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Golfdom

JANUARY/FEBRUARY 2026

PLUS
Green Start Academy recap
GCSAA celebrates 100 years
Nematode management on bermuda



THE HOT LIST

More than a dozen products to see at the 2026 GCSAA Conference & Trade Show in Orlando

Reunion Resort's Palmer Course, longtime host course of the *Golfdom* Summit, will host the GCSAA Golf Championship Scramble. Andy Maguire is the course superintendent.

A NORTH COAST MEDIA PUBLICATION VOL. 82 // NO. 1



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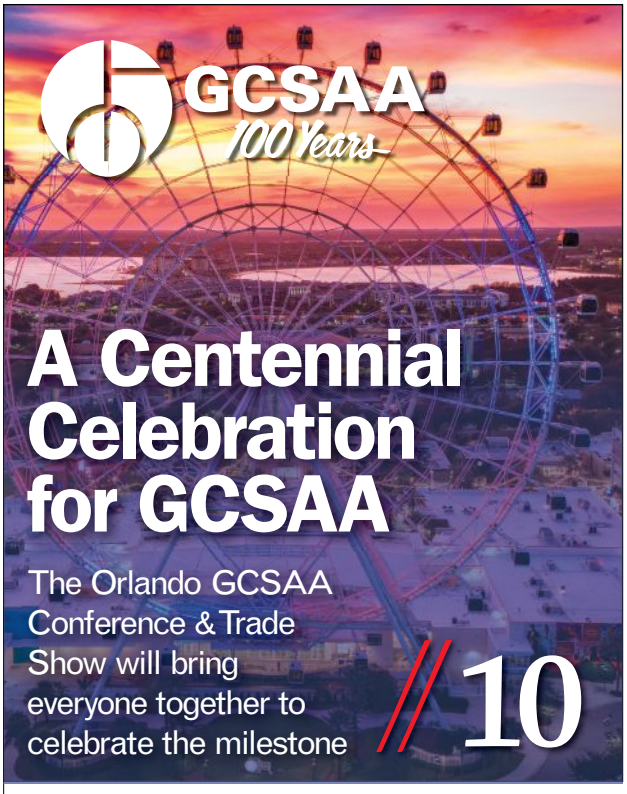
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Golfdom

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"It's a kick-off party celebrating GCSAA's 100-year anniversary — 1926 to 2026. GCSAA, you've come a long, long way."

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

Celebrating Col. John Morley's big idea

As is tradition, I connected with GCSAA CEO Rhett Evans to talk to him about his expectations for the upcoming Conference and Trade Show. After we chatted about our families and before we got going about what's new and how show attendance is tracking (registrations up 10 percent from last year as of press time, and the tournament is about to sell out), we shared a laugh about how long we've been doing this.

Rhett let out a sigh and told me that on many of the industry committees he's on, most of the people have cycled out — he's the grizzled veteran of the group.

I don't have that problem — people don't ever ask me to join committees (but hey, they do invite me to their receptions). But I get what he's talking about. I visited the North Coast Media headquarters in Cleveland to attend the company holiday party — always a good time — and my human resources director stopped by my office with a card. It contained a gift card and a congratulatory note. The recognition was in celebration of working for *Golfdom* for 15 years.

And I've also got a card for Debbie Pipik, our HR director (Yeah, I've had a few closed-doors meetings with her. See above comment about all the receptions).

Debbie is retiring. Cheers to you, Deb!

Sigh. Like Rhett said, these cycles keep moving on.

A key topic of my interview with Rhett was on the party they're throwing in Orlando at ICON Park. It's a kick-off party celebrating GCSAA's 100-year anniversary — 1926 to 2026. GCSAA, you've come a long, long way.

GCSAA is where my career as a professional journalist started. I was still in college when I started working for the association. It became my first full-time job and led me into a career covering this industry. Trips to the Masters, the U.S. Open, the British Turfgrass Management Exhibition, celebrity golf tournaments, Caribbean islands. It eventually led to *Golfdom* taking a chance on me, and then me adopting our sister publication, *Landscape Management* magazine. It was at GCSAA where I met my wife of almost 20 years.

To say I owe the brainchild of Col. John Morley a lot would be an understatement.

I worked at the association 25 years ago and recall preparing for the party we were going to throw for its 75th anniversary. As a low-level editor for the association (I mean, *the lowest*), my job was to park cars and valet them as people arrived at the front. And as a car guy, I was actually excited for the gig. Heck, maybe I'd even make some tips — I guarantee you Seth Jones of 25 years ago could have used some tips…

Those who were there will know where this is going — the tragedy of 9/11 happened the very same week and threw everything into chaos. The party was called off. People who had already traveled into Lawrence, Kan., for the occasion were stuck for days. It's one of the few sad memories I have of my time there.

GCSAA has big plans for the 100th anniversary of the association, and it kicks off in Orlando. Check out my article covering the event on pages 10-11. Following that article is a section spotlighting more than a dozen tools that'll be on display at the show.

The 100-year party will keep going into September, when the GCSAA will again invite attendees to a celebration. They'll unveil a new statue, this one of Col. John Morley, who will be joining the statue of the legendary Old Tom Morris. A committee was formed, made up of past GCSAA presidents and younger association members, to plan the events celebrating GCSAA's landmark.

I wasn't invited to serve on the 100-year committee.

But maybe I'll get invited to the reception.

Email Jones at:
sjones@northcoastmedia.net.

Starter

NEWS, NOTES AND QUOTES

//BACK TO BUSINESS



Associate editor Nathan Mader (second from left) got to spend almost a week with the amazing superintendents and Syngenta staff at North Carolina's Graylyn Estate.

A VISIT TO THE SYNGENTA BUSINESS INSTITUTE

By Nathan Mader // *Associate Editor*

The 17th annual Syngenta Business Institute kicked off in early December at the Graylyn Estate in Winston-Salem, N.C. Filled with top-tier education, great food, networking and fun for the 25 superintendents in attendance, SBI helped golf course management pros build on an often overlooked topic: leadership and professional development.

SBI offered a week for supers to step away from the agronomy, the turf and the products they use. Instead, classes were held on more personal skills such as work/life balance, leading across cultural/generational differences, negotiating, decision making and more.

"I so often hear people say, 'This is the best education I've ever got,' and I think part of it is because it's been very different than what has traditionally been offered in the industry," says Mark LaFleur, communications lead for turf and landscapes at Syngenta. "This is an opportunity to give them those skills that have been lacking in this industry."

Classes are taught by top professors from the Wake Forest University School of Business and pull from years of research. Amy Wallis, Ph.D., full professor of practice in organizational behavior, says she loves teaching the supers at SBI because not only are they passionate and eager, but they are quick to go to each other for help.

"I don't like to stand up and lecture at them," Wallis says. "They are so experienced already that it's more about finding ways to pull their best thinking together and to help them to learn from one another. I get excited every year when I'm asked to come in."

For a more complete rundown on everything that happened at SBI, check out our online story at **Golfdom.com**.

//BROTHERLY LOVE

BOB AND JOE ALONZI WIN COL. JOHN MORLEY AWARD



Brothers Bob and Joe Alonzi, both members of the Golf Course Superintendents Association of America (GCSAA), have been named recipients of the association's 2026 Col. John Morley Award.

They will be formally recognized on Feb. 3 during the Opening Session at the GCSAA Conference & Trade Show in Orlando, and the Alonzis' win is the first time the Morley Award has been given to a set of brothers.

Both Bob Alonzi, a 55-year GCSAA member, and Joe Alonzi, a 50-year GCSAA member, are retired Certified Golf Course Superintendents (CGCS). They each had long careers at famed golf courses in the Northeast: Bob at Winged Foot Golf Club in Mamaroneck, N.Y., where he hosted the 1984 U.S. Open and 1997 PGA Championship, and Joe at Westchester Country Club in Rye, N.Y., where he hosted 17 PGA Tour events and the 2011 Senior Players Championship.

In addition to their long careers at high-profile golf courses, the Alonzi brothers are also renowned for their willingness to give back to the industry and for mentoring many younger golf course management professionals who worked under them over the years.

"Throughout their careers, Bob and Joe raised the bar for the profession both in how they maintained the courses under their care and how they helped the development of so many others who crossed their paths," said GCSAA CEO Rhett Evans.

PHOTOS BY: WELLGLAD / ISTOCK-GETTY IMAGES PLUS / GETTY IMAGES (GOLFBALL); *GOLFDOM* STAFF; GCSAA

//CAROLINA ON MY MIND

A priceless experience at Pinehurst

By Will Coughlin // *Digital Media Specialist*

Green Start Academy was an incredible three days packed with information and networking for aspiring assistant superintendents. Sponsored by John Deere, Envu and Rain Bird, the event brought more than 50 assistant superintendents from around the country to Pinehurst Resort in North Carolina.

Discussion points ranged widely, including managing budgets, team building and leadership, cultivating business relationships and getting the most out of a GCSAA membership. Veteran superintendents and industry experts served as mentors to the group and shared their knowledge. Mentors included Brandon Richey, Jupiter Hills (Fla.) Club; Bubba Wright, Big Cedar Lodge, Ridgedale, Mo., and Jon Urbanski, Wilmington (Del.) CC, among others.

Green Start Academy attendees got tours of the USGA Headquarters and the World Golf Hall of Fame. Following that, mentors and their group of attendees got to play Pinehurst's par-3 course, "The Cradle."

The final morning was lead by Carol Rau and her expertise of the hiring process and career progression, helping attendees address key industry challenges and grow as leaders.

Green Start Academy and Pinehurst are both great examples of excellence in the industry. Attendee Nathan Sogard, assistant superintendent from Wicker Point Golf Club in Alexander City, Ala., said it best: "I just wish it lasted longer."



This year was Green Start Academy's 20th anniversary of helping rising industry leaders gain the tools, knowledge and connections needed to thrive.

//READY TO ROLL

INDIAN WELLS REOPENS PLAYERS COURSE



Indian Wells Golf Resort, located in California's Coachella Valley, is reopening its acclaimed Players Course for residents and resort guests following a comprehensive renovation led by architect John Fought.

The revamped Players Course was showcased to the public following a ribbon-cutting ceremony on Dec. 2. Headlining the most notable changes to the golf course is the redesign of the ninth, 17th and 18th holes. Previously separated from the rest of the golf course by the Whitewater Wash, the par-3 No. 17 and par-4 No. 18 holes have been relocated to the north side of the wash to streamline the dramatic homestretch of the layout that played host to the 2024 Epson Tour Championship. Additionally, the new par-3 ninth is now closer to the resort's clubhouse to improve access to food and beverage amenities at the turn.

The project also featured a "refresh" of the bunkers, tee boxes and greens on each hole to ensure a consistent and exceptional playing experience.

PHOTOS BY: *GOLFDOM* STAFF; INDIAN WELLS GOLF RESORT

//NEW YEAR, NEW SOLUTIONS

SIPCAM AGRO LAUNCHING CARVE XTRA FUNGICIDE

Sipcam Agro USA is launching Carve Xtra, a next-generation turf fungicide engineered to meet the rigorous demands of golf course disease management.

Carve Xtra combines azoxystrobin and prothioconazole — two active ingredients with complementary modes of action — to provide improved control and resistance management against diseases like dollar spot, brown patch, anthracnose and fairy ring.

Key features for superintendents include:

- **Broad-spectrum protection:** Controls 13 major turf diseases, including summer stress pathogens.
- **Resistance management:** Dual modes of action reduce the risk of fungicide resistance.
- **Enhanced turf quality:** Improves root development, color retention, shade tolerance and water use efficiency, according to the company.
- **Versatile application:** Fits seamlessly into rotational and tank-mix programs for all golf turf types.

Carve Xtra is launching early this year and is packaged in 4-by-1-gallon containers per case.

Golfdom Gallery



1 Welcome to the team, Jim! Longtime industry professional Jim Cummins — he worked for GCSAA for almost 20 years as their senior manager of business development — recently joined the *Golfdom* team as our national sales manager. To mark the occasion, Editor-in-Chief Seth Jones (left) and Editor Scott Hollister (right) took Cummins to Lawrence's oldest tavern, Johnny's, to celebrate.



2 Fool us While traipsing through another airport, Jones ran into the legendary magician duo of Penn and Teller.



3 Basketball watch party It seems the Kansas Jayhawks always have a big matchup the week of the Carolinas GCSA Conference and Show. 2025 was no different as the guys watched KU face Duke at Madison Square Garden. Joining the party are (left to right) Cummins; Scott Kinkead, Turfco; Jones; and Mark Semm, BASF.



4 Friends of *Golfdom* Stopping for a quick photo at the Carolinas Show are (left to right) Adam Mis, Transit Valley CC, East Amherst, N.Y.; Suzanne Mis, Carolinas GCSA; and Jeremy Boone, CGCS, MG, Springdale Resort, Canton, N.C.



5 Congrats from a former president Former Baltusrol GC Superintendent Mark Kuhns, CGCS, who served as president of GCSAA in 2009, was eager to wish Cummins well in his new endeavor with *Golfdom*. Kuhns now works for Ceres Turf Inc.

PHOTOS BY: *GOLFDOM* STAFF











6 Breakfast of champions At Elevate, the *Golfdom* team met up with their old colleague Bill Roddy (in purple) who now works for Envu. Joining the breakfast are Hollister, Lindsey Hoffman Chappell, Ph.D., Liz Dorland, Jones, Larissa Wolfe and Jake Clabaugh.

7 When in Phoenix... You must give Scottsdale local Michael Maravich (center), Ewing Outdoor Supply, a call. He knows all the best spots! With MM is Jones and Kevin Stoltman (right), president and CEO, North Coast Media.

8 Still got the Camaro? Jones with his old friend Chuck Borman, Carolinas GCSA. Jones and Borman were coworkers a long time ago when they both worked for GCSAA. The two share a love for muscle cars. And no, Jones sold the Camaro (but still has the '64 Impala).

9 100 years of Smith Turf and Irrigation Another member of the 100-year club is Smith Turf and Irrigation, who celebrated the landmark in 2025. Jones, Anna-Lindsay Yarbrough, president of Smith Turf and Irrigation, and Tim Kreger, executive director, Carolinas GCSA, celebrate with a selfie.

10 Spare a photo? At the Syngenta Business Institute in North Carolina, associate editor Nathan Mader (far right) tried some duckpin bowling with some Friends of *Golfdom*. Joining him is (from left) Lyndsay Rusczak, senior account executive at G&S Business Communications, and superintendents Brandon Smith, Laurel Springs (Ga.) GC; Alan FitzGerald, Rehoboth Beach (Del.) CC and *Golfdom* columnist; and Matt McKinnon, The Legacy Courses (Minn.) at Craguns.



"Showing you have a sustainability plan that benefits the natural environment and the surrounding community is a big positive ..."

CHRISTINE KANE, *CEO, Audubon International*

A sustainable payoff

For the modern golf course superintendent, committing to and achieving environmental certification alongside a proven partner such as Audubon International is not just good stewardship, it's good business.

Across the U.S. and abroad, more than 2,000 golf course operators and owners have dedicated resources to standardized, vetted and neutral certification programs such as Audubon Certified Sanctuary Program (ACSP) for Golf. As each year brings new innovations in how courses are maintained sustainably, operators find even more financial value with every sustainable best practice they employ.

Let's look at three ways certification saves dollars, labor and time.

MAINTENANCE AND NATURAL RESOURCES

Implementing and maintaining sustainable standards in turf reduction and disease abatement, water use and pest control soon offset the up-front costs of enrollment and certification. As these practices become more efficient, savings build.

For instance, scouting programs for insect, weed or disease problems with established thresholds streamlines the application and re-application of necessary chemicals or organic solutions. Superintendents can build relationships with local labs to identify and properly treat turf disease, while modern GPS-enabled sprayers can cut coverage applications by 20 percent or more.

Using the latest sensor technology also vastly reduces watering costs. At one partner course in Connecticut, precision irrigation saves about 100,000 gallons of water per day during summer; sensors highlight dry and wet spots, which saves time and labor by leading hand watering staff to the areas in need.

EMPLOYEE RETENTION AND TRAINING SAVINGS

Creating a culture of sustainability throughout the workplace — maintenance, food and beverage, retail, hospitality and, of course, management — assures that everyone on payroll is invested in contributing to a truly noble cause. Educating them in sustainable practices, whether it be waste disposal methods, product sourcing or golf course inputs, engenders confidence, enthusiasm and retention. Some courses also establish internship programs with local colleges, which leads to even more invested and environmentally-minded employees down the road.

This culture change spills over into a course's customer base, too. According to several recent surveys, an overwhelming majority of golfers, including millennials whose passion for the game got a big boost during the pandemic, want to play, stay and spend at demonstrably sustainable businesses. Showing that you have a sustainability plan that benefits the natural environment and the surrounding community is a big positive for these new demographics. They want to feel connected and contribute to the cause.

OUTREACH AND EDUCATION

Speaking of community, a course's return on investment for certification gets even stronger when it spreads the stewardship message into the world. In fact, outreach is a key component of every Audubon International certification program; partners are encouraged to promote their certification via prominent signage on property, e-newsletters, local media and by establishing partnerships with regional environmental organizations such as wildlife sanctuaries and horticulture societies.

The more customers see the breadth and depth of a course's commitment to sustainability, the better they feel about making a tee time or becoming a club member — and helping to spread the word.

In the face of rising costs in equipment, materials, labor and energy, today's golf operators are constantly on the lookout for ways to get the most out of their annual budgets. As the 2026 season approaches, exploring, implementing and completing an effective sustainability program makes fiscal sense on every front.

Christine Kane joined Audubon International as the organization's executive director in October 2016 and assumed the title of CEO in 2018. Through her leadership, the organization has grown exponentially in membership, certifications and global reach.

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GCSAA 100 Years

A CENTENNIAL CELEBRATION FOR GCSAA

BY SETH JONES

The Orlando GCSAA Conference & Trade Show will bring everyone together to celebrate the milestone.

A 100th anniversary doesn't happen often, so when it does, better treat it right.

That is what GCSAA plans on doing at the Centennial Celebration, scheduled for Tuesday, Feb. 3, from 6:30 to 9 p.m. at ICON Park in Orlando during the association's annual conference and trade show. It'll be a different kind of party than ever before — bringing together all attendees at one location instead of spread out at various receptions and parties.

"We're going to kick it off with a great party where all the industry can come together — not just the superintendents, the assistants and the mechanics, but also all our partners — in one location," says Rhett Evans, CEO, GCSAA.

ICON Park, billed as "Orlando's ultimate entertainment destination," is located near the Orange County Convention Center and features 40 attractions for attendees. Blake Shelton's Ole Red offers southern food and live music. Uncle Julio's offers fresh Tex-Mex and margaritas. Tin Roof is an American dive bar with a juke joint feel.

"It's a plaza area, a central park and 12 various restaurants," Evans says. "Many of these have been rented out by exhibitors, and they'll be open to all who attend."

T.A. Barker, CGCS, president of GCSAA, is excited to see it all come together during his presidency. He says the Centennial Celebration will offer entertainment for all attendees, including children.

"It's great because we've brought everyone together instead of separated by various parties held by the individual vendors," Barker says. "This will be a great way to kick off the 100-year celebration of GCSAA; with our partners and our members and our families all together in one location."

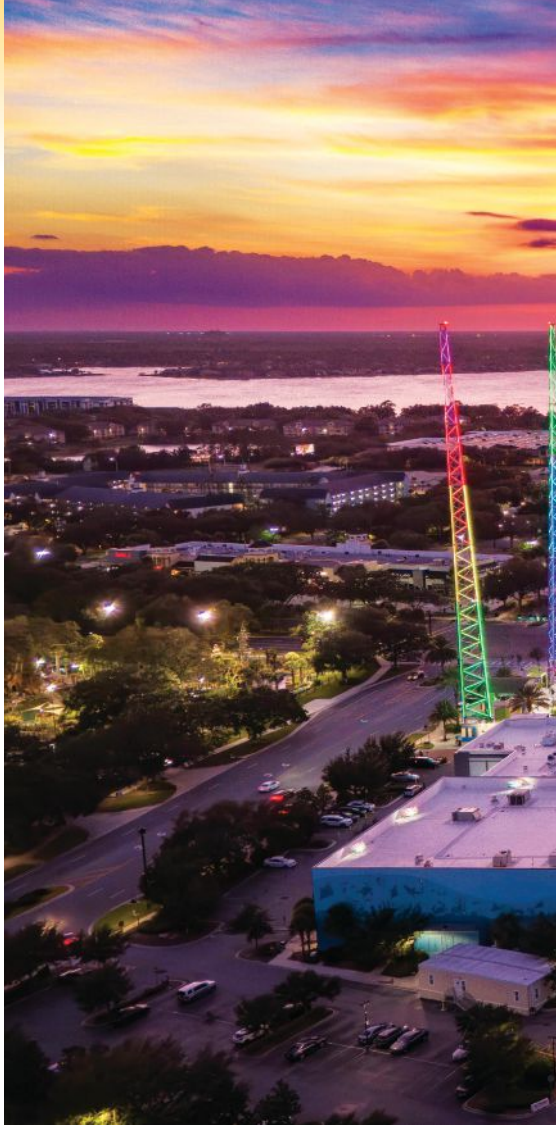


PHOTO BY: ICON PARK MEDIA KIT

A 100-YEAR JOURNEY

GCSAA was founded on Sept. 13, 1926, at Sylvania Country Club in Toledo, Ohio. At that first meeting, a group of 60 superintendents was brought together by Col. John Morley, who was the greenskeeper at Youngstown (Ohio) Country Club. Since that meeting 100 years ago, the association has grown to more than 20,000 members from around the world.

"It comes along once in a lifetime. It's a great opportunity to recognize our roots," Evans says. "From day one with Col. John Morley, we've grown and become a much stronger organization with a lot more members."

GCSAA has been planning this anniversary for a long time now. A committee of past GCSAA presidents, along with younger members, was formed and has been plotting how the celebration will unfold over the course of the year. It starts at ICON Park and culminates at



GCSAA headquarters in Lawrence, Kan., in September, when a new statue will be unveiled next to Old Tom Morris — a statue of Col. John Morley.

And then, it's on to the next 100 years.

"When I got elected to the board, I didn't think about it that in eight years, I can hand off the gavel and pass it off for the next 100 years," Barker says. "It's really an honor."

MORE TO LOOK FOR

While the Centennial Celebration certainly has our attention (*Golfdom* elected not to host its own party this year to respect the event), many more classes and events have caught our eye. Here are just a few:

- The **Making Artificial Intelligence (AI) Work Intelligently for You!** class is sure to be a hit. Presented by Brent Downs, CGCS, MG, from Otter Creek Golf Course in Indiana, this session will discuss how turf professionals can use ChatGPT, Microsoft Copilot and GreenKeeper to streamline their workload daily.
- **The GCSAA Golf Scramble** takes place on the Palmer Course at Reunion Resort. This is the same course where the magazine regularly hosts its *Golfdom* Summit scramble and has become a staff favorite. Superintendent Andy Maguire and his team keep the course in pristine condition (it's the same course featured on this month's cover). As of press time, there was still room in the scramble.
- Friends of *Golfdom* Jared Viarengo, CGCS, and James Brecker will present **Modern Golf Course Maintenance Facility: Applebrook Turf Care Case Study** and share how they developed an effective program to make the process of building a new maintenance facility as seamless as possible. Hailing from Malvern, Pa., the duo will share the impressive results with their new turf care center and what they did to get stakeholder buy-in and manage construction logistics.
- Finally, we're excited to share the following special section — useful for both GCSAA Conference & Trade Show attendees and those who must miss — of more than a dozen products that will be showcased at the conference. In this year's **Hot List,** we share Q&As with some of the most innovative problem solvers in the industry to learn how their products can make superintendents successful. That section begins on the next page.

The staff at *Golfdom* magazine hopes to see everyone at ICON Park to help celebrate 100 years of GCSAA. And then, get ready for another milestone in 2027 when the GCSAA Conference & Trade Show makes its return to New Orleans, where we'll be celebrating a 100-year anniversary of our own.



AQUA-AID SOLUTIONS Q&A



Bill Brown, CGCS
Director of Marketing and NE
U.S. Territory Manager

Matt Martin
Director of Research
and Product Development

What makes your product a game changer for golf course maintenance?



Excalibur® introduces a novel chemistry built on PHT technology (Potentiated Hydrophobe Technology), delivering fast, reliable infiltration even under challenging moisture conditions. Extensive research shows that Excalibur actively engineers the rhizosphere — the bridge between the root zone and soil particles — to increase plant-available water at lower volumetric water content, allowing roots to continue absorbing nutrients for improved health. Its advanced formulation promotes uniform moisture distribution, helping superintendents achieve firmer, more consistent playing surfaces while improving overall water-use efficiency.



PBS150® is the only surfactant independently proven through peer-reviewed research to reduce water use by up to 39 percent while maintaining high-performance playing conditions. Its long-term hydration capabilities minimize localized dry spots, reduce irrigation adjustments and support more resilient root systems — reinforcing healthy surfaces even under water restrictions.

How does your offering improve operational efficiency for golf course managers?

Operationally, **Excalibur**® reduces the need for labor-intensive hand watering by improving moisture uniformity across greens, tees and fairways. Field trials demonstrate firmer, more resilient conditions with fewer ball marks and reduced plant stress, even with higher volumetric water content. Excalibur also helps deliver soil-applied pesticides, increasing the value of each application and supporting more efficient agronomic programs.

PBS150® also delivers significant operational efficiencies through dependable 150-day performance that eliminates monthly surfactant applications. By improving infiltration and plant-available water, PBS150 reduces turf stress and lowers irrigation demand, cutting electricity use while preserving uniform playing conditions.

AQUA-AID SOLUTIONS

How does your solution enhance the overall player experience on the course?

Together, **Excalibur**® and **PBS150**® elevate the player experience by helping turf managers deliver the firm, consistent, healthy conditions expected at the highest levels of the game. Trusted by more than 50 percent of all global Tour venues — including PGA, LPGA, Champions and DP World Tour sites — these technologies support elite performance without pushing turf into unnecessary stress. Independent research confirms increased root mass and strong performance, even under reduced irrigation.

What future trends does your product align with in the golf industry?

As water conservation becomes central to BMP programs, both technologies reduce overall water use by improving infiltration, retention and plant-available moisture. They also maximize irrigation system efficiency by ensuring more water reaches the root zone with less waste. Their ability to help deliver soil-applied pesticides further strengthens IPM programs, supporting more effective and sustainable turf management strategies.

AQUA-AID SOLUTIONS 5484 S. Old Carriage Road, Rocky Mount, NY 27803 800-394-1551 aquaaidsolutions.com
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AQUA·AID SOLUTIONS

Solutions, Proven in Research Trusted by Turf Managers



Enhanced Moisture Management: Excalibur® and PBS150® enhance infiltration, moisture uniformity, and plant-available water for firmer, more consistent playing surfaces.

Operational Efficiency: Long-lasting performance reduces hand watering, irrigation adjustments, monthly surfactant applications, and electricity use.

Stronger Rootzone Performance: Research shows improved rhizosphere function, and root mass—even with reduced irrigation.

Future-Focused Sustainability: Support BMPs and IPM programs by reducing water use, maximizing irrigation efficiency, and enhancing a turf manager's agronomic program.



CORTEVA AGRISCIENCE

Q&A *with* Beverly Horton

Portfolio Marketing Lead

How can the Corteva Agriscience turf portfolio improve operational efficiency and enhance the player experience?

With the recent trends of heavier spring rainfall and higher summer temperatures, diseases like dollar spot and gray leaf spot are becoming more common. Changing weather patterns and increasing demands on labor also mean that superintendents must be ready at any opportunity to make fungicide treatments, making application flexibility as critical as the disease-control spectrum. That's where Floxcor® fungicide from Corteva Agriscience comes in.

Floxcor fungicide uses the active ingredient fluoxastrobin to control more than 26 turf diseases, including dollar spot, brown patch, anthracnose and gray leaf spot. Floxcor is taken up quickly and moved further in the plant than other strobilurins, making Floxcor rainfast in as little as 15 minutes — a real-world usability advantage. Floxcor can be tank-mixed or rotated with Eagle® 20EW specialty fungicide for control of a wider range of diseases, without the PGR effects of other fungicides. In short, Floxcor is the perfect choice to include in your disease management program.

But Floxcor is only part of the exciting future of Corteva. As you read this, our research and development scientists are evaluating the next generation of fungicides — products that promise to give you even more options for managing your toughest turf disease challenges.

We live our commitment to golf by delivering the products you need to keep your course looking and playing its best. Innovations in more effective and easier-to-use active ingredients and weather-fast technologies allow you to control problem diseases and other pests. Our products help you gain efficiencies that allow your crews to take on higher-value tasks instead of spending time making follow-up applications.

But we understand it takes both good products and expertise to be a trusted partner. Superintendent partners count on our products and expert-level field support to help them address their toughest weed, insect and disease problems and maintain their courses in tournament-ready condition. Our team of account and territory managers, product development specialists and field scientists are ready to help you make the best decisions for your unique course conditions.



CORTEVA™ agriscience

CORTEVA AGRISCIENCE 9330 Zionsville Rd, Indianapolis, IN 46268

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It's not a secret. Floxcor™ fungicide, which contains the active ingredient fluoxastrobin, has exceptional efficacy, control of a variety of turf diseases and long residual activity, plus quicker plant intake that keeps your turf pristine.

Get perfect greens

Floxcor™
FUNGICIDE

CORTEVA™ agriscience

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HUNTER INDUSTRIES

Q&A *with* Carl Eberts

Category Manager-Golf

What makes your product a game changer for golf course maintenance?

The Pilot Navigator™ App transforms irrigation management by giving superintendents full system control directly from their phone. Instead of relying on radios or being tied to a computer, they can make quick, intuitive adjustments from anywhere, drastically improving responsiveness. Its ability to run stations simultaneously or sequentially, edit notes on the go and instantly shut down irrigation during unexpected weather makes course management faster, simpler and more proactive. This shift to mobile, real-time irrigation control modernizes how superintendents manage turf conditions and daily tasks.

How does your product improve operational efficiency for golf course managers?

The app streamlines daily workflows by reducing the time and communication required to make routine adjustments. Manual watering becomes faster without the back and forth of handheld radios, and superintendents can update run times, troubleshoot or coordinate with staff directly from their device. Editing custom station notes keeps the entire crew aligned and reduces errors, while quick global adjustments allow managers to respond instantly to weather or course needs without returning to the maintenance facility. These capabilities help teams work faster and with greater precision across all areas of the course.

In what ways does your product contribute to cost savings in maintenance?

The Pilot Navigator App reduces both labor and resource costs. Instant remote shutdown prevents overwatering during storms, conserving water and minimizing turf recovery expenses. Eliminating unnecessary trips across the course or after-hours site visits saves time and fuel. The app also cuts labor inefficiencies by replacing radio-based communication with direct mobile control, allowing crews to complete irrigation tasks more quickly. More precise watering ultimately supports healthier turf, helping reduce long-term maintenance costs.

Hunter®

Golf Irrigation



HUNTER INDUSTRIES 1940 Diamond St. San Marcos, CA 92078

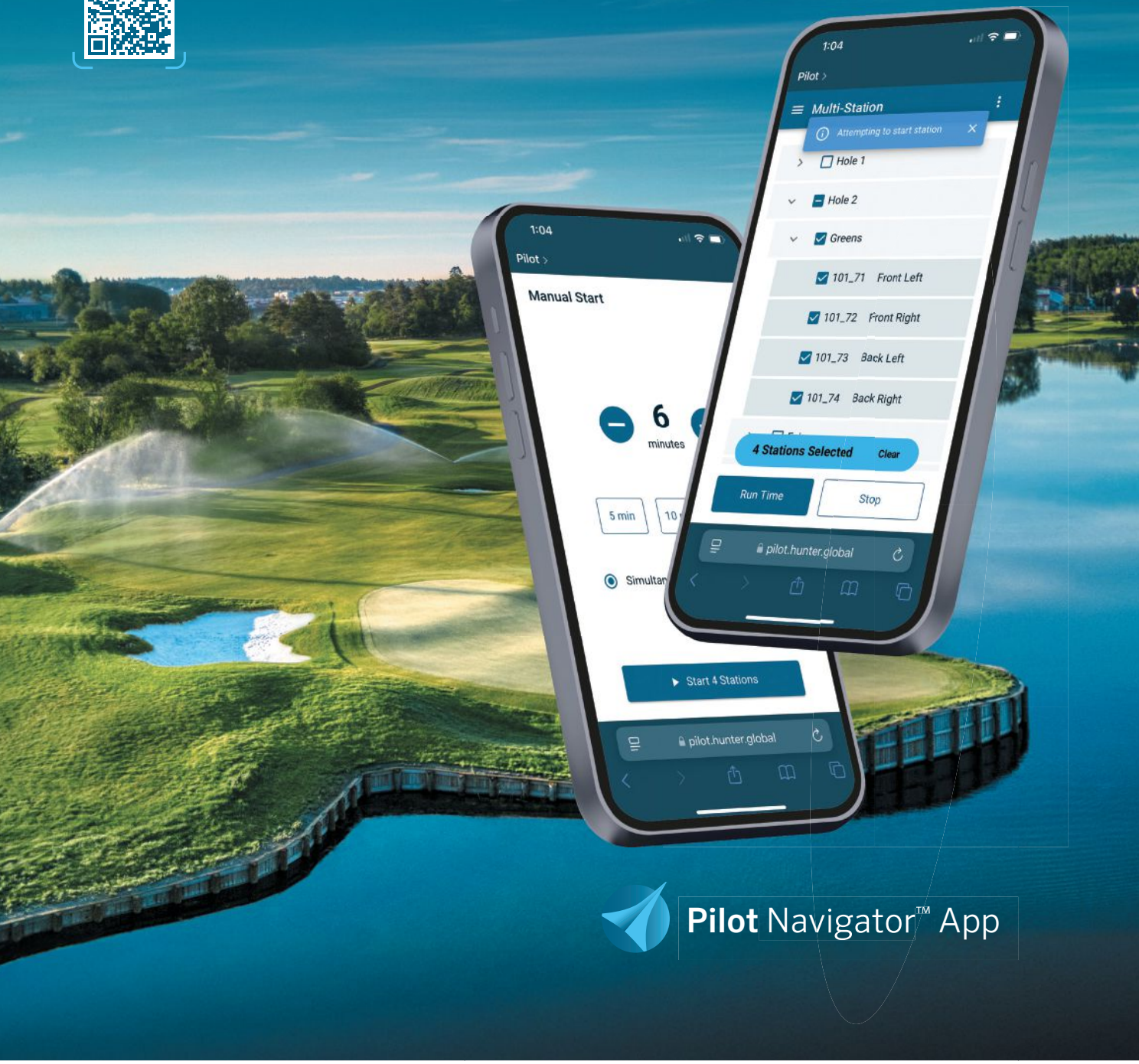
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Put the Power of Pilot® in Your Pocket

The intuitive **Pilot Navigator™ App** allows you to command your Pilot System from any location on any device. Effortlessly manage irrigation on the go with powerful, customizable features designed to save time, conserve water, and keep you and your team one step ahead.



Pilot Navigator™ App

GOLF IRRIGATION | *Built on Innovation®*
Learn more. Visit hunterirrigation.com/golf

Hunter®



NANOOXYGEN SYSTEMS

Q&A with Ron Pote

Owner/CEO

What are the benefits of improving our irrigation water quality with a NanoOxygen System installation?

- Improved soil structure and root health leads to more efficient water and nutrient use by the turf. Fewer irrigation cycles and fertilizer inputs are necessary, reducing overall water consumption and optimizing chemical programs.
- Billions of ultrafine oxygen and ozone bubbles persist in the soil, providing a continuous release of oxygen into the turf to improve microbial activity and plant health.
- Enhanced thatch control, plus the ability to adjust cultural practices.
- Improved water penetration due to ultrafine bubble negative charge — leads to reduced wetting agent use (particularly in elevated and mounded areas).
- Reduced disease pressure since ozone eliminates pathogens. Nematode counts are reduced.
- Reduced/eliminated algae in ponds — especially dangerous cyanobacteria — often introduced onto greens through irrigation. Bottom muck layer is eliminated.
- Oxidation of sulfur and iron compounds to reduce black layer.
- Using carbon dioxide (CO2) for pH control greatly reduces cost, corrosion, and improves safety.

How is the NanoOxygen System water better than rainwater?

Rainwater contains less than 8 ppm of dissolved oxygen (DO), causing a temporary DO increase in your soil — creating the green up you see after a rainfall event. The NanoOxygen System increases the DO in your water and subsequently in your soil to levels at least two to three times more than rainwater — irrigation water can now be BETTER than rainwater.

How can the NanoOxygen System control pH?

By taking advantage of nearly 100 percent gas transfer efficiency, small amounts of CO2 can economically produce carbonic acid for pH control. This replaces expensive mineral acids and similar chemicals that are hazardous, corrosive and expensive with an efficient CO2 gas alternative. Our systems have proven to reduce acid pH control costs by nearly 75 percent while providing additional carbon to the soil and eliminating the safety hazards and corrosion concerns associated with acid.

How was this technology developed, and do you have examples of courses that have used it for a number of years?

NanoOxygen Systems developed ultrafine bubble generation technologies, resulting in a patented system that is unlike anything in the marketplace. It's scalable, reliable, highly efficient and provides nearly 99-percent uptime performance. Our customers have been realizing the benefits of ultrafine bubble technology on their courses for over three years — representing the largest installed base of this irrigation water improvement technology in the golf industry.

Why do you believe NanoOxygen Systems represents the future of golf course irrigation?

Increased scrutiny of chemical and water use and ongoing deterioration of water quality at golf courses is accelerating across the country. The sustainable solution is to improve irrigation water quality to achieve a safer and more environmentally focused industry no longer dependent on chemicals to repair the problems created by poor water quality. Our product line includes pump station builds, container and trailer options, our portable pond treatment — NanoPod — and our newest product, the PondPod for on-site treatment of algae and nuisance weeds.

We offer a proven, cost-effective system with customers that now have a sustainable future, centered on having the best quality input used every day on their golf course: water.

NANOOXYGEN SYSTEMS, INC. 2929 Willow Ridge Ct, Fort Myers, FL 33905 843-822-3415 NanoOxygenSystems.com

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Your Irrigation Water Problem Solver

NanoOxygen SYSTEMS

OXYGEN DELIVERED

SOIL DISSOLVED OXYGEN:

- Quickly increases root length and mass
- Improves root absorption of water and nutrients
- Increases soil microbial activity
- Greatly improves plant health, allowing turf to tolerate stresses such as drought, disease, nematodes



SOIL DISSOLVED OZONE:

- Inactivates pathogens
- Increases oxygenation
- Stimulates plant defense mechanisms
- Improves soil structure
- Leaves no chemical residue
- Reduces pesticide usage

Ultrafine bubbles (UFB's) slowly release oxygen and ozone into the soil

NanoOxygenSystems.com

Allow Us to Explain How Poor Water Quality Holds Back Your Program and How We Can Help You Fix The Problem(s).

CONTACT US

www.NanoOxygenSystems.com | Sales@NanoOxygenSystems.com



PAR AIDE Q&A with Dan Brown

Director of Sales and Marketing

What makes your product a game changer for golf course maintenance?



The AccuTrim changes the way irrigation head trimming is done. Its drill-powered, patent-pending design trims irrigation heads cleanly in seconds; no hand-cutting, no inconsistent results. With interchangeable cutting-head sizes, it fits the most common irrigation models. It's faster, safer and cleaner than anything most superintendents have used for this task.

How does your offering improve operational efficiency for golf course managers?

Irrigation-head trimming is traditionally slow, repetitive, and labor-intensive. The AccuTrim greatly reduces the time spent on this task. Crews can now maintain dozens of heads in the time it once took to do a handful. The time saving reduces labor hours devoted to head trimming, freeing up time for higher-value maintenance tasks. It's also a repeatable process, producing consistent results regardless of who's using it.

In what ways does your product contribute to cost savings in maintenance?

The AccuTrim saves money primarily through labor efficiency. It reduces labor costs thanks to a much faster trimming process and cuts the total number of operator hours needed to keep irrigation heads clean and playable. Over the course of a season, especially on courses with high irrigation head numbers, the labor and cost savings add up quickly.

How does your solution enhance the overall player experience on the course?

When irrigation heads are trimmed properly, turf grows more evenly, irrigation performs more reliably

"The AccuTrim tool makes a difficult, time-consuming and messy job a breeze. It's precision and uniformity make it easy for any level of staff member to perform at their best. Trimming heads used to take two weeks and now takes days, with better results. Highly recommended!"

— Matt Olsonoski

Edinburgh USA, Brooklyn Park, Minn.



and surfaces stay consistent. Cleanly trimmed irrigation heads contribute to better course aesthetics and healthier turf. The result is a course that looks better, plays better and feels more professionally maintained, and golfers notice.

What future trends does your product align with in the golf industry?

The AccuTrim aligns with several trends affecting today's superintendents. Labor shortages continue to drive the need for tools that improve crew productivity, cut labor time and save money. Additionally, the need for more efficient processes, where every minute saved matters. Finally, improved course conditions, with tools that ensure uniform results regardless of the operator. As expectations rise and resources tighten, the AccuTrim provides a practical way to save time and labor without sacrificing results.

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GOLF'S #1 FLAGSTICK.
NOTHING ELSE COMPARES.



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PAR AIDE'S ICONIC, NON-STICK FERRULE IS ENGINEERED TO DO MORE. Every element of the Par Aide ferrule is designed to address the challenges superintendents encounter daily. Sand buildup. Cup damage. Flagsticks that don't stand straight. The original non-stick ferrule allows for flagsticks to glide out smoothly and effortlessly, preserving the cup's integrity and minimizing wear over time. One small component, crafted to make a significant impact where it matters most.

PAR AIDE®

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PERFORMANCE NUTRITION

Q&A *with* Chris Underwood, Ph.D.

Innovation and Business Development Manager

What makes ExAlt a game changer for golf course maintenance?

Most turf problems start below the surface, and ExAlt targets those soil challenges directly. Instead of only feeding the plant, it improves the soil environment by unlocking tied-up nutrients, reducing compaction, minimizing black layer and flushing excess sodium from the root zone. This leads to stronger roots, faster recovery and more consistent performance across greens, tees and fairways. ExAlt builds a healthier soil foundation that keeps turf performing even under pressure.

How does ExAlt improve operational efficiency for golf course managers?

ExAlt helps prevent everyday maintenance from escalating into emergency situations. By improving nutrient availability and soil structure, problem areas respond faster and stay healthy longer, reducing the need for repeat treatments or constant monitoring. It integrates seamlessly into existing spray programs, allowing superintendents to improve results without disrupting their schedule or adding complexity.

In what ways does ExAlt contribute to cost savings in maintenance?

When soil restricts nutrient uptake, it takes more fertilizer, more labor and more time to achieve results. ExAlt unlocks nutrients already in the soil and improves the efficiency of current applications, reducing the need for reapplications and reactive spending. Many courses also use ExAlt to rehabilitate soils affected by salts, poor water quality or contamination, helping prevent costly renovation work.



How does ExAlt enhance the overall player experience on the course?

Surfaces that recover quickly, drain well and stay firm under stress create noticeably better playing conditions. ExAlt strengthens the root zone, supports improved aeration and helps turf rebound during heavy traffic and challenging weather. Players experience smoother roll, better color and more consistent conditions throughout the season.

What future trends does your product align with in the golf industry?

The golf industry continues moving toward stronger turf with fewer inputs, reduced labor and more efficient use of water and nutrients. ExAlt supports this direction by improving nutrient efficiency, building soil resilience and correcting soil issues that limit long-term performance. It delivers immediate, visible results while improving the soil foundation for future seasons.

PERFORMANCE NUTRITION®

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DON'T TREAT YOUR SOIL LIKE DIRT



ExAlt®

Concentrated soil surfactant

ExAlt improves the soil environment at the root level by unlocking tied-up nutrients, reducing compaction, flushing excess sodium, and helping move contaminants out of the soil profile. It delivers stronger roots, faster recovery, and more consistent conditions from greens to fairways, while supporting overall soil health.

PERFORMANCE NUTRITION®

Visit us at GCSAA Booth 1613



POGO TURFPRO Q&A with Gant Austin

POGO Technical and Customer Support

What makes your product a game changer for golf course maintenance?

The POGO TurfPro System is a game changer for golf course maintenance, delivering easy operation and accurate, anywhere-anytime results. Every measurement is captured and stored, building a reliable catalogue of data that supports smarter, more proactive decisions. A clean, user-friendly dashboard transforms this information into clear, actionable visual insights.

Its expandable hardware and software options let courses expand capabilities seamlessly, while integrations with industry-leading partners enhance performance across the entire operation. And with new integrations and features to be unveiled at the GCSAA trade show, POGO TurfPro continues to set the standard in modern turf management.

What future trends does your product align with in the golf industry?

The POGO TurfPro System aligns directly with the golf industry's most important future trends. Its advanced data collection supports AI-driven prescriptive modeling, helping superintendents predict issues before they appear. By centralizing and analyzing key turf metrics, it empowers data-driven decision making that improves playability and resource efficiency. Continuous monitoring delivers real-time agronomic turf performance insights, enabling faster, more accurate adjustments on the course. The system also supports water conservation, giving teams precise moisture data to irrigate only when and where needed. Together, these capabilities position POGO TurfPro at the forefront of modern, sustainable golf course management.



What's NEW with POGO in the last 12 months?

In the past 12 months, POGO has expanded and innovated significantly. We introduced a dedicated Regional Business Development Team, each member bringing deep agronomic and industry expertise to support customers more personally. On the hardware side, we launched the POGO mini, POGO lite, a new Weather Station and the enhanced POGO Mapper, giving turf managers more flexibility than ever. Our latest software upgrades deliver improved analytics, cleaner dashboards and expanded integration capabilities, strengthening the entire POGO ecosystem. Together, these advancements make POGO more accessible, powerful and connected for golf courses of all sizes.

What makes POGO reliable?

POGO is trusted worldwide because its POGO line requires no calibration, ensuring consistent accuracy without extra maintenance. At its core is HydraProbe, the industry-standard sensor used by NOAA, NASA, USDA, FIFA and organizations across the globe. Our in-house–manufactured weather station delivers reliable, real-time data with pro-grade sensors built for long-term performance. Combined with durable engineering and continuously validated measurements, POGO technology is now used on six continents, proving its reliability in every climate and turf condition.

POGO
Superior insight | Scientific decisions | Healthier turf

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POGO®

Superior insight | Scientific decisions | Healthier turf

Make informed **turf management decisions** from the valuable **insights** gained through the **most accurate data**



Visit POGO at booth #1817 during GCSAA 2026!

Learn more about what POGO can do for you at **TurfPro.com**

Inquire about POGO with:
info@pogoturfpro.com
1-971-420-0500



POROUS PAVE INC.

Q&A *with* Connor Ouwinga

General Manager

What makes your product a game changer for golf course maintenance?

Sand Guard is a game changer because it ends the endless cycle of bunker washouts. It locks sand on the faces so superintendents aren't wasting 10–20 man-hours every week rebuilding bunkers after rain. Those hours go back to greens, fairways and tees.

In what ways does your product contribute to cost savings in maintenance?

Sand Guard is a cost saver because it stops washouts cold. No more weekly bunker rebuilds, no more blowing through extra sand after every rain, and crews aren't stuck hand-raking faces for hours. Superintendents tell us they cut bunker labor by 40–60 percent the first season, and the savings keep coming every time it rains.

"Sand Guard from Porous Pave has been a game changer for our bunkers. It keeps the sand in place, drains beautifully and makes maintenance so much easier. The quality and performance speak for themselves — highly recommend!"

— Alex Lincoln
Lakelands Golf & Country Club

How does your solution enhance the overall player experience on the course?

Sand Guard keeps bunkers pristine and playable, rain or shine. No washed-out faces or scattered sand means players face true shots, not mud traps. Consistent lies and firm edges make escapes fair and fun, turning hazards into highlights instead of headaches.

Porous Pave XL turns cart paths into seamless, all-weather rides. It drains instantly, so no puddles or ruts after storms. Carts glide smoothly, and walkers stay dry and steady. Plus, its softer, grippy surface cuts ball bounce by 73 percent, keeping errant shots on the path and play flowing.



Porous Pave
PERMEABLE • DURABLE • FLEXIBLE

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Porous Pave™
PERMEABLE • DURABLE • FLEXIBLE

Sand Guard

www.porouspaveinc.com

Invest in Excellence.

Sustainable solutions for a **superior golf course**

Storm events can create bunker washouts, contaminate sand, and reduce playability. Sand Guard enhances your ROI by protecting your bunker features to remain clean and consistent by stabilizing sand and minimizing maintenance. Porous Pave reduces ball bounce on cart paths by 75%, enhances traction, and provides exceptional permeability & durability while remaining flexible, eliminating cracking.



GCBAA

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APPLICATIONS:

CART PATHS • BUNKER LINERS • WASH STATIONS • CART STAGING AREAS
COURT SURROUNDS • BRIDGE DECKS • MAINTENANCE STRIPS

Michigan Chapter GCSAA
Golf Course Superintendents Association of America



QUALI-PRO Q&A with Ryan Karapas

Marketing Director

How does Quali-Pro continue to differentiate themselves from other chemical manufacturers in the turfgrass industry?

Beyond our continued investment in R&D, product innovation and bringing the most reliable solutions to the market, Quali-Pro has separated ourselves from other manufacturers primarily through our industry support and unique approach to marketing. Our 'Trusted for Championships' campaign that launched last year has three primary pillars that all focus on the end user and getting more involved in the industry: tournament support, Elite Advisory Teams and Quali-Pro University. Whether it be providing an unmatched volunteer experience at Oakmont for the U.S. Open, collaborating with elite superintendents on agronomic programs and product innovation or investing in the next generation of superintendents through technical and professional development curriculums, Quali-Pro is committed to giving back to the industry and helping it improve and grow as it continues to evolve.



What new initiatives does Quali-Pro have planned for 2026 and beyond?

There are plenty of new and exciting things in the works for 2026 and beyond, but I am personally most excited for the next iteration of our Quali-Pro University, QP2U. QP2U launched in December and is a virtual turf management series focused on real-world challenges and solutions for turf management professionals of all levels. The monthly live webinar format is designed to offer unique access to some of the industry's top experts and is completely free for anyone to attend. The sessions consist of a wide range of topics including agronomic lessons from 2025, construction planning, GM and Greens Chairman insights, technical research and more. Ultimately, Quali-Pro wants to continue offering resources, especially to young superintendents and assistant superintendents, that can help with their professional development as they look to advance their careers and expand their network.

"When you meet the team and see the relationships that can be developed, and then you see the quality of the product and the R&D behind them, it's really a no-brainer to go with Quali-Pro."

— Michael McCormick
Oakmont Country Club

Is Quali-Pro launching any new products in 2026?

Our first product launch of 2026 is Doxem® T&O Insecticide, the first liquid formulation of indoxacarb labeled for turfgrass! Doxem® T&O completes the puzzle for Quali-Pro's season-long insect control programs by filling important gaps in coverage and strengthening the program's resistance-management strategy. Designed for performance and ease of use, this next-generation suspension concentrate provides control of key cool- and warm-season chewing insect pests without the hassle of water-dispersible granules.

QUALI-PRO 5903 Genoa-Red Bluff Road Pasadena, TX 77507 281-892-2500

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QP2U

QUALI-PRO

UNIQUE ACCESS TO INDUSTRY EXPERTS

Monthly online professional development led by top industry experts — new topics, live Q&A, and **completely free to attend.**



For more information, visit **quali-pro.com**

TOGETHER WITH bloom GOLF PARTNERS



SIPCAM AGRO USA

Q&A *with* Stephen Kimball

Key Account Manager – Turf and Ornamental

What makes your product a game changer for golf course maintenance?

Linchpin™ is a novel patented herbicide that delivers outstanding control of kyllinga, sedges and crabgrass — and 40-plus broadleaf weeds — across cool-season turf and Bermudagrass. Its unmatched versatility is due to the fact that it is the only mesotrione-containing herbicide labeled for use on Bermudagrass, making Linchpin™ a perfect fit for cool-season overseed programs. But Linchpin also successfully treats nimblewill and larger crabgrasses with the addition of 4 oz per acre of SlipStream™ herbicide (mesotrione), with the Linchpin™ program to gain greater control of difficult weeds, offering little to no bleaching or turf phytotoxicity.

How does your offering improve operational efficiency for golf course managers?

The foliar, plus residual control, leads to less seasonal applications and the corresponding time, labor and equipment use. The ability to support most cool-season grasses and Bermudagrass simplifies management decisions and changing of products through each application cycle. Overall, Linchpin™ treats a large variety of difficult species that usually require additional products, which leads to reduced cost per acre and simplicity.

In what ways does your product contribute to cost savings in maintenance?

Fewer overall applications with 30 days of residual control reduces the number of applications needed per season. The spectrum of control reduces the need to add additional product to the mixture. Additionally, Linchpin™ is a water disbursable granule (WDG) contained in a 3.6-pound resealable container, which covers three acres, reducing the risk of product loss and allowing the user to carry any extra product over for future applications, opposed to a traditional bag that typically cannot be closed properly.

How does your solution enhance the overall player experience on the course?

Linchpin™ controls key weeds such as kyllinga, sedges, crabgrass and key broadleaves on fairways — which are more uniform and tight — roughs without clumpy weed batches and transition areas which are more playable. Aesthetics and playability are a large part of a quality golf experience; Linchpin™ works hard on some of the toughest weeds in turf.

"Linchpin™ offers performance, flexibility and aesthetics. It's a novel, patented herbicide that delivers outstanding control of kyllinga, sedges and crabgrass — and 40-plus broadleaf weeds — across cool-season turf and Bermudagrass. Linchpin™ is designed for turf professionals who demand visible results and cleaner, more attractive and playable turf."

— Stephen Kimball
Key Account Manager

What future trends does your product align with in the golf industry?

What makes Linchpin™ herbicide a true game changer for golf course maintenance is because it doesn't just solve a weed problem — it changes the efficiency, predictability and profitability of golf course management. Linchpin™ helps reach the goals of every turf manager by positively impacting labor, budget, turf quality and beauty and player satisfaction — all at the same time.

SIPCAM AGRO USA

SIPCAM AGRO USA 2525 Meridian Parkway, Suite 100, Durham, NC 27713

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SIPCAM AGRO
USA

Linchpin™

Performance. Flexibility. Aesthetics.

A new, novel, patented herbicide that delivers outstanding control of kyllinga, nutsedge, and crabgrass —plus 40+ broadleaf weeds—across cool-season/transition zone turf and Bermudagrass. Designed for professionals who demand visible results, adaptable use, and cleaner, more attractive turf.



Linchpin™ is flexibile!

Safely add up to 4 oz per acre of additional Sipcam SlipStream™ mesotrione herbicide, to gain greater control of nimblewill and large crabgrass.

SlipStream™

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STEEL GREEN MANUFACTURING

Q&A *with* Matt Smith

Vice President of Sales

What makes your product a game changer for golf course maintenance?

Uneven applications result in wasted product and inconsistent results, two things superintendents don't want. That's why we developed Opti-Rate, a new pulse-width modulation (PWM) rate-controlled spray system designed to keep applications uniform. The system gives you even more control over your applications, without having to make extra adjustments out on the course. It helps operators reduce over- and under-application and deliver more consistent results overall. Opti-Rate comes standard on our highly customizable SGXL sprayer, which is designed to accurately cover lots of ground in a short amount of time.



How does your offering improve operational efficiency for golf course managers?

Opti-Rate independently controls flow rate and pressure to maintain a uniform droplet size across the entire boom. Thanks to turn compensation technology, Opti-Rate also ensures rates remain consistent when turning. Plus, Opti-Rate increases output when the machine speeds up and decreases output when it slows down to maximize chemical savings. This helps operators make the most of their SGXL's 120-gallon capacity and a 14-foot rear-mounted breakaway boom. That means faster, more efficient and more accurate applications. The system also features an easy-to-use display that allows you to choose your nozzle tip, rate and pressure. Just input your settings, and the system takes care of the rest. You'll get real-time feedback, too, allowing you to easily monitor and fine-tune your spray settings.

In what ways does your product contribute to cost savings in maintenance?

Every SGXL has a detailed owner's manual that is designed to let superintendents and their teams easily work on machines themselves. All of the machine's internal components are easily accessible, and we're available to guide you through maintenance tasks over the phone or via video chat. We value your right to work on your own equipment and the cost savings that come with doing things yourself.

How does your solution enhance the overall player experience on the course?

The SGXL is meant to quickly and accurately apply products on the course, letting superintendents squeeze in applications during tight windows that don't interrupt play. Plus, the SGXL's Opti-Rate system ensures product is applied accurately and evenly. Players will love the quality of the course without ever having to see or hear the machine that made it possible, letting them focus on what matters: the game.

What future trends does your product align within the golf industry?

Superintendents value efficiency, so it's easy to assume that they will continue seeking out equipment that can offer the benefits of many machines in one. Thanks to its high capacity, capabilities and state-of-the-art Opti-Rate system, the SGXL will be the only machine many courses need.

STEELGREEN MANUFACTURING

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STEELGREEN MANUFACTURING

OPTI-RATE

NOW STANDARD ON THE SGXL

Opti-Rate™ is an advanced PWM spray system that delivers precise, consistent applications while the machine is moving. It independently adjusts flow and pressure to maintain even coverage across the boom, compensating for speed changes and turns to reduce waste and improve efficiency.

CHEMICAL SAVINGS –
Opti-Rate™ adjusts output based on speed and turn radius, minimizing over-application and reducing chemical waste.

TURN COMPENSATION –
The system automatically increases output on the outside nozzles and decreases it on the inside during turns to ensure even coverage.

APPLICATION CONSISTENCY –
By decoupling pressure from rate control, the system maintains a precise application rate across varied speeds and property sizes.

OPERATOR FEEDBACK –
Real-time nozzle-by-nozzle output bars and key application data on the main screen keep the operator informed and in control.

EASE OF OPERATION –
Designed with simplicity in mind, the system runs in the background so the operator can focus on driving without navigating complex menus.



Scan to see Opti-Rate in action

steelgreenmfg.com @SteelGreenMFG (765) 481–2890



SYNGENTA Q&A with Stephanie Schwenke

Turf Market Manager

What can attendees expect from Syngenta at the GCSAA show and in the year ahead?

Syngenta welcomes you to the future! We're excited to showcase breakthrough innovations that will transform turf management, including three major product launches and enhanced wellness initiatives for golf course professionals.

What new products are you launching?

We're introducing three game changers:

Atexzo® insecticide/miticide

- Novel mode of action (IRAC Group 30) with no signal word.
- Controls adult and all larval stages of annual bluegrass weevil.
- Controls mole cricket adults and all nymphal stages.
- Also controls billbugs, bermudagrass mites and more.
- Contact and ingestion controls allows for wide application window.

Trefinti® nematicide/fungicide

- Elevates control of lance, sting, root-knot and *Anguina* nematodes.
- Simultaneously controls spring dead spot, mini ring and take-all root rot.

Innovation Extension for Trefinti and Atexzo: Syngenta is extending its GreenTrust 365 Early Order Program for these new products, offering additional savings and rebates through **Feb. 28, 2026**. This allows turf managers to lock in savings, combine EOP spend for maximum rebates and defer payment until June 19, 2026.

Aero™ GCX climate monitoring system:

- Evaluates precise environmental conditions including temperature, humidity and barometric pressure.
- Integrates seamlessly into GreenCast Connect mobile app with Spiio sensors.
- When partnered with SpiioTM soil sensors, it provides comprehensive above- and below-ground monitoring.

What can attendees expect at your booth?

Play our interactive photo hunt game! All participants receive Atexzo or Trefinti branded athletic socks, and the top three winners take home one of the following premium prizes: a Solo® WindchillTM cooler, a one-year Aero GCX subscription or an Ember® travel mug.

How is Syngenta supporting the golf community at GCSAA?



As a proud GCSAA Platinum Partner, we're sponsoring the Opening Session, Welcome Reception, Centennial Celebration, Leading Turf Together, ELGA Awards, Celebrating Certification Luncheon and Health in Action 5K.

We're also offering complimentary skin cancer screenings and wellness checkups in our Mobile Wellness Unit during trade show hours because your health matters.

Where can I learn more?

Visit **GreenCastOnline.com/GCSAAShow** for details and to add our sponsored events to your calendar.

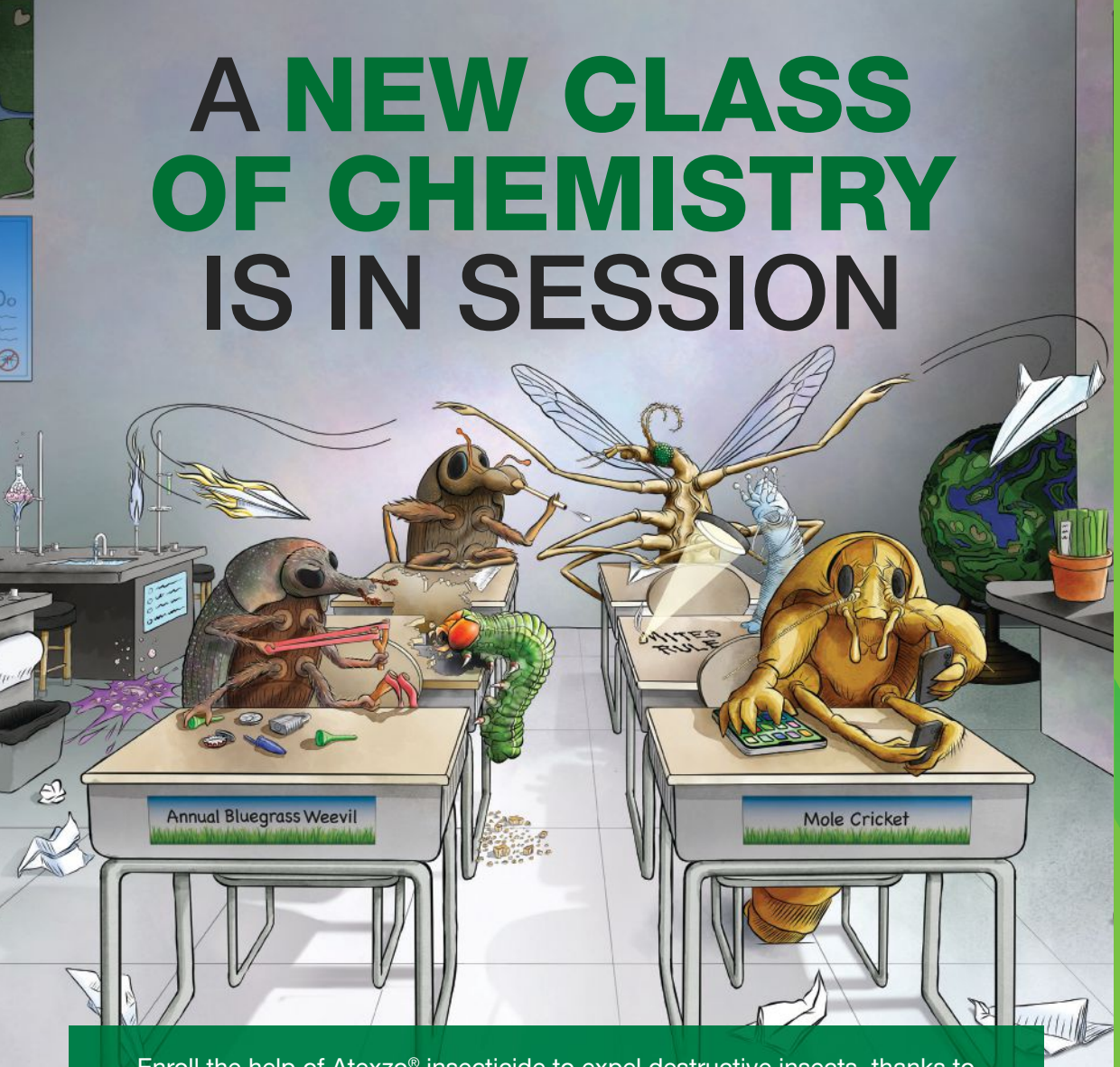
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A NEW CLASS OF CHEMISTRY IS IN SESSION



Enroll the help of Atexzo® insecticide to expel destructive insects, thanks to PLINAZOLIN® technology and a new mode of action for turf in IRAC Group 30.

- Controls annual bluegrass weevil **adults and all larval stages**, mole crickets, bermudagrass mites, turf caterpillars, billbugs, European crane fly and more
- No known cross-resistance and an excellent tank mix partner with Acelepryn® insecticide brands
- Long residual control with **contact** and **ingestion activity** for wide application window

Revamp your pest control lesson plans with the broad-spectrum flexibility and A+ efficacy of Atexzo. **Learn more at GreenCastOnline.com/Atexzo**

Atexzo®
Insecticide/Miticide

syngenta®

@SyngentaTurf #Time4Atexzo

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TARGET SPECIALTY PRODUCTS

Q&A with Eric Miltner Ph.D., CCA, 4R NMS

Senior Manager, Proprietary Products

How do your products save time?

Since its inception, Turf Fuel has made it easier to maintain high-quality turf. Our products produce an unparalleled plant fitness level, conditioning plants to overcome stress and adversity through increased photosynthetic activity and plant defense system activation. Healthy, resilient turf means less time spent repairing damage and more time promoting outstanding playing conditions.



How do your products save labor?

One of the most significant examples of our products saving labor costs is our portfolio of wetting agents and soil remediation products. Anyone who has stood over localized dry spots (LDS) for hours with a hose can appreciate the amount of time it takes to hydrate these areas adequately. We have technologies that effectively rewet dry areas with little effort and even solutions that eliminate LDS. Our specialty line also has product solutions to make spray applications more effective. Whether you're dealing with drift, high pH, active ingredient mobility in the plant, on-target deposition or even rain fastness, we have a solution for your need.

How do your products save materials and fuel?

Our specialty products improve a plant's drought stress tolerance by creating a unique balance between water and air in the root zone while conditioning plants for better water use effectiveness. This combination improves irrigation cycle effectivity and reduces the need for hand watering. Our soil and nutritional products create a synergy between plant and soil, resulting in extremely healthy plants that are highly highly tolerant of stress.

We also have nitrogen control technologies to improve growth rates in areas like fairways. More growth control allows golf courses to save fuel with decreased mowing needs and significantly fewer clippings.



How do your products help generate additional revenue?

Our products help turf managers achieve optimal playing conditions while maintaining peak aesthetics by optimizing photosynthetic abilities and overall turf quality. We've blended high-quality raw materials with cutting-edge stress-fighting technology. The result is turf that can withstand the traffic of outings and tournaments, allowing extra revenue opportunities without jeopardizing daily play.



In what other ways do your products make golf courses profitable?

Our products help build strong turf that is tolerant to stress and the intensive cultural management practices necessary to maintain premium playing surfaces. Higher-quality playing surfaces bring in more rounds while increasing the overall stress and disease tolerance of the turf to help conserve your budget.

TARGET SPECIALTY PRODUCTS™

TARGET SPECIALTY PRODUCTS 15415 Marquardt Ave., Santa Fe Springs, CA 9067

Target-Specialty.com | info@target-specialty.com | @TargetSpecProd | @target-specialty-products

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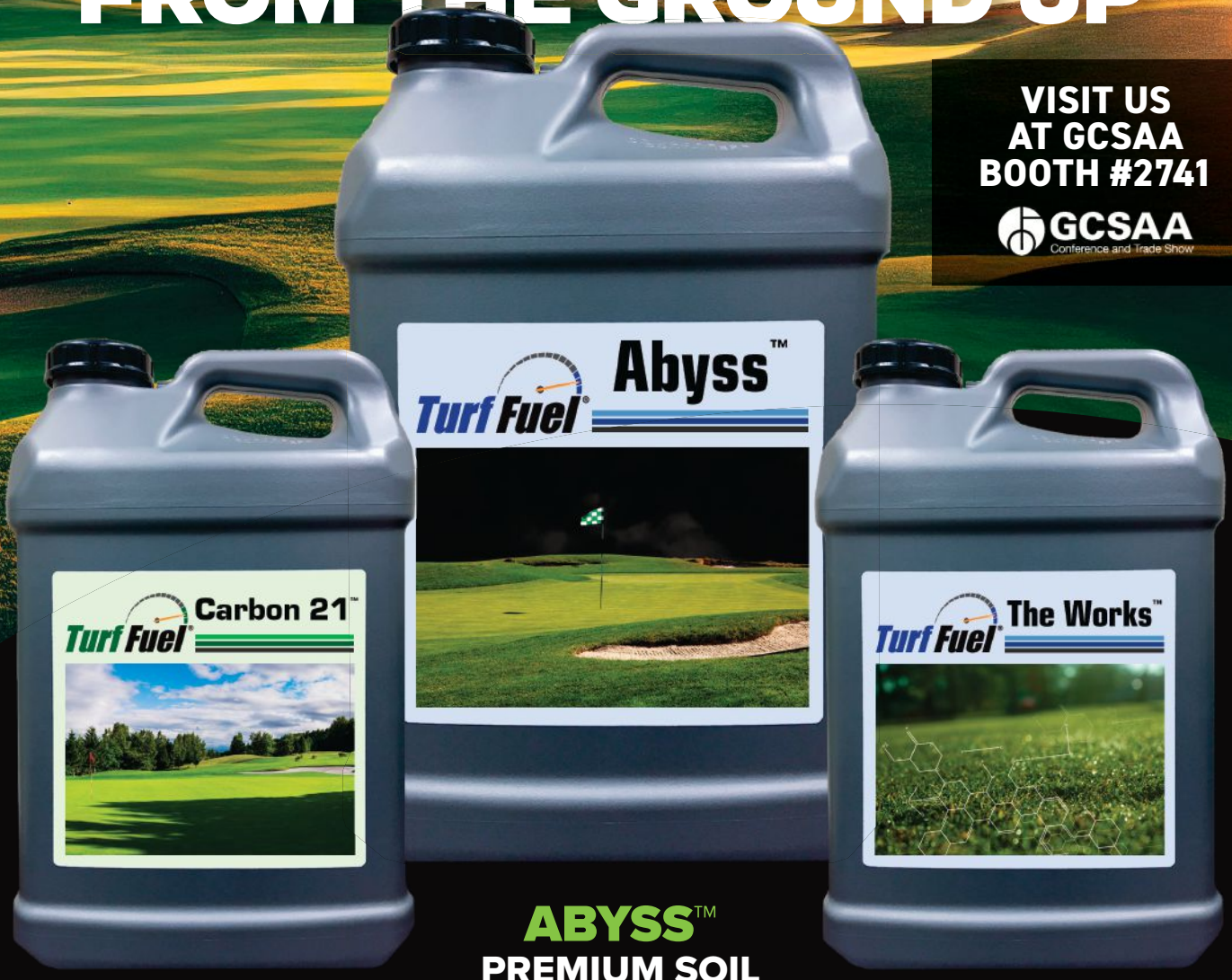
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Contact our team to learn more about our products!

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TSP GCI Q1 2026 R1_11-26-25



FROST Q&A

with **Ken Rost**
CEO

What trends does your product align with in the golf industry?

Automation is the dominant trend!

Frost Inc. is happy to announce the introduction of ASTRO, the first Autonomous Sprayer for Turf Range Operations. There is a high demand for more accurate spray applications for the most valuable turf. Combining accuracy with a work force that is getting more accustomed to automated systems, it was inevitable that autonomous sprayers were going to arrive. Development of ASTRO was designed by Frost Inc. with guidance technology influenced by Mach, an autonomy solutions company.

How does your offering improve operational efficiency for golf course managers?

ASTRO is going to help minimize spray application errors that can happen with piloted sprayers. It applies with 10-inch nozzle spacing to minimize overlaps on critical transition grasses of collars and approaches. With repeatable tasks that a machine can perform, it frees up time and effort for human turf management.

What makes ASTRO a game changer for course maintenance?

Frost has always been a leader of sprayer technology with GPS spray control, mapping technologies, auto-steer and more. The new ASTRO utilizes knowledge learned from all these past technologies along with new ideas of the future.

The ASTRO was introduced to attendees at the 2025 *Golfdom* Summit. Now, come see this new spray technology at the GCSAA trade show, booth #1849. See you there!

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KAFKA GRANITE

Q&A with Dan Hannan

Business Development Manager, Golf and Recreation

What makes your product a game changer for golf course maintenance?

Kafka's Wax-Coated Aggregate pathways and bunkers significantly reduce maintenance time and costs by addressing common issues such as erosion, washouts and dust. These durable, low-maintenance materials minimize the need for frequent repairs, especially after heavy rainfall, while offering a more natural look than traditional paving materials like asphalt or concrete. Those materials often require sealing and crack repair or develop other maintenance challenges, leading to costly labor and material expenses. In contrast, Kafka's Wax-Coated Aggregate is designed for long-lasting durability, reducing the frequency and cost of repairs, ensuring a more cost-effective solution over time.

How does your offering improve operational efficiency for golf course managers?

Installation of Kafka's Wax-Coated Aggregate is straightforward, requiring no specialized equipment. The process can be completed with minimal disruption to the course and its day-to-day operations, ensuring courses can maintain regular rounds without costly downtime or repairs to surrounding turf. Additionally,

"Kafka Granite for cart paths. It's easy to work with, and it holds slopes. Plus, the golf ball doesn't bounce off it like a normal cart path. But mostly, it's just a better aesthetic for a golf course than a traditional cart path."

— Alex Beson-Crone
Erin Hills GC, Hartford, Wis.



the option to perform installations in-house can further reduce costs and can easily be phased over time to accommodate other critical tasks with shared resources. Kafka's Wax-Coated Aggregate is designed to be easily stored for later use, minimizing waste and offering flexibility for future updates or expansion projects.

How does your solution enhance the overall player experience?

Kafka's Wax-Coated Aggregate enhances the player experience by providing smooth, quiet, dust-free paths that improve both walkability and cart travel. Its natural appearance blends seamlessly with the surrounding landscape, enhancing the aesthetic of the course while maintaining a more organic feel compared to asphalt or concrete alternatives. The low-maintenance design ensures that paths remain intact, even during inclement weather, preventing interruptions.

What future trends does your product align with?

Our Wax-Coated Aggregate is in line with the golf industry's growing trends toward sustainability, low-maintenance materials and accessibility. These products are eco-friendly, erosion-resistant and ADA accessible, helping courses reduce their environmental footprint while improving accessibility for adaptive golfers.

Kafka Granite

KAFKA GRANITE 550 State Highway 153, Mosinee, WI 54455 800-852-7415 kafkagranite.com/golf
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A leadership lesson in the heart of Kansas

BY JAIME HADDAD

Jaime Haddad, assistant general manager and director of sustainability at Martis Camp Club, reports on her experience at GCSAA's Women's Leadership Academy.

My team is currently reading "Unreasonable Hospitality," but I realized something very quickly last month: If you want an actual master class in extraordinary service, genuine leadership and what it means to make people feel profoundly valued, all you need is a trip to the GCSAA headquarters in Lawrence, Kan.

From the moment my travel was booked to the moment I touched down back in California, the women and men of GCSAA made every moment feel intentional, thoughtful and deeply personal. But nothing prepared me for what happened when we arrived at headquarters. As our motorcoach pulled up, rows of GCSAA staff lined the walkway; cheering, clapping and welcoming us with the kind of energy usually reserved for championship teams. It gave me literal chills. And then, stepping inside and hearing the words "This is your home" said with absolute sincerity… I don't know that hospitality can get any more powerful than that.

By the end of the academy, I didn't just leave with new skills; I left with 50 new friends — truly, 50 new family members — each one bringing their own strength, heart and encouragement.



GCSAA staff welcomed attendees at the Women's Leadership Academy.

ALI KAHFI / DIGITALVISION VECTORS / GETTY IMAGES (HEADER); PHOTO BY: JAIME HADDAD

Cultivating confidence

The Women's Leadership Academy began with connection and conversation. Our kickoff dinner brought together women from across the country, each with different backgrounds but a shared drive to grow. Suzy Whaley's "Cultivating Confidence" conversation was a standout — full of candor, humor and meaningful insight.

Day two at GCSAA HQ invited us into deeper self-awareness. Through the Predictive Index with Amy Leslie, we explored our leadership drivers, communication styles and natural strengths, then unpacked them in honest, vulnerable breakout groups. The afternoon built on that foundation with Jodie Cunningham's sessions on feedback and tough conversations. Practical, clear and empowering. She turned one of the hardest parts of leadership into something structured and accessible.

We also heard from GCSAA President T.A. Barker and director Greg Jones, who helped us better understand engagement, influence and the broader commu-

Continued on page 43



PHOTO COURTESY OF: JAIME HADDAD

During the GCSAA Women's Leadership Academy, association CEO Rhett Evans (second from left) spoke on the importance of teamwork. He's joined here by Lori Sinuita, Ontario Golf Superintendents Association; Haddad; Skyler Fisher, Houston Country Club; Emily Smith, Bluejack National Golf Course; and Zineb Alouani, Penn State University.



Women in the Green Industry conference

Golfdom's *Digital Editor Payton Szymczak recaps the 2025 event*

"What happens in Vegas doesn't stay here." That was the motto SiteOne Landscape Supply brought to life for its annual Women in the Green Industry conference, and this year's Nevada event gave attendees the chance to explore women's empowerment.

Since its start 27 years ago, it's grown to a national event with more than 300 attendees and has become a vital resource for women's professional growth.

"We wanted to bring together owners, leaders and rising professionals to not only sharpen their business and leadership skills but also build a stronger sense of community within the industry," said Christina Moore, SiteOne's director of events. "The goal was to balance professional development with personal growth, while celebrating the contributions women are making every day."

Opening the conference was an expo that let attendees explore new products and technology. A welcoming event followed to help first-time attendees break the ice and form new connections, setting the stage for a dinner and keynote speech from Lindsay Roselle, founder of Work Within.

The second day kicked off with a breakfast panel featuring leaders from SiteOne, Sperber Landscaping Services and Plants Creative Landscapes. Tony Ricketts, founder and CEO of Lawnline Marketing, took the stage to shed light on how AI can boost business. Ricketts shared tips on the best AI tools for everyday tasks, busted some myths and explained how it can save time and make business run smoother.





Attendees also had a chance to roll up their sleeves to fill bags with feminine hygiene kits packed with essentials, primarily sent to middle and high schools through the Communities in Schools organization. This hands-on effort captured how the conference represented more than just learning and growing industry skills but also coming together to create a real movement of support.

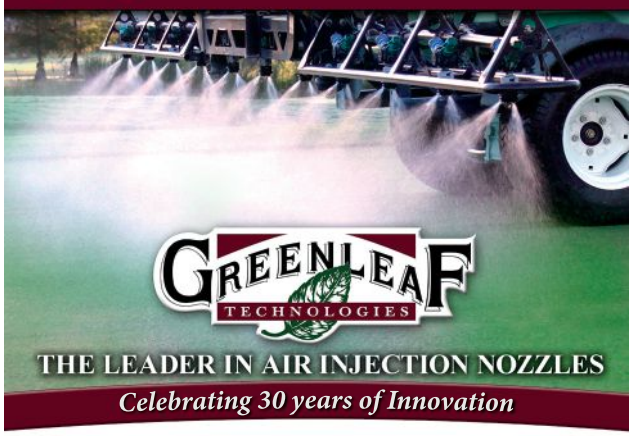
"I took away a great sense of empowerment, realizing that our voices together can inspire change, uplift one another and pave the way for a future filled with limitless possibilities," says April Ely, sales representative at Cresline Plastic Pipe Co.

And even after almost three decades, the annual Women in the Green Industry conference still remains a space where driven women can network with each other and push this industry and our communities forward.

"We hope attendees leave feeling empowered with practical tools they can bring back to their businesses, as well as renewed confidence in their leadership journey. Just as important, we want them to walk away with new connections and mentors — relationships that extend beyond the conference and help them grow personally and professionally," Moore said.

— *P.S.*

Spray 2 Times in 1 Pass!



THE LEADER IN AIR INJECTION NOZZLES
Celebrating 30 years of Innovation

"I spray everything through those dual fans these days. Weekly foliar apps on greens, herbicide, insecticide, nematode treatments, You name it, we probably sprayed it. I have reduced my Primo applications due to the fact that I am getting much improved coverage on the plant."

Chris Senior, Countryside Country Club
Clearwater, Florida

GCSAA AFFILIATE MEMBER

Get better coverage with less drift.
Get Greenleaf's Asymmetric DualFan nozzles.

GreenleafTech.com 1-800-881-4832

Continued from page 41

nity we are part of. Vision journaling pushed us to imagine our own leadership legacies, and that night's dinner reminded us again how connection accelerates growth.

Our final day opened with a jolt of awe as Rear Admiral Jackie McClelland spoke about presence, purpose and leading in high-stakes environments. Her poise and clarity were unforgettable. Sessions on delegation, communication and executive presence rounded out a curriculum filled with practical tools and real inspiration. As we wrote letters to our future selves and shared our closing commitments, it was clear: We weren't leaving as the same people who had arrived. We were better. Stronger. Clearer. And part of a new community that felt like family.



Fisher grabbed a selfie with Haddad, Smith and GCSAA's Leann Cooper during the Women's Leadership Academy.

Embodying leadership

Few programs deliver this level of intentionality, depth and heart. Every detail — from logistics to learning design to the emotional welcome that still gives me goosebumps — embodied the essence of "Unreasonable Hospitality:" making people feel seen, valued and celebrated. GCSAA didn't just teach leadership; they lived it in every handshake, every session, every cheer, every moment.



The Shop

// MUST-HAVE NEW PRODUCTS







1 FS900 core sweeper/collector

The FS900 from Baroness offers a compact design that can be easily maneuvered around even the tightest greens and tees. With an easily adjustable brush height that can be moved from the driver's seat, this machine can adapt to varying surfaces and can collect cores, grass clippings, leaves and sand. The FS900 is equipped with a hydraulic high-lift hopper for easy dumping of debris onto a trailer or utility vehicle, making it a perfect fit for efficient renovations with tight deadlines.

Baroness.us/product/fs900

2 Verti-Cut Flex 2000

Redexim's new Verti-Cut Flex 2000 removes thatch and lateral grasses that build up and deprive soil of its nutrients. The machine focuses on precise and even verticutting — even on undulating surfaces — that will not scalp the surface. The Verti-Cut Flex 2000 also offers exceptional maneuverability and can pivot around curves and bends thanks to passive pivoting suspension. The company stated it can also tackle hills, slopes and other complex terrain.

Redexim.com

3 Diamid T&O insecticide

Diamid T&O from Albaugh features the active ingredient chlorantraniliprole, a unique mode of action that provides season-long control of those pesky, damaging turf pests. It targets all white grub species, annual bluegrass weevils, billbugs and many turf-hungry caterpillars. It is designed to be flexible across application sites, and thanks to its recent approval by the California Department of Pesticide Regulation, Diamid T&O now has full registration in the contiguous U.S. plus Hawaii.

Albaugh.com/us



4

CHECK OUT MORE NEW EQUIPMENT ONLINE

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



5



6

4 Automower 580L EPOS

Husqvarna's Automower 580L EPOS is a high-performance robotic mower designed specifically for the precise mowing demands of golf courses and available exclusively through Husqvarna Golf and Sports Turf (GST) dealers. Capable of mowing up to 2 acres per 24 hours, it features a powerful cutting motor for consistent results down to 0.4 inches, even in areas with intensive fertilization and strong grass growth. Satellite-based Husqvarna EPOS uses RTK GNSS navigation and local reference stations to provide centimeter-level accuracy for custom work areas and temporary stay-out zones.

Husqvarna.com/us

5 SG36EV spreader/sprayer

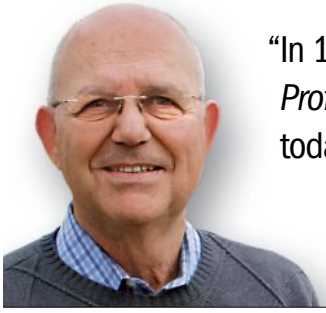
Steel Green Manufacturing recently introduced its new electric, high-capacity zero-turn spreader/sprayers. The SG36EV, a more compact version of the company's SG48EV, has a 30-gallon liquid capacity, a 150-pound electric hopper and the ability to fit through a 36-inch gate. There's a lot of noise in the electric vehicle space, but the company says one of the biggest benefits on the spreader/sprayer side is the low operating cost. Plus, there's no oil changes, no risk of hydraulic failures, no leaks and, overall, less hiccups with an electric machine.

steelgreenmfg.com/equipments/sg36ev

6 SurfaceRx wetting agent

The latest addition to the Harrell's HydroMAX portfolio, SurfaceRx aims to change how superintendents manage water and stress tolerance on playing surfaces. The new wetting agent incorporates osmoprotectant technology to address not only water penetration and soil repellency but also to support the turf plant's natural defenses during drought and stress conditions. Harrell's stated both resiliency and consistency in surface playability is a key goal for SurfaceRx.

Harrells.com/product/surfac-2.5



"In 1994 ... the phrase *'People, Planet, Profit,'* was coined, better known today as the *'Triple Bottom Line.'"*

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

How the Triple Bottom Line took root in golf

In the management of golf courses today, we use the term sustainability frequently. It's hard to believe the word "sustainability" was not part of golf course vernacular until the 1990s. And what is the "Triple Bottom Line?"

In 1990, the USGA worked with Ron Dodson, who introduced the concept of sustainable golf course management. He was president of the New York Audubon and later founded Audubon International. The Audubon Cooperative Sanctuary Program was started to help golf get more sustainable.

Dodson preached, "The elements most often associated with sustainability include ecology, economy and society. In other words ... there must be a balance between these three 'legs of the stool,' or the stool will fall over."

This concept was first formulated in 1987, in "Our Common Future," published by the World Commission on Environment and Development.

While the WCED didn't use the three "legs of the stool," it introduced the integrated framework combining economic growth, environmental protection and social equity.

Also in 1987, John Elkington and Julia Hailes co-founded SustainAbility Ltd. In 1994, through their consulting efforts, the phrase "People, Planet, Profit," was coined, better known as the Triple Bottom Line. Their efforts challenged conventional business thinking by arguing that true success couldn't be measured solely by financial profit.

In Elkington's 1997 book, "Cannibals with Forks: The Triple Bottom Line of 21st Century Business," he elaborated on the framework:

1. **People –** promoting social equity, fairness and community well-being.
2. **Planet –** protecting the environment through responsible resource use and conservation.
3. **Profit –** maintaining economic health and viability to sustain progress over time.

By the 2000s, the Triple Bottom Line was embraced by corporations, not-for-profit organizations and governments worldwide. The golf industry was no exception.

USGA Green Section leaders, including Jim Snow, Jim Moore and Kimberly Erusha, Ph.D., embraced the 'three Ps' of sustainability in official publications and websites. The earliest clear usage appears in the USGA Water Summit proceedings, dated Nov. 6, 2012, and in subsequent BMP (Best Management Practices) documents and sustainability webpages.

At the 2013 BirdLife International Congress in Ottawa, Canada, The R&A and the USGA highlighted golf's growing role in biodiversity conservation and sustainability. The Congress, with participants from more than 120 countries, explored how environmental health underpins human well-being and showcased industries addressing global ecological challenges.

Representing the USGA, Erusha discussed how many of the world's 33,000 golf courses integrate sustainability through ecological stewardship and resource efficiency. She encouraged the golf industry to advance biodiversity, water conservation and social value as fundamental to the game's long-term reputation.

ROLE OF PLAYABILITY

While playability is a recurring concept throughout USGA Green Section literature, it did not appear as a formal addition to the Triple Bottom Line. In other words, for years, the USGA has treated playability as an outcome or operational goal rather than a "Fourth P."

However, the framework officially added 'Playability' in the International Turfgrass Research Initiative, a collaboration between the USGA, The R&A and the Scandinavian Turfgrass and Environment Research Foundation. In 2022, the initiative was launched following the 14th International Turfgrass Research Conference in Copenhagen, Denmark, and aims to fund and facilitate research that supports sustainable golf course management.

Variations such as "People, Planet, Profit and Playability" captured how environmental care, community engagement and sound economics can coexist with the enjoyment and quality of the game.

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

//NIXING NEMATODES

Nematode management on bermudagrass

Research conducted in Alabama shows the importance of detecting and eliminating nematodes

By Mike Kenna

Nematodes are a persistent underground pest in southern turfgrass, feeding on roots and weakening the plant. Recent research in Alabama conducted by William Groover, Ph.D., at Auburn University, examined nematodes, focusing on when they are most active, how to manage them and how new tools might help turf managers stay ahead of the problem.

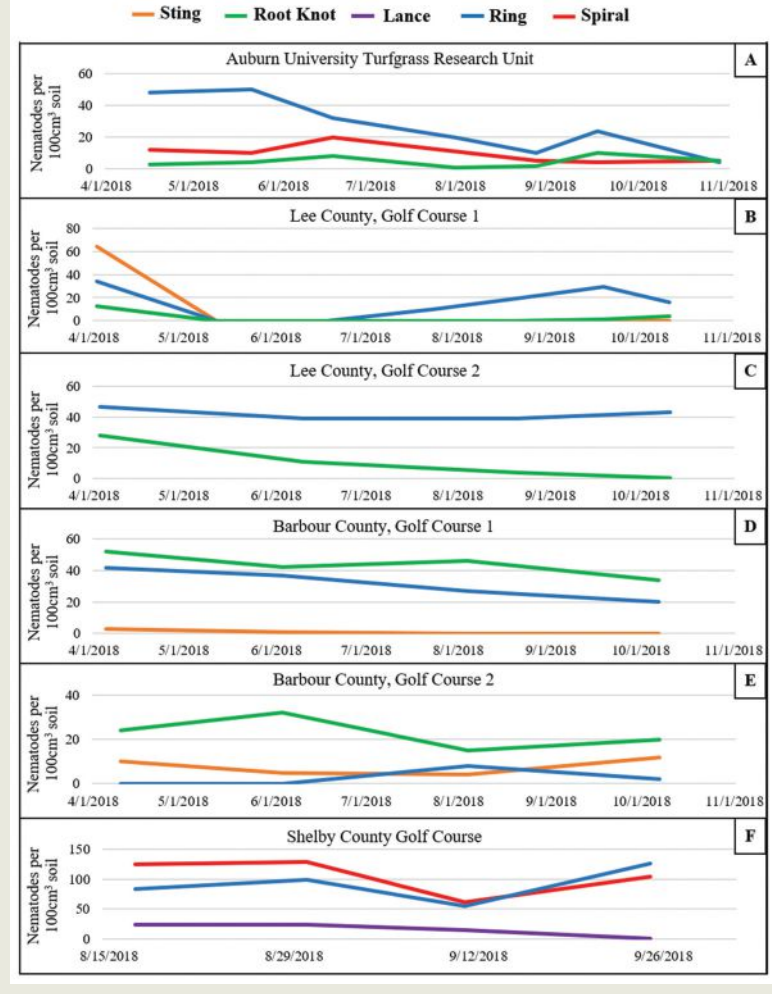
A statewide survey across six highly maintained bermudagrass sites in 2018 and 2019 revealed a surprising level of diversity. Seven genera of plant-parasitic nematodes were identified, but only the sting nematode (*Belonolaimus*) and the root-knot nematode (*Meloidogyne*) reached damaging levels. Their populations fluctuated with the seasons. Sting nematodes peak in spring and fall and root-knot nematodes during the heat of summer. These patterns demonstrate the importance of year-round soil sampling.

Building on that foundation, Groover evaluated Reklemel (fluazaindolizine, Corteva Agriscience), a new nematicide, for its potential to manage nematodes while improving turf performance. Across greenhouse, microplot and field trials, Reklemel consistently reduced sting and root-knot populations and often improved turf quality and normalized difference vegetation index (NDVI) readings.

Finally, Groover tested remote sensing technologies to track turf health in nematode-infested sites. By pairing visual quality ratings with NDVI and the normalized difference red edge index (NDRE), he found strong correlations between reduced nematode populations and improved plant vigor. This approach could use drones or

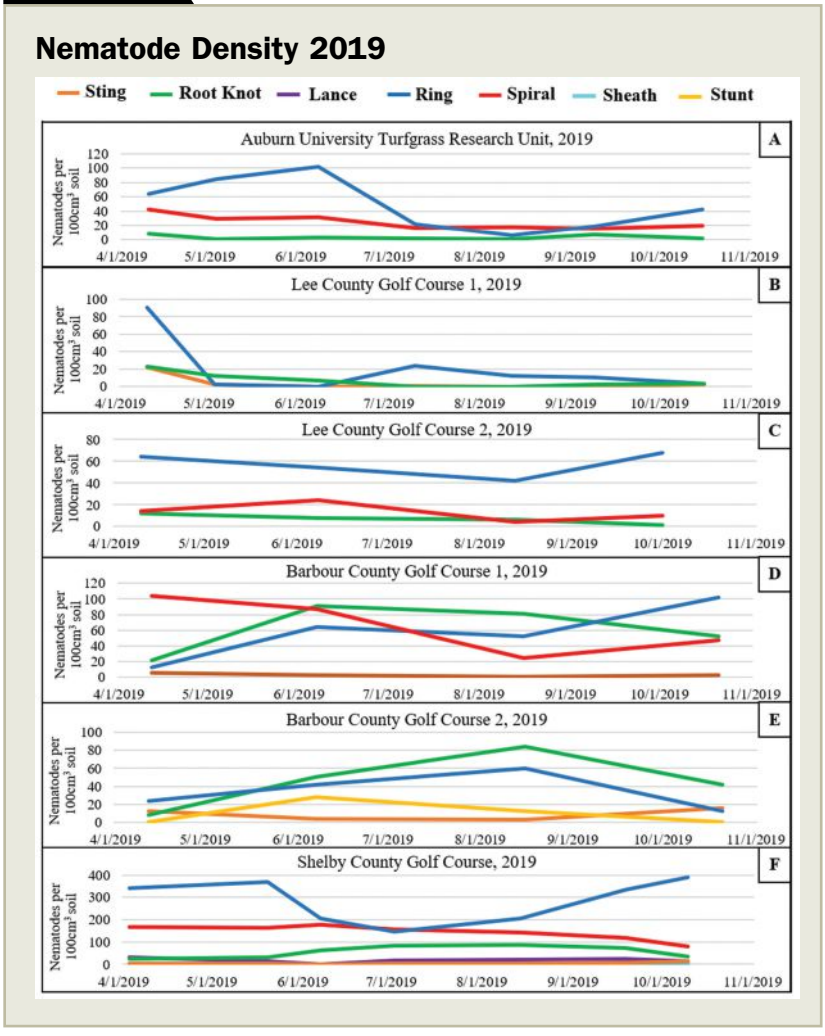
Continued on page 48

FIGURE 1A



ALL FIGURES BY: WILLIAM GROOVER

FIGURE 1B



Continued from page 47

handheld sensors to monitor nematode impact more efficiently across large turf areas.

Together, these studies point toward a more integrated approach to nematode management — combining seasonal awareness, practical chemical tools and precision monitoring technology to keep bermudagrass healthy and resilient year-round.

NEMATODE DISTRIBUTION IN ALABAMA

Soil samples were collected from six locations (five golf courses and the Auburn University Turfgrass Research Unit) during the 2018 and 2019 growing seasons. All sites had hybrid bermudagrass and are reported by county: one in Shelby County, two in Barbour County and two in Lee County.

At each location, one green with a history of nematodes was selected for sampling, or, if unknown, a randomly chosen green. Each sampling event involved collecting ten soil cores, which were then mixed into a single sample. Sampling occurred from April through October in both years, with some sites sampled monthly and others every other month.

In the laboratory, a 100 cm^3 (~6 in^3) subsample from each green was processed to determine the population density of plant-parasitic nematodes. Identification was made to the genus level using established taxonomic keys. Population data were compared against action thresholds, which indicate when nematicide treatment may be justified. For example, threshold levels were 10 sting nematodes, 80 root-knot nematodes and 1,000 stunt nematodes per 100 cm^3 of soil.

The two-year survey across Alabama golf courses revealed that nematode populations in hybrid bermudagrass vary widely by season and species. Consistent sampling throughout the growing season is essential for accurate diagnosis and control.

During the 2018 season (Figure 1a), five genera of plant-parasitic nematodes were identified: sting (*Belonolaimus longicaudatus*), lance (*Hoplolaimus*), root-knot (*Meloidogyne*), ring (*Mesocriconema*) and spiral (*Helicotylenchus*). Ring nematodes were found on every site, but never at damaging levels. Only sting nematode populations exceeded action thresholds, occurring in April and October at the tested greens in Lee and Barbour counties.

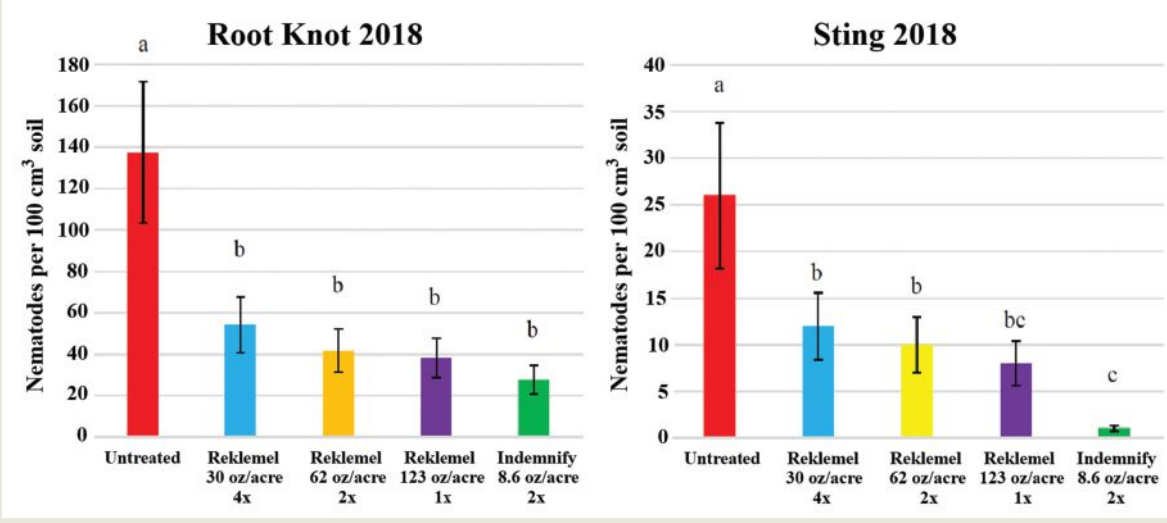
In 2019, seven genera were detected, including all from 2018 plus sheath (*Hemicycliophora*) and stunt (*Tylenchorhynchus*) nematodes (Figure 1b). Ring nematodes again appeared on nearly all samples but remained below treatment levels. Sting nematodes surpassed thresholds at four sampling points, while root-knot nematodes reached damaging levels in five samples, mainly during June through September.

Two courses (one in Lee County and Barbour County) illustrated the impact of proactive management. Golf Course 1 in Lee County implemented a nematicide program after detecting high sting nematode counts in spring and successfully reduced populations below threshold levels. In contrast, the Barbour County courses took no corrective action and saw population densities rebound in the fall.

Root-knot nematodes showed

FIGURE 2

Reklemel Greenhouse Trial



the opposite pattern, with populations peaking in late summer as sting nematode numbers declined. This inverse relationship aligns with previous research showing that sting nematodes prefer cooler soil temperatures (~86°F), while root-knot nematodes thrive in warmer midsummer conditions.

Groover's research is the first report of seasonal nematode fluctuations on turfgrass in Alabama and reinforces the need to sample more than once per growing season. Populations of damaging nematodes can rise and fall dramatically between spring, summer and fall. Routine monitoring at multiple points throughout the season provides the best foundation for timing nematicide applications.

EVALUATION OF REKLEMEL

At Auburn University, Groover evaluated Reklemel for its ability to manage sting and root knot nematodes. Trials were conducted under greenhouse, microplot and field conditions during 2018 and 2019 to compare Reklemel's performance with Indemnify (fluopyram) and an untreated control.

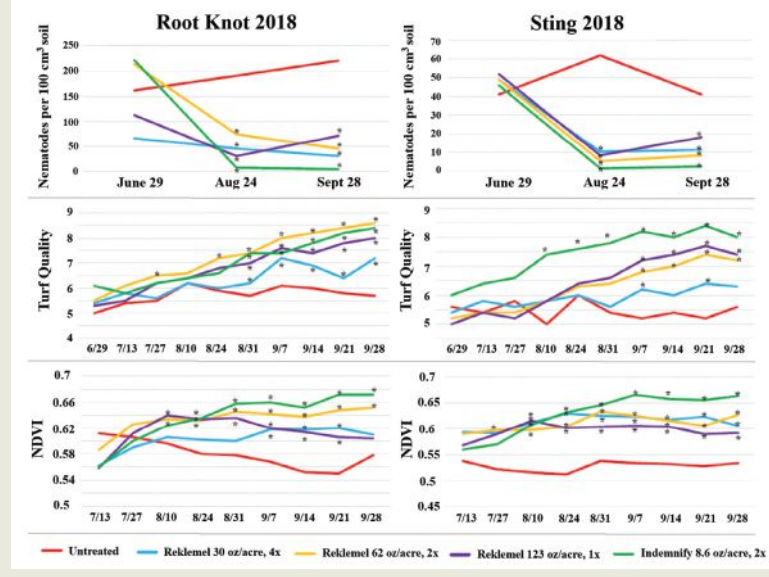
Three Reklemel rates were tested: low (30 ounces per acre, applied four times at four-week intervals), medium (62 ounces per acre, applied twice at zero and eight weeks) and high (123 ounces per acre, single application). Indemnify was applied twice at 8.6 ounces per acre, while tap water served as the untreated control.

Greenhouse studies tested Reklemel against both nematodes using Princess 77 bermudagrass grown in sand. After

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FIGURE 3

Reklemel Field Trial



Continued from page 49

six weeks of establishment, pots were inoculated with either root knot or sting nematodes and treated according to the test schedule. Turf vigor was rated weekly, and NDVI was measured. Nematode counts were taken 84 days after the first application.

To validate results under semi-field conditions, the same treatments were applied to 7-gallon sand-filled pots containing Tifway bermudagrass sod maintained as a fairway. Half of the microplots were inoculated with root knot and half with sting nematodes. Trials were conducted over two years with regular turf quality and NDVI ratings. Nematode populations were sampled three to four times per season.

Full-scale field studies were carried out at the Auburn University Gulf Coast Research and Extension Center in Fairhope, Ala., on common bermudagrass fairway turf naturally infested with sting and root-knot nematodes. Plots measured 5-by-10 feet and received identical treatments to those in the greenhouse and microplot studies.

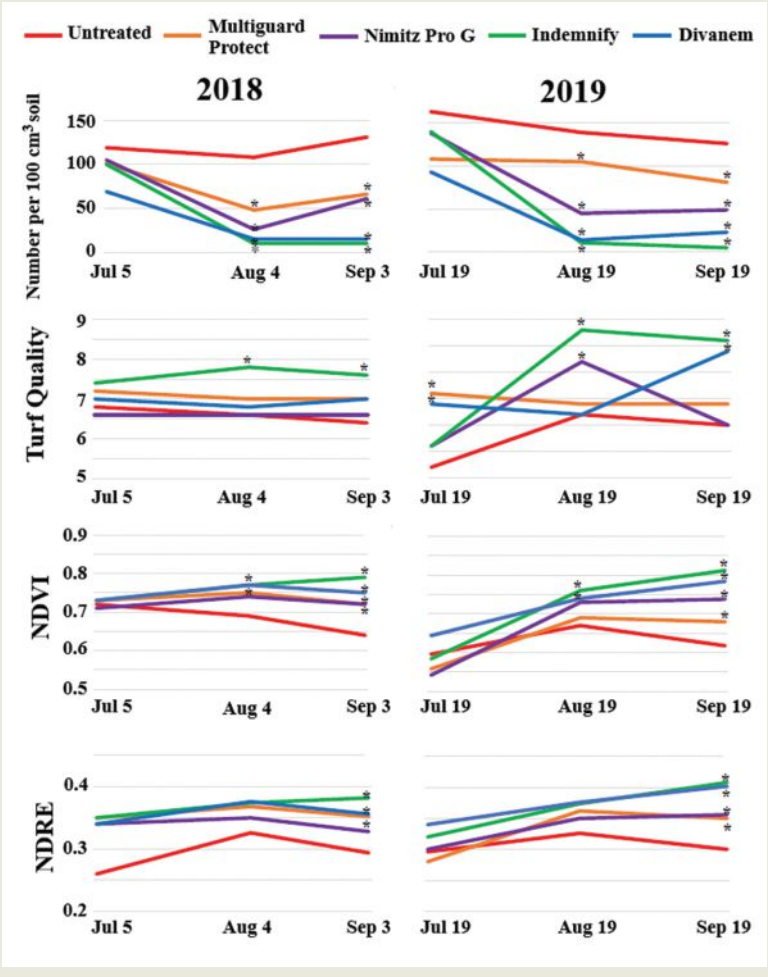
Data collection included visual turf ratings, NDVI readings and drone-based aerial imagery using a MicaSense RedEdge-M sensor. Images were analyzed to generate NDVI and NDRE maps that tracked turf health throughout the season.

Research Takeaways

- A two-year survey of Alabama golf courses showed that nematode populations in hybrid bermudagrass varied widely by season and species.
- Consistent sampling throughout the growing season was found essential for accurate diagnosis and effective control.
- Ring nematodes appeared in nearly all samples but remained below treatment levels, while sting nematodes and root-knot nematodes occasionally surpassed treatment thresholds.
- Indemnify (8.6 oz/acre) and Reklemel (123 oz/acre) gave the strongest sting nematode suppression.
- Indemnify remains one of the most effective nematicides for bermudagrass, with Divanem and Nimitz Pro G providing additional control options.
- Drone-based imaging offers turf managers a valuable new tool to monitor nematode activity, evaluate product performance and guide sampling.
- When paired with soil diagnostics and visual inspection, drone-based NDVI and NDRE mapping can improve consistency, accuracy and speed in assessing turf recovery from nematode stress.

FIGURE 4

Root-Knot — Remote Sensing



RESULTS FOR REKLEMEL

In 2018 greenhouse trials, all nematicide treatments significantly reduced root-knot and sting nematode populations compared with untreated controls (Figure 2). Indemnify (8.6 oz/acre) and the highest rate of Reklemel (123 oz/acre) provided best suppression of sting nematodes. Similar trends were observed in 2019, although differences among treatments were less distinct.

When tested under semi-field conditions in large sand-filled microplots, Reklemel again demonstrated strong nematicide activity (Figure 3). Against root-knot, all rates reduced populations below damaging levels and improved turf appearance. The medium (62 oz/acre) and high (123 oz/acre) rates consistently produced the best turf quality and NDVI readings,

rivaling Indemnify in performance.

For sting, all nematicide treatments significantly reduced nematode populations and improved turf quality and NDVI values in both 2018 (Figure 3) and 2019 (data not shown). In general, as nematode counts dropped, turf color and density improved.

In the larger field trial, Reklemel performed comparably to Indemnify in reducing sting and root-knot nematode populations during both 2018 and 2019 (data not shown). Although population reductions were significant at nearly all sample dates, visual turf differences were not detected, likely because the fairway turf showed no visible nematode damage before treatment.

REMOTE SENSING EVALUATION OF NEMATICIDES

Groover also conducted microplot and field trials in 2018 and 2019 to evaluate the effectiveness of Divanem (abamectin), Indemnify (fluopyram), Nimitz Pro G (fluensulfone) and Multiguard Protect (furfural) on bermudagrass infested with sting and root-knot nematodes.

In field microplots, sand-filled plastic pots were arranged in a randomized complete block design with five replications per treatment. Tifway bermudagrass sod was established under automated drip irrigation and maintained at a 1-inch mowing height. Half of the plots were inoculated with root-knot (50,000 eggs per pot), while the other half received sting (100 nematodes per pot).

Nematicides were applied once at the start of the trial. All materials were watered in with 0.25 inches of irrigation. Evaluations occurred 30 and 60 days after treatment (DAT) and included nematode counts, visual turf quality ratings (1–9 NTEP scale) and multispectral indices (NDVI and NDRE).

A 2019 field trial at Montevallo (Ala.) Golf Club tested the same nematicides on four putting greens with known nematode infestations. Each green was divided into quadrants for replicated treatments: untreated, Divanem, Indemnify and Nimitz Pro G.

Soil cores were collected every 28 days for nematode quantification, while turf quality, NDVI and NDRE were measured both on the ground and via drone imagery. Flights were standardized for solar conditions and analyzed using Pix4Dmapper and ArcGIS to calculate vegetation indices.

Continued on page 52

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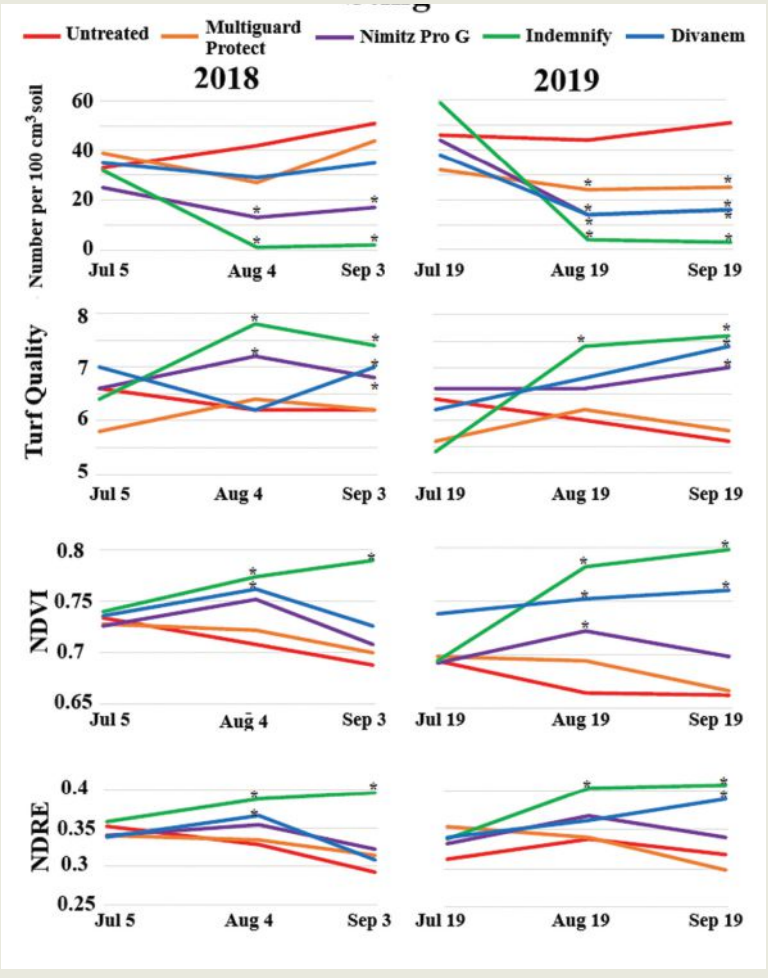
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FIGURE 5

Sting — Remote Sensing



Continued from page 51

RESULTS AND DISCUSSION

In the microplots, all four nematicides significantly reduced root-knot and sting nematodes within 30 days after treatment (Figure 4). For root-knot, Indemnify consistently produced the greatest turf improvement. In 2019, Nimitz Pro G also performed well early in the season, while Divanem matched Multiguard Protect visual quality at 60 days after treatment (DAT). All nematicides improved NDVI values, an indicator of canopy greenness and density, particularly at 60 DAT. The NDRE measurements, which reflect chlorophyll content, also increased under several nematicide treatments.

In the sting nematode trials, Indemnify and Nimitz Pro G were again the top performers, significantly reducing nematode populations in both years (Figure 5). Divanem also improved turf quality and NDVI in several evaluations, while fluopyram frequently yielded the highest NDRE readings, showing greater turf vigor and chlorophyll recovery after treatment.

Golf course field testing on putting greens in 2019 confirmed these trends under real-world conditions. Five nematode genera were identified, including sting, root knot and lance, with total population densities reduced by all nematicides at 28, 56 and 84 DAT (data not shown).

Indemnify produced the highest turf quality and NDVI/NDRE values throughout the trial, followed by Divanem. Nimitz Pro G also enhanced NDRE at several evaluation dates. Remote imagery revealed that nematicide-treated plots maintained denser, greener turf canopies compared to untreated controls.

LINKING REMOTE SENSING AND NEMATODE PRESSURE

Data analysis showed strong negative correlations between nematode density and both NDVI and NDRE — as nematode numbers rose, spectral indicators of turf health declined (Figures 4 and 5). In contrast, turf quality, NDVI and NDRE were all positively correlated with one another, validating the reliability of these digital tools.

These results support earlier studies demonstrating that unmanned aerial systems (UAS) and multispectral sensors can detect turf stress from nematode damage before it is visually evident. NDVI and NDRE captured subtle canopy changes linked to nematode suppression more precisely than traditional ratings.

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"... Being strapped into the seat with my racing suit, helmet and HANS device tightly fitting, I was extremely apprehensive and nervous."

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

Racing versus watching grass grow

This past fall, I was invited to a performance driving school. The Charlotte Motor Speedway in Charlotte, N.C., is home to the Ford Performance Racing School. The one-day class consisted of racing on a road course through the motorway's banked curves and infield. The car was a 2024 Mustang Dark Horse with a 5.0 L V-8, 500-hp engine. The transmission was either a Tremec 6-speed manual transmission with rev matching or the option I chose, an automatic with the driving selector in manual and using the paddle shifters.

I have always loved cars, especially muscle cars of the 1960s and early 1970s. I looked forward to this experience with considerable excitement.

Prior to going out on the track, the professional racing instructors went over what to expect and provided suggestions on when to brake hard, targeting the apex and staying within a two-car length with the car in front of you, to name a few.



My anticipation was building through the classroom discussions as well as my uneasiness, especially when questions directed toward the instructors arose.

Question: How fast can we go?

Instructor: As fast as you can.

Question: How fast do we go?

Instructor: I don't know... rarely, if at all, are you looking at the speedometer.

For those who have followed my column over the years, a topic that comes up occasionally is my 1969 Pontiac Firebird. I have enjoyed "cruising" in it and going to car shows. My driving is relatively slow and in deliberate fashion. I am reminded of this from the honking of those behind me.

Needless to say, being strapped into the Recaro sports seats with my racing suit, helmet and HANS device (head supporting device required since the death of Dale Earnhardt at Daytona in 2001) tightly fitting, I was extremely apprehensive and nervous.

The experience was entirely new for me, but it also reminded me of basic driving skills that you forget over time. After the experience, I recounted how some of the driving experience was relatable to a few turfgrass management practices.

One was to pick out a point in the distance and drive toward it. Through the communication system in my helmet, the lead instructor was continually communicating with me to keep my eyes up or drive toward the cone that is coming up. It is a basic driving principle, but over time, you forget or don't think much about. It also reminded me of learning to mow greens. Similar to mowing straight lines on putting greens, you pick a point or object to mow toward. If you are focused on looking down at the mower, it doesn't take long to get erratic or be forced to slow down.

Race driving requires practice. No matter how fast I thought I was going, compared to when I rode with the instructor, I might as well have been in slow motion. I made that comment to my instructor. His response was saying all you need is track time and practice. Not surprising; being consistent in maintaining quality turf is dependent on repeatability of practices based on practice and proficiency.

Experiencing road car racing in a performance automobile is an experience that I have added to my bucket list of accomplishments. Most experiences have a corollary in golf course management, but at a much slower pace. Planning, anticipating, repetition and practice are keys to racing and are also applicable to golf course management.

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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Nate Maurer

DIRECTOR OF AGRONOMY // Jacksonville (Fla.) G&CC

Nate, what are you having? 
Let's do a Tito's and soda water.

Tell me about Jacksonville G&CC. We're a private club, 18 holes. It's a great place, I've been there nine years. We've got a renovation coming up in 2027, a full golf course renovation and some clubhouse stuff coming up in the next couple years. So, there's a lot of moving parts coming up in the next little bit.

//BEST ADVICE

"ASK QUESTIONS, AND SURROUND YOURSELF WITH FELLOW SUPERINTENDENTS."



How did you make your way into the golf course maintenance business? Random, man — the classifieds. I just picked up a job. This industry was never anything in my scope. I've got a criminal justice degree and did a year of civil engineering and then wandered my way into turfgrass.

What's the best thing about having your job? It's different, every single day. You get to work and interact with great people and just have a good time and have fun on the golf course.

What's the oldest thing in the shop that has taken a beating but still gets out there and gets the job done? Besides myself? Probably an old school cup cutter, the foot-pedal cutter. But I like old school, I think those things are nostalgic. Take my pocketknife, I'm still one of those guys that loves a pocketknife, taking a core, look at the soil, just getting in there.

What teams do you root for? New England, those are my professional teams all across the board. I'm born and raised Irish Catholic, so I'm a Notre Dame fan. And I got my turf degree from Georgia, so I'm a Bulldog too.

Do you have an all-time golf highlight? I once volunteered for a Legends of Golf event. I saw Chi-Chi Rodríguez, Arnold Palmer, all those guys were there. It was awesome, man, just walking around, checking those dudes out and running with the old school of golf.



Next time I'm in Jacksonville, what do I have to do? Go to St. Augustine. I think St. Augustine is getting to be like a Charleston, as far as the food. Grab some food at a restaurant called the Saint; it's amazing. Just go down there and hang out. It's a good spot to be.



Tell me about your family, and what do you all do for fun? I'm married, going on 23 years now, and we have two boys, an 18-year-old (Mason) and a 15-year-old (Bradley). We like to fish. My oldest is now taking up golf, he loves to do that. We try to do that Fridays or get out in the boat, mess around. So we're either on the water or doing something fun. They keep me busy, and Mary-Eileen and I are very proud of our boys. My oldest is now doing an apprenticeship for plumbing. They're great, awesome kids.

As interviewed by Seth Jones, Dec. 11, 2025.

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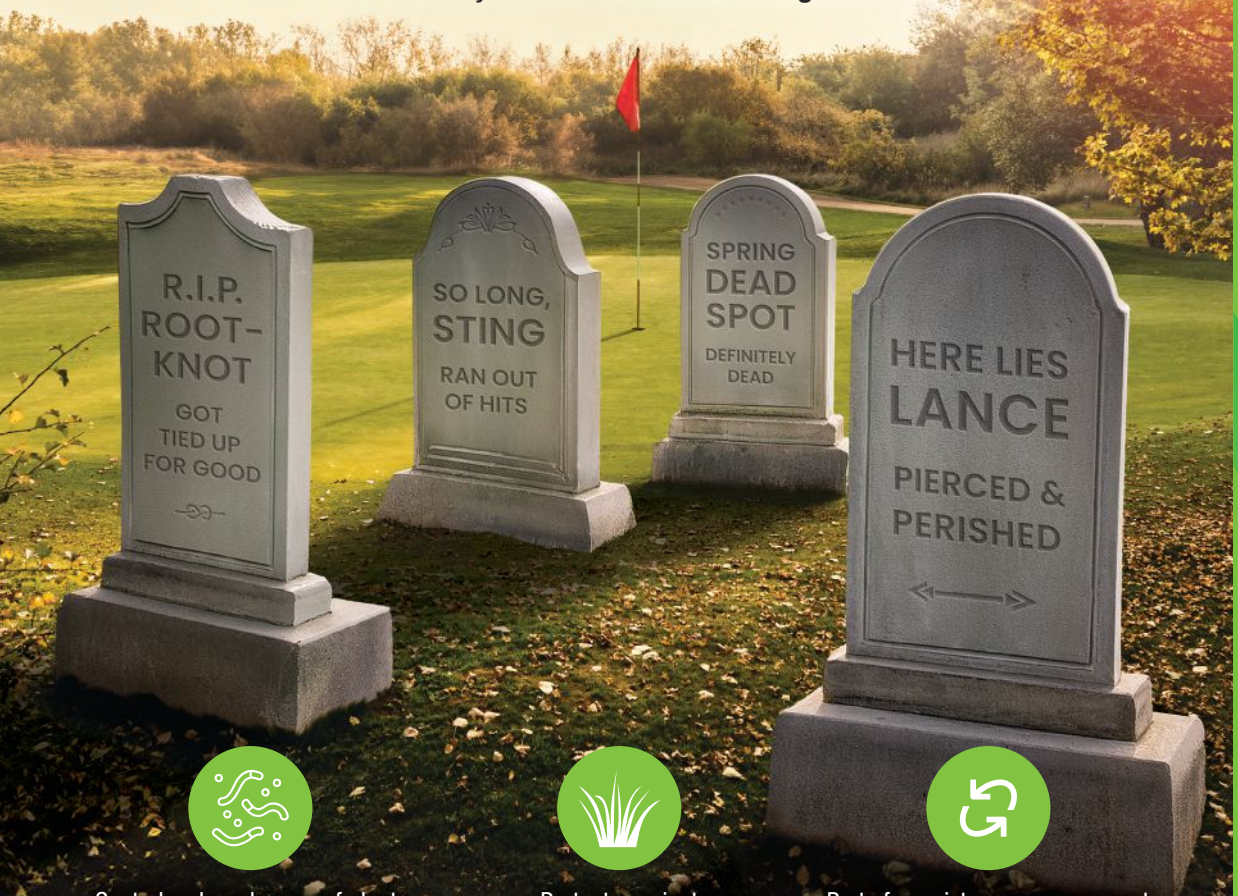
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A SUPERINTENDENT'S GUIDE TO ROBOTIC MOWING



A PRACTICAL APPROACH TO ROBOTS MOWING GRASS

A Word from Kress

To my fellow turf professionals,

If there's one thing I know about golf course superintendents, it's that you don't have time for hype. You need results that optimize the many facets of your job that include cutting height, playing conditions, labor efficiency and meeting the expectations from golfers who expect perfect playing conditions. Your days start early and end late, and any piece of technology that claims to save time had better deliver.

That's why Kress is proud to sponsor *Golfdom*'s Autonomous Mower Guide.

Autonomous mowing has reached an inflection point. What was once considered emerging technology is now used on large commercial turf, including golf courses, with remarkable precision and repeatability. The rapid advancements in RTK positioning, mapping, obstacle avoidance and vision-based navigation have moved autonomy from a novelty to a legitimate solution for the labor-crunch in our industry.

A few years ago, robotic mowers required boundary wires, on-site antennas and time-intensive setup. Today, Kress has developed the technology to eliminate all of those things. Virtual mapping and centimeter-level accuracy mean the mower knows exactly where it is across multiple zones and hardscapes without user intervention.

At Kress, we've invested heavily in moving autonomous mowing technology forward. Our Mission RTKn robotic mowers were engineered to "mow like you, without you," with custom patterns using the highest level of satellite-precise positioning.

But here's the most important takeaway:

This guide exists because superintendents deserve unbiased clarity.

We recognize that autonomy can feel overwhelming or even risky, and the last thing you need is noise clouding your decision-making.



You deserve objective answers to questions like:

- How does RTK differ from other positioning technologies on the market?
- What does boundary-wire-free really mean?
- How can autonomous mowing integrate into existing crew rhythms?
- What's the ROI, especially considering labor shortages?

Superintendents aren't replacing skilled employees; you're reallocating their time. When autonomy handles routine mowing, your team can focus on details that elevate playing conditions.

Our belief at Kress is simple:

Automation should empower people, not replace them.

We sponsored this guide because we believe golf deserves the same level of innovation that is benefiting other professional turf environments, such as sports and municipal turf. Whether you ultimately choose Kress or another manufacturer, we want you equipped to ask the right questions, compare technologies and make confident choices that benefit your golf course.

Thank you for the work you do. Thank you for setting the standard of excellence in course turf care. And thank you for exploring new tools that can make your team's work more efficient, your company more profitable and your course even better for players.

See you on the tee!

TIM BARRIER, CGCS
Golf Business Development Manager, Kress



> We sponsored this guide because we believe golf deserves the same level of innovation that is benefiting other professional turf environments, such as sports and municipal turf."
>
> — Tim Barrier, CGCS



A Superintendent's Guide to Robotic Mowing

A practical approach to robots mowing grass

Welcome to A Superintendent's Guide to Robotic Mowing, a resource designed to help golf course and turf managers navigate the shift toward automated mowing solutions.

Robotic mowing technology is no longer a futuristic concept — it's here now, and it's providing superintendents with new ways to do more with less as labor strains across the industry continue to be felt. Whether you're exploring automation for the first time or looking to optimize an existing robotic fleet, this guide is here to provide marketing-free clarity and direction.

One important note: This resource focuses on mowers designed to work within golf courses, sports fields and other professionally managed turf areas. It does not cover larger autonomous or semi-autonomous fairway mowers and retrofitted solutions on traditional units, although those solutions are on the immediate horizon and promise to provide superintendents with more options and advanced solutions.

Instead, this guide concentrates on implementing self-docking or drop-and-go robots, which require a mindset, workflow and infrastructure shift from what has been known on golf courses for decades.

Rise of the robots

Or were they already here?

Robotic mowers have been in development for decades, with early models debuting in the 1990s. Initially, these machines were limited by boundary wires and basic programming, making them more suited for residential lawns than large-scale turf applications. However, in Europe — where labor costs and regulations have driven automation — robotic mowing has been widely adopted since the early 2000s.

Today, advancements in wireless navigation, RTK-based boundary mapping and cloud-based fleet management have made these mowers more adaptable than ever. No longer confined by physical guide

Consider this!

A current employee in charge of the clubhouse area can be the drop-and-go "shepherd," monitoring the robot's progress, moving mow zones and swapping batteries as necessary. While the robot mows each zone (quietly), the employee can spend time on other landscaping detail work such as garden beds, trimming behind the robot and other labor-intensive tasks.



wires, modern robotic mowers can handle complex mowing patterns, adjust to course conditions in real time and seamlessly integrate with a superintendent's workflow.

Self-docking vs. drop-and-go robotic mowers

Different strategies for different pieces of grass

SELF-DOCKING MOWERS

Self-docking mowers are designed to autonomously return to their charging station when their battery is low or their scheduled mowing task is complete. This style is well-suited for areas with clear, open paths where the mower can easily navigate back to its charging station.

There are two big benefits to self-docking mowers. First, they offer **continuous autonomous operation,** meaning the mower returns to its charging station independently, which reduces the need for manual intervention.

Second, they provide **efficient coverage.** They are ideal for large, open spaces or areas with straightforward terrain, and minimal travel between mowing where the mower can move freely without much guidance.

DROP-AND-GO MOWERS

Drop-and-go mowers require manual placement at a specific location on the property and must be manually returned to a charging



Consider this!

With existing electrical infrastructure in place, locations such as the clubhouse, driving range, half-way houses and adjacent holes can be good choices for initial deployment of robotic mowers.

station or have their batteries swapped as needed. These mowers are more adaptable for multiple mowing zones with complex travel paths between zones. Clubhouse surrounds can be an ideal setting for this style of mower to avoid conflict between golf cart/foot traffic, leftover tents/furniture from events and other common obstacles in these areas.

While these mowers are able to complete tasks autonomously, they only offer **limited autonomous operation,** meaning there is a need for human intervention more frequently.

HYBRID SOLUTIONS

Some models available now feature hybrid solutions that can switch between self-docking and drop-and-go modes. This adaptability makes them especially useful for properties with a variety of mowing needs.

For example, fairways and roughs might benefit from self-docking for efficiency, while drop-and-go could be more appropriate for tricky areas like greens surrounds and clubhouse lawns. Workarounds also exist for some models to enable this flexibility, and as robotic mowing technology advances, this ability will become more widely available across brands and models.



Understanding the challenges

Barriers to robotic mowing

COURSE TERRAIN

A major limiting factor begins with the terrain of the golf course, specifically the steepness of hills and slopes. A hilly course can present traction and efficiency challenges for robotic mowers. The good news is there are specialty all-wheel-drive (AWD) models to handle steep hills, and some manufactuers are introducing innovations that help overcome these challenges. Extremely uneven ground, such as driving ranges, can also cause issues for efficient robotic mowing.

Additionally, tree roots, course accessories, traffic stakes/fences and other objects can interfere with mower operation, so that should be taken into consideration. Continued development of AI-vision/camera technology on these mowers — already available from some manufacturers — will allow for more accurate obstacle detection.

POWER AVAILABILITY

Robotic mowers depend on consistent power sources and cloud-based connectivity to function efficiently.



The most common barrier for robotic mowing adoption across a golf course is access to power. Many courses are splicing outlets from irrigation controllers in strategic locations across the course. While this is a fairly simple solution, it requires additional infrastructure costs and changes.

Both DIY and pre-packaged solar charging solutions are viable for robotic mowers, though both options still require infrastructure planning and an additional upfront cost. While the average electricity cost per year isn't exorbitant for a robotic mower, solar charging can show a course's commitment to forward thinking and more sustainable practices. Look for solar charging solutions directly from robotic mower brands or partners to continue to hit the market.

CREW 'BUY-IN,' TRAINING

As with any new technology, integrating robotic mowers into daily operations requires staff adaptation and training — everyone needs to "buy-in" for a truly successful deployment. Most basic/common troubleshooting can be done by anyone on staff.

Some crew members may resist automation due to concerns about job security or unfamiliarity with the equipment. Superintendents should emphasize that robotic mowers are designed to complement, not replace, existing staff. Implementing training programs that focus on robotic fleet management, troubleshooting and optimization will help ensure success and increase staff engagement with the new technology, creating a sense of ownership throughout the team.

COURSE LAYOUT

Golf course layouts can play a large role in robotic mowing efficiency, and determine how many units are needed for a course. A compact and connected 18-hole course will require fewer robots than an 18-hole golf course that is more spread out, where each hole stands alone.

INITIAL INVESTMENT AND BUDGET CONCERNS

The upfront cost of robotic mowing solutions can be a major deterrent for some golf courses. While automation promises long-term savings in labor and fuel costs, the initial investment in robotic mowers, charging stations and infrastructure upgrades can be substantial.

When considering replacing current rough units, a thorough

Consider this!

The next generation of superintendents are current students, interns, AITs and assistants — these will likely also be your robotic mower crew leads. Incorporating technology will help attract young, passionate turfgrass professionals to your team while preparing your operation for sustained success in the future.



> Robotic mowers are not a one-size-fits-all solution. Each property is unique, shaped by topography, obstacles, power access and how people use the space. By walking the site, superintendents can visualize how mowers might move and identify areas that need more thought.

cost-benefit analysis of robotic mowing versus traditional mowing can help superintendents justify the investment to stakeholders by outlining potential savings and efficiency gains. Considering all factors of cost for both traditional and robotic mowing is key to an accurate return-on-investment study.

Many manufacturers offer leasing programs or phased implementation strategies to help courses gradually integrate robotic mowing without overextending their budgets. At this stage, early adopter discounts are commonly available for courses making larger investments towards robotic mowing.

CONNECTIVITY TO THE CLOUD: RTK, CELL AND WI-FI CONSIDERATIONS

The general connectivity to a property's "cloud" should be considered. Using Real Time Kinematic (RTK) technology between brands will require different connectivity to cellular or Wi-Fi access. Weak cellular signals can be limited to line-of-sight antennas.

Cellular hot-spots or creating mesh Wi-Fi networks across the course can create workarounds in areas with weak or no cell signal. Hosting a base station will need to be considered for courses outside of brands' preferred or proprietary RTK networks — similar to GPS/RTK sprayers that have been available in the golf course industry.

SECURITY: THEFT AND VANDAL PREVENTION

Most robotic mowers feature anti-theft measures, including device lockdown if the mower is moved outside of its zone without authorization. This ensures that a thief will be left with a robot that is entirely inoperable — similar to stealing a smartphone without knowing its password. As an additional measure, some courses may wish to avoid



nighttime mowing. Please ask your sales dealer to outline the mower's capabilities before choosing a brand.

Site evaluation and plan design

Considerations for site specific mowing plans

Robotic mowers are not a one-size-fits-all solution. Each property is unique, shaped by topography, obstacles, power access and how people use the space. By walking the site, superintendents and their teams can visualize how mowers might move and identify areas that could be great opportunities — or areas that need more thought.

Consider these areas and use this checklist as you walk the course or turf areas with your team:

OPEN SPACE ASSESSMENT

Start by looking at surrounds and roughs where larger open spaces exist. Then, determine whether there are large, open areas that would allow a mower to move freely. Are there tight, narrow corridors that might be difficult to navigate? Are there islands of turf separated by cart paths, bunkers or water?

SLOPE, TERRAIN AND SURFACE SMOOTHNESS

When going through this step, think beyond slopes. Micro-terrains — rough ground, tree roots under turf, or sunken irrigation repairs — can affect robotic mower travel even if the area is technically flat. If a traditional mower bounces, a robot will as well.

Then assess whether the areas are relatively flat or gently rolling (under 20–25 degrees). Determine if there are steep slopes, banks or mounds that would be unsafe or unreachable for a robot. Are there areas with lumpy, uneven micro-terrains, such as frost heaves, tree root ridges or old settlement spots, that would cause



> Robotic mowing technology is no longer a futuristic concept — it's here now, and it's providing superintendents with new ways to do more with less as labor strains across the industry continue to be felt.


Kress



rough or inconsistent travel for a robot? Any soft spots — wet drainage areas or heavy shade zones, for example — that would trap or bog down a mower?

OBSTACLES AND NAVIGATION

Commercial robots have obstacle avoidance mechanisms, but tight clusters and narrow gaps between obstacles can confuse some robots and decrease efficiency. So, count trees, bunkers, signs, yardage markers, benches and other permanent obstacles. Are obstacles clustered or widely spaced? Are there low-hanging branches that could interfere with robot movement?

ACCESS TO POWER FOR CHARGING STATIONS

Determine where you could run electricity for docking/charging stations. Is there a nearby building, maintenance shed or pump station that could provide power for the first phase of robotic mower implementation? Will you need to trench or add outlets to achieve further adoption across the property?

Additionally, look for out-of-sight but accessible locations for docks. They don't need to be right on the turf's edge, but they should be as centrally located as possible. Planning for permanent base and docking solutions will be required for long-term success — garages, concrete pads, etc.

A final thought: Your first goal is to find easy wins and begin a phased implementation plan. You'll likely find areas ready to go and others that need tweaking. Write it down; this will shape your plan and your conversations with vendors and stakeholders going forward.

Developing a robotic mowing plan

Consider your approach to ensure stakeholder buy-in

Once you've walked the site and identified areas where robotic mowing makes sense, the next step is to build a practical plan to bring to stakeholders and owners for consideration and, ultimately, implementation. This isn't about rethinking the entire operation overnight. It's about breaking it into phases that allow you to start small, learn as you go and expand as confidence and experience grow.

At this stage, determine how to:

- Define phases of implementation that align with site readiness.
- Estimate acreage, mowing time and mowing windows.
- Map out mowing areas using Google My Maps or similar tools.
- Consider the right number and type of mowers for each phase, including when multiple units make sense.
- Select a brand that matches the needs of your team and course.

During this stage, you'll want to crawl before you run. To do that, follow these three phases:

PHASE ONE: EASY WINS AND LEARNING ZONES

The goal of this first phase is to get staff comfortable, see how the robots perform and build experience before moving to more challenging areas.

Start where robotic mowing will be easiest to implement, such as areas with easy access to power (near on-course buildings, pump stations, clubhouses), turf that



needs regular mowing (clubhouse surrounds, driving range, golf course rough) and open, uncomplicated spaces that don't require heavy adjustments.

PHASE TWO: LARGER ON-COURSE TURF AND MODERATE INFRASTRUCTURE

Once your staff is confident and operations are running smoothly, expand to larger, more complex on-course areas. You can do this while building out the necessary infrastructure and developing the staff's ability to manage a growing fleet.

These areas can include bigger zones of rough or fairway surrounds that require more mowing capacity and areas needing moderate infrastructure (trenching for power and added docking stations). Also, staff should be ready to manage and maintain a larger fleet working in different areas of the course.

PHASE THREE: FULL-COURSE ADOPTION AND SHORT-CUT TURF

This final phase focuses on full-course adoption, where you're able to achieve full-course integration of robotic and semi-autonomous mowing, reducing dependence on traditional mowing equipment and aligning daily operations with long-term staffing, efficiency and conditioning goals.

Identifying areas needing specialized mowers or heavy infrastructure to overcome remaining barriers and considering semi-autonomous solutions for fairways, tees and approaches, where precision and mowing quality are critical and can help at this phase.

Completing a site design

How a digital map can help with successful implementation

Now, you're ready to map mowing areas.

Why use a map? A digital map helps you visualize, plan and communicate the mowing plan with your team and vendors. Google My Maps is a free, user-friendly option to start organizing your robotic mowing zones. This is a living document and will likely change many times from planning to adoption and actual mapping of zones.

To set up your map, first log in to Google My Maps. Then, create a new map and give it a clear title ("Robotic Mowing Plan — 2026," for example). Finally, zoom into your golf course or property to begin outlining key areas.

Helpful mapping tools to use include:

- Polygons/shapes to outline each mowing area.
- Pins/markers for potential charging/docking station locations.
- Labels for "Phase 1," "Phase 2," etc.
- Colors to differentiate mowing areas, phases or turf types (fairways, roughs, tees).

To finalize the site design process, you'll now want to choose mower models and quantities for each area.

For each mowing zone, you'll want to assess:

- Total acreage of the mowing area for each zone.
- Desired mowing frequency for each different area (e.g., daily, two times/week).



> Your first goal is to find easy wins and begin a phased implementation plan.

- How quickly mowing needs to be completed (e.g., overnight, within a day, within 48 hours).
- Allowed mowing windows based on irrigation, play, member use or events.
- Power and docking station access nearby or needed.

When choosing between available mower models for a specific zone, consider:

Daily mowing capacity (acres per day): How much area can each mower handle in a typical 24-hour period, including charge time? How many robots are needed to mow zones within the desired time frame?

Slope and terrain handling: What slopes can each model safely handle? Consider both listed slope specs and real-world surface conditions (wetness, uneven terrain, etc.).

Cost and availability: Balance upfront investment with operational cost savings over time. If cost and mowing capacity are similar, consider the possible benefits of multiple smaller units versus a single larger unit, such as increased flexibility and protection against downtime.

A roadmap to full integration: By starting with easy wins, expanding to larger areas and planning for full-course adoption, superintendents can strategically integrate robotic mowing into daily maintenance. Pairing autonomous rough mowing with semi-autonomous solutions for high-quality turf creates a balanced, future-proof system.

A SUPERINTENDENT'S GUIDE TO ROBOTIC MOWING

By Benton Hodges



Benton Hodges
Owner
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WANT TO LEARN MORE OR IMPLEMENT ROBOTIC MOWING AT YOUR FACILITY?

I offer custom consultations for golf courses, sports fields and other professionally managed turf properties looking to integrate robotic mowing. Whether you need a feasibility assessment, implementation strategy or hands-on training, I can help streamline your transition to automation.

Additionally, I am available for speaking engagements, industry conferences and association meetings to present on robotic mowing, turf technology and future innovations in the industry. If your event needs expert insights on the evolving landscape of turf management, reach out today!

Contact me today to discuss consultation or speaking opportunities!

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“Kress robotic mowers have been a game changer for us.”

Jeff Miller, Director of Agronomy
The Santaluz Club

“We spent the better part of 12 months testing all of the products on the market and in the end, it was clear that Kress had the superior technology.

“Now, our turf is healthier, our work is quieter, and we are able to redeploy over 2,000 man-hours per year from the mower to other course improvement initiatives.

“I’m so confident in the performance that I sold our two primary rough mowers. Transitioning to Kress was undoubtedly one of the best decisions I’ve made for our course, team and members, who have never been happier.”

Scan this code to set up a robotic mowing consultation at your golf course.

Kress



Engineered for tournament perfection

The brand-new Kress Mega 600 autonomous flagship mows up to 22 acres in 48 hours while perfectly maintaining your fairways down to .4 in, roughs as high as 3.9 in, and other zones any height in between.

Built for large-scale golf course use, Mega 600 delivers tournament-quality results with unmatched efficiency.

Scan this code to set up a robotic mowing consultation at your golf course.