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Golfdom

04.20

GOLF IN A PANDEMIC

The world — and the industry — reacting minute by minute to COVID-19

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RESISTANCE MANAGEMENT

ABW AND CUTTING HEIGHTS

A NORTH COAST MEDIA PUBLICATION VOL. 76 // NO. 4

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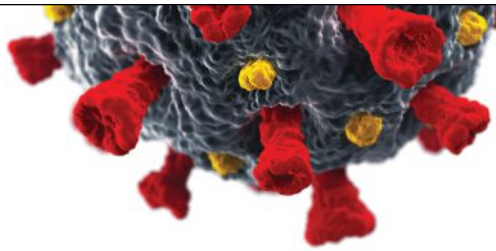
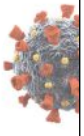
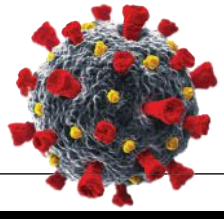


Golf in the time of COVID-19

Superintendents share what it's like to manage a golf course in a situation that's changing by the day





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SUPER SCIENCE

DEPARTMENTS

COVER PHOTO BY: *GOLFDOM* STAFF

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*Jonathan L. Larson, Carl T. Redmond and Daniel A. Potter, SCI. September 2011.

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Golfdom

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"My Uber driver was incredulous as we drove to Pier 39, unimpeded by traffic. 'It's never this empty down here,' he told me."

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

Social distance, social distortion

We emailed Tim Davis, the subject of this month's "19th Hole," shortly before deadline. We wanted to make sure he was happy with the way his interview looked before we sent the magazine to the printer. His response to us summed up the last few weeks: "Crazy how much the world has changed since this interview."

I chatted with Tim on March 3, a little earlier than I typically do the interviews. I usually like to interview closer to deadline, to make sure the content is current. But, with a lot of business travel on my calendar, I decided to connect with Tim early.

I agree, Tim. Crazy how much the world has changed since then. I wonder what the world will be like by the time this issue reaches your desk.

I was at TPC Harding Park in San Francisco doing my PGA Championship preview interviews and photography two weeks ago. The course looks fantastic! Great crew, too. (My profile on the crew and course, which stands on its own regardless of the status of the 2020 PGA Championship, is on page 16.) I wrapped up at TPC Harding Park and headed downtown. Coincidentally, my friend Sean and his girlfriend, Mary, were in San Francisco on vacation. I met them for dinner. My Uber driver was incredulous as we drove to Pier 39 unimpeded by traffic. "It's never this empty down here," he told me. "It's usually wall-to-wall cars and people!"

The next day I was on a flight for Chicago. I was out to dinner Thursday night with my publishers, Bill and Craig, when we saw the Utah Jazz and Oklahoma City Thunder walk off the court midgame. What exactly was happening? And how quickly did I need to get home?

The next morning, I was the only person on my shuttle bus from the rental car facility to Chicago Midway Airport. Being curious, I surveyed airport employees as I made my way to my flight. The rental car check-in person, the bus driver, the Southwest baggage person — everyone told me the same thing: It was eerily quiet, especially in a week when the airport is typically packed with spring breakers.

I got home, and that's when everything really started going wild. The milestones came quick. For example, here in Kansas, my seventh-grader and second-grader suddenly became eighth- and third-graders. But this is not unique to me. We are all going through this … some on levels much more severe than what I've had to worry about so far.

My Masters admission came in the mail, always a moment of celebration for me. This year, I just stared at it and wondered what's next. The money I put down in Las Vegas on the Jayhawks to win the NCAA Championship? That ticket is still propped up by a magnet on the fridge, along with a bet on Tommy Fleetwood winning the 2020 Masters. It's all so trivial now.

I told my team this: I don't know what's happening, what's next, but while we're working from home … while this pandemic evolves … there's one thing we can do … and that's continue to serve our readers. I can't predict where golf will be by next month. But I can assure you with great confidence that the team here at *Golfdom* will be doing our best to provide you with a magazine, a website, a social media presence, that serves our readers.

I have great confidence in our medical leadership, our industry and my own company's leadership — we'll continue to make well-thought-out decisions. I'll remain positive, knowing we'll get through all this uncertainty together and come out on the other side stronger than ever. History has proven this time and again.

Please think of your crew and their families first and stay safe in these uncertain times, because there's a whole lot of "19th Hole" interviews I want to do when the times aren't so crazy.

Email Jones at: sjones@northcoastmedia.net.

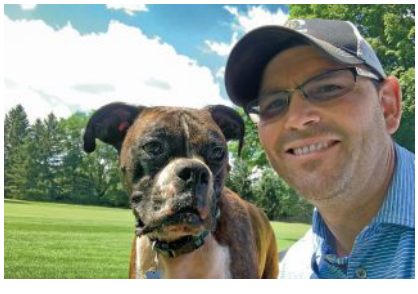
CONDITION. PERFORM. RECOVER.

Posterity: A game changer for dollar spot control

The 16th fairway at Elcona Country Club.

For many years, Bristol, Ind.'s Elcona Country Club encountered a variety of challenges with dollar spot because of its older Penncross Bentgrass fairways. September and October have been particularly difficult, as the club's budgeted applications typically have been used up by then.

Recently, Ryan Cummings, Elcona's superintendent since 2014, heard about the success of Posterity fungicide in research trials, particularly for controlling dollar spot. Those rumors were verified by Troy Rippy, a Syngenta territory manager, along with Luke Baker of Turf Ventures. Both described Posterity as a "game changer" for late-season dollar spot suppression.



PHOTOS: RYAN CUMMINGS, ELCONA COUNTRY CLUB

After hearing this, Cummings decided to try the SDHI fungicide and witness the results firsthand. In preparation for northern Indiana's early-fall dollar spot season, he applied 7 fl oz per acre of Posterity on his fairways and tees on Sept. 5, shortly after Labor Day. At the time, he wanted to determine the product's effects and expose it to the wide range of weather conditions in September and October.

"I thought I'd be making a second application to keep our bentgrass surfaces clean for the remainder of the season," Cummings says. "But I was proven wrong."

In fact, the conditioning of Elcona's tees and fairways was better than it had been in years. No additional preventive application was required to control dollar spot the rest of the season.

"I was simply amazed at the longevity and performance of Posterity," he states. "It allowed us to meet and exceed our membership's expectations for playability and aesthetics throughout a busy fall season."

The overall performance of Posterity was so positive — and the tees' and fairways' turf health so apparent and long lasting — that Cummings was able to eliminate two additional fungicide applications and reallocate those resources toward other aspects of Elcona's operation.

"Going forward, Posterity will be our go-to plant protectant for prime, late-season playing conditions," he stresses.

Although Cummings chose to apply Posterity at 7 fl oz per acre, superintendents can apply it at various rates (7 to 14 fl oz per acre) and intervals (14 to 28 days). For broader-spectrum disease control, superintendents can rotate or tank mix it with a contact fungicide like Secure Action, which Cummings uses to enhance turf recovery and combat anthracnose, brown patch and dollar spot.

Much like Posterity, Secure Action — along with Acelepryn insecticide and Velista fungicide — has ensured that Elcona Country Club members' demands for playing conditions, fungicide performance, disease control and protection and turf recovery consistently are exceeded.

"Syngenta continues to add new tools to my toolbox," Cummings adds. "I'm looking forward to its future innovations."

For the full story, visit Golfdom.com/sponsoredcontent/ElconaCC.

Visit GreenCastOnline.com/DollarSpot to sign up for dollar spot alerts.
Tweet @SyngentaTurf and tell us how you #ConditionPerformRecover.

Starter

NEWS, NOTES AND QUOTES

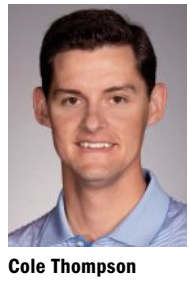
A national experiment to test turfgrass performance with minimal irrigation is one project in the 2020 round of the USGA research grants.

//MORE MONEY, MORE RESEARCH

USGA BESTOWS $1.9M IN RESEARCH GRANTS FOR 2020

By Sarah Webb // *Associate Editor*

The United States Golf Association (USGA) will fund 73 separate research grants totaling nearly $2 million in 2020, building on its 100-year commitment to providing scientific innovations for the golf industry.



Cole Thompson

"It's really a continuation of the USGA's mission to advance the game of golf by conducting research that conserves resources and improves playing conditions," said Cole Thompson, Ph.D., director of turfgrass and environmental research at the USGA. "The USGA's goal is to provide solutions to the challenges golf facilities experience so they can manage the course more efficiently and improve the overall golf experience."

Since the founding of the Green Section in 1920, the USGA has invested more than $41 million to advance golf — $40 million-plus of that funding was granted between the years of 1983 and 2020, according to Thompson.

The 2020 grant recipients — 16 of which are involved in new projects — will receive an average of $25,000 this year. Notable grant support includes a focus on conserving water by better understanding new technologies and the social aspects of irrigation scheduling through the University of California-Riverside and a look at the continuing effort to define the value of golf courses from an ecosystem services perspective through the University of Minnesota.

Universities or research companies submit grant applications that are reviewed by nearly 20 scientists. Grants are based on a project's ability to improve the game of golf and the scientific rigor of the project.

//GRIP IT AND RIP IT

FMC DONATES $21K TO GCSAA CHAPTERS

FMC Professional Solutions will donate $21,000 to 71 Golf Course Superintendents Association of America (GCSAA) chapters as a result of more than 200 U.S. golf course superintendents stepping up to the tee box at the FMC booth during the 2020 Golf Industry Show.

The FMC booth featured a golf simulator for superintendents to "grip it and rip it" to secure donations. For each yard driven off the "tee," FMC donated 50 cents to that superintendent's GCSAA chapter. Superintendents drove approximately 43,100 yards off the virtual tee. The fundraiser was an initiative driven by FMC True Champions, launched in fall 2019. One of the key features of the program is to support industry associations such as GCSAA chapters, We Are Golf and Responsible Industry for a Sound Environment.

"We couldn't have asked for a better place to emphasize the commitment FMC has to the golf industry than at the Golf Industry Show," said Mike Sisti, golf and lawn care market manager for FMC. "As a committed partner, it is important to us to support the golf industry and those who are helping it progress each day."

//A SUSTAINABLE FUTURE

HERBERT KOHLER JR. DONATES $250K TO EIFG

Herbert Kohler Jr., executive chairman of the Kohler Co., has donated $250,000 to the Environmental Institute for Golf (EIFG), the philanthropic organization of the Golf Course Superintendents Association of America (GCSAA).

The EIFG fosters sustainability by providing funding for research grants, education programs and awareness of golf's environmental efforts and scholarships.

"I can't think of a better organization to make sure these funds are used toward ensuring a sustainable future for golf than the EIFG," Kohler said.

PHOTO BY: WELLGLAD / ISTOCK–GETTY IMAGES PLUS / GETTY IMAGES (GOLFBALL); MATTEO SERENA (TURF TEST PLOTS)

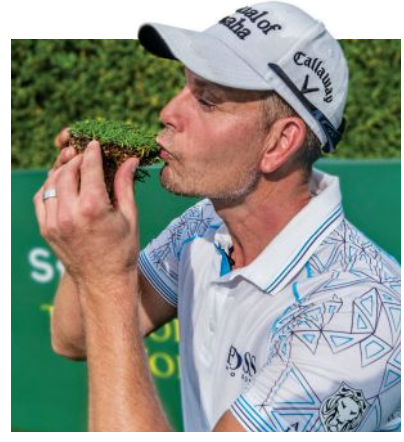
//ENVIRONMENTAL WARRIOR

Stenson supports environmental campaign at Sentosa GC

Major champion and multiple Tour winner Henrik Stenson was inspired by a global environmental campaign from Sumitomo Mitsui Banking Corp. (SMBC) Singapore Open host venue, Sentosa Golf Club, in January.

Stenson discussed the role golf can play in stopping the effects of climate change and learned more about Sentosa Golf Club's latest environmental campaign, called Game On.

Game On is a model that aims to educate and inspire the global golfing community, creating a more socially conscious industry and consumer. The model, which is available now as a free downloadable toolkit from the Sentosa Golf Club website, has been developed by Andrew Johnston, general manager and director of agronomy at Sentosa Golf Club, who has more than 30 years of experience in golf operations.



Henrik Stenson gets himself familiar with healthy turf.

With more than 61 million golfers and 39,000 golf courses worldwide involved in the initiative, Game On will help the industry to unite and work together to reduce golf's carbon footprint, according to the organization.

PHOTO BY: AIRSWING MEDIA/SENTOSA GOLF CLUB

//MAKING MOVES

HOYLE JOINS CORTEVA

Jared Hoyle, associate professor at Kansas State University (KSU), will join Corteva Agriscience on March 30 as a turf and ornamental territory manager serving Colorado, North Dakota, South Dakota, Nebraska, Missouri and Kansas.

"This decision was not taken lightly, given the high-quality and professional expectations of the faculty, staff and students at Kansas State University and additionally, the continued commitment to the advancement of the turf industry by the incredibly talented and supportive professionals in Kansas," Hoyle said in a statement.

Interim Department Head Steve Keeley, Ph.D., is working with upper administration in addition to the KSU Turf Team to ensure that the responsibilities associated with Hoyle's position as associate professor as well as his responsibilities as the Rocky Ford Turfgrass Research Center Director be delegated to the appropriate party and peoples.

"I cannot reiterate enough how appreciative I am to everything Kansas State University has provided me through the years: from tenure and promotion to associate professor to an open and welcoming environment to improve my leadership skills and finally, but most importantly, by providing a 'second family' as I began my career and family thousands of miles away from my immediate family," Hoyle said in a statement. "I believe that specific openness and welcoming support of the turf industry in Kansas and surrounding states will help continue the success of Kansas State University's turf program."

//NEW DIRECTOR IN TOWN

THE ANDERSONS NAMES GOLDSBY DIRECTOR OF PROFESSIONAL TURF BUSINESS

The Andersons has appointed Anthony (Tony) Goldsby, Ph.D., director of its professional turf business.

Goldsby, replacing Bob Eichenberg upon his retirement in March, will be directly responsible for the division's business strategy, sales execution, marketing programs and customer service.

"We are excited to have Tony in this expanded role," said Eric Dearth, vice president of engineered granules for The Andersons professional turf business. "His diverse experience and knowledge will make him a valuable leader for our team and resource for our customers."

Anthony Goldsby

Goldsby joined The Andersons in May 2018 as an agronomist for the professional turf business. He received his Ph.D., Master of Science and Bachelor of Science with an emphasis on turfgrass management from Kansas State University, where he also served as a research technician for a 13-acre turfgrass research facility.

EMAILS @ TEXTS # TWEETS

Clark (Throssell),
Simply a brief note to wish you the best for an enjoyable and well-deserved retirement. I appreciate all of your contributions for our industry through your research and ability to communicate the findings in your relationships. I particularly liked your closing comment in your *Golfdom* farewell regarding the increased costs of maintaining the courses as we continually chase, at times, unrealistic expectations. It is my feeling we need to now turn more of our attention to finding ways to increase the fun factors.
Perhaps our paths will cross again … all the best.

— Bob Farren
Director of Golf Course & Ground Management,
Pinehurst (N.C.) Resort & Country Club

Golfdom Gallery

1 The King and I *Golfdom* Editor-in-Chief Seth Jones has amassed an impressive collection of photos of himself with sports celebrities over the years. Now he adds Richard Petty to the collection, thanks to the 2020 Sports Turf Managers Association show and the folks at Carolina Green Co.

2 Palm Beach GCSA and friends Chris Zugel (second from left), CGCS at Whistling Straits, Kohler, Wis., was the keynote speaker at a recent Palm Beach GCSA meeting, with *Golfdom's* Seth Jones serving as master of ceremonies (and more important, beverage cart sponsor). From the PBGCSA, left to right, are Brian Birney, the Everglades Club, Palm Beach, Fla.; Ryan Swilley, Gulf Stream (Fla.) GC; Robert Anderson, Royal Palm Yacht & CC, Boca Raton, Fla.; Nate Watkin, Seagate Country Club, Delray Beach, Fla.; and Deron Zendt, Pine Tree GC, Boynton Beach, Fla.

3 Read any good magazines lately? While some companies try to lure people into their trade show booth with food or tchotchkes, PBI-Gordon's Don Frantz had a novel idea: lure them in with copies of the new issue of *Golfdom.* It worked on us, at least.

4 Superintendent royalty at the Sports Turf show Jon Zimmers, Inverness Club, Toledo, Ohio, (left) and Matt Shaffer, longtime Merion superintendent, now retired (right), with Chuck Barber of Anuvia Plant Nutrients at the STMA show in West Palm Beach, Fla.

5 Boiler up! Cale Bigelow, Ph.D., (far right) and his turf students from Purdue University were all looking their best in anticipation of the Sports Turf Managers Association Student Challenge.

PHOTOS BY: *GOLFDOM* STAFF

"The world as we have come to know it — what we call our normal — is in jeopardy. In some cases, it's stopped in its tracks. An invisible enemy has flipped the world on its axis …"

CARLOS ARRAYA, *CGCS, Bellerive CC, St. Louis*

Letter to the course

Dear Golf Course,

As I wake and my eyes open, several thoughts cross my mind, but you have been at the top of my daily priorities for decades. I review several tasks to prepare us for our daily journey. They include the weather forecast, course golf activities and planned course maintenance, all done to provide a great golfing experience. Our day's activities are meticulously planned, and your caretakers (team members) engage in golf maintenance activities to execute the plan.

My favorite part of our day occurs when the first beams of sunlight provide energy for you to photosynthesize and awaken. There is so much joy while preparing you for the game of golf. We truly enjoy being your caretakers.

Because of your direct impact on our families' well-being and livelihood, you remain in all our thoughts and prayers. This routine has been normal for a long time. But I must be honest with you. I'm not writing to discuss our beloved routine, but rather to share that something unforeseen has occurred.

The world as we have come to know it — what we call our normal — is in jeopardy. In some cases, it's stopped in its tracks. An invisible enemy has flipped the world on its axis, has postponed The Masters, canceled sporting events worldwide, closed schools and restaurants and has forced us, your caretakers, into a new normal called "social distancing." The invisible enemy is called COVID-19.

Sadly, some of us are restricted or not allowed to care for you during this time. We all have plans in place to care for you, even if that requires abbreviated maintenance programs during this uncertain time or until COVID-19 is better understood. Until then, be well, my dear friend.

Sincerely,

Your Golf Course Superintendents and Caretakers

Dear Golf Course Superintendents and Caretakers,

Thank you for your letter and update. Your tone reveals that you are expressing uncertainty and fear regarding COVID-19. I am here for you. Our journey together has taught us many lessons applicable for facing this new enemy.

Unfortunately, I must reprise a few bad memories to ensure you gain strength from the lessons we learned together. In last few decades, our journey has brought us face to face with many enemies and showed us the face of pure evil. We have faced several financial crises, the most recent in 2008 when we watched caretakers lose their jobs, their homes and some, their families. On Sept. 11, 2001, the heinous terrorist attacks affected how we lived, ultimately changing our "normal." Thousands of victims and heroes lost their lives. We honor them by living our lives in their memory and never taking a second of our lives for granted.

There have been many lessons, but I encourage you to demonstrate three specifically: communicate, employ and protect.

1. **Communicate.** Plan daily calls or video messaging or find other ways to connect with caretakers. Some of them have no one else and have great fear. Our voices may be the only joy they experience during this social distancing.
2. **Employ.** Develop financial projections that allow you to retain as many caretakers as possible (30-hour workweeks is one idea). Health over wealth, but do everything possible to keep caretakers employed.
3. **Protect.** Support those who become directly affected by this enemy. Maintain equality *beyond* race and gender. If someone you know contracts COVID-19, there is a difference between isolation and discrimination. Please seek guidance to ensure they receive proper care and can safely return to work without prejudice.

I have witnessed you lead through difficult times, so hold your head high and continue to lead. I will be here when you return and look forward to resuming our journey together. Like with all other unforeseen challenges and enemies we've faced, you will be victorious.

Yours truly,

Golf Course

Carlos Arraya, CGCS, is director of grounds and agronomy at Bellerive Country Club in St. Louis. Follow him on Twitter at @carrayacgcs.

SPONSORED CONTENT

QUALI-PRO

BEHIND THE SCIENCE

PUT TO THE TEST

Quali-Pro's Enclave shows positive results against snow mold in field test

Finding dependable rotational products for superintendents to use in their programs can prove difficult.

They need products that not only will control pests and diseases, but they must also consider how many applications they need to achieve those goals with a given product — and the amount of product required.

Ian Rodriguez

Before they make the first application, superintendents also want to be assured the product they are going to use has been field tested and will give them the desired results.

That is why testing products is an integral part of Quali-Pro's process and focus on innovation. One example of that focus is the company's recent participation in Oregon State Field Days in Corvallis, Ore. The company used the trial to learn more about its existing and experimental products.

The trial showed how Quali-Pro products performed against *Microdochium* patch, a disease known in much of the country as pink snow mold. Once the trial was complete, the team looked at how different rates of Enclave fungicide performed and also assessed a couple of products currently in development, says Quali-Pro Technical Service Manager Ian Rodriguez, Ph.D.

"Events and trials like these allow us to get independent testing of our products so that we can make a sound decision on things that are in development," Rodriguez says. "We decide whether or not we release them and how we might position them in the market or work on the label for various rates."

The trial location was beneficial because the climate in the Pacific Northwest gave the company a unique opportunity to test against *Microdochium* patch when it wasn't under snow cover, which it often is.

"In a lot of the United States when we talk about snow molds, it's a fall application, and you kind of wait to see what happens after the snow thaws," he explains. "But, here in the Northwest, there's not a lot of snowfall. So, the pressure from pink snow mold, known here as *Microdochium* patch, tends to be much more extended, and so it requires multiple applications as opposed to a once-a-season application."

ROTATION LENGTH

Each of the Enclave trials was run on a 28-day rotation, which is a fairly long rotation period for a fungicide program, he says.

"Most contact-type fungicides are going to be on a 14-day rotation, maybe a 21-day rotation," Rodriguez says. "But Enclave, in this disease, we saw very good results. We ended with a 28-day rotation, and that's encouraging."

> "Events and trials like these allow us to get independent testing of our products so that we can make a sound decision on things that are in development."

Those results showed that Quali-Pro potentially could extend the coverage of control for diseases like *Microdochium* patch, Rodriguez says.

PHOTO: HANNAH BENNION

Quali-Pro ran four trials of Enclave fungicide, each on a 28-day rotation, at the fifth annual *Microdochium* Patch Field Day, held at Oregon State Feb. 27.

"Extended control in a season-long program like this is a real advantage to a product like Enclave," he says, explaining that extended control means superintendents don't need a follow-up application after as little as 14 days. "The longevity of that control is a good match here when it needs to be in a rotation with other products. So, it can potentially eliminate applications for you."

That could save superintendents time and resources while still achieving results they and their golfers expect through the season.

"Enclave can be a valuable rotation partner in a fungicide program, particularly those that rely on rolling applications through long seasons of disease pressure like here in the Northwest in *Microdochium* patch season," he says.

(Enclave's extended control) could save superintendents time and resources while still achieving results they and their golfers expect through the season.

Superintendents can expect a dependable combination fungicide from Enclave, Rodriguez says, whether they are in the Northwest or another part of the United States.

"We tested it in a lot of different environments against a lot of different diseases, and we're continuing to see consistent control here as in other places in the country," he says.

COMING SOON

In addition to seeing how Enclave performed, Quali-Pro also tested a few of its experimental products during the field trial. The company constantly is looking to bring innovative chemical combinations to the industry to meet users' needs, help simplify superintendents' jobs and fill a gap in the market.

"A trial like this also gives us the opportunity to try products in development to see whether they are also a good application for something like *Microdochium* patch," Rodriguez says. "This is a very seasonal disease. It's also very regional, and so this is kind of a once-a-year opportunity to trial against this particular disease."

Being part of trials like the one in Oregon allows Quali-Pro to take what's created in its labs and see results in the field. It's just one of the steps the company takes when working to bring a combination product to market.

"We were happy to see that Enclave gave us extended control in this trial, and also, we had good results out of our two products that are currently in development," Rodriguez says.

EXTEND COVERAGE

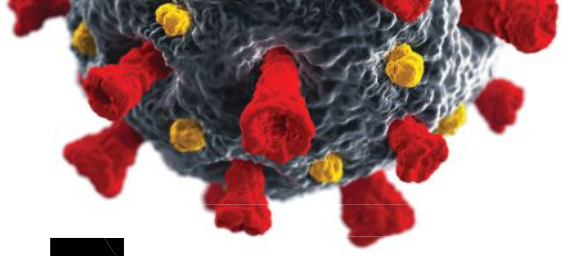
Beyond monitoring results for a specific disease like *Microdochium* patch in this trial, Quali-Pro also checks to see if there are others the product can control. At times, they also learn new things about the possible application rates for a product, allowing them, in some cases, to adjust labels.

During the field trial, they found that Enclave's spectrum of control also covered other turf diseases, proving it was a dependable rotational product that superintendents could add to their programs. Enclave also has been a consistent performer in other winter fungicide trials around the Midwest, Rodriguez adds.

"We had it here also this summer at anthracnose trials, where it performed very well, and it's performed in dollar spot trials, spring dead spot trials and warm-season turf. That makes it a really dependable rotational product to build a fungicide program around," Rodriguez says. "So just about anywhere in the United States, there's a good fit for Enclave in a golf course superintendent's program."

Stay tuned this summer for the second installment of our three-part series, "Behind the Science."

PHOTO: QUALI-PRO



GOLF IN THE TIME OF

Superintendents share reports on how their jobs were impacted the first weeks of this global pandemic

BY THE *GOLFDOM* STAFF

It's an interesting experience to be a superintendent in the time of COVID-19, also known as the coronavirus. There's no denying the implications this virus has had for golf tournaments around the globe. Superintendents in the U.S. are doing the best they can in a situation changing by the day.

Whether it's holding morning meetings with a crew spread out 6 feet apart, changing staffing levels to ensure the course is maintained, modifying putting greens so they're essentially hands free, or even preparing for a total course shutdown, superintendents are reacting as quickly as possible to keep crews and golfers safe.

These interviews display what it was like to be a superintendent as of press time in mid-March. For the most up-to-date coverage, visit **Golfdom.com**.

JACOB CLOSE

Superintendent, Sudden Valley GC
Bellingham, Wash.

"Things are … different," says Jacob Close, superintendent at Sudden Valley GC in Bellingham, Wash.

Close has an insider's perspective on the efforts to control the coronavirus in the Pacific Northwest. His wife, Natasha, is on the front lines, studying the coronavirus as an epidemiologist with the Washington State Department of Health.

Armed with her knowledge, Close is doing everything to keep his crew as far from each other as possible and everything in the shop as clean as possible. It's a waiting game to see how state officials will react, but in the meantime, Sudden Valley is finishing some irrigation work, and Close is planning for wall-to-wall plant growth regulator and fungicide applications in case the course shuts down for several weeks.

"Our commitment is to keep our people working, but there's just a 50/50 chance we'll be able to keep them employed over the summer," Close says. "Tournaments have been a big hit for us, losing 90 percent of (our) bookings through May. If that continues to happen, you could see budgets negatively affected for several years."

STEVE LINK

Superintendent, Skagit G&CC
Burlington, Wash.

"Things change every day according to national news and state news — it's all pretty unknown right now, and everyone's on edge," says Steve Link, superintendent at Skagit G&CC, north of the Seattle area, where the first outbreak in the United States was reported.

"If we do have to close, I'm pretty sure people would just come onto the course, but we haven't discussed the possibility of closing yet … my gut feeling is that it won't affect golf much at all," he notes.

Start times for Link's seven-person crew have been staggered by 10-15 minutes. They use a whiteboard for the day's jobs and communicate via text to maintain social distance.

Aside from removing flags and bunker rakes and covering cups, everything gets a bath in bleach and water solution — keys, steering wheels and gates.

In the event that he'll have to cut some staff, the club's members have offered to pay up to two weeks for any hours missed.

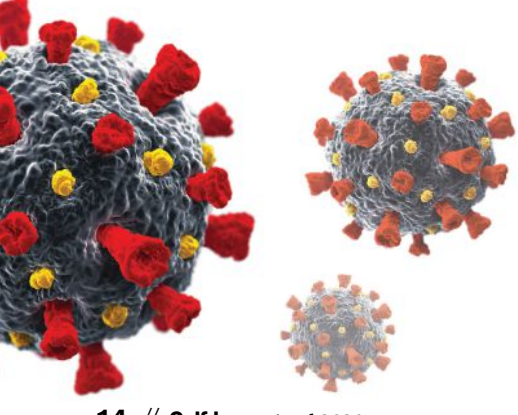
KYLE BARTON

Superintendent, Naperville (Ill.) CC

For Naperville CC, the main concern is limiting employees' exposure to the virus, according to superintendent Kyle Barton.

The precautionary measures in place at the club include disinfecting all door handles and surfaces multiple times daily, assigning each person a specific cart, wearing gloves while working, staggering lunch times to keep 6 feet of distance between employees, wiping down steering wheels after use, washing hands often, wiping down tools with disinfectant after use, staying home if sick and not allowing outside vendors in until further notice.

"We're only a staff of five right now, so if we can keep (contact) to a staff of five and their families who they're coming into contact with, then we're just limiting exposure," Barton says. "We can't really help whether they shut down the clubhouse or golf course or not, but we want to be able to keep working on the golf course so that when this whole thing is over, (golfers) have a good playing surface to come back to."



BLACKJACK3D / ISTOCK/GETTY IMAGES PLUS / GETTY IMAGES

COVID-19

Many golf courses around the country are careful to sanitize equipment and golf carts and provide employees with personal protective equipment such as gloves. Here, Wolf Creek Superintendent Bill Irving's dog, Frazier, looks on during these uncertain times.

PHOTO BY: *GOLFDOM* STAFF

BLAKE CAIN

Superintendent, Bent Tree CC, Dallas

Bent Tree CC has seen an uptick in rounds played, according to Grounds and Greens Superintendent Blake Cain.

"I think people are looking at the golf course as a place to retreat to in this difficult time," Cain says, "so we want to make things as enjoyable and safe as possible."

Bent Tree has removed bunker rakes; inserted a pool noodle in the bottom of the cup so the ball doesn't fall to the bottom, making it easier for golfers to remove; limited areas where staff interacts with maintenance facilities; conducted job assignment meetings outdoors in the main parking lot to keep people separated; isolated employees' lunch breaks; required employees to wear gloves; and sanitized common areas. The club also reached out to employees in the susceptible age range (60 years old and older), asking them to stay safe and remain at home. They will be paid while on leave.

"All of those employees were very happy with that consideration and took us up on that offer," Cain says. "We just want to provide a safe work environment for everyone."

SEAN REEHOORN

Superintendent, Aldarra GC
Sammamish, Wash.

"I refuse to use the word normal," says Sean Reehoorn, superintendent of Aldarra GC. "We're really strict on the social distancing," he adds, noting that his crew does solo work, with the exception of the

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(Left to right), Geoff Plovanich, agronomy manager; Kevin Teahan, San Francisco's Department of Recreation & Parks golf and turf manager; and Almar Valenzuela, superintendent.

PHOTO BY: *GOLFDOM* STAFF

From bottom to top

BY SETH JONES

The crew running 2020 PGA Championship host course TPC Harding Park have experienced both ends of managing the venue

TPC Harding Park is a city-owned course maintained by city employees working for city golfers. The facility hosts 70,000 rounds annually on the Harding Park course and another 25,000 a year on the Fleming nine. On a typical year, sunup to sundown, 52 weeks, 365 days, the course is packed with golfers.

Tiger Woods, Brooks Koepka and Rory McIlroy were scheduled to play in the PGA Championship at the course next month, but that doesn't do much to impress Kevin Teahan, San Francisco's Department of Recreation & Parks golf and turf manager.

"It's great having the PGA Championship here and the rest of the Tour events that they have scheduled for it, but our main focus is on our daily golfer," Teahan says. "We do take a lot of pride in that, the crew does, myself, Almar (Valenzuela) and Geoff (Plovanich). We're more concerned about the local guy and how his playing experience is. We know our customer base is the most important. Without them, we don't have any of this."

Geoff Plovanich, agronomy manager, a native of Wisconsin who has worked at Pebble Beach and Olympic Club, says the amount of play at the course is one of its unique challenges.

"At the end of the day, golf maintenance is golf maintenance … (but) there's a lot of play, a lot of rounds," Plovanich says. "It was the same way at Pebble Beach. You find ways to get work done around play and be as respectful as possible."

The carpenter and the kid

In its 95-year history, Harding Park Golf Course (the course joined the TPC network in 2010) has seen bad times and good times. Perhaps its most humbling moment was when Harding Park was used as a parking lot for the 1998 U.S. Open, played right across Lake Merced at the Olympic Club. But the good times came back in 2002-2003 when a $16 million

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"These guys bust their tail and produce a major championship golf course," says General Manager Tom Smith (right) with longtime crew member Kevin Reavy.

PHOTO BY: *GOLFDOM* STAFF

Continued from page 17

investment in renovating the club began.

Around this same time, a gruff local carpenter and a young kid washing carts at the course both got hooked by what would become TPC Harding Park. That gruff carpenter was Teahan, a rookie in golf maintenance but a veteran of 13 years with the city in the department of Getting Stuff Done.

"I came out here in 2009 as an equipment operator to help get the course ready for the Presidents Cup and did all the overseeding, tree removal, topdressing and all that stuff," Teahan recalls. "The PGA Tour just saw the way I was organized ... I'm very step orientated, and I've got a good grasp on how to manage a crew. So, after the event, the city asked me if I would take a chance and take over the golf courses."

The kid washing carts? That was Almar Valenzuela, who started working at the

course the week after it reopened. Now he's superintendent.

"I started late playing the game, fell in love with it and got into the PGA apprenticeship program and started working toward being the head pro," Valenzuela says. "I was involved with the 2005 WGC-American Express and had a good time working in the locker room. I spent five or six years getting to know the industry. Then, I just started getting really interested in the agronomy side of things."

He worked maintenance while the course hosted the 2009 Presidents Cup, and that was "all she wrote," Valenzuela says. He was promoted to lead assistant under Teahan, then took the superintendent job at nearby Sharp Park, well known (and profiled in the February 2013 issue of *Golfdom*) for its environmental challenges.

"I got to learn how to take care of a golf course from a purely organic standpoint," Valenzuela says. "(I) learned a lot about sustainability and turfgrass health in order to combat some of the everyday issues that superintendents face with turfgrass management."

Keeping things simple

So how did Teahan learn the art of grass growing? Some was by podcast and turf textbook, but most of it was relying on the great network of superintendent know-how local to the San Francisco Bay area. Lending support and advice were Lou Tonelli at Lake Merced GC; Bob Klinesteker at San Francisco GC; Thomas Bastis, now a PGA Tour agronomist; and longtime turf professional Frank Zamazal, who started his own turf fertility business, "Enhanced Organics."

In the microclimate of San Francisco, and with state and city restrictions on what can be applied to the course, Teahan and his crew try to keep things simple.

"It's a living organism, so the more consistent you treat anything, the better results you're going to get," Teahan says. "We're very consistent with our aerations, always opening up the soil to breathe so we don't overcompact it, keeping our fertilizers simple, not putting too many ingredients in, staying away from chemicals. It's worked for us. It's not overcomplicated, it's pretty simple and it's very cost effective."

TPC Harding Park's general manager is Tom Smith, a native of Wyoming who previously was at TPC Scottsdale. He calls the team at TPC Harding Park — both front of house and back of house — a "melting pot" that properly represents San Francisco. Smith has worked alongside Teahan for 10 years and says he can stand toe to toe with the best agronomists out there, even though he sometimes doesn't — and can't — take the traditional approach.

"(Teahan) is absolutely brilliant. There's

Continued on page 20

"COVID-19 was the topic of conversation across America while *Golfdom* was at TPC Harding Park ... As of press time, the PGA Championship, which was scheduled for May 11-17, has been postponed."

Continued from page 19

not something he doesn't know," Smith says. "I call him the Navy Seal of San Francisco Parks, because when something goes wrong, he's the guy they call. Whether it's a broken water pipe, a broken road, a broken piece of equipment, a complex, dangerous situation where maybe a tree has fallen into a building or whatever ... he's the guy they call."

Unscheduled uncertainty

COVID-19 was the topic of conversation across America while *Golfdom* was at TPC Harding Park. The crew was taking precautions to be safe while also working diligently to keep the course ready. As of press time, the PGA Championship, which was scheduled for May 11-17, has been postponed.

Despite the uncertainty of COVID-19 and the event itself, the crew at Harding Park is motivated, and even jovial.

"We have good relationships here, and that starts at the top, with Kevin," Plovanich says. "He sets the tone. He likes to keep it tight, but we also like to keep it loose — we know what works, but we also like to have fun while we're doing it."

"(Teahan's) probably the best boss I've ever worked for. I can trust him. He's super upfront," Valenzuela says. "He'll let you know exactly where you stand with him. He goes to bat for his guys, and he's just very old school. It's never me and him and 15 other people that I don't know about that are involved in the decision. It's just me and him. That's tough to find these days, especially in a boss."

Teahan has put in 24 years as an employee of the City of San Francisco. And not just TPC Harding Park falls under his supervision. He also supervises Sharp Park GC, Lincoln Park GC's 36 holes and the turf conditions at all sports fields in the seven-mile-by-seven-mile city of 883,000.

Leading an operation with so many moving parts, so many people, Teahan shrugs

"I'm probably the worst about telling somebody they do a good job," Teahan says. "But, if we're down, I'll be the first guy to hop into a hole and start digging."

PHOTO BY: *GOLFDOM* STAFF

and says he knows how to treat people because he knows how he has been treated.

"Being that both (Valenzuela) and I grew up being at the bottom, starting from the bottom, coming up …" Teahan says. "Treat (people) with the respect that they deserve … Listen to everybody's ideas. Treat others like you want to be treated yourself, with respect and kindness.

"(Valenzuela) and I learned to play golf here," Teahan says. "Whoever thought, 20 years ago … we'd be running the place?"

The Golfdom FILES

FROM THE ARCHIVE

"Candid" best describes superintendents' and golf pros' explanations of how they managed to keep their courses in business during World War II. In a February 1944 feature titled "Experts Tell Answers to Wartime Problems," supers and others such as Willie Ogg, golf pro at Worcester (Mass.) Country Club, told *Golfdom* readers that with few visitors and a limited workforce — many of whom were overseas serving in the military — they welded damaged equipment, invented new greenkeeping equipment and maintained only critical course areas so golfers would have turf to come back to. Time will tell how the 2020 coronavirus pandemic will affect the global population, let alone the global business of golf, but it's clear that superintendents' resourcefulness and drive has remained steady from the start of greenkeeping through difficult periods in world history. To read the full article, visit **golfdom.com/exclusive.**

An old master with new ideas

By Willie Ogg

We had to curtail, like most other clubs in this vicinity. The question arose in February 1943 whether we would try to operate at all during the season, and it was decided to cut the dues and operate just enough to keep things from going to ruin. Remember, this was decided upon when things looked their blackest and the gas ban stopped our winter activities.

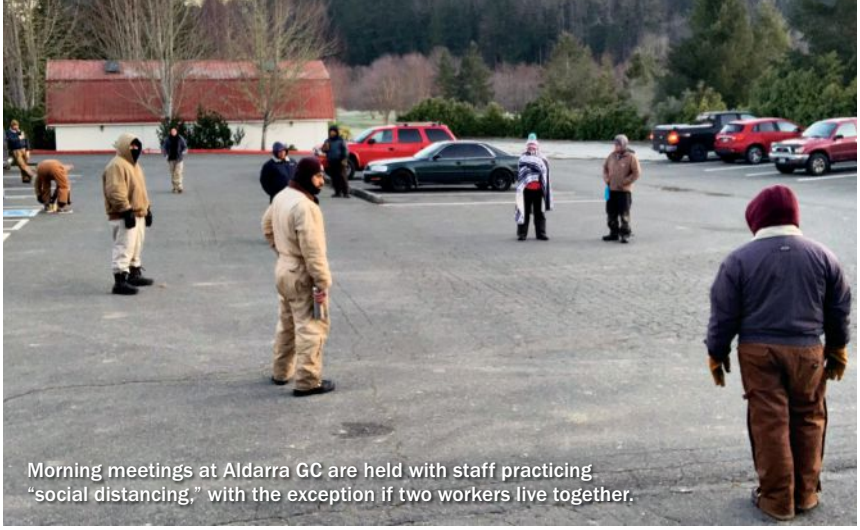
We tried the horse-and-buggy idea without success, but when the gas ban was lifted, play picked up quite a bit but still much below normal. Many in this vicinity had the suffering complex and many still do — the idea being that it was wrong to participate in sports or enjoyment of any kind. The harvest is now being reaped in the form of sudden deaths and all kinds of ailments. The industrial plants are now going to insist that their employees take time off the coming year for fear that everybody will crack.

Our golf course took it on the chin like many others, owing to the budget being cut. We did not suffer from lack of materials nor spare parts, but we did have a labor shortage because the money was not forthcoming. We had to chisel on our topdressing, mowing, gardens and rough to get by, but on the whole, we held things together pretty well. By using winter rules, we avoided any squawks about the fairways, but many players did beef because conditions were not prewar.

Getting back to the golf course, I wish to say that we are blessed with loyal employees and that we are equipped with a small machine shop in which we are able to do most of our own repairs. We have not found any shortcuts in our operation but just concentrated on the greens and tees and spread out what we had left on the fairways and rough. The traps were left more or less unraked and unsickled, but teeing up was allowed to offset this.

About the only new development that I have worked out is a machine that may cure the packed condition of grounds. This machine has other varied uses, but mainly I have been trying to get something that would be better than spiking. Spiking or punching holes does put a green out of play for a while and packs still more the areas the spikes do not enter, so that, on the whole, spiking did not do much good.

The machine we built has knife steel discs, and the principle used is the same as the disc harrow, excepting that the cuts are vertical instead of an angle. The depth of cut is governed by the weight used on a tray directly over the axis and on the condition of the ground; the wetter the ground, the less weight needed for penetration.



Morning meetings at Aldarra GC are held with staff practicing "social distancing," with the exception if two workers live together.

Superintendents have devised different ways to make the greens "hands free."

Continued from page 15

two employees who live together. In morning meetings, employees stay 6 feet apart.

Reehoorn says social distancing is going to make him a better manager of his crew, noting, "I'm going to be more hands off." He says he has to trust his employees will do the job they're asked to do, instead of him "standing right next to them saying, 'This is exactly how you need to do this.'"

He's encouraging his team to practice both gratitude and appreciation, as he says this "gives us an opportunity to be present in our lives."

"We've spent our whole career putting the golf course first," he says. "We encourage the staff to try to focus on their family; that's far more important than being here."

COREY BARNES

Superintendent, Chambersburg (Penn.) CC

With two new employees this year, Corey Barnes, superintendent at Chambersburg CC, had to get creative on how to manage his crew. He split his crew up, so each team had experienced equipment operators.

"I had to take my best guys and split them up, so we have operators on both crews," he says. "If somebody got sick, at least I'd have enough staff to maintain the golf course to a reasonable standard."

With employees working six-hour days, Monday through Friday, every other week, the club has encouraged the maintenance staff to apply for unemployment due to reduction of hours. Barnes says he and his crew are going to do the best they can to keep the course in a playable shape.

"We can't get it all done with a half-crew. But we're going to maintain it to a reasonable standard," he says.

BOB FARREN

Director of Golf Course Maintenance, Pinehurst (N.C.) Resort

Bob Farren, Pinehurst Resort's director of golf course maintenance, likens the situation surrounding the outbreak to Sept. 11.

"You're concerned, and you want to know what's going on, but no one knows," Farren says. "We're doing what we can to maintain as much normalcy as we can."

The club has also developed a task force comprised of a small group of division heads to share information and stay on top of the situation, which Farren says is "changing and fluid from one hour to the next."

Looking ahead, Farren believes that Pinehurst will emerge from the outbreak without taking a major hit.

"I don't see us recovering back to the levels that we anticipated for this year, but I think at the end of the year, providing things settle out in the next eight or 10 weeks, we'll be fine," he says. "It's going to be a study in humanity ... to see what people did and why they did things."

RHETT EVANS

CEO, GCSAA, Lawrence, Kan.

When *Golfdom* caught up with GCSAA CEO Rhett Evans, the topic, naturally, was how the GCSAA and the industry moves forward during the constantly changing COVID-19 pandemic.

"We're working to get language out there that will allow us to keep maintenance facilities up and running despite the state mandates," Evans says. "Golf maintenance is a very unique industry. It's a specialty crop. You have to water it, you have to take care of it. We're not asking that golf courses stay open for play."

Evans says he believes golf is unique in that it is safe to play during the pandemic.

"You can play golf in a safe way. You can be separated over 150 acres," he says. "But every time I turn around, something changes. What's coming from Washington is being written at a lightning-fast pace, and we're going through it trying to make sure golf is not left out," Evans says. "We're being vigilant about that. The health of people, the supplies we need, that's obviously first. We're further down the line. But we want to make sure golf is treated fairly."

PHOTOS BY: SEAN REEHOORN; *GOLFDOM* STAFF

RESISTANCE: FUTILE OR NOT?

BY LANE TREDWAY

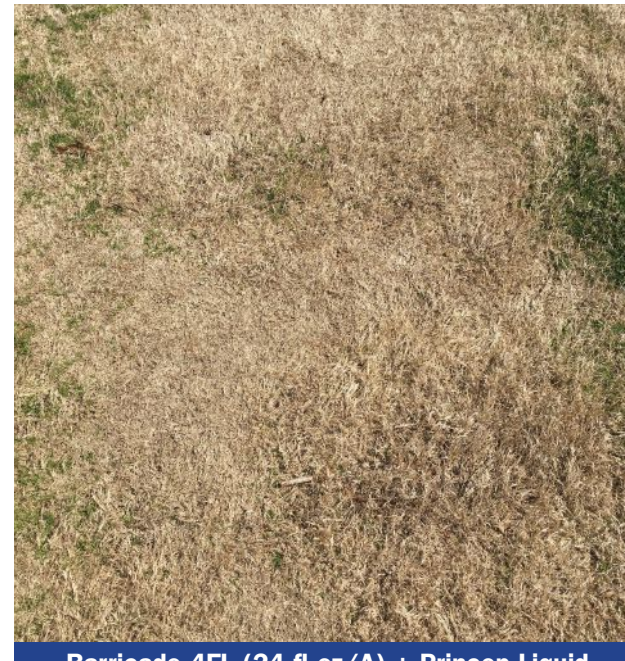
The concept of resistance is not new to the turf industry. Fungicide resistance was first documented in the 1960s and continues to be a major issue in dollar spot and anthracnose populations. Herbicide and insecticide resistance were first reported in the 1970s and now pose a serious threat to our ability to manage certain weeds and insects, such as annual bluegrass (*Poa annua*), annual bluegrass weevil (ABW) and chinch bugs. In some cases, turf managers are running out of options to control these pests.

Modes of action (MOAs) — how a product works on a molecular level — are prominently displayed on fungicide, herbicide and insecticide labels. Unique MOAs are crucial in the battle against resistance. However, we shouldn't assume the discovery of new MOAs will outpace the development of resistance. In the last 20 years, only two new fungicide MOAs (QiIs and UOPs), one new insecticide MOA (diamides) and one new herbicide MOA (HPPDs) have entered the turfgrass market. Only one of these, the UOP fungicide fluazinam, has a low risk for resistance. Most discovery

FIGURE 1

A three-way mixture of Barricade 4FL, Princep Liquid and Monument 75WG herbicides applied as an early postemergent application provides excellent control of annual bluegrass and resistance management. Treatments were applied to Tifway bermudagrass Oct. 21, 2015. Photos taken March 9, 2016. Research by Jim Brosnan, Ph.D., University of Tennessee in Knoxville, Tenn.

Untreated



Barricade 4FL (24 fl oz/A) + Princep Liquid (1 qt./A) + Monument 75WG (0.53 oz./A)

PHOTOS BY: LANE TREDWAY

"THE BEST WAY TO MANAGE RESISTANCE HAS LONG BEEN DEBATED. SHOULD WE TANK MIX, ROTATE OR KEEP USING THE SAME MOA UNTIL IT STOPS WORKING? THE REALITY IS THERE IS NO ONE-SIZE-FITS-ALL STRATEGY WHEN IT COMES TO RESISTANCE MANAGEMENT."

work in recent years has focused around succinate dehydrogenase inhibitor (SDHI) and demethylation inhibitor (DMI) fungicides, ALS inhibitor herbicides and diamide insecticides, all of which carry a medium-to-high risk for resistance.

Resistance management is an investment. It often requires more product or more applications than desired to simply attain acceptable control. For pests with a high resistance risk, this investment can pay off in helping preserve the already-limited chemistries we have at our disposal.

What is resistance risk?

Each product is assigned a code associated with its MOA. The resistance risk for the MOAs are determined by the Fungicide Resistance Action Committee, Insecticide Resistance Action Committee and Herbicide Resistance Action Committee. Single-site MOAs — chemistries that prevent a single process or chemical reaction in the pest or pathogen — carry the highest risk for resistance. Each time a single-site chemistry is applied by itself, the

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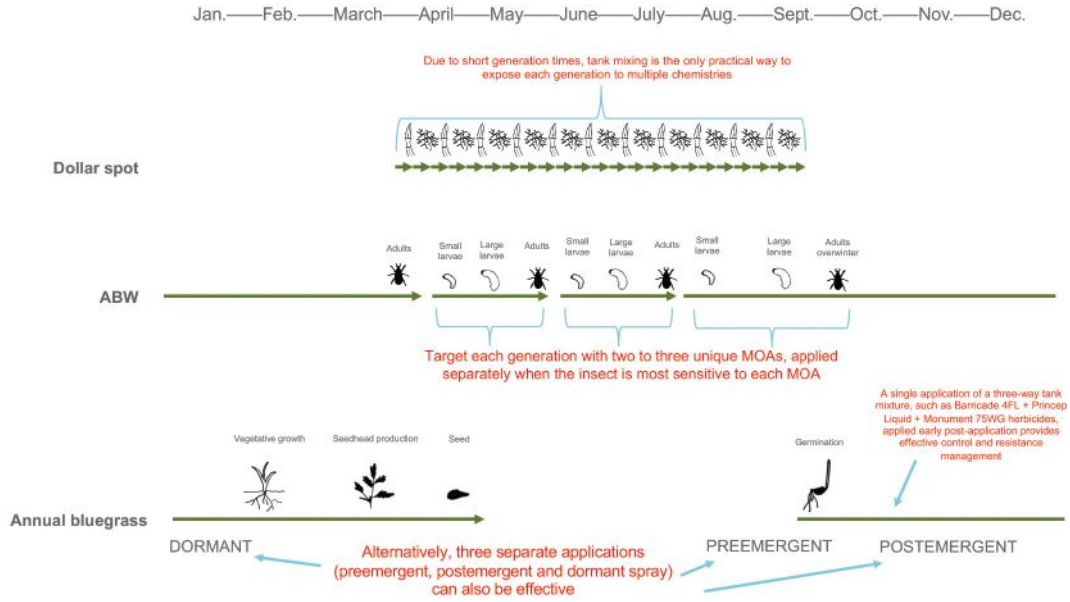
FIGURE 2

Tank mixtures or rotations can be effective resistance-management strategies, depending on generation time of the target pest. For high-risk pests, each generation of the pest should be exposed to at least two unique MOAs to prevent resistant individuals from increasing in the population. Each arrow indicates a complete generation of the pest.



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population shifts further toward resistance and eventual control failure. In most cases, this process is irreversible. Once a resistant strain becomes dominant in the population, the use of that MOA is lost for the foreseeable future.

Multisite MOAs, which work at more than one site, are valuable tools for resistance management because they carry a low risk for resistance. Tank mixtures of multisite fungicides are particularly useful in helping to prevent or delay resistance. Unfortunately, there are few herbicides or insecticides that classify as multisite.

Pests also vary in their ability to develop resistance. Several high-risk pests mentioned above include anthracnose, dollar spot, *Poa annua,* ABW and chinch bugs. Determining the resistance risk are factors like how prolifically the pest reproduces, how many generations it completes per year and the amount of genetic variation in its populations. Annual weeds that are prolific seed producers, like *Poa annua,* carry a much higher resistance risk compared to perennial weeds that spread vegetatively, like dallisgrass. Insects that complete three or more generations per year, like ABW or chinch bugs, are much more likely to develop resistance than Japanese beetles, which only have one generation per year.

What's the best strategy?

The best way to manage resistance has long been debated. Should we tank mix, rotate or keep using the same MOA until it stops working? The reality is there is no one-size-fits-all strategy when it comes to resistance management. Tank mixing can be an effective strategy. Rotation also can be effective. It depends on the resistance risks (both product and pest) and how quickly the pest completes a generation.

Let's focus on high-risk pests, where the need for effective resistance management is most pressing. For these high-risk pests, we need to treat each generation with at least two unique MOAs, with at least one of the MOAs having a low-to-medium resistance risk. If only high-risk products are available to control a particular pest, we recommend three unique MOAs if possible. Whether or not these MOAs are best deployed in a tank mix or rotation depends mainly on how quickly the pest completes a generation (Figure 2).

Generational approaches to resistance management

The dollar spot pathogen can complete a generation in a matter of hours, so tank mixing is the only practical way to expose each generation to multiple MOAs. Tank mixtures of a medium- or high-risk fungicide with low-risk chemistry, like chlorothalonil or fluazinam, are widely accepted as the most effective way to prevent fungicide resistance. Furthermore, we shouldn't apply high-risk fungicides like SDHIs back to back, even when tank

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mixed. We can apply medium-risk products like DMIs twice in succession before rotating to an alternative chemistry. Mixtures of a DMI (medium risk) and SDHI (high risk) are only effective where DMI resistance has not yet developed; otherwise the selection of strains with resistance to both chemistries can occur relatively quickly.

ABW completes a generation in four to eight weeks, depending on ambient temperatures. It's most sensitive to different MOAs at different points in its life cycle, so rotating chemistries targeted to when the insect is most sensitive is a solid resistance management strategy. For example, one could apply a pyrethroid insecticide to control adults, a diamide insecticide to control small larvae inside of the plant and an oxadiazine insecticide to control large larvae outside of the plant. The WeevilTrak blog is found at **WeevilTrak.com** and includes ABW updates from researchers and features nearly 50 different discussions about resistance.

Poa annua completes only one generation per year in the Transition Zone and South, where it's a major weed in warm-season grasses. It behaves as a true winter annual in these areas, germinating in the late summer/fall and producing seed in the spring before succumbing to heat stress in the late spring/summer.

Just like ABW, different MOAs are most effective against *Poa annua* at specific points in its life cycle. So, a rotational program can be an effective resistance management strategy. For example, a superintendent may apply preemergent herbicide in August or September, followed by a postemergent herbicide in October or November, and a nonselective herbicide such as glyphosate or diquat in January or February. Another successful strategy is to apply a mixture of three unique MOAs, such as a DNA, PSII inhibitor and ALS inhibitor (Figure 1), as an early postemergent application in October or November.

Pests adapt, and so should we

The high-risk pests discussed earlier are some of the most widespread and economically damaging in the turf industry. Effective resistance management is a worthy investment in ensuring our ability to deliver high-quality turf long into the future. For more information or to download free agronomic programs for your area that can help prevent resistance, manage yearly limits and deliver results, visit **GreenCastOnline.com/Programs**. The next generation of golf course superintendents will thank you.

Lane Tredway is technical services manager for Syngenta.

Hosted by Mike Kenna, Ph.D. | *mpkenna@gmail.com*

Super Science

// **CUTTING DOWN ON ABW**

IMPACT OF GREEN CUTTING HEIGHTS ON ANNUAL BLUEGRASS WEEVIL

By Benjamin A. McGraw, Ph.D.

The annual bluegrass weevil (*Listronotus maculicollis*) is the most destructive insect pest of golf course turf in eastern North America. At Penn State University, we observed putting greens are rarely damaged, yet collars adjacent to the same putting greens are damaged. We investigated the effect of cutting height on the establishment of annual bluegrass weevil populations on putting greens.

Initial greenhouse studies demonstrated that between 26 percent and 38 percent of adults were removed when the turfgrass was mowed at 0.1 inch, but the effect diminished with increasing mowing heights. Most adults survived mowing, indicating a potential for adults to reinvade turf stands adjacent to areas where grass clippings are discarded.

Females laid eggs in all of the mowing-height treatments in laboratory and field experiments. However, behavior was influenced by plant height, as significantly fewer eggs were placed inside of the turfgrass stem at the lowest mowing height. Larval development was not affected by egg placement or turfgrass height. Significant numbers of larvae were capable of damaging turfgrass at all cutting height treatments.

L: Eggs inside stem of plant at fairway height (0.5 in.). **R:** Eggs deposited in putting green height (0.125 in.) were loose or outside plant.

Field studies compared the effect of double-cutting versus the effect of a single mowing. Height of cut — but not frequency — had a significant effect on the number of adults removed. The 0.1-inch cutting height removed 50 percent of the adults. Both mowing frequency treatments had minimal impact on adult mortality, though significantly more adults were killed in double-cutting treatments at lower mowing heights. Laboratory studies using time-lapse photography revealed that temperature has a significant effect on adult activity on top of the grass canopy. The activity was greatest between 60 degrees F and 68 degrees F, and they observed only low percentages on top of the canopy when temperatures were 50 degrees F or less. Adult activity on top of the turfgrass canopy was greatest during the day and strongly correlated with temperature early in the season (April and May). Adult activity in June was highest briefly after sunrise, then declined once temperatures exceeded 68 degrees F. These results predict adults are most active on the surface between 57 degrees F and 63 degrees F. Timing mowing events around these conditions in spring may lead to improved annual bluegrass weevil removal.

Benjamin A. McGraw, Ph.D., is an associate professor in plant science at Penn State University. You may reach McGraw at bam53@psu.edu.

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

PHOTO BY: MIKE KENNA

NEWS UPDATES

LESCO INTROS NEW BENTGRASS CULTIVAR

LESCO has released a new creeping bentgrass cultivar.

Exclusively available at SiteOne Landscape Supply, the new LESCO S1 Creeping Bentgrass is an improved creeping grass cultivar that is proven to suppress *Poa annua*, according to the company.

Rigorously tested under the experimental designation of DLFPS-AP/3058 and AP23 at Iowa State Univeristy, Rutgers University and the National Turfgrass Evaluation Program (NTEP), S1 is No. 1 in the 2014 NTEP for bentgrass cultivars grown on a green under drought stress.

It is disease resistant against dollar spot (No. 1 NTEP 2017), brown patch (top tier NTEP 2017/2018) and anthracnose (top tier NTEP 2017).

S1 is aggressive, tough and advanced, making it an option for greens, tees and fairways, said the company.

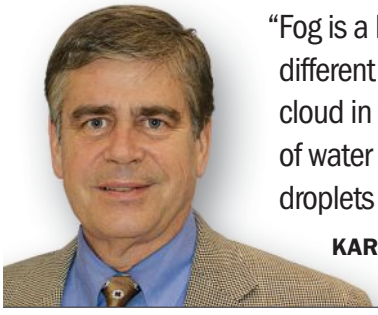
LESCO S1 has a high germination rate and maintains density during spring and summer with a very fine leaf texture.

S1 performs best in cool/humid and cool/arid regions and areas where the climate is warm/humid and subtropical.

"DEFICIT IRRIGATION IS ESSENTIAL IN AREAS WHERE THE COST OF WATER IS HIGH ... BUT, DEFICIT IRRIGATION ON FAIRWAYS CAN BE DETRIMENTAL TO TURFGRASS ..."

Marco Schiavon, Ph.D.

(see story on page 31)



"Fog is a low-lying cloud. However, fog is different from the general description of a cloud in that it forms from a nearby body of water or moist ground. Small water droplets or ice crystals characterize fog."

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

Beware of the fog

While reading or watching a video, words like dazed, hazed, confused, perplexed, trance or stupor occasionally describe someone or a situation. These descriptive words are synonyms of being "in a fog."

In literature, fog represents approaching gloom, death or isolation. It is the gray or blurred zone between reality and unreality in novels like *Sherlock Holmes and the Deathly Fog* and movies like John Carpenter's *The Fog.* Even a comic scene in the movie *Revenge of the Pink Panther* uses fog to set the stage of foreboding with the preface, "It's only an old salty Swedish sea dog."

In the Bible, fog and mist are images preceding great revelations.

1 Corinthians 13:12 "We don't yet see things clearly. We're squinting in a fog, peering through a mist. But it won't be long before the weather clears, and the sun shines bright!"

If you've ever played golf in fog, it's an entirely different experience. A positive, however, is that you can hear much better in fog. Sound travels faster and farther through liquid than it does in gases like the atmosphere. Fog's small water droplets spaced close together enhance sound, especially low-pitched tones (the reason foghorns have a low-pitched tone). If you've ever walked down one side of a fairway while your playing partners walk down the other, the sensation of hearing them speak of what they had for breakfast or what club they'll hit is an experience not found on a clear day.

A dangerous aspect of playing golf in the fog is the inability to see a golf ball once it is hit, then trying to find that ball. Similar to driving in fog, you're blind to what is in front or back of you. Because of potential bodily injury, golf rounds are suspended during fog.

Fog is a low-lying cloud. However, fog is different from the general description of a cloud in that it forms from a nearby body of water or moist ground. Small water droplets or ice crystals characterize fog. Fog forms by different means, depending on the condensation method. Examples include ground fog, radiation fog and hail fog.

Agronomically, turfgrass disease symptoms are enhanced in the presence of fog. Fog has its greatest impact on the early-to-late spring diseases.

Microdochium patch symptoms in early spring through late spring can change because of fog and increased moisture on the turf. Classical *Microdochium* patches appearing in late winter and early spring are reddish-to-tan circular spots. The outer edges of the 6-inch to 2-foot diameter patches may have a pinkish color.

Under conditions of high moisture, symptoms may appear in a more streaking pattern. Streaking is due to *Microdochium nivale* spores moving along with the drainage or flow of moisture infecting turfgrass plants along the way. *Microdochium nivale* has the potential to produce profuse numbers of infecting spores. The streaking symptoms appear similar to what *Pythium* blight looks like. This streaking pattern often has led to a misdiagnosis, something along the lines of "cool-temperature *Pythium*."

Extended periods of fog can lead to an explosion of red thread symptoms, especially on perennial ryegrass. The increased moisture around the plant in the form of fog greatly influences the severity of the disease. I am not sure why, but were I to associate one disease with fog, it would be red thread.

With the warmer winter for much of the United States, I suspect we might see diseases like anthracnose and dollar spot occurring earlier this year. Fog will enhance the symptom occurrence — especially with dollar spot — earlier in the spring.

If fog becomes an issue, do not blindly walk into it. Be aware of the gloom and doom it can cause by enhancing turfgrass diseases.

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

//ET PHONE BERMUDAGRASS

Product combos improve irrigation efficiency

Plant growth regulators, soil surfactants and nitrogen fertilizers can save water on bermudagrass fairways

By Marco Schiavon, Ph.D.

In California and in much of the Southwestern United States, golf courses irrigate to supplement annual precipitation for turfgrass growth. However, because of diminishing water resources and rising costs, sufficient evapotranspiration (ET) replacement may not be available during the summer months. Replacement of some but not all ET requirements is considered deficit irrigation and is a viable water conservation strategy, especially in arid and semiarid regions.

Deficit irrigation is essential in areas where the cost of water is too high to provide daily irrigation or where municipalities enforce water restrictions. But, deficit irrigation on fairways can be detrimental to turfgrass quality and playability, especially when allocated irrigation water isn't enough to sustain turfgrass growth. So, in addition to deficit irrigation, several management practices can make turfgrass irrigation more efficient.

Efficient practices include (but aren't limited to) the selection of drought-resistant, warm-season turfgrass cultivars adapted to the growing environment, increasing irrigation system efficiency and uniformity and using plant growth regulators (PGRs), soil surfactants and sufficient nitrogen fertilization. Best management practices for fairway water conservation should include several of these strategies, but researchers usually evaluate only one water conservation method at a time.

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PHOTO BY: MIKE KENNA

PHOTO 1

Marco Schiavon, Ph.D., University of California-Riverside, discusses the effectiveness of plant growth regulators, soil surfactants and fertilizer treatment combinations to conserve water on golf course fairways.

TABLE 1

Plant growth regulator (PGR), soil surfactant and fertilizer treatment list

Treatment	Company	Rate	Frequency (weeks)
ET_{os} replacement	—	40% or 70%	M-W-F
Primo Maxx	Syngenta	0.25 oz./1000 sq. ft.	2
Revolution	Aquatrols	6 oz./1000 sq. ft.	4
Gro-Power (5-3-1)	Gro-Power	1 lb./1000 sq. ft.	4
SeaBlend (12-4-5) + Stress RX + XP Micro	Ocean Organics	1 lb. N /1000 sq. ft. + 6 oz./1000 sq. ft. + 6 oz./1000 sq. ft.	4 2 2
YaraMila Turf Royale (21-7-14)	Yara	1 lb. N/1000 sq. ft.	4
YaraLiva CALCINT (15.5-0-0)	Yara	1 lb. N/1000 sq. ft.	4

Continued from page 31

Our experiment evaluates a combination of products applied to bermudagrass fairways that could improve turfgrass quality under deficit irrigation.

THE SETUP

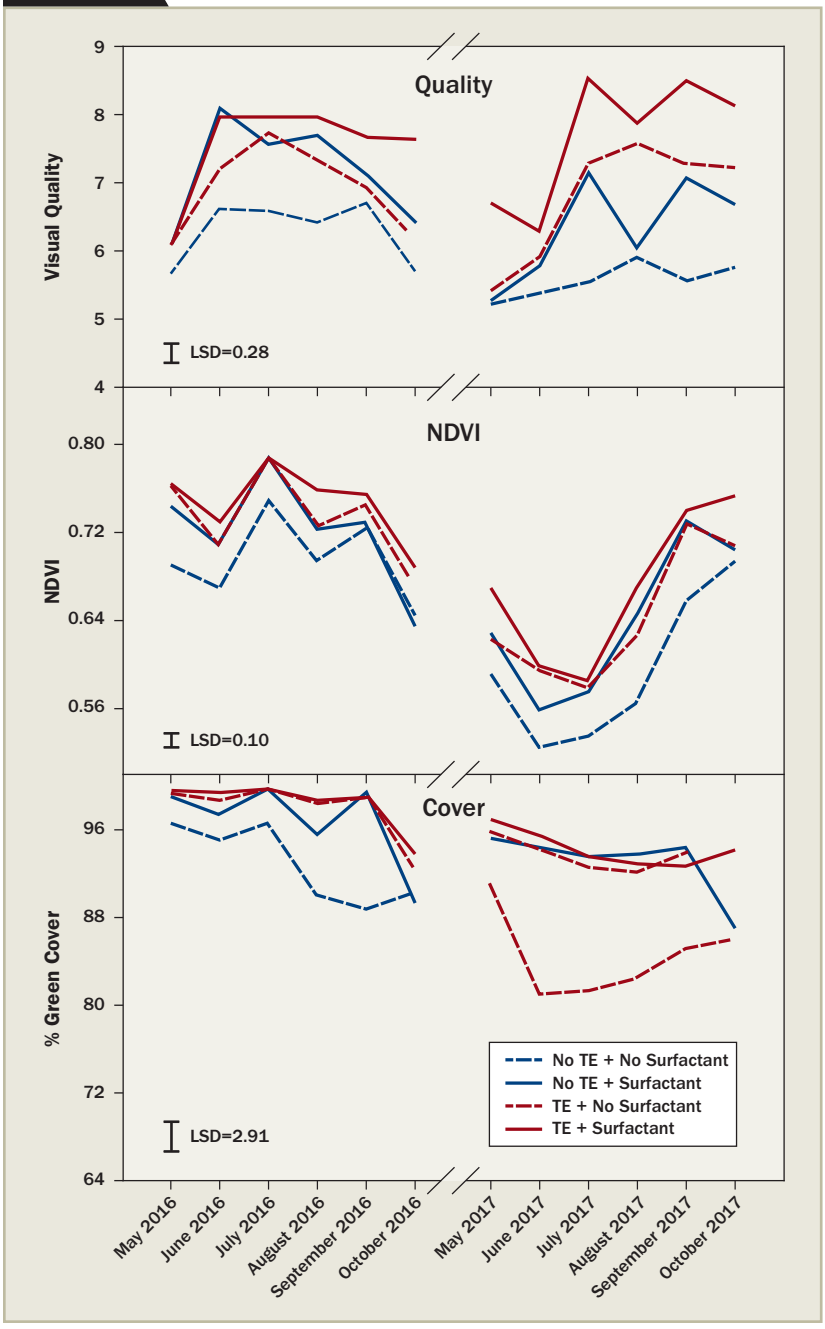
The experiment in 2016 and 2017 was on mature Princess 77 bermudagrass [*Cynodon dactylon* (L.) Pers.] at the University of California-Riverside Turfgrass Research Facility. The soil was a Hanford fine sandy loam (70.4 percent sand/19.8 percent silt/9.8 percent clay). Initial fertility status based on soil testing was 4 parts per million (ppm) nitrogen (N), 14 ppm Olsen phosphorus (P), 163 ppm potassium (K). We verticut the turf each year in April before treatment applications and mowed three times a week during the growing season at 0.5 inch with a reel mower, with clippings returned.

From May 19 to Oct. 31 of both years, we hand watered the plots three times a week to replace either 40 percent or 70 percent of the previous week's short-crop reference evapotranspiration (ET_{os}) as determined by an on-site California Irrigation Management Information System (CIMIS) weather station. We restored full ET_o replacement in November when ET_{os} rates were decreasing and differences in watering times were negligible.

Under both ET_{os} replacements, each plot received either: (1) fertilization only; (2) a combination of fertilizer and soil surfactant; (3) a combination of fertilizer and PGR; or (4) a combination of all three. Each plot received an equivalent of 1 pound N per 1,000 square feet per month, for an annual total of 5 pounds N per 1,000 square feet. The fertilizer products included Gro-Power (5-3-1), SeaBlend (12-4-5) plus Stress RX plus XP Micro, YaraMila Turf Royale (21-7-14) and YaraLiva CALCINT (15.5-0-0) (Table 1). We applied the PGR, Primo Maxx (trinexapac-ethyl or TE) and soil surfactant Revolution at label rates (Table 1). The first application of Primo Maxx, Revolution and fertilizer products occurred May 19, 2016. Following the application of Revolution and granular fertilizers, we irrigated the plots with approximately 0.25 inch of water.

Every two weeks, we evaluated plots for turf quality on a scale from 1 (worst) to 9 (best), naturalized difference

FIGURE 1



Turf visual quality, normalized difference vegetation indices (NDVIs) and percent green cover from May to October in 2016 and 2017 for Princess 77 bermudagrass [*Cynodon dactylon* (L.) Pers.] subjected to four treatment combinations of trinexapac-ethyl and Revolution under the 70-percent short-crop evapotranspiration (ET_{os}) irrigation regime.

vegetation index (NDVI), volumetric soil water content (VWC) using time domain reflectometry (TDR) and dark green color index (DGCI), as well as percent green cover using digital image analysis (DIA). We made visual turf quality ratings in late November and early December to measure the effect of fertilizer and chemical treatments on bermudagrass winter color retention. In March 2017 and 2018, we evaluated plots for NDVI and DIA to assess spring green-up.

EVAPORATION REPLACEMENT IMPACT

Evaporation replacement treatments had a huge impact on bermudagrass performance. Although a few treatments had some positive effect on severely drought-stressed turf plots, none of the plots irrigated at 40 percent ET_{os} had acceptable turfgrass quality, NDVI or percent green cover compared with those irrigated at 70 percent ET_{os} (Figures 1 and 2).

At 70 percent ET_{os}, Primo Maxx, combined with Revolution, had the most positive effect on turfgrass quality (Figure 1). NDVI and percent green cover confirmed these findings, especially during the summer of 2017, when the combination of the PGR and the soil surfactant was better than any other treatment for each measured parameter. Except for May 2016 and 2017, bermudagrass irrigated at 70 percent ET_{os} always provided acceptable quality (Figure 1). Also, there were no differences in fertilizer treatments at 70 percent ET_{os}. Our results suggest that, under this level of irrigation replacement, the choice of N source does not affect bermudagrass performance. However, the surrounding turfgrass that did not receive N showed drastically lower turf quality than plots with N fertilization, stressing the importance of sufficient N fertilization for overall turf health.

At 40 percent ET_{os}, Revolution had the greatest impact on bermudagrass performance. Turfgrass quality, NDVI and percent green cover improved in plots that received Revolution (Figure 2). Revolution provided the most help in alleviating symptoms of drought, and we recommend its use before and during drought or water-use restrictions. At 40 percent ET_{os} on plots that did not receive Revolution, SeaBlend plus Stress Rx plus XP Micro and Gro-Power showed improved quality and cover (Figure 3). Conversely, YaraLiva had the lowest turf quality. The lower performance of YaraLiva may be due to the high burn potential of calcium nitrate coupled with high temperatures during application. Also, the fertilizer may not dissolve with insufficient water at 40 percent ET_{os}

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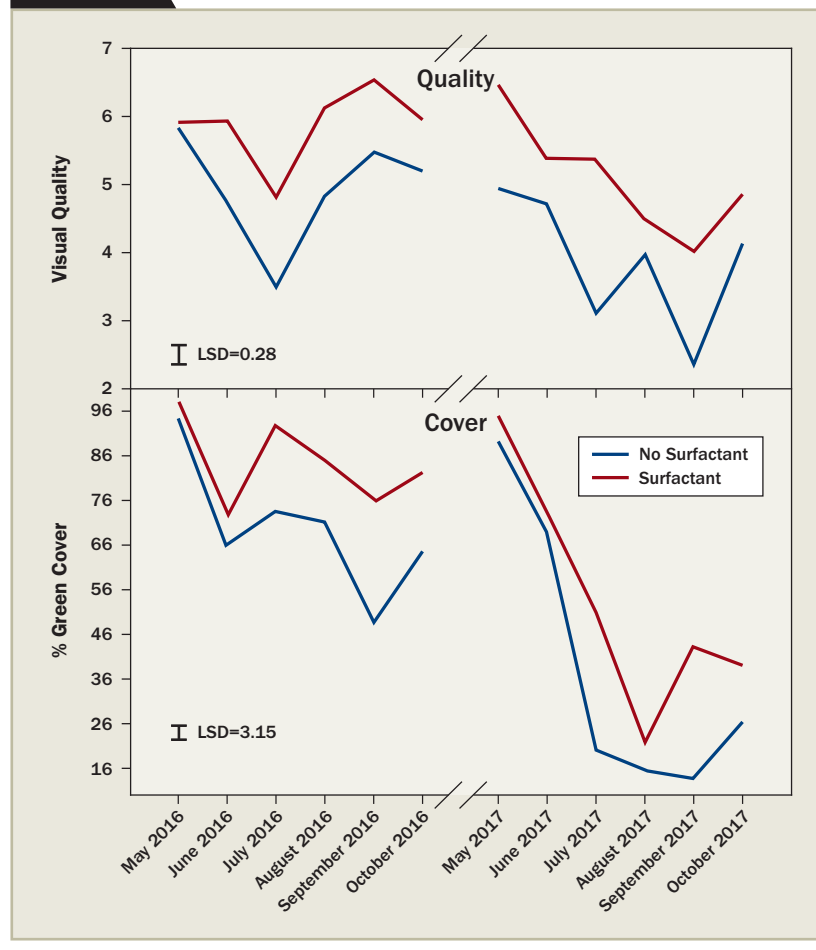
FIGURE 2



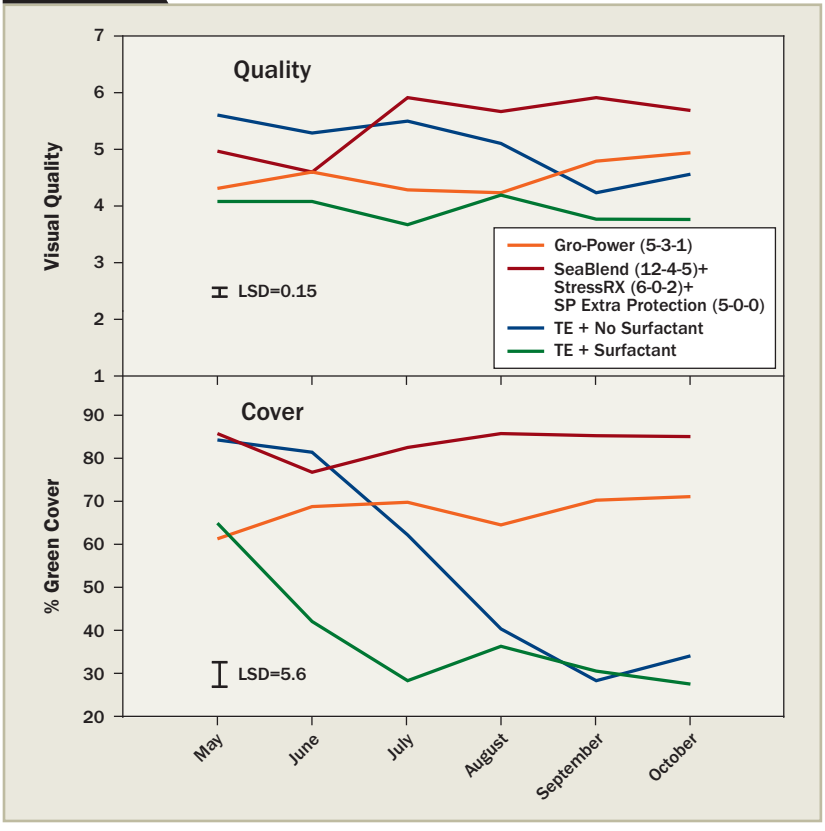
Turf visual quality and percent green cover from May to October in 2016 and 2017 for Princess 77 bermudagrass [*Cynodon dactylon* (L.) Pers.] untreated or treated with Revolution and irrigated at 40-percent short-crop evapotranspiration ET_{os}.

Research Takeaways

Researchers tested a combination of plant growth regulators (PGRs), soil surfactants and sufficient nitrogen fertilization for water conservation on golf course fairways.

- None of the plots irrigated at 40 percent ET_{os} had acceptable turfgrass quality, normalized difference vegetation index (NDVI) or percent green cover comparable to those irrigated at 70 percent ET_{os}.
- At 70 percent ET_{os}, Primo Maxx combined with Revolution had the most positive effect on turfgrass quality, NDVI and percent green cover.
- Except for May 2016 and 2017, bermudagrass irrigated at 70 percent ET_{os} always provided acceptable quality.

FIGURE 3



Turf visual quality and percent green cover from May to October in 2016 and 2017 for Princess 77 bermudagrass [*Cynodon dactylon* (L.) Pers.] that did not receive Revolution and were fertilized with either Gro-Power (5-3-1); SeaBlend (12-4-5) + Stress RX + XP Micro; YaraMila Turf Royale (21-7-14); YaraLiva CALCINT (15.5-0-0).

Continued from page 33

irrigation treatment.

The restoration of full ET_o replacements in November resulted in tissue restoration of severely drought-stressed bermudagrass. Plots fertilized with SeaBlend plus Stress Rx plus XP Extra Protection and Gro-Power had the highest percent green cover in December (95 percent and 9 percent, respectively). Plots receiving 40 percent ET_{os} greened up more quickly than those receiving 70 percent ET_{os}. The highest percent green cover in the spring was on plots receiving only Revolution and no Primo Maxx. The results indicate that the use of an appropriate combination of products such as soil surfactants, sufficient N fertilization and biostimulants can help sustain turf quality with less water.

It's important to note that we hand watered plots in this experiment to ensure irrigation uniformity was near 100 percent. Your irrigation system needs to maximize uniformity and reliability. Without an efficient irrigation system and uniform distribution of water, you will not fully achieve the positive effects of cultural practices on turf quality while conserving water.

Marco Schiavon, Ph.D., conducted this research as an assistant researcher at the University of California-Riverside. He is now an assistant professor at the University of Florida Fort Lauderdale Research and Education Center. You may reach Schiavon at marcoschiavon@ufl.edu for more information.

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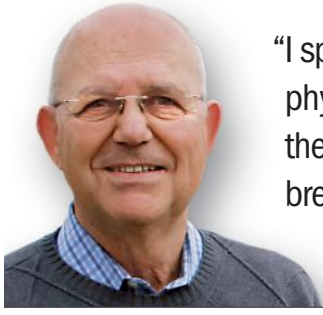


"I specialized in plant breeding, physiology and statistics. Unfortunately, there were no warm-season turfgrass breeding jobs in the spring of 1984."

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

A new chapter

First of all, I'm excited to have a *Golfdom* column. I thought an introduction about how I arrived at this point in my career would be a good start.

I grew up in El Cajon, Calif., and at the age of 15 worked at Singing Hills Country Club. Dave Fleming was the superintendent, and he had a significant influence on my career.

In 1974, after high school, I attended the University of California-San Diego, majoring in biology. I planned to go to medical school after completing my B.S. degree. With a 3.2 GPA, it didn't look promising to get into medical school. Dave Fleming suggested I attend Cal Poly-Pomona to become a golf course superintendent.

Kent Kurtz, Ph.D., was my adviser at Cal Poly, and he asked me to be a student assistant, setting up turfgrass labs and working at the turfgrass research plots. This part-time job was the beginning of my interest in research.

My senior project was on zoysiagrass iron chlorosis. I worked with experimental lines from Vic Younger, Ph.D., at the University of California, Riverside (UCR). Seeing differences among the lines at different soil pH sparked my interest in plant breeding.

I loved to conduct research, and Kent arranged graduate school at Oklahoma State University. Wayne Huffine, Ph.D., advised me on my master's degree, but I spent hours visiting with Charles Taliaferro, Ph.D. My dream was to develop better warm-season grasses for golf.

Five years of study at OK State resulted in an M.S. degree in agronomy and a Ph.D. in crop science. I specialized in plant breeding, physiology and statistics. Unfortunately, there were no warm-season turfgrass breeding jobs in the spring of 1984.

It was around then that USGA started the Green Section's Turfgrass Research Program. Professor Younger at UCR received a zoysiagrass breeding grant from USGA. It would be great to get back to California and work for him as a postdoc. It was not to be. Professor Younger suffered a major heart attack, and we lost a brilliant turfgrass scientist.

I still went to UCR in the summer of 1984 to visit with Vic Gibeault, Ph.D., about a possible turfgrass job. He told me the USGA moved the project to the Texas A&M University research station in Dallas. He gave me the phone number of Milt Engelke, Ph.D., and after a short phone call, I was driving to Dallas to meet him.

Professor Engelke and Jack Murry, U.S. Department of Agriculture, had collected more than 800 zoysiagrasses from throughout Asia. The USGA grant was for $20,000 per year. So, my first job after graduate school was a postdoc position with a salary less than the grant amount. Yet, what an opportunity to get more turfgrass breeding experience.

Eighteen months later, the turfgrass Extension job opened at OK State. In November 1985, I was on my way to OK State with a university position. Even better, in 1986, professor Taliaferro received a USGA grant to develop cold-tolerant bermudagrasses.

The time with Engelke and Taliaferro helped me meet the USGA Green Section's national director, Bill Bengeyfield. I served as a volunteer on the research committee from fall 1987 to December 1989.

In January 1990, I applied for a USGA Green Section position in Florida with John Foy. A few weeks after hiring me for the job, Bill Bengeyfield retired. Shortly afterward, Jim Snow, the new national director, asked me to be the director of research for the Green Section.

From the day Jim called me, my 30 years with USGA were terrific. In future columns, I will share with you some great stories about the scientists who have crossed my path. More important, I'll tell how these dedicated turfgrass scientists have changed golf forever.

Seth Jones and *Golfdom,* thank you for the opportunity. Stay tuned; I have stories to tell.

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

A symptom of anthracnose includes basal rot where crowns are necrotic and dark infection mats are visible on lower leaf sheaths.

Dispelling the myths of anthracnose

Anthracnose is not a new problem on golf courses. In fact, a team of researchers from around the country and Canada have worked for more than 20 years to dispel anthracnose myths and promote best management practices. This research team includes experts from Rutgers University, including Bruce Clarke, Ph.D., an Extension specialist in turfgrass pathology, and James Murphy, Ph.D., an Extension specialist in turf management, as well as graduate students.

While it's readily known that anthracnose strikes annual bluegrass and bentgrass, the research team set out to discover how management practices could influence the severity of this disease. One myth to dispel concerned the role that topdressing has on the disease, which was believed to be wound induced. Because sand topdressing is abrasive, it was thought to be a practice best avoided. The data show the contrary — topdressing creates a firm surface that can effectively allow raising the height of cut.

"Sand topdressing is a very good agronomic practice. Because the plants stand up straight when they're supported by sand, they're more photosynthetically active, they're harvesting the sunlight more effectively and the crowns are protected from heat," Clarke says. "Everybody knew it was a good agronomic practice, but they were afraid of wounding turf."

However, stress is a major cause of anthracnose. One best management practice the research team identified — which you can find at **Turf.Rutgers.edu/research** under the "Research Updates" header — encourages superintendents to raise mowing heights to reduce the amount of stress (heat stress, drought stress, you name it) to which the turf is exposed.

"The reason superintendents lower mowing height is to maintain turf quality and performance, and performance on golf courses is essentially green speed," Clarke says. "Anthracnose is a poster child for how good agronomic practices can reduce disease. If you maintain the turf well and it's healthy and it's happy, it's less susceptible to anthracnose. If you weaken it by lowering mowing height, nitrogen fertility and soil moisture — trying to increase green speed at the sake of turf health — then you're going to enhance the potential for this disease."

Experts suggest double cutting and rolling greens to help maintain acceptable turf quality expected by golfers while reducing disease and thus the chemicals needed to treat it.

"We've come up with a set of best management practices that have really helped people understand the disease and reduce its severity while actually reducing the fungicide usage," Clarke says.

PHOTO BY: JOHN KAMINSKI

Quali-Pro

IAN RODRIGUEZ
Technical services manager,
Control Solutions Inc.

Anthracnose is most problematic on closely mown annual bluegrass and creeping bentgrass turf during summer months when it's hot and humid. Symptoms include yellowing leaves with small, black fruiting structures. It's also commonly associated with poor nitrogen fertility. A good preventive fertility approach is to spoon-feed soluble N and maintain good potassium levels. Begin preventive fungicide programs several weeks before favorable conditions are expected. Combining multiple modes of action has shown to be more effective than single fungicides, and rotation is key in an extended control program.

Syngenta

MIKE AGNEW
Technical services manager

There is a direct relationship between heat, drought stress and anthracnose. It's recommended to avoid drought stress and syringe and/or hand water on an as-needed basis. Cultural practices also help prevent the disease. Increase mowing height slightly and use solid rollers in the summer. Light, frequent sand topdressing can cushion the stem base. You also can apply small amounts of nitrogen (0.1 lb. to 0.15 lb./1,000 sq. ft.) every 14 days. Using a plant growth regulator helps reduce disease activity by improving plant growth. Increasing mowing height and adding nitrogen also can help encourage plant recovery if anthracnose already is present. Preventive applications of appropriate systemic fungicides can be highly effective for preventing anthracnose.

Nufarm

RICK FLETCHER
Technical services manager,
turf and ornamentals

There are two types of anthracnose symptoms, basal rot and foliar blight, that occur from May to September in most cool-season turf. With foliar blight, older leaves are attacked first, with reddish-brown to brown lesions that turn pale tan. For basal rot, dark infection mats are visible on lower leaf sheaths, and diseased crowns are necrotic. Leaves are yellow-orange. In both cases, the fungus can produce fruiting structures that have fine, black, hairlike projections and that are filled with small, crescent-shaped spores. Review current agronomic practices and modify N levels and other nutritional supplements (like kelp extracts), height of cut, watering and plant growth regulator use to reduce stress. Fungicides — in addition to improved agronomics — provide the best path for prevention, management and recovery.

PBI-Gordon Corp.

BRIAN AYNARDI, PH.D.
Northeast research scientist

Anthracnose is a common disease of annual bluegrass and creeping bentgrass maintained at low heights of cut under stressful conditions. The disease is caused by the ascomycete fungus *Colletotrichum cereale.* It's diagnosed by the presence of black fruiting structures called acervuli and lunar-shaped condia. Older leaves of infected tissue are yellow or orange. The disease manifests itself as foliar blight or basal rot. Manage anthracnose by reducing plant stress through cultural practices, including raising mowing heights, topdressing regularly, increasing drainage, providing adequate potassium and phosphorous levels and putting down biweekly applications of quick-release nitrogen at a rate of 0.1 lb. to 0.2 lb. N/M. Demethylation inhibitor, succinate dehydrogenase inhibitor, nitrile and strobilurin fungicides are effective in controlling the pathogen.

The Shop

// MUST-HAVE NEW PRODUCTS

1 SC550 sod cutter

BLUEBIRD's SC550 sod cutter is a four-wheel-drive unit that allows one-man operation in the most challenging environments. The four-wheel design does not split the sod when cutting in wet conditions, and its intuitive cutting depth adjustment is locked into place via a threaded pin, making it impossible for the depth to unknowingly change.
BlueBirdTurf.com

2 SP110 in-ground sensor

SPIIO's SP-110 in-ground sensor collects soil moisture, temperature and salinity data every hour and sends it to an app on users' phones. Superintendents can use Spiio data to guide agronomic decisions and optimize irrigation programs. Each Spiio sensor can be installed in under 15 minutes and comes with a lifetime manufacturer warranty.
Spiio.com

3 Pogo TurfPro system

POGO's TurfPro system measures moisture, electroconductivity, surface heat index, salinity concentration and soil temperature. It includes precision GPS built around the Stevens' Hydra Probe multiparameter sensor. Pogo's sensor never requires calibration. Using the power of cloud and app computing, the Pogo system visualizes the measured data in real time so that users quickly see patterns of conditions, stresses and indicators before they actually see these issues as symptoms on the turf. The user also can log and correlate ball speed, firmness, color, smoothness, clipping yield and more.
PogoTurfPro.com

CHECK OUT MORE NEW EQUIPMENT ONLINE

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

4

6

5

4 | Stumpex CUL stump remover

The low-speed, high-torque stump removal technology of **FECON**'s Stumpex CUL is now available for compact utility loaders. It doesn't produce flying debris and is meant to use along sidewalks, bike paths, walking trails and more without the need to establish a safety zone, according to the company. The Stumpex CUL further enhances the versatility of compact utility loaders.

Fecon.com

5 | FieldScout TDR 350 soil moisture meter

SPECTRUM TECHNOLOGIES' FieldScout TDR 350 soil moisture meter can help superintendents maintain healthy, championship-caliber turf on their golf course, the company said. It's equipped with GPS and Bluetooth technology, as well as a data logger that can record approximately 50,000 measurements, including soil moisture, electrical conductivity and soil temperature so superintendents can use real-time data to make informed turf decisions that reduce operating expenses.

SpecMeters.com

6 | 2700 PrecisionCut and E-Cut hybrid triplex mowers

The 2700 PrecisionCut and E-Cut hybrid triplex mowers by **JOHN DEERE** are available with hydraulic or electric reels. The gas-powered machines boast a hp of 19 and offer a 62-inch cutting width. The 2700 mowers' TechControl system allows managers and technicians to input commands and control nearly everything regarding the operator's performance, including frequency of clip, turn speed, cleanup pass speed and how fast the cutting units raise and lower. The TechControl system ensures that the end results are the same, providing consistent cut quality on the course, the company said.

JohnDeere.com

The 19th Hole with...

Tim Davis

SUPERINTENDENT // Legacy Ridge GC, Westminster, Colo.

What are you having? I've never met a beer I wouldn't drink. I'll have whatever you're having — get two.

Tell me about your family. I've been married 10 years to my beautiful wife, Liz, from Kansas City. We have two kids: Nathan is 7 and Sam is 4.

Speaking of Kansas City, how about those Chiefs? How about those Chiefs! I'm a big-time fan from way back. I grew up knowing them as the Griefs. I still can't believe it.

What should I know about your course? It's a municipal golf course owned by the City of Westminster. It's 18 holes, an Arthur Hills design. Some would say it's the crown jewel of Westminster.

I forgot to mention … sorry my Jayhawks brawled with your Wildcats. That was crazy. Your dirty birds, they kicked our butts on and off the court. Don't throw your chair at me if this interview goes south! But Kansas State University versus Kansas University is an underrated rivalry — it goes back forever.

Are you still collecting vinyl records? Yeah, I just got two for my birthday — *Bartender's Blues,* George Jones, and *Presto,* Rush. I only get the classics. We usually play records on Sunday mornings, typically soul, like Otis Redding or the Commodores.

What qualities do you look for when hiring? I look for potential. Past experience is great, but when a person shows me potential, that's huge. Also, I look for a positive person. As much negativity that comes our way — Mother Nature, the workload — you have to be a positive person to fit in at Legacy Ridge. I don't have patience for negative people.

Fill in the blank: _____ is something *Golfdom* should be reporting on. Preemption repeal. We're facing it here in Colorado. Environmental groups are trying to repeal preemptive laws, which would give municipalities and cities the right to regulate chemicals as they see fit, as opposed to the Colorado Department of Agriculture or the EPA. It's a way to circumvent those laws, and it's also a way for the city to get its foot in the door to put an outright ban on pesticides. It's about to get ugly here in Colorado — I have to go testify on this at the state Capitol later this week.

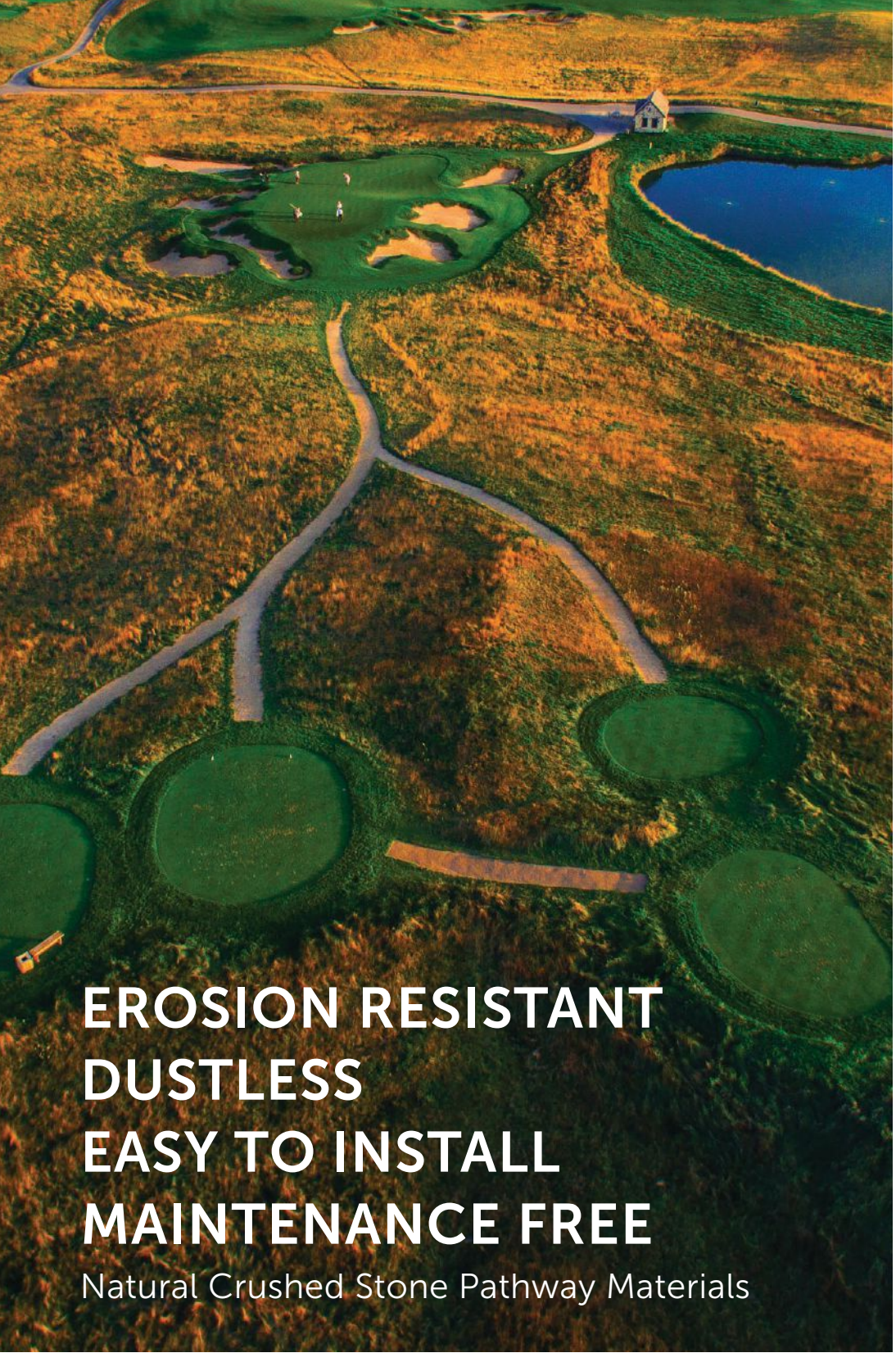
Good advice, and good luck! Tell me about your finest moment on the golf course … and by 'finest,' I really mean 'most embarrassing.' It was my third day here at Legacy Ridge. Some branches fell overnight, and I thought I'd be a hero and clean them up. And I put the chainsaw in my foot, I needed seven stitches, a worker's comp claim and everything. My third day on the job! I was getting eye rolls from everyone.

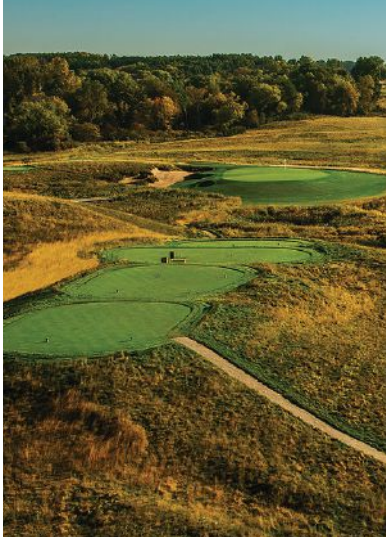
As interviewed by Seth Jones, March 3, 2020.

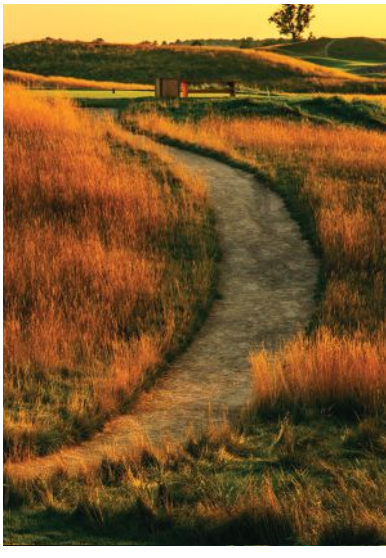
//BEST ADVICE

"DOUG BROOKS, WHO I WORKED FOR WHEN WE WERE AT DENVER CC, WOULD ALWAYS TELL ME, 'TOMORROW IS ANOTHER DAY.' HE DIDN'T MEAN THAT WE HAD A BAD DAY AND TOMORROW WOULD BE BETTER. HE MEANT THAT WE HAD A GREAT DAY, BUT WE HAVE TO DO IT AGAIN TOMORROW AND GET BETTER EACH DAY."

PHOTO OF TIM DAVIS BY: LOU FERRARO, PARK SOUTH PHOTOGRAPHY; PEETERV / ISTOCK-GETTY IMAGES PLUS / GETTY IMAGES (DENVER CAPITOL BUILDING); WIKI COMMONS (KC CHIEFS LOGO)







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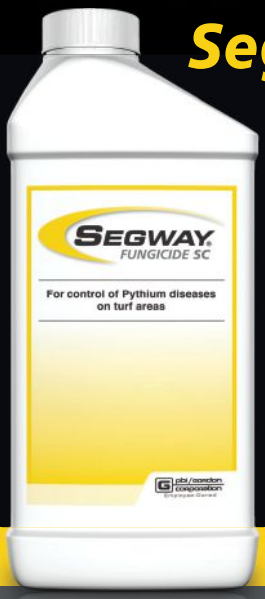

Segway® Fungicide SC sinks Pythium disease!

Missing a two-foot putt is maddening, but seeing Pythium destroy healthy turf can drive you over the edge. Stop it with Segway® Fungicide SC.

Segway delivers outstanding protection against Pythium disease, including root dysfunction, blight, damping-off, and root rot. Segway lasts up to 28 days, and has no known cross-resistance with existing fungicides, making it ideal for your rotation program.

We can't help you with your putting, but we can help you stop Pythium: Segway.

PBIGordonTurf.com

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