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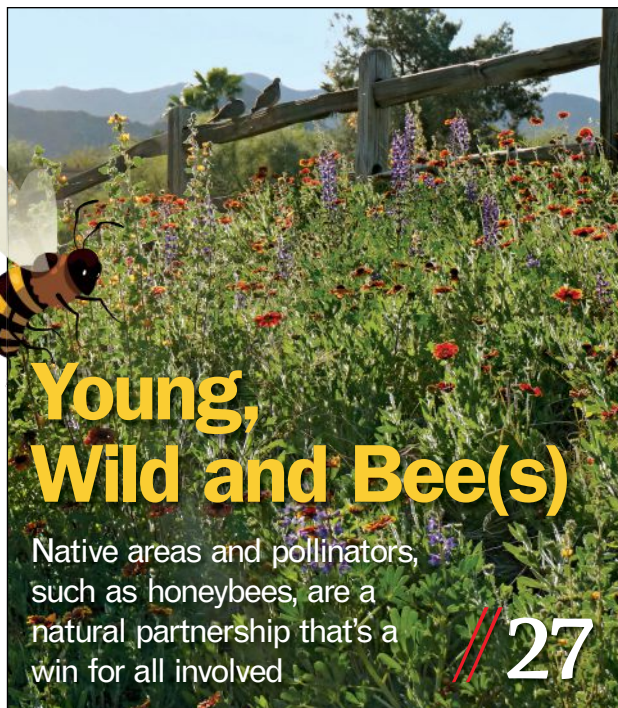


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"It's a short course ... and I mean short. Holes are no longer than 30 yards in length. Oversized cup. 5-foot pins. Play it with a real golf ball if you wish or play it with a low-flight ball (I'd suggest low-flight.)"

SETH JONES, *Editor-in-Chief & Associate Publisher*

Are Wee having fun yet?

This month's cover story was an absolute pleasure to follow and report on. Not only did I get to involve Tom Watson in the magazine again, but I also was able to get my kids in the magazine — that's my daughter Evey on the cover, and my son Boyd is the one working with Watson on the interior. Talk about a proud dad moment!

This is definitely a home-grown story. The first Wee Links course, the brainchild of longtime golf professional Jeff Burey, was built less than five minutes from where I live. My kids and I played it regularly until Jeff sold the property last year — it's currently being renovated.

If you're asking yourself, 'What is a Wee Links course,' allow me to explain. It's a short course ... and I mean short. Holes are no longer than 30 yards in length. Oversized cup. 5-foot pins. Play it with a real golf ball if you wish or play it with a low-flight ball (I'd suggest low-flight.) It's only six holes, so you can play the whole loop in about 20 minutes.

And right on the heels of the recent ribbon cutting for the first Wee Links course in Kansas City comes the first full summer of the Watson Links program. In that pro-



I wasn't going to miss an opportunity to get a photo with my favorite kids, my favorite golf pro and a legend of the game.

gram, created by Tom Watson, youth golfers (ages 10 to 18) are invited to sign up to play with two adult mentors for nine holes at one of nine Kansas City area golf courses.

The full story on both programs begins on page 12.

It was fun seeing the first Wee Links come to fruition. I was able to watch from afar as Burey and volunteers built the course. And then, Burey again invited me to see the progress for the newest Wee

Links course, this one a little under an hour away from me.

It was also fun to work with Tom Watson for the photo shoot. For me, at least.

My kids are used to working with the affable Burey — he gave them their first golf lessons. The fear factor was cranked up to 10 when I explained that they would now be getting a lesson from a World Golf Hall of Famer and eight-time major winner.

Oh, and also, a professional

photographer would be documenting the whole scene.

When Evey came out wearing her new Masters jacket, I said, "That's a good choice! Tom won the Masters twice." Her reply was, "Oh, great."

A common phrase Burey uses when he likes how a player holds their finish is, "Click! Click! Click!" And he mimics holding a camera.

"That's a finish that's so good, photographers take your picture," he says. Well, this time, a photographer was taking their picture. There were no audible clicks, because cameras just don't do that anymore. Were there some good swings? More than a few. The photographer, Earl Richardson, took 600 photos, so we had our bases covered.

Will my kids ever forget the day they worked with Tom Watson and got lessons on putting and how to position their body? Unlikely. As we rolled out of the Heritage Park parking lot, I couldn't wait to hear their interpretation of what just transpired.

They did especially like one part: when the photo shoot concluded, I thanked Watson for his time. He looked at me and said, "Oh, we're not done yet. I want to see you and your photographer take some swings!"

My first shot was straight as an arrow, majestic.

And about ... 30 yards long.

Watson's response: "Touch 'em all!"

Yes, Wee had fun making this issue. **G**

Email Jones at: sjones@northcoastmedia.net.

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NEWS, NOTES AND QUOTES



//BRINGING HOME THE BACON

GOLFDOM RECOGNIZED AT ANNUAL TOCA AWARDS



Golfdom recently secured eight accolades at the 2023 TOCA Communications Awards Contest.

This event, organized by the Turf & Ornamental Communicators Association (TOCA), acknowledges exceptional achievements in writing, design, photography, videography and interactive projects within the green industry on an annual basis.

"2022 was a great year for our team on *Golfdom*," said Seth Jones, editor-in-chief. "Seeing the covers of our magazines projected on the screen as they were announced filled me with pride, as it demonstrated that our hard work covering this industry is recognized."

Golfdom staff recognized for their work include Jones; Pete Seltzer, Art Director; Christina Herrick, Editor; Joey Ciccolini, Digital Media Content Producer; and several contributors.

The complete list of winnings for the publication includes:

FIRST PLACE

- **Portrait/Personality photo** —

Welcome to the Club, Pete Seltzer and Jason Paige Smith

- **Best Instructional Video** — An

Inside Look with *Golfdom*: Water-resistant products from Kafka Granite, Joey Ciccolini

MERIT

- **Cover Page Design (Printed Magazines)** — Super's Choice Awards,

Pete Seltzer

- **Best Single Photo (Use of Stock)** —

The *Golfdom* Report, Pete Seltzer

- **Best Instructional Video** — The

Proof is in the Test Plots,

Joey Ciccolini

- **Editorial/Opinion Piece**

(Commercial Publications) — About

One Minute,
Seth Jones

- **Series of Columns by Regular Department Columnist** — Wisdom

from Waco,
Jim Moore

- **Headline Writing (Commercial Publications)** —

Say You Want a Renovation?,
Christina Herrick



//IN THE FIELD

GCSAA ADDS DETTMER TO SOUTHEAST STAFF

The Golf Course Superintendents Association of America (GCSAA) named David Dettmer, CGCS, the field staff representative for the Southeast region.



David Dettmer

Dettmer joins the GCSAA staff from Green Resource, a subsidiary of SiteOne Landscape Supply, where he was an account manager. Prior to Green Resource, he spent 30 years as a golf course superintendent, including stints at TPC Piper Glen in Charlotte, N.C., and Lawrence (Kan.) County Club.

A 34-year member of GCSAA, Dettmer became a certified golf course superintendent (CGCS) in 1996. He is a current member of the Carolinas GCSA and is a past member and served on the board of the Heart of America GCSA.

Beginning June 19, Dettmer will be the GCSAA liaison from his home office in Charlotte for GCSAA-affiliated chapters in Alabama, Georgia, Louisiana, Mississippi, North Carolina, South Carolina and Tennessee.

//NEW LOCATIONS

CENTRAL TURF ADDS GREENLEAF TURF LOCATIONS

Central Turf & Irrigation Supply (CTIS) adds two Greenleaf Turf Solutions locations — one in Pennsylvania and one in Delaware.

"The timing was just right for both companies," said Anthony Luciano, vice president of CTIS. "Greenleaf will help complement our mid-Atlantic footprint by adding additional conveniences and resources to our existing client base and continuing our overall turf category goals for Central."

Greenleaf Turf Solutions offers pest control, fertilizers, grass seed, landscape and hardscape supplies, ice melt and equipment. CTIS said Greenleaf Turf Solutions will continue to do business under its name.

//STREAMLINED PROCESS

GCSAA updates BMP creation

 The Golf Course Superintendents Association of America (GCSAA) recently streamlined a process to enable golf course superintendents to efficiently create a facility best management practices (BMP) manual.

The creation of facility BMP manuals is part of GCSAA's BMP Initiative, which began in 2017. By the end of 2020, all 50 states established BMP guidelines. These state guidelines provide the blueprint for facility manuals and cover key areas such as water management, integrated pest management and pollinator protection.

New enhancements center around a new approach where GCSAA members log into the GCSAA Facility BMP Planning Guide to receive a facility BMP

modeled from their state guidelines. Superintendents can then customize the facility BMP document to fit the needs and circumstances of their own facility.

With the update, GCSAA members now have a document to customize with text and photos documenting management practices at their facility. GCSAA says the update will not affect existing manuals.

GCSAA has provided a series of how-to videos and webinars to walk superintendents through the customization process. In addition, GCSAA-affiliated chapters will continue to host workshops and seminars to help members succeed in creating their manuals.

//FROM THE ROOTS UP

GCSAA GIVES OUT THREE GRASSROOTS AMBASSADOR AWARDS

 The Golf Course Superintendents Association of America (GCSAA) announced three recipients of its Grassroots Ambassador Leadership (GAL) Award, including Parker Ferren, CGCS, director of golf course and grounds maintenance at Copperleaf Golf Club in Bonita Springs, Fla., Lydell Mack, CGCS, director of operations at Big Canoe Golf Club in Jasper, Ga., and Steven Murphy, golf course superintendent at the Ole Miss Golf Club in Oxford, Miss.

The GAL Award recognizes and honors individuals who have demonstrated growth in advocacy and advancement of the GCSAA Priority Issues Agenda through congressional outreach and relationship development with a member of Congress.

- Ferren earned the honor for his work in the development and implementation of Florida's golf course best management practices (BMP) guidelines.
- Mack, a member of the Georgia GCSA Board of Directors, works with Rep. Andrew Clyde (R-Ga.) to discuss issues for the golf industry, including the importance of the H-2B visa program.
- Murphy is paired with Sen. Cindy Hyde-Smith (R-Miss). Through the program, Murphy has used his platform to get ahead of the negative press in his district in Mississippi.



Parker Ferren



Lydell Mack



Steven Murphy

//ADDED TO THE TEAM

MUNRO ADDS TO ITS SALES TEAM

Munro, manufacturer of pumps, pump controls, and pump stations recently named David Busby as its new Southwest regional account manager and Samantha Butero as its Pacific Northwest regional account manager. The company says that the two will work closely with its network of distributors.



David Busby

Busby has more than 27 years of sales and account management experience in the industry.



Samantha Butero

Butero holds more than 25 years of experience in management and development. She has worked with contractors and specifiers in numerous industries.

//EAST COAST CONTROL

UNDERHILL ADDS REGIONAL SALES MANAGER

Underhill International recently added Jason Schwartz as its new east coast regional sales manager.

Schwartz currently resides in Florida and holds over 17 years of experience in both distributor and manufacturer sales.

He has managed sales for multiple manufacturers across various industries and markets in the golf, turf, agriculture and landscape sectors.

2023 *Golfdom* Summit Dec. 6-8

Now in its 12th year, the *Golfdom* Summit annually hosts 45 superintendents for 2-1/2 days of education, demonstrations and networking. Attendees can expect to meet with 15 of the magazine's most valued partners to discuss how their products can help them at their courses. *Golfdom* covers all expenses, including travel to and from Reunion Resort in Orlando. To apply, visit Golfdom.com.

Golfdom Summit

Ask Thad

BY THAD THOMPSON

Superintendent
Terry Hills GC, Batavia, N.Y.



I'm in year four at a club with a decent budget. Three years in a row, the same guy seeks me out every July to tell me I'm letting everyone down and the previous superintendent never had this problem or that problem ...

I hate it but I'm already anticipating him coming after me again. Is there anything I can say to him that lets me feel peace, without getting him to call for my job?

— Anonymous

Everyone — and let me repeat that — everyone has that one member. You know who I'm talking about.

In 1999 I started a job in the Fingerlakes Region of Central New York. That summer was one of the hottest, driest years that I ever worked, and the club had recently “upgraded” our irrigation.

I also had *that guy*. He was a lawyer, who criticized every move I made. *Every. Single. Move.*

Once, I witnessed a screaming match between him, the club president and the greens chairman — obviously about my performance. They reassured me I was on the right track, and they were behind me.

Everyone who's been in the business for a while knows what happened next. At the annual election board meeting, he was named my greens chairman. I almost quit that night.

Instead, I brought him into my world. All the problems, headaches and challenges we had, he got to know intimately.

He and I worked diligently together at his law office to put together a PowerPoint presentation for a complete irrigation system upgrade. We broke ground on the project in the Fall of 2003.

My harshest critic became one of my best friends and, in some ways, a terrific mentor. He became very invested in the club and was one of the best advocates I could have ever asked for. If you ever read this, Thanks, David.

The best advice I can give anyone is to involve that guy. Kill them with kindness and always tell them that you sincerely hope they have a nice day.

Got a question for Thad? Tweet to @TerryHillsMaint and @Golfdom or email Thad at thadthompson@terryhills.com

// GROWING THE GAME

USGA HIRES PATHWAYS INTERNS FOR US OPEN WEEK

➔ The USGA hired 20 students from underrepresented communities for its 10-day Pathways Internship Program, held during U.S. Open week at Los Angeles Country Club.

Launched in 2022 as the Lee Elder Internship, the career training program returns as part of the USGA's community engagement strategy that aims to utilize USGA resources to propel a healthier future for the game.

“The Pathways program helps to break down barriers to the game and is critical to funneling more individuals with diverse backgrounds and talents into golf,” said USGA CEO Mike Whan. “I know future leaders of our game exist among this year's class, and I

can't wait to get to Los Angeles to see them in action.”

Following the program's announcement in December 2022, the internship committee received more than 300 applications.

Ranging from sophomore to graduate students, the interns will travel to Los Angeles for the program that highlights a variety of career paths through job shadowing and networking with industry leaders.

On-site at LACC, students will hear directly from USGA leadership and shadow USGA team members across all championship functions, including course setup and operations.



#TurfTweetoftheMonth

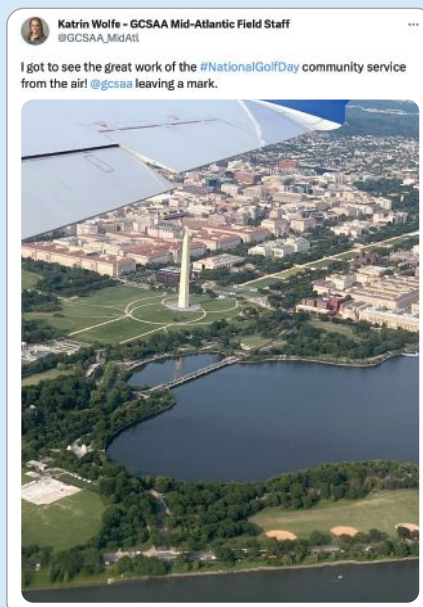
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The Golfdom

FILES

FROM THE ARCHIVE

Since their invention in the 1950s, the golf car has come a long way, growing into a \$2 billion industry that continues to expand today.

Looking back to the October/November 1969 issue of *Golfdom*, two country clubs in Oklahoma and Texas worked to prepare their car paths for the continuing popularity of golf cars. For the full article, visit golfdom.com/exclusive.

Paving the way for the golf car bonanza

By 1970, estimates say that, in the United States, more than 10,000 public and private golf courses will serve thousands of golf addicts, many of whom now are tooling over lush layouts in two-man electric or gasoline cars.

In all but a few instances, the club garage or car shelter has replaced the caddy shack or stockade. This transition to mechanization has brought plenty of new problems with course maintenance for superintendents.

With the advent of golf cars and their increasing numbers, primitive car paths began appearing randomly throughout the fairways of the land, being made of gravel, chat, stone or asphalt. And the problems of maintaining these paths increased along with the number of cars using the paths.

However, two country clubs in Texas and one in Oklahoma, at the latest count, are trying to remedy this situation by replacing these crumbling asphalt trails with concrete.

The luxurious Las Colinas CC in Irving, Tex., located between Dallas and Fort Worth and the scene of the 69th Annual United States Women's Amateur Golf championship, has built approximately four miles of 5- and 10-foot wide concrete trails during the past year.

These car trails run from tee to green on 15 holes of the course. The other three trails will be built later this fall when the golf season slows down.

Sam Moore, Las Colinas pro, says that all concrete trails, along with several prestressed concrete bridges, have replaced the asphalt trails. These trails were built when the club was organized and built in 1964.

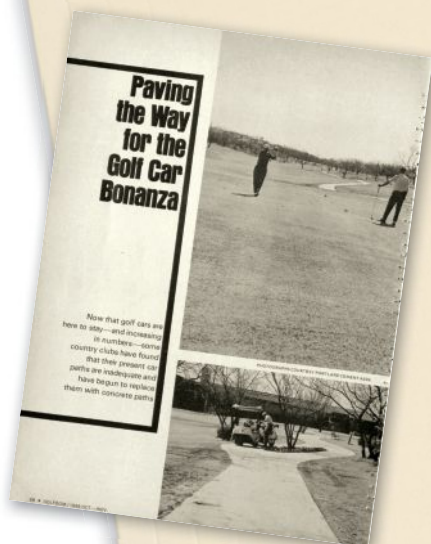
The Quail Creek CC, Oklahoma City,

organized in 1962, originally built several miles of asphalt trails. Now it is replacing them with green concrete trails.

All agree that construction of permanent concrete trails has added to the beauty of their respective courses. Once forms are removed from cured concrete, sod is applied and bare spots, which were almost inevitable around tees, greens and turnarounds, are eliminated.

Both Quail Creek and Las Colinas have developed attractive planting areas featuring trees, perennials and plants.

The design of the trails follows virtually the same pattern on all three courses. Simple excavation work carries out with light equipment, usually a front end loader on a small tractor. Most trails are basically five-foot wide and four inches thick. Wider trails are built around tees and turnarounds. **G**





“What’s even the difference between a renovation and a restoration? Is there one? And if there is, how does that affect the state to which a course is restored?”

ALAN FITZGERALD, CGCS, MG
Rehoboth Beach (Del.) CC

What’s the real difference between renovating and restoring?

The golf construction industry has been booming for the last few years and it looks like there is no immediate sign of it abating. While new construction is on the rise, most of these projects are to bring a course back to its “original design philosophy,” or a more traditional aesthetic.

But what does that really mean? What point in time marks the so-called “original design philosophy”?

Whether it be from something as simple as tree planting by some good-intentioned president or greens chair, to moving entire holes to make way for a new highway, most golf courses have been tweaked since their creation.

I can safely say that I was guilty of this at LedgeRock. We have been “messing” with it from the day we opened in 2006. It is much better for it. It works better in areas where it lacked something. It is playable for more people. And the aesthetics have improved.

A new course only shows

its flaws after it has been played for a while, which means some constant tweaking will get it to where it needs to be.

At LedgeRock, I made all of these changes with the approval of Rees Jones and his associates to make sure that we did not diverge from their original design philosophy.

So, what happens sixty years from now when the then powers that be want to bring the course back to its original state? What time exactly do they go back to?

Do they just renovate what is there? Or do they restore the course back to a specific period?

Restoration vs. Renovation

What’s even the difference between a renovation and a restoration? Is there one? And if there is, how does that affect the state to which a course is restored? I love my analogies, so here it goes!

Think about the best albums ever. The ones where you know the name of the artist just by mentioning it: *Abbey Road*, *Purple Rain*, *Dark Side of the Moon*, *Thriller*, *Nevermind* and *Led Zeppelin IV* (ok that last one is a gimme).

A great “original” golf course is a seminal album — it leaves its mark on the world and every hole is a hit. At the very least, it has one or two

big hits that are so good, they carry the whole course. These courses are the standard for what is good and set a reference point for others to follow and try to replicate.

Here is what I consider the differences between a restoration and a renovation, continuing that album analogy:

• **Renovation: The Greatest Hits album** — The coming together of a lifetime of all an architect’s best ideas, and/or the best of the course’s iterations, and putting them together to take out as many weaknesses as possible.

• **Restoration: The Remastered album** — A restoration of what was there before, just cleaned up and made crisper than it was before.

Following the current trend is only good as long it is fashionable, so it is a constantly changing target. Maybe it takes years of tweaking, but I like to think it just means that the club spent a lot of time in the studio perfecting their album.

One that is so good that future generations should only have to remaster it. So why not strive to be different, ignore the trends and take the time to create your seminal album, so that at the very least it will make it easier for future generations of golfers to pick the prime iteration? **G**

Alan FitzGerald is superintendent at Rehoboth Beach (Del.) CC.



THINKING BIG

BY STARTING SMALL ► BY SETH JONES



PHOTOS BY: EARL RICHARDSON



Two Kansas City golf icons create two new programs to promote junior golf and grow the game

The entire six-hole course resides on less than 1.5 acres of land. The longest hole is 30 yards, greens are 18 feet in diameter and the

cups are 6 inches wide with 5-foot flagsticks.

The course is small. The price is smaller: \$3 to play all day long.

Continued on page 16



Tom Watson and Evey Jones (age 16) watch as Jeff Burey guides Boyd Jones (age 11) on the proper putting stroke.

THE WATSON WAY

Seeing a gap in the way youths are brought to the game, Tom Watson is taking action

Junior golf and growing the game are passions of both Jeff Burey and Tom Watson. While Burey has put his energy into creating the plan for Wee Links golf, Watson has his own brainchild called Watson Links.

Launched last year, Watson Links is a mentorship program that pairs two junior golfers (ages 10 to 18) with two adult mentors, for a free round of golf in the Kansas City area. Administered by the First Tee of Kansas City, mentors must submit a background check through Safe Sports, and attend an orientation regarding supervision, pace of play and other items pertinent to the program.

"It goes back to square one for me, how I started in the game. My father, a good player, gave me a cut-down hickory shaft five iron," Watson recalls. "(With Watson Links) you can go out with a mentor, somebody who has a passion and a love for the game, like my dad did for me."

Watson says that since he first joined the PGA Tour, he's noticed how golf cars have made the number of caddie programs in

the nation decline. It was caddie programs that got people from all walks of life to come into the game, he says.

"I saw that happen and I said, 'I've got to do something to get young people involved in the game,'" Watson says. "If you don't teach kids how to play on the golf course, they'll probably quit playing. The key is to give the kids access to what they can't get to."

Now in its first full season, Watson Links is quickly filling up all its tee times. Watson adds that he has heard from other cities who want to know how they can start the program in their region.

"Right now, we're not getting too far over the tips of our skis," Watson says. "We've certainly had a lot of inquiries from outside of Kansas City, from First Tee programs and non-First Tee programs, to give their kids opportunities. We're providing the fundamental format, the budget it costs to run the program and the specifics of how it works to anyone who wants that information."



"Jeff Burey has spearheaded this. He has the kids coming out here with this (Wee Links) program," Tom Watson says. "I think what we need to do is teach the shorter game. You use the same skills making a small swing as you do a big swing."

PHOTOS BY: EARL RICHARDSON



Burey estimates it costs \$30,000 to \$40,000 to build a Wee Links course. The Wee Links at Heritage Park was paid for by the Midwest PGA Section Foundation, the Barbara Ann Cecile Trust and the Watson Youth Foundation and gifted to the county.

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◀ The addition of the Wee Links course gives the busloads of kids that regularly arrive at Heritage Park a fun, convenient place to learn the game.

Continued from page 13

“Man, what wouldn’t I have given for something like this when I was young?” asks World Golf Hall of Famer Tom Watson. “Three bucks all day. I’d be around this thing all day.”

Introducing Wee Links, a low-cost, easy-to-maintain short course designed to get youth and newcomers to easily transition from hitting balls on the range to hitting them on a golf course. Tee boxes are three-foot by six-foot rectangles of artificial turf, while the rest of the course is natural grass. The six-hole layout can take as short as 20 minutes to play.

“Tom and I were giving a tour of the course one day, and I said, ‘This is just like real golf, only small,’” recalls Jeff Burey, who created the Wee Links concept. “Tom said, ‘Jeff, wait a minute. This is real golf. It is real golf.’ That’s what he loves about it, that kids can transition from practicing to playing a course and learning how to score.”

Hall of famers

A member of the World Golf Hall of Fame Class of 1988, Tom Watson needs no introduction. A Kansas native, his illustrious playing career includes eight major championships, 39 PGA Tour wins and 14 additional wins worldwide. He has won 14 times on the Champions Tour, six of those majors. A six-time PGA Tour Player of the Year, he played in four Ryder Cups and served as captain for two.

The world of golf celebrates him. But in Kansas City, he is as beloved as barbecue.

His colleague in this story is Jeff Burey. Also a Hall of Famer, Burey is a member of both the Midwest PGA Section Hall of Fame and the Kansas Golf Hall of Fame. Burey started his golf career following four years in the U.S. Navy. From 1978 to 1981 he was the head professional at Pinehurst (N.C.) Resort. He worked for 25-plus years as general manager and golf director

Continued on page 18



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Continued from page 16

at Wolf Creek GC in Olathe, Kan. He also worked as the general manager at Prairie Dunes CC in Hutchinson, Kan.

Most any kid in the Kansas City area who has taken some form of a group golf lesson — through the First Tee of Greater Kansas City, Starting New at Golf (SNAG) or a P.E. class — has been instructed by Burey. Even in semi-retirement, junior golf is Burey's passion.

Located at Heritage Park Golf Course in Olathe, Kan., is the Wee Links course. Owned by the Johnson County Parks and Recreation District, Heritage Park was already kid-friendly before Wee Links arrived. Junior golf outings are common. The course will host its second GCSAA First Green Program this summer.

"We have a lot of junior tournaments and a lot of camps. Our summer is busy with all the kids, and the county has a



Jeff Burey says the course at Heritage Park came in under budget thanks to the help of Superintendent Ethan Shamet and his crew. (Inset, left to right) Burey with Rob Wilkin, Ethan Shamet and Bill Maasen. ▶

bunch of summer camps where they'll bring their kids out," says Ethan Shamet, superintendent. "They put those kids on our practice putting green. Now, we can have those kids play here too."

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PHOTOS BY: GOLFDOM STAFF

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Transect Point	Excalibur™	Control
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2	~45	~45
3	~45	~45
4	~45	~45
5	~45	~45
6	~45	~45
7	~45	~20
8	~45	~20
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Transition of power

Two insiders consider the future of battery power on the golf course and the barriers to overcome

BY BRIAN LOVE

In recent years, outdoor power equipment options have grown. One major change is the opportunity to transition from gas-powered equipment to battery-powered and zero-emission tools.

One prime location considering this change? The golf course.

Making the leap to all-electric in 2017 is Arroyo Seco GC, South Pasadena, Calif., an 18-hole, par-three public course, opened in 1955. Hidden in the shady arroyo below the 110 freeway, the course offers local golfers weekday rates of \$22 and evening rates of \$30.

Six years ago it became the first golf course in the United States to receive certification as a Green Zone Golf Course from the American Green Zone Alliance (AGZA). The certification states that the property eliminates health and environmental impacts by successfully transitioning from gas to electric options.

AGZA is an organization that promotes and facilitates low-impact operations and sustainable land care. Its equipment options are compliant with the Environmental Protection Agency and the California Air Resources Board. It offers sustainable landscape maintenance certifications and educational training in battery and electric tools.

“When you have a circular economy for batteries, things are done responsibly,” says Daniel Mabe founder and president of AGZA. “If you close the loop on that, there are so many benefits that come from it. I think that is the future.”



Daniel Mabe

Time for questions

Whenever a course considers a change in equipment, questions arise. That is especially true in the change from gas to battery power.



Michael Cacciotti

Michael Cacciotti, vice chair for the South Coast Air Quality Management District, loves discussing the benefits of battery-powered equipment. The South Coast Air Quality Management District (AQMD) is responsible for regulating stationary sources of air pollution in Southern California.

In addition to his duties with the AQMD, he is a deputy attorney general with the State of California Department of Justice and serves on the South Pasadena City Council.

With states and communities becoming more environmentally conscious, Cacciotti explains that a key selling point for battery-powered devices is that they provide zero-emission rides. Mowers won't emit exhaust or carbon monoxide.

Still, there are more elements worthy of highlighting, he adds, such as runtime.

One of the biggest concerns with battery-powered equipment is how long it can operate on a single charge. Will the equipment run for a full day? Or will there be a need to stop to recharge before reaching the back nine?

“Now that the equipment is so advanced, the battery can handle any operation,” Cacciotti says. “This includes golf courses, driving ranges, parks or soccer fields.”

Cacciotti highlights the power of lithium-ion batteries, a type of battery that is rechargeable and uses lithium ions to store energy. As a plus, adapters can charge multiple lithium-ion batteries at the same time.

Still an emerging technology, lithium-ion has grown in use over the past 10 years, with demand on the rise. According to *Bloomberg*, the global lithium-ion battery market will surpass \$165.65 billion by 2030.

“For superintendents and golf courses, technology is improving every single day,” Cacciotti says. “The transition is parallel to the switch to electric vehicles. When I was in the gas industry, I started to wonder about what pollutants were coming out of

the cars that I worked in. It was stuff like nitric oxide and carbon monoxide. Electric options can improve people's health and welfare."

Infrastructure and cost

A big barrier that superintendents face in the transition is infrastructure. Do these courses have the facilities to accommodate this change?

At Arroyo Seco, the course is in the planning stage of upgrading its electric system to allow devices to properly charge. As Cacciotti explains, the infrastructure must be there.

"I think that it is important to make sure that people understand that the technology will work for them," Cacciotti says. "We're pushing this with incentives for trucks, vehicles and equipment. As I said, golf courses need these infrastructures."

Another question that often pops up is about the amount of maintenance necessary.

For any device to function consistently, parts need to be replaced, cleaned or sharpened frequently. With the elimination of oil, belts and gears, Cacciotti says battery-operated equipment requires less maintenance than gasoline equipment.

He explains that, without these parts, the cost of devices (such as mowers) drops. This can add to the annual savings for a golf course each year. He equates it with the amount of money he saved by being an early adopter of an electric vehicle.

"For 21 years, from 2002 to 2023, I've tracked how much I spent on both maintenance and operational costs on electric options versus gas devices," Cacciotti says. "In that time, I have saved over \$17,000. In addition, I have saved thousands of dollars in operational costs."



Arroyo Seco GC in South Pasadena, Calif., became the first AGZA certified Green Zone Golf Course in 2017 alongside its transition to battery-powered equipment.

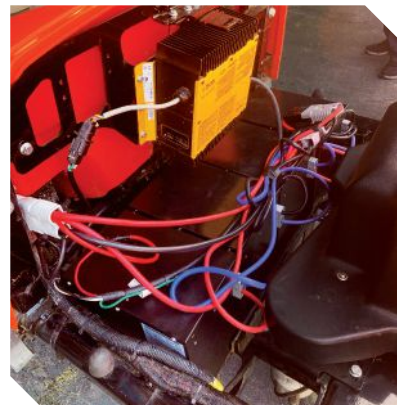
Making the transition

The American Green Zone Alliance primarily serves the lawn care industry, but Mabe is hopeful more golf courses will connect with the organization. Beyond certification, the AZGA offers education and training for facilities interested in lowering the environmental impact of their facilities.

Mabe says the switch to zero-emission equipment is good for the game and for the people in it.

"Not only will the players enjoy these changes, but the front line workers, who manage and maintain the course, will have a much better experience," Mabe says. "And then, of course, there are the positive effects it will have on the environment and nature. Everybody benefits. There are many winners."


Mabe says that a golf course is a vital part of the community. Beyond the greens, tees and fairways are the homes. In some cases, the only separation between residents and a golf club is a fence. He says taking care of the golf course also helps the



Lithium-ion batteries have gained in popularity over the last 10 years, as they offer a longer battery life for operators and the ability to quickly recharge many batteries at once.

nearby homes.

How will golf maintenance change if this transition continues? Mabe hopes it will create a better quality of life for the residents that border the golf course properties.

"This transition will benefit everybody," Mabe says. "I've talked to golfers. They love these changes. When you go out for a round, you get a nice slice of nature. That is what makes golf so enjoyable. It is about getting away from the craziness of life and enjoying a great game." 

Fully charged

Two experts answer our questions on battery-powered equipment in the golf maintenance industry

John Powers

Director of Product Management, Echo

Golfdom: What misconceptions do superintendents have about battery-powered equipment?



John Powers: Battery performance and suitability for professional use. Sometimes, battery-powered tools are considered entry-level homeowner equipment. That can sometimes be the mental image (a superintendent has) that a battery-powered trimmer has a small cutting swath that you might use to cut the lawn at your house.

There's a long history of outdoor power equipment, but the commercial space is a fairly new aspect of it. Sustainability and performance for commercial use didn't exist 10 years ago. It's really picked up more the last five years.

Golfdom: What's the biggest change for a superintendent making the switch to batteries?

Powers: The basic maintenance requirements of the equipment that will change involve the power source itself. Some things will be the same or similar. For example, with hedge trimmers, you'll still need to sharpen and replace blades. That's not really going to change between gas and battery equipment.

Instead, a superintendent will need

to be sure that they have the infrastructure to charge batteries, so they are available when users need them.

Golfdom: What options do superintendents have when upgrading their infrastructure to accommodate battery-powered equipment?

Powers: The superintendent can either buy a large number of batteries, use an overnight charging system and have users replace the batteries throughout the day, or give crews enough batteries for the day.

The other option would be to invest in fewer batteries and then have a way to charge them throughout the day.

There are limitations to both approaches. With overnight charging, you need to have enough outlets and enough power available overnight to charge all your batteries in that period.

Steven Johnson

Regional Sales Manager, Smithco

Golfdom: What misconceptions do superintendents have about battery-powered equipment?



Steven Johnson: The myth with a lot of batteries was don't let it run real low on capacity and then try to bring it back up to charge. It'll lessen the life cycle of the battery. The truth is, with the lithium-ion battery, they have on-board battery

management. If you have a cell that requires 75-percent charge, and the next cell requires 25-percent charge, all it will do is charge those cells equally. The older style chargers could not differentiate between those two items. When you plug them in, you could overcharge a battery and burn it up. That doesn't happen with lithium-ion, the technology in the battery and the chargers. That is why most of these devices come with a 5-year, full replacement warranty.

Golfdom: Tell us about the battery that is in the Sand Star electric bunker rake.

Johnson: It's a 160-amp hour battery, life expectancy of roughly 10 years, 3,600 charging cycles. The electric bunker rake runs on average from 8 to 10 hours, before you have to recharge it.

Golfdom: How long does it take to recharge it?

Johnson: It takes about 11 hours. Traditionally, going out and raking a normal golf course, if it's a one-man operation with around 87 bunkers... that's about a four-and-a-half-hour job, maybe five hours. You could almost use it twice, depending on the commute and the number of bunkers, before you need to charge it again.

Golfdom: What does the charging system look like?

Johnson: It's going to look a whole lot like a traditional charger. We use a Luster charger. Most people are familiar with the Luster brand, it's a common brand and looks just almost identical to a golf car charger. You just plug it in and let it charge overnight, and she's ready to rock and roll the next day. 🏌️

THEY SAID IT

We asked industry pundits how they foresee battery power impacting the golf maintenance industry in the next 5 to 10 years. This is what they said.



Bob Farren, CGCS
Director of Golf
Course Maintenance,
Pinehurst (N.C.)
Resort & CC

“At the rate we are going, it would be more appropriate to speculate on the next 2 to 3 years ... who knows what 5 to 10 years from now will look like? I can easily see all the smaller handheld equipment advantages from a noise perspective and the elimination of gas and oil. My curiosity is the priority. Will it be electric equipment or autonomous equipment?”



Eli Rahz
Director of Agronomy
Lemon Bay GC,
Englewood, Fla.

“We just signed a new equipment package, and we didn’t get into the hybrids or electrics or anything like that yet ... but only because I’m not quite convinced that they’re where we need them yet. But I think in the next couple of years, they’ll be a great addition.”



Alex J Stuedemann
CGCS, Director of
International and TPC
Agronomy, PGA Tour

“The technology has already made great progress and I’m certain it will continue to do so in the future. Reduced fuel usage provides new efficiencies while also presenting well to our clientele. We should also recognize that innovation can come with costs, including expanded capabilities in the maintenance facility to charge equipment.”



Steve Leach
Director of Agronomy,
Gateway National Golf
Links and Stonewall
GC, Madison, Ill.

“I think electric is a pretty cool possibility, based on what I saw at the Golfdom Summit. I know Jacobsen came out with battery-powered equipment before, but these are lithium batteries, which make a lot more sense. I heard they were hoping for 26 greens and they ended up mowing 60 greens on one charge.”



Alan FitzGerald
CGCS, MG,
GC Superintendent,
Rehoboth Beach
(Del.) CC

“We haven’t switched to small battery-powered tools for a few reasons. It does seem like battery storage is getting better every day, so I don’t think it will be long until (battery-powered equipment) performs the way we need it to. I also think we’ll see a big uptake in battery-powered golf cars as performance improves.”



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Shamet says maintenance on the course is minimal. It takes 45 minutes to an hour on days they choose to maintain it. The course was an area of native grass before turning into Wee Links. The crew uses one mower for fairways and greens along with a zero-turn to mow the rough.

Gauging success

The first tee of Wee Links is a short walk from the Heritage Park clubhouse, the practice putting green and the first tee of the main course. For the record, this isn't the first ever Wee Links course — Burey created the original one along with Dave Axland, design associate for Coore & Crenshaw (and another Kansas native), at Twin Oaks Golf Complex in Eudora, Kan., a 20-acre practice facility and par three course he owned for 30 years.

Watson was visiting Twin Oaks to help Burey with a junior golf program when he first saw the Wee Links concept.

"I guess he was smitten with it," Burey says. "He thought this was the answer to get kids to play golf and not just hit balls. So Twin Oaks was the test market, but this one at Heritage Park is the true test market because it's at a real golf course. The future of Wee Links golf is going to depend on its success here."

Rob Wilkin has served as director of golf at Heritage Park for 25 years. He was immediately on board with developing the Wee Links course based on the popularity of the facility with kids.

"You've got to be six years old to be on the golf course proper," Wilkin says. "There's no place for little kids to start. (The Wee Links) will be great for seniors, juniors and beginners. We're in a unique situation with the Johnson County Parks and Rec District. I expect to see busloads of kids come in here as one of their stops along the way to camp. We can now introduce, not just 6-year-olds but 12-year-olds, 14-year-olds, to the game and continue to grow it."

Bill Maasen has worked for Johnson County Parks and Rec for 36 years. He was



▲ "I want to point out how passionate the Johnson County Parks and Rec department has been," says Tom Watson. "They said, 'Yes, we want to do this, there's a great benefit.' And what do they have? 3,500 kids that participate throughout the year."

there when Heritage Park GC was laid out. Now, he works as superintendent of parks and golf courses for Johnson County.

Maasen sees Wee Links as a way to get a younger generation to not only learn golf etiquette and the rules but to fall in love with a game they can play for a lifetime. He believes the model can help other area courses grow its golfing clientele.

"We're going to put a device out here to count the number of people to go through it," Maasen says. "We want to prove that this is being used, and we want this to be a model for other courses in the metropolitan area. Maybe we can lead the way."

Giving back to the game

The official ribbon cutting for Wee Links took place on May 6. Behind the dais, Watson praised Burey for his vision for getting more kids into the game. Local TV news crews filmed as a group took off on the short course.

"I love this because it allows me to maybe contribute something back to the game," Burey says.

The truth is Burey has been giving back to the game since being discharged from the Navy. Burey says he's been contacted by several golf facilities who would like to add Wee Links to their courses. Time will tell.

"An integral part of any facility is to have a beginner-friendly way to introduce the game," Burey says. "Success motivates."

For Watson, he sees the Wee Links course as the way he thinks the game should be taught — start small before going big.

"They can get quickly to the hole, they don't have to be way out there, hundreds of yards, hitting shot after shot before they get to the hole on the green," Watson says. "You start teaching someone from the hole back, not from the tee. Fundamentally, this is the way to start the game, I think." ©



Walt Osborne of Syngenta's Operation Pollinator says the sight of an actively managed hive on the golf course is becoming more common.

Young, wild and bee(s)



Native areas and pollinators, such as honeybees, are a natural partnership that's a win for all involved

BY ROB DIFRANCO

Areas with native grasses and plants have grown in popularity on golf courses over the last decade. These native (or naturalized) areas are useful, in part, because of the scrutiny the industry faces for its water use. But they're also useful for promoting pollinators.

"Small areas can have a very big impact, not only on pollinator numbers but diversity and the overall health of the population," says Walt Osborne, key accounts manager at Syngenta.

Osborne helps to lead Syngenta's Operation Pollinator, which provides superintendents across the country with the resources needed to establish native areas on their golf courses.

Early on in Operation Pollinator's history, Osborne's role was to learn as much as he could about the benefits of native areas, how to implement them on golf courses and then get the ball rolling for interested superintendents.

Now, Osborne serves as the point person for the operation, helping courses through the entire process.

"If (a superintendent) has a question, we make contact, share ideas and try to figure out the best way for them to get established," he says. "To sum it up, I'm here to help ensure success for those who want an Operation Pollinator site on their course."

Get to know the natives

One of several hundred courses partnered with Syngenta's Operation Pollinator initiative is the Ambiente Course at Camelback Golf Club in Scottsdale, Ariz. Osborne says the courses' ownership group, Marriott Golf, has been an eager participant since the program's early days.

"(Marriott Golf) still is (an active participant) and has come forward within our Syngenta group here in the U.S. as an entity willing to answer questions for those interested in the program," he says.

The Ambiente — which is Spanish for 'environment'

— has taken full advantage of Operation Pollinator's resources. After a 2013 Jason Straka-led redesign, the course dropped more than 100 acres of maintained turf in favor of native areas to get ahead of incoming water restrictions in the Arizona desert.

Thom Wilbur, superintendent of Camelback GC's Padre Course says the decision has paid off. The club has seen a drastic cutback in irrigation and labor. Wilbur explains that the changes have allowed the Ambiente to abide by the plan currently in effect in the state.

"The savings (in water usage) have been astronomical," he says. "Here in Arizona, we're going into our fifth water management plan where you only get so many allotted acre-feet of water for your turf. So (the native areas) have really helped us."

Before its redesign, the course was naturally flat, leading to drainage issues. In addition to 100-plus acres of native plants and grass, Straka lowered parts of the course several feet to create drastic elevation changes and aid in drainage.

Wilbur adds that the reduced turf acreage has helped the club save on labor hours after the areas had become fully established.

"For the past six to seven years we've saved a lot because we have just one person that goes out to mow some of those areas twice a year. Other than that, we have tried to just let it do what it wants," he says.

Get to know the pollinators

The native areas at the Ambiente Course feature plants that are only found in the desert, Wilbur says. The course received aid in securing wildflower seed through Syngenta and its partnership with Applewood Seed Co., which supplies mixes based on course geography and climate.

Its unturfed areas also attract bees. Wilbur says the staff at the course takes more of a laid-back approach

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// LET THERE BE ... BEES



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with its six-legged friends — only mowing a few times a year and avoiding applications in the bee's habitat.

"We've gone for a really rough native style in those areas," he says. "We're not spraying anything that might harm them. We don't mow their habitat to avoid harming them. There's a specific area,

approximately a quarter acre, that we have literally never touched."

That's an ideal placement for honeybees according to Osborne.

"Out of the normal flow of play, but still visible, that way it's a shared talking point between golfers," he adds. "Another good spot is sometimes off walking paths between tee boxes (but still out of play). And then, it's also important to make sure they're



Syngenta launched Operation Pollinator in 2008 with the help of researchers at the University of Kentucky. The program has helped establish native areas on more than 300 courses since.

PHOTO BY: WALT OSBORNE

accessible for whatever level of maintenance the course wants to put into them.”

If beehives are visible, it’s a good idea to alert golfers about the site’s purpose, Osborne says. Whether that’s through a posted notification in the clubhouse, or brochures and handouts explaining the benefits of the course.

“Bees are more afraid of you than you would be of them,” he says. “(Golfers should know that) if you leave them alone, they’ll leave you alone.”

Finding the bees

Bringing a hive with thousands of bees onto the course might seem like a daunting task for superintendents without experience with the insect.

That’s where services like the ones Sierra Malnove, owner of Sierra’s Bees in Palm Beach Gardens, Fla., come into play.

“Keeping everyone safe (the bees and the people) is a really big focus of my program,” she says. “I don’t want anyone, including maintenance staff who has to do their work on the course, to have a bad experience with the bees.”

Sierra’s Bees rents hives to golf courses across Florida —

Continued on page 32

Joining the hive



Want to get started with beekeeping? Here’s where to start.

A good place to start if you’re looking to add bees to your course, says Sierra Malnove, owner of Sierra’s Bees in Palm Beach Gardens, Fla., is with a bee lab, or a local beekeeping association. Malnove’s business provides beekeeping services to golf courses and other businesses.

She does add, however, it’s important to vet whomever you plan to bring in

“There are a lot of people trying to do these added value beekeeping operations, so make sure you get references,” she says. “They are boxes of stinging insects and sometimes you can forget that when you’re dealing with them.”

Several university bee labs — including one at the University of Florida (UF) — provide online extension courses for the superintendents who want to go all in and learn to become beekeepers.

The courses offered by UF range from the basics of beekeeping to a “Master Beekeeper Program.”



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James Surico
Senior Assistant Superintendent
North Jersey Country Club, NJ





Continued from page 31

including high-profile courses, such as PGA National in Palm Beach Gardens and Broken Sound Club in Boca Raton. In addition to providing hives, Malnove offers beekeeping services, so maintenance staff doesn't need to worry about handling the insects.

Malnove works with her clients to pinpoint their goals for the hives on the property — whether it's to boost the pollinator population, produce honey or both — and then helps with the installation and setup.

She also makes return trips to provide health checks on the hives, swarm prevention and more.

Malnove's business only serves the South Florida market. For superintendents outside of that area interested in adding pol-

linators, she recommends hopping onto Google and looking for nearby beekeeper associations.

"Local beekeeper associations are a great place to start," Malnove says. "Those associations are going to be connected with all of the beekeepers in your area and will more than likely know someone that can get you on the right path."


Educate the community

Operation Pollinator is about more than beautifying the course, Osborne says. It's a great opportunity to educate your members and the public about the environmental benefits your course offers the community.

"It's visual reinforcement of a golf course's commitment to the environment and sustainability," he says. "You can have a piece of paper that says you're committed to sound environmental practices. But to have actual physical evidence on the course is really a big part of this."

Osborne adds that these areas also offer opportunities for bringing in outside field trips with grade school children in conjunction with the Golf Course Superintendents Association of America's First Green program.

At the end of the day, however, Osborne says there's one vital aspect needed for native pollinator areas to be successful.

"The key factor to success is the enthusiasm of the golf course superintendent," he says. "I'd say 90-plus percent of their job is growing quality turf, but you see them catch that bug once they get started (with native areas) in learning how to establish and grow these sites and then seeing them develop and change over time." 

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Super Science

// NO SLEEP TILL ...

WHY IT'S CRITICAL TO STAY VIGILANT DURING *PYTHIUM* SEASON

By Mike Kenna, Ph.D.

The summer is a sleepless time knowing *Pythium* can strike quickly. *Pythium* disease is a common problem that affects most of our turfgrass species on golf courses worldwide.

Various species of *Pythium* fungus cause it and can lead to significant damage if not appropriately managed. *Pythium* disease thrives in warm and wet conditions, making it particularly troublesome during high humidity or excessive rainfall.

One of the main symptoms of *Pythium* disease on golf courses is irregularly shaped discolored turf patches. These patches often start as small areas of wilted or yellowed grass, which quickly expand and merge, forming larger damaged areas. The affected turf may also have a slimy or water-soaked appearance, indicating the presence of a fungal pathogen.

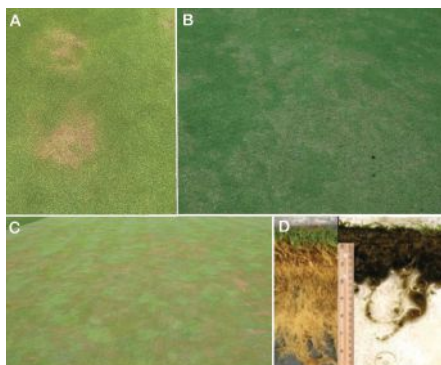
Pythium disease can spread rapidly and wreak havoc on golf courses, especially if left untreated. The fungus attacks the plant's roots, causing root rot and impairing the ability of the grass to take up water and nutrients. As a result, the affected areas become weak, thin and prone to further damage from foot traffic and mowing equipment.

First, to effectively manage *Pythium* disease, focus on cultural practices such as improving drainage, reducing shade and promoting healthy turf growth. This is done through proper fertilization and irrigation practices. These practices help create an environment less conducive to *Pythium* fungus growth.

Fungicides are often needed to control *Pythium* disease, and several are available that specifically target *Pythium* species. Apply these fungicides preventively, especially during periods of high disease pressure, or as curative treatments if the disease is already present.

Daily monitoring and early detection are crucial for effective *Pythium* disease management, so train staff to identify early symptoms and report any signs of disease.

Pythium disease poses a significant challenge for golf course management due to its rapid spread and potential for extensive damage. Golf course superintendents must control the conditions that may cause it with cultural practices, targeted fungicide applications and vigilant monitoring. ©



(A) *Pythium* root rot on creeping bentgrass (B and C) *Pythium* root rot on creeping bentgrass, and (D) healthy versus *Pythium* root rot.

NEWS UPDATES

PURSELL PARTNERS WITH MARION AG TO EXTEND ITS REACH WEST

Pursell Agri-Tech and Marion Ag Service have entered into a strategic marketing agreement that will extend the availability of controlled-release fertilizer in western states. The agreement encompasses market exclusivity of Purkote controlled-release fertilizers through Marion Ag agronomic distribution and blending services within the region. The two organizations have partnered to develop a predictive release software called MASTerGraph, which will assist in developing custom-tailored nutrient delivery plans that improve crop, environmental and financial outcomes for turf customers.

"Our vision is to empower customers to succeed in feeding and beautifying the world. This partnership with Pursell brings that vision into focus and supports our strategic initiative of adding value to our products to increase our geographic reach. We have been working with Pursell controlled-release fertilizers since the mid-90s and are excited to solidify our partnership with them," says John Hockett, CEO of Marion Ag Service.

WE PROMOTED *PYTHIUM* ROOT ROT SYMPTOMS BY IRRIGATING EXPERIMENTS THREE TIMES ... STARTING IN MAY AND CONTINUING THROUGH THE END OF JULY."

Jim Kerns, Ph.D., Lee Butler, Jill Ploetz, Daniel Freund, Brandi Merrick and E.C.A. Kitchin

(see story on page 34)



// CUTTING OUT THE ROT

What fungicides control *Pythium* root rot on creeping bentgrass greens the best?

By Jim Kerns, Ph.D., Lee Butler, Jill Ploetz, Daniel Freund, Brandi Merrick and E.C.A. Kitchen

In 2022, we conducted three *Pythium* root rot experiments at the North Carolina State University Turfgrass Field Lab in Raleigh, N.C., on 'Dominant Plus' creeping bentgrass, maintained as a golf course putting green with a root zone meeting USGA specifications (1,2,3).

We mowed plots six times weekly at 0.150 inches and collected clippings. We fertilized the study with urea at a rate of 0.125 lbs. N per 1000 sq. ft. every other week.

We promoted *Pythium* root rot symptoms by irrigating the experiments three times daily for three minutes at 12:00 a.m., 5:00 a.m., and 5:00 p.m. starting in May and continuing through the end of July.

Individual plots were 3-by-6 feet and arranged in a randomized complete block design with four replications. We applied treatments in water equivalent to 2 gallons per 1000 sq. ft., with a CO₂-powered sprayer equipped with a single AI9508E (TeeJet) nozzle at 50 psi. From there, we irrigated the plots immediately after application with 0.125 inches of water.

We started the treatment programs on June 1, 2022, and reapplied on June 15, June 30, July 27 and Aug. 11, 2022.

We visually assessed *Pythium* root rot symptoms as the percent area of the plot exhibiting symptoms on July 11 and 26 and Aug. 9, 2022. We did an analysis of variance for each experiment and separated means using Fisher's Protected LSD test ($P \leq 0.05$).

EXPERIMENT 1

This experiment evaluated programs for the control of *Pythium* root rot (1). We first observed disease symptoms on July 11, with peak pressure occurring on Aug. 9 for the untreated controls averaging 15.25 percent *Pythium* root rot within the plots (Table 2). On July

26 and Aug. 9, all treatments provided excellent suppression of *Pythium* root rot compared to the untreated control.

All treatments significantly suppressed *Pythium* root rot throughout this trial when comparing AUDPC values (Table 2). However, treatment two had significantly more disease than treatments

TABLE 1

Product information for the fungicide treatments in the three North Carolina State University experiments.

Product Name	Active Ingredient	FRAC group	Company
Serata 20 WDG	Picarbutrazox	U17	FMC
Segway 3.33 SC	Cyazofamid	21	PBI-Gordon
Subdue MAXX 2 ME	Mefenoxam	4	Syngenta
Signature Xtra 60 WDG	Aluminum Tris (O-ethyl phosphonate)	P07	Envu
Appear II 4.1 SC	Potassium Phosphite	P07	Syngenta
Fame 3.98 SC	Fluoxastrobin	11	FMC

TABLE 2

Fungicide programs for controlling *Pythium* root rot on creeping bentgrass putting greens.

Treatment program	Treatment, formulation, and rate per 1000 sq. ft.	Application Code ²	Pythium root rot severity (percent)			
			July 11	July 26	August 9	AUDPC ³
1	Serata 20 WDG 0.6 oz. Segway 3.33 SC 0.45 fl. oz.	AEI CGK	0.00 b ⁴	0.00 b	0.00 b	0.00 c
2	Segway 3.33 SC 0.45 fl. oz. Subdue MAXX 2 ME 1 fl. oz. Serata 20 WDG 0.6 oz.	AEI C GK	2.00 ab	0.43 b	0.03 b	14.03 b
3	Segway 3.33 SC 0.45 fl. oz. Subdue MAXX 2 ME 1 fl. oz. Serata 20 WDG 0.6 oz.	AG CI EK	0.00 b	0.38 b	0.40 b	1.74 c
4	Segway 3.33 SC 0.45 fl. oz. Serata 20 WDG 0.6 oz. Signature Xtra 60 WDG 4 oz.	AEI CGK ACEGIK	0.00 b	0.38 b	0.25 b	1.34 c
5	Segway 3.33 SC 0.45 fl. oz. Serata 20 WDG 0.6 oz. Appear II 4.1 SC 6 fl. oz.	AEI CGK ACEGIK	0.00 b	0.08 b	0.03 b	0.57 c
6	Untreated control	—	5.30 a	7.75 a	15.25 a	233.40 a

² Application code indicates date of each treatment: A-1 Jun, C-15 Jun, E-30 Jun, G-13 Jul, I-27 Jul, and K-11 Aug

³ AUDPC represents Area Under Disease Progress Curve.

⁴ Means within columns followed by the same letter are not significantly different according to Fisher's Protected LSD test ($P \leq 0.05$)

Research Takeaways

- Serata, Subdue and Segway treatment combinations provided excellent control of *Pythium* root rot in North Carolina during July and August 2022 compared to the untreated control.
- Serata alone and in tank mixtures were effective for the preventative and curative control of *Pythium* root rot (see Tables 3 and 4).
- Results for Serata preventing *Pythium* root rot were similar to research conducted at Clemson University.

1, 3, 4 and 5 compared to each other, yet still better than the untreated control.

EXPERIMENT 2

We evaluated Serata (FMC) alone and in tank mixtures for the preventative control of *Pythium* root rot on creeping bentgrass putting greens (2). The disease developed naturally in July.

Treatments containing Serata and Segway (PBI-Gordon) suppressed *Pythium* root rot preventatively, regardless of application rate (Table 3). In comparison to Serata, Segway provided similar preventative control for *Pythium* root rot until Aug. 9.

All treatments suppressed *Pythium* root rot compared to the untreated control across all rating dates and when comparing AUDPC.

EXPERIMENT 3

In this last experiment, we evaluated Serata alone and in tank mixtures for the curative control of *Pythium* root rot on creeping bentgrass putting greens (3). The disease developed naturally at the end of June. However, disease severity was relatively minor, averaging about 3.8 percent in this trial (Table 4).

Segway reduced *Pythium* root rot severity when compared to the untreated control, yet did not provide statistically similar suppression to Serata based on AUDPC values. Serata provided exceptional control of *Pythium* root rot regardless of rate or tank-mix partner on all rating dates and when comparing AUDPC.

In 2022, a similar trial conducted by

TABLE 3

Serata alone and in tank mixtures to prevent *Pythium* root rot on creeping bentgrass greens.

Treatment, formulation, and rate per 1000 sq. ft.	Application Code ²	Pythium root rot severity (percent)			
		July 11	July 26	August 9	AUDPC ³
Serata 20 WG 0.6 oz.	ACEGI	0.00 b ⁴	0.00 b	0.00 c	0.00 c
Serata 20 WG 0.8 oz.	ACEGI	0.00 b	0.00 b	0.00 c	0.00 c
Serata 20 WG 0.6 oz. + Fame 3.95 SC 0.36 fl. oz.	ACEGI ACEGI	0.00 b	0.00 b	0.00 c	0.00 c
Segway 3.33 SC 0.9 fl. oz.	ACEGI	0.3 b	0.00 b	1.3 b	8.1 b
Untreated control	—	7.9 a	6.0 a	3.3 a	172.7 a

² Application code indicates the date of each treatment: A-1 Jun, C-15 Jun, E-30 Jun, G-13 Jul, I-27 Jul.

³ AUDPC represents Area Under Disease Progress Curve.

⁴ Means within columns followed by the same letter are not significantly different according to Fisher's Protected LSD test ($P \leq 0.05$).

TABLE 4

Serata alone and in tank mixtures to curative *Pythium* root rot on creeping bentgrass greens.

Treatment, formulation, and rate per 1000 sq. ft.	Application Code ²	Pythium root rot severity (percent)			
		July 11	July 26	August 9	AUDPC ³
Serata 20 WG 0.6 oz.	ACEG	0.8 bc ⁴	0.5 bc	0.5 c	16.4 c
Serata 20 WG 0.8 oz.	ACE	0.00 c	0.00 c	0.00 c	0.00 c
Serata 20 WG 0.6 oz. + Fame 3.98 SC 0.36 fl. oz.	ACEG ACEG	0.00 c	0.00 c	0.00 c	0.00 c
Segway 3.33 SC 0.9 fl. oz.	ACE	2.5 b	2.0 ab	4.6 b	80.1 b
Untreated control	—	1.8 bc	2.0 ab	7.5 ab	94.6 a

² Application code indicates date of each treatment: A-30 Jun, C-13 Jul, E-27 Jul, G-11 Aug.

³ AUDPC represents Area Under Disease Progress Curve.

⁴ Means within columns followed by the same letter are not significantly different according to Fisher's Protected LSD test ($P \leq 0.05$).

researchers at the Pee Dee Research and Education Center at Clemson University provided similar results (4). *Pythium* root rot developed naturally across the experimental site in late June into early July. They observed disease progression resulting in uniform symptom development in late July and early August.

On July 7, Serata 0.6 fl. oz., Serata 0.4 fl. oz. + Fame 0.36 fl. oz., and Segway 0.67 fl. oz. all reduced *Pythium* root rot compared to the untreated control. During peak disease pressure on July 29 and Aug. 5, all treatments reduced *Pythium* root rot compared to the untreated control.

Their results show that Serata offers comparable control of *Pythium* root rot disease to Segway and that tank mixing at a lower rate of Serata (0.4 fl. oz.)

with Fame SC 0.36 fl. oz. can provide comparable control to higher rates of Serata or Segway alone. 📌

Jim Kerns, Ph.D., Lee Butler, Jill Ploetz, Daniel Freund, Brandi Merrick and E.C.A. Kitchin. Department of Entomology and Plant Pathology North Carolina State University. For more information, please get in touch with Kerns at jkerns@ncsu.edu.

References

- Butler, E.L., J.N. Ploetz, D.R. Freund, B.C. Merrick, E.C.A. Kitchin, and J.P. Kerns. 2022. Evaluation of fungicide programs for the control of *Pythium* root rot on creeping bentgrass greens. *Plant Disease Management Reports*. 17:T012.
- Merrick, B.C., J.N. Ploetz, D.R. Freund, E. L. Butler, and J.P. Kerns. 2022. Evaluation of Serata alone and in tank mixtures for the preventative control of *Pythium* root rot on creeping bentgrass putting greens. *Plant Disease Management Reports*. 17:T013.
- Ploetz, J.N., D.R. Freund, E.L. Butler and J.P. Kerns. 2022. Evaluation of Serata alone and in tank mixtures for the curative control of *Pythium* root rot on creeping bentgrass putting greens. *Plant Disease Management Reports*. 17:T014.
- Roberts, J.A., L. McBride, K. Russ, and A. Lynn. 2022. Evaluation of Serata for *Pythium* root rot disease prevention in creeping bentgrass maintained as a putting green. *Plant Disease Management Reports*. 16:T008.



It's crucial to know which style of cup cutter blade — inside sharpened or outside sharpened — is best for your greens.

Best practices for using cup cutters

Superintendents should keep in mind a few things in order to achieve clean, precise edges

By Chris Lewis

As superintendents utilize cup cutters this summer, Jake Mendoza stresses the most important practice they should remember is that their blades must remain sharp.

A superintendent himself, serving at Sugar Grove, Ill.'s Rich Harvest Farms, Mendoza adds that "a sharp blade is the key to a clean, precise edge." If a cup's edge isn't as accurate as possible, it could have dents or imperfections that will negatively impact a cup's lip.

"While preparing their sites, before utilizing a cup cutter, superintendents must ensure the surface is free of debris," Mendoza says. "They also have to make sure that the hole is in the correct location, especially if they're using a pin sheet or rotating holes."

TAKE CARE

Mendoza urges superintendents to transport cup cutters as carefully as possible in their golf carts to prevent any potential damage. In doing so, their cup cutters' blades

will remain very sharp.

To achieve their cup-cutting goals — particularly clean, precise edges — Mendoza adds that superintendents have quite a few options to choose from. However, he also stresses that their choice is a personal preference.

"In the end, they all do the same job, but in different ways," he emphasizes. "Some have scalloped blades, while others have straight blades. On the other hand, some have blades on their exterior edges, while others have blades on their interior edges."

With so many cup cutters to choose from, Mendoza believes that superintendents must determine which one is the most comfortable for them to use and they should verify which one is the most ideal for their specific sites.


"A crisp, clean edge is the goal, but there are so many ways to achieve that," he says. "Superintendents need to find whichever cup cutter works for them and their sites." 

PHOTO COURTESY OF PAR AIDE

Par Aide Products Co.

DAN BROWN

Sales and Marketing Manager



Successful cup cutting begins with a great hole cutter, but other best practices are just as critical. First and most importantly, superintendents must maintain a sharp blade. Whether they're using inside sharpened (sand-based greens) or outside sharpened blades (push-up greens), sharpness is essential. To maintain blades' sharpness, superintendents can use a hole cutter mount, fastened to their utility vehicle — a great space saver that also protects blades during transportation. Another best practice is the utilization of depth gauges and cup setters, which ensure cups are cut and set to proper depths. Other great tools for perfectly cut cups are the hole cutter guide, cup auger and cup hole trimming scissors. Finally, by painting cup holes' edges with the 360-hole painter, superintendents can quickly and affordably elevate their courses' look and feel.

Standard Golf Company

MATT PAULI

Vice President,
Director of Marketing



While choosing the most suitable hole cutter, superintendents must know which type of green they have. For USGA-spec greens, they typically use an interior, sharpened shell. For push-up/clay-based greens, an exterior, sharpened shell is the most ideal. Once superintendents determine which shell they should use, they'll need to keep it as sharp as possible. This ensures that cuts are precise and that turf slices, not tears. Dull blades often lead to cuts with more of an egg shape — an issue they can avert altogether, simply by implementing proper maintenance. Superintendents should also use a hole cutter guide whenever they cut cups. By using a rugged, lightweight and powder-coated aluminum base that sits on greens, they'll protect their turf from the additional stress of twisting feet, which occurs during aggressive cutting. Furthermore, a guide will include a template for the hole cutter to guarantee that straight, crisp cuts occur.

Par West

CHRIS NORMANDIN

President and CEO



First off, only a trained golf course superintendent should conduct cup cutting, as it must occur in a cautious, meticulous and professional manner. And every superintendent must transport their cup cutter properly — in the cab of their transport vehicle, preferably with a rubber mat in order to protect its cutting edge — and then store it in an edgeless container. Each superintendent should also bring some green sand with them as they cut cups. Or they can purchase a ball marking tool to mesh the plug edges with the green surface while using a cup plugger. Superintendents must determine which hole cutter (clay-based or sand-based) and blade is best for their particular soil, too.

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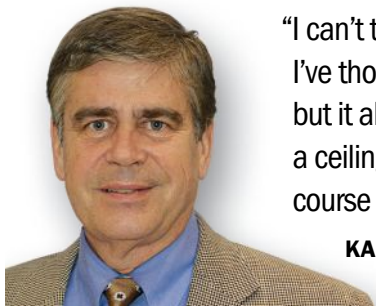
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"I can't think how many times over the years I've thought, 'It can't get better than this,' but it always does. I don't believe there is a ceiling on what can be achieved in golf course management."

KARL DANNEBERGER, PH.D., *Science Editor*

A unique opportunity to watch a golf course evolve

For the 48th consecutive year, Muirfield Village Golf Club in Dublin, Ohio, hosted the Memorial Tournament, a PGA Tour event. The course itself opened in 1974, the same year the tournament began. The Memorial is unique in several ways, one being that it is one of only four PGA events played at the same golf course since its inception.

The Memorial at Muirfield is the third oldest behind the Charles Schwab Challenge at Colonial Country Club in Fort Worth, Texas (1946) and the Sony Open in Hawaii at Waialae Country Club in Honolulu (1965).

The fourth tournament, the Valspar Championship at Innisbrook Resort and Golf Club in Tampa, Fla., first opened for play in 2000.

A couple of notables not included are The Masters, first held in 1934 at Augusta (Ga.) National Golf Club, and the AT&T Pebble Beach (Calif.) Pro-Am. The Masters is, of course, not considered a PGA Tour-owned or operated event.

On the other hand, the AT&T Pebble Beach Pro-Am, originally known as the Bing Crosby National Pro-Amateur, began in 1937 at Rancho Santa Fe Golf Club in San Diego.

Crosby hosted and donated the initial \$10,000 purse in 1937. Rancho Santa Fe hosted the tournament for five years before World War II began,

and the course closed. After the war, the Pro-Am moved to Monterey Peninsula Country Club.

ALWAYS IMPROVING

A unique feature of hosting a tournament on the same course is the ability to watch and document the growth, changes and maturity of a golf course over time.

The 2023 Memorial was the 39th consecutive iteration of the tournament I've been involved with. The tournament, with one exception — the COVID year in 2020 — occurs on approximately the same dates each year.

This has allowed me to take a mental snapshot of the course and tournament and compare it to past experiences. I want to share some impressions I have had thinking about these snapshots.

Oftentimes, during the tournament, I marvel at the condition and presentation of the golf course. I can't think how many times over the years I've thought,

"It can't get better than this," but it always does. I don't believe there is a ceiling on what can be achieved in golf course management.

ALWAYS EVOLVING

Tournament routines evolve constantly. Efficiency, organization and expertise continue to improve from year to year. The changes may be subtle, but over time accumulate dramatically and raise the bar.

Although change does occur, stability is a characteristic of golf professionals, club managers, tournament directors and golf course superintendents — like Chad Mark, the golf course superintendent at Muirfield Village.

I have noticed over the years the increased responsibilities of the golf course superintendent not only inside the ropes but also outside the ropes in tournament preparation.

Buildouts are a major evolutionary and drastic change that has occurred. An original design aspect of Muirfield Village GC was the construction of mounds and the shaping of green surroundings, allowing patrons to view the action.

Over the last several years, the construction of viewing stands and entertainment boxes — especially on the back nine — has displaced many natural viewing areas. As buildouts grow in complexity and size, the golf course superintendent increasingly takes on some of the responsibility.

I could fill up *Golfdom* with the stories and observations I have seen in the snapshots I have taken at the Memorial. I will end by reemphasizing that routines, sometimes thought of as rigid, are always evolving. The bar always raises when you think you can't do any better. **G**

Karl Danneberger, Ph.D., *Golfdom's* science editor and a professor at The Ohio State University, can be reached at danneberger.1@osu.edu.

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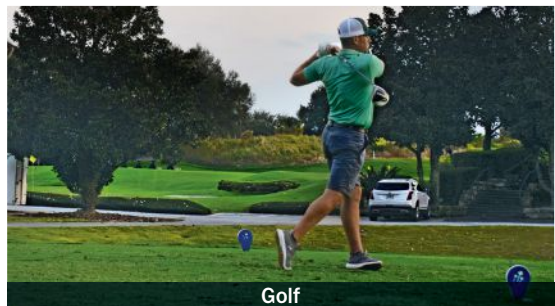
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How scouting for silvery thread moss can prevent bigger issues

A foe of cool-season putting greens, this moss can spread easily and turn a small patch into an outbreak on your course

By Christina Herrick

Silvery thread moss thrives on putting greens with cool-season turf. Putting greens, with low mowing heights, frequent nitrogen applications and intensive surface management techniques — such as brushing and grooming — create a perfect oasis for this moss to survive, says Zane Raudenbush, Ph. D., turf and herbicide specialist at the Davey Institute.

Raudenbush says the species of *Bryum argenteum* found on golf courses is more vigorous and well-adapted to the microclimate of a green. While most mosses need water to survive, this species can go for long periods without water.

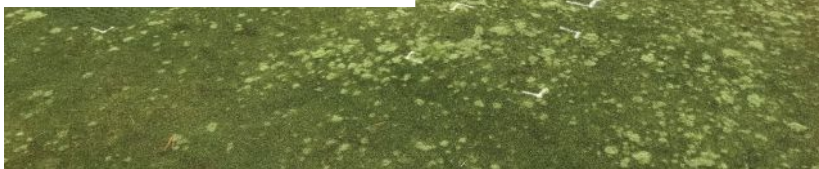
Dew and fog can also provide silvery thread moss with the water it needs to thrive on putting greens. The low mowing height of putting greens helps moss compete with putting green turf. In other areas of the course, moss can't outcompete turfgrass.

One thing superintendents should know and understand, Raudenbush says, is research also shows that plant growth regulators can exacerbate moss on putting greens.

"So here you have the moss that can kind of grow freely in among plants whose growth is heavily regulated and now maybe you get some ball marks, or you lose some turf to dollar spot or wilting, and the turf isn't able to recover," he says.

MOVES EASILY

Raudenbush says silvery thread moss produces buoyant vegetative structures that can spread easily from one putting green to another. Golfers' shoes, equipment and



(Inset) Silvery-thread moss on creeping bentgrass. (Main photo) This field study evaluated the effects of hollow-tine aerification with drench applications of dish soap.

heavy rain events can move these structures to newer parts of the course.



Zane Raudenbush

"A lot of practices that disrupt the canopy and move those propagules (vegetative structures that detach from a plant to create a new one) around with things like brushing and grooming," he says. "When you look at a quarter-size colony of moss, each one of those shoots can start a whole new colony."

That's why Raudenbush says it's important for superintendents to scout for moss. He encourages superintendents to use a cup cutter and cut out those small patches before they spread.

"(Superintendents) definitely should not underestimate the value and usefulness of mechanically removing those colonies when they notice them," he says. "It's much easier to mechanically remove them early instead of letting them have 10 percent or 15 percent infestations, where mechanical removal isn't so feasible."

CONTROL METHODS

Raudenbush says removing small patches is the best approach to controlling silvery thread moss. He says superintendents should also consider reducing water use.

"I tell people to look closely and do whatever they can do to try to keep the surface dry," he says. "But unfortunately, it grows in places that need water."

There are long-term results with a carfentrazone-ethyl herbicide, he says.

"The moss might have been really happy and very competitive when applying the herbicides," he says. "Now the competition favors the grass because the moss is injured, and maybe there are some practices you can do that will encourage the grass to outcompete the moss."

Raudenbush says he's also seen success using soap. He says the soap also doesn't harm the surrounding turfgrass.


"With Dawn dish soap, I was mixing it at two ounces of soap per gallon of water," he says. "I use a watering can with a shower head nozzle, and directly apply it to the surface." 

PHOTO BY: ZANE RAUDENBUSH, PH. D.



“Fungicides are cheaper, easier to store and more simple to apply than microbial inoculants, which can complicate a turfgrass manager’s job.”

MIKE KENNA, PH.D., *Research Editor*

Behind the scenes of alternative pest management research

One of the many goals of USGA research in the 1990s was to evaluate alternative pest management strategies. With so much negative publicity about pesticides, the hope was to reduce the pesticides needed to maintain golf courses.

The USGA provided funding for the evaluation of these alternative methods. Even though researchers have devoted time and effort to biological control, there are very few scientifically documented cases where these methods perform as well as their pesticide counterparts.

A fascinating project during this research was the biological control of turfgrass diseases under Eric Nelson, Ph.D., at Cornell University. He focused on *Enterobacter cloacae*, a bacterium that protects plants from soil-borne pathogen infections.

It is particularly effective in preventing diseases in turfgrass, such as those caused by *Pythium* species, *Magnaporthe poae*, and *Sclerotinia homoeocarpa* — for example, *Clarireedia* spp., also known as dollar spot.

DEACTIVATING PYTHIUM

Nelson did not know the mechanism by which *E. cloacae* suppresses plant diseases. However, previous work indicated that *E. cloacae* have traits related to the suppression of seed and seedling rot caused by *Pythium ultimum*. *Pythium*

species respond rapidly to germinating seeds and growing roots is a crucial aspect of their interaction with plants.

Pythium species rely on specific molecules called exudates to infect plants. Interfering with the production and activity of these stimulatory molecules can be an effective biological control mechanism against *Pythium* diseases.

Nelson’s research explored the possibility that *E. cloacae* suppress *Pythium* diseases by deactivating these stimulatory molecules. *E. cloacae* can utilize seed exudates from various plant species as a carbon and energy source while reducing their activity on *Pythium ultimum sporangia* within a few hours.

Nelson’s research identified unsaturated, long-chain fatty acids in plant exudates as the primary molecules that elicit *Pythium* responses. Analysis of these exudate fatty acids revealed that linoleic acid is the most abundant unsaturated fatty acid found in exudates from different plant species.

FURTHER RESEARCH

To investigate the relationship between fatty acid metabolism and bio-

logical control processes, Nelson used a molecular genetic approach to generate mutants of *E. cloacae* deficient in fatty acid metabolism. These mutants could no longer suppress *Pythium ultimum* in bentgrass tests, indicating the importance of fatty acid metabolism in biological control activity.

The findings also suggest that the inactivation of fatty acid germination stimulants could be a vital mechanism biocontrol agents use to interfere with pathogens. Screening methods for effective biocontrol organisms could consider the ability to inactivate these stimulants.

Biological control of turfgrass diseases using microorganisms has faced disappointments. Despite the availability of diverse and effective microorganisms in research labs worldwide, companies have commercialized few beneficial inoculants.

THE SLOW GAME

The industry has also been hesitant to adopt biological control for a handful of reasons.

Introducing unfamiliar and more complex biological technologies requires additional knowledge and skills.

Fungicides are cheaper, easier to store and more simple to apply than microbial inoculants, which can complicate a turfgrass manager’s job.

To address this, niche markets like regulated areas, golf courses and organic turf management can be explored. However, small companies lack licensing and development resources, hindering microbial commercialization.

Many available microbial products lack research and credibility, so caution is advised when selecting them. Replace ineffective products with researched strains and application technologies to effectively use them. ©

Mike Kenna, Ph.D., retired director of research, USGA Green Section. Contact him at mpkenna@gmail.com.

The Shop

// MUST-HAVE NEW PRODUCTS



1 525iLST

The 525iLST string trimmer from **HUSQVARNA** offers a high-performance professional battery grass trimmer that's lightweight, well-balanced and achieves both a clean and precise cut. The machine is designed for full-time use and is complete with an 18.1-inch cutting diameter. This trimmer is also equipped with a metal skid plate to protect the motor from daily wear and tear. All items in the company's 525i battery series come equipped with a Husqvarna E-Torq motor which supplies the power needed to meet the performance of 25cc petrol equivalents while exceeding them in torque.

[Husqvarna.com](https://www.husqvarna.com)

2 CS-4010

The CS-4010 41.6 cc rear handle chainsaw from **ECHO** offers more power and lower emissions. The new i-30 starter reduces starting effort by 30 percent. The saw is also 0.7 lbs. lighter and features 13 percent more power than its predecessor — the CS-400. The saw also comes with a two-year commercial warranty for purchasers.

[Echo-USA.com](https://www.echo-usa.com)

3 MS-1000 spray reel

Based on the 1000 Series reel, the MS-1000 from **HANNAY REELS** is a lightweight, compact manual reel with a design that features mounting holes on the inside of the reel base versus the outside. This allows it to fit in smaller areas and tight spaces. The crank handle also has a shorter knob for easier access. The MS-1000 is ideal for pressure washing, washdown and general spray operations.

[Hannay.com](https://www.hannay.com)



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4 | GPS PrecisionSprayer

The **JOHN DEERE** GPS PrecisionSprayer increases application accuracy and consistency, decreases input costs and reduces operator fatigue. Automated individual nozzle control allows operators to turn boom sections on and off with AutoTrac Guidance, limiting manual labor and wasted product from pass-to-pass overlap while spraying in less time. Users can create coverage maps that can be shared with multiple units, eliminating application overlap.

Deere.com

5 | SLF1 ELITE

Sixty million hours of ELITE lithium use has helped create **JACOBSEN's** SLF1 ELITE, a five-reel fairway mower that gives users 5-1/2 hours of operation per charge with a 500 plus amp-hour ELITE lithium battery, powered by Samsung SDI lithium technology. Operator environment benefits include lower noise output and vibration while no hydraulic oil, reduced serviceable parts, virtually maintenance-free components, a remote-ready onboard monitoring system, lockable speed and Jacobsen's FOC controls.

Jacobsen.com

6 | M12 brushless pruning shears

The M12 brushless pruning shears from **MILWAUKEE** deliver fast and controlled pruning while reducing fatigue. The shears deliver the power to cut 1-3/4-inch branches while reducing muscle effort compared to manual solutions with their inline, lightweight design. Mode select delivers users control and efficiency by providing the ability to set blades to half of the maximum capacity increasing application speed by 40 percent. Active Blade Control with advanced trigger tracking technology allows the blade movement to follow trigger movement, providing the ability to adjust and optimize cut capacity in an application.

MilwaukeeTool.com

The 19th Hole



Eli Rahz

DIRECTOR OF AGRONOMY // Lemon Bay GC, Englewood, Fla.

Eli, drinks are on me — what are you having? I'll have a bourbon ... do they have Basil Hayden here?



What should I know about Lemon Bay? We're in the tenth week of a full-course Drew Rogers renovation. Everything from irrigation up is being worked on. We shut down on April 3 and are scheduled to open on Dec. 1. I'm so fired up to see how this course looks when Drew is finished. It's going to be incredible.

You're married with kids, right? Yes, I have an amazing wife, Amanda. She followed me down here from Saucon Valley (CC, Bethlehem, Pa.). We have two children; Gwyndolyn is 8-1/2 and Penelope is 3-1/2.

What do the girls like to do for fun? Every Saturday morning, I wake up and ask two things: "What do you want for breakfast?" and "What do you want to do today?" They always say, "Go to your work!" They love the golf course.

That's exactly what you want to do on your day off, right? Honestly, Lemon Bay is an amazing place. The people here are genuinely nice and friendly. I don't mind it.

BROUGHT TO YOU BY



// BEST ADVICE

"I WORKED FOR CHAD MARK AT KIRTLAND CC. HE TOLD ME, 'THE GRASS WANTS TO GROW.' SOMETIMES YOU GET SPUN UP INTO TRYING TO SOLVE PROBLEMS, WHEN REALLY YOU NEED TO JUST TAKE A STEP BACK."

Do you have anything in your office that is especially sentimental? Last Father's Day, my daughters built this little cigar box-looking thing ... On it reads "We love you, Dad." I keep my Expo markers in there. Whenever they come over, they open them and color.

What sports teams do you root for? I'm still hanging on to my old Ohio allegiances, the Browns and Guardians. I root for the Buckeyes, even though I'm a Rutgers grad. Since I've moved to Florida, we've taken the Tampa Bay teams — it's been pretty easy with all the championships they've had recently.

What's the hardest part about moving south? The difference in grass types, the weather or the lifestyle? All three. You must balance

your life here because we don't get that extended period where the course is closed, and you have to rein it in some. I learned that early on. At my first aerification, I wasn't satisfied with how fast we were going. I jumped in and pushed the pace. I worked myself into not being able to come in the next day — I was throwing up and dehydrated. I was a mess.

When you are about to tackle a tough job, do you have a song or a playlist to pump you up? I don't need to get pumped up for work — I love what I do. I'd say it's more likely that I'm throwing on some (John) Coltrane in the earbuds to help me calm down.

As interviewed by Seth Jones, June 6, 2023.



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