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Golfdom

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Three powerful women in the industry agree that golf is rapidly becoming more female-friendly

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Golfdom

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"I asked Greg if he had an all-time golf highlight — playing or watching. This question has quickly become a favorite ..."

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

What's your all-time golf highlight?

Hello, friends. It's April, and you know what that means.

I don't know if I'll see any of you in Augusta this month, and the suspense is killing me. For the first time since I can remember, the Golf Writers Association of America — founded by *Golfdom's* founder, Herb Graffis — notified our membership that they received more requests for one-day Wednesday badges than they could fulfill.

I haven't been told no yet, but I also haven't seen that envelope in my mailbox either. The GWAA said those left out this year will be given priority in 2025, so I've got that going for me, which is nice.

I'll admit, I sometimes take being in the golf business for granted. While my cousin Steve dreams of someday going to the Masters, I'm much more nonchalant about it, having attended many times. This time of year,

whenever I walk into my local townie bar, Rick's, it's the question I'm most commonly asked: "Are you going to the Masters?" I usually shrug and say I haven't decided yet, while the regulars cuss because I'm so casual about it.

For this month's 19th Hole Q&A (page 36), I interviewed Greg Matz, superintendent at Inglewood CC near Seattle. I've known Greg for a few years (he attended our *Golfdom* Summit in 2018), but it took his GM, Craig McCrone, to nominate him for being featured in the 19th Hole before I picked up the phone and called him to get to know him better.

I learned a lot about Greg — like how his first degree was in communications and he did public relations for internet startups in San Francisco until he decided

to change careers at age 27. I asked Greg if he had an all-time golf highlight — playing or watching. This question has quickly become a favorite and one I'll ask regularly because the fond memories I hear from *Golfdom's* readers are so amazing.

For Greg, his answer was twofold: playing, it was the two times he got to play the Stadium Course at TPC Sawgrass in a John Deere tournament (he hit the green on No. 17 both times.) Watching, it was the year he and a group of superintendent buddies went to Augusta National to watch the Masters in 2016.

"It was the year Danny Willett won," Greg told me. "It was the year Jordan Spieth was going for his second in a row and dunked it in the creek on 12 a couple times. God, that was hard to watch,

but it was such a great trip."

Greg added that he hopes to get back some year and how great it is that Augusta National allows GCSAA Class A Members free access to the Masters. He said the hard part is that the tournament always comes around at the same time as when they aerify.

"You're either trying to sneak (aerification) in before or hoping it's not the week that you're aerating," he said. "At some point, I'll get there again. It is probably more important to see the Masters again than to say I did my twentieth aerification."

For this month's cover story (page 12), I asked all three sources for their favorite golf highlights. Tiffany Koss of Kafka Granite talked about the U.S. Open at Erin Hills. Taylor Turner of Numerator Technologies just attended the Players Championship and talked about how great that course is. Stephanie Schwenke of Syngenta talked about the 2022 U.S. Women's Open at Pine Needles.

Then, Stephanie turned the tables on me and asked what my most memorable golf moment was.

I stopped, thought, and started talking about the time I met Arnold Palmer. Then, after I hung up, I recalled the trip to Cancun with Nick Price. Then I thought about the trip to Guadalajara with Ricky and Bobby Heine ...

What's your all-time golf highlight? And how awesome is it to be in this industry? **G**

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Starter

NEWS, NOTES AND QUOTES



//GOLF HEADS TO WASHINGTON



Golf industry advocates will attend more than 250 legislative visits during their annual visit to Washington D.C. for National Golf Day.

REGISTER NOW FOR NATIONAL GOLF DAY



The National Golf Day (NGD) event in Washington, D.C., will be held May 8-10.

The American Golf Industry Coalition (AGIC), a group of the game's associations and industry partners, including the Golf Course Superintendents Association of America (GCSAA), will host the annual event.

During the three-day event, industry leaders will meet with members of Congress, the executive branch and federal agencies to discuss golf's 15,000-plus diverse businesses, 2 million jobs impacted, tax revenue creation and tourism value.

NGD celebrates the game's \$101.7 billion economy, nearly \$6 billion an-

nual charitable impact and many environmental and fitness benefits.

Attendees can participate in two community service projects from 7-10 a.m. on Friday, May 10. The projects include a turf project on the National Mall near the Thomas Jefferson Memorial and FDR baseball fields and a clubhouse landscaping project at Langston Golf Course, an 18-hole course named after John Mercer Langston, the first African American elected to public office.

The AGIC will provide Congressional meeting prep online and in person ahead of NGD. Registration is now open through April 16 at golfcoalition.org/nationalgolfday2024.

//ALL ABOARD

GCSAA FOUNDATION ADDS TO ITS BOARD

The GCSAA Foundation appointed Douglas D. Dykstra, certified golf course superintendent (CGCS) and



Douglas Dykstra

director of agronomy and facilities at White Mountain Country Club in Pinetop, Ariz., and John Easterbrook, chief member officer for the PGA of America, to the board of trustees.

Dykstra also serves on the board of directors for GCSAA. A 31-year GCSAA member, he is a member and past president of the Cactus and Pine Golf Course Superintendents Association. He also previously served as president of the Nebraska Golf Course Superintendents Association and secretary/treasurer of the West Virginia Golf Course Superintendents Association.

Easterbrook became the PGA's first chief member officer in 2017 and is a 35-year PGA member. Before joining the PGA staff, Easterbrook spent 20 years as executive vice president and chief operating officer at Troon.

The current board also includes T.A. Barker, CGCS (GCSAA vice president); Paul L. Carter, CGCS (GCSAA secretary/treasurer); Emily Palmer (USGA) and Paul Vermeulen (PGA Tour).

//MARKET EXPANSION

AQUA-AID ADDS TO DEALER NETWORK

Aqua-Aid Solutions expanded its Cultural Solutions equipment dealer network by partnering with Van Wall Equipment.

"Our number one goal is to partner with organizations that share our philosophy of providing the highest quality products supported with technical sales and after-sales service for the end user," Sam Stimmel, Cultural Solutions manager and general manager of Aqua-Aid Solutions, said.

The partnership allows Van Wall Equipment to support Cultural Solutions in the Midwest, including Western Missouri, Kansas, Nebraska, Iowa, Eastern South Dakota, Northeast Minnesota, Wisconsin and North Dakota.

// A REAL STINKER

Foul-smelling pond leads to a day in court for Arizona super

BY GOLFDOM STAFF

➔ Arrowhead Country Club in Glendale, Ariz., is facing backlash from a nearby subdivision for what residents called a “repulsive and nauseating,” smell. Residents say the smell had been an issue for years, dating back to 2022.

According to Arcis Golf, owner and operator of Arrowhead CC, the smell came from the pond on the course’s sixth hole, which had abnormally high algae and sludge levels.

Stephen Bais, golf course superintendent at Arrowhead CC, appeared at Glendale Municipal Court on March 4, where he pleaded not guilty to violating city code against creating noxious smells. Bais faces a class 1 misdemeanor with six months in jail and up to \$2,500 in fines if found guilty.

“What happened here is no reflec-

tion on Stephen, who has been a consummate professional throughout his nine years at the club,” Scott Carrier, senior vice president of agronomy for Arcis Golf, wrote in an apology published in *The Glendale Star*. “Stephen’s job responsibilities don’t include ad-

vanced maintenance of the 400-acre property’s ponds and lakes. By law, that’s a job reserved for specially licensed experts in water and wetlands management.”

According to Carrier, the club has brought in experts to treat the issue.

“Arcis has been provided with a comprehensive plan to ensure the pond doesn’t create further issues. These experts also have worked with us to analyze the other aquatic areas on the property so that no new issues arise,” he wrote.



// SCHOLARS OF TOMORROW

ST. ANDREWS AWARDS BOBBY JONES SCHOLARSHIPS

The University of St. Andrews selected four students to receive the Robert T. Jones Scholarship and spend the next academic year living and studying at Emory University in Atlanta, Ga.

The scholarship is open to undergraduate students completing their final year of study. The Robert T. Jones Memorial Trust Scholarship offers four St. Andrews graduates and four Emory graduates the opportunity to study a variety of classes at the partner institution for one academic year.

The scholarship honors Robert T. (Bobby) Jones, who graduated from Emory University Law School. He was also named the Freeman of the City of St Andrews in 1958. The 2024 recipients of the scholarship are: Magnus Burnet, Alex Hargreaves, Victor Mendoza Galvis and Josh Rankin

// SO LONG, PARTNER

ARCHITECTS FORSE AND NAGLE ANNOUNCE SPLIT

Golf course architects Ron Forse and Jim Nagle are parting ways after a 25-year business alliance. According to the pair, the split is amicable and they expect to collaborate on projects in the future.

“We have had a fantastic run together over two and a half decades. I am naturally saddened at that coming to an end, but it is a natural evolution for both Jim and me. I am very excited about what the future holds for both of us,” Forse said.

The two will continue to collaborate at Davenport Country Club in Pleasant Valley, Iowa. The duo renovated the club in 2014. Since then, they have maintained a consulting relationship with the club.

X #TurfPostoftheMonth

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Mike Brownsberger

@mikebdisupe

Golf Course Superintendent at Deer Island CC, Tavares, Fla.

This guy decided to change his pond address while I was spiking the putting green this morning... #officeviews

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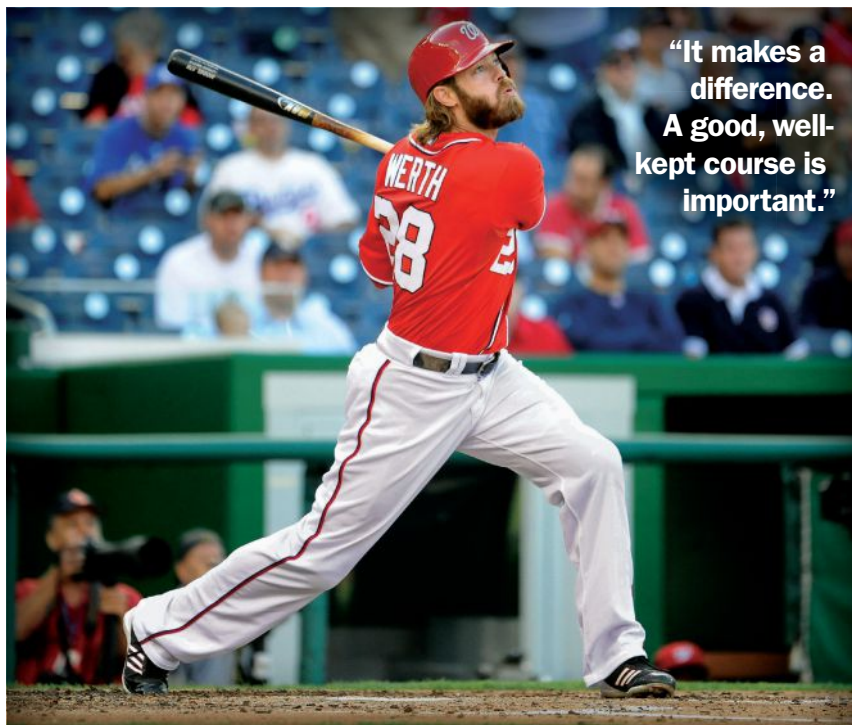
Jayson Werth, professional baseball player

JAYSON WERTH WAS A BIG-GAME

PLAYER with many playoff highlights. Perhaps his most memorable highlight came as a Washington National in 2012. Werth dramatically ended Game 4 of the National League Divisional Series against St. Louis with a solo home run in the 10th inning. The homer came on the 13th pitch of an at-bat that included seven foul balls, all with two strikes.

After jumping straight from Glenwood (Ill.) High School to professional baseball in 1997, Werth made his Major League Baseball debut for the Toronto Blue Jays in 2002. Werth was one of MLB's most surprising players in 2004 when he batted .262 with 16 homers and 47 RBI in 89 games for the Los Angeles Dodgers.

In 2008, with the Philadelphia Phillies, Werth rose to the occasion and batted .444 in the World Series against Tampa



"It makes a difference. A good, well-kept course is important."

// CALLING ALL SUPERS

NOW SEEKING NOMINATIONS FOR GRAFFIS AWARD

Do you know a superintendent who has gone above and beyond their regular duties to help the course or their colleagues succeed financially?

Golfdom has awarded the Herb Graffis Businessperson of the Year Award — named after the magazine's founder and Golf Hall of Famer Herb Graffis — annually since 2012 to spotlight the hard work of a superintendent. The award includes expenses-paid trips to the Golfdom Summit and GCSAA Conference and Trade Show, where Rees Jones presents the award.

Email your nomination, and an explanation of why you're nominating your candidate, to Seth Jones (sjones@northcoastmedia.net) by May 10.

Bay. The next season, he was an All-Star as he hit 36 home runs and led the league in plate appearances. Werth set a Phillies record for most home runs in a single postseason, including two solo shots in Game 3 of the World Series against the New York Yankees.

In 2013, Werth had a monster season with the Nationals, finishing ninth in MVP voting, batting .318 and ending the season in the top five in on-base percentage (.398), slugging percentage (.532) and on-base plus slugging (.931).

Werth retired from baseball in 2018, after a successful 15-year career in the majors, to become an organic farmer in Macoupin County, Ill.

— Seth Jones // Editor-in-Chief

"I play a lot of golf. It gives me something to do, and I get to go to cool places. I'm trying to figure out this post-baseball life. It keeps me moving, it keeps me going.

I've come to love really nice courses. I appreciate a course that is looked after well. My (course) at home is Bradenton (Fla.) CC. It's a Donald Ross course, it's always in good shape, it's a nice small community course. The greens are always rolling 12 to 14. It makes a difference. A good, well-kept course is important.

I try to talk to (superintendents) and pick their brains a little bit. I know nothing about taking care of the course so it's always interesting to hear what they're talking about."

PHOTO BY: ASSOCIATED PRESS

The Golfdom FILES

FROM THE ARCHIVE

Superintendent, greenkeeper, the guy who puts holes in the green. The men and women who take care of golf courses go by many names. Looking back to the April 1969 issue of *Golfdom* a New York superintendent gives his take on why the greenkeeper title was still popular in the '60s, years after the GCSAA rebranded. To read the full article, visit Golfdom.com.

Superintendent or Greenkeeper?

Although golf course superintendent is officially the title, the term greenkeeper still persists ...

BY BILL SMART, Superintendent, The Powelton Club, Newburgh, N.Y.

A few years before World War II, the National Association of Greenkeepers changed its name to the Golf Course Superintendents Association of America, thus changing the title of everyone in the trade from greenkeeper to golf course superintendent.

In spite of the passage of over 20 years, the old title still persists, to the delight of a few and the dismay of many. Why has greenkeeper persisted instead of fading into the past along with the village blacksmith and the automobile crank?

First and foremost, it continues be-

cause it is in both the written and the spoken language of the country. Any writer will admit that greenkeeper taps out on the keys more easily and naturally than golf course superintendent — especially when it's coupled with an association's name such as Golf Course Superintendents Association of America or even my affiliate, the Hudson Valley Golf Course Superintendents Association.

By the same token, say the word greenkeeper in place of golf course superintendent and notice how lightly it trips off the tongue. Its use, therefore, is

encouraged in everyday conversation because it's just easier to say.

I have no doubt that if a nationwide poll of superintendents were taken today, 90 percent would be in favor of the title golf course superintendent, but for the wrong reason. As one widely-read golf writer put it, "Greenkeeper, they feel, connotes

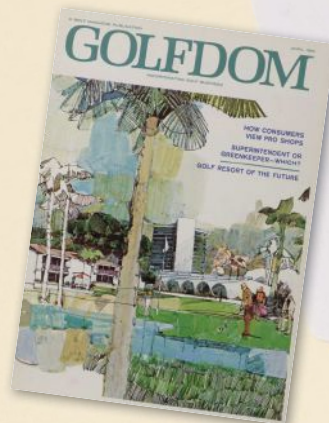
a rumpled little man in baggy overalls who darts about the fairways getting dirt under his fingernails."

This description in fact did fit many of the pre-World War II turfmen and even some of today's. Perhaps in that 90 percent are those who feel that a more imposing title would un-rumple the man (past and present) from the baggy overalls to a gray flannel suit and manicured nails.

Then there are those who have struggled and sweated through two to four years of turf school, most getting rumpled, baggy and dirty on seasonal course jobs and who will settle for nothing less than golf course superintendent as their right and proper title. One super that I know discards, unopened, any mail addressed to him as greenkeeper.

The remaining 10 percent who like the old term and the many who don't object to it have a broader view: Fundamentally the job has remained unchanged during the last half century — they are still the Keeper O' the Green (green meaning the whole course.)

While it may be true that supers must be more proficient in wider areas than the old-timers, basically the job functions are the same and have not disappeared as has the auto crank, or changed as the smithy was forced to do. **G**





“(The superintendent) could see I was distraught and offered up a golden piece of advice — you’re not a superintendent until you’ve lost turf.”

ALAN FITZGERALD, CGCS, MG
Rehoboth Beach (Del.) Country Club

The best advice I’ve received as a super

As I get older, I like to think back on the good advice I’ve been given over the years, whether I realized it at the time or not. The fact that I remember these and am about to pass them on obviously means that they have had an impact on me.

Always be learning. One day in college, we were told that if a neighbor had a turf question, we better be able to answer it. One of my classmates said it shouldn’t matter provided we can find the info quickly and pass it on. The rebuttal was that as a true professional, we should just know it.

To this day, I try to make sure I know about a turf topic, and if I don’t, I won’t rest until I do!

The man with the gold wins. While this might rub some the wrong way, in our line of work, at the end of the day, we need to remember that we don’t own the proper-

ties we manage. It’s tough for the course not to become part of your life and to not double down on what you think is best. But to be successful we must give our employers what they want.

That’s not to say you’re not the expert and shouldn’t fight for what’s right, but it should be while working towards their goals and the overall direction of the club.

You must mess it up, to fix it. The first time I lost turf as a superintendent, a local superintendent came to play with a friend of the pro. He could see I was distraught and offered up a golden piece of advice — you’re not a superin-

tendent until you’ve lost turf.

He was right! You don’t know how far you can push things until you try and how you handle it makes you stronger — just don’t make a habit of it.

When I first started to do course construction, I was always trying to minimize the damage outside the area I was working on, but that always seemed to complicate things. This was a bit of an eye-opener. I don’t mean it’s OK to destroy the place or be careless, but by essentially blowing up the area and starting from scratch it makes it easier to tie it all together.

That time I had to regrass

lost turf wasn’t pretty, but the superintendent told me that while I was working on that, I better make sure everything else was perfect. His point was that if people can’t find another fault, it shows that you’re on top of all of it and the turf loss was just a hiccup.

It’s easier to add water than to take it away. While over the years — having dealt with poor water quality — I might argue this point a little, the premise is solid. It’s harder to get soil to drain than it is to irrigate it, so maximize your drainage when you can.

Don’t be a sheep. This is the oldest advice on the list as I was a very spotty teenager when I heard it. We were working on a project and the guys were bringing their own cars to the site. At the end of the day, they would head directly home from there rather than going back to the shop.

We weren’t supposed to, but it made sense to me, and I joined in. My boss stopped me and asked if I wanted to be a sheep that follows all the others or be the leader to show them the way. It eventually sank in as — rightly or wrongly — since then I’ve always set my own path and stuck to it.

So, there you have it, my (ok, my inherited) words of wisdom. ☺

Alan FitzGerald (superintendent@rehobothbeachcc.com) is superintendent at Rehoboth Beach (Del.) Country Club.

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Do not tank-mix with wetting agents or surfactants

Avoid irrigation or mowing within 4 hours

Gaining

BY SETH JONES

These powerful women in the industry agree that not only is golf hospitable to women, it's also getting better everyday

According to the Golf Course Superintendents Association of America (GCSAA), there are only 69 Class A and Class B members who are female. That number accounts for less than one percent of their total membership. ¶ When including assistants the number grows to 162 total female members. Additionally, there are 23 associate members and 133 female student members.

Golfdom reached out to three women in the golf maintenance industry with high profile jobs, to learn more about them, their path into the industry and how they feel the industry is doing in welcoming women.

Taylor Turner

CEO

Numerator Technologies

Numerator Technologies is a specialty chemicals manufacturer that serves the global golf market. Based in Sarasota, Fla., the company started with a core of soil surfactants and then expanded to acidification products. The company continues to evolve and plans for new product launches.

Some popular products the company sells include pHAcid, an injectable irrigation and soil water acidifier, Sarge 2.0, a concentrated green pigment, and also Neptune, Revert and LT120 that are available from Nutrien Solutions.

Next month, Taylor Turner will step into the role of CEO. Jim Turner, the company's founder, will remain with the company, but change his focus to developing new products.

Taylor, Jim's youngest daughter, had an unusual career path to where she is today.

Turner graduated college in 2008, a difficult time for the U.S. economy, with a degree in English and marketing. She took a position with a family-owned sales distribution company in Florida, selling professional hair care products directly to salons. She grew four different territories in Florida from zero to more than \$1 million. Once the territories were large enough, she'd pass them on and start over.

"When you're selling products that cost, on average, \$12 ... \$1 million in sales is a lot of SKUs," Turner says.

Turner thought she had found her calling in selling hair care products when her father surprised her. The night before her wedding, Jim asked Taylor if she would consider switching from selling hair care products to selling golf course care products.

"He said, 'Look, you're killing it ... I could use your thoughts, I could use some change.' We went back and forth, just like a normal job negotiation," she says. "I did accept the position, and then someone spilled the beans at my wedding. So I also had to tell my then-boss, at my wedding, that I was leaving. That was a pretty crazy week."

Continued on page 14

ALENA MARAZUK / ISTOCK-GETTY IMAGES PLUS / GETTY IMAGES (HEADER)

ground



Taylor Turner, CEO of Numerator Technologies



Tiffany Koss, President of Kafka Granite



Stephanie Schwenke, Turf Market Manager at Syngenta



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An industry of support

Turner says from when she started with the company to where she is today, she's surprised herself in how well it's gone.

"When I first started, I was absolutely petrified, to be completely honest," she says. "Coming from an insanely women dominated industry such as the beauty industry, to an industry where I've been told, 'There's 12 of us, we're all men and we're all friends,' it was a little frightening."

Turner says once she was trained and got up to speed with the golf course maintenance industry, she was put at ease. The recent New England Regional Turfgrass Show was another demonstration to her that the industry is women-friendly, she says.

"I had it in my head originally that it might be a problem of me being female. I don't see it that way at all now," she says. "I like the social aspect of this industry. I feel like sometimes superintendents feel like they're on an island. I feel like it's an industry of support and I feel like if you have something good to say or a good idea, people will listen."

Turner says she loves her job because she's a social person. She likes seeing different parts of the country and she loves having sales reps in different cities she can grab a beer with if she gets stuck without a flight home. She adds that it's an exciting time at Numerator Technologies and she has big goals as the new CEO.

"There's a reason we've been around as a family-owned company for a while," Turner says. "We're going to continue development. I want to broaden our product offerings and look into a few things outside the specialty chemical realm. I want to bring in a handful of additional employees to help with launches. And I really want more brand awareness, so people know what we make. The GCSSA (Conference and Trade Show) was a great jumping off point, and we're going to continue to be present at regional shows."

Tiffany Koss

**President
Kafka Granite**

Tiffany Koss grew up in the family business. She says she doesn't know much outside of "being a Flintstone."

"I don't think my dad ever expected me to be interested in his business," Koss says. "It was dusty and dirty and grimy and greasy, and as a little girl, I was all about sparkles and tutus. I was always quite creative, and as a teenager I became interested in marketing. That's how I started stepping into the company. It's just evolved from there."

Kafka Granite delivers natural stone solutions to manufacturers and contractors throughout North America. In the golf industry, the company's Wax Polymer Golf Course Pathway Material is designed to bring erosion-free and dustless cart paths and

walking paths to courses. Kafka Granite also offers Wax Polymer Bunker Sand for out-of-play or driving range bunkers.

Today Koss is part-owner of the family business and will be its next leader when her father, Glenn, decides to step down. In the meantime, she enjoys working alongside her father.

"We have very similar personalities, but completely opposite strengths. He'd rather be in an excavator. We are quite the dynamic duo," she says.

Kafka Granite employs 85 people and is growing. The company serves others outside of golf as well — their crushed aggregate is used in landscape projects, parks and manufacturing. The company also operates a trucking division and a recycling division.

Boots on the ground

Golf is the fastest growing segment for the company, giving quotes for their product to courses daily. Though Koss isn't an avid golfer herself, she says that segment is one of her favorites to work in, for two reasons.

"The people have just been so fantastic. Everybody I've crossed paths with, I've learned so much from them," Koss says. "And I

love the camaraderie in the industry that people are so willing to share information and so eager to learn as well.

"The other thing that I think is so great is (superintendents) are well educated people, but they're still boots-on-the-ground," Koss says. "You can talk on all levels. When I'm working (in other industries) there are often layers of engineers, architects, contractors and the maintenance department ... it can turn into a little bit of a game of telephone."

There is another thing that is different about golf from the other industries Koss works in. In mining and construction, she is frequently the only woman in the room. Golf is similar, but she says it's getting better.

"In golf, there are not a lot of women involved, but I've seen, just in my short time in the industry, a huge progression as far as more women getting into turf and also on the supplier end," she says. "That's been really cool to see. I think it's progressed quicker than some of the other industries that I've been a part of."

She advises other women getting into the golf industry to just remember, they do belong.

Continued on page 16

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"There is a reason why women should have a place at that table ... because we bring something different," she says. "Our minds, in general, often work differently than men. We have inherently different strengths — different attention to detail and communication skills that are valuable. Lean into your strengths."

This year's GCSAA Conference and Trade Show was a recent highlight of Koss' job, she says, because the company had such a positive response from attendees. Kafka Granite was tucked in the corner of the trade show, so expectations for the show were low. But the crowd to see her and her team was large and constant. As an added bonus, she brought more of her team than normal, and they got to experience the positive response as well.

Koss says she values the people she works with as the best part of her job, but adds that it's exciting to see her product beautify landscapes and help others.

"Ultimately, I'm bringing stone that's millions of years old, something that's been there forever, and transforming it into a usable product and that helps others save time and money," she says. "What's most exciting about my job is seeing all the cool

places my product ends up and all the ways that I'm able to help other people with my product."


Stephanie Schwenke

**Turf Market Manager
Syngenta**

This month marks 20 years that Stephanie Schwenke has worked at Syngenta. For the first half of her time there, she worked on the crop protection side of the business. For the last 10, she has focused on golf.

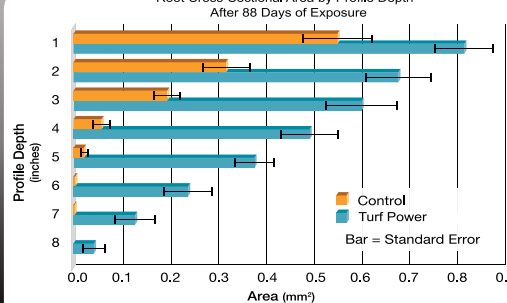
Schwenke works with the Syngenta sales team to help promote the company's products, and she also works to promote the industry's initiatives on behalf of Syngenta, working with associations like the Golf Course Superintendents Association of America (GCSAA), the World Golf Foundation, the Sports Field Managers Association (SFMA), Responsible Industry for a Sound Environment (RISE), the National Golf Course Owners Association (NCGOA), Turfgrass Producers International (TPI) and more.

"Syngenta is a chemical manufacturer, but we're also your industry advocate," Schwenke says. "We work to support and




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Profile Depth (Inches)	Control (mm²)	Turf Power (mm²)
1	0.55	0.85
2	0.35	0.70
3	0.25	0.55
4	0.15	0.45
5	0.10	0.35
6	0.05	0.25
7	0.05	0.15
8	0.05	0.10


Bar = Standard Error




Soil Profile




X-Ray Artificial Rootzone Profile



Control



WATCH
Dr. Brosnan introduces
innovative rootzone research



promote the profession of golf and the health and growth of the golf market space.”

Schwenke says it was an interesting, and fun, twist to her career when she changed from working within the agriculture industry over to golf.

“Golf course superintendents and the golf industry have changed a lot over the years — and diversified,” she says. “Superintendents are some of the most fun professional customers I’ve had the opportunity to work with. They are obviously very agronomic, but they are quite business savvy at the same time. They really want positive advocacy in the golf space, whether it’s at the golf course or taking place in Washington, D.C. Working with superintendents has become my passion.”

Making a difference

The 2022 U.S. Women’s Open at Pine Needles was a special moment for Schwenke. She recalls being corralled in a waiting area with 20 other women, waiting for play to finish so they could get to work on the golf course.

“As a female in the industry, as well as in the agriculture in-

dustry, it’s quite often that I may be the only female present at a particular event,” she says. “It was very welcoming and rewarding to see how things are changing. To be a part of that group at the U.S. Women’s Open, I’ll never forget that moment.”

Seeing more women in the industry has been a welcome change for Schwenke. Still, she says there are a lot of times when she’s the only woman in the room. She advises women who find themselves in a similar situation not to be intimidated.

“Be present in the moment,” she says. “We don’t all have to look the same to make a difference. Let your voice be heard. Engage with people and do what you can to make things different for the next generation.”

Schwenke says when she took the golf job over a decade ago, she looked at it as a way to see another side of Syngenta. Now she sees the job is a once-in-a-lifetime opportunity.

“I get to interact with a lot of different customers. Some of the courses that I have the opportunity to travel to are some of the most beautiful destinations that we get to step foot on and that’s just part of the job,” Schwenke says. “My roots and passion were in agriculture, but, this is one of the best jobs I’ve ever had.”



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“The industry is constantly evolving, and you’ve got to be looking for the new stuff coming out. I’m working with the Plant Food guys and it’s really good [because] the reduction in fungicides over in the UK is hitting massively, so, there’s so much more emphasis on nutrition.”

Loz Ryan
Superintendent
Kettering Golf Club, UK





Many auto mechanics don't realize golf courses have a need for people with their skills. Among other benefits, the pace is much slower and the scenery is a lot better.

Switching shops

Discussing the transition from auto mechanic to turf technician

BY DAN STAHL, Superintendent, Orchard Valley GC, Aurora, Ill.

Ask any superintendent which position on his staff is the most crucial to the daily operation of the golf course and the answer is the equipment technician. From preventative maintenance of equipment, reel adjustment and shop organization, our techs fill an extremely valuable role. Just like every position on our staff, equipment techs are hard to come by in this competitive job market.

I personally have had good success in filling my technician role by looking outside of our industry. Five out of my past six mechanics have come from the automotive industry. Two have come from dealerships, one from the trucking industry and one from a national garage chain. All have had a lot of experience in troubleshooting and had a particularly good skill set in fundamental mechanics. I do not feel there is much difference in auto versus turf machinery. All my techs have picked up the role well.



Dan Stahl

The survey says

For this article, I reached out to a few of them and asked them for their insights on working at a golf course compared to working in an auto mechanic's shop. They all made similar points with their experience in the transition. Here's what they said:

- My guys all enjoyed learning something new. Whether it was related to equipment repair or not, they all enjoyed learning about our industry and the "why's" of course management.
- The pace is slower. The demands of making repairs can be the same, but the race to get a repair done, to get the vehicle back to the owner before

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Editor's note: This article originally appeared in the December 2023 issue of *On Course*, the official publication of the Midwest Association of Golf Course Superintendents.

PHOTO BY: KAUB / E+ / GETTY IMAGES

“MOWING, OR OTHER JOBS, GIVES THEM THE OPERATOR’S PERSPECTIVE AND THEY HAVE A DEEPER UNDERSTANDING OF WHY REPAIRS NEED TO BE DONE.”



Stahl's mechanics said they enjoyed working on equipment owned by the course, over an endless line of cars that they'd never see again. This also allowed them to become familiar with the equipment.

Continued from page 19

the shop closes by the end of the day, is reduced. The stress of “book time” is not there.

- The physical demands of working in an automotive shop were “too much for me to bear anymore. I can do the work, but at my age, the daily grind became too much.”

- They all enjoyed the beauty of the course. They also enjoy operating equipment on the course. Mowing, or other jobs, gives them the operator’s perspective and they have a deeper understanding of why repairs need to be done. It also gives them a break from standing over a bench or a piece of equipment and breaks up their day.

- All my techs found working on ‘their own

equipment’ appealing, versus having to diagnose a noise or rattle in a ‘random’ car off the street. They get to know each piece of equipment and gain context for any problems or issues that can arise. It is easier for them to plan a schedule and anticipate the needs of the shop.

- Another pleasurable aspect in the role of turf tech is the change of seasons. Different seasons bring various aspects of course maintenance. There is not just one constant line of cars to work on. The variety of work keeps things fresh.

- My current tech made the comment to me that he did not envision that an equipment tech job existed. “I always golf in the afternoon,

Continued on page 22

PHOTO BY: LUKE CELLA, CGCS

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“I PERSONALLY HAVE HAD SUCCESS IN FILLING MY TECHNICIAN ROLE BY LOOKING OUTSIDE OF OUR INDUSTRY. FIVE OUT OF MY PAST SIX MECHANICS HAVE COME FROM THE AUTOMOTIVE INDUSTRY.”



According to the U.S. Bureau of Labor Statistics, the median pay for automotive service technicians and mechanics is \$46,970 per year. They estimate 782,200 people work in that industry.

Continued from page 20

and I can't say I have ever seen anyone doing maintenance on the course while I was playing.” This comment made me realize that it is just like everything else we as an industry struggle with — we need to continue educating the public in every aspect of course maintenance.

Reel 'em in

I can imagine some of you are wondering, “What about reels?” Yes, this is the biggest hurdle to bringing in a mechanic that is unfamiliar with the process. Honestly, it takes a little time, but most of my techs take right to adjusting. They have some anxiety in the beginning, as do I, but with a few hours of training they get comfortable with adjusting reels. You must expect that it will take them extra time for the first couple of weeks to complete reel set up.

For what it is worth, this has been my observation of techs making the move from the automotive field to the green industry. I asked the question about the drawbacks with the move to the golf course, but nobody had negative comments about making the switch.

I hope these points are of use to someone who is trying to lure a tech into our side of the business. **G**

Dan Stahl is the golf course superintendent at Orchard Valley Golf Course, Aurora, Ill., and a director for the Midwest Association of Golf Course Superintendents.

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// PAYING THE PRICE

A CLOSER LOOK AT DOLLAR SPOT ON BENTGRASS FAIRWAYS

By Mike Kenna, Ph.D.

University of Maryland (UMD) researcher Fereshteh Shahoveisi, Ph.D., tested fungicides in College Park, Md., to manage dollar spot on Penncross creeping bentgrass. Shahoveisi mowed fairway plots three times weekly to a height of 0.5 inches.

She applied treatments on 14-day or 21-day intervals from May 18 to July 20, with a CO₂ backpack sprayer at 40 psi. The sprayer had a single Teejet AI9508E nozzle, and the water carrier was equivalent to 1.5 gal per 1000 ft. sq.

Treatment products included Tekken 1.8 SC (isofetamid, PBI-Gordon), Daconil Ultrex 82.5 WDG (chlorothalonil, Syngenta) and the experimental fungicide UMD-DS-B-1 (PBI-Gordon).

Shahoveisi arranged the 3-by-6-foot plots in a randomized complete block design with four replications. She did not have to inoculate the plots since dollar spot occurred naturally. Disease severity assessment was the number of dollar spot infection centers per plot every two weeks from June 1 to August 24.

Shahoveisi used a standardized area under the disease progress curve (SAUDPC) to evaluate disease progress over time. Data was subjected to analysis of variance and means separation using Fisher's least significant difference (LSD) procedure at $\alpha = 0.05$.

Dollar spot pressure increased throughout the summer. All treated plots had lower dollar spot severity and SAUDPC values than non-treated plots. Plots treated with UMD-DS-B-1 applied at 3 fl. oz. per 1000 ft. sq. or Tekken applied at 2.8 oz. per 1000 ft. sq. had lower dollar spot severity from June 15 to August 11 than plots treated with Daconil Ultrex alone or with UMD-DS-B-1 at 2 fl. oz. per 1000 ft. sq.

Plots treated with UMD-DS-B-1 (3 fl. oz./1000 ft. sq.) or Tekken alone had lower SAUDPC values than other fungicide treatments. There was no phytotoxicity following fungicide applications. Additional fungicide research conducted at Purdue University on creeping bentgrass putting greens and fairways is featured in the research article by Lee Miller, Ph.D., and Matthew Carpenter on page 24.

Reference

Shahoveisi, F. 2022. Evaluation of preventative fungicides for the management of dollar spot on fairway height creeping bentgrass. *Plant Disease Management Reports* 17:1021.



This project was funded in part by the USGA Green Section.

NEWS UPDATES

NUFARM DEBUTS POSTEMERGENT POA HERBICIDE

Nufarm recently introduced Velocity PM herbicide, formulated to remove postemergent annual bluegrass (*Poa annua*) and roughstalk bluegrass (*Poa trivialis*), while reducing *Poa annua* seedhead production and suppressing dollar spot.

According to the company, Velocity PM is effective on creeping bentgrass, perennial ryegrass, tall fescue and dormant bermudagrass. Additionally, it is labeled for use on fairways, tees and athletic fields.

Velocity PM includes a *Poa* Management Program for spring, summer and fall, providing superintendents the ability to customize their transition program based on their situation and speed of conversion.

"Velocity PM has generated an overwhelmingly positive response from superintendents who are looking to effectively manage *Poa annua* on their fairways and tees through a transition program," said Jeff Eldridge, Nufarm golf segment lead. "With Velocity PM, turfgrass managers can optimize their *Poa* transition program to suit their course needs."

SAUDPC VALUES FOR ALL TREATED PLOTS WERE SIGNIFICANTLY LOWER THAN UNTREATED CONTROL PLOTS. PROGRAM PLOTS HAD CONSISTENTLY LOW DOLLAR SPOT SEVERITY THROUGHOUT THE STUDY ..."

Lee Miller, Ph.D., and Matthew Carpenter

(see story on page 24)

// MONEY-MAKING GREENS

Fungicide evaluations for dollar spot control on golf courses

By Lee Miller Ph.D., and Matthew Carpenter

We evaluated fungicide treatments for disease control at the William H. Daniel Turfgrass Research and Diagnostic Center at Purdue University in West Lafayette, Ind. We performed putting green trials on 'Crenshaw' and 'Pennlinks' creeping bentgrass putting greens.

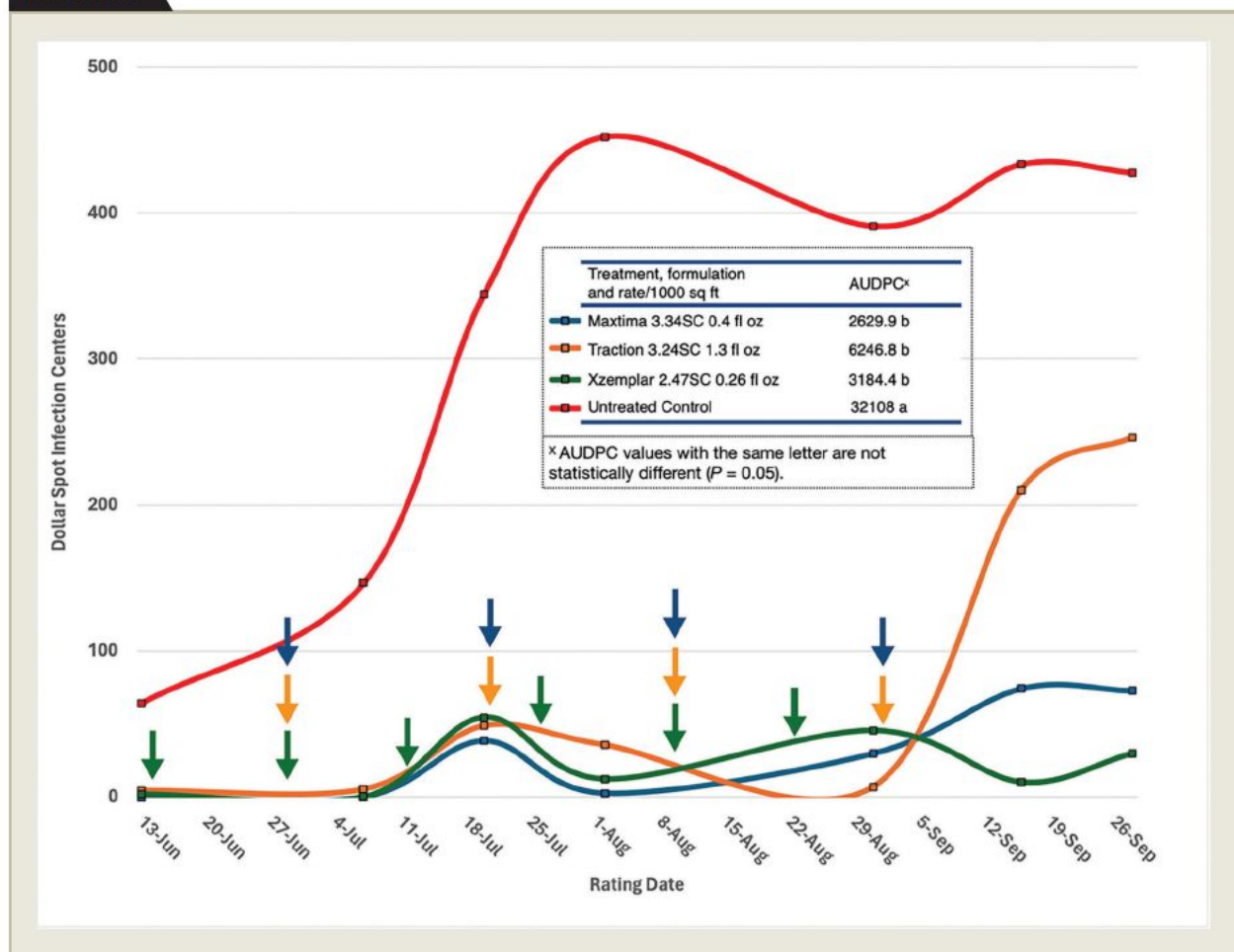
We mowed both greens five times weekly at a height of 0.135 inches from April 1 to Sept. 29, 2023. We applied to both greens the wetting agent Excalibur (Aqua-Aid Solutions) on June 9 and June 28 at a rate of 4 fl. oz./1000 ft. sq. and on July 20 at a rate of 2.7 fl. oz./1000 ft. sq. to limit the development of localized dry spot.

We then applied the wetting agent Fleet (2.7 fl. oz./1000 ft. sq.) to greens on August 16 to limit the development of localized dry spot.

We applied Tempo SC (cyfluthrin, Envu) at 9 fl. oz./acre and Meridian (thiamethoxam, Syngenta) at 12 fl. oz./acre on June 9 for ant control. We

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FIGURE 1



Fungicide treatments on a 'Crenshaw' creeping bentgrass putting green. Maxtima and Traction's final applications were made on August 30, and Xzemplar's final application was made on August 23. Arrows indicate application dates for each fungicide on 14 d (Xzemplar) and 21 d (Maxtima and Traction), respectively.

TABLE 1

Product information for putting green and fairway experiments

Product name	Company	Active ingredient	FRAC Group
Aneuw 27.5WG	Nufarm	prohexadione calcium	PGR
Daconil Action 6.11SC	Syngenta	chlorothalonil + acibenzolar-S-methyl	M05 + P01
Daconil Ultrex 82.5 percent WDG	Syngenta	chlorothalonil	M05 + P01
Encartis 6.25SC Exp1 SC 0.74 fl. oz.	BASF	boscalid + chlorothalonil	7 + M05
Lexicon 4.17SC	BASF	fluxapyroxad + pyraclostrobin	7 + 11
Maxtima 3.34SC	BASF	mefentrifluconazole	3
Navicon 3.34SC	BASF	mefentrifluconazole + pyraclostrobin	3 + 11
Pinpoint 4SC	Nufarm	mandestrobin	11
Posterity XT 1.48SE	Syngenta	pydiflumetofen + azoxystrobin + propoconazole	3 + 7 + 11
Rotator 4.17SC	ArmorTech	fluazinam	29
Secure 4.17SC	Syngenta	fluazinam	29
Secure Action 4.18SC	Syngenta	fluazinam + acibenzolar-S-methyl	29 + P01
Tourney 50WG	Nufarm	metconazole	3
Traction 3.24SC	Nufarm	fluazinam + tebuconazole	29 + 3
Xzemplar 2.47SC	BASF	fluxapyroxad	7

TABLE 2

Dollar spot fungicide treatment application dates and rates for experiment 1 and experiment 2

Treatment ^x Rate oz. per 1000 ft. sq.	Application code and date														Total
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
	May 17	May 31	June 7	June 14	June 28	July 12	July 19	July 25	Aug 9	Aug 23	Aug 30	Sept 6	Sept 20	Oct 4	
Experiment 1 - Crenshaw															
Maxtima 3.34SC 0.4 fl. oz.	X		X		X		X		X		X				2.4
Traction 3.24SC 1.3 fl. oz.	X		X		X		X		X		X				7.8
Xzemplar 2.47SC 0.26 fl. oz.	X	X		X	X	X		X	X	X					2.08
Program															
Tourney 50WG	0.37 oz													0.28 oz	0.65
Aneuw 27.5WG	0.023 oz.	0.046 oz.		0.09 oz.	0.09 oz.	0.09 oz.		0.046 oz.	0.09 oz.	0.046 oz.		0.09 oz.	0.09 oz.		1.32
Traction 3.24SC 1.3 fl. oz.				X				X		X					3.9
Exp1 SC 0.74 fl. oz.					X				X			X			2.22
Pinpoint 4SC 0.28 fl. oz.						X							X		1.12
Rotator 4.17SC 0.5 fl. oz.						X									0.5
Experiment 2 Pennlinks															
Lexicon 4.17SC 0.34 fl. oz.	X	X	X	X	X	X	X	X	X						3.06
Lexicon 4.17SC 0.47 fl. oz.	X	X	X	X	X	X	X	X	X						4.23
Maxtima 3.34SC 0.6 fl. oz.	X	X	X	X	X	X	X	X	X						5.4
Navicon 3.34SC 0.7 fl. oz.	X	X	X	X	X	X	X	X	X						6.3
Navicon 3.34SC 0.85 fl. oz.	X	X	X	X	X	X	X	X	X						7.65

Rate listed across dates if oz per 1000 ft. sq. varied from the amount following the fungicide.

TABLE 3

Dollar spot response to fungicide treatments on a 'Pennncross' putting green

Treatment, formulation, and rate/1000 ft. sq.	Application code ²	Dollar spot infection centers ^y													
		July 7		July 21		Aug 16		Sept 2		Sept 15		Sept 29		AUDPC ^x	
Lexicon 4.17SC 0.34 fl. oz.	A-I	0.4	b ^w	0.3	b	0.3	b	0.0	b	0.0	b	0.0	b	30.8	b
Lexicon 4.17SC 0.47 fl. oz.	A-I	0.4	b	0.0	b	0.0	b	0.0	b	0.0	b	0.0	b	23.7	b
Maxtima 3.34SC 0.6 fl. oz.	A-I	0.4	b	0.3	b	1.0	b	0.0	b	0.0	b	0.0	b	42.1	b
Navicon 3.34SC 0.7 fl. oz.	A-I	0.8	b	0.0	b	0.0	b	0.0	b	0.0	b	0.0	b	36.5	b
Navicon 3.34SC 0.85 fl. oz.	A-I	0.4	b	0.3	b	0.0	b	0.0	b	0.0	b	0.0	b	27.1	b
Untreated Control	—	7.1	a	22.8	a	57.8	a	182.5	a	234.8	a	185.0	a	8778.5	a

¹ Application code indicates eight application dates: A-17 May, B-31 May, C-14 June, D-28 June, E-12 July, F-25 July, G-9 Aug, H-23 Aug, I-6 Sept.

² Dollar spot infection centers are the means of the number of foci per plot.

³ Area Under the Disease Progress Curve (AUDPC) quantitatively measures dollar spot intensity with time overall rating dates.

⁴ Means (n=4) within columns followed by the same letters are not significantly different according to Fisher's protected LSD test at (P = 0.05).

TABLE 4

Dollar spot fungicide treatment application dates and rates for an Independence creeping bentgrass fairway

Treatment, formulation, and rate/1000 sq. ft.	A	B	C	D	E	F	G	H	I	J	K	Total
	May 19	June 02	June 09	June 16	June 30	July 14	July 21	July 28	Aug 04	Aug 11	Aug 18	
Encartis 6.25SC 3 fl. oz.	X	X		X	X	X		X		X		21
Encartis 6.25SC 3.5 fl. oz.	X		X		X		X	X		X		21
Encartis 6.25SC 4 fl. oz.	X			X		X				X		16
Maxtima 3.34SC 0.3 fl. oz.	X		X		X		X			X		3.5
Maxtima 3.34SC 0.4 fl. oz.	X		X		X		X			X		2
Xzemplar 2.47SC 0.21 fl. oz.	X		X		X		X			X		1.05
Xzemplar 2.47SC 0.26 fl. oz.	X		X		X		X			X		1.3
Traction 3.24SC 1.3 fl. oz.	X		X		X		X			X		6.5
Daconil Ultrex 82.5 percent WDG 2.8 fl. oz.	X	X		X	X	X		X		X		19.6
Secure 4.17SC 0.5 fl. oz.	X		X		X		X			X		2.5
Daconil Action 6.11SC 2 fl. oz. + Secure Action 4.18SC 0.5 fl. oz.	X		X		X		X			X		10 + 2.5
Daconil Action 6.11SC 3 fl. oz. + Secure Action 4.18SC 0.5 fl. oz.	X		X		X		X			X		15 + 2.5
Program												
Daconil Action 6.11SC 2 fl. oz.			X			X					X	6
Posterity XT 1.48SE 1.5 fl. oz.			X			X						3
Secure Action 4.18SC 0.5 fl. oz.	X				X				X		X	2

Continued from page 24

applied nitrogen using Country Club MD (18-3-18, LebanonTurf) on June 10 and September 2 at 0.5 lbs. N/1000 ft. sq.

Our trial plots were 5-by-5 ft and arranged in a randomized complete block design with four replications. Treatments were applied in water

equivalent to 2 gal/1000 ft. sq. with a CO₂-powered sprayer, at 50 psi using three TeeJet 8008 flat fan nozzles.

For both trials (Experiment 1 and Experiment 2), we initiated all treatments on May 17, with the last application varying according to treatment (Table 1). On July 1, using a hand-held

broadcast spreader we applied a rye grain infested with the dollar spot pathogen uniformly at 12.5 cc per plot. We then left the rye grain on the turf surface for four days before mowing.

We assessed dollar spot severity as counts of infection centers per plot. The area under the disease progress curve

TABLE 5

Dollar Spot control on a mature 'Independence' creeping bentgrass fairway

Treatment, formulation, and rate/1000 ft. sq.	Application code ²	Dollar spot infection centers ³						
		July 20	Aug 3	Aug 16	Sept 2	Sept 15	Sept 29	AUDPC ⁴
Encartis 6.25SC 3 fl. oz.	ABDEFHJ	0.0 e ^w	6.3 b	0.3 c	0.0 f	35.0 g	19.5 ef	709.1 gh
Encartis 6.25SC 3.5 fl. oz.	ACEGHJ	15.9 bc	5.3 b	0.6 c	0.2 f	33.5 g	12.3 f	884.9 gh
Encartis 6.25SC 4 fl. oz.	ADFJ	0.0 e	3.8 b	0.4 c	7.5 e	105.8 de	72.0 c-f	2226.0 efg
Maxtima 3.34SC 0.3 fl. oz.	ACEGJ	11.3 cd	4.8 b	0.7 bc	13.3 de	103.0 ef	91.8 b-e	2548.9ef
Maxtima 3.34SC 0.4 fl. oz.	ACEGJ	5.4 d	1.5 b	0.4 c	13.6 de	95.8 ef	60.0 c-f	2101.1 e-h
Xzemplar 2.47SC 0.21 fl. oz.	ACEGJ	18.1 bc	4.0 b	0.7 bc	0.5 f	63.8 fg	29.3 def	1404.9 fgh
Xzemplar 2.47SC 0.26 fl. oz.	ACEGJ	19.8 bc	1.5 b	0.2 c	0.0 f	62.8 fg	30.5 def	1398.9 fgh
Traction 3.24SC 1.3 fl. oz.	ACEGJ	20.0 bc	0.3 b	0.6 c	30.8 cd	122.5 cde	98.8 bcd	3188.1 de
Daconil Ultrex 82.5%WDG 2.8 fl. oz.	ABDEFHJ	1.1 e	5.5 b	3.2 b	107.0 b	165.0 b	219.0 a	5577.3 b
Secure 4.17SC 0.5 fl. oz.	ACEGJ	26.5 b	4.3 b	3.2 b	53.7 bc	156.8 bc	200.3 a	5070.8 bc
Daconil Action 6.11SC 2 fl. oz. + Secure Action 4.18SC 0.5 fl. oz.	ACEGJ	19.2 bc	2.0 b	0.6 c	47.8 bc	145.8 bod	150.5 ab	4278.4 bcd
Daconil Action 6.11SC 3 fl. oz. + Secure Action 4.18SC 0.5 fl. oz.	ACEGJ	16.1 bc	4.5 b	0.5 c	23.5 cd	146.3 bod	120.5 bc	3547.6 cde
Program		0.2 e	1.0 b	0.0 c	0.0 f	36.3 g	13.5 f	600.9 h
Secure Action 4.18SC 0.5 fl. oz.	A							
Posterity XT 1.48SE 1.5 fl. oz.	C							
Daconil Action 6.11SC 2 fl. oz.	C							
Secure Action 4.18SC 0.5 fl. oz.	E							
Posterity XT 1.48SE 1.5 fl. oz.	F							
Daconil Action 6.11SC 2 fl. oz.	F							
Secure Action 4.18SC 0.5 fl. oz.	I							
Daconil Action 6.11SC 2 fl. oz.	K							
Secure Action 4.18SC 0.5 fl. oz.	K							
Untreated Control	-----	64.5 a	68.3 a	33.8 a	294.5 a	247.3 a	155.3 ab	11526.3 a
LSD value		8.08	3.85	2.30	34.8	39.94	83.1	1276.68

² Application code indicates application date: A-19 May, B-2 June, C-9 June, D-16 June, E-30 June, F-14 July, G-21 July, H-28 July, I-4 Aug, K-18 Aug.³ Dollar spot infection centers are the means of the number of foci per plot.⁴ Area Under the Disease Progress Curve (AUDPC) is a quantitative measure of dollar spot intensity with time overall rating dates.^w Means (n-4) within columns followed by the same letters are not significantly different according to Fisher's protected LSD test at (P = 0.05).

(AUDPC) was calculated using the trapezoidal method with the formula $\sum [(y_i + y_{i+1})/2] [t_{i+1} - t_i]$, where $i = 1, 2, 3, \dots, n-1$, where y_i is the rating, and t_i is the time of the i th rating. Data were subjected to analysis of variance and means separation using Fisher's protected LSD test ($P=0.05$).

EXPERIMENT 1: CRENSHAW GREEN

We first observed differences in dollar spot control among treated plots on May 31. On June 13, the program treatment plots had significantly higher dollar spot severity than other treatments (Figure 1). Conversely, the

program had less dollar spot severity than other treatments on July 20.

On August 2, plots treated with Traction (fluazinam, tebuconazole, Nufarm) at 1.3 fl. oz./1000 ft. sq. – 21d had significantly more dollar spot than plots treated with Maxtima (mefentrifluconazole, BASF) at 0.4 fl. oz./1000 ft. sq. over the same period. On September 16 and 28, two and four weeks following the final application, respectively, plots treated with Traction had significantly more dollar spot than Maxtima and had significantly lower AUDPC values than the control.

EXPERIMENT 2: PENNLINKS GREEN

We first saw dollar spot on July 7. All treated plots had less than one infection center per plot on July 7. There were no treatment differences throughout this experiment. All treated plots had significantly lower AUDPC values than the untreated control (Table 1).

FAIRWAY EXPERIMENT

Fungicide treatments were evaluated for disease control at the Daniel Turfgrass Research and Diagnostic Center at Purdue on a mature 'Independence'

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Research Takeaways

Putting green trials

- Following final applications in late August, Maxtima and Xzemplar had lower dollar spot severity than Traction on the 'Crenshaw' green in September, but all fungicide treatments performed better than the untreated control throughout the study.
- On the 'Pennlinks' green, Lexicon, Maxtima and Navicon treatments provided excellent dollar spot control throughout the season.

Fairway trial

- Plots treated with Encartis (3 fl. oz./1000 ft. sq. – 14 days), Encartis (3.5 fl. oz./1000 ft.² – 21 days), both Xzemplar rates and program-treated plots had the fewest dollar spot infection centers several weeks after the final application.
- Encartis rates and application timing did not significantly affect dollar spot control. However, plots treated more frequently (14 and 21 days) with Encartis at lower rates had fewer dollar spot infection centers than Encartis applied at a higher rate and 28-day intervals.
- Different application rates and timing within Xzemplar and Maxtima treatments did not significantly affect dollar spot control during the study.
- Daconil Ultrex and Secure, both individually and combined, provided less residual dollar spot control than other treatments. This is not surprising for contact-protectant fungicides, which are more prone to removal through mowing or environmental degradation than systemic fungicides that get into the plant. Contact fungicides are less prone to resistance development and are important tools for fungicide resistance management.

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creeping bentgrass fairway.

We mowed three times weekly at a height of 0.5 inches from April 1 to October 1. We applied Ference (cyantraniliprole, Syngenta) on June 30 at a rate of 0.37 fl. oz./1000 ft. sq. for white grub control. We used the wetting agent Excalibur on July 20 at a rate of 2.7 fl. oz./1000 ft. sq. to limit the development of localized dry spot.

We applied the wetting agent Fleet (Harrell's) on August 16 at a rate of 3 fl. oz./1000 ft. sq. to limit the development of localized dry spot. We then applied nitrogen using Shaw's (24-0-22) on May 24 at 0.75 lbs. N/1000 ft. sq. and September 13 at 1.0 lbs. N/1000 ft. sq.

Plots were 5-by-5 ft. and arranged in a randomized complete block design with four replications. Treatments were applied in water equivalent to 1 gal/1000 ft. sq. with a CO₂-powered sprayer at 45 psi using three TeeJet 8008 flat fan nozzles.

We made initial fungicide applications on May 19 and the last on August 18. We applied rye grain infested with the dollar spot pathogen uniformly with a hand-held broadcast spreader on June 27 and July 1 at 11 and 12 cc per plot, respectively. We then left rye grain on the turf

surface for four days before mowing.

We assessed disease severity every two weeks throughout the study. Disease severity was evaluated as a visual estimate of the percent diseased area per plot. The area under the disease pressure curve (AUDPC) was calculated using the trapezoidal method mentioned above. Data were subjected to analysis of variance and means separation using Fisher's protected LSD test ($P=0.05$).

FAIRWAY RESULTS

We first observed dollar spot on June 1 (<0.3 percent severity and 0.2 infection centers per plot) and increased following inoculation. On July 20, plots treated with Encartis (boscalid and chlorothalonil, BASF) at 3 fl. oz./1000 ft. sq. – 14 d and 4 fl. oz./1000 ft. sq. – 28 d, Daconil Ultrex (Chlorothalonil, Syngenta) at 2.8 fl oz/1000 ft. sq. – 14 d, and program treated plots had less dollar spot than all other treated plots and the untreated control.

From July 20 to September 15, all treated plots had fewer dollar spot infection centers than the untreated control. On September 2, two weeks following the final application (WFFA), plots treated with Encartis (3 fl. oz./1000 ft. sq. – 14 d), Encartis (3.5 fl.

oz./1000 ft. sq. – 21 d), Xzemplar (fluxapyroxad, BASF) at 0.21 fl. oz./1000 ft. sq. – 21 day, Xzemplar (0.26 fl. oz./1000 ft. sq. – 21 day) and program treated plots had the lowest dollar spot severity.

On August 3 and August 16, Encartis rates and application timing did not significantly affect dollar spot control. However, on September 2 and September 15 (2 and 4 WFFA), plots treated more frequently with Encartis (3 fl. oz./1000 ft. sq. – 14 d) and Encartis (3.5 fl. oz./1000 ft. sq. – 21 d) had lower dollar spot severity than Encartis (4 fl. oz./1000 ft. sq. – 28 d).

Conversely, differences in application rate and timing within Xzemplar and Maxtima treatments did not significantly affect dollar spot severity during the study. The higher application rate of Daconil Action (3 fl. oz./1000 ft. sq.) mixed with Secure Action did not reduce dollar spot compared to the lower rate (2 fl. oz./1000 ft. sq.) Plots treated with Xzemplar had fewer dollar spot infection centers than Maxtima-treated plots on September 2.

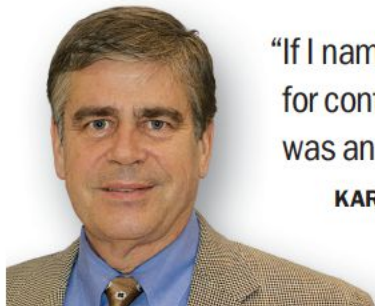
AUDPC values for all treated plots were significantly lower than untreated control plots. The Program plots had consistently low dollar spot severity throughout the study, with the numerically lowest AUDPC value of all treatments.

Plots treated with Daconil Ultrex alone had a higher AUDPC value than all treated plots except those treated with Secure (fluazinam, Syngenta) at 0.5 fl. oz./1000 ft. sq. – 21 d) alone and Daconil Action (2 fl. oz./1000 ft. sq.) and Secure Action (acibenzolar-S-methyl and fluazinam, Syngenta) at 0.5 fl. oz./1000 ft. sq. – 21 d. No phytotoxicity was observed throughout the study. ☺

Lee Miller, Ph.D., and Matthew Carpenter, Purdue University. Contact Lee Miller for more information at purdueturfpath@gmail.com.

References

- Miller, G.L., Carpenter, M.C. 2023. Evaluation of multiple fungicides for dollar spot control on a golf putting green. *Plant Disease Management Reports*. Report No.17:T003, March 15, 2023.
- Miller, G.L., Carpenter, M.C. 2023. Evaluation of multiple fungicides for dollar spot control on a golf putting green. *Plant Disease Management Reports*. Report No.17:T004, March 15, 2023.
- Miller, G.L., Carpenter, M.C. 2023. Evaluation of multiple fungicides for dollar spot control on fairway height creeping bentgrass. *Plant Disease Management Reports*. Report No.17:T005, March 15, 2023.



“If I named every product or practice for controlling *Poa*, you would think it was an endangered species.”

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

The ups and downs of *Poa annua*

If there is a proverbial “shot across the bow” in the life of a golf course superintendent, it’s the arrival of annual bluegrass (*Poa annua*) in the spring. *Poa* is quick to initiate, not only does it start top growth sooner in the spring than creeping bentgrass, but it allocates up to 35 percent of the plant’s top growth for seed production.

The appearance and number of *Poa* inflorescences soon after growth initiates is profuse. Approximately 88,000 to 265,000 tillers per sq. yd. each year.

The flowering that occurs from spring through early summer is especially disruptive on golf course greens. The inflorescences impact the uniformity and smoothness of the putting surface. Putts struck across a seeding *Poa* green are often bouncing and diverted offline.

The number of seeds produced from *Poa* flowering is consequential. It’s estimated that the amount of seed produced ranges from 177,000 to 767,000 seeds per sq. yd. per year. *Poa* seeds have characteristics similar to annual weeds that give them an advantage over cool-season turfgrass seeds like creeping bentgrass.

Poa seeds can lay dormant in the soil until a series of complex biochemical

processes occur that allow for the seed to germinate. In other words, *Poa* seed is not only found at elevated numbers in the soil but remains dormant until conditions are desirable to germinate.

KNOW YOUR POA

A gradation of *Poa* types are found on a golf course. Under more stressful or extreme conditions, where moisture can fluctuate greatly — namely a golf course rough — a true annual type of *Poa* is common. On putting greens, where conditions like moisture are more moderated from irrigation practices, and mowing heights are lower a more perennial *Poa* will be dominant.

Based on research at Penn State University, when annual *Poa* types are subjected to continual low mowing heights the plants take on perennial-type characteristics. Researchers speculated the reason for this was that close mowing

heights induce an epigenetic effect on gene regulation.

Simply stated the DNA functionality may be affected by mowing resulting in a perennial biotype, but the underlying DNA is not altered. Thus, if you were to remove mowing, the *Poa* would eventually revert to an annual type.

FRIEND OR FOE?

Since the hickory age of golf, management strategies have focused on controlling *Poa*. Taking just the adaptability of *Poa* to golf course conditions, and its reproductive potential described above makes for a formidable foe.

If I named every product or practice for controlling *Poa*, you would think it was an endangered species. In the quest for eradication, we occasionally forget *Poa*’s desirable golfing characteristics. It has an upright growth habit that, combined with its ability to tolerate low mowing heights, results in excellent putting green and fairway playing surfaces when managed properly.

Recently, I haven’t come across many articles or conference talks on the desirability of *Poa* as a golf course turf or how to manage it. Maybe it is due to the natural cycling of agronomic topics and its popularity will return. Positive reinforcement on managing *Poa* will enhance its desirability in those who maintain it.

Managing *Poa* or conversely controlling it requires knowing why it’s there in the first place. If you can’t change or modify the cause(s) for *Poa* being there in the first place, eradication is often short-lived. If *Poa* dies, what fills in? More *Poa*. ☹

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



With an influx of robotics in golf enhancements in GPS-guidance have become more important as superintendents navigate the ecosystem.

Embracing the future of robotics and GPS

Why robotic, GPS-guided mowers have taken over this Connecticut course

By Rob DiFranco

C.J. Ehrentraut, superintendent at Blackhawk CC in Stratford, Conn., has a unique set of coworkers.

In addition to the people who make up his maintenance staff, Ehrentraut and Blackhawk employ a fleet of 30 of Husqvarna's 550 EPOS Automowers.

"We invested the money into a whole fleet and started cutting fairways with them," he says. "Right now, they're cutting at half an inch on our fairways. We're also looking to start moving into some rough areas as well to save a bit on the labor that we had going toward cutting those areas. We've also started going more into detail work to see what we can get done with (the mowers)."

Ehrentraut's 550s utilize EPOS (Exact Positioning

Operating System), which allows him to set a boundary for the mower to work within. After his boundaries are set, Ehrentraut says the mower will operate within them and mow the most efficient route.

Ehrentraut says he understands the hesitation of some in the industry toward robotic, GPS-guided mowers. But, he says, it's more than likely a matter of when, not if, they become a part of a superintendent's daily life — so now is the time to hop on the train.


"For me, it's, it's always been the future. We either have to embrace it or not because it's the way we have to go," he says. "I want to see these things work because it's the only way we're going to get some of this stuff done in the future." 

PHOTO COURTESY OF: GREENSIGHT/HUSQVARNA

Frost

KEN ROST
CEO



The advancement I'm most excited about is, that when you have a sprayer that's able to execute prescription applications, you have to generate a prescription map to give the sprayer for it to execute it. In the past, boundaries and information would all be collected and handed off to what would be considered a GIS (geographical information systems) professional who is familiar with the program and would take all the information and generate a map for the golf course superintendent.

There have been some attempts and failures in the industry to generate a program that anyone could use, and it's been a problem. But the folks at GreenKeeper have developed just exactly that. It just so happens that there's other important data information that the GreenKeeper program provides, but now anybody can make these maps using GreenKeeper. They're calling it CIS or Course Information System. Frost has no stake in the game with GreenKeeper other than that, we kind of helped them develop the program. I'm super excited for it because it gives the superintendent the power to make any edits, any changes, anything that he needs to do with his prescription maps he can do now very simply and very quickly.

John Deere

DAVE ANDERSON
Product Manager



By incorporating GPS technology in daily practices, superintendents can save time and money. Improvements with receivers continuously provide enhanced accuracy and precision for critical operations, such as applications.

Additional improvements also unlock their abilities to receive satellite-based Real Time Kinematic corrections, which will eliminate the need for additional, on-site infrastructure, commonly referred to as a "base station." This accuracy allows users to be more efficient and sustainable in their practices. Users can utilize GPS technology for lower accuracy needs like machine tracking.

As technology continues to advance, the adoption of that technology continues to advance as well. As we see assistant superintendents who are coming up and becoming superintendents, they grew up with phones in their hands and instant access to data and information. They're the ones who are driving this (technology) and want to know more about their operations at an instant glance — and be able to change and adjust on the move.

GreenSight

JASON VAN BUSKIRK
Vice President of Sales



Our mapping and what we're able to offer the customer base as an actual map feature has become more refined to where we have the capacity to map a golf course and specify the number of mowers you'll need. We can integrate everything through TurfCloud so that the customer is left with an exact number of how many units they will need.

It's no longer "We think this might fit for what you want." Instead of having customers say, "What do you think? I'll only need a couple of units here on the driving range," we can tell them that, if they want to do this at night, they're going to need 10 units. Whereas before you might think, "Well, I've got six acres of grass and three units, I'll be fine."

Now we know that if you have six acres, you better believe every bit of six units is going out there, if not more. In addition to that, we are continuing to expand our automower footprint and improving the Turf Cloud platform to have more features for the user. In 2024 we're adding more and more customers to the base where it's not just like a one- or two-mower type of operation. We're seeing more and more courses say, "We're ready to go with 10 units, we're ready to go with a rough solution or a fairway solution," and we can provide that.

A new species and new problems

With the spotted lanternfly now as far west as Illinois, prevention is key to stopping the spread

By Brian Love, Associate Editor

Mostly found in the eastern part of the country, the spotted lanternfly has slowly been making its way into midwestern states. In September 2023, researchers confirmed its presence in Illinois, the furthest west anyone has seen the SLF.

Considered a newer invasive species in the U.S., the spotted lanternfly (SLF) can be a major nuisance for both golfers and golf course superintendents.

While the SLF isn't going to directly damage your turf, Ken Johnson, horticulture educator at the University of Illinois Urbana-Champaign, says the insect can still harm it indirectly.

"As they feed on the trees, (the SLF) releases a lot of honeydew," he says.



Ken Johnson

"Once there is a lot of honeydew buildup, you'll see a sooty mold growth. This sticky substance can further damage plants and turf around it."

The honeydew, Johnson adds, can attract other insects that can damage turf or be a general nuisance to golfers and maintenance crews — like wasps and other stinging insects.

TRICK AND TREAT

According to Johnson, because the species is so new to Illinois, researchers are still looking at different ways to combat it.

Illinois, he says, has followed the lead of other states — like Pennsylvania, where the SLF first entered the country in 2014 — in its initial handling of the insect. Superintendents have utilized insecticides with the active ingredient dinotefuran, which absorbs into the tree to combat potential infestations.



Known as "plant hoppers" the spotted lanternfly has slowly spread across the U.S. since first appearing in Pennsylvania in 2014.

As far as contact insecticides go, Johnson says products featuring the active ingredients beta-cyfluthrin, carbaryl, zeta-cypermethrin and malathion, have proven to be successful.

"Those are all considered excellent, but if you want reduced toxicity, there are natural pyrethrin to choose from. There are also textile soaps and horticulture oils. Honestly, any oil is good to use," he adds.

In addition to insecticides, Johnson recommends simple traps — sticky bands and circle traps — to catch the SLF before it can damage a tree.

Johnson calls SLF "showy insects," meaning they're not easily mistaken for any other golf course pests. Adult lanternflies sport gray wings with black stripes and spots on the tips. When they're disturbed, superintendents will be able to see patches of red on the insect's back.

PREVENT DEFENSE

For a more preventive approach, Johnson says superintendents should closely monitor trees on the course. If they find that insects have a favorite tree to feed on, keep an eye on it.

SLF specifically, he says likes to feed on *ailanthus altissima*, more commonly

known as the "tree of heaven," which is also considered an invasive species because of its ease of establishment and rapid growth.

"If a course has (a tree of heaven), that is something to monitor," Johnson says. "If they haven't removed those trees, the spotted lanternflies can lay a lot of eggs on it. Those eggs can be overlooked. Once they first show up, you may only have a few here and there, but the population can build. They'll probably be more noticeable as those populations increase."

Superintendents can identify SLF eggs by looking for light-brown or gray masses that can be up to 1.5 inches long. SLF will usually lay eggs on trees near their feeding site. Other areas to check are the underside of horizontal surfaces.

After spotting these eggs, Johnson says the best course of action is to either scrape them off into a container filled with either rubbing alcohol or hand sanitizer or smash them.

He advises that superintendents start doing this at some point early in the fall and continue through May. This is because once April hits, juvenile SLF will start to emerge. Once active, adult SLF will start to lay their eggs in September, continuing through either November or until the first freeze.

PEST HOTLINE

To help monitor the spread of SLF across the state, the University of Illinois has set up an email where superintendents can report sightings.

The university requests that superintendents send photos of spotted lanternflies to lanternfly@illinois.edu along with detailed information such as the time and location of the sighting and the number of insects.



“Coho emerged as a superior cultivar in terms of resistance, compared to Shark and Pennncross.”

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

Pioneering the future of dollar spot management

Recently, the golf course superintendent community has witnessed significant progress in the battle against dollar spot. Through the collaborative efforts of university researchers, the latest developments offer promising insights and innovative strategies for managing this prevalent disease.

This article provides an update on the current projects, new research initiatives and future events dedicated to advancing our understanding and control of dollar spot in turfgrass.

CULTURAL PRACTICES

Following extensive research conducted over the summer of 2022 (see more on page 23), Fereshteh Shahriveisi, Ph.D., University of Maryland, is preparing a peer-reviewed article on dollar spot cultural practices.

She will submit this pivotal work for the 2025 International Turfgrass Research Conference (ITRC). The article will summarize cultural strategies to mitigate dollar spot impact on putting greens and fairways. Golf greens had minimal differences in dollar spot and more significant variances were on fairways, with nitrogen application and dew removal exhibiting the largest impacts.

Despite these improvements, stacking cultural practices did not sufficiently suppress dollar spot to commercially acceptable levels.

BENTGRASS CULTIVAR SURVEY

To encourage the adoption of disease-resistant cultivars, a survey was completed to identify factors that superintendents use when selecting bentgrass cultivars. The findings are interesting, and Ming-Yi Chou, Ph.D., at Rutgers University, has taken the lead in synthesizing these results into a comprehensive publication.

Potential journals for publication include the *Journal of Extension* and *Hort-Technology*, among others, highlighting the survey's significant contributions to the selection and management of bentgrass cultivars concerning dollar spot resistance.

HOST RESISTANCE

Initiated in 2021, across seven locations, this project has provided valuable data on the resistance of various bentgrass cultivars to dollar spot.

Notably, Coho emerged as a superior cultivar in terms of resistance, compared to Shark and Pennncross. The findings, particularly from Michigan

State and Wisconsin, underline the importance of cultivar selection in dollar spot management strategies. The project's continuation into a third year is under discussion, emphasizing the commitment to understanding and improving host resistance.

IMPROVED CULTIVARS

Launched in 2023, this new study aims to adjust the Smith-Kerns Dollar Spot model thresholds for cultivars with varying resistance levels. Preliminary results from five locations show that spray thresholds could be significantly increased for resistant cultivars like Coho, promising reductions in fungicide applications and associated costs.

RESISTANT CULTIVARS

This project is investigating effective bentgrass conversion strategies to help reduce fungicide use. Initial findings from 2023 laid the groundwork for continued research into dollar spot differences between treatments and the establishment of resistant cultivars.

LOOKING AHEAD

John Inguagiato, Ph.D., at the University of Connecticut, introduced a novel research initiative exploring the relationship between aerification practices and dollar spot development, sparking interest among fellow researchers.

The researchers will reconvene at the Dollar Spot Conference in 2025, aimed at addressing challenges and knowledge gaps in dollar spot management.

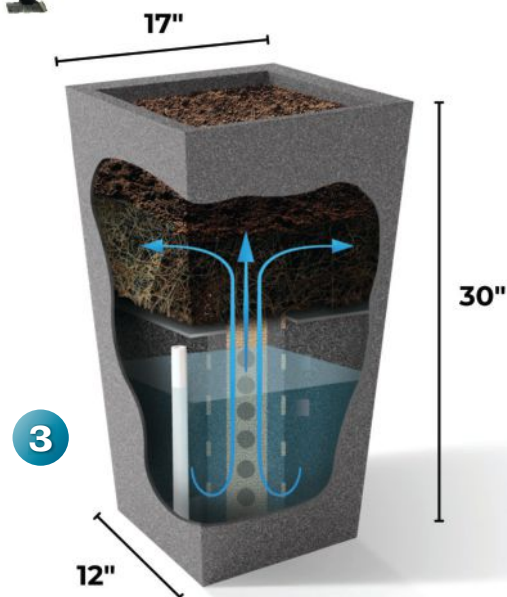
The positive response to the 2025 conference underscores the collective commitment to advancing turfgrass science and management strategies.

The collaboration and dedication of researchers and professionals in this field are essential to developing effective, sustainable strategies to benefit golf course superintendents globally. **G**

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

The Shop

// MUST-HAVE NEW PRODUCTS



1 | Sundance 48 Series Grinder

SUNDANCE MACHINERY unveils its 48 Series Grinder for compost and mulch producers. It features a hammer mill 8-foot by 40-inch conveyor hopper. Operators can choose mobile or stationary units with multiple power source options. It can convert wood chips into customizable mulch on-site. SundanceMachinery.com

2 | The Batwing BW15

The Batwing BW15 series, new from **WOODS EQUIPMENT**, features a flex-wing rotary cutter line, upgraded shimless EZ-Change blade system and a SmartLift system that holds 80 pounds while users attach to the tractor PTO shaft. It is available in two models: the BW15.52 for 45-200 horsepower tractors and BW15.72 for 65-300 horsepower tractors. WoodsEquipment.com

3 | EarthPlanter Pedestal Planter

The **EARTHPLANTER** Pedestal Planter is a commercial self-watering planter available in multiple colors, including stone-effect. It is designed to provide an accent to any landscape project and border for outdoor areas, giving superintendents healthy plants while going weeks between watering cycles. EarthPlanter.com



4



5

CHECK OUT MORE NEW EQUIPMENT ONLINE

To stay up to date on all the latest products and services, visit golfdom.com/category/products



6

4 | SnowStriker

HILLTIP'S SnowStriker VTR snowplows are designed for loaders and compact tractors, weighing between 2.5 to 5 tons. Six models are available from 5.5 to 8.6 feet wide. There is a curved, powder-coated snow blade made from steel, helping to make the plows light. Additional features include an adjustable two-segment cutting edge with trip springs and an attack angle which allows operators to adapt to different plowing surfaces and weather conditions.

[Hilltip.com](https://hilltip.com)

5 | Ankle Deck Boot

The Ankle Deck Boot from **GEORGIA BOOT** provides waterproof protection for workers, styled with a 6-inch ankle deck and slip-resistant Chevron outsole. The boot is a lightweight design and offers slip-on-and-go styling for easy on/off. The boot is made from hand-laid rubber.

GeorgiaBoot.com

6 | Tru-Turf Greens Roller

The **TRU-TURF** RE50 Golf Greens Roller can roll 27 greens with power left over on a single charge. Powered by four 48V (120Ah) GC2 Trojan lithium-ion batteries, the roller is quiet, ideal for turf management after hours or where there are stringent noise restrictions.

TruTurf.com

The 19th Hole

Greg Matz

SUPERINTENDENT // Inglewood GC, Kenmore, Wash.



Greg, drinks are on me... what are you having? We've got a lot of great microbreweries here in Seattle. Let's go with something local: an IPA from Ravenna Brewing.

Tell me about Inglewood CC. It's a 100-plus-year-old course. The centennial anniversary was in 2019. A.V. Macan designed it. He was from Ireland and moved to Victoria, British Columbia, in the early 1900s after World War I. He did a lot of courses in the area — Washington State, Oregon, Northern California. It's a relatively big property, 135 acres of maintained turf. It's a pretty good test of golf just up above Lake Washington.

How did you get into the business? I went to a smaller college in California and graduated as a communications major. I spent some time in the mid-

nineties working in the San Francisco Bay Area in public relations and marketing for internet start-ups. I enjoyed it but knew it wasn't what I wanted to do. I moved back to Seattle. A chance encounter with the superintendent at my folks' club led me to joining the staff. My superintendent said, "If you don't want to be a lawn mower all your life, you're going to need to go to turf school." He made a couple recommendations and I ended up going to Michigan State.

What was it like going back to college? It struck me from the first day that I was a different student at 28, 29, than I was when I was 19, 20, 21. I was really focused on what I was studying. I was paying for it all myself and I was studying something that I liked and knew was going to get me to somewhere that I was going to like.

Are you a sports fan? I'm a big sports fan. I grew up here, so I'm a Mariners, Seahawks and U-Dub Huskies fan. I dip my toes in with the Kraken. If I stretch out from there, my alma mater Santa Clara and my turf school, Michigan State.

Next time I'm out your way, what is something I've got to do? You've got to go to Dick's Drive-In and get a hamburger. Then, go up in the Space Needle. You really get the whole view, the Puget Sound to the west, Mount Rainier and downtown to the south, Lake Washington and Lake Union to the north and the Cascade Mountain range to the east.

Do you have a most memorable day at work? It was a Sunday morning and I had the day off. I woke up, checked my phone and I had a couple messages from the golf shop. A driver ran a red light and plowed through a Leland Cypress tree hedge, into a bunker and flipped his car onto the No. 7 green. He was hauled off for impaired driving. He did some damage, but it could have been worse. The funny thing was, it was an identical truck to the one I drive. So, the crew's initial reaction was, 'Aw geez, was that Greg?' So we all had a good laugh when I came in. As interviewed by Seth Jones, March 8, 2024.

// BEST ADVICE

"IF YOU'RE IN A SITUATION WHERE YOUR HEART ISN'T INTO IT, DON'T WAIT AROUND. TAKE A CHANCE. LIFE IS LONG — KNOCK ON WOOD — YOU'RE BETTER OFF DOING SOMETHING YOU ENJOY."



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