

★ SPECIAL DOUBLE ISSUE ★ HOLIDAY BONUS ★

# Golfdom



SINCE 1927—The Resource for Superintendents // [Golfdom.com](http://Golfdom.com)

NOVEMBER/DECEMBER 2022

## SUPERS' CHOICE AWARDS

We asked, you answered. Readers tell us their most beloved products and why — with more than 40 golf course problem-solvers profiled!

### PLUS

2022 research review

Drought-monitoring drones

5 experts advise on *Pythium* blight

# NEW SPRAY STAR 2000 SPRAYER FOR HUNSTANTON GOLF CLUB



## Happy Smithco Customers Across The Globe



*The Spray Star 2000 at Hunstanton Golf Club*

### **Lienen, Germany (August 19, 2022)**

Founded in 1891 and located on the north Norfolk coast, Hunstanton Golf Club, with its superb championship links course, has recently purchased a Spray Star 2000 self-propelled sprayer from Smithco's local dealer, Ernest Doe and Sons.

Peter Read is the Head greenkeeper and has been at the club for 36 years, the last 10 in his current role. He leads a team of six who manage the 6,741-yard, Par 72 course, once described by 3-time Ryder Cup captain and PGA Life member Bernard Gallacher as 'a classic links course. A true championship test of golf.'

The Spray Star 2000 was purchased in April and was delivered with a 20' spray boom and Smithco's Star Command 3.0 system which incorporates turn compensation, 10" (25 cm) nozzle spacing, virtual, on-screen nozzle control and DynaJet droplet control from TeeJet Technologies. The onboard Aeros 9040 controller provides precision guidance, application rate control, mapping and variable rate application. Commenting on the Spray Star

2000, Peter Read said, "This sprayer is a big leap forward and is really simple to operate. It might look complicated, but it's extremely easy and intuitive. The guidance system is superb and you only spray the areas you want to.

"What is really impressive is the spraying system and

the control you have over the nozzles and application rates. Unlike other sprayers, it has the nozzles spaced at 10" (25 cm) intervals, whereas competitors are spaced at 16.4' (500 cm); this helps control drift and increase accuracy.

"You simply cannot overspray with this machine. It might sound complicated, but the pulse rate modulation system allows the droplet size exiting the nozzle to increase or decrease to maintain the desired application rate at any speed. You don't have to understand it; it just works.

"This is not the cheapest machine on the market, but you soon recoup any extra cost with the savings you make by not wasting any product you're putting down. I'm saving around \$640 every time I apply a wetting agent and that's twice a month on greens and three times on fairways during the summer. I'll probably save a further \$2,138.50 on fungicide applications during the year.

"The spraying technology is just so good; you can be spraying an area, come across golfers, stop and return later and it picks up

exactly where you left off. No wasted product and no over spray. It's brilliant!"

Since its founding in 1891, Hunstanton has hosted over 40 events of national standing including 12 British and English Ladies Amateur Championships, five Brabazon Trophies and three English Amateur Championships.

In 1974 the course witnessed a feat of incalculable odds when amateur golfer Bob Taylor holed in one in the practice round of a regional competition. The following day, during the first round of the event, he again holed in one. Amazingly, he did it again the next day in the final round. If three holes in one on consecutive days wasn't enough, they all occurred on the 191-yard, par 3, 16<sup>th</sup> hole!



Course superintendent Peter Read says he will save over \$2138.50 on fungicide following the arrival of his Spray Star 2000

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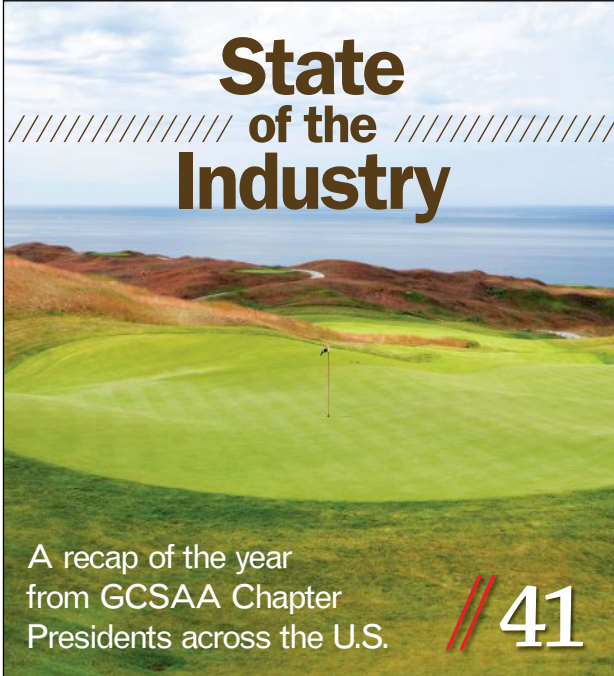
VOL. 78 // NO. 11

SINCE 1927—The Resource for Superintendents // Golfdom.com




**SUPERS' CHOICE AWARDS**

Our readers share their top products for 2022, and all-time favorites // **12**



**State of the Industry**

A recap of the year from GCSAA Chapter Presidents across the U.S. // **41**

## COLUMNS

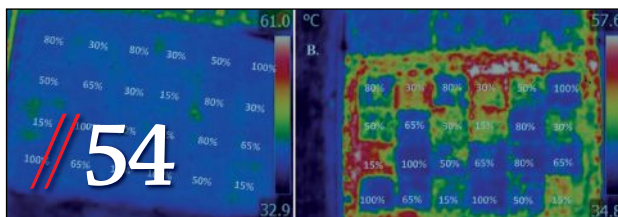
- // **4 Keeping up with The Jones**—Seth Jones  
*Jones offers a tour of our November/December issue and previews our inaugural Supers' Choice Awards*
- // **10 Musings from the Ledge**—Alan FitzGerald  
*FitzGerald shares five tools that make his life easier and how they can help you and your course*
- // **38 Wisdom from Waco**—Jim Moore  
*Moore lists some of his not-so-favorite things that superintendents may encounter on the course*
- // **62 The Turf Doc**—Karl Danneberger, Ph.D.  
*Danneberger reminisces about his journeys across the globe in his Wonderful World of Turf*
- // **66 Off the Record**—Mike Kenna, Ph.D.  
*Kenna offers a glimpse into the not-too-distant past and examines how far technology has come in 40 years*

## DEPARTMENTS

- // **6 Starter** // **32 At the Turn**



- // **68 The 19th Hole**



## SUPER SCIENCE

- // **54 How to detect early drought stress with drones**
- // **56 A look at the research projects we highlighted this year**
- // **64 How to prevent Pythium blight in cool-season turf**



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"This issue reminds me of the excitement I had as a kid when the Sears catalog would come in the mailbox. ... Mom would hand it to me and tell me to circle the toys I hoped Santa would bring."

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

# Everything but the kitchen sink

**I**t's our first-ever end-of-the-year double megaissue, and I'm pumped! In this special edition, we're debuting the Supers' Choice Awards (page 12), we bring back the State of the Industry report sponsored by Nufarm (page 35) and we have not one, but two 19th Hole Q&As (page 32 and page 68, though we switched the name of the first one, appropriately, to At the Turn.) Polybagged with the magazine and waiting to be hung on your wall is our annual Underdogs of Turf calendar, once again sponsored by Rain Bird and John Deere.

Heck, this issue even has two covers!

I don't care how cold-blooded, hard-nosed and grizzled of a superintendent you are (looking at you, Drew Thompson, CGCS, at East Aurora CC in New York) ... this issue is *fun*. The Supers' Choice Award section features 45 different products with short testimonials from superintendents around the country. You don't have to read every one of them, but my bet is you have fun spotting the ones you also love and reading what a colleague in the industry has to say.

## The Sears catalog of issues

This issue reminds me of the excitement I had as a kid when the Sears catalog would come in the mailbox. Christmas was around the corner, and my mom would hand it to me and tell me to circle the toys I hoped Santa would bring.

Yeah, I circled the most expensive G.I Joe toys. I didn't get the U.S.S. Flagg, the 7 ½-foot long battleship, in 1985. My neighbor across the street did, and seeing that box against his dumpster on trash day filled me with envy. (Years later, when he was throwing away his toys, he

asked me if I wanted it. Guess where that ship resides now?)

I hope when this issue hits your desk, you get a similar feeling of joy by looking at some of the many different tools this industry invented over the years. Think about how far the industry has advanced since you first started working in it. Think about the conditions you saw on TV when you were a kid watching golf with your pops ... and think about how far the industry has left those expectations in the dust ... and that was televised golf! The best of the best.

Our columnists in this issue also play along with our theme.

Alan FitzGerald, who recently became a Master Greenkeeper to go along with his Certified Golf Course Superintendent designation, writes about his five favorite tools that make his life easier on page 10. And Mike Kenna, Ph.D., gives a thorough (and almost shocking) recap of the evolution of technology over just the last 40 years — from his first computer at Oklahoma State University to the smartphone he keeps in his pocket today. Kenna's Off the Record column appears on page 66.

## 2022, a great year

Often in my last column of the year, I recap my own highlights of the year. I don't have the space to do that this year, but it was another great year sitting in this chair once occupied by the legendary Herb Graffis. It was a great year for golf, as evidenced by our State of the Industry reports. And it was a great year for *Golfdom*, and this issue caps it off.

I want to thank my entire team for another great year. And I want to thank you for continuing to support this magazine, whether that's vocal support, like the many superintendents who gave us comments for the Supers' Choice Awards, or whether that's silent support by reading our magazine and continuing to subscribe year after year.

Happy holidays to you. I hope Santa brings you the U.S.S. Flagg of golf maintenance equipment for the 2023 season. 📍

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# Starter

NEWS, NOTES AND QUOTES



## //WHAT'S HAPPENING IN VEGAS



Educational sessions serve as a highlight of offerings for superintendents at the 2022 Irrigation Show.

## WHAT TO EXPECT AT THE 2022 IRRIGATION SHOW

BY ROB DIFRANCO // Associate Editor



The Irrigation Association's (IA) Irrigation Show and Education Week returns to Las Vegas Dec. 5-9.

Stephanie Clark, IA's vice president of strategic partnerships and business development, shares what to look for as the Irrigation Show takes on Vegas.

Clark says the show offers superintendents an opportunity to see the newest in golf course irrigation technology in addition to extensive networking opportunities.

Unless indicated as invitation-only, access to networking events is included in the registration fee.

The IA's New Product Contest returns for its 20th year, spotlighting 30 new irrigation technologies. Attendees can get a first-hand look at the products on the Irrigation Show website and on the trade show floor, where representatives will be on hand to answer questions.

Education remains a focal point of

the Irrigation Show in 2022. The IA will host its IA University Dec. 5-7, offering a variety of classes in irrigation troubleshooting, design, management, sustainability and more.

The IA plans to take full advantage of the location of its Irrigation Show. Here are some of the things the IA plans for attendees in Vegas:

- One of the first events the IA will offer is its Viva Las Vegas welcome reception on Dec. 6. Those who attend will also receive a free drink and appetizers, courtesy of the IA and Smart Rain.
- Heritage Landscape Supply Group will host a live concert at the House of Blues featuring the Turnpike Troubadours and The Band of Heathens, open to all show registrants.
- On Dec. 8, the IA, in partnership with Ewing Irrigation & Landscape Supply, hosts its Craft Brewfest. The event allows showgoers to grab a craft beer while walking the show floor.

## //BIG MOVE

### HERITAGE LANDSCAPE SUPPLY ADDS WINFIELD UNITED'S TURF SOLUTIONS

Heritage Landscape Supply recently acquired WinField United's professional products group (PPG).

PPG, a green industry distributor, provides technical expertise, solutions and service in turf and vegetative management, the golf industry and more. Its solutions include insecticides, herbicides, plant growth regulators and turf seed.

Heritage said Scott Gault will continue to lead PPG as its director along with PPG's sales and operations team. Heritage said PPG will transition its name to Heritage Professional Products Group.

## //WINNER WINNER

### GCSAA, SYNGENTA RECOGNIZE ENVIRONMENTAL LEADERS IN GOLF

The Golf Course Superintendents Association of America (GCSAA) named four superintendents winners of the 2022 Environmental Leaders in Golf Awards. GCSAA, in partnership with Syngenta, recognize superintendents for their commitment to environmental stewardship. GCSAA will honor winners at the GCSAA Show, Feb. 6-9, in Orlando, Fla.

**Communications and Outreach Award:** Scott Bower, CGCS, Martis Camp Club, Truckee, Calif. Bower speaks to club members and educates staff members on forest health, land stewardship, water conservation and water quality.

**Healthy Land Stewardship Award:** Justin Brimley, Crystal Springs Golf Course, Burlingame, Calif. Brimley limits the use of pesticides and fertilizers as Crystal Springs sits above a watershed.

**Innovative Conservation Award:** Russell Young, CGCS, Palm Tree Golf Course, Yigo, Guam. Several holes border the jungle, which invites unique challenges from the coconut rhino beetle.

**Natural Resource Conservation Award:** Wayne Mills, La Cumbre Country Club, Santa Barbara, Calif. Mills oversees maintenance at La Cumbre Country Club, which uses recycled water from the city of Santa Barbara.



## //TOURNAMENT TIME

# Chicago Golf Club to host '33 U.S. Women's Open, '36 Walker Cup



The United States Golf Association (USGA) named Chicago Golf Club in Wheaton, Ill., as the host site for the 2033 U.S. Women's

Open and the 2036 Walker Cup Match.

"The history of the USGA and American golf can't be told without Chicago Golf Club, and just over 125 years after hosting its first USGA championship, we're thrilled to announce our return for two additional significant events," said John Bodenhamer, USGA chief championships officer.

Founded in 1892, Chicago GC debuted the first 18-hole course in the

United States in 1893 and became one of five founding member clubs of the USGA in 1894.

The course recently underwent a restoration to return the original fairway lines and dimensions of all 128 bunkers on the course. This included the reinstallation of 13 bunkers after the club discovered maps that indicated the bunkers were a part of Seth Raynor's original 1923 design. Craig Smith is the course's superintendent.

"Hosting the best players in the world — men, women, amateur and professional — for USGA events is a point of pride for our club and a significant part of our long history," said Herb Getz, club president.

## //IN PRINT

## NEW BOOK EXAMINES SUSTAINABILITY IN GOLF

Golf course architect Forrest Richardson and designer Jeff Danner will publish a new book titled *The Sustainable Sport — How Golf's Five Million Acres Benefit the Planet*.

The duo plan to release the book in mid-2023, which offers an in-depth look at the game of golf with a perspective on sustainability.

Topics covered in the book include a detailed look at golf's footprint across the environment and a comparison of how golf's acreage compares to other human environments such as housing, agriculture and roadways. Richardson and Danner also look to the future to share how the golf industry looks to better the game and its impact on the next generations.

## //NEW ROLE

## AUDUBON INTERNATIONAL NAMES DIRECTOR OF CONSERVATION INITIATIVES

Bill Brown, Ph.D., joins Audubon International as its new director of conservation initiatives.

"We feel fortunate to bring on board a person with deep roots in the environmental field who is also very passionate about his work," Christine Kane, CEO of Audubon International, said. "Dr. Brown's knowledge of environmental sustainability will be invaluable to Audubon International's continued efforts on many levels."

According to the company, Brown's tasks will include overseeing the organization's collaborations with the Monarchs in the Rough, Raptor Relocation Network and BioBlitz programs.



Bill Brown

"My experience and devotion to conservation falls directly in line with the successes and goals of Audubon International, so I am thrilled to be part of the team," Brown said. "I look forward to engaging with members, enhancing programs and identifying new ones."

Audubon International also co-sponsors Anuvia Legends with *Golfdom* magazine, an initiative started by Anuvia that celebrates superintendents who have gone above and beyond in their careers.



## #TurfTweetofoftheMonth

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### Craig Spicer

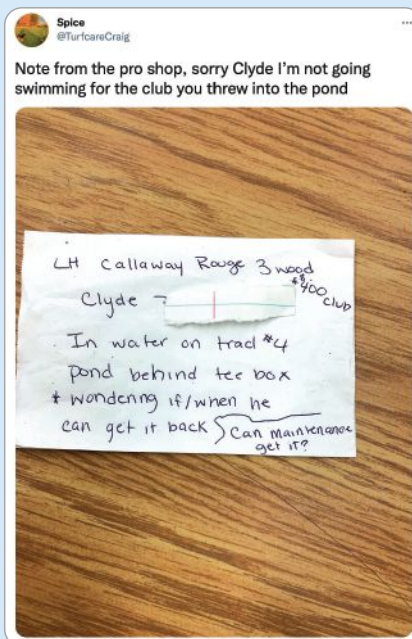
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## //NEW NAMES, NEW TITLES

# SYNGENTA BEEFS UP TURF, GOLF SUPPORT STAFF



Syngenta announced several appointments across its golf and turf business. The company said these new additions highlight its commitment to the golf industry.

"Our new team members are well-suited to provide exceptional support to professionals across the country," said Dave Ravel, head of sales for Syngenta Professional Solutions. "They step into their new positions as we say thank you and congratulations to retirees Michael Agnew, Larry Feller, Gregg Schaner and Lee Kozsey, who, combined, have dedicated approximately 150 years to serving the green industry and supporting the Syngenta technical and sales teams."

### NEW TECHNICAL SERVICES REPRESENTATIVE

Syngenta named Lisa Beirn, Ph.D., as a technical services representative within the turf business. Beirn completed her bachelor's, master's and doctorate from Rutgers University. Beirn started with Syngenta in January 2016 as a research and development scientist in the company's field development team, coordinating various turf

field and lab trials in the Northeast on diseases such as dollar spot.

"Having been an R&D scientist, I have a deep appreciation for how much hard work, time and resources are put into developing and testing new chemistries. Our customers can rest assured knowing that when a new product is available, it is high quality and has been thoroughly researched," she said.



**Lisa Beirn**

In addition to her extensive dollar spot research, Syngenta said she spent more than six years developing annual bluegrass weevil solutions for the company.

"We are excited to have Lisa join our experienced team of regional technical managers, including Lane Tredway, Ph.D., Dean Mosdell, Ph.D., and Matt Giese, M.S.," said Mark Coffelt, head of technical services for Syngenta Professional Solutions.

Syngenta also added several territory managers, including:

**Tommy Hewitt**, territory manager for the Atlanta; Birmingham, Ala.; and

Chattanooga, Tenn., turf markets. Previously, Hewitt worked at ClubCorp, where he spent the last seven years as regional director of agronomy. Additionally, he served as superintendent at Windermere Golf Club and Country Club of the South in Cumming, Ga.

**Madelyn Tappan**, territory manager for the coastal southeast turf markets. Tappan previously worked for Trap Woods in Delaware as a crop consultant and agricultural sales representative. She received her bachelor's in environmental horticulture and agriculture from Virginia Tech.

**Matt Drayton**, territory manager for Virginia, eastern Tennessee and western North Carolina. Drayton joins us after serving eight years as superintendent at The Federal Club. He received his bachelor's in turfgrass management from the University of Georgia.

**Chris Marra**, turf territory manager in northern New Jersey, eastern New York and Vermont. Marra holds a bachelor's in turfgrass science from Penn State University. Before joining Syngenta, Marra was the superintendent at Maplewood Country Club in New Jersey.

**Eric Schutman**, turf territory manager in Michigan. Schutman received his bachelor's in agronomy from North Carolina State University. After joining Syngenta nine years ago, he worked in aquatic weed management in the Midwest and Northeast and in lawn care in Ohio.

**Gina Zirkle**, turf territory manager in Ohio. Zirkle received her bachelor's in plant health management and master's in environmental and natural resources from The Ohio State University. She worked for Sun Gro Horticulture, AmericanHort, ScottsMiracle-Gro and The Ohio State University pathology lab. Additionally, she served as president of the Ohio Lawn Care Association and the Ohio Turfgrass Foundation.

**Gracee Hendrix**, key account manager. After graduating with her bachelor's from Virginia Tech, Hendrix joined Syngenta in 2017 as a research and development specialist at the Vero Beach Research Center. In 2020, she became a territory sales manager for the coastal southeast.

**Jason Whitecliffe**, key account manager. He joined the Syngenta team in 2005 as a territory manager for turf.

## //SUPER OF THE YEAR

### UTAH GCSA AWARDS CHRISTOFFER

The Utah Golf Course Superintendents Association (GCSA) named **Pat Christoffer**, director of agronomy at Red Ledges Golf Club, Heber City, Utah, superintendent of the year.

Christoffer has been with Red Ledges since its inception. He manages the 18-hole course and the 12-hole, par-3 Jack Nicklaus Golf Park.

"I am fired up about being named superintendent of the year — what a great award. Not just for me but for all the folks that have helped build our maintenance program into something special and unique," said Christoffer. "We operate a program centered on integrity, creativity, and effort — I suppose this award means those little things matter. What an awesome piece of recognition for everyone at Red Ledges."



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**Kyle Stirn**

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"After all, there would not be a golf club without the course or the people to take care of it, something it seems like no one realized before."

**ALAN FITZGERALD, CGCS, MG**  
LedgeRock GC, Mohnton, Pa.

## 5 tools that make my life easier

**S**ometimes the easiest task becomes the most difficult! When Seth asked me to write about what tool was a game changer for me, my initial reaction was, "give me a bigger challenge!" That was until I tried to narrow it down. So, here are the five tools that have made my life easier as a superintendent:

**5 Today's tech.** My first thought went to the tech that is available to us today. The various soil sensors, moisture meters and turf stress monitors. The data they provide helps us make better decisions. Even a simple thing like reducing water consumption with moisture meters not only helps us to do our jobs better, it also helps to save resources while also showing that golf course superintendents are true stewards of the environment.

**4 Give it up for the GCSAA.** The next tool is our professional associations. I know there are mixed feelings about the GCSAA, but it does a lot for our profession. Not to diminish all those important things it does behind the scenes, if nothing else, think

about how the GCSAA has really pushed our profession to the forefront to show how important we are to the golf club. After all, there would not be a golf club without the course or the people to take care of it, something it seems like no one realized before.

**3 Going bonkers for bunkers.** At some point, bunkers have become the most important part of the golf course, whether a perfectly manicured white sand amoeba or frilly fine fescue jagged-edged natural areas. It is easy to argue that bunkers are a hazard and, as such, should not eat up as many resources as they do. But since golfers expect us to keep them perfect, anything to reduce the amount of work is a huge benefit. So, No. 3 on my list

is bunker liners. For me, the amount of resources saved by liners is one of the big-

*See pg. 13 for more of Alan's picks and all our Supers' Choice winners.*

gest steps forward in course maintenance over the last 10 years. Washouts are no more; the sand no longer gets contaminated by stones and debris, and they drain well and make them playable right after a storm, so I can direct that labor elsewhere. It might be easy to dismiss this due to my involvement in Blinder, but that is a consequence of their effectiveness — they just work.

**2 Game-changing tool.** My No. 2 is simply identified by its number — 648. I am not alone in this. A few of the British turf publications have

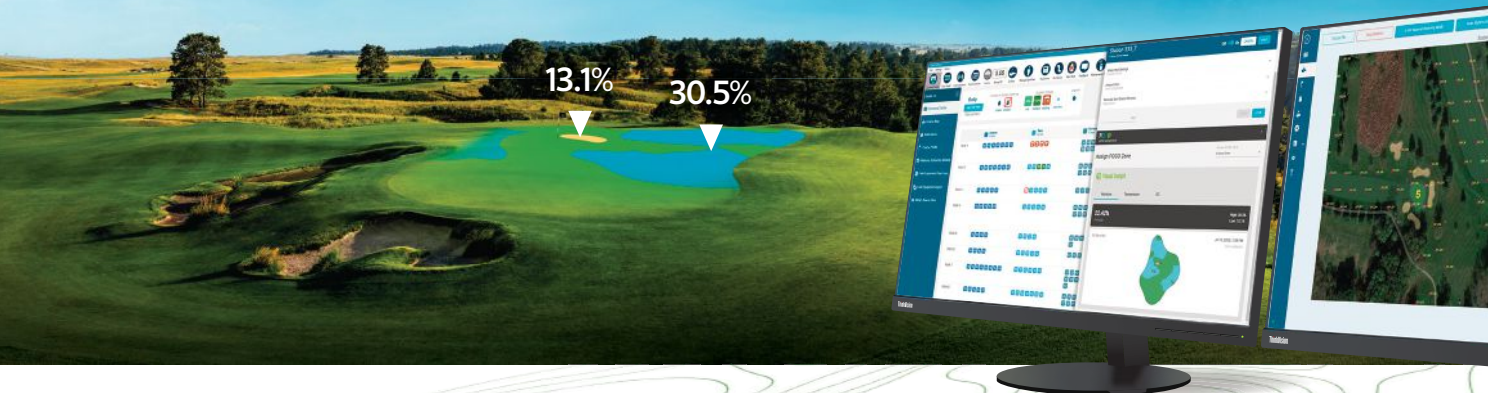
versions of *Golfdom's* 19th Hole, and one of their questions asks, "what your favorite bit of kit is?" The majority of the answers are the Toro 648. While I still love my Hydrojects, when Toro launched the 648, it was a game-changer. Its biggest advantage is it gives us the ability to quickly get air to the roots with minimal disturbance, even in play, where, with the attached roller, members love that it speeds the greens up!

### 1 The social network.

And my No. 1 best tool is also the worst — the internet and social media. I have a love-hate relationship with social media. I love seeing other courses, what others are doing and seeing some cool tool or a trick I haven't seen before. However, there is the bad side: the inevitable keyboard jockey bickering or where every picture is perfect — making you feel inadequate as you compare it to the patch of dead turf you stand over in person. The positives outweigh the negatives, especially as it brought the turf world together. Fifteen years ago, I was proud that I was one of the few turf people who knew turf people on both sides of the Atlantic, but due to social media, people have become friends without ever meeting. This has shown us that no matter where we are, we all have the same broad issues, but now we share and learn new tips and tricks from all over the planet. **3**

Alan FitzGerald (alan@ledgerockgolf.com) is superintendent at LedgeRock GC in Mohnton, Pa.

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# Hunter®



A circular gold emblem is centered on the page. Inside the circle, at the top, is a gold golf ball flanked by four gold stars. Below this, the words "SUPERS' CHOICE AWARDS" are written in large, bold, 3D gold letters. At the bottom of the circle, there are five more gold stars.

# **SUPERS' CHOICE AWARDS**

Let's play favorites! For one issue, instead of featuring only the *newest* products available for golf maintenance ... what if we featured readers' *favorite* products?

We asked and readers responded. The following products are readers' top products for 2022, as well as their favorite products of all time.

What products got left out? You tell us. Email *Golfdom*  
Editor-in-Chief Seth Jones at [sjones@northcoastmedia.net](mailto:sjones@northcoastmedia.net).



★ ★ ★  
**ALL-TIME FAVORITE**

### ProGator JOHN DEERE

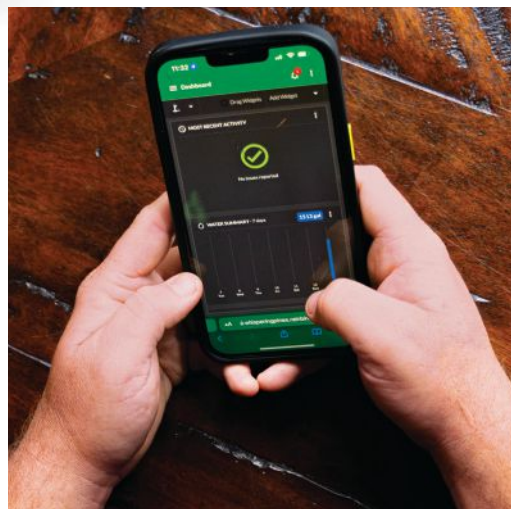
"I've used the ProGator in so many ways that I can't remember them all. Its towing capacity, payload capacity and steering ability are better than any other utility vehicle on the market. If you perform proper maintenance on a ProGator, they will easily last for more than 10 years; they are extremely durable."

— **Nick Hanson, CGCS,**  
Desert Horizons CC, Indian Wells, Calif.

### Cirrus PRO ► RAIN BIRD

"It makes operating an irrigation system mirror everything else in our lives; it's simple and at your fingertips. You don't have to be in front of a central computer to have full utility (access). It eliminates points of failure by not having to use radio communications and downloads."

— **Connor Healy, superintendent,**  
Conway Farms GC, Lake Forest, Ill.



### HP11-III greens roller ▲ SALSCO

"The HP11-III has three rollers, which saves us time and labor. It's a useful machine because it helps us take days off from mowing if we need to."

— **Zach Anderson, CGCS,**  
Willows Run Golf Complex, Redmond, Wash.

### Gravity S 26-8-16 ► WINFIELD UNITED

"I can't say enough about Gravity S from Winfield United. We spray it wall-to-wall on all three grass types we have out here. It is super cost-effective, easy to melt down and has the perfect ratio of macronutrients for turfgrass, and even comes with micronutrients, so you can save from buying the designer foliar brands. The plant response is epic."

— **Nick White, superintendent,**  
Bellerive CC, St. Louis



Continued on page 16





# FMC's fungicides provide impressive results for challenging diseases

From *Pythium* to fairy ring, turf diseases can frustrate superintendents striving to achieve season-long control. To overcome turf challenges, these golf course managers added FMC's proven fungicides to their rotations.

## Unique mode of action

The Country Club of Birmingham (Ala.) had a historical issue with *Pythium volutum*, says Lee McLemore, CGCS, director of golf course operations. His distributor recommended FMC's Serata™ fungicide with the active ingredient picarbutrazox, which is also its own unique mode of action.



Lee McLemore

"You could tell right where we put it down. The greens were as clean as a whistle," McLemore says. "It's the best product in our *Pythium* rotation and the best year we've seen with *Pythium* control."

After years of battling a

disease with the same rotation, McLemore says it made a big difference when they added Serata because it gave them a new tool to use on the greens.

"There's not another product like Serata out there right now as far as that group of fungicides," McLemore says. "It's one of those special products you're just excited about."

McLemore uses a four-way rotation of products to control *Pythium* almost every two weeks, which also includes FMC's Fame® SC, powered by fluoxastrobin, as their QoI fungicide. He's had success with FMC's Kalida® to target bipolaris leaf spot on bermudagrass fairways in the spring and fall, as well.

## No more *Pythium*

Craig Harris, director of agronomy at Greenville (S.C.) Country Club, says he needed a fungicide to successfully control *Pythium* disease in his warm, muggy climate. After reading the positive research involving Serata, he reached out to his supplier.

Harris says they used Serata

this year in their preventative program on low areas that have previously experienced *Pythium*



Craig Harris

root disease. "This summer, we saw no evidence at all of any *Pythium* getting into the root," he says.

They use a four-rotation program with applications once a month from May to August and will continue relying on Serata to tackle their *Pythium* problems. "We put it in the middle of our program, so we knew we were going to be covered," Harris says.

## Season-long control

*Pythium* root rot has been an issue for The Links at Kahite Golf Club in Vonore, Tenn., since Jordan Clark, head golf course superintendent, started there six years ago.

He says that the preventative fungicide he used for the disease only allowed for three applications a year, which wasn't enough to eliminate it through a



**Before and after pictures of fairy ring treated with Fame SC.** (Courtesy of Alan FitzGerald)

full season. So, he added Serata to his fungicide program and said that it has now given them season-long control.

“Growing grass in the transition zone has many challenges,” Clark says. “With disease playing a large role in maintaining turf, Serata has helped the turf stay healthy through the summer’s agronomic season. This is the first year since I started that I didn’t see *Pythium* root rot. It’s



**Jordan Clark**

really exciting and one less thing to worry about.” Clark also battles fairy ring, saying Kalida gives him an added weapon to use in his program. He alternates Kalida with Fame SC in the spring to prevent broad-spectrum diseases like summer patch and fairy ring.

### Immediate results

Fairy ring had never been a huge issue for Alan FitzGerald, CGCS, MG, golf course superintendent at LedgeRock Golf Club in Mohnton, Pa. But this past year, it became a severe, widespread problem. He says he tried his usual soak applications and another curative product, but neither worked. That’s when he turned to Fame SC and saw immediate results.

“Within three days, it was healed,” he says. “It not only stopped the disease, but there was no trace on 95 percent of it within a week — and the only thing that changed for us was adding Fame to it. From here on out, Fame will be the go-to product for fairy ring on greens.”

Another disease he’s battled for years is dollar spot, so he added FMC’s Kalida to his program. With two unique

active ingredients — fluindapyr and flutriafol — Kalida gave FitzGerald something different to add to the mix.

“It helped knock back the disease and get really good control,”

FitzGerald says. “This year, we haven’t had any major issues across the board with dollar spot.”



**Alan FitzGerald**

He uses Kalida at the beginning and end of the season as a knock-out product to limit the population of spores and also protect the plant.

FMC stands behind its products and provides the FMC Fairy Ring Assurance Program, which offers season-long protection from fairy ring on the golf course.

For more information, visit [fmctruechampions.com](https://www.fmctruechampions.com).



# Supers' Choice Awards

Continued from page 13



## 2-inch plug stacker MILTONA

"I had one green that had a lot of silvery-thread moss on it, and I remember two of us spending two or three hours plugging that out with cup cutters. I did the same thing in about 15 minutes by myself with the plug stacker."

— **Bryan Tipton, CGCS,**  
**superintendent,**  
Hillsview GC, Pierre, S.D.

ALL-TIME  
FAVORITE

## taskTracker ▼ TASKTRACKER

"You can have employees on there and customize it, so it shows their first assignment ... and then it won't show their second until they're done with that. Any job you can think of on the course? You can pick and choose them. It really makes a difference."

— **Ed Batcheller,**  
**superintendent,**  
CC of Orlando (Fla.)



## Manuscript herbicide ▼ SYNGENTA

"Tropical signalgrass is a weed that has become a problem here in central Florida. Prior to Manuscript, we were only able to push it back. With Manuscript, we're able to really control it, and it's made a big difference in our product on the course."

— **Mike Bellino, superintendent,**  
Heathrow CC, Longwood, Fla.



## Overseeder 3D 1575 ▼ REDEXIM

"With seed prices inflating and extreme drought conditions in the Midwest, the seed-to-soil contact that the Redexim Overseeder 3D 1575 provides assures me that I am getting a very high germination rate to help recover from our extreme summer conditions."

— **Jonathan Bennett, superintendent,**  
Sunflower Hills GC, Bonner Springs, Kan.



Continued on page 18





# A DIFFERENT KIND OF FERTILIZER FOR A MORE SUSTAINABLE GREEN

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**GREENTRX®**

**TURF'S  
GREENER  
FUTURE**



# Supers' Choice Awards

Continued from page 16



## ◀ Super 600 WIEDENMANN

"We use this unit to verticut 50 acres of fairways within days. The Super 600 can verticut and sweep up most of the remaining debris simultaneously. It can also raise high enough to dump into our F-450 with a dump bed."

— **Derrick Dreyer, superintendent,**  
Frost Creek GC, Eagle, Colo.



## Field Scout TDR300 and TDR350 ▶ SPECTRUM TECHNOLOGIES

"These help us greatly reduce the guesswork and better decide when to water or not, especially a few days after a rain event. We also use these to overall reduce the amount of water applied to the greens daily with overhead irrigation, then use the moisture meters and hoses to target areas around the greens that may need additional water. As an old-timer with over 40 years on golf courses, I used to scout certain notoriously dry or wet areas and use educated guesses to make the decisions. These tools have been a game-changer."

— **Chris Thuer, CGCS,**  
Bear Slide GC, Cicero, Ind.



## ◀ Serata fungicide FMC

"We have the best roots we've had in 15-plus years on A1 bentgrass greens in the Southeast after adding Serata into our program. Serata was put to the true test this summer with disease pressure remaining pretty high throughout the majority of the summer, and it performed flawlessly on 21-year-old bentgrass greens."

— **Craig Harris, director of agronomy,**  
Greenville (S.C.) CC

★ ★ ★  
**ALL-TIME  
FAVORITE**

## ▲ Tekken Fungicide PBI-GORDON

"I consistently get 28-day control on my tees and fairways, and with limited labor, that is a huge help because I don't have to spray every two weeks. I have used numerous fungicides that claim 28-day control but never saw the results. Tekken is a combination fungicide with two actives which helps me out in that I don't have to mix multiple products in the tank."

— **Jim Canning,**  
**director of grounds,**  
White Eagle GC, Naperville, Ill.



### Triwave 60 TURFCO

"I use the Triwave for so many different applications; I don't know how I could go without it. I can seed a multitude of different seed sizes and guarantee germination. The Triwave saves my overseed every year, especially in light irrigation coverage areas and south-facing slopes."

— **Nick Hanson, CGCS,**  
Desert Horizons CC, Indian Wells, Calif.

ALL-TIME  
FAVORITE

### Lakes & Ponds ▶ AQUARITIN

"The Aquaritin reduces the TDS (Total Dissolved Solids) levels in our ponds. The product promotes diatom activity which increases oxygenation of the water. With the reduction of TDS, this also balances out the water, including the pH. I like the ability to not only oxygenate the pond without the need of aeration pumps and electricity but also to have an environmental approach in maintaining stored water without the need for algaecides. Most importantly, having the ability to boost oxygen levels in the water that is used to irrigate the golf course has been a big factor as well. Anything we can do to improve water quality shows in turf and soil health."

— **Bryan Morison,**  
Eagle Springs GC, Wolcott, Colo.



### Turf Pro ▶ POGO

"With the drought, we're looking at our water use. I've liked using it on the greens the last few years, you can dial things in. Pogo is really easy to use once you get the areas set up. I love the mapping and cloud features. It saves everything as you go and makes it easy to compare data over time. I think this summer, I used 40 to 50 percent less water on my greens. This fall, we purchased a second one, so my assistant can help."

— **Brian Roth, CGCS,**  
Oquirrh Hills GC, Tooele, Utah



### Zipline AQUATROLS

"It's our wetting agent of choice. We went through a bunch, but this one fits our niche. It helps us maintain consistent moisture throughout our program. It's a phenomenal product. You notice when it changes efficacy, we've found that three-week window to be our hot spot. It's consistent moisture. I'm of the mindset that if you have a three-legged stool, moisture being a critical leg, Zipline allows us to weather any thunderstorms and dry periods, we can irrigate dry periods, and we don't have to worry about that 'Oops! It's a Tuesday afternoon, and this place is on fire.'"

— **Paul Van Buren, golf course manager,**  
Kanawha Club, Manakin-Sabot, Va.





# Supers' Choice Awards



ALL-TIME  
FAVORITE

## ProCore 648 aerator TORO

"The Toro ProCore 648 offers us the ability to get our agronomy practices in places where we cannot use a tractor-mounted aerifier. The reliability and performance of the 648 gives great peace of mind. We can send almost any of our employees out on it and they are able to proficiently use it and we don't have to worry about anything going haywire. We have two of them and use them at least bi-weekly on all areas of the golf course all season long."

— **Dan Frederiksen, superintendent,**  
The GC at Black Rock, Coeur d'Alene, Idaho



## HCU and HCAS THE ANDERSONS

"The addition of a humic coating on the fertilizer not only does very well at promoting growth in the plant, but it also promotes root growth."

— **Brett Grogan, superintendent,**  
Kitsap G&CC, Bremerton, Wash.

## Acelepryn SYNGENTA

"Acelepryn from Syngenta is some of the best bang for your buck out there! The first and last time I think about grubs all season is the day we go out and spray Acelepryn. Not to mention when the Twitterverse is going crazy over armyworm sightings, we have zero concerns knowing that Acelepryn was sprayed this season. It is super safe, super effective and super long-lasting."

— **Nick White, superintendent,**  
Bellerive CC, St. Louis



## Spray Bug HAHN

"It is very easy to use. It simplified a major challenge during construction as well as allowed us to spot-treat small areas of greens expansions and sod work as necessary. No dragging hoses for Sprayhawks. It was very helpful during a large construction project where we could not even get close enough to areas that needed applications with our sprayer that had a hose attachment."

— **Connor Healy, superintendent,**  
Conway Farms GC, Lake Forest, Ill.





**SPARKS** Sparks County Club

Area	Date	Time	Product	App Rate/100 sq ft	Total Containers	Cost	Status	Notes
GREENS	11/15/2022	10:00	Bent's Best 25-5-15	6.47 Lbs	2.38 25 lb Bag	\$750.00	Applied	
	11/15/2022	10:00	Chloranil 100 MFT	2.00 Oz	2.38 Gallons			
	11/15/2022	10:00	Stimula J	6.71 Oz	5.50 Gallons			
GREENS	11/15/2022	10:00	Bent's Best 25-5-15	6.47 Lbs	2.38 25 lb Bag	\$750.00	Applied	
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	11/15/2022	10:00	Chloranil 100 MFT	2.00 Oz	2.38 Gallons			
	11/15/2022	10:00	Stimula J	6.71 Oz	5.50 Gallons			

## ▲ SPARKS program SPARKS

"It allows you to input and keep track of pesticide applications. It'll log what you did, say, in November of last year and that way, you have a baseline of what you might need this year."

— **Ed Batcheller, superintendent,**  
CC of Orlando (Fla.)

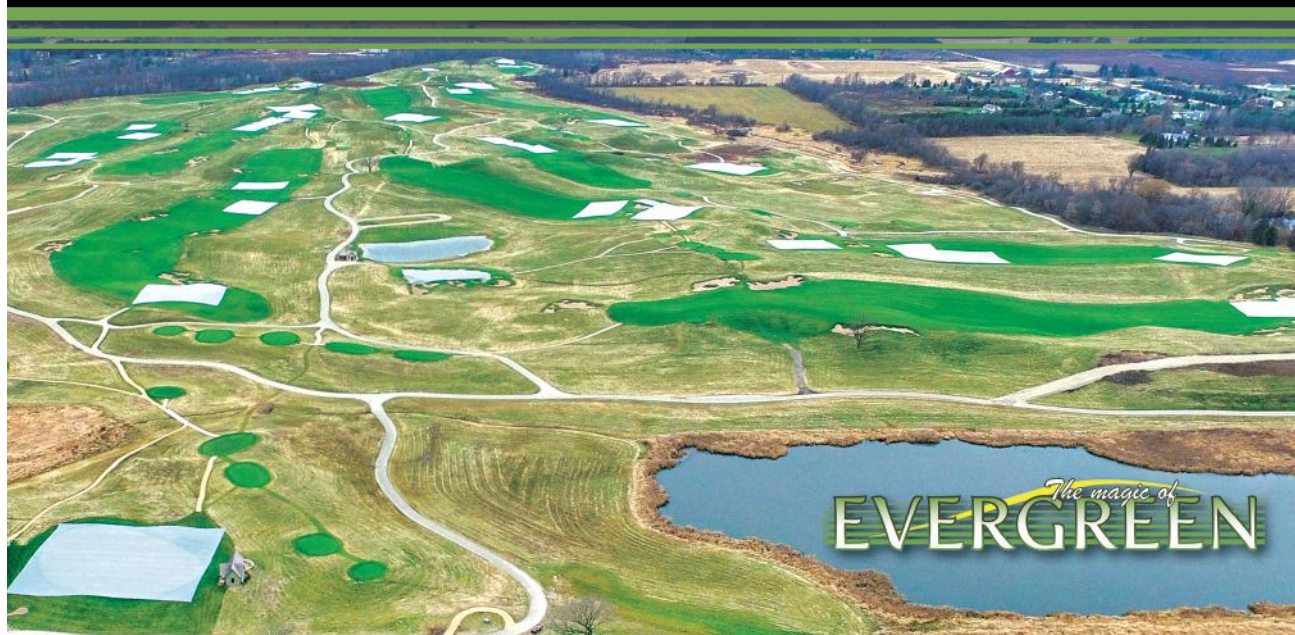
## Fame fungicide ▶ FMC

"Fairy ring on greens was a big issue during the summer drought of 2022. Our usual cures helped but did not work as they had in the past, so we decided to try Fame. The results were slightly incredible. It quickly killed off the fairy ring and seemed to help rapidly heal the areas. Fame is now our go-to product for fairy ring."

— **Alan FitzGerald, CGCS, MG,**  
LedgeRock GC, Mohnton, Pa.



# THE MAGIC OF Evergreen Turf Covers CONSIDERED THE STANDARD IN THE INDUSTRY



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# Supers' Choice Awards



## ◀ Kalida and Rayora fungicides FMC

"Kalida has become a trusted stalwart in our fungicide program, especially for the control of dollar spot. Rayora provided great control on its own, now combined with a novel SDHI to create Kalida, it has extended the efficacy period and provided even stronger disease prevention. Kalida is an integral part of our program for dollar spot."

— **Alan FitzGerald, CGCS, MG,**  
LedgeRock GC, Mohnton, Pa.

## Core Max 48 ▼ ECOTRONICS

"The Core Max 48 has improved the quality of the semi-annual core aerations to our putting surfaces. The cores of soil land inside the box and never touch the surface of the green. As a result, virtually no organic matter is smeared onto the turf. The Core Max has effectively reduced the percent of organic matter in our greens and allowed us to aerify in less than optimal weather conditions when other core removal systems can't be used. We can now aerate in March and do a better job than we used to do in April. Our members noticed the improvements in the playability of the greens in early spring and throughout the golf season."

— **Ken Flisek, CGCS,**  
The Club at Nevillewood, Presto, Pa.



## ▲ Floratine FLORATINE

"The ease of mixing and superior results allows me to customize my foliar applications down to the micronutrient. It also provides the ability to leave out nitrogen on greens ahead of tournaments if necessary."

— **Derrick Dreyer,**  
superintendent,  
Frost Creek GC, Eagle, Colo.





### ▲ Polyon HARRELL'S

"The control that you get with that is pretty darn good. The fact is that it saves on labor. You put it down in the spring and, especially in the mid-Atlantic, it gives you the fertilization that you need for that period of time."

— **Jason Hollen, superintendent,**  
Pete Dye GC, Bridgeport, W.Va.



### VC 60 verticutter ▼ 1ST PRODUCTS

"This unit seems to be well built and is very productive. First thing in the morning, we can get a few fairways verticut, wind row blown and swept in a few hours. We do a few a day as the schedule for our small staff allows. This unit, combined with solid-tine aeration, has taken the place of core aeration while allowing us to still manage the soil profile with much less cleanup and disruption to play."

— **Chris Thuer, CGCS,**  
Bear Slide GC, Cicero, Ind.



### Excalibur ▼ AQUA-AID

"Over my career, I've toyed around with several different wetting agents, and when I started using Excalibur just over a year ago, we saw that it was balancing everything out. We weren't holding water where we didn't want to and we weren't drying out anywhere, either."

— **Stuart Wiseley, superintendent,**  
Audubon CC, Naples, Fla.



### ◀ Air2G2 FOLEY

"It bridges us between our aerification cycles. We host an LPGA event in May, so we like to kickstart our greens without being too disruptive to the playing surface. Then by the time we get to July, the greens have been rolled so many times we hit them again just to gain porosity and air exchange through the soil profile. Then we hit them one more time at the beginning of winter, we get relief in the soil without any surface disruption."

— **Michael Brunelle, CGCS,**  
Upper Montclair CC, Clifton, N.J.

*Continued on page 26*





# Starting with Science

## How the Air2G2 revolutionizes the turfgrass industry

**F**or Doug Soldat, working with turfgrass is more than a passion. As a professor and turfgrass Extension specialist at the University of Wisconsin, one of his main duties is to assess turfgrass growth and revitalize stressed grass.

Soldat said he was very interested in the Air2G2 when he saw it on a golf course research putting green at the university.

The Air2G2 inserts probes into the soil and injects high-pressure air. After seeing it in action, he wanted to research the impact that it could have on compacted turf.

"We ended up laying out a study area on one of the high school fields, using the Air2G2 to see if we can improve the turf quality in these compacted soils," Soldat said. "The Air2G2 is a really unique piece of equipment since it is injecting air into the soil. Other machines inject sand or similar materials, making it very different than what is currently available."



**Doug Soldat**

As the study progressed, Soldat noticed the soil level visibly moved up, which he said was definite evidence of the air being pushed into the turf while causing minimal damage to the first layer of grass.

"One of the very exciting things about the Air2G2 is that it doesn't create a lot of disturbance on the surface," Soldat said. "When you're pulling cores, you're not able to play immediately on it after that operation. With the Air2G2, it has a minimal level of disturbance that it creates. If you can have low disturbance and some compaction alleviation or reduction, that is a very powerful tool."

Soldat said he and the research team at the University of Wisconsin continue their research and are excited to see what more they will learn about the Air2G2's benefits.

### Proof is in the putting

Seven years ago, when Adam Robertson, owner and operator of TurfAir, saw a demo of the Air2G2, he immediately saw the potential of this equipment. He decided the best path for him was to open his own business — out of Victoria, Australia — to allow others to

experience the same piece of equipment, as it was not being used in Australia yet.

Robertson said the biggest impact the Air2G2 has on turf is the minimal disturbance it has to the top layer while still helping to "reignite" the soil profile below.

"This type of machinery, this type of aeration, is the future moving forward," Robertson said. "Age has compromised a lot of golf course greens and whatever else (on the course). Clubs can't necessarily afford renovating greens. The use of this machine can reignite performance back in. It's just that investment of use, and it will come back and reward you in spades."



**Adam Robertson**

As the owner and operator of TurfAir, Robertson has seen firsthand the impact the Air2G2 has had on multiple varieties of turfgrass. He said he often gets asked how he can promise a better turf outcome for his customers, and his answer tends to be the same: by using the Air2G2 to reignite the

profile of the turf and help increase the porosity, the results will follow.

"How do we get that performance back into the profile? By aerating it, increasing the porosity, taking the compaction out of the ground, reigniting the biology of the profile," Robertson explained. "Then when we get the profile right, then surface performance increases, we can have faster greens, firmer greens, all the things that the players want. That's where users of the [Air2G2] really have felt that benefit."

Robertson is not afraid to recommend the Air2G2 to all his fellow turfgrass aerators. He feels that the Air2G2 plays a very important role in the rejuvenation of the turfgrass and that this product will help create better greens, which will create happier players.

"Give your clubs the opportunity to try something different. Try the Air2G2 as a part of your program management," Robertson urges. "The traditional renovation practices are all working in that top 4 inches. The Air2G2 allows you to work 11 inches of the profile now. A lot does happen in the top 4 inches, but I go to so many clubs and they do all the renovations and still have water sitting in the bottom of their cups."

With 2023 right around the corner, Robertson is optimistic about the number of courses already looking to book the Air2G2 for their course.



**The Air2G2 336 uses three probes to laterally inject pressurized air up to 12 inches beneath the surface of the soil, in a diameter of up to 9 feet, reaching deep into the soil profile.**

As of now, he has 25 bookings, with more superintendents looking to try the product.

"The most rewarding part of using the Air2G2 is getting the callbacks from the supers," Robertson said. "They say if that's what happened from one outing,

how's it going to be if we do two or three outings a year, even four outings a year? Their committees, their boards, their superintendents have seen change, experienced the change, and they really want to get into a program and do it on a regular basis."



# Supers' Choice Awards

Continued from page 23

## Ninja GPS Sprayer ▶

FROST

"It's been a big tool for us in the last year in that the GPS capabilities have helped us save on chemical inputs. It defines the areas that we spray through GPS capabilities, so it only sprays where we want to. There's no overspray outside of the determined GPS boundaries."

— **Tim Davis, superintendent,**  
Legacy Ridge GC, Westminster, Colo.

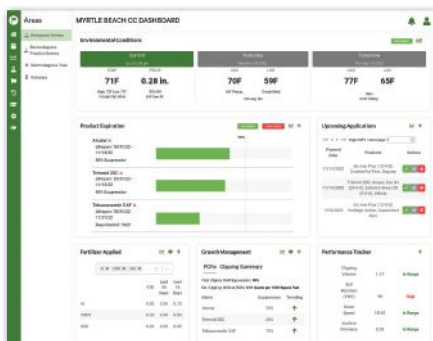


## GreenKeeper App ▼

GREENKEEPER

"The GreenKeeper App has been a game-changer for about the last seven years for me. Being able to have digital records of our spray applications, with an easy-to-read and follow print-off, is just the first thing that is valuable. What has changed everything is the ability to quickly know when the next application is going to be without having to think about it. The time I spend calculating and planning spray apps, topdressing, cultivation and timing of sprays is only a few minutes a week. It is my No. 1 crutch for agronomy decision-making, planning and tracking."

— **Dan Frederiksen, superintendent,**  
The GC at Black Rock, Coeur d'Alene, Idaho



## ▼ 500 series backpack blower

HUSQVARNA

"They're a great bang for your buck. They get put through the wringer by our guys bouncing around on carts, and they can take anything that the crew can throw at them. We've had them for about a year now and they've been a great addition."

— **Ben Ellis, superintendent,**  
Fort Belvoir (Va.) GC



## ▲ HIO Cup-Cutter

PAR AIDE

"It gives a consistent depth and it really speeds up everything. Plus, it keeps the plug itself intact instead of making it a two-piece. It's easier to get it out in one piece. We had been kicking it around for a couple of years, but we finally pulled the trigger on it, and it's made a difference."

— **Eric Johnson, superintendent,**  
Chambers Bay GC, University Place, Wash.



## ▲ Musketeer SEPRO

"Our course is on the older side, so we've got a lot of different grass types. When you use one (turf growth) regulator or even two, the grasses won't all regulate at the same rate. We gravitated to Musketeer, which is regulators all mixed into a formulation, and it works very well. I was not expecting the uniform regulation that it gives. At the same time, there's a greening effect by using the product, and it has the ability to fight against dollar spot."

— **Steven Friedell, superintendent,**  
North Hills CC, Glenside, Pa.



## ▲ DryJect DRYJECT

"I like it because of the variability of depth. We have a significant thatch layer here at Wolf Creek. The DryJect goes through that layer and the holes it creates are 100-percent backfilled. I like it so much that I do it three times a year, one time in the spring and we do it double in the fall. It's a lifesaver."

— **Bill Irving, director of agronomy,**  
Wolf Creek Golf Links, Olathe, Kan.

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— **Steven Friedell, superintendent,**  
North Hills CC, Glenside, Pa.



# Supers' Choice Awards

## 2700 E-cut triplex mower ►

### JOHN DEERE

"The 2750 improved upon John Deere's great platform, the 2500, giving us more versatility on steep terrain along with a much more comfortable and engaged user interface along with continuing to integrate the QA technology that gave a great quality of cut."

— **Alex Stuedemann, CGCS,**  
**director of agronomy,**  
PGA Tour Network



## ▲ Soil moisture sensors SPIIO

"It's a great technology. Having just another tool to assist in our agronomic decisions that can come at the touch of a button on your phone is going to certainly be helpful as we continue to get more and more automated and have more challenging decisions to make as superintendents."

— **Alex Stuedemann, CGCS,**  
**director of agronomy,**  
PGA Tour Network

★ ★ ★  
**ALL-TIME  
FAVORITE**  
★ ★ ★

## Suprado QUALI-PRO

"I've found Suprado to be an absolute game changer in my ABW control. I applied Suprado at peak adult activity this spring and again at the beginning of the second generation of adults and have witnessed phenomenal results. Suprado provided me, hands-down, the best ABW control I've had in 12 years as a superintendent. Thanks to Suprado, ABW damage was nonexistent."

— **Logan Freeman, superintendent,**  
Mountain Branch Golf Club, Joppatowne, Md.



## ▲ Greenmaster 1000 walk mower TORO

"It's a quality product. It's another step in the right direction in their line of mowers. The parts availability has always been top-notch with Toro, too. Having them and then being able to get them when you need them is a huge help. In the end, the longevity of the product is a huge reason why we have them. They last forever."

— **E.J. Chea, superintendent,**  
Pease GC, Greenland, N.H.

Continued on page 30





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# Supers' Choice Awards

Continued from page 28

ALL-TIME  
FAVORITE

## Greens roller SMITHCO

"I have relied on Smithco greens rollers for most of my career. We rely on the rollers to improve putting green speed and smoothness, as a key component in cultural practices and to help with renovation projects. They are definitely a quality product and I have always experienced great customer/technical support from Smithco."

— **Travis Moore, superintendent,**  
Dallas Athletic Club



## Umax UTV YAMAHA

"We have four of them and they're all in the 600-to-700-hour range. They've been very cost-effective and great people movers and light-duty moving equipment. They're definitely a cost-effective solution relative to the other manufacturers. We use them to pull lighter equipment such as greens rollers and our Buffalo blower. We use the beds for hauling sand and mulch."

— **Andrew Moore, superintendent,**  
Bear Ridge GC, Waco, Texas



## FS900 riding sweeper BARONESS

"Not only does it save on costs by doing the job of three to four laborers during core aeration, it also is multifunctional. We plan on using it on our driving range tees to sweep up divots and cleaning off debris from our putting greens after we verticut. It will be a game-changer for us and allow our staff to do more with less. Efficiency is the name of the game these days, and the Baroness FS900 helps us do that."

— **Chad Allen, superintendent,**  
The Club at Chatham Hills, Westfield, Ind.



## Torrent 2 blower TURFCO

"Turbine-style blowers have become a staple on the golf course for good reason. Turfco's Torrent blower does a great job moving everything from leaves to clippings to flood debris. Personally, I like the fast-rotating nozzle and excellent support from Turfco."

— **Travis Moore, superintendent,**  
Dallas Athletic Club



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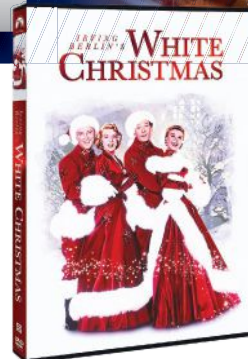


# At the Turn



## Brian J. Roth

**CGCS, SUPERINTENDENT** // Oquirrh Hills GC, Tooele, Utah



**Brian, what can I get you?** I'll have a Diet Dr. Pepper or Diet Coke.



and he better find someone else to run his business.

**Tell me about Oquirrh Hills GC.** It's a municipal course. The front nine was built in 1949-50. No real designer, the people around town just got together and started moving some dirt. Small, old-style, push-up native soil greens and narrow fairways. The back nine was built in '05-'06.

**How did you become a superintendent?** I met a guy who was going into golf, we got to be friends, and he got a job at a mom-and-pop mountain course. One day in the summer, he said, 'I've got some equipment coming in. Can you help me?' I went up there and saw what he was doing, and I said, 'Wait, this is a job?' I bought into it and loved it. I told my boss I was going back to school,

**How do you say the name of your town, and what should I do if I ever find myself there?** Too-will-uh. It's a small bedroom community west of Salt Lake City. Check out the mountains; we're against the base. There are some fun hikes and four-wheeler trails.

**What was your most memorable day at work?** Four or five years ago, a campfire was left unattended just up the canyon. It took off in the night. I got to work, and it was like fog. They asked us to shut down the course and had one big dual-prop helicopter coming in dunking out of my irrigation pond. It was eerie, it's smoky, and you can't see, and there's a helicopter flying right over. The fire burned for three weeks.

**Tell me about your family.** I've been married 31 years. My wife is Chennelle, and we have three kids. Our oldest daughter, Aubrey, is 26. Our first granddaughter is two, and she's a hoot. My wife says she has me wrapped around her finger. It's probably true. It's always, 'Grandpa this,' and 'Grandpa that'. Our son, Bentley, is 22. He's going to school. Our youngest, Chloe, is a senior in high school.

**How do you celebrate a job well done?** The biggest thing we do is a crew breakfast at the end of summer — my assistant, my equipment manager and I cook. First, we did it just for the golf staff. After a few years, we invited the parks department. The water department and the streets department help us out too, so we started inviting those guys. We start at 5 a.m., and cook 20 pounds of potatoes, 12 dozen eggs, 15 pounds of sausage and bacon, the whole works.

**What is your favorite Christmas tradition?** I have a lot of Danish ancestry. Growing up, my mom would make aebleskivers. They're like little rolled-up pancake balls. My wife has gotten into it. We make that and then watch Irving Berlin's *White Christmas*.

As interviewed by Seth Jones, Oct. 31, 2022.

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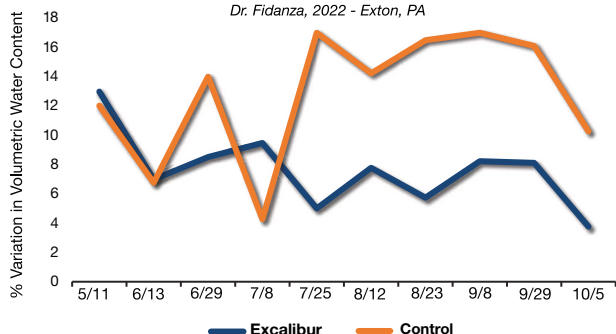
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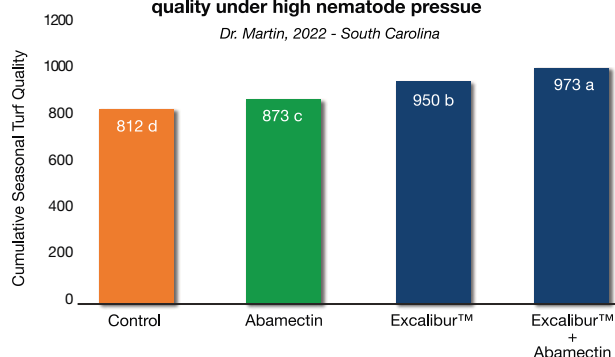
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# Golfdom

**NOVEMBER/DECEMBER 2022**

## 2022 STATE OF THE INDUSTRY

A recap of the year from GCSAA  
chapter presidents across the U.S.



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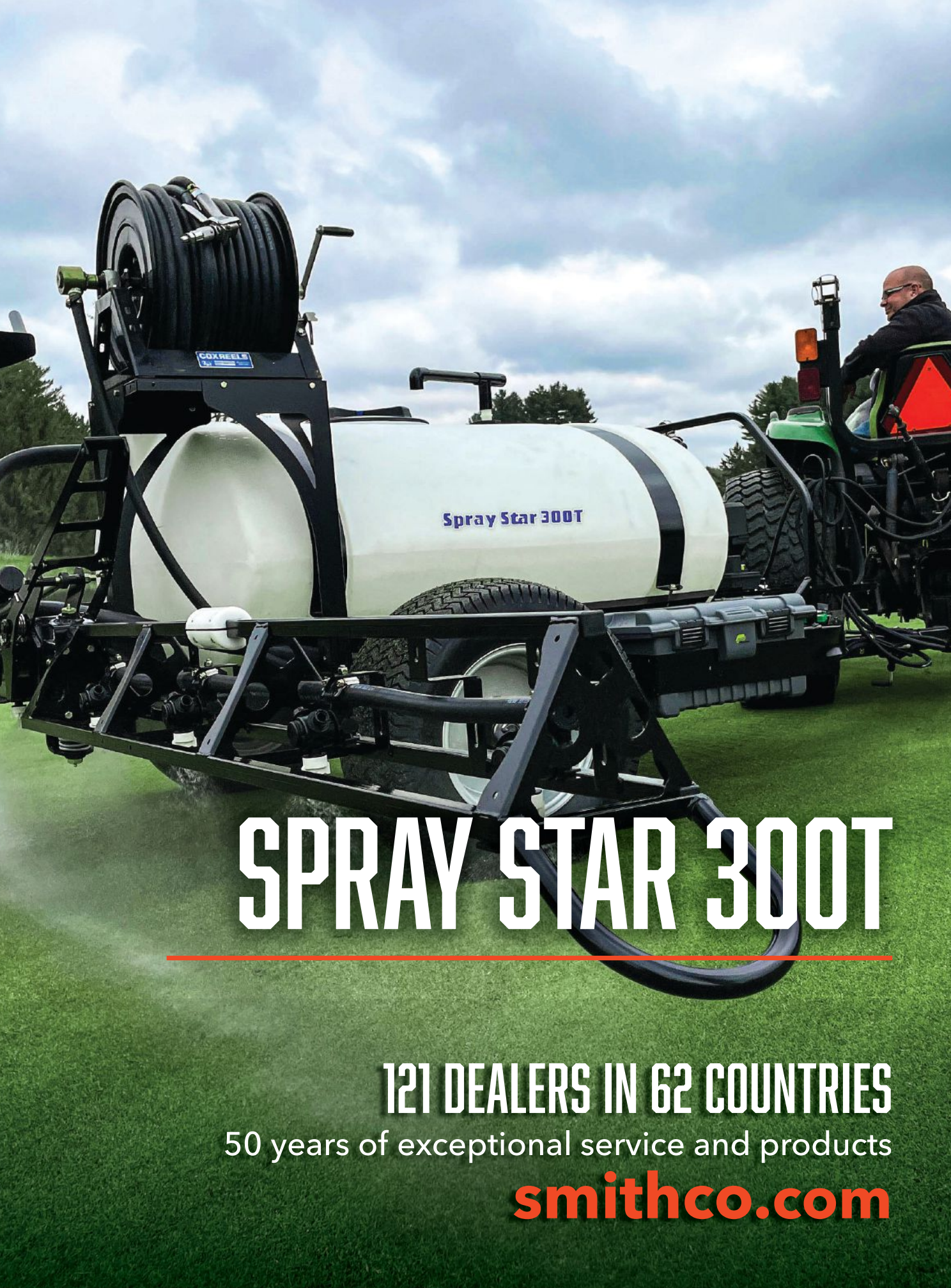
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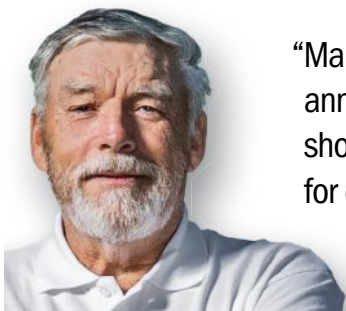
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“Many courses continue to waste labor hours annually on — what I consider — customs that should just go away. This is particularly problematic for courses with very limited budgets.”

**JIM MOORE**, retired director of education and outreach,  
USGA Green Section

## Here's a few of my not-so-favorite things

**S**ome things we continue to do just because we always have, even though they no longer make sense. Daylight Saving Time is high on my list.

When it comes to golf courses, there are many examples of customs that add little, if any, value to the quality of the course and virtually no value to playing quality. Yet, many courses continue to waste labor hours annually on — what I consider — customs that should just go away. This is particularly problematic for courses with very limited budgets. And, as we all know, labor is extremely difficult to find these days. Consider the following examples:

### 150-yard posts in the middle of a fairway

In the days before smartphones, GPS on carts or laser range finders, the 150 post made some sense. If nothing else, it provided a directional aid to players unfamiliar with the course. Its main function today is to force the fairway mower operator to repeatedly

get off and on the unit. Typically, the operator mows up to the post, lifts the reels, gets off the unit to remove the post, gets back on the unit, lowers the reels and mows past the hole. Most courses repeat this 14 times. That equates to 48 mounts and dismounts, extra wear and tear on the mower and a great deal of lost time.

### Tee signs with yardages and hole depictions

Why? It is easy enough to include all of this information on the scorecard.

### Ball washers

The only ball washer on any golf course should be on the first tee. Who uses ball washers? It appears, to me, the main users of ball washers are ball hawks who want to clean the filthy, mud-encased balls they fished out of the pond. Unsurprisingly, this turns a

freshly cleaned washer into something like a septic tank. Of course, washers are always installed in high-visibility areas and thus require constant cleaning and trimming.

### Eliminate above-ground tee markers

I expect this suggestion will meet with the most skepticism, but it also saves the most labor, so keep an open mind. Also, this suggestion is probably most appropriate for low-budget courses that typically have smaller tees.

I'll admit I developed this scheme after volunteer mowing tees at a local course with a small crew. The course has six tee decks spread over 100 yards or more. At each deck, I have to dismount the tee mower, move the markers, mow, move and replace the markers and remount. This means I'm off and on the

mower twice for each deck. Multiply this by six decks, and 18 holes equals a very long day (216 times if you're counting).

Here is how I believe this could work. Virtually all courses use colors to identify tees to those on the scorecard. Remove the existing tee markers. Paint a matching circle on the cart path adjacent to the deck for the blue tee, red tee, etc. Now the players can easily identify which deck is which. Once on the tee, install three painted and numbered in-ground tee markers. For most courses, three markers will provide enough options to keep the turf healthy.

Vary the location of the numbered markers to balance the distances. For example, the No. 1 marker might be on the front of the tee on the first hole, the middle on the second and the back on the third. Do this for all three tee markers on each deck. A sign at the first tee will inform players of the tee numbers (1, 2 or 3) used that day.

I recognize this might not work for tees that receive heavy iron traffic. Such tees might need more than three tee locations and above-ground markers. Also, crews will need to periodically trim the tee markers. Finally, I have never seen this done, so there may be very good reasons why I have not considered it. ☹

Jim Moore is the retired director of education and outreach for the USGA Green Section. While with USGA, Moore made more than 1,000 consulting visits to golf courses in the U.S., Mexico and Germany. Now retired, he lives on the family farm in McGregor, Texas. He can be reached at [jfcmoore@gmail.com](mailto:jfcmoore@gmail.com).



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# Golfdom

## 2022 STATE OF THE INDUSTRY

2022 saw superintendents become proactive to combat labor shortages in many ways, including the First Green program

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## A WORD FROM OUR SPONSOR

# Knowledge is power

Happy New Year from all of us at Nufarm! To say that we are living in interesting times is an understatement.



Chris Fronczek

Arguably golf course management has never been more challenging. We feel honored to stand with you in this time of volatility and uncertainty to offer support and innovative products. We all know the old axiom “**knowledge is power,**” therefore, we hope that supporting the State of the Industry survey is of benefit to you.

Joining Nufarm in 2022, I had the opportunity to visit current Nufarm customers, hear from them on the year’s challenges and work collaboratively in the preparation and planning for 2023. My meetings with superintendents and club leadership showed me the importance Nufarm has in providing trusted fungicide solutions such as Tourney, Traction and Pinpoint, and proven herbicide solutions including Sure Power, Cheetah Pro and Millennium Ultra. I have been impressed by the demand for Nufarm’s Anuew Plant Growth Regulator as a premium surface conditioner for tournament-ready turfgrass.

Beyond our current portfolio, I have seen first-hand Nufarm’s development efforts for new technologies and chemistries to meet disease and weed pressures superintendents face. Nufarm’s ongoing trial work with university research and golf course superintendents continues to yield performance data that informs our

development pipeline of solutions.

Attending the 2022 EXCEL Nufarm Leadership Programming through the Golf Course Superintendents Association of America allowed me to meet with future leaders of their respective clubs and share ideas and knowledge to guide our shared focus and course into 2023.

These efforts help golf courses and the golf industry meet the challenges of tomorrow with Nufarm solutions.

Connecting all of this is Nufarm’s core commitment to our customers. With over 100 years of growth, Nufarm’s success is tied to your success as we work together to adapt to current challenges and headwinds and plan for tomorrow’s successes and grow the industry.

Warm regards,



Chris Fronczek  
Golf Market Manager







# The boom goes on

With rounds continuing to be up across the country, superintendents became proactive to combat labor shortages

**BY THE GOLFDOM STAFF:** Seth Jones, Christina Herrick, Rob DiFranco and Sydney Fischer

**A**fter the third straight season with packed tee boxes across the country, you can finally drop the “new” from the new normal. Courses are packed everywhere, and that’s normal now.

For the 2022 State of the Industry report, sponsored by Nufarm, the *Golfdom* team reached out to Golf Course Superintendent Association of America (GCSAA) affiliated chapter presidents across the country to get a report on this past golf season.

This year, we heard more positivity concerning the ever-present labor shortage. The First Green program — a STEM education outreach program for school children that brings youngsters face-to-face with superintendents — was mentioned often and with great enthusiasm. Course conditions were exceptional in many areas, with favorable weather for growing and maintaining fine turfgrass. And we heard from multiple sources that golf construction projects — even for-

merly closed courses springing back to life — were popping up regularly.

“This past year was a great golf season,” Tami Jones, president of the Arkansas GCSA, told us. “We are still seeing high numbers of players and new faces on the course, which is great to see.”

We couldn’t agree more. Read on for our recap of what was a great golf season.

## Paul Sibley

**PRESIDENT,** Rocky Mountain GCSA  
**SUPERINTENDENT,** Walnut Creek Golf Preserve, Westminster, Colo.

### *How was this year’s golf season in your region?*

Golf in our region was very good. Tee times were mostly booked on a daily basis throughout the season, with an occasional twilight time available. Our facility has been going through an irrigation renovation this year, and it really hasn’t slowed down much.

### *How was the weather in your area?*

The weather along the Front Range of Denver was dry with limited moisture events. For Colorado, this was the sixth warmest in the 127-year record and the 35th driest. In months where we nor-



Paul Sibley

mally see moderate seasonal temperatures, November, December, July and September, conditions were warm. November and April typically will be good months for moisture, and they were rather dry months. In speaking with colleagues from Fort Collins down to Colorado Springs, we all seemed to be in the same situation and struggled a bit through the heat of summer.

### *What was the labor pool like this year?*

Labor was a tough one this year. Most, if not all, superintendents spoke about the problems they had hiring enough staff to get them through the entire season. Most courses in Colorado hire seasonal staff consisting of high school and college students. Usually, we are not getting staff on-boarded until late May, and they go back to school in mid-to-late August. Personally, I only had 14 seasonal and four full-time staff to cover us through the summer.

# 2022 STATE <sup>OF THE</sup> INDUSTRY



For Rodney Robbins, superintendent at the Country Club at Muirfield Village (Ohio), the labor pool was strong, allowing him to have a full staff.

## **Any notable success stories for your chapter or region this year?**

The 2022 Colorado State Legislative session saw the introduction of Colorado Senate bill 22-131. This bill aimed to restrict pesticide use in a number of ways, but the most concerning was a section in the bill that would have allowed local governments to “regulate the use and application of pesticides... if the use was not for agricultural products.”

The RMGCSA, along with the Colorado Golf Coalition (Colorado Golf Association, PGA Colorado Section and the Mile High Chapter of the Club Managers Association) as well as Coloradans for Responsible Pesticide Application collaborated on how to approach the legislation. In early March, five RMGCSA superintendents representing the coalition participated in seven hours of testimony in front of the Colorado Senate Agriculture Committee that generated

questions from committee members and allowed us to discuss the many benefits that golf provides to communities and the environment. Testimony given by the RMGCSA members, as well as a plethora of industry experts and scientists saw the bill get defeated by a 6 to 1 vote.

## **What are your expectations for 2023?**

Warm, dry, and a lot of golf being played!  
— C.H.

## **Rodney Robbins**

**PRESIDENT**, Central Ohio GCSA  
**SUPERINTENDENT**, CC at Muirfield Village

## **How was this year's golf season in your region?**

I think it's still very strong overall. We've probably come off of the peak of COVID as far as rounds played, but most pri-

vate clubs in our area are full. The public courses are printing money — they're running from daylight to dark, so I think it's still pretty healthy.

## **How was the weather in your area?**

Central Ohio had a pretty average summer. We had some droughty stretches, and we had a wet spring, but overall, it was very normal. We had a normal fall — a little dry, but that's kind of typical.



Rodney Robbins

## **What was the labor pool like this year?**

I was probably an anomaly from most of the guys. In the Columbus area, there are a lot of people wanting to work. I'm

*Continued on page 46*





*Continued from page 45*

overstaffed and over budget on labor by a lot, and the course reflects it. It looks great. I think for most of the industry standard, we've raised our pay scale, so we start people out at a higher wage. I think people understood that golf is a safe place to work, and they're not going to shut you down. As far as skilled, college graduates, assistants-in-training, spray techs, interns — they don't exist. All the top 100 clubs gobble them all up. As far as everyday help, though, the Columbus area is pretty strong.

#### **Any notable success stories for your chapter or region this year?**

People here golf at a high level. You don't hear of clubs closing in the area. We hear of clubs reopening. I think that shows how strong the Columbus area is. You haven't heard that in a long time. Usually, they've been closing courses. I know there are two properties this year that have reopened, and a lot of properties have new ownership. People are re-investing in the clubs.

#### **What are your expectations for 2023?**

As an area and an industry, I look forward to continuing to be strong. We worry about the economy. Golf is definitely something that people will change. If the economy goes down, people might move from private clubs to public golf, but they're still going to play golf. I think the elections are going to determine how long this boom we're in will last. If things continue pretty well, then golf has a positive outlook. It's tough, though. Inflation is killing us on the budgeting. Golf is strong, but it costs a lot to do at a high level.

Overall, it's positive. I think golf is on an upward path, even with inflation and supply chain issues. The golf industry has

some of the smartest people on all sides of it. We figure things out. Is it easier? No. But is it successful? Yes.

— S.F.

#### **Brian Roth, CGCS**

**PRESIDENT**, Utah GCSA

**SUPERINTENDENT**, Oquirrh Hills GC, Tooele, Utah

#### **How was this year's golf season in your region?**

It was great. The golf boom from the



Brian Roth

pandemic is still booming. Every course I know of is either up from last year or on par with last year, which is significantly above where things were a few years ago.

#### **How was the weather in your area?**

It was OK. We had some hot patches, we did have extended periods where we hit 100 degrees. It was hot, but I don't know that I'd call it a bad year. It almost turned out normal.

#### **What was the labor pool like this year?**

It's an issue that a lot of guys are struggling with. I know a lot of guys who were working with shorthanded crews. It's a tight labor market in Utah, we have 2 1/2 percent unemployment. Take a look nationally at all the assistant superintendent positions posted. I know three or four guys who spent all year trying to find an assistant. And just the general crew — some guys were half-staffed most of the year.

#### **Any notable success stories for your chapter or region this year?**

Last fall, we had our first First Green event. We did it at a good friend of mine's course. It was a good turnout. We had the entire grade come out. It was the entire third grade, 120 kids and we divided them into two sessions. It was big, but it was a really good experience. We had another one scheduled in the spring, but then we had a weather delay, and the school had to cancel it. We'd like to do two or three in 2023. We have two or three superintendents in the chapter willing to host them.

#### **What are your expectations for 2023?**

More of the same. Play is going to stay up. The issues will again be labor, and Utah is in a historic drought, as is much of the West. If we could get a good snowpack, it wouldn't be as impactful. But the last two years haven't been very good. We've seen the legislature hint at the state looking at water use. There may be some things coming down legislatively on water use for the first time. Equipment will be an issue. With golf booming, guys want to buy stuff, and the money is there, but you can't get it.

— S.J.

#### **Ryan Moore**

**PRESIDENT**, Michigan GCSA

**SUPERINTENDENT**, Forest Lake CC, Bloomfield Hills, Mich.

#### **How was this year's golf season in your region?**

Busy. Golf rounds that increased through 2020 and 2021 continued in the 2022 season. It seems we have recaptured the interest of the avid golfer who is now playing more, along with new golfers, as well as growing their enjoyment of the game. In the private club sector, we have seen not only increases in all membership categories but also a sustained increase in

*Continued on page 48*





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For Ryan Moore, superintendent at Forest Lake Country Club in Bloomfield Hills, Mich., 2022 brought an increase in membership and rounds.

*Continued from page 46*

the number of golf rounds of members and their guests.

### **How was the weather in your area?**

Last year was a year with a lot of rain and flooding in our area. We persistently dealt with wet course conditions. This year was different. We had some of the driest stretches of weather through the golf season, even into fall. This created fast, firm conditions with shortfalls in tree lines and non-irrigated areas. I hope that 2023 can give us a better balance.

### **What was the labor pool like this year?**

Our club allowed us to hire more individuals for our facility at competitive wages. The struggle was finding enough

employees to match our needs and individuals who would be available for our entire golf season. We



Ryan Moore

hired numerous employees with no related experience, which took time to train to create a balanced staff to cover all the course responsibilities. The positive is that we expect many of them to return in 2023, which will create a nice nucleus to build on.

### **Were there any notable success stories from your area/chapter this year?**

Despite the weather challenges and the wear and tear from the increase in golf

rounds, the courses in our region that I had the chance to visit were in spectacular condition. This is a testament to how great the superintendents and maintenance staffs are at continually producing a great product despite their challenges. The real success is that the increased revenues generated have allowed facilities to update, improve and reinvest in their courses, so improvements have been happening in all levels of courses throughout our region.

### **What are your expectations for 2023?**

Looking ahead, I see golf rounds continually being at 2020-22 levels and the golf course product being really good. We will definitely experience some issues with equipment and materials held up by supply chain problems, but as always, we will overcome these obstacles as they present themselves.

—R.D.

### **Damon Hitti**

**VICE PRESIDENT**, Kentuckiana GCSA

**SUPERINTENDENT**, Weissinger Hills GC, Shelbyville, Ky.

### **How was this year's golf season in your region?**

Rounds are still up since COVID, so it's been really good in that regard. We are still up, but I know since our governor did not close any golf courses, I think that really helped out the industry here. I know a lot of guys are doing projects, which means there is more money for capital projects. We're wrapping one up ourselves. We did a complete bunker renovation, leveled our tee boxes and added some and we did



Damon Hitti

PHOTO BY: RYAN MOORE

# 2022 STATE <sup>OF THE</sup> INDUSTRY

some green surround areas. We went with Klingstone in our bunkers.

## **How was the weather in your area?**

Everyone has told me, since I got here in 2013, that we haven't had a normal year yet. Right now, we're in the middle of a drought. At my course, we haven't had a measurable rain since Sept. 11, which was only six-tenths. Over the last couple of years, we've been getting heavy rains in the spring, and then we dry out.

## **What was the labor pool like this year?**

I have a mixture here at my course of volunteers, part-time people and only one full-time employee. We've been talking about creating two more full-time positions. As far as other courses go, I know they've had similar issues. Some guys offer up to (\$15 an hour), but they still can't find anyone. Several of the country clubs are using H-2B visa personnel. But for the most part, people are struggling to find help. Things haven't gotten worse, but they haven't gotten better.

## **Were there any notable success stories from your area/chapter this year?**

The Bluegrass GCSA disbanded and became a part of our chapter. So that doubled our membership, and now we cover southern Indiana and from just west of Louisville through the rest of Kentucky. Now we're stronger, a bigger group and can do more things. In the future, we are talking about starting our own two-day expo with education and a golf event as part of it. We want to have something in the fall as another opportunity for education and for people to get their (continuing education units) as needed.

## **What are your expectations for 2023?**

It seems like more people are doing renovations. Some other courses are creating large short-game areas and new practice areas. There are probably a half dozen in our area that are working on that right now. The industry is strong going into 2023, having the opportunity to have those kinds of capital projects. I know it's two years out, but Valhalla Golf Club (Louisville, Ky.) is preparing for the 2024 PGA, so the superintendent wants everybody to be involved in that, so everyone has been looking forward to it.

—R.D.

## **John Pustai**

**PRESIDENT**, Northern Ohio GCSA

**SUPERINTENDENT**, Highland Park GC,  
Chagrin Falls, Ohio

## **How was this year's golf season in your region?**

This year, in my opinion, was excellent. We started a little wet and finished a little wet, but everything in the middle was very busy. I try to visit as many courses as I can, and every course that I was on this year always seemed to do well.



John Pustai

## **How was the weather in your area?**

I can't complain. I would rather it be a drought than a monsoon. I can put all the water out I want, but I can't take it off. Overall, it wasn't a bad year. We did have to water a little bit there, but it wasn't a big deal.

*Continued on page 50*



Highland Park Golf Course Superintendent John Pustai says golf in northern Ohio benefitted from a good-enough weather year.





Continued from page 49

### **What was the labor pool like this year?**

The labor pool is still a bit of an issue. Trying to get somebody to actually come in and do an interview that they committed to is one thing. Once they're in, getting them to show up more than a couple of days and continuing to work is another. The jobs are out there. They're just not being filled, because in this day and age, there are too many handouts, and people don't have to work. It's very challenging to try and find and retain good, quality guys on your team. I just hope it gets better.

### **Any notable success stories for your chapter or region this year?**

We are beginning to celebrate our 100th year for our chapter. It all started here with us. GCSAA was started up here in Northern Ohio. We've been planning this celebration for 10 years, so we have a full slate of pretty special events.

### **What are your expectations for 2023?**

Nothing but the best. It's going to be a better year than last. Hopefully, things will loosen up on the labor front and supply front. We just need the planet to open back up and for people to get back to it and start producing.

—S.F.

### **Michael Tardogno**

**VICE PRESIDENT**, New Jersey GCSA  
**SUPERINTENDENT**, Tamarack GC,  
East Brunswick, N.J.

### **How was this year's golf season in your region?**

I don't know that I can speak for the region. I was pretty occupied with a construction project, but our golf on prop-

erty was down a little bit from last year but was still up overall from prior years.

### **How was the weather in your area?**

I've been in the business for over 20 years, and this is the driest and hottest combination of weather that I remember in my career. From some time in early June to some time in September, we only got 2 inches of rain in our area. The weather in Jersey was pretty brutal overall.

### **What was the labor pool like this year?**

Better than the prior year, but we still struggled greatly. What we saw and what I know from talking to other colleagues at other courses, is that it's been difficult hiring someone. There are lots of people applying that wouldn't show up for interviews, or someone would show up for the interview and then not take the job. It's been hard getting people to come in unless you ask over \$15 an hour. \$15 would barely get you phone calls. \$16 was kind of the breaking point where you would start to get phone calls. \$17 was more the number that would get people in the door, but not necessarily a hire.

At the golf course I'm at, we're very close to some trucking and warehousing (operations), so we have a FedEx, UPS and Amazon building all within five miles of us, and they all pay \$20 an hour. It's been very difficult to get people to come here, but we did end up hiring more people than in the last two years after raising our hourly wage.

### **Any notable success stories for your chapter or region this year?**

I know there are a lot of courses in the area doing construction, and there are a lot of courses being built in the area. A couple of golf courses reopened in the southern part of the state.

### **What are your expectations for 2023?**

Next year, I hope it's not as hot and dry. Other than that, it's just construction for me.

—S.F.

### **Jeff Hansen**

**PRESIDENT**, Lone Star GCSA  
**GENERAL MANAGER**, Squaw Valley GC,  
Glen Rose, Texas

### **How was this year's golf season in your region?**

Another great season here in Texas, almost state-wide. Golf numbers have tended to stay up. Income is staying up.

### **How was the weather in your area?**

We suffered through a drought in Texas, so we had to deal with that. Texas is hot and dry normally, but this summer was a little more extreme. We dealt with some complaints and the things that go along with an extreme summer.

### **What was the labor pool like this year?**

That's the No. 1 complaint nationwide.



Jeff Hansen

I work at a municipal course, I'm the general manager there. I was the superintendent previously. I know that in every aspect of the operation, we're struggling to find people who want to work. I attended the (GCSAA) Chapter Delegates meeting, and this was a big topic of conversation. How do you attract people to golf course maintenance? We're having to get creative. I'm hearing of places paying \$25 an hour and giving bonuses if you stay

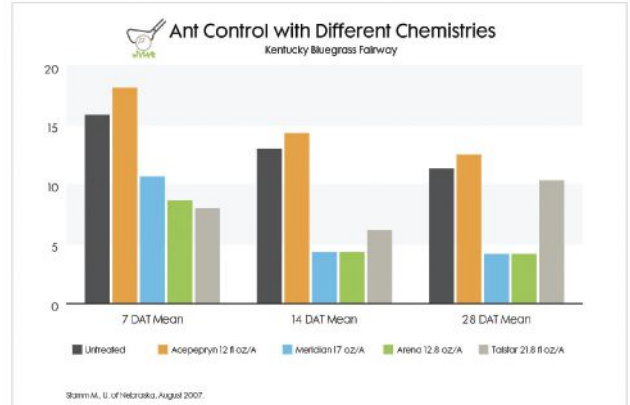
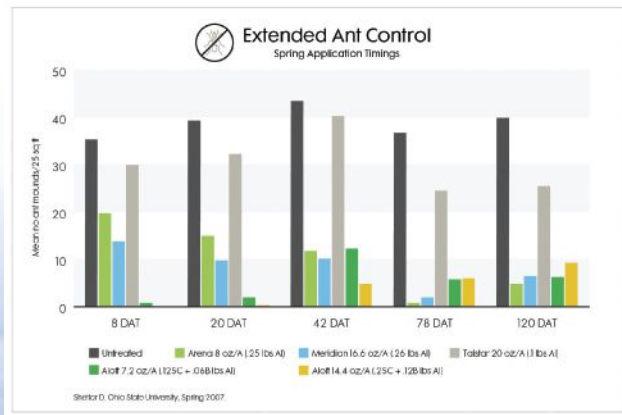
Continued on page 52

# COURSE ANT CONTROL

Headed into 2023, a common challenge on the course will continue to be ant control. Although ants aren't active in cold, winter months, it is never too early to plan for next season. They tend to be forgotten until ant mounds get out of control. Ants are a common nuisance on golf courses, especially on putting greens and tees where creasing mounds are more visible. Ant mounds can disrupt turf surface smoothness, clog machinery, dull mower blades, and smother shorter mowed turf. However, ants provide a benefit in feeding on egg stages of other nuisance insects like white grubs and sod webworm.

## CONTROL STRATEGIES

Because ants offer some benefit, it may be prudent to only control ants around greens and tees where they are most problematic and where mounds are most visible. Research indicates that treating a portion of affected putting greens, the collars themselves, and a few feet outside of the collars accomplishes this goal as ants begin mounding in the spring outside of sand-based greens and gradually invade greens throughout the summer months.



## WHAT WORKS?

Efficacy and residual are the coveted attributes of insecticides for ant control. Not all insecticide chemistries provide effective control of ants nor do they all provide similar durations of control. Clothianidin (found in such solutions as Arena® and Aloft®) has proven to be effective for ant control and provides a long relative residual. Clothianidin + bifenthrin (in Aloft®) provides quick knockdown thanks to bifenthrin and the residual desired to control ants later in the season provided by clothianidin. One spring application when ant mounds are first noticed can provide over

100 days of ant control and nearly mound-free turf surfaces. The added benefit to clothianidin as an all-around insecticide is that it can provide excellent control of white grubs and surface-feeding insects when applied in the spring as well — it's an excellent application for broad-spectrum insect management.



**Aaron Hathaway**

Nufarm Technical Services Manager





*Continued from page 50*

on for a certain term. We have 36 holes and less than 20 people, that's including assistants. Most of the staff is seasonal, part-time. It's hard to get people, and I'm hearing that from everybody.

### ***Any notable success stories for your chapter or region this year?***

The successes I'm hearing about are the courses providing incentives to their crews. Friday meals for the staff or golf outings. If you have guys with longevity, that's a success. There are courses with guys who have worked 20 to 30 years there. They're reliant on these people.

### ***What are your expectations for 2023?***

We'll continue riding this wave. The new golfers we got are younger, there are a lot more female golfers, there are a lot of golfers we've never seen before. My mission is to keep them attracted to what we have and keep them coming back. We're solely relying on the cash register, so we need them to come back to the product we're providing. Golf has become a little more noisy, if I can say that. Everybody now is just looking to have a great time doing it. So we're trying to provide that good time while also providing the product for the old guard. We have to grow the game.

One of the big things is the First Green program that GCSAA put out. I'm going to try and host an event at our course. This is complementary to the First Tee program, we're introducing to young people that there are jobs in golf maintenance and golf course operations — it's not just the golfing side. With the cost of college today, not everyone wants to get that degree. We want people to understand that there are job opportunities on the golf course.

—S.J.

### ***Tami Jones***

**PRESIDENT**, Arkansas GCSA

**SUPERINTENDENT**, DeSoto Golf Club, Hot Springs Village, Ark.

### ***How was this year's golf season in your region?***

This past year was a great golf season, we are still seeing high numbers of players and new faces on the course, which is great to see.

### ***How was the weather in your area?***

This year, the heat came on quick. I think we had maybe five weeks of spring and then straight into summer temperatures



Tami Jones

with no rain. We worked the irrigation system on overtime and had a hiccup this year with my pump station faulting out due to the heat. We had to place an A/C unit in the building, which helped keep the temperature down enough to make complete runs.

### ***What was the labor pool like this year?***

Very low. Working and living in a retirement community that operates eight golf courses, and having only two high schools to supply our seasonal help, makes competing for seasonals a daunting task every summer. Most of the courses ran under their targeted labor count, which, in turn, just pushes projects down the road or to be put on the back burner. We have also increased the starting pay to try and pull more in from the surrounding communities and to keep the labor we do have as we have had a big turnover with employees leaving for better-paying jobs. This has been a big impact on the club's finances.

Needless to say, we have all started thinking outside the box to pull labor to complete projects along with normal operations as the standard for top playing conditions has not wavered.

### ***Any notable success stories for your chapter or region this year?***

This November, our chapter partnered with Hot Spring Country Club to host our first-ever First Green with Magnet Cove Elementary school's fifth-grade class. We are all very excited to be a part of this event and hope to see more First Green events in 2023.

### ***What are your expectations for 2023?***

It's kind of hard to have expectations, but I'm hoping for a couple more First Green events and that fertilizer prices don't go through the roof.

—C.H.

### ***Jim Loupee***

**PRESIDENT**, Indiana GCSA

**DIRECTOR OF GROUNDS**, The Bridgewater Club, Carmel, Ind.

### ***How was this year's golf season in your region?***

Once we got past the cool and wet spring, the golf season was extremely busy. Even with the slow start, our number of rounds will be up around 10 percent over last year.



Jim Loupee

### ***How was the weather in your area?***

Spring started cool and very wet. For the golfers and the turf, things didn't start moving till mid-May. June through mid-July was extremely hot and dry and

# 2022 STATE <sup>OF THE</sup> INDUSTRY

had the makings of a very long year. But things cooled down in August through September with some nice, timely rains. Fall has been awesome, with great temperatures and little rain. It will probably turn out to be just another normal year — if there is such a thing.

## **What was the labor pool like this year?**

The labor market was a challenge. Finding individuals who want to work 5 1/2 days a week is tough. A lot of our younger staff members only work for 3 to 4 days a week to accommodate their schedule. There have been a lot of people coming and going.

## **Were there any notable success stories from your area/chapter this year?**

Our association partnered with the Indiana Golf Association (IGA) to help us with our administrative needs. Like all volunteer associations, we struggled to get things done in a timely manner. With the IGA now running the day-to-day operations, we are better suited to focus on our long-term goals.

## **What are your expectations for 2023?**

I think we are in for more of the same, with some of the good and some of the bad. The good is that golf will continue to grow, and the courses will be full. The bad is that the cost of products and equipment will continue to rise, and the labor market will continue to be a challenge.

—R.D.

## **Jeff Whitmire, CGCS**

**PRESIDENT**, Virginia GCSA  
Williamsburg (Va.) CC

## **How was this year's golf season in your region?**



The Virlina Cup — which annually pits the Carolinas GCSA against the Virginia GCSA — was a great time for everyone involved, says Jeff Whitmire. The Carolinas won the Cup in '22.

It was great. We had a dry year, but droughts are good for golf and we had a lot of play. I think most courses in the state experienced a lot of play again this year, like last year.

## **How was the weather in your area?**

I have not seen a golf course in bad condition. Every golf course I've been to has been great. It was dry, and temperatures were pretty mild. We had a cool spring, and then it wasn't too hot of a summer.



Jeff Whitmire

The good thing was it was dry, so everybody was able to control their moisture. The weather was pretty good this year.

## **What was the labor pool like this year?**


It's tight. I think it is improving a little bit. What I see is people just working smarter. Courses are filling some positions, but at the same time, they are being more effi-

cient. I don't know that we'll ever be back up at the pre-COVID levels of staffing, but I do think people are investing more in their existing staff.

## **Any notable success stories for your chapter or region this year?**

Christian Sain won GCSAA's Ambassador's Award, which was well deserved. We raised a record amount of money for Rounds 4 Research. Our events were all successful, we're planning for our conference in December, and we have a great group of speakers.

## **What are your expectations for 2023?**

I expect the volume of golf to continue to be high. I haven't seen memberships slow down here at either of our facilities. We're at capacity, and that's the same story throughout the state. Waiting lists are back at private courses, and public courses are experiencing great years. There's a lot of renovation work. The golf business is healthy again. 

—S.J.



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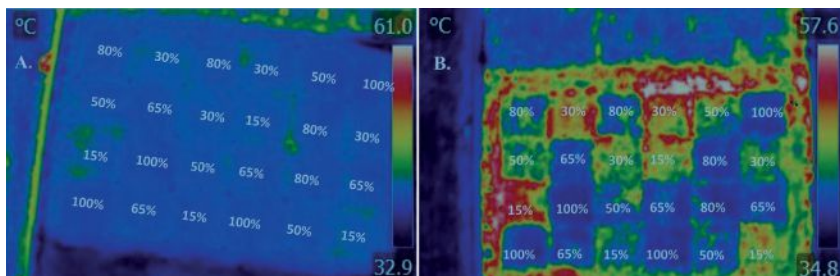


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# Super Science



Color-enhanced thermal image of plots on June 15 (A) and Aug. 31 (B). Percentages denote fractions of reference evapotranspiration replacement.

## // ET PHONE HOME

# HOW TO DETECT EARLY DROUGHT STRESS WITH DRONES

By Mike Kenna, Ph.D.

**R**ecently, interest has grown in whether drones can give an early warning of turfgrass stress on golf courses. Advances in drones and thermal imaging could provide opportunities to improve water management on golf courses, but research on this topic is limited.

Researchers at Kansas State University evaluated the ability to monitor canopy temperature imaging from a small drone to detect early drought stress in turfgrass. Mu Hong, Ph.D., Dale Bremer, Ph.D., and Deon van der Merwe, Ph.D., also compared the early drought stress detection ability of canopy temperature measurements from the drone sensor with handheld optical sensors.

What is the relationship between drone images and handheld sensors for several turfgrass soil measurements? The turfgrass responses compared to drones and handheld sensors included volumetric water content, soil temperature, turfgrass visual quality and percentage green cover.

Bremer and van der Merwe conducted the study during the summer of 2017 on creeping bentgrass (*Agrostis stolonifera*) irrigated with 15 to 100 percent evapotranspiration (ET) replacements to impose a gradient of drought stress. Drone spectral reflectance measurements included three bands (near-infrared [NIR, 680-780 nm], green and blue bands [overlapped, 400-580 nm]) and eight derived vegetation indices.

## RELATIONSHIP OF CANOPY TEMPERATURE AND ET

Their results indicated canopy temperature via the drones detected rises of canopy temperature for the 15 and 30 percent ET plots compared with 100 percent ET plots. The detected change in canopy temperature corresponded with the decline in volumetric water content and was detected before drought stress became visible.

The results were comparable to the best spectral parameters on companion flights and canopy temperature closely correlated with spectral data from drone-mounted and

## NEWS UPDATES

### SOIL SCOUT ADDS DUAL DEPTH SENSOR


Soil Scout launched its new Dual-Depth Sensor (DDS), which gives the Hydra sensor an additional sensing head interconnected with a cable.

"Many Soil Scout customers have special requirements or limitations for their underground soil monitoring needs, and most commonly the same issues emerge more often than others: Burying the sensor really deep reduces the above-ground range, and whilst that could be tackled by elevating the receiver antenna, in some places that's not always possible," Soil Scout Chief Science Officer, Johannes Tiusanen said.

The company says the master Hydra sensor handles all radio communication and can be buried in shallow ground to give an extended range. The second sensor collects data from deeper down in the same hole.

"Our customers have been asking for this kind of a product for some time now," Jalmari Talola, CEO of Soil Scout, added. "Customers can now do vertical profiling to optimize their use of inputs and prevent fertilizer leaching."

handheld sensors. Thermal data strongly correlated with turfgrass visual quality and percent ground cover more than volumetric water content and soil temperature.

Detecting early drought stress due to an irrigation head not working or poor coverage days before you can see the problem may be helpful. Early detection of drought stress, as well as early stages of disease and insect activity, are areas where daily drone flyovers could help in the future. 

### For more information

Mu Hong, Dale J. Bremer, and Deon van der Merwe. 2019. Thermal Imaging Detects Early Drought Stress in Turfgrass Utilizing Small Unmanned Aircraft Systems. *Agrosystems, Geosciences & Environment*. 2(1):1-9. <https://doi.org/10.2134/age2019.04.0028>



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

PHOTO COURTESY: USGA



## // 2022 IN REVIEW

# A look at the research projects we highlighted this year in *Golfdom*

By Mike Kenna, Ph.D.

**A**nother year is ending, and we have a new list of great research articles logged for *Golfdom*. We thank all our authors for working closely with us to bring you their research results. What I like about the digital world is that you can click on the title and have the article up in seconds. All the best for 2023!

## January: *New freeze-tolerant bermudagrass*

By Lakshmy Gopinath, Ph.D.; Justin Quetone Moss, Ph.D.; and Yanqi Wu, Ph.D.

- Controlled environment evaluation of freeze tolerance provides valuable information for breeders to gauge the genetic gain in breeding winter-hardy bermudagrasses.
- Tahoma 31 was the top-performing cultivar in this study.
- OKC1406 had an LT50 value significantly lower than Tifway and similar to Tahoma 31, indicating superior freeze tolerance.

## February: *Dormant bermudagrass sprig establishment in the Transition Zone*

By Matthew Herrmann; James Goatley, Jr.; David McCall, Ph.D., and Shawn Askew, Ph.D.

- Dormant sprig date did not impact the long-term success of bermudagrass establishment.
- Turf blanket and/or compost had a short-lived impact on bermudagrass establishment.
- Sprigs harvested during spring transition may be sensitive to late freeze events.

## March: *Bermudagrass recovery from spring dead spot*

By Wendell Hutchens, Mike Goatley, Ph.D.; and David McCall, Ph.D.

- *O. herpetchia* and *O. korrae* are two predominant species causing spring dead spot (SDS) in the mid-Atlantic region.
- Two spring applications of urea (a total of 2 lbs. N per 1,000 ft<sup>2</sup>) enhanced NorthBridge hybrid bermudagrass recovery from SDS in the first year.
- Solid-tine aerification and verticutting did not improve SDS recovery in the spring.

## April: *What is the long-term impact of cultural inputs on annual bluegrass in golf greens?*

By Kaiyuan Tang, Timothy T. Lulis, Travis R. Russell, and John E. Kaminski, Ph.D.

- The long-term application of management programs influences annual bluegrass.
- Reducing seasonal nitrogen can slow annual bluegrass.
- Flurprimidol resulted in significant reductions in *Poa annua*.
- Iron reduced annual bluegrass early in the study, but the long-term influence was low.
- Where superintendents desire annual bluegrass, they should use higher seasonal N and Primo.

Continued on page 58

PHOTO 1



Conetainers were placed into a freeze chamber with 10 randomly placed thermocouple sensors inserted 1 inch into the potting medium. Ice chips are in all of the conetainers to prevent supercooling and induce freezing.

PHOTO BY: LAKSHMY GOPINATH



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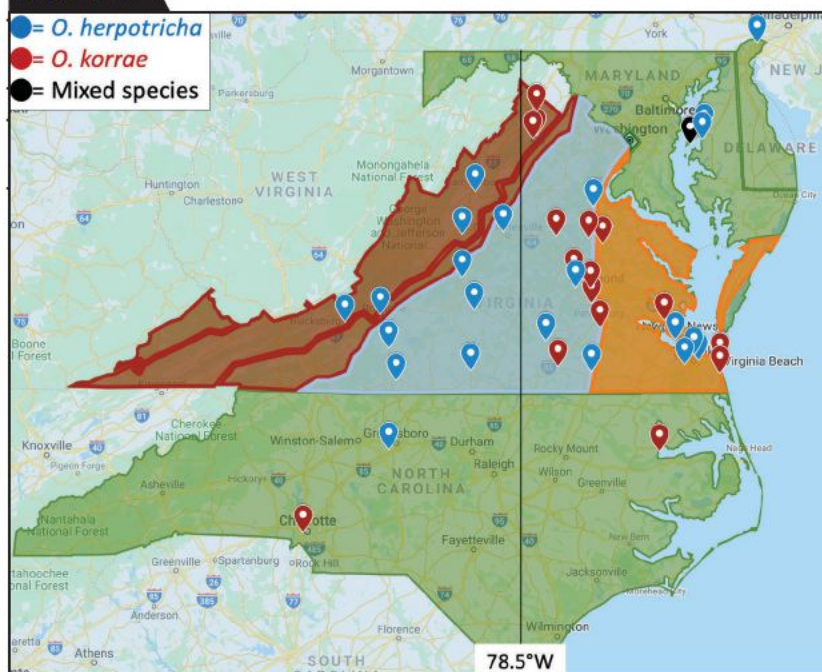
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**FIGURE 1**



*Ophiophora* spp. distribution in the mid-Atlantic. Species were determined using real-time PCR, and regions are color-coded: Red=VA Mountains; Blue=VA Piedmont; Orange=VA Coastal Plain; Green=DE, MD, and NC.

Continued from page 56

## May: What are the trends with annual bluegrass weevil for Eastern North America?

By Benjamin McGraw, Ph.D., and Albrecht Koppenhöfer, Ph.D.

- The annual bluegrass weevil (ABW), *Listronotus maculicollis*, is the most difficult to control insect pest of short-mown golf course turf in the Northeastern U.S. and Eastern Canada.

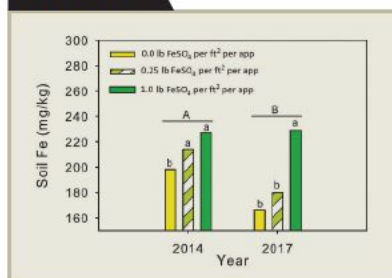
- We surveyed superintendents in the ABW area of impact to better understand the severity of the damage, prevalence of insecticide resistance and trends in management practices.

- The average ABW population caused damage to 6.6 fairways, 5.7 tee boxes, and 6.4 greens/collars, amounting to 13.8 acres (5.2 ha).

- On average, courses made 3.9 insecticide applications per year and spent \$9,270 on ABW management.

- Twenty percent of superintendents reported having a pyrethroid-resistant

**FIGURE 2**



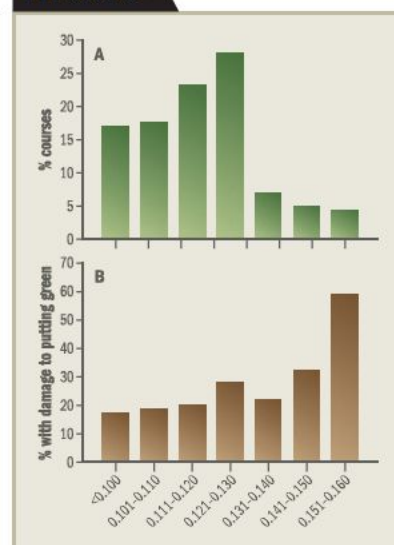
Soil iron as influenced by iron sulfate rate in 2014 and 2017. Means not sharing any letter are significantly different by the LSD test ( $P < 0.05$ ). Capitalized letters above the underline represent significant effects between years.

ABW population, though superintendents reported higher-than-average incidences from areas with long histories of managing ABW.

- Resistant populations caused more damage than susceptible populations, reported higher average insecticide budgets, and were more likely to make more than five applications per year than susceptible courses.

- Surveys indicated that 90 percent of turf managers used multiple monitoring

**FIGURE 3**



The percentage of surveyed golf courses was categorized by putting green mowing height (A) and those that experienced annual bluegrass weevil damage to putting surfaces (B) by mowing height.

tactics to better time and target controls despite the reliance on chemical controls.

## June: How surfactants influence PGR performance and turfgrass quality

By Mark Keck, Bill Kreuser, Ph.D.; and Brianna Hitt, Ph.D.

- Primo MAXX mixed with surfactant did not increase the duration of suppression.

- Primo MAXX + organosilicone and Primo MAXX + copolymer increased suppression.

- Cutless mixed with the surfactant did not increase the duration.

- Some PGR + surfactant combinations reduced visual quality ratings but never deemed unacceptable.

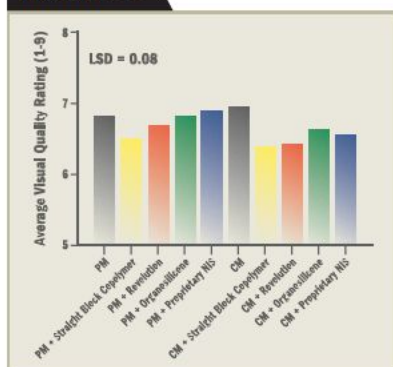
## July: A close look at the economic benefits of water research

By Cole Thompson, Ph.D.; Donald Kridel, Ph.D.; and Mike Kenna, Ph.D.

- The United States Golf Association (USGA) invested more than \$45 million in turfgrass and environmental research



FIGURE 4



Average visual quality rating over 2017 and 2018 across all treatment applications from the fall and spring. Primo MAXX (PM) and Cutless MEC (CM) were mixed with four different surfactants (straight block co-polymer, Revolution (Aquatrols Co.), organosilicone, and a proprietary nonionic surfactant [NIS]). Quality scores were ranked on a 1 to 9 scale, with a score of 6 or greater being acceptable.

from 1983 to 2020.

- The USGA's investment in research related to irrigation and water conservation returns approximately \$730 million annually to the golf industry.

- Research investment by governments and industry leaders is critical to growth of sustainability in the golf industry.

## August: Fertilization needs of warm-season turfgrass irrigated with saline water

By Matteo Serena, Ph.D.; Bernd Leinauer, Ph.D.; Rossana Sallenave, Ph.D.; and Marco Schiavon, Ph.D.

- Generally, subsurface drip-irrigated (SDI) grasses were slower to green up than the overhead-irrigated grasses.

- Sea Spray irrigated from the SDI system took 18, 28 and 15 days longer to reach 80 percent green cover in 2010, 2011 and 2012, respectively, than their sprinkler-irrigated counterparts.

- The combination of Princess 77 and overhead irrigation reached 80 percent green cover 35 (in 2010), 34 (in 2011) and 12 (in 2012) days faster than SDI irrigated Princess 77.

Continued on page 60

TABLE 1

### Familiarity and adoption of research-based management practices among 610 respondents

	ET-based irrigation	Soil moisture meters
	adoption percent	
Already adopted	25.7	45.7
Planning to adopt	36.8	28.5
	USD <sup>a</sup> percent	
Average annual savings per facility	39,196 (4.09)	58,009 (6.26)

<sup>a</sup> United States Dollar.

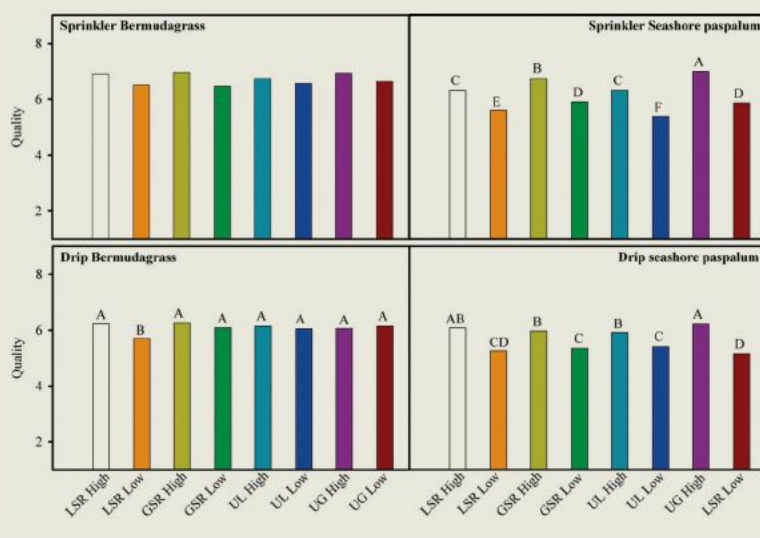
<sup>b</sup> Annual savings questions were asked only to those who reported adoption and savings associated with a research-based management practice (n = 163 and 279 ET-based irrigation and soil moisture meters, respectively).

TABLE 2

### Future adoption timing for planners (percent of planners)

	ET-based irrigation	Soil moisture meters
	percent of adopters	
Within 3 years	29.4	37.9
3-5 years	45.2	43.7
5-10 years	25.3	18.4

FIGURE 5



Turfgrass quality rating differences (1 = worst; 9 = best) as affected by four fertilizers (LSR, liquid slow-release; GSL, granular slow-release; UG, urea granular; UL, urea liquid) and nitrogen (bermudagrass [low = 4 lbs. N 1,000 ft<sup>2</sup> year<sup>-1</sup>; high = 6 lbs. N 1,000 ft<sup>2</sup> year<sup>-1</sup>]; seashore paspalum [low = 2 lbs. N 1,000 ft<sup>2</sup> year<sup>-1</sup>; high = 4 lbs. N 1,000 ft<sup>2</sup> year<sup>-1</sup>]). Each data point represents an average of nine seasons, two water qualities (potable [0.6 dS/m] and saline [3.1 dS/m]), and three replications. Bars followed by the same letter (Fisher's protected LSD at  $\alpha = 0.05$ ) are not significantly different from one another (separately for each grass irrigation system).



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## Super Science

Continued from page 59

• Fertilization rate and type did not affect the summer turfgrass quality of Princess 77 irrigated from a sprinkler system throughout the research period reaching ratings of greater than seven during all three years, and researchers observed similar results for Princess 77 irrigated from an SDI system during 2010 and 2011.

• During two of three summers, turf quality of the Sea Spray plots fertilized with either a liquid slow-release or liquid urea was lower than that of plots fertilized with a granular fertilizer.

• The type of fertilizer applied affected fall color retention for 10 of 12 treatment combinations; however, no one fertilizer had the same impact for all treatments in November.

### September: *What the future looks like for snow mold management*

By Paul Koch, Ph.D.

• Data from across a nine-year span in Wausau, Wis., suggests that specific locations will experience less snow mold, although they are still prone to significant outbreaks from time to time.

• Pink snow mold is much faster growing and it also grows at a wider range of temperatures than the gray and speckled varieties of snow mold, so chemistries such as iprodione, fludioxonil, prothioconazole and thiophanate-methyl provide effective control.

• A model is under development that would predict the optimal timing of snow mold fungicides based on the local environmental conditions that fall.

• There is a window of opportunity for snow mold control that is approximately 3 to 4 weeks long leading up to snow cover.

PHOTO 2

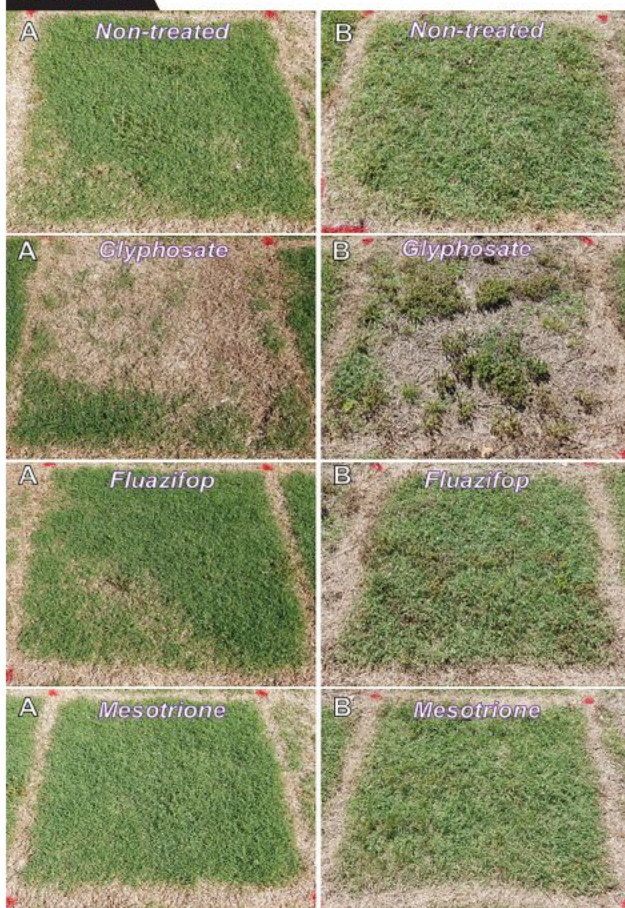


The cutoff between no snow mold suppression and excellent suppression can be very sharp, as evidenced by this picture from Timber Ridge GC in Minocqua, Wis., in the spring of 2020.

PHOTO BY: PAUL KOCH, PH.D.



## PHOTO 3



(A) Midlawn bermudagrass plots and (B) common bermudagrass plots on June 12, 2014, (252 days after application on Oct. 3, 2013) recovering from autumn applications of glyphosate, fluazifop and mesotrione combinations. All other treatments containing glyphosate (not pictured) had a similar percentage of green cover as glyphosate plots and plots treated with fluazifop and mesotrione (not pictured) had a similar percentage of green bermudagrass cover as those treated only with fluazifop.

### October: Autumn bermudagrass removal with glyphosate, fluazifop and mesotrione combinations

By Ross Braun, Ph.D., and Jared Hoyle, Ph.D.

- Only treatments containing glyphosate reduced the green cover of bermudagrass at each site the following year.
- Across all ratings dates and locations, adding mesotrione, fluazifop or both to glyphosate did not further reduce green bermudagrass cover.
- Overall, results indicate that a single autumn application of glyphosate before bermudagrass dormancy reduces bermudagrass cover the following spring.
- The significant reduction in spring green-up may allow turf managers to make additional applications in the spring for increased control before spring establishment. ©

PHOTOS BY: JARED HOYLE, PH.D.



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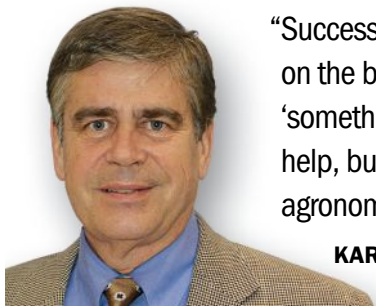


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"Successful turfgrass management predicates on the basics, not the fancy stuff or 'something really new.' Those things may help, but only if you incorporate the basic agronomic practices into your practice."

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

## A journey through my Wonderful World of Turf

**T**he television series *Shell's Wonderful World of Golf* premiered in 1961 and ran through 1970. I remember (barely) watching the early black-and-white episodes with my family before I had ever picked up a golf club. The series consisted of matches between professional golfers of the time on golf courses around the world. My first exposure to the world outside the United States was through those matches. Over the run of the show, the series filmed matches in Argentina, Brazil, Spain, Hong Kong, the Philippines, Ireland and Thailand, to name a few.

When I started my professional career in the golf course industry during the mid-1970s, the growth and focus of golf centered in the United States. Over the last 40 years, golf has grown globally. Countries during that time that were considered emerging markets became locations for golf and golf course growth. Promoting this growth is due — in a large part — to the popularity of professional golf events like the Ryder Cup, Presidents Cup and, recently, the recognition of golf as an Olympic sport.

### FIRSTHAND SEAT

Professionally, I have been fortunate during this period to see how golf courses and turf management have grown and evolved globally. Through educational, research and consulting efforts, I have taken part in my own "Wonderful World of Turf."

My travel has been restricted the

last few years in large part due to COVID-19. During this time, I took the opportunity to look back through my photographs from some of my international trips. Photographs have a particular way of triggering stories, memories and, in some cases, bring focus to specific management practices of agronomic principles.

### FANTASTIC VOYAGE

I thought I would list a few agronomic principles or practices below triggered by a photograph(s).

**① Not just cars.** I took a picture of a Lamborghini tractor used at a nice golf course outside of Lisbon, Portugal. I usually think of a Lamborghini as an expensive, fast car with all the flash and glitter expected in a world of exotic cars. However, before the car, Lamborghini was known for its agricultural tractors, mundane machines that did basic work. That tractor represented to

me that successful turfgrass management predicates on the basics, not the fancy stuff or "something really new." Those things may help, but only if you incorporate the basic agronomic practices into your practice.

**② Adaptation.** Any picture of a golf course in the world. Whatever golf course I have been on, the first thing I look at is the turfgrass species on the tees, greens, fairways and rough. The climatic zone or region of adaptation dictates the type of turfgrass used. No matter where you are in the world, the basic rule of turfgrass selection is to use ones that are climatically and situationally adapted.

**③ Cultural controls.** If I am speaking at a turfgrass conference or meeting, I often take a picture of those in attendance. The most recent photographs remind me of the presentations I've been asked to give in Europe or South America, etc., about how to maintain high-quality golf course turf. These pictures remind me that as mowing height decreases, cultural intensity increases. Although it is difficult to come up with a non-synthetic pesticide program, it is much more likely for higher-cut turf.

**④ Don't overlook PPE.** When I was in Hong Kong, I took a picture of a golf course spray crew loading chemicals into a spray tank. The photograph is a reminder of how critical proper crew protection, storage and disposal of chemicals is in environmentally safe pesticide use.

At this point, I have only been able to get through a few photographs, but I learned that no matter where you are in the world, the fundamentals of turfgrass management are the same. It is what makes sharing and exchanging ideas with international colleagues rewarding and valuable. **©**

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

## *Battling The Vicious Bite Of Jack Frost—At Home And Abroad.*

Every superintendent has their own special routine when it comes to preparing and protecting turfgrass during the winter. Some use tarps, some use chemistry, and some have a lucky rabbit's foot in the top drawer of their desk. No judgement—but let's set luck aside and talk about some proven turfgrass research programs we have found success in over the past two decades.

In 2001, we started conducting annual turfgrass disease prevention research with Rutgers University. This research led to a shift in our product development direction and inspired a new mission; To reduce chemical inputs while improving the health and performance of turfgrass playing surfaces and the soil chemistry beneath them. Over the past 21 years we have seen disease pressure drop dramatically in our university research plots as well as on the golf course of our customers. One of the star products that have come out of these years of experience is PolyPhosphite 30® 0-0-27.

We developed PolyPhosphite 30® 0-0-27 to activate a plant's natural defense mechanisms during stress periods, and it has become a staple in programs designed to help turf through the cold, damp, winter months. PolyPhosphite 30® 0-0-27 is no ordinary phosphite. It is truly one-of-a-kind. The patented linear chain polyphosphite molecule is manufactured through a patented production process of high pressure and high heat reactions.

The long-chain polyphosphite molecule was proven to be unique through a Nuclear Magnetic Resonance (NMR) Spectrum test which shows the actual poly formation of the molecule. This is how the patent was issued.

The long-chain polyphosphite remains an active phosphite in the plant and in the soil longer than an ordinary phosphite which will naturally convert back into a phosphate relatively quicker.

In 2018 we started working with Dr. John Dempsey, an independent turf pathologist in Ireland, to research the impact PolyPhosphite 30® has on disease prevention through plant health. More recently, in March of 2021, he conducted a Pink Snow Mold (*Microdochium*) reduction trial on *Poa annua*. He used PolyPhosphite 30® and another one of our products, GreenBlade™, which is a biologically active nutrient source that will help with photosynthesis and promote rapid recovery after winter stress and frost events. Both products were reapplied every 28 days from October 2020 to March 2021 with no use of fungicides or additional nutrients. The results are game-changing for our industry.

This has been important for Dr. Dempsey as the use of fungicides has been increasingly discouraged in the UK and many compounds have recently been banned by the EU, which goes into effect in 2023. Knowing that this trend is only likely to continue and eventually be adopted on our side of the pond has bolstered our mission of zero infection with no inputs. The stage is set. Looking forward, we believe that our combined efforts and continued research will elevate programs for our clients, our industry, and the sport with healthy, high performing, consistent playing surfaces.

To see a video of Dr. John Dempsey discussing his research with us visit:  
[www.plantfoodco.com/bulletin-46/ukresearch](http://www.plantfoodco.com/bulletin-46/ukresearch)







Also known as **cottony blight**, *Pythium* blight thrives in warm and wet conditions on cool-season grasses.

## How to prevent *Pythium* blight in cool-season turf

Jim Kerns, Ph.D., of North Carolina State University shares a variety of preventative applications for superintendents to implement to keep the pathogen at bay

By Chris Lewis

Considered a water mold, *Pythium* blight generally occurs in areas of the course with poor drainage or prolonged wetness for extended periods. Jim Kerns, Ph.D., associate professor in the Department of Entomology and Plant Pathology at North Carolina State University, says the pathogen is most severe for cool-season grasses whenever conditions are warm and wet. The most susceptible species are perennial ryegrass, annual bluegrass, fescues, Kentucky bluegrass and creeping bentgrass.



Jim Kerns

Kerns says *Pythium* blight can be destructive if turf strands are wet for prolonged periods. It's also rare for the disease to develop on sand-based putting greens or on sand-based soil types. Kerns says Midwestern superintendents may see *Pythium* blight on fairways with silty soils.

"Ultradwarf bermudagrass putting greens are prone to *Pythium* blight in southern climates," he says. "Even though the disease is most severe under cloudy, wet conditions, it has been seen on these surfaces at various times of the year.

Typically, we see most of it on bermudagrass putting greens in the fall and early winter."

### OUNCE OF PREVENTION

If superintendents grow perennial ryegrass in fairways or roughs, or if they overseed the course's fairways and roughs, preventative applications are extremely important. Kerns says preventative applications for other cool-season turfgrasses will depend on the course's soil type. For example, courses on native soil that don't topdress greens need a preventative program.

"For many putting greens, though, a staple in a fungicide program is a phosphonate fungicide like Signature Xtra Stressgard (O-ethyl phosphonate) or Appeal II (potassium phosphite)," he says. "Superintendents should mix it with a contact fungicide, such as chlorothalonil, mancozeb or fluazinam and then apply it frequently during periods that are conducive for *Pythium* blight."

Kerns says superintendents with ultradwarf putting greens should apply phosphonate and contact fungicides in late summer and fall. **©**

PHOTOS COURTESY OF SYNGENTA



## Corteva Agriscience

### JUSTIN STEWART

Turf and ornamental  
Eastern district leader



*Pythium* blight needs hot, humid weather, particularly when nightly lows are above 68 degrees F and relative humidity is higher than 90 percent for extended periods of time. Scouting should start as soon as superintendents have three nights in a row under these conditions. It's also important to remember that it's a high-nitrogen disease, meaning that areas of the course pounded with nitrogen — like greens, tees and fairways — will often be more susceptible to it. The disease can quickly destroy a golf course, too, as I've witnessed entire fairways decimated within 24 hours under high-pressure conditions. To protect high-value areas and prevent rapid destruction, like greens and tees, superintendents should always treat preventively. Depending on superintendents' locations, they'll want to apply their preventative products early and often, starting before the summer heat.

## Prime Source

### BRET CORBETT

Technical services manager



*Pythium* blight, also known as "cottony blight," first appears as small, sunken, mostly circular patches. The name cottony blight refers to the white, fluffy mycelium that forms on the leaves of the infected plants. This disease develops once nighttime temperatures exceed 60 degrees on leaves that are continually wet for 12 to 14 hours on consecutive nights. By reducing prolonged leaf wetness — via early morning watering prior to sunrise — along with avoiding excess nitrogen, superintendents will decrease disease pressure. Also, avoid mowing or irrigating when the mycelium is present. For chemical control, there are a handful of options, such as active ingredients cyazofamid or mefenoxam, along with combination QoI fungicides. Superintendents can also utilize chemical alternatives like the biological bacterium *Burkholderia*, as well as phosphite fertilizers.

## PBI-Gordon

### BRIAN AYNARDI, PH.D.

Northeast research scientist



*Pythium* blight can occur on all turfgrass, but perennial ryegrass, *Poa annua*, creeping bentgrass and bermudagrass greens are the most susceptible and concerning. On cool-season species, specific environmental conditions are necessary for development: less than 90 percent relative humidity for 14 consecutive hours, daytime temperatures above 85 degrees F and nighttime lows above 65 degrees F. On warm-season turfgrass, overcast and humid conditions, accompanied by rainfall and cooler temperatures (like below 80 degrees F), are optimal. Regardless of the host type, extended periods of free leaf moisture and high relative humidity are key for disease development. Therefore, preventative treatment for *Pythium* blight is likely the most critical preventive fungicide application a superintendent can make.

## Syngenta

### LANE TREDWAY, PH.D.

Technical services manager



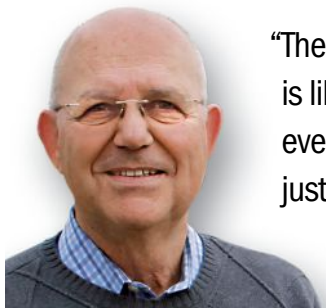
*Pythium* blight can attack any turfgrass, including both warm- and cool-season species. On cool-season grasses, it will occur in hot and humid conditions. Nighttime temperatures of 68 degrees F or higher, along with long periods of leaf wetness, are the most conducive. In warm-season turfgrasses, *Pythium* blight attacks under cool, cloudy and wet conditions from fall to early spring. Ultradwarf bermudagrass greens are the most susceptible to *Pythium* blight, and the symptoms are often mistaken for leaf spot, which occurs under very similar conditions. Because *Pythium* develops so quickly, prevention is the best management approach. Products containing azoxystrobin are all useful as part of a preventative program. Meanwhile, a plant activator, known as acibenzolar-s-methyl, provides additional suppression by triggering turfgrass's natural defenses against *Pythium*.



### MORE ONLINE

For more tips from experts on how to prevent *Pythium* blight, visit [Golfdom.com](https://www.golfdom.com).





“The smartphone most everyone has today is like having a small computer that does everything a trunk load of equipment did just a few decades earlier.”

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

## Technology transformation in the last 40 years

**A** smartphone is an essential tool we all use that has changed everything. My recollection of the past 40-plus years makes the smartphone seem remarkable compared to the technology in the 1980s.

In 1980, I ran my first statistical analysis program using computer cards on an IBM 360 mainframe. The IBM beast was in the basement of the math and science building at Oklahoma State University.

By 1983, my Ph.D. dissertation had more than 5,000 data cards. Thankfully, I was allowed to use the mainframe's hard disk and tape backup, so the cards did not have to load for each data analysis.

The size of a carry-on suitcase, I typed my dissertation on a new Compaq portable computer in 1984. Folded down, the keyboard attached to the bottom of the computer revealed a 9-inch green screen and two floppy drives. I bought an Epson dot-matrix printer and used that for most of the 1980s.

As an assistant professor in 1985, the university provided an IBM AT desktop computer with a 30-gigabyte hard drive and a 3.5-inch removable disk drive. I still had a paper diary and Rolodex for keeping track of appointments and contacts.

Compuserve Information Service

opened its network to the public in 1979. By 1981, the baud rate was 300 bits per second and cost \$5 per hour during non-peak usage. (By comparison, the baud rate of today's computers ranges between 19,200 to 115,200.) By 1989, I was using Compuserve but never sent an email while on the faculty at Oklahoma State.

In 1990, when I started with the USGA Green Section, desktop computers were available. However, daisy wheel printers were still preferred to make letters and reports look hand-typed. I bought my own HP laser printer since they were much faster and provided several fonts or page formatting for new word processing.

### GOING MOBILE

In the mid-1990s, cell phones and personal digital assistants became available. The first laptop computers were starting to be affordable. To a traveling road warrior, these provided an office on the go. However, cell phone service was expensive. Using the newly emerging internet and email technology, one

had to be MacGyver to get a modem to work in hotel rooms.

In the early 2000s, a cell phone, PDA — like a Palm Pilot — and access to the internet through a laptop computer using a modem were available.

BlackBerry had a two-way pager in 1999, and in 2002, it released the BlackBerry 5810 with a built-in mobile phone. It was not until 2007 that Apple released the first iPhone against stiff competition from the BlackBerry.

In 2007, my son, Charles, worked at Walmart in the technology department. I had a BlackBerry at the time, and he proudly purchased the first iPhone. We would race to see who could download information from the internet faster. He always won, and the screen was twice the size of my BlackBerry. Shortly after this defeat, I purchased an iPhone while the USGA stuck to BlackBerry for several more years.

### INCREDIBLE TECHNOLOGY

The smartphone most everyone has today is like having a small computer that does everything a trunk load of equipment did just a few decades earlier. Good or bad, we have a device that connects to the internet and many wireless devices.

The smartphone provides freedom from landlines and your desk. With the cloud, you have access to years of files and photos. Using Google or Bing allows access to the answer to almost any question. News, videos and many different entertainment options are available on smartphones.

In a pinch, you can attend webinars or conference calls on your phone.

The smartphone freed people who like to work outdoors instead of being chained to a desk. But occasionally, turn the thing off and enjoy the sunrise or sunset and the people you are with each day! ☺

Mike Kenna, Ph.D., retired director of research, USGA Green Section. Contact him at [mpkenna@gmail.com](mailto:mpkenna@gmail.com).



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# The 19<sup>th</sup> Hole with...



## Paul Van Buren

**GOLF COURSE MANAGER** // Kanawha Club, Manakin-Sabot, Va.



**Paul, what can I get you?** Almost always a beer. I love Natural Light. Hazy East Coast IPAs are also a favorite, but those pack on the pounds.



**Tell me about Kanawha Club.** It's a private nine-hole par three course just west of Richmond, Va. It's owner invitation only and a unique and extremely challenging course. We reached full membership in October of this year. We're only open from April to November, as most of our members reside elsewhere in the winter months.

**What got you into the industry?** I started at Virginia Tech as a landscape architect to get into golf architecture, but after two summers on maintenance staffs, I changed majors to turf management and was hooked. This industry has some of the best people one could imagine.

**What is your all-time golf highlight?** Volunteering on the maintenance staff for the Presidents Cup at Royal Melbourne (Australia) and having my father crash with me for two weeks while I was on the ground. It was a pretty special place to have Pops inside the ropes with me.

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### // BEST ADVICE

**"YOU ONLY GET ONE CHANCE TO MAKE A FIRST IMPRESSION."**



**What is it like living in Manakin-Sabot?** Tons of great golf around Richmond, public and private. Otherwise, eat, drink and be merry. Richmond is home to some of the best breweries and dining experiences on the East Coast. The Veil, Triple Crossing, it's a fun town. Just big enough for occasional traffic but not so overpopulated that it causes anxiety.



**What makes being a golf course superintendent so special?** Easy, it's the people. We have such a unique profession with interactions on a daily basis. The people in this industry are amazing.

**What is your most memorable day at work?** Fielding a phone call that our 39-year-old assistant superintendent JD Dickinson had died suddenly of a heart attack on Sept. 29, 2014. JD was the most caring, compassionate and hilarious person I've ever met; he was always up for a laugh and a round of golf. JD was an

accomplished golfer; he had the best short game I've ever seen. He left behind two beautiful daughters and a stellar wife.

**What do you and Stephanie do for fun? How did you two meet?** Funny, we met on eHarmony. We do a lot of things for fun ... usually impromptu, almost always eating/drinking somewhere. We don't have kids, so our dog, Bosco, joins us on most of our adventures. We love to travel. With my schedule and having a closed golf course in winter, we tend to frequent the Southern Hemisphere. I love snow and cold weather, but I don't ski.

### **What's your favorite holiday tradition?**

I proposed to Stephanie before we decorated our first Christmas tree. It's a tradition we celebrate every year.



As interviewed by Seth Jones, Nov. 4, 2022.

PHOTO OF PAUL: COURTESY: PAUL VAN BUREN; WIKI COMMONS (VA TECH LOGO); BENIMAGE / E+ / GETTY IMAGES (TREE)





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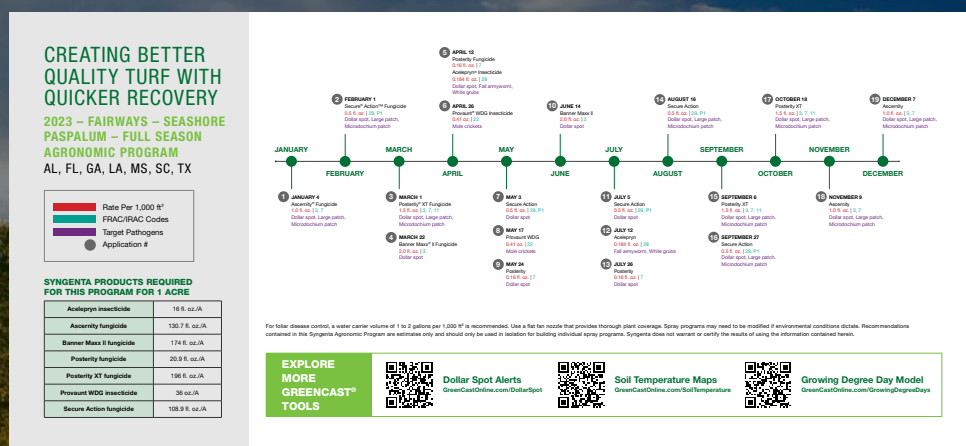
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# MAP OUT YOUR 2023 AGRONOMIC PROGRAM WITH A POSTER

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