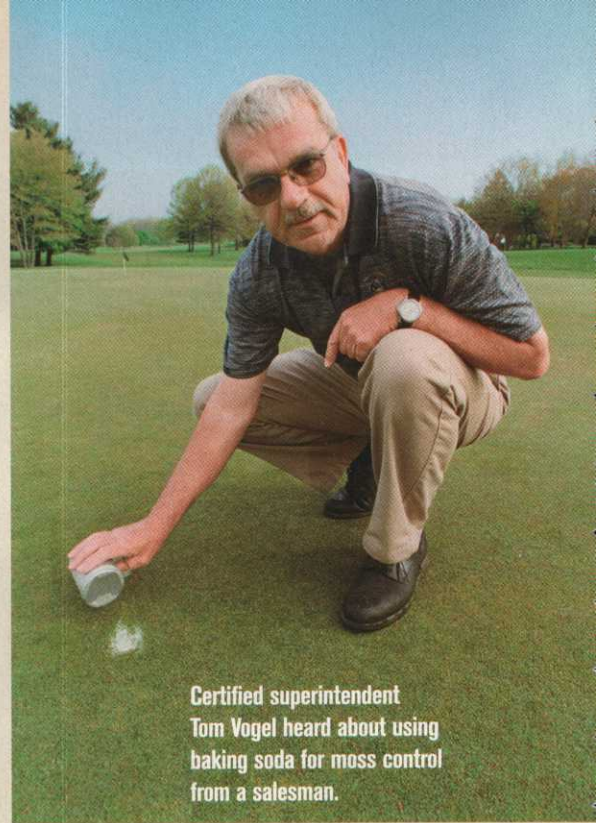
Down the road at Glenmoor CC in Canton, Ohio, superintendent Rob Miller came to the same conclusion about the hard-to-eradicate moss on two of his greens. "We could see the moss starting to expand, and we knew we needed to stop it in its tracks," Miller says.

Problem

Conventional moss-control strategies, such as copper sulfate and iron sulfate, weren't working on two Ohio courses. The popular Ultra Dawn strategy proved difficult to manage in the state's climate. Meanwhile, the moss population at both courses continued to grow.

Solution

The two courses, independent of each other, stumbled on the idea of using baking soda to burn the moss out of their problem greens – with results both superintendents refer to as "remarkable."



Certified superintendent Tom Vogel heard about using baking soda for moss control from a salesman.

The problem

Moss poses a complex problem for superintendents because it can live under duress for long periods of time, according to Tony Koski, an extension turf specialist at Colorado State University in Fort Collins, Colo. Moss is a bryophyte, meaning that unlike turfgrass it has no roots or vascular system, reproduces vegetatively or by spores, and can survive long periods of desiccation. These factors taken together make it hard to design a fungicide to eradicate it.

At the same time, the problem has reached epidemic proportions in recent years because more intense turf management has created perfect conditions for moss survival, Koski says. These practices include low mowing heights, lower nitrogen rates on greens, discontinued use of mercury-based fungicides and use of finer topdressing sand, which inhibits good drainage by creating a perched water table.

Koski says his research shows that the Ultra Dawn was the most effective of the several methods he tested. (Ultra Dawn is most commonly applied in a spray form at a ratio of 4 ounces/gallon of water, and superintendents should drench the moss with the solution.)

But Vogel, who tried the Ultra Dawn treatment on his problem greens, says it's tricky to apply.

"You have to get the timing exactly

right, and the weather conditions have to be ideal for it to work properly," Vogel says. "It has to be a completely sunny day, but it can't be too hot [*Editor's note: Koski says that Ultra Dawn should be applied between 55 degrees F and 80 degrees F in full sunlight.*] For some of us, that makes it tricky to do in the summer."

Miller hoped to burn his moss out of his greens and tried the Ultra Dawn and hydrogen peroxide treatments, but neither gave him the control he wanted.

"You'd make the application, and it looked like it worked," Miller says. "It would turn the moss brown, and it would appear to be dead. But two weeks later, it would be back, and it was stronger than it was before you tried to kill it."

Vogel was nearing his wits' end when a salesman from J.R. Simplot came to visit. As they sat in his office discussing the salesman's products, Vogel mentioned his moss problem. The salesman paused for a moment, and then told Vogel he'd heard that some superintendents were having success with an entirely new method of moss control: baking soda. Though he wasn't sure how he was going to get it out on his greens, Vogel

thought to himself, "This idea is so crazy, it just might work."

Less than 25 miles away, Miller was also coming to the same conclusion.

"It kind of came to me happenstance when I was talking it over with my assistant, Jerry Cox," Miller says. "He had heard about the baking soda idea, and suggested we try it. It couldn't work any worse than anything else we'd tried."

The solution

Vogel says he played around with the right amount of baking soda to apply during last summer's brutal heat. Since he didn't have any details about an appropriate rate, he experimented with it.

"I was excited, but I was scared at the same time," Vogel says. "The biggest question I had to answer was how to get the baking soda from the box to my greens."

First, Vogel tried to use a saltshaker, but the holes were too small. Then one day while Vogel watched the cook in the course's restaurant shake powdered sugar on to each delectable order, an inspiration came to him.

Vogel took one of the myriad powdered-

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"After having met with limited success with other methods, I decided I needed a new solution."

TOM VOGEL
CERTIFIED SUPERINTENDENT
PORTAGE CC
AKRON, OHIO

**Read another
Real-Life Solutions
on page 88.**

Vogel (center) discusses his moss control strategy with two fellow staff members at Portage CC in Akron, Ohio.

Real Life Solutions: Moss Control

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sugar shakers from the kitchen, filled it with baking soda and covered 90 percent of the holes. Then he took it out to his greens and shook it twice. The baking soda landed on the moss, but also landed on the turf surrounding it, causing some phytotoxicity. "Two shakes was far too much," Vogel says.

After more trial and error, Vogel learned the best way to apply the baking soda is to put the powdered-sugar shaker on its side next to the moss patch and gently tap the shaker, allowing a puff of baking soda to land gently on its surface.

"It sucks the moisture right out of the moss," Vogel says. "We had what we considered a severe problem, and we got

100-percent control with a little bit of product."

Miller, on the other hand, applies his baking soda two ways. First, he uses a saltshaker for smaller moss spots the size of a quarter or less. For larger moss patches that are inextricably intertwined in the turf, Miller concocts a less "hot" application by mixing 6 ounces of baking soda per gallon of water and applies it with a backpack sprayer.

"It took us a while to figure out what rate worked best for us, but more than 6 ounces was too hot," Miller says. "On the other hand, if you go any lower than that, you won't have the desired effect."

Miller says he also does spot applications with spray bottles, but he warns that the mixture must be shaken periodically to keep the baking soda in suspension. He also raves about the length of control, which can be anywhere from two to four months. "Compared to some of the other products I've used, the control is amazing," he adds.

Outcome

Vogel says he was so pleased with his experiment last summer that he's planning on doing it again this year, possibly suspending it in water like his colleague Miller did. The two downsides — that baking soda is not labeled for turf and the mild phytotoxicity it causes — are outweighed by the positives, which include no weather restrictions on its application and the long-term moss control it provides.

"Once I told my members not to worry about the slight yellowing of the turf in the patches where the moss had been, they were delighted we were controlling the problem," Vogel says. "You're not handcuffed by the calendar anymore."

Miller adds that he plans to apply baking soda to problem greens in the spring and fall this year.

"You always see complete control when you put it out," Miller says. "It's the consistency of the process that I like. My comfort level with baking soda is high." ■

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Just Greens



Kent McCutcheon is in charge of maintaining the 24 “inspired by” greens at The Greens of Las Vegas.

THE GREENS OF LAS VEGAS

Superintendent says he’s up to the peculiar turf task presented to him at Las Vegas putting complex **By Doug Cantor**

The scene is the 17th green at Augusta National GC, where a mere 8-foot putt will mean the Masters championship. The speed is perfect, the ball breaks just right and the crowd goes wild. One more hole and the green jacket is in the bag.

Suddenly, the roar of a jet engine interrupts your round . . . and your fantasy. Yeah, it’s the world-famous green (sort of). But this isn’t Augusta, and it surely isn’t Sunday afternoon at the Masters.

In reality, it’s 3 a.m. and this is Las Vegas, City of Illusion, where the Eiffel

Tower, the Great Pyramid and the Empire State Building meet. This latest illusion comes courtesy of The Greens of Las Vegas, a unique putting complex currently under construction near McCarran Airport in Sin City. Slated to open this fall, the 23-acre facility features authentic recreations of the greens from 24 of the most celebrated golf holes in the world.

Even more than it is for golfers, the layout of The Greens is a change of pace for its superintendent, Kent McCutcheon. With its desert location, lack of fairways and four sets of six

greens inspired by courses as disparate as Medinah CC and St. Andrews, the complex has significantly different construction and maintenance issues from more traditional courses.

“I don’t know of any superintendent who’s had to do something like this,” says McCutcheon, The Greens’ director of agronomy.

Formerly the director of golf course operations at Las Vegas Paiute Golf Resort, the 31-year-old McCutcheon is now responsible for maintaining the 24 “inspired by” greens, complete with bunkers and water hazards, as well as two other 18-hole putting courses. In case that were not enough, one of the courses is modeled after Japanese-style greens with a wide variety of vegetation not normally found in the United States.

According to Brent Harvey of San Diego’s Harvey Mills Design, the arid climate poses the biggest challenge to maintaining the greens.

“The Greens of Las Vegas is about 20 acres of turf compared to 90 acres we normally see in the desert,” says Harvey, whose golf course irrigation consultancy worked closely with McCutcheon to develop the irrigation system. “But it is probably equal in terms of the effort.”

Fortunately for McCutcheon, the plan is to use the same type of grass for every green. Still, he is going to have his hands full maintaining that much manicured turf.

“We have six acres of bentgrass,” he explains. “It’s the same as two golf

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Just Greens

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courses. The greens will get 85 percent of the focus.”

The experienced McCutcheon, who just completed his term as president of the Southern Nevada Superintendents Association, has his own gallery of supporters.

“He’s the best,” says Eddie Heinen, an amateur golfer who got the idea for The Greens of Las Vegas while playing in Canada with recent Masters winner Mike Weir, his old teammate from Brigham Young University. The original plan was just to hold a series of putting tournaments. But over four years of raising capital, securing government approvals and scouting locations, it evolved into the present project.

“Eddie’s added new features to make it not so one-dimensional,” says Weir, who regularly talks with Heinen over the phone about the progress of the project. “It will really work well in Vegas.”

When it opens its doors in November, The Greens will offer free instructional clinics, a golf camp for kids and daily putting competitions with sizable cash prizes. It also will have a pro shop, a sports bar and a radio broadcast studio, as well as the four signature six-green courses.

Architects from the renowned Dye Design Group assisted Heinen with selection of the greens. Heinen admits he has played only two of the original holes, Castle Pines No. 12 and Shinnecock



MIKE KLEMM

Hills No. 18. But for him, that’s the beauty of the project — now anyone can take aim at greens that otherwise might never be accessible.

“Within an hour after Tiger Woods makes a long putt at Sawgrass, we can set it up so anyone can try that putt,” he says.

McCutcheon will have to stay on his toes to accommodate all of Heinen’s big ideas. Besides all the other maintenance demands, the course will be open around the clock.

“It’s a 24/7 town,” McCutcheon says. “You have a lot of people who get off work at 2 a.m., and they’re not ready to go to bed.”

So far, McCutcheon has not had much trouble with the course’s lighting system, but he is a bit worried it could create a problem by

attracting cutworms.

Given the never-ending schedule, it will be hard to predict when the course will experience the greatest amount of traffic or just how heavy it will be. McCutcheon has not yet decided when his eight-person crew will do the bulk of the prep work, though he says it could, in fact, begin in the wee hours of the morning. In Vegas, there’s just no rest for the weary.

One saving grace unlike traditional courses: There is not a first tee that must be ready in the morning. If need be, the crew can work on one set of greens while people play on the others.

Though he does not expect to put in too much overtime, McCutcheon says the complex will require a lot of hand-work and attention-to-detail. Indeed, he

The famed Shinnecock Hills GC in Southampton, N.Y., is represented at the Greens of Las Vegas.

may need to increase the size of his crew to handle landscaping after the facility opens for business. He’s also keeping his fingers crossed that the once-a-decade flood Las Vegas is due for won’t come anytime soon.

But with all these concerns, the veteran superintendent remains undaunted. Even when working on a standard course, he says: “I always focus on greens first. If there’s anything I want, it’s good greens.

“And,” he adds confidently, “we’re going to have the best greens in town.” ■

Cantor is a free-lance writer from Chicago.

Gone, But Not Forgotten



Tom DeVaux, superintendent of Hunter GC in Meriden, Conn., peruses through turf from the greens of Canton Public GC.

Canton Public GC will live on – literally – through its donated greens Story and photos by Anthony Pioppi

The sky was blue. The turf was green. The air was delightfully warm and the companionship wonderful. It was one of the saddest days I've ever spent on a golf course.

After 68 years the Canton (Conn.) Public GC has closed. Conceived, built, maintained and run by the Lowell family, the decision was made to sell the valuable piece of property in this upscale Hartford suburb to a developer that will turn most of the land into a mall called The Shoppes at Farmington Valley.

On this day, I played the nine-hole course with Heather Lowell Garvin, the

third generation to be involved with Canton. She inherited the superintendent position from her father who stayed on as golf pro. We were not the only golfers that day. A few others were out as well — friends of the family and long-time men's club members who wanted one more round. The general public, though, had played its last.

Neighbors have already taken to turning the course into their own playground, stealing cups and vandalizing turf. Incredibly, as we stood in the middle of the fourth fairway waiting to hit our approach shots, a young boy rode his bicycle across

the green while his mother stood nearby watching the entire proceedings. They appeared surprised when Garvin told them to leave, in a firm but polite voice.

We traversed the layout in no time even as we negotiated silt fences already in place for the coming destruction. There were cups in the greens and broken flagsticks (when visible) served as our targets. The good ones had been removed to thwart stealing.

The putting surfaces hadn't been mowed in a few days, but the undulations her great-grandfather and grandfather built into the greens in the early 1930s

still made putting a delightful challenge even at slow speeds.

Garvin has played the course innumerable times, honing a game that was good enough at one time for her to qualify for the USGA Women's Public Links Championship. She is a low-handicap that hits straight and far and possesses a deft putting touch.

As we went along, I found the course more and more to my liking — the natural rolls in the fairway, the variety of the holes and the shots required to master them. I wondered why I had never driven the 45 minutes

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before to play such a wonderful course and was disappointed I had not. In a state that abounds in boring, repetitive layouts, Canton stood out — even with only nine holes.

Garvin doesn't like to talk of the future. Part of the course she has nurtured for so long may be turned into a nine-hole par-three layout or a teaching facility that will preserve a few of the holes as part of the shopping center complex. Of course, the entire place could be bulldozed under and replaced with cement and asphalt. The owners haven't decided. Garvin doesn't want to dwell on what is being lost, even when local residents she meets during her daily routine press her on how she is *really* feeling about the sale. How do they think she is feeling?

Garvin is too busy to be morose, packing up and sorting through her parent's house (circ. 1780), which sits just off the first tee and will also be lost, as well as readying items for an auction. Much has been accumulated in the last 60 years.

Even in such a depressing and emotional time, Garvin has turned the demise of her course into a positive for other layouts. Canton is giving away its greens.

While other courses in the area have been hit with severe winterkill, Canton made it through unscathed. So rather than just turn her back on the greens, Garvin has allowed other to come



in, cut them up and cart them off.

Superintendent Kevin Bengston of Indian Hill CC in Newington used about 1,500 square feet of turf from the third and the eighth holes to resod his entire damaged putting green. Bengston was happy to get the grass, but not with the

The Lowells have a history of giving to the game of golf and this was just the latest donation, sort of like an organ transplant.

circumstances that made it possible. "I'm not a big fan of bulldozing golf courses to put up buildings," he says.

At Hunter GC in Meriden, superintendent Tom DeVaux and his crew built

a nursery out of turf strips taken from two greens, something the golf course has wanted to do for years. Three of DeVaux's workers traveled to Canton and loaded up with nearly 1,500 square feet of good, healthy turf. Less than 24 hours later on a chilly morning, what was once a Canton green was now a Hunter nursery.

Making the deal even sweeter for Indian Hill and Hunter was the price — free.

The Lowells have a history of giving to the game of golf and this was just the latest donation, sort of like an organ transplant. The person may be dead, but in the process he has given life to someone else.

Garvin is delighted the two courses were willing hosts. She intends to keep an eye on how the transplants worked.

"My husband (Dana, Canton's assistant superintendent/mechanic) said,

DeVaux and his crew took nearly 1,500 square feet of healthy turf back to their course and built a nursery, something they always wanted to do.

"We can go visit our grass," Garvin said smiling.

Too bad someone who cares so much about a golf course is losing one. Garvin is unsure what her next job will be. She is taking the summer off.

I feel fortunate to have had the chance to play Canton and even more so in the company of Garvin. The course is no more, but I have my memories and my Canton Public GC ball-mark, logo ball and scorecard. The scorecard is blank. The day was not about numbers. It was truly about the game and the golf course and the company — just the way it should be.

But it was a sad, sad day. ■

Pioppi is a free-lance writer from Middletown, Conn.

Subtle Approach Ensures Subtle Changes

**Architect Tripp Davis
'massages' greens to
regain lost cupping areas**

BY ANTHONY PIOPPi

Oklahoma-based golf course architect Tripp Davis was brought in by an upscale private course located in the metropolitan New York area to see what could be done to soften portions of two greens that had lost cupping areas because of increased green speeds. The club (which declined to allow its name to be used for this story) was looking for a way to regain those areas while foregoing entire greens renovations.

"Our approach is that you want to fly in under the radar screen and make changes in a way so subtle that you leave as little mark as you can," Davis says.

The two greens Davis

worked on average about 6,000 square feet. About 2,000 square feet was recontoured on one green, and another 3,000 square feet was affected on the other green. The project began in early October 2002 and was done in seven days.

"The best time to do it is in the fall," Davis says of the procedure, which he calls "massaging." "You're not going to want to play on the [reworked areas] again that year."

The first step of the procedure is to strip the sod from the designated area. The sod is then placed nearby in a shaded area and kept moist throughout the proceedings. Davis said it is imperative to lay the sod flat, grass side up, instead of keeping it rolled.

The purpose of re-using the sod is so the renovated section blends in with the unchanged portion. The turf of the New York layout was a bentgrass-*Poa annua* mix. Sodding or seeding with just bentgrass would have made the affected area stand out, creating an irregular putting surface that would also require different maintenance practices.

The soil from the section Davis worked on was taken out in two 4-inch lifts using a small backhoe. The material was saved in a protected area to keep it from becoming contaminated.

Davis said the first layer is



PHOTOS COURTESY OF TRIPP DAVIS

The sod is stripped away before the "massaging" procedure, but it's kept safe and re-used so the renovated section blends in with the unchanged portion upon the project's completion.

Problem

A popular New York course had lost cupping areas on two of its greens because of increased green speeds. The club wanted to regain those areas, but without an entire renovation on the greens.

Solution

"Massaging" the greens to soften them and regain lost cupping space. The process is a lot less intrusive than a full-scale renovation.

predominantly topdressing, while the second 4-inch section is the original greens mix, which in many cases will be native topsoil.

After the soil is removed, an additional 6 feet of sod is stripped from around the perimeter of the area being "massaged," allowing Davis to blend in the new contours.

With the New York project, drainage was added as well to the remodeled section. In these situations,

Davis said he had to be careful to install drainage in such a way as not to pull water from the new putting surface faster than the rest of green. Even though the original soil is re-used, it loses its compaction during removal and that causes its water-holding capacity to increase, meaning it no longer drains at the same rate.

At this job, 3-inch perforated drain lines were laid into an 8-inch trench. First, 2 inches of pea gravel was

put down, then the pipe. More pea gravel was added until there was a 2-inch layer of rock covering the pipe. The remaining part of the trench was filled with a mix of sand (50 percent), soil (40 percent) and peat (10 percent.)

In order to initially improve porosity, a 4-inch cone of the same 5-4-1 mix was added on top of the trench. "Pea gravel all the way would speed up drainage too much," Davis says.

Once completed, the original soil was replaced in two layers. Once that was complete, a light layer of nitrogen was spread to facilitate root growth, and the sod was put back.

The entire process took about three days per green. But even though the most intrusive work was completed in that short time, extra care was taken to ensure the turf was healthy.

Davis said a microscopic gap between the soil and the sod is created when the sod is replaced. If the quality of the irrigation water is not good — a high percentage of salts, for instance — a layer will build up in the gap and hinder root growth or cause roots to move laterally. Also, too much nitrogen can cause the roots to grow at such a rapid rate that they will once again move laterally instead of down into the soil, thus creating a thatch layer.

Light and frequent applications of topdressing, often as twice a week, were performed when the sod was knitted in enough to handle some wear. Depending on

the weather, the first aeration can occur later in the fall or in early spring, Davis says.

In a best-case scenario, the greens are playable in five to six months, depending on the weather. According to Davis, those wishing to take a chance performing the procedure in the spring could have the greens back in action in 60 days, but face the increased risk of losing turf.

So far Davis has massaged greens on three courses, including one of his own designs, Grand Elk Ranch and Club in Granby, Colo., that opened last fall. The technique was necessitated after a drain line collapsed. The problem was corrected before the course opened using the massaging method.

The majority of greens needing revamping, however, are on older courses and that fact points to a contradiction in what golfers will tolerate, Davis points out.

"There is a big difference between classic golf courses and new golf courses," he says. "If we built new greens with 3-percent slope that were rolling at 10, we'd get crucified. It would be a bad design. In the Northeast and other areas, they are pinning areas (on older courses) close to 5 percent with green speeds approaching 11."

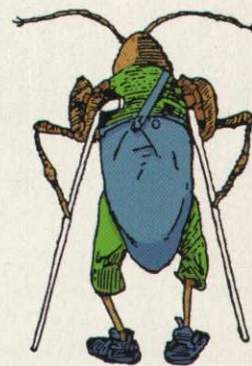
If one day those clubs find the contours too severe, a massage may be just the cure. ■

Pioppi is a free-lance writer from Middletown, Conn.

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The Turf Doctor from **Allen Power Equipment** and distributed by Seago International is a verticutter designed to clear out thatch and provide a healthy, playable surface in a short time. This unit should be used at an approximate depth of one-eighth inch for maximum coverage and effectiveness. *For more information, contact 800-780-9889 or*
CIRCLE NO. 202

Walking greens mowers

Jacobsen Turf, Commercial and Specialty Equipment offers the new Jacobsen E-Walk all-electric walking greens mower. The mower has no oil, no

hydraulic fluids and no emissions. It's also virtually noiseless, the company says, so greens can be cut in early mornings without disturbing golf course neighbors.

Independent, weather-sealed, 48-V brushless DC electric motors drive the unit. One controls ground speed while the other allows the operator to adjust clip frequency independent of the mower's ground speed.

Jacobsen also introduces the Tournament Cut-22, first in a family of floating-head walking greens mowers. The mowers



feature greens-hugging, floating head reels. Suspended from the chassis, the floating reel of the Tournament Cut mower moves horizontally, vertically and from side-to-side to eliminate scalping severely undulating greens. *For more information, contact 704-504-6600, www.jacobsen.com or*
CIRCLE NO. 203

Roller

The greensIRON 30 turf roller from **Wood Bay Enterprises** provides superintendents with the opportunity to produce a faster, smoother more consistent playing surface without causing compaction or lowering the mowing height. The roller also provides a uniform sur-

face following aeration, reduces moss problems caused by low mowing heights and assists in dew removal.

For more information, contact 800-661-4942, www.greensiron.com or
CIRCLE NO. 204

Golf cup

The White Metal golf cup, assembled, packaged and distributed by the **ARC of San Diego**, unites the features of metal, plastic and practice green cups into a single golf cup. By combining a heavy zinc base with a replaceable ABS crown that's pure white, the White Metal has the sound and strength of a metal cup and the paint-free convenience of a plastic cup. The zinc base can be used as a practice green cup before or after it is used on the course, so it's unnecessary to buy separate cups for the practice green.

For more information, contact 800-548-1033, www.whitemetalgolf.com or
CIRCLE NO. 205

Foliar nutrition

Milliken Turf Products says its Emerald Isle CPR-True Foliar Nutrition Program is successful in defending against basal rot anthracnose. The CPR-True Foliar Nutrition Program was tested in independent trials at The Pennsylvania University Valentine Research Center last summer.

The CPR-True Foliar Nutrition Program provides small, efficient amounts of foliar-absorbed, complete nutrition along with a generous amount of high-quality seaplant extract.

For more information, contact 800-845-8502 or
CIRCLE NO. 208



Roller

Smithco offers its Tournament X-Press Greensroller, which features tilt steering with one-hand turning, powder-coating 9-inch rollers, heavy-duty cast roller bearings and 10-foot inside wheel-turning radius. *For more information, contact 877-833-7648 or*
CIRCLE NO. 209

Hole cutter guide

Standard Golf's new Hole Cutter Guide helps remove the worries in making a consistent perfect cut. To ensure a perfect cut, users simply stand on the Hole Cutter Guide — a strong aluminum platform — and drive the hole cutter through an opening that matches the size of the cutter shell. The lightweight platform prevents the users' feet from twisting and damaging the surface.

For more information, contact 319-266-2648, www.standardgolf.com or
CIRCLE NO. 206

Control grain

The Greenskeeper from **Broyhill** controls grain on greens. With height and speed adjustable rotating brushes that have soft, but firm bristles, the Greenskeeper controls the grain of grass without bruising or scuffing.

It can mount easily onto most popular triplex mowers. *For more information, contact 800.228.1003, www.broyhill.com or*
CIRCLE NO. 207