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The Spirit
(AND SOIL)
of Streamsong

BY SETH JONES

At Streamsong, superintendent Rusty Mercer manipulates sand from a reclaimed phosphate mine to maintain a 36-hole masterpiece.

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The search for Streamsong

The title of this column may be “Keeping up with the Jones,” but sometimes, I can’t keep up with myself.¶ Take this issue, for example. I’m finishing off the month’s cover story at 35,000 feet as I fly over the Atlantic Ocean en route to England. Cover stories are typically written weeks in advance. I’m the guy finishing mine hours before deadline, before I touch down for a week overseas.¶ Oof!

I really couldn’t wait to get this cover story out. When I made a trek through Florida earlier in the year, several superintendents asked me if I had visited Streamsong yet. I attempted to arrange a last-minute tour, but it didn’t work out.

I returned to Florida a few weeks later, and this time I was prepared. I contacted my friends at KemperSports and they set up my visit.

The drive was as discouraging as could be. My GPS couldn’t help me, and after an hour of being lost (I hate being lost) I swallowed my pride and called course superintendent Rusty Mercer. “I’m lost,” I groaned. “I know,” Mercer responded. “Everyone gets lost trying to find us. But I’m going to get you here.”

Mercer gave me step-by-step directions, concise and accurate. There were moments I thought I was lost again, based on how deep I was in the backwoods of Florida, but then a landmark would pop up telling me I was on the right path.

But here’s a hint: If you are driving to visit the maintenance building, don’t bother driving up to the clubhouse to ask directions. It’s a long, windy road, and they’ll just tell you to turn around and go back the way you came. Plus, you’ll get a sneak peek at the course from the clubhouse, and it’ll kill you to see the course and not get out. So close, yet so far away.

Mercer greeted me at his shop and we chatted briefly. Rain was threatening, and he asked me what I wanted to do. Of course I wanted to see the two courses: the Red, designed by Ben Crenshaw and Bill Coore, and the Blue, designed by Tom Doak. We grabbed our rain gear, hopped on his Gator, and headed out.

The superintendents who tipped me off to the course were right. Streamsong is a special place you have to see to believe. I tweeted and blogged some photos from the course, but they certainly didn’t do the course justice. This month’s cover photo about does it justice. But nothing can take the place of standing there in person. I know there’s a lot of hyperbole surrounding the course, but it really is a sight to behold.

Come to think of it, the 2014 Golf Industry Show is in Orlando. Take my advice and schedule some time to get down there. Tell Rusty and head pro Scott Wilson that Seth from Golfdom sent you.

As nice as the course is, the crew working there is even nicer. Rusty, Scott, Kyle Harris and the crew are all great guys who want to see the course and resort do well. As Scott told me, there are no egos at Streamsong. “Everyone is just awed by the property,” he told me, “And we want to see it succeed.”

As you’ll see in my cover story, there are a lot of interesting things going on at Streamsong. I hope my story does the course some justice. Because once you find it, you’ll immediately want to figure out how quickly you can get back.

Email Jones at: sjones@northcoastmedia.net.

“These next few trips to Orlando will have the added time scheduled in so I can sneak in a round at Streamsong. I’m going to take my bosses with me, and score some points. I’d advise you to do the same.”

SETH JONES, Editor-in-Chief
Nothing clings to slopes like the new AR522™ contour rotary mower from Jacobsen. The machine’s combination of SureTrac™ four-wheel drive traction and weight transfer control allow it to climb hillsides and glide over contours with ease. You can also rely on the AR522’s five fully-floating TrimTek™ decks to provide excellent mulching results and a superior after-cut appearance. See the AR522 contour rotary for yourself – contact your local Jacobsen dealer today.

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The above depiction is exaggerated. Refer to the safe operating angle for proper hillside operation.
The U.S. Senate on June 27 passed bipartisan, comprehensive immigration reform that would, if signed into law, have a major impact on labor in the golf industry.

In a 68-32 vote led by Sens. John McCain, Chuck Schumer and other senators in the so-called “Gang of 8,” the Senate passed groundbreaking legislation that would create a path to citizenship for the 11 million people living in the United States illegally.

In addition to increasing security at the U.S.-Mexico border, the legislation would create a mandatory E-verify system, make minor changes to the H-2B worker visa program, which the golf industry depends on for seasonal help, and more.

Those changes to H-2B would make returning H-2B workers exempt from the program’s 66,000 annual cap through 2018, change the way H-2B worker wages are calculated and require employers to pay worker transportation costs.

The act also would create a new year-round “W-visa” program geared toward low-skilled foreign temporary workers and allow their spouses and children to work in the United States for the same temporary period.

However, it appears highly unlikely that the legislation ever will reach President Obama’s desk for a signature.

Republic leaders in the House have been slow to entertain immigration reform and have flatly refused to take up the Senate act at all, with House Speaker John Boehner telling the Washington press, “The House is not going to take up and vote on whatever the Senate passes. We’re going to do our own bill, through regular order, and it’ll be legislation that reflects the will of our majority and the will of the American people.”
Taking the Florida spring regulator tour

For the past 16 years, the Florida GCSA has partnered with the Florida Fruit and Vegetable Association (FFVA) to be the first stop on its annual spring tour. On the tour, federal and state regulators of southwest Florida’s agricultural and green industries visit Tim Hier’s Old Collier Golf Club in north Naples, as well as nurseries, sod farms, cattle ranches and more.

Thanks to tighter budgets, only 20 regulators made the trip this year. And whereas superintendents on hand usually mix and mingle with the regulators and answer questions on the tour, the trip around the course was cancelled this year due to heavy rain showers. Consequently, this year’s tour was reduced to a two-hour Q & A session centered on pesticide use and safety issues.

I gave the basic breakdown of average turf acreage in terms of greens, tees, fairways and roughs, while superintendents in the room explained their insect, weed and disease programs, the products they use and their turf treatments. Kyle Sweet, who runs The Sanctuary Golf Club on Sanibel Island, talked about his programs and products, which have to be approved by the U.S. Fish and Wildlife Dept.

George McBath, a retired ornithologist who works with area courses to install nest boxes, told regulators he was skeptical of golf courses during his early years as an ecology instructor but after doing bird counts on golf courses he realized what great habitats they are.

He also explained how the large eastern bluebird population in the Naples area allowed the Fish and Wildlife folks to harvest young bluebirds to repopulate Everglades National Park, whose own bluebird population was declining from years of inbreeding. The new influx of birds from Naples now is restoring the native population.

One of the state regulators on the tour specifically mentioned getting “numerous” complaints about spray drift. Some of it was the typical reaction when an adjacent property homeowner sees the spray rig at work and assumes the worst.

Fortunately, the rain stopped toward the end of the tour, and the group was able to see Old Collier’s immaculate pesticide and fertilizer storage rooms and mix/load pad. But we regretted not having the chance to show them the modern course design — complete with wildlife corridors and natural areas. As they say, “Seeing is believing.”

Joel Jackson, CGCS-Ret., is director of communications for the Florida GCSA.
MOWER REBIRTH

INGENUITY AT MERION LED TO CREATION OF DEERE’S 180E MOWER

BY SETH JONES // Editor-in-Chief

This year’s U.S. Open concluded on Father’s Day. And for Robert Smith, equipment technician at Merion Golf Club, it was surely his most special Father’s Day yet.

Smith and his wife welcomed their second daughter, McKayla, on April 16. Two days later, Smith was back at the course, working on what could also be considered one of his offspring: the John Deere 180 E-Cut Hybrid Walk Greens Mower.

Both the 180E and Smith’s oldest, Annabella, might be jealous of McKayla. But Smith’s a good dad… he’s got time for all three of his babies.

Smith says he doesn’t have a favorite — at least, when it comes to equipment. “Every piece is the same,” he says. “I like working on stuff that doesn’t break.”

But the 180E should get more of his affection than the others. Because Smith, along with Merion’s director of grounds, Matt Shaffer, helped create the innovative mower.

“We were walking past a piece of equipment that had an 18-inch head on it. (Shaffer) got this idea stirring in his mind.” Smith recalls. “I brought it in the shop, reconfigured a few things… we started mowing about two weeks later.”

The John Deere 180E was born. Designed after the 220E, the 180E meets the demands of superintendents who need a tight, clean cut with an 18-inch swath. Deere says the mower is ideal for courses that need maximum control on undulating greens. Deere saw the success Merion was having with the mower and took notice. In July 2012, the 180 E-cut became available to courses around the world.

Seth,

Thank you for your editorial recognizing Matt Shaffer as a true gentleman (“An Open mind,” June 2013). Matt and I grew up in Bedford/Blair Counties of Pennsylvania. Matt worked on the Iron Masters GC crew along with my father, and I followed him on that same crew.

Matt has never changed. His genuineness of character has stayed the course over the years. His success never went to his head. He is a class act and you can take that to the bank.

Samuel R. Snyder VII
CGCS-Ret.
Shreve, Ohio

//GOLFDOM WISDOM

If your dog is chasing geese, great. If your dog is chasing away salesmen, that’s fine. But if he’s chasing away members, you’ll soon be chasing a new job.

#golfdomwisdom

AS TOLD BY P.J. McGuire, CGCS, American Country Club Comedians, supplier of golf entertainment. Visit acccomedy.com to learn more.

Husband and wife, avid golfers their whole lives, were also very interested in the afterlife and specifically if there was golf in the afterworld. They agreed whoever was to die first would come back one year later and report to the other on the afterlife.

The man having passed first did contact her through a medium at a seance exactly one year later.

“It’s really very nice here!” he reported to her. “I get up in the morning, enjoy a little sex, have some breakfast, then it’s off to the golf course. Home again for lunch, a little more sex before heading back to the golf course until dinner. Then it’s a little sex before bed and I’m ready to start the next day!”

The wife, disconcerted at the amount of sex her husband is having in the afterlife without her, takes the high road and asks how his golf game is.

The husband replies, “Oh, I didn’t come back a human... I’m a rabbit somewhere in New Jersey!”
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Call of the wild We spotted this primate during a visit to the Control Solutions Inc./Quali-Pro headquarters in Pasadena, Texas. This Namibian baboon was taken by CSI president Mark Boyd in 1991. The CSI lobby contains more than 80 trophy mounts, from antelope to wildebeest.

Pass the mic Merion GC superintendent Arron McCurdy reports the afternoon assignments to the crew during the 2013 U.S. Open.

The weight room is that way Tom Marzolf, senior design associate at Fazio Golf Course Designers, points out some landmarks at Merion to a couple of golf fans. The Hogan plaque, where Ben Hogan hit his 1-iron shot in 1950, was a few paces away.

Brilliant minds think alike Matt Shaffer, director of GC operations at Merion, brainstorms with friend John Zimmers, superintendent at Oakmont (Pa.) CC. The Open heads to Zimmers’ course in 2016.

Preferred reading We were happy to see copies of Golfdom circulating around the Merion maintenance facility. (OK, honestly, we put them there ourselves.)

The champ is not here Dumb luck meant Golfdom EIC Seth Jones got to catch a ride with the U.S. Open trophy. Jones doesn’t deserve to hoist a junior high golf trophy, let alone this beauty.

Latshaw’s lads Retired superintendent Paul Latshaw Sr. (right) takes time for a quick photo with Zimmers, one of his many students in the industry.

Continued on page 14
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The Leader in Golf.
8 Nerves of steel Despite soggy conditions to start the week, the crew at Merion was determined to get the job done, and with a smile.

9 Green day A train of John Deere fairway mowers rolls in formation on the front nine at Merion.

10 What I did for summer vacation Somehow we convinced a high school guidance counselor to let Sawyer Opalich (right, with Golfdom publisher Pat Roberts) come work for us for a few weeks. Sawyer’s report back included a lot of “golf course site visits.” Nice work (and swing), Sawyer!

11 Eye on the prize Robert Smith, equipment technician at Merion, keeps a close eye on clippings as work is being done at the U.S. Open. For a story on Smith, and how he helped create a mower, see ‘Mower Rebirth’ on page 10.

12 Don’t you call this a regular mag We’re just going to guess that we’re the only turf mag with a shot of rapper/actor L.L. Cool J in it this month. A recent Golfdom team building event in Cleveland included 18 holes of golf followed by an L.L./Public Enemy/Ice Cube/De La Soul concert. If this issue has a funky beat, now you know why.

13 Like white on rice Golf cups get painted at Standard Golf in Cedar Falls, Iowa. We were treated to a tour of the facility recently, and came out with a new appreciation of the work that goes into the accessories we take for granted on the course every day.

14 Does it all We asked Steve Tyler, national sales manager for Standard Golf and a former superintendent, to describe his job. The self-proclaimed “Old Dog” pretty much does it all, we’ve decided.
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About our host

TRAY MALTBY of Reunion Resort & Club in Orlando, Fla., always makes his passion for the game clear. It’s a passion that was fueled by his time working under Arnold Palmer.

“A superintendent who I had previously worked for was working at Bay Hill. He told me he needed an assistant and I should think about it. I said, ‘There’s nothing to think about,’” Maltby says. No longer an assistant, Maltby played host to the Golfdom Summit in November 2012 and will again in December of this year (for details — and to apply — visit www.golfdomsummit.com).

“It’s awesome! I love golf and I love hosting tournaments. (Hosting the Golfdom Summit) is a big deal to me, because I get to meet guys like Mark Woodward and (Medinah Country Club Director of Golf Course Operations) Curtis Tyrrell. We all love golf and we all deal with the same issues.”

If an encounter with Maltby doesn’t display his passion for the game, his office will.

AUGUSTA GREEN JACKETS

Those are champions of the Masters from 1934-99. I love professional golf and for that reason I love hosting tournaments.

SUMMER READING

“Absolutely, I’m a reader. I love the ‘19th Hole,’ and it’s nice to be featured in it myself. I love reading the tournament triumph articles about other courses hosting tournaments and what they have done to be successful. Of course I love the articles from the turf doctors, like Mark Woodward and Karl Danneberger.”

FOND MEMORY

“That’s Ocean Hammock golf course in Daytona, which I helped build. Mr. (Jack) Nicklaus and I worked on that course together.”

TWO ALL-TIME GREATS

“I see Annika weekly and her sister daily. Annika has an academy here. Anyone can buy a package, get lessons for a couple of days, and at the end Annika plays nine holes with the person taking lessons.” That photo, by the way, is autographed by both Sorenstam and Tiger Woods.

TOM WATSON

“That’s a banner for The Conservatory Course in Palm Coast, Fla. Mr. Watson and I built it together over an 18-month period in 2007 and 2008. He was very hands on. He’s a real normal, down-to-earth, Midwestern type of guy. The banner says ‘To Tray, All my best, Tom Watson.’”

BY MOLLY BEALIN // PHOTO BY SETH JONES

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One of the best things I’ve heard lately about the game of golf and our industry is the United States Golf Association’s (USGA) program “While We’re Young,” which deals with pace of play. “While We’re Young” is a phrase that everyone can understand and relate to. It’s a cool phrase that will catch on and be heard on golf courses all over the country. But will anyone really take it to heart? I’m guessing most golfers will jokingly say the phrase to their playing partners, but will people who are the biggest offenders of slow play really do their part? I certainly hope so.

It’s OUR responsibility

In my opinion, pace of play is as important to the game’s long-term vitality as just about any other issue we face. Obviously, when we talk about the game’s health and future, environmental concerns seem to always rise to the top of the list of things that the industry needs to continue to focus on. There is no doubt that working toward continuous improvement and sustainability at golf facilities remains extremely important. Everyone related to managing golf facilities, including head pros, vendors, manufacturers and those running golf tournaments, should wake up every day thinking about how we as an industry can improve on what we do and the impact our facilities have on the long-term health of golf, our resources and our communities.

But as the USGA has come to realize, the issue of pace of play has now risen to a close second behind the environment in terms of importance. Pace of play has long been a problem in golf, and there have been countless efforts to find a solution. Golf facilities and golf associations have dealt with this issue and tried in vain to find something that really works.

No matter what magic formula those of us who work in golf come up with, the responsibility for correcting the problem of slow play lies directly on the shoulders of all of us as individual golfers who enjoy the best game in the world.

There is no doubt we can each reflect on the way we play the game. Really and truly, it doesn’t matter what level you play at, there are ways to speed up the process of hitting the golf ball. And, I’m not talking about doing this occasionally throughout the course of playing a round. I’m talking about changing your pre-shot routine, your number of practice swings, your plumb-bobbing, the number of times you look at a putt, playing ready golf and so on.

In the big scheme of things in our day-to-day playing of the game at our local golf courses, who really cares if you’re a little closer to the green than your partner who is on the other side of the fairway? Hit your ball and move on. Those of us who have played golf for many years all understand that it’s the small things you do on a golf course that may only amount to a few seconds or minutes here and there but in the end save a substantial amount of time throughout the entire round.

And let’s be honest with one another here. Most of us could plumb-bob all day long and still miss the putt on the low side of the hole and be short. I personally can take six practice swings and still hit the ball right, out of bounds.

Now, I’m not saying we should all run up our golf balls, not line up and just take a wild swing at it. I’m suggesting we still enjoy the game, try to improve along the way but do the small things that just might take several minutes off the time it takes to play a round. Believe me, your playing partners, the golfers behind your group and everyone on the course will benefit if each of us does our part.

While the USGA should be proud of its marketing folks for capitalizing on the very apropos phrase from the movie “Caddyshack,” I’m hopeful that we all can contribute to solving this extremely important problem golf faces... while we’re young.

Mark Woodward is president of Mark Woodward and Associates, principal of DaMarCo Golf, CEO of MasterStep Golf Group and a contributing editor for Golfdom.
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Chris Deariso
Quail Hollow Club, Charlotte, NC

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The new Smithco Star Command System is about to change everything. And that includes lowering your annual chemical costs by up to 30%. When’s the last time you bought a product with a return-on-investment like this?
More than likely, everyone in this business knows about Old Tom Morris and is aware of his many contributions to golf course design and maintenance and to the game of golf in general. Equally as likely, if the results of my highly scientific survey are to be believed, most probably have not heard of David Honeyman.

I say this with a high degree of confidence due to the rigorous nature of the survey and the sample size of at least four respondents. The intricately designed methodology of the survey required me to ask my industry colleagues, usually in passing or as an afterthought, if they’d ever heard of Honeyman.

The surveys were conducted either on the phone or in person. It usually went something like this:

Me: OK, man. Good talking to you.

Colleague: Yep, you too. Talk to you later.

Me: Oh yeah... meant to ask you... have you ever heard of David Honeyman?

Colleague: Who?

Me: You know, Old Tom’s assistant.

Colleague: You’re a dork. I know.

Colleague: Good, don’t forget it.

Honeyman served as Old Tom’s foreman at St. Andrews for nearly 30 years. In today’s parlance, he would be the assistant superintendent. However, Honeyman’s role in the evolution and maintenance of St. Andrews may not be known to many.

Honeyman was Tom’s right-hand man. He likely headed up the daily maintenance operations for extended periods of time, as Tom was frequently gone due to his design and consulting duties around Scotland.

In fact, according to David Malcolm and Peter E. Crabtree in their excellent book Tom Morris of St. Andrews: The Colossus of Golf 1821-1908, Tom’s frequent absence was blamed for, in the prevailing opinion of the time, deteriorating conditions on the Old Course. It became a source of conflict between him and the Green Committee of The Royal and Ancient. As a result, the committee ultimately issued an order that all course maintenance directives were to be given to Honeyman to carry out.

They go on to state that while Morris and Honeyman were both made aware of and agreed to this arrangement, the extent to which it was honored by the them is debatable. Given Morris’ standing as the Custodian of the Links and Honeyman’s fierce loyalty to Old Tom, it’s probably fair to assume that it was, at least at times, “followed” with a wink and a nod.

Honeyman also played a role in the evolution of the three golf courses that came to compose St. Andrews during his tenure. He would’ve been, under Old Tom’s direction, highly involved in the maintenance of and changes to the Old Course.

According to Malcolm and Crabtree, he played an important role in the construction of the New Course, which opened for play in 1895. Honeyman also likely would’ve been involved in the construction of the Jubilee Course in 1897 and is widely credited with suggesting in 1902 that it would be possible to extend the course from the original 12 holes to 18. First conceived as a short course intended for ladies and beginners, it was extended in 1906 to ease the pressure on the Old and New Courses.

Honeyman’s untimely (and bizarre) death in 1903 would’ve prevented him from seeing the end result. While accounts differ, a newspaper report from June 1903 states that he died after accidentally drinking a glass of ammonia.

Morris was clearly the genius behind establishing St. Andrews’ stellar reputation. But Honeyman’s renowned loyalty, conscientiousness and skills as both a golfer and greenkeeper were undoubtedly invaluable to Old Tom.

Matt Neff (mneff4@yahoo.com) is assistant superintendent at Wedgewood G&CC in Powell, Ohio.
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These 36 holes of golf just don’t belong here. The views are vast, the dunes are huge. It’s been described as “larger-than-life” and it’s been called “impossible to describe.” Some golfers say it looks like they’re at a course in Africa, others say it looks like it’s in Oregon.

So how strange is it that the Tampa airport is 75 minutes away and Orlando 90? Standing on the first tee of the Red Course at Streamsong Resort is almost disorientating. Who knew Florida was hiding this topography?

It gets better. The site is an old phosphate mine, owned by Mosaic, the world’s largest phosphate and potash producer, and the seventh largest land owner in the state of Florida. The site was already reclaimed — Mosaic needed to do nothing more to the property.

Mosaic decided to go in another direction. “We realize we have a lot of terrific land,” says Tom Sunnarborg, Mosaic’s vice president.
of land development and management, and the developer of Streamsong. “But then we also have this land that is... spectacular.”

Eight to 12 million cubic yards of sand had been blowing around here for decades. And then, about three years ago, Mosaic hired the architecture team of Bill Coore/Ben Crenshaw, and Tom Doak, to make a links-style golf paradise in the middle of Florida.

“I remember when Mosaic first called for the proposed course, my thought was, ‘The last thing Florida needs is another golf course,’” Coore laughs. “But they said that this one could be special.”

**A sick and twisted beauty**

Rusty Mercer, a 30-year superintendent from Mississippi, is the man in charge of maintaining the conditions at Streamsong. Coore, who had worked with Mercer on projects before, called to ask if the Florida project interested him.

Sight unseen, it didn’t. He was happy in Georgia, at another Coore/Crenshaw course, Cuscowilla G&C in Eatonton.

*Continued on page 24*
But when he visited the course and saw the landscapes in person, he was sold.

“It’s almost indescribable — it doesn’t look like anything,” Mercer says as he looks out over the course. “There’s enough good golf in Florida, we needed to do something different. My oldest son is a philosophy major. He said, ‘Dad, it’s beautiful, but it’s beautiful in some sort of sick and twisted way.’”

The dirt on Streamsong

Just like the paradox of a sick and twisted beauty, the soil at Streamsong also is a conundrum — half dream, half nightmare.

The result of the phosphate mine is a landscape that consists entirely of sand, 60 to 100 feet deep, for 700 acres. The way Mercer describes it, this is 700 acres of sand in the shape of tiny marbles that won’t compact. It comes perfectly rounded, with zero organic matter.

“We had to plant everything by hand. The sand was so soft we couldn’t put any equipment on it,” Mercer says. “We just started hiring folks and we put them in a big long line and just sprigged them by hand, walking all the way down the fairway.”

That’s a lot of sprigging, considering the course has 165 acres of planted turf. The greens are MiniVerde, the rest of the course is 419 bermudagrass.

But even more interesting than the shifty sand is the lack of organic matter in it. As Sunnarborg says, “You almost can’t call it soil.”

A look at a plug shows what lies beneath: an inch-and-a-half of turf, roots and soil, then sand. Nothing but sand.

“There’s very little organics. What I’m growing this on is not as healthy as it could be. It’s going to take years for us to develop an actual soil,” Mercer says. “Right now we are working with a naked, barren, nothing sand.”

It’s up to Mercer and his first assistant, Rutgers alumnus Kyle Harris, to create a soil. They figure that if they’re tasked with creating it, they might as well create a soil that’s perfect for their needs.

“We can build the soil around what the plant needs to maintain firm and fast — as opposed to having to change both the soil and the plant to achieve firm and fast... which is what you have to do pretty much anywhere else,” Harris says. “I really love that we are building a soil that is suited to what we are trying to do.”

Mercer applies molasses twice a week, as well as chicken manure, 500 pounds an acre in the spring and fall. He says that a lot of what he’s believed his entire career he’s able to put into practice at Streamsong.

“We are building soils. I’m not a big believer in all this new talk on plant health — it’s soil health. Take care of the soil and let the soil take care of the plant,” Mercer says. “That is objective number one. How can we build a better dirt for this plant to survive better in? Everything we do is centered around that.”

It will take time, Mercer and Harris know that. The soil they have now isn’t much — not even two inches — but it is enough to get them excited. It took a year and a half just to get this much.

“It will take years, but the trick is to break this down into more of a humus material, at the same rate that you’re creating it, or else you have thatch,” Mercer says. “Thatch is no good.”

Plays and drains

Mercer isn’t a glass half-full or a glass half-empty type of guy. He sees the good and bad in everything, including his sandy soil. While the shape of the sand and the lack of organic matter are cons, there also are distinct advantages. He loves the way the

Continued on page 26
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soil at Streamsong plays, and he loves the way it drains.

Mercer grabs an 8-iron out of the back of his Gator and drops a ball 75 yards from the pin. He bumps the ball, not too hard, and keeps it low. The ball runs and runs, finally stopping a foot from the pin.

“Look at the ball bounce!” Mercer exclaims. “That’s a beautiful thing. That’s because it’s sand. You don’t get that on clay.”

Coore, Crenshaw and Doak hand-picked Mercer because they knew he understood that this is the way they wanted the course to play. Fast, firm.

“We all knew Rusty’s priority was to maintain the golf course to playability as opposed to looks,” Coore tells Golfdom. “He knows the intent (of Streamsong.) Very dry, very firm. Appearance can be important, but it’s not the top priority.”

“Anywhere else you’re fighting sound agronomy and playability. Here they’re the same thing,” Harris says. “We don’t have to make choices between what is sound agronomically and what’s going to compromise playability.”

Mercer drops a ball on the green. “Listen,” he says, demonstrating the green’s firmness. “Hear that? That’s what you want to hear.”

The course drains so quickly, Mercer says, that it could be receiving an inch-and-a-half an hour and the crew could mow during the rain and not cause damage.

“Can’t tell you how many times in Georgia when I’d get an inch-and-a-half of rain and I’d wake up in a cold sweat wondering when we could get out and cut grass,” he laughs. “Not an issue here.”

But if he doesn’t get enough rain?

“Yes, it will get dry. That has to be OK, because playability should come first,” Mercer says. “It’ll turn a little yellow, a little off... it’s not going to die.”

Ball above all

Another beautiful aspect of Streamsong is the simplicity of the course. There are two heights-of-cut on the course: green height, and everything else. There is no maintained rough on the 36 holes.

Inside the shop, there are three mowers. A John Deere 8000 cuts everything around the greens and the tees. Deere walking greensmowers with 22-inch fixed heads maintain the greens. A Deere 7500 cuts everything else.

“Real basic, that might be the overriding theme. Which is probably a good idea, the way the business has gone. The cost that is involved now in maintaining a course is just outrageous,” Mercer says. “Just keep it simple, man.”

The simple theme extends beyond the mowers. There is no signage on the course, no ball washers, no ornamental plantings.

“A flagstick is about the only vertical thing you’ll see on the course,” says Sunnarborg. “We’re not anti-ball washer, but it was a conscious decision. It’s a minimalist...
golf course, and that extends to the resort. We wanted all distractions gone.”

Take a chance
Mercer may be writing the book on how to create his own soil. He doesn’t believe it’s totally unprecedented, saying some accounts of Kiawah describe a similar situation.

He’s received outside help, too. Dick Psolla of Brookside Laboratories has been a longtime consultant for Mercer. Joel Simmons at EarthWorks Natural Organic Products has also been lending a hand, as well as the folks at Harrell’s Fertilizer, including Jeff Higgins.

“Take a chance
Mercer may be writing the book on how to create his own soil. He doesn’t believe it’s totally unprecedented, saying some accounts of Kiawah describe a similar situation.

The problem is I get a lot of input, but until you’ve actually been on this site and this type of sand and watch it every day, the input isn’t always relevant,” Mercer says. “We’re constantly dry and we hear, ‘Why don’t you go topdress and aerify it back in?’ We can’t aerify because it will get too soft again and then I have to go through the whole process of trying to firm it back up. I don’t even have an aerifier on the property for fear of getting too soft again.”

The work Mercer is doing isn’t lost on his colleagues.

“He’s a magician,” says Scott Wilson, Streamsong’s director of golf. “I don’t know the science but I know he’s always talking about molasses and chicken manure. His passion in his work you can see.”

“To grow turfgrass on this sand is not easy,” says Sunnarborg. “What people will find interesting is, (Mercer) has, in the last two-and-a-half years, become an expert on this. He’s going to become very well known, and very sought after.”

For Mercer and Harris, they’re just happy to be involved in such a cool project.

“It’s exciting because you know the result is we have this incredibly firm playing surface that complements the architecture of the course,” says Harris, a golf architecture nut who first arrived at Streamsong as Doak’s intern. “You have Coore at his best, Doak at his best, and we have the ability to highlight that.”

“Here’s a mega-company that didn’t have to do this,” Mercer says of Mosaic. “They put themselves out there, they’re trying to do something for the community at large. You got jobs they’re providing, a tax base that goes up, people are coming here to stay, so money is being spent in areas outside around this.

“The safe thing to do,” he adds, “would have been to keep it being pastures and planting pine trees. I love that they took this chance.”

PHOTO BY LARRY LAMBRCHT
### WHERE HAS ALL THE RYEGRASS GONE?

<table>
<thead>
<tr>
<th>YEAR</th>
<th>TURF</th>
<th>ACRES</th>
<th>LOCATION</th>
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<tr>
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<td>Ryegrass</td>
<td>515,792</td>
<td>Oregon</td>
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<tr>
<td>2012</td>
<td>Ryegrass</td>
<td>408,000*</td>
<td>Oregon</td>
</tr>
</tbody>
</table>

*21 percent decline in five years

**SOURCE:** TURF MERCHANTS

As ryegrass availability declines and cost increases, superintendents overseed less.
The perennial ryegrass market has taken a beating in the past several years. There are two economic factors that have reduced the amount of ryegrass superintendents can use to overseed golf courses — tighter maintenance budgets and crops such as wheat, corn and soybeans that are yielding more profit than grass for growers. Distributors feel the pinch and wonder if the decline of the market has bottomed out and will start to recover.

The decline of the perennial ryegrass market started in 2007, about the time growers raised prices. This coincided with the crash of the golf economy, which was followed by the crash of the rest of the U.S. economy. Biofuels were all the rage and displaced significant grass seed acreage.

"Prices started rising at a bad time because superintendents' budgets were tight," says Steve Tubbs, president and founder of Turf Merchants, a developer, producer and marketer of turf seed. "Additionally, the price of grass increased after superintendents finalized their budgets, so they ordered less seed and started cutting back on seeding rates and areas that were overseeded or both."

Continued on page 31.
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John Rector, turf products manager for Barenbrug, echoes Tubbs’ sentiment about the declining economy in 2008, when superintendents started to gradually cut back on overseeding because they were constrained by shrinking budgets.

“Superintendents are tied to their budgets when it comes to purchasing seed for overseeding,” says Rector, acknowledging the dramatic fluctuation in the cost of ryegrass the past six years. “These fluctuations make it that much more difficult to accurately budget these costs.”

The bottom line is, economics has changed the way superintendents approach golf course maintenance, overseeding included, says Wayne Horman of Landmark Turf & Native Seed. Perennial ryegrass, for example, is 25 cents more per pound than last year. Distributors paid 71 cents, and now it’s 96 cents.

“If there’s a lot of dead grass this spring, no matter where, we’ll be short on ryegrass,” Horman says. “More acres aren’t being grown, because growers have found more profitable crops — wheat, corn and soybeans, for example — to grow. I don’t think superintendents know how short we can be.”

That scenario is the opposite of what happened in 2010, when there was an oversupply of perennial ryegrass, which is grown in Oregon, Washington, Canada and Northern Minnesota.

“New construction was way down, and superintendents’ budgets were very tight, so growers were told the industry didn’t need ryegrass,” Horman says. “As a result, they gradually cut back 25 to 30 percent a year. It was cheaper to plant wheat, corn and soybeans because growers were making more money with those crops.”

Worldwide demand for wheat began to rise about this same time and replaced 40 percent of the cool-season turfgrass production, which was far less profitable. The cost of ryegrass will remain high as long as worldwide demand for wheat outstrips supplies, Tubbs says.

“There are 220,000 acres of wheat that used to be all grass in the Pacific Northwest,” he says. “There has been a steady decline of most cool-season grass acreage since 2008. We lost 25 percent of it that isn’t coming back.”

“Ten years ago, there were a few thousand acres of wheat in Oregon’s Willamette Valley, and in 2012, there were 135,000 acres harvested,” Rector adds.

The profitability and competition from other agriculture products, such as wheat, corn and vegetables, increased options for growers. When seed prices crashed in 2009-2010 and seed acres declined, seed growers looked for options and found rising prices for grain an alternative. However, with increased seed prices, the tide might be shifting again toward grass seed.

“Growers generally like crop rotations

Continued on page 32
and higher-priced seed, and increased demand fits nicely into the mix," Rector says. "With seed companies back looking for acres and prices favorably competing, we'll likely see more acres return to grass seed in the near future."

Impact
The most significant impact of the economic downturn in the perennial ryegrass market is on overseeding in the South. However, each market, and for that matter, each course, is different. The overseeding market in Palm Springs, Calif., is different than markets in Arizona, which are different than a blue-collar club in North Carolina, where it just might order a cheap seed to keep turf green throughout the winter. Still, less overseeding is occurring in the South because there's less perennial ryegrass available.

It's no secret superintendents are a resilient bunch. So, whether it's because of a tight budget or lack of available seed, they'll do something different, and golfers will adjust to that. They might be willing not to overseed wall to wall, for example. Furthermore, the new ultradwarf bermudagrass contribute to the reduction of overseeding greens in the South.

Lower seeding rates persist. About 10 years ago, the average seeding rate was 600 to 800 pounds per acre; now it's 400 to 600 pounds per acre, Tubbs says. To put seeding rates into a broader perspective, they were at 250 pounds per acre in the 1970s and increased to as high as 800 to 1,000 pounds per acre a couple decades later because the price was so cheap.

"In Palm Springs, there are some superintendents who aren't overseeding the roughs anymore and are calling it the links look," Tubbs wryly. "Five years ago that wouldn't be the case. Now we're seeing more acceptance of that."

That said, Tubbs doesn't see a drastic difference in playing conditions with the lower seeding rates.

"It all comes back to what golfers want," Herman says.

Lower seeding rates equate to more coated seed (polymer, water absorbing), all trying to get better results (more seed that survives) with less seed, Herman says.

"The good point of this is that there's less turf to mow, water and fertilize. There's more sustainability. It's just not good if you're a seed dealer," Tubbs says.

In some ways, the ryegrass market has come full circle with perennials and annuals as the industry returns to overseeding with improved turf type annuals because of the cost of perennials.

"It's all relative," Tubbs says.

An eight-year-old Barenbrug project called Turf Annuals validates Tubbs' point. To provide superintendents with an option to the traditional use of perennial ryegrass for overseeding, the company embarked on a turf project to significi-

bluegrass roughs. Poa trivialis has been used to overseed rough, but it's not as cost effective as rye. It comes down to a balance of aesthetics and agronomics.

"All species of seed will increase in cost, it comes down to finding acres," Herman says.

A look ahead
While the industry might never see the levels of overseeding that occurred the past decade, the need for permanent turf and overseeded perennial ryegrass has begun to stabilize and improve. And with it will come a need for higher yielding varieties and more acreage.

"As for the new crop of 2013, we're hoping we don't see a repeat of 2012," says Rector, citing the perfect storm of harvest complications last summer that left the seed industry gasping for breath.

A cold wet spring, followed by miserable conditions for pollination, led to a late ryegrass harvest with less-than-optimal yields. The perennial fell over the tall fescue crop, and the two varieties competed for seed cleaning facilities and state seed lab approval. With inventories tight, the inevitable happened, and the industry rolled into fall scrambling for new crop, trucks and trying to make customers happy.

Furthermore, fall 2012 experienced a drought of historical proportions in the Willamette Valley. Newly planted seed fields sat waiting for moisture, and the effectiveness of weed control measures was diminished. And when it rained, it didn't stop.

"By mid-November: it was painfully obvious that what we had was all we were going to get," Rector says.

Tubbs doesn't foresee the perennial ryegrass market improving any time soon.

"NGB said 154 golf courses closed this past year," he says. "There are fewer courses, fewer acres. This is not a fad, it's a trend."

John Walsh is a freelance writer based in Cleveland, Ohio.
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The Rodman Wanamaker Trophy at Oak Hill Country Club in Rochester, N.Y., the site of the 95th PGA Championship.
And just as the course is used to hosting Majors, Jeff Corcoran, the club’s savvy superintendent, is used to preparing for them. Now, Corcoran and his crew are ready for the world’s best to put The East Course to the test when the prestigious private golf club in Rochester, N.Y., hosts yet another Major this August: The 95th PGA Championship.

“It will be interesting to see how it holds up 10 years later, as we didn’t do a full-scale renovation coming into this tournament,” Corcoran.

Corcoran and crew have Oak Hill rough and ready for the 2013 PGA Championship

BY DAVID MCPHERSON

Oak Hill Country Club is no stranger to hosting Majors. Since it was founded in 1901, the 36-hole facility has hosted nearly every major golf tournament, including three U.S. Opens, a pair of PGA Championships, The Ryder Cup, and most recently the 2008 Senior PGA Championship.

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“Trying to peak for that one week in August is certainly the key. However, Mother Nature is the biggest variable that can throw you a curveball anywhere along the way.”

JEFF CORCORAN

No. 13, a 598-yard par 5, has never been reached in two. They expect that record to fall at the PGA Championship.
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Golfdom.com says about the last time the club hosted this event, when Shaun Micheel won it in a surprise victory.

No major course changes have occurred in the past five years, but there’s been a lot of fine-tuning. For instance, new tees on 17 and 18 were constructed, and various bunkers on the course were modified. Some contours on the 5th and 6th greens were tweaked as well, and the 15th green was rebuilt. All those green changes were made to increase pinnable positions.

“We found, even during the 2008 Senior PGA Championship, those three greens were extremely challenging to find a good variety of hole locations,” Corcoran says.

Those subtle changes give Kerry Haigh, chief championships officer of The PGA of America, the opportunity to have a lot more variety now when it comes to setting up the course each day.

“With the addition of more possible pin locations,” Corcoran adds, “he can also bring the water into play as much, or as little, as he likes on those holes.”

Beyond taking cues and guidance from the PGA of America, how is Corcoran, and his capable crew of 65-strong, making sure Oak Hill is in top agronomic shape for the year’s final Major?

“What we do any given year on a day-to-day basis isn’t that much different than what we are doing to prepare for this tournament,” he explains. “Trying to peak for that one week in August is certainly the key. However, Mother Nature is the biggest variable that can throw you a curve-ball anywhere along the way. That is my biggest concern. It’s also the one that is the furthest out of my control.”

Corcoran was a little concerned that the course would have to weather the peak stress of the summer heat before the pros tee off August 5-11. Nonetheless, “in the last 10 years we have had floods, extreme heat, drought, etc.,” he says. “We will handle anything that comes this year the same way we have done in the past.”

While he can’t control Mother Nature, Corcoran prays for no rain. He knows wet conditions would make for the worst possible scenario and lead to lower scores. “That would let the pros throw darts out there and would be unfortunate,” he says. “We want to challenge them.”

Roughing It

At a little over 7,000 yards, by modern standards, Oak Hill is not long in yardage. The defense of the timeless course is its tree-lined fairways and its gnarly rough, which the PGA of America has asked to be graduated.

“We are going to have a graduated rough that will be 14 feet outside the width of the fairways and roughly the same around the green surrounds,” Corcoran reveals. “That is really a challenge and a lot of extra labor … it adds a whole new dimension to our mowing practices and the amount of bodies we have to use.”

Corcoran interned at Oak Hill back in 1994, and other than the brief time he left to take a head superintendent job at Weston Golf Club outside of Boston, it’s his most familiar golfing ground. Still, one wonders whether Corcoran feels any extra pressure this time around.

“I’ve been at Oak Hill for four major tournaments now,” he concludes. “I feel like I have a pretty good knowledge of the property. If we don’t make any mental mistakes, we will be in good shape; we can handle whatever is thrown at us. We know what we have to do and we will make sure we don’t stray from that path.”

David McPherson is a Toronto-based freelance writer and corporate communicator. Follow him on Twitter @aspen73.
At a recent South Texas GCSA chapter meeting, Cook invited members to play in the golf outing. Here Cook (left) is pictured with John Freeman of Brookside Equipment; Debbie Burton, a member at Walden on Lake Houston; and Charles Joachim, CGCS.
F or 35 years I’ve been a superintendent, my longest time spent in Sacramento, Calif., where I worked for 16 years. Currently, I’m enjoying working at Walden on Lake Houston in Humble, Texas. We’re a part of the Century Golf family, which includes more than 60 golf courses.

At Century Golf, we recognize that we are in the membership business. It’s our culture. We recognize it every day.

Everyone at our facility is expected to provide service that will develop a positive experience for our members. Yes, that includes the crew back at the maintenance shop, from the head superintendent to the guys operating string trimmers, trying to avoid getting hit with errant tee shots.

It can get a little tricky — maybe even confusing — to most of the grass growers out there. I thought my job was to cut the grass, water, fertilize and stay out of the way. Now you want me to speak to these members and be part of the front of the house? And management’s answer was “yes.”

So we decided to do what anyone who values his or her job would do — put on a new hat and make it happen. But wait a minute... how do we make this happen?

“T-BAM”

Century Golf stresses the saying “Thanks for being a member.” We’ve shortened this to “T-BAM” when discussing it in-house.

How can my crew and I say thanks? I realize that language barriers can sometimes be a problem, so can slowing pace of play. So I came up with something that says “T-BAM” quickly, without a spoken word. I created a sticker to attach to all of our equipment and carts.

Employees can wave, and with a quick gesture point to the sticker. You would be surprised how many smiles and thumbs-up we get. Let’s carry this idea inside. How can we say “thanks” over and over? How about we put the same stickers up at the coffee station, the pro shop and even offer the members a sticker for their personal carts?

Each month all the Century Golf superintendents join a conference call at which time we share stories of “T-BAM” moments. A few examples would be playing golf with members, having lunch with a group, communication updates/blogs and speaking opportunities or special projects involving golfers and committees. I’d like to think that these stickers also have added to our effort to successfully make members feel welcomed and appreciated.

We have developed a culture where members invite friends to join the club. The gratification members feel comes from the service they receive everywhere from the parking lot to the end of the 18th.

We all know what membership can mean, whether it be in a church, club or anything else. It says that you’re a part of a family. As this family grows, all of a sudden the club has a waiting list, the parking lot is full and you need a tee time to play. All this happens because the staff took the time to say “Thanks for being a member.”

Bob Cook, Certified Turfgrass Professional, is the superintendent at Walden on Lake Houston in Humble, Texas. Cook is happy to share his sticker with other courses. He can be reached via email at bcook@waldenccc.com.

When the maintenance crew is asked to further an initiative, a forward-thinking superintendent steps up.

BY BOB COOK, CTP
Herbicide
Solitaire herbicide is now available in a 4-lb package. **FMC PROFESSIONAL SOLUTIONS** still will make the 1-lb package available, but the new package can treat up to 4 acres and gives professionals more options for application. The post-emergence solution can treat against sedges, crabgrass and broad-leaf weeds. Solitaire herbicide is labeled for control of more than 60 weeds, can provide visible results days after treatment and solves multiple weed problems. FMC.com

Hover trimmer
The Hover Trimmer, made by **AUTOLAWNMOW** of Ireland and distributed stateside by **SEAGO INTERNATIONAL**, is a blade and hood attachment that will fit almost any brand string trimmer. The hover trimmer is a cross between a string trimmer and hover mower. Its hovering technology makes back pains and pulled muscles far less likely and makes the entire unit nearly weightless. It has applications for golf, landscape and homeowner markets. The string trimmers cut smaller areas and mulch the clippings into smaller particles, leaving nothing behind to pick up. There are two sizes for the trimmer, the HT-300 that is designed for machines with a 30cc engine or larger and the HT-200, which is designed for 30cc and smaller trimmers. SeagoUSA.com

Trencher
**DITCH WITCH** has released the new RT30. The RT30 is a ride-on trencher with a compact footprint. The trencher is complete with four-wheel drive, a tight turning radius and maneuverability with 24.8 hp. Its vigorous motor allows it to handle some of the most difficult jobsite conditions. The trencher uses a larger shaft and bearings than smallerrenchers, resulting in less maintenance and greater productivity. Its maintenance-free pivot design allows it to keep above dirt and debris. The RT30 gives rental companies the opportunity to offer a product that is more powerful than a walk behind and more affordable than a standard size ride-on trencher. DitchWitch.com

Water remover
The BowDry from **BOWCOM** is a walk-behind water-removing machine. The BowDry’s rear collection area and transport wheels make it easy to maneuver even when full. The four-wheel chassis evenly distributes weight to clear water without impacting the condition of the green, and the foam roller is turf friendly. It can drain greens and walking areas without making a sound. The BowDry also works for pool areas, locker rooms, baseball fields, tennis courts or walking paths. SeagoUSA.com

Battery
**TROJAN BATTERY COMPANY** has introduced the Traveler 8V longer life battery. The battery has 40 percent longer life than the current T-875 battery. The traveler 8V has been researched and developed for more than 4 years to perfect its internal design and external case improvements. The internal design of the battery includes Trojan’s new patent-pending Internal Battery Protection System. The IBP system features thicker grids, membrane-wrapped plates, Trojan’s exclusive Maxguard T2 multi-rib separators and T2 Technology. The traveler 8V has stronger case walls, which make for improved element compression and increased durability. TrojanBattery.com
Iron product
UNITED TURF ALLIANCE announces the introduction of Optimizer Sweet Iron. This unique sprayable iron polysaccharide product boosts turfgrass color, enhances nutrient uptake and improves overall plant health by enabling both foliar and root absorption of the product by turfgrass plants. It is applied at a much lower rate than traditional iron products. Optimizer Sweet Iron combines a water-soluble form of iron with a complex natural polysaccharide to provide novel delivery and outstanding residual color without the use of urea. In addition, the new iron product contains plant-available amino acids to promote the optimum plant metabolism required for efficient nutrient uptake and utilization.
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ROOT ZONE pH AND PENN A-4 CREEPING BENTGRASS SHOOT/ROOT GROWTH

By Derek T. Pruyne and Maxim J. Schlossberg, Ph.D.

Root zone pH influences nutrient availability, disease susceptibility and growth during both establishment and maintenance of Penn A-4 creeping bentgrass putting greens. While the optimal pH range for creeping bentgrass is considered to be 5.5 to 6.5, sand putting greens constructed in the Mid-Atlantic and Midwest containing slight to moderate (1 percent to 5 percent) calcite inclusions are buffered to higher pH values.

Further alkalinization via topdressing sand or irrigation water inputs offsets natural acidification processes at the root zone surface. These issues beg a common question among superintendents: Is nutrient availability to Penn A-4 roots the primary limitation of supraoptimal soil pH levels, or are additional physiological/biochemical processes compromised?

To answer this question, Penn A-4 shoot and root growth response to an array of imposed sand root zone pH levels (5.0 to 7.5) was evaluated under conditions of frequent and ample macronutrient and chelated micronutrient (EDTA) fertilization in the greenhouse.

The resulting observations strictly adhered to reference literature. In sands maintained at pH levels from 5.5 to 6.5, Penn A-4 showed 100 percent to 150 percent greater shoot and root growth (3- to 9-inch depth) relative to growth rates observed at the 5.0, 7.0 or 7.5 soil pH levels. Field experiments evaluating acidifying treatments of alkaline Penn A-4 sand putting greens are currently under way in University Park.

Derek T. Pruyne and Maxim J. Schlossberg, Ph.D., Penn State University. Pruyne can be reached at dtp5025@gmail.com.
Superintendents know that bermudagrass is an important turfgrass on most golf courses in the South. It has excellent fine-turf characteristics that make it a popular grass for use on fairways, tees, roughs and putting greens. Bermudagrass has relatively good pest resistance, excellent recuperative potential and an aggressive growth habit.

Oklahoma State University (OSU) in cooperation with the USGA and multiple industry partners has successfully released and commercialized cold-tolerant fine-turf bermudagrasses such as Yukon, Riviera and Patriot (Martin et al. 2007; Taliaferro et al., 2004), and most recently, Latitude 36’ and Northbridge. The breeding of improved cold-tolerant bermudagrass cultivars continues at OSU. However, new experimental resources and personnel have led researchers to add improved drought resistance, low irrigation adaptation and shade resistance to their menu of important traits for new bermudagrasses.

In 2009, OSU researchers embarked on a project to screen bermudagrass germplasm for shade resistance. We planted 45 experimental common bermudagrass selections gathered mostly from China, Africa and Australia and four commercially available cultivars — Celebration, Patriot, TifGrand and Tifton 10. The experimental selections were already known to be cold tolerant and good seed producers (Wu et al., 2006). We planted on two sites, one site providing a combination of vegetative and artificial shade, the other providing full sun. The turf was mowed at 2.0 inches to represent golf course rough, irrigated sufficiently to keep all selections green through the growing season, and fertilized at a rate of 1 lb. N per 1,000 sq. ft. per month.

On the shaded site, a combination of mature pines to the west, vines to the east and one (2009) or two (2010 and 2011) 10-ft. wide strips of 75-percent shade cloth overhead provided shade for an average of up to 67 percent of each day, depending on season and year (Fig. 1).

Visual ratings (ratings = 1–9; 9 = best) for turf quality were made for each plot biweekly during 2008, 2009, 2010 and 2011. Turf quality also was rated using a sensor that measured Normalized Difference Vegetation Index (NDVI), an objective measure of turf color and density (Bell et al., 2002; Bell and Xiong, 2008). Visual ratings were used in a comparative fashion to determine the best performing entries in shade and in full sun. Visual ratings and NDVI were used to measure shade resistance by comparing an entry’s mean visual rating or NDVI in shade expressed as a percentage of its mean visual rating or NDVI in full sun [100 x (entry NDVI in full sun minus entry NDVI in shade) divided by entry NDVI in full sun; larger = better].

**SHADE RESULTS**

Surprisingly, according to visual ratings, Patriot (mean ratings = 7.1, 7.8, 6.0, and 5.7 in 2008, 2009, 2010 and 2011, respectively) was the top-performing grass in shade for the first three seasons (Fig. 2). Patriot’s strong performance in shade was not expected, since it did not perform exceptionally well in other shade studies (Trappe et al., 2011).
Patriot may have superior visual quality in shade, but it also may have been the top performer in this study because it is uniquely adapted to the climate in Stillwater, Okla., where it was developed.

Tifton 10 (mean rating = 6.5) and Celebration (mean rating = 6.5) performed well in shade in 2008; Celebration (7.1), TifGrand (7.0) and Tifton 10 (6.6) in 2009; and Celebration (5.6) and TifGrand (5.6) in 2010. Celebration (6.4) was the top performing cultivar in shade in 2011, with Patriot (5.7) and TifGrand (5.7) close behind. Tifton 10 (5.2) was in the fourth statistical group in 2011. Many of the experimental selections also performed well in shade in at least two of four seasons.

FULL SUN RESULTS
According to visual quality ratings, Patriot was the best performing cultivar in full sun for all four seasons (7.7, 8.7, 7.6, and 7.4 in 2008, 2009, 2010, and 2011, respectively). TifGrand also performed well in all four seasons (7.4, 7.8, 7.3, and 6.7). Celebration (7.5, 7.0, and 7.0) and a few of the experimental entries demonstrated excellent performance in the final three seasons.

SHADE RESISTANCE
By comparing each bermudagrass in full sun with its counterpart in shade, we were able to estimate the shade resistance of each entry. The commercially available cultivars and experimental entries with exceptional fine-turf characteristics ranked high in shade resistance, but rankings differed between visual quality rating and NDVI. According to visual quality, Celebration (-11.3 percent) was the most shade resistant of the commercially available cultivars, and according to NDVI, Tifton 10 (-10.2 percent) was the least shade resistant.

According to NDVI, the shade resistance of five of the experimental entries (-0.2 percent to -14.3 percent, depending on entry and year) was equal to or exceeded the shade resistance of the commercially available cultivars. Of these five experimental entries three also ranked high in shade resistance measured by visual rating. A few of the experimental entries demonstrated good shade resistance but had less than acceptable fine-turf qualities.

In 2012, we selected the best of the experimental entries for fine-turf qualities and shade resistance, followed by more crossing, which resulted in promising experimental seed-propagated lines that are undergoing additional investigation for shade tolerance and specific trait evaluation over the next several years.

We expect that the resultant progeny will demonstrate superior turf performance in internal as well as external testing, such as in the National Turfgrass Evaluation Program (NTEP). Excellent fine-turf characteristics, coupled with good seed yields, should allow the eventual release and commercialization of seeded bermudagrasses with improved shade resistance in the next few years.

Acknowledgments
The authors would like to thank the United States Golf Association for their financial support of this project. Additional funds were provided by the Oklahoma Agricultural Experiment Station.

Gregory E. Bell, Ph.D., Yanqi Wu, Ph.D., Dennis L. Martin, Ph.D., Justin Q. Moss, Ph.D., and Kyungjoon Koh, M.S. are turfgrass scientists at Oklahoma State University. Bell can be reached at greg.bell@okstate.edu.

References
Spring is a wonderful time of year for superintendents. Grass growing conditions are often excellent, temperatures are moderate, heat and drought stress are usually absent, and golfers are just happy to be playing. However, there is one problem that annually disrupts a superintendent’s spring: Poa annua. Whether dying from ice damage or producing copious quantities of seedheads, Poa annua remains a grass (or weed) that most superintendents wish they didn’t have to see.

I’ve been working on Poa annua control for nearly 30 years and clearly haven’t had much success. Controlling Poa annua isn’t really the problem. Rather, control must occur slowly so that turf quality is not reduced—and that’s not how most herbicides work. Also, there must be enough safety so the desired turf species shows no injury. Many superintendents have experimented with low rates of Roundup ( glyphosate ), high rates of iron, microbial products, etc. Yet, we still have lots of Poa annua on our golf courses.

There always is a new herbicide that will solve the Poa annua problem once and for all, right? Well, don’t bet on it. My 30 years of experience have taught me that Poa annua is a wily and tenacious competitor and no single herbicide will defeat it. It will take multiple chemistries, an equally tenacious superintendent and some luck to have a golf course with little to no Poa annua. It can be done, and I’ve seen it done, but it takes consistent and persistent effort.

POA ANNUA BIOLOGY
What makes Poa annua such a difficult weed to control? To paraphrase President Clinton, “it’s the seed, stupid.” Poa annua is so competitive because it produces tremendous amounts of viable seed at any mowing height. Further, its ecological niche is extremely well suited to the golf course environment. Frequent irrigation is perhaps the biggest contributor to Poa annua establishment.

When you do find an herbicide that combats it, Poa annua seed most likely will repopulate the voids left by the dying Poa annua. In the scenario where an herbicide actually kills Poa annua, the turf manager is so anxious to get grass back on the golf course that further thoughts of controlling Poa annua are quickly forgotten. The Poa annua comes back from seed along with other desired grasses, such as creeping bentgrass.

“Poa annua is so competitive because it produces tremendous amounts of viable seed at any mowing height.”
While data are a little hard to come by, Calhoun (2010) suggested that Poa annua seed can be viable up to 6 years in the soil. Several authors have determined that the large percentage of Poa annua seed shed by Poa annua plants will germinate in the first year following production. To net this out, if you can eliminate Poa annua from your turf and continue to eliminate it before more seed is produced, then after +/- six years, the Poa annua seed bank will be much reduced and the Poa annua problem will be much easier to manage.

As any superintendent who has tried to renovate fairways can attest, killing the existing Poa annua with Roundup is easy, but keeping the seed bank from reinfecting the golf course is very difficult. In fact, without a viable herbicide program following seeding (see Branham and Sharp, 2011 for recommendations on Poa annua control in creeping bentgrass seedlings), many renovations end up with as much or more Poa annua than existed prior to the renovation program.

As an aside, soil fumigants are also effective, but the cost and environmental concerns when redoing fairways make fumigants a less attractive option. Remember too, that fumigants do not eliminate the Poa annua seed bank; they reduce the number of seeds significantly and tend to give a “Poa annua-free” window for germinating the new grasses. However, that window closes fairly quickly, and Poa annua begins competing with whatever species was planted.

I have one final point about Poa annua that is particularly challenging for any golf course that is considering a Poa annua control program. As mentioned above, the seed bank needs to be managed to achieve long-term control. That means the seed bank on the whole golf course—greens, tees, fairways, surrounds and roughs. Eliminating Poa annua on the putting green, a goal of many superintendents, will be more difficult if no effort is made to control Poa annua on the rest of the golf course. Poa annua seed will inevitably be deposited in the green by mower traffic, foot traffic, birds and more, requiring constant removal programs.

Also, since Poa annua is well adapted to shade conditions, removing Poa annua from shaded areas may result in reduced turf quality as less-adapted species struggle to grow. Before beginning a Poa annua control program, you must make the environment better suited to the species you want to manage. That means reducing shade, improving drainage and managing traffic—all factors that tend to favor Poa annua.

**CONTROL OPTIONS**

Golf turf managers have always had the option of controlling Poa annua from seed with a pre-emergence herbicide, but that strategy is ineffective without a means to control established Poa annua, such as a postemergence herbicide. In the past five to eight years, we’ve had several new products come to market that control Poa annua postemergence. Turf managers have been slow to adopt these herbicides because of the risks involved in trying to remove a grass that may constitute 10 percent to 50 percent of the turf present. There’s also the fact that these are all herbicides. That is, they kill plants. An inadequate margin of safety or unexpected environmental or chemical interactions can lead to unexpected turf injury, even with relatively safe products. Turfgrass professionals should never underestimate this.

With those warnings and caveats, I’ll update the status of new chemistries for Poa annua control in cool-season turfgrasses. Separate articles will focus on Poa annua control products for warm-season turfgrasses and cultural/mechanical techniques to help manage Poa annua.

**PROGRASS**

The oldest of what I consider effective postemergence herbicides for Poa annua control is Prograss (ethofumesate). Prograss has been labeled for turf use since the late 1980s and can give good postemergence control of Poa annua in certain cool-season grasses. It is very safe on perennial ryegrass but only marginally safe on creeping bentgrass and Kentucky bluegrass. Prograss can provide effective control at most times of the growing season, but the best control is normally obtained with applications

Continued on page 48
made four to six weeks before grass growth ceases for the winter. These applications don’t seem to kill the Poa annua immediately. Rather, the Poa annua is weakened and dies either over the winter or as grasses resume growth early the next spring. The problem is that these applications give wildly different results depending on factors we don’t understand. Literally, control can range from 0 to 100 percent and anywhere in-between. My own theory is that Prograss prevents Poa annua from reaching maximum winter hardiness, so depending on a number of factors—snow cover, winter temperatures, etc.—control is determined by the severity of winter stress. But again, this is just speculation.

As mentioned above, perennial ryegrass is extremely tolerant of Prograss, and Prograss is still widely used where perennial ryegrass is grown for golf course fairways. Prograss can be applied in the late season, but with perennial ryegrass, excellent Poa annua control can also be obtained within the growing season. Higher rates are required, but perennial ryegrass responds beautifully to Prograss applications. The turf becomes quite dense and dark green in color, similar to a PGR response.

Creeping bentgrass and Kentucky bluegrass are much less tolerant of Prograss, so lower rates are used when applying to these two species. Because of the lower rates, in-season applications are generally not effective with these two species and best results are obtained with September and October applications as described above.

**VELOCITY**

Velocity was registered for turf use in 2003. It was originally tested as a plant growth regulator, and Dr. Ron Calhoun, a Michigan State University turfgrass scientist at that time, spotted its herbicidal activity. However, because it is metabolized fairly rapidly by all turfgrass species, several sequential applications are required to get a high level of Poa annua control. While Velocity works, its adoption by golf turf managers has been relatively low. When used, it can control Poa annua rapidly, often leading to unhappy turf managers who may have underestimated the amount of Poa annua in their turf (or simply failed to appreciate what the turf would look like without any Poa annua).

Further, it is a growth regulator herbicide, so turf growth can slow significantly (this applies to creeping bentgrass as well), resulting in reduced quality turf, especially where traffic is significant. Secondly, there is typically some phytotoxicity associated with its use. This often is observed as a loss of green color of the turf. Under conditions of very high soil moisture or very cool temperatures the turf injury can be quite pronounced.

Finally, Kentucky bluegrass is generally injured by Velocity. From a practical standpoint, it is very difficult to apply Velocity uniformly to a putting green or fairway without getting some spray into the rough, which is usually Kentucky bluegrass.

Our own research has found that light (10 gm a.i./A or 2 oz. product/A), frequent applications give the best control. I normally recommend 2 oz. product/A applied twice per week (Monday and Thursday) for a total of six applications. This program typically controls >90 percent of the Poa annua on fairway height turf. However, this program is too aggressive if Poa annua populations are greater than 10 percent to 20 percent. When Poa annua populations are above this threshold, I recommend a different strategy that can lead to a gradual loss of Poa annua that does not result in voids or dead patches of Poa annua. The gradual control strategy calls for Velocity applications monthly during the warmer months of the growing season. Our best program would consist of monthly applications of Velocity at 2 oz. product/A from May through September. This approach injures Poa annua but does not directly kill it. Over time, Poa annua is outcompeted by less regulated creeping bentgrass. This program will not give complete control, but we typically see a
reduction of 60 to 90 percent of the Poa annua. The value of this program is that turf injury is minimized and Poa annua reduction is gradual.

XONERATE
Xonerate (amicarbazone) is a new product from Arysta Life Science that was registered for turf use in 2012. Xonerate is a photosynthesis inhibitor that controls Poa annua postemergence in creeping bentgrass, Kentucky bluegrass and perennial ryegrass. Xonerate is very sensitive to high temperatures, and the label does not recommend applications to turf when temperatures are above 80 degrees F. Best results have been observed with spring applications when temperatures are cool. Fall applications, even when temperatures are cool, have been problematic.

The launch of Xonerate in spring 2012 gave mixed results. Injury to creeping bentgrass was observed at a number of locations, and creeping bentgrass varieties responded differently to Xonerate. Poa annua control was somewhat variable. Better results were observed in the Southeast, with more variable results in the Midwest and West. Additional research is under way to determine what factors control the activity of Xonerate.

POACURE
There has been much buzz surrounding the evaluation of an experimental herbicide that is tentatively named PoaCure (methiozolin). I’m hesitant to spend too much space on an herbicide that is not yet labeled by the EPA. The literature is littered with examples of promising herbicides that never make it to market. What makes this product unique is its ability to slowly remove Poa annua from putting green turf. Most companies are afraid to label a product for use on greens because of concern over potential liability should any problems arise, while this product is being developed with greens as the intended target.

By controlling the number and rate of applications, a turf manager can control the rate at which Poa annua dies. Further, with this herbicide Poa annua doesn’t so much as die as slowly wither away, therefore allowing time for creeping bentgrass to cover any empty space. The result is a slow, almost imperceptible, transition to pure creeping bentgrass.

Results have been impressive to date, but the potential for creeping bentgrass injury under normal use conditions needs to be determined. The company is sponsoring an experimental-use permit with 166 golf courses around the United States that will run from 2014 to 2016. Expect EPA registration in late 2015 or early 2016.

SUMMARY
While the number of herbicides available for Poa annua control has grown significantly, there still is a lot of Poa annua on golf courses. Herbicides like Xonerate and Prograss, when effective, result in a rapid kill off, often leaving the turf in poor condition with voids and thin turf. Products that can gradually remove Poa annua are obvious choices for golf courses that don’t wish to close for a renovation. Velocity used as a slow-killing growth regulator is the only current choice that gives a gradual rate of control. Should PoaCure reach the market, it too offers gradual control and good turf safety.

Golf turf managers should consider that a major part of the battle against Poa annua is cultural. Keeping a dense, healthy turf is the best defense against Poa annua invasion. Ball marks, divots, surface disruption from aerification, and voids in general, give Poa annua a foothold. From there it’s all downhill for such an invasive, competitive species.

Bruce Branham, Ph.D., is a professor of turfgrass science at the University of Illinois and can be reached at bbranham@illinois.edu.

References
Can’t see the forest for the trees

I was heading to work and noticed the neighborhood kids waiting on the street corner for the school bus, as I had a thousand times before. Except this morning I was struck by the number of kids waiting. Where did they all come from?

When we moved into our newly constructed home some 25 years ago, the location was a recently developed subdivision. Like any subdivision developed from farmland, it was flat and baron. The obligatory six bushes and one tree required by FHA home loans were the extent of the ornamental landscaping. The majority of the landscape consisted of sod, which meant two of the first home improvement purchases were a lawn mower and a sprinkler.

As with many community zoning regulations, we were not allowed to enclose our properties with fences. Thus, we had expanses of turf running from property to property.

Neighborhood kids would create Wiffle ball, soccer or football "fields" across neighboring lawns. I forced my kids to also create chipping areas for golf. And with the expanse of turf came sidewalks. How can I forget waking up on Saturday morning to the sound of kids riding their Big Wheels up and down the sidewalk?

As time progressed, the city planted trees in the easement between the sidewalk and street, and we needed to place a tree in such a position to shade our newly constructed patio. Neighbors began planting a tree or two for aesthetic and shading purposes. And as the neighborhood kids got older, so did our trees.

The trees planted by the city were Bradford Pears. They were popular in the late 1980s and early ’90s, but now they just cover the neighborhood cars with a sloppy mess of splattered berries from late fall through winter. The more sparrows that feed on the trees’ berries, the worse the onslaught is.

Also, the sidewalks are no longer as smooth as airport runways; the shallow tree roots have caused their upheaval. No longer can the neighborhood kids ride their Big Wheels; hitting sections of the side walk will cause a crash. It’s so bad that the city has now beveled the edges of the uprooted sidewalk squares to make them "safer."

The Wiffle ball, soccer and football games are bygone as well. After all, it’s hard to slide to second base or run a stop-and-go pass pattern with a tree in the way. These days, outdoor games have been replaced by 12- to 15-foot enclosed trampolines that look more like an Ultimate Fighting Championship ring. They fit easily among the trees, but neighborhood kids who want to play sports now have to carpool to the nearest city sports complex.

It’s ironic that when we first looked at places to live we decided not to go with the older, stately areas of town because we didn’t see any kids. Now that I live in a stately and older area, it’s not that the kids have grown and left, it’s just that I can’t see them for the trees.

I tell this story not so much to reminisce, which I have recently done in some of my columns, but to focus on benefits of removing trees from golf courses besides agronomics. Removing trees exposes the subtleness of course design that has been hidden, and opens the course up to more vista views. It brings a freshness and newness to a course that is old and claustrophobic.

Now we can instill the excitement back into courses that have been hidden by trees for way too long.

Karl Danneberger, Ph.D., Golfdom’s science editor and a professor at The Ohio State University, can be reached at danneberger.1@osu.edu.
Trinexapac-ethyl applications and growing degree days

Doug Soldat, Ph.D., is an associate professor of turfgrass science at the University of Wisconsin-Madison. His research has focused on turfgrass and soil problems. He can be reached at djsoldat@wisc.edu.

Q How did you become interested in investigating the timing of trinexapac-ethyl applications on creeping bentgrass putting greens?

It was a convergence of two separate events. The first is that Bill Kreuser, the student who conducted this research, has a very inquisitive mind for all things turfgrass management. To give you an example, Bill built a USGA green in his parents’ backyard when he was 14 and was always seeking ways to improve the green’s performance.

The second is that Jeff Beasley, Ph.D., and Bruce Branham, Ph.D., had just published a scientific paper that determined that the rate of trinexapac-ethyl breakdown by turfgrass plants increased as temperature increased.

We coupled Bill’s enthusiasm with the finding by Drs. Beasley and Branham and tried to figure out a better way to time applications of trinexapac-ethyl than using calendar date.

Q What were the outcomes of Kreuser’s research?

We examined trinexapac-ethyl applied to a creeping bentgrass green on 100, 200, 400 and 800 growing degree days (GDD) Celsius versus every 28 days. The data showed that trinexapac-ethyl applications made every 200 GDD Celsius provided the best turfgrass color and quality while effectively reducing clipping yield.

In Wisconsin, it takes roughly 7 days in summer and 21 to 28 days in spring and fall to accumulate 200 GDD Celsius. The 200 GDD Celsius threshold was calculated with a base temperature of 0 degrees Celsius, which is equal to a 360 GDD Fahrenheit threshold with a 32 degrees Fahrenheit base.

A useful spreadsheet for calculating GDD for trinexapac-ethyl applications in both degrees Fahrenheit and Celsius can be found at www://turf.wisc.edu under the GDD maps section.

Q What else have you found with this line of research?

The model of 200 GDD Celsius for trinexapac-ethyl applications works only for creeping bentgrass or a mixed stand of creeping bentgrass/annual bluegrass greens. Every grass species is affected by trinexapac a little differently and this model should only be used for creeping bentgrass/annual bluegrass greens.

We found that there were no differences among the creeping bentgrass cultivars we have worked with when applying trinexapac-ethyl at 200 GDD Celsius and that rootzone construction method did not impact creeping bentgrass response to trinexapac-ethyl applied at 200 GDD Celsius.

Doubling the rate of trinexapac-ethyl from 0.125 fluid ounces/1,000 sq. ft. to 0.250 fluid ounces/1,000 sq. ft. did not increase the application interval. The threshold of 200 GDD Celsius held whether the rate of application was 0.125 fluid ounces/1,000 sq. ft. or 0.250 fluid ounces/1,000 sq. ft.

Q What has been the superintendent’s response to the 200 GDD Celsius trinexapac-ethyl application threshold?

First, I think many superintendents figured this out on their own prior to our research. Weekly trinexapac-ethyl applications at low rates have been widely used on creeping bentgrass greens. All we did was refine the application schedule and made it more scientific. Second, we have received positive feedback from superintendents across the U.S. and internationally on our application timing method.

Q Anything else to add?

Our experience and research shows that trinexapac-ethyl applied at 200 GDD Celsius to creeping bentgrass and annual bluegrass putting greens will not result in increased annual bluegrass populations. While somewhat controversial, our preliminary research shows that applying trinexapac-ethyl to mixed stands of creeping bentgrass and annual bluegrass on greens will slightly reduce the annual bluegrass population.

The remaining annual bluegrass appears to stand out more, giving the impression of increased populations, but in fact, we find there is less annual bluegrass present.

We also found that by applying trinexapac-ethyl at a 200 GDD Celsius interval, 33 percent less nitrogen was removed from the system through clipping removal compared to an untreated green. If you start applying trinexapac-ethyl regularly, you can get away with a bit less nitrogen and maintain the same color and quality.

Clark Throssell, Ph.D., loves to talk turf. Contact him at clarkthrossell@bresnan.net.
What are you drinking? A South American Malbec or a Spanish Rioja. I’m trying to class up my post-golf drinking.

What's the one thing Coral Creek is known for? The purest-putting bermuda there is. During the season, we run a little faster than the PGA Tour, day-in, day-out. Most of our members, we’re their second or third club, and many come from premiere PGA venues. They’re all on bentgrass. They expect the same results here on bermuda, which up until a few years ago was impossible. But I like to think of myself as more of an artist than a scientist...

Reading anything good these days? Oh... well, every month, I get Golfdom (laughs). In-between that, I was just reading this Journal of Plant Nutrition article, “Uptake and Transport of Methylglucopyranoside Throughout Plants.”

Who are your teams? Boise State and North Dakota State, and anyone who plays against the SEC.

You’re a turf professional, and you’re OK with that awful looking blue turf? Because we were the first one. Anyone who has colored turf now, that is just silly. But since we were the original, that makes it OK.

Any products that you are really excited about right now? I’m absolutely thrilled with CourseVision. At the end of the week I’ll shut the course down for three months and during that time there is nothing more valuable than my gradens and aerifiers. Also, for the record, ReDox has quickly become the fertility standard out here.

Anything cool that you’re checking out online these days? My hobby is cooking, so I look for recipes. Right now I’m stuck on RickBayless.com. It’s Mexican food, he’s got a couple restaurants in Chicago.

You mentioned that you’ve broken your back. What’s that story? I was 17, at the local ski resort. Being the adrenaline junkie I am, I had to hit the biggest, baddest kicker (jump) they had up there. It started out real good, until I looked to my right and I looked down at the dude in the chair lift. He yelled, “Dude, sweet air!” That’s when I realized I was in big trouble. When I hit the ground, my chin hit my sternum, cracked my sternum, and I fractured two vertebrae in my back. That ended my snowboarding career.

Did the crash knock you out? I knew I wasn’t right, but I could still function. A little later I fell in-between a couple rocks and I broke my arm. They took me down the hill on the sled. At the hospital, they looked around and said, “You’ve got a lot more going on than a broken arm.”

Any lingering effects? Fortunately, I’m not very good at laying sod anymore. I count that as a blessing.

As interviewed by Seth Jones, July 2nd, 2013.
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