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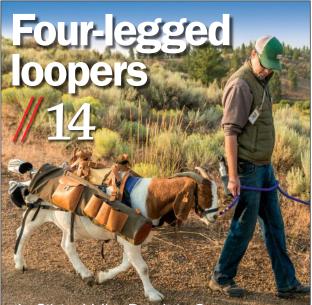


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VOL. 75 // NO. 7

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At Silvies Valley Ranch in Oregon, the caddies literally work for peanuts



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Keeping up with **The Jones**



"For the first time in his 13 seasons at Sagamore, (Grogan) hadn't fired up the irrigation system a single time by mid-June."

GREEN SKIES ARE NEVER GOOD

SETH JONES, Editor-in-Chief & Associate Publisher

Not-so-specific Pacific

y travels have taken me all over these last few weeks, and there has been one common theme: rain.

I was in Cleveland at the beginning of this week attending company meetings. I stopped by my favorite department at North Coast Media (the accounting department, of course — and I'm not just saying that because I'm behind on my expense reports) when Susanne Knauer, our senior cash and collections analyst, said to me, "Since when did Cleveland become the Pacific Northwest?" in reference to the constant rain the area has been receiving.

That evening, 1,700 miles away, I was catching an Uber ride from Salt Lake City to Park City, Utah. My driver was Joseph, a classic rock-loving Denver Broncos fan (ugh.) He was telling me about the consistent — and uncharacteristic — rain the area had been receiving all month when he said, "It's like Salt Lake City is in the Pacific Northwest!"

Whoa. Déjà vu. (Please read that in a Keanu Reeves voice from *The Matrix*.)

In June, along with those trips to Cleveland and Park City, I also made treks to Pebble Beach (see pages 10-11), Chicago and Niagara-on-the-Lake, Ontario. A cool, wet golf season was a common theme. I thought we were going to need a kayak to get out of Canada. Visiting Drew Barnett for an assignment (see page 44) in Chicago, he told me about some of the challenges Chicago-area supers were having. Record-setting rainfall in May led to a cool, wet June, with temperatures occasionally dipping into the low 60s.

In the Phoenix airport I spotted Jake Wylie, mid-South area manager for Quali-Pro, parked at a barstool. I joined him and he gave me the same report: Dallas/ Fort Worth had seen unusually cooler-than-normal temperatures and rain. A course he was working with recently converted from bentgrass to bermudagrass to better adapt to the hot, dry Texas summers. How's that for unfortunate timing?

After seeing so many photos of flooding on his golf course on Twitter, I buzzed my pal Dan Grogan (@purdueturfy) at Sagamore GC in Noblesville, Ind. For the first time in his 13 seasons at Sagamore, he hadn't fired up the irrigation system a single time by mid-June. They've had 33 inches of rain so far this year, with 26 of those inches coming after March 1. They typically mow fairways on a Monday/Wednesday/ Friday cycle. That had only been done successfully twice this year.

Here in Kansas, we've had similar weather, along with flooding down south and even a tornado that had my whole family, including the dog, under a mattress in the basement on May 29. (It ended up missing us by about 3 miles — Linwood, Kan., was not so lucky.) Other than golf lessons for the kids, the weather stalled out the start of our golf season here in the Sunflower State.

For private clubs, it's one thing — members can at least see for themselves that it's raining all the time. For the public courses, it's more daunting. It's a slow start to the golf season, rounds played, food and beverage sales ... and when the weather does break, the course gets slammed from too much play all at once.

I typically try to avoid writing about weather here because it always can change so drastically from the time I write this column to the time you receive the magazine. I mean, a Jayhawk won the U.S. Open (rock chalk, Gary Woodland!) — I should be writing about that. But I've seen too much of the same thing in my travels not to make note of it here.

But like Grogan told me, overcoming weather challenges is what this business is all about. "My crew, they've been rock stars," he told me. "I had to take them all to the Chinese buffet because I'm so proud of them. It's what we're here to do." **G**

Email Jones at:

sjones@northcoastmedia.net or tweet him @SethAJones.

edges, including yellow nutsedge, can srupt play and discolor golf courses, ins, and sports fields. They steal nutrients, and sunlight from urf, and can be a beast to control. ou don't take control of it, sedge over. The first step in contges and almost all weeds in to grow dense, strong turf its battle with the weeds. intenance is key. Keeping at the correct height will s from forming seed e sedges do best in inage is vital. The lling sedges and fgrass is to grow vin its battle nance

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TEGTMEIER JOINS IOWA GOLF HALL OF FAME

BY SARAH WEBB // Associate Editor

Rounding out our series of superintendents enshrined into golf halls of fame, Rick Tegtmeier, CGCS, was inducted into the Iowa Golf Hall of Fame in April.

"It's rare for a superintendent to get inducted into a golf hall of fame, because usually you're inducted because of your playing abilities," he says. "It was a very nice feeling to be inducted for what I contribute to the game."

A graduate of Hawkeye Community College with a degree in horticulture science, Tegtmeier has been a superintendent since 1980 and a CGCS since 1985. He earned his Master Greenkeeper Certificate in 2015. Tegtmeier is director of grounds for Des Moines Golf and Country Club (DMGCC), a 36-hole, Pete Dye-designed private club in West Des Moines, Iowa.

Among his career highlights, he mentions DMGCC hosting the Solheim Cup in 2017. "Being involved with the LPGA and hosting an international event that was seen in 60 different countries was pretty cool," he says.

When asked about the lessons he's learned throughout his nearly 40 years as a golf course superintendent, Tegtmeier paused a moment, then said, "Every day you learn something new. The day you quit learning is probably the day you should leave the business. You have to be on your toes and learn from your peers, because you definitely don't know it all. The biggest thing is networking with other superintendents and their staffs and listening to your staff."

//CHANGE AHEAD

WORLD OF GOLF FOUNDATION, WE ARE GOLF ANNOUNCE ORGANIZATIONAL CHANGES

Steve Mona formally retired in December from the World Golf Foundation. He has been retained as a consultant, with his sole focus being the 10-plus-year We Are Golf initiative.

Additionally, Andrew Yeast has joined the WAG team as a senior manager. He will work closely with Mona, focusing on all activities associated with WAG.

Peggy Norton and Diane Kearns left the World Golf Foundation on May 31. Norton spent the past eight years as project manager, including operational oversight of National Golf Day among her many duties. Kearns served as Mona's executive assistant for the past 11 years at the WGF, and for years before that at the Golf Course Superintendents Association of America.

James Cramer, vice president of communications, will be leaving in September of this year. He has overseen all of the Foundation's communications efforts.

//SMART COOKIES

GEORGIA GCSA BESTOWS 12 SCHOLARSHIPS

The Georgia Golf Course Superintendents Association has awarded 12 students its 2019 Legacy Scholarship.

The scholarship offers educational aid to children and grandchildren of Georgia GCSA members. One or more of the applicant's parents or grandparents must have been a Georgia GCSA member for five or more consecutive years and must be a currently active Georgia GCSA member in one of the following classifications: A, B, C, Retired A, Retired B or AA Life. Students must be enrolled full time at an accredited institution for the next academic year.

Walt Morris, stepson of Tim Busek, The Manor Golf & Country Club; Spen Oliver, son of Spencer Oliver, Dunwoody Country Club; and Ashley Wilder, daughter of Gary Wilder, ClubCorp; were the top three scholars this year.



//WINNER, WINNER, CHICKEN DINNER

Three Penn State students volunteer at AT&T Byron Nelson

BY CLARA RICHTER // Managing Editor

Thanks to John Deere, three students from the winning Penn State Turf Bowl team were able to take part in keeping Trinity Forest Golf Club tournament-ready, despite rainy conditions at this year's AT&T Byron Nelson in Dallas.

Alex Hendler, Ian Patterson and Seth Re experienced what it's like to work on a maintenance crew as they mowed greens, collected course data such as green speed and soil moisture, repaired bunkers and filled divots.

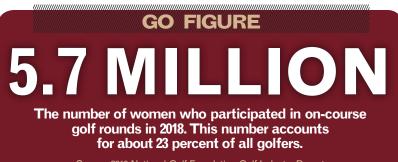
Hendler recently graduated from Penn State with his degree in Turfgrass Science and participated in the Turf Bowl his junior and senior year. He said the highlight of working at the tournament was seeing how management



handled all of the different people there and put on a successful tournament despite a lot of rain. "I think that was a really cool learning experience," he added.

Turfgrass management has always interested Hendler. He says he's always enjoyed working outside and knew it was definitely something he wanted to do. Once he started completing internships, he knew he had chosen the right career path.

Hendler said that seeing the great management at Trinity Forest will help him as he continues in his chosen career path and prepares to lead his own crew someday. "I can't stress enough how great the management team was throughout the week, despite poor weather," he said. "Their passion went down to the full-time members of the crew and the volunteers."



Source: 2019 National Golf Foundation Golf Industry Report

//WOMEN ON A MISSION

DATE SET FOR INAUGURAL WOMEN IN GOLF EVENT

Bayer will host the inaugural North American Women in Golf education event for turf managers Sept. 18-20, 2019 in Raleigh, N.C.

The event will bring together female superintendents, assistant superintendents and women in golf course maintenance roles around the United States and Canada to focus on enhancing their careers. The agenda will feature leadership and educational sessions, with a mix of agronomics, personal and professional development, as well as networking opportunities with speakers and other attendees during small group breakouts and social activities.

"Although women account for a small percentage of the golf and turf industry, the number of women involved in these industries is growing, and we're thrilled to be a part of that growth and sponsor this event," said Will MacMurdo, head of Bayer U.S. Turf and Ornamentals business. "We believe that diversity and inclusion make for a stronger industry, and this event solidifies our commitment to both."

//A FRESH FACE GCSAA'S URISH JOINS POLYLAST

Polylast Systems has added Shelly Urish to the bunker liner division sales team.

Polylast Systems manufactures a 100 percent recycled rubber golf course bunker liner that prevents sand from eroding under heavy rains.

Urish's unique experience working on the Golf Industry Show, and for 18 years with the Golf Course Superintendents Association of America, is expected to help change the face of the bunker liner division, while providing topnotch customer care to golf course management professionals around the world.

Urish said, "I am humbled by this opportunity to continue working with this great industry to provide everyday solutions to golf course management professionals. Polylast Systems is a great company that strives to deliver a high-quality product. I am excited to join the Polylast brand and look forward to sharing my excitement for the bunker liner product offered with both current and new customers." **Beware of the fog** As the fog rolled in at Pebble Beach, so did Josh Lewis (right), superintendent at Sharon Heights G&CC, Menlo Park, Calif., with *Golfdom* Editor-in-Chief Seth Jones.

Golfcom

Volunteers with a view (Left to right) Colby Major, Wade Hampton GC, Cashiers, N.C.; Seth Smith, Royal Oaks CC, Dallas; and Colton Janicek, Trinity Forest GC, Dallas, were on the volunteer crew for the 2019 U.S. Open. Last year, Janicek also volunteered to be *Golfdom*'s cameraman for the Underdogs of Turf video shot at Trinity Forest.

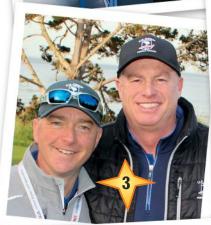
Homecoming at Pebble Jeff Steen, Loch Lloyd CC, Belton, Mo. (left), and Pebble Beach Golf Links Director of Agronomy Chris Dalhamer, CGCS, take time for a photo during course set-up. Prior to Loch Lloyd, Steen was superintendent within the Pebble Beach family, at the Links at Spanish Bay.

Euro steppers Joen Anders Petersen, Hjortespring Golf Club, Denmark (left), and Luis Pinto, Ombria Resort, Portugal, were two of the international volunteers helping out at Pebble Beach.

Men in black (Left to right) Sal Guerra, Joe Jovan, Valentin Valazquez, Hector Meijia and Juan Ruiz smile during a break from work. All the guys are on the crew at Pebble Beach except for Jovan, who works at Del Monte CC. Meijia, a former cook, cuts cups at Pebble.

Trip down memory lane Brian Koffler, superintendent at Waverley CC in Portland, Ore. (and former Pebble Beach staffer) reminisces with longtime Pebble Beach greenkeeper Rick Pieper (right) about how harrowing it was mowing No. 8 fairway as a rookie.





U.S. OPEN

















2012 U.S. Open hosts Olympic Club, host of the 2012 U.S. Open, was there to support Pebble Beach as volunteers and as fans. From left to right: Dan Heckman, Troy Flanagan, Thom Irvin, Andrew Crawford and Jared Kief.

2015 U.S. Open host Dalhamer with 2015 U.S. Open host superintendent Eric Johnson, Chambers Bay GC, University Place, Wash.

Dialed in with the USGA Kimberly Erusha, Ph.D., managing director of the USGA Green Section, and Darin Bevard, USGA director of championship agronomy.

California kids Marshall Dick, Bel Air CC, Los Angeles (left), and Michael Knoll, assistantin-training at Pebble Beach.

Whit's world Last year, Jones interviewed USGA Green Section Agronomist Brian Whitlark (right) about the updated Recommendations for Putting Green Construction. At the U.S. Open, they got to catch up on one of the most famous greens in all of golf, No. 7 at Pebble.

The Beatles of turf? Looking like they're remaking the cover of the Beatles album "Please Please Me" are Austin Daniels, Monterey (Calif.) Pines GC; Vince Ferrante, Pebble Beach; Ross Johnson, The Preserve GC, Monterey; Steven Spatafore, Pebble Beach; Michael Mignacca, Riviera CC, Los Angeles; and Steve Hoying, Baylands Golf Links, Palo Alto, Calif.

S.OPF





Cutting to the Chase WHEN IN DOUBT, GO ASK GOOGLE



"As our golf courses take shape daily and evolve with time, let's not lose focus on our own evolution. Think clearly about what turf/life balance looks like for you."

CARLOS ARRAYA, CGCS, Bellerive CC, St. Louis

What the heck is turf/life balance?

took a moment to reflect on the outcomes of several professional sporting events that occurred in the spring and early summer months. The results not only felt strange to me personally, but the strange feeling made me question if the professional sporting universe actually was out of balance.

The Kentucky Derby winner was disqualified, the St. Louis Blues won the Stanley Cup, the Toronto Raptors won the NBA Championship (go Canada!), the Minnesota Twins have the best record in baseball — then some normalcy — the New York Yankees are in first place in the American League East and Brooks Koepka won another PGA Championship.

No matter how sports oriented or non-sports oriented you are, those are some strange outcomes. It is a trait of mine to gravitate toward questions. In this case, my question is "What is balance?" I then proceeded to perform what many of us do when our minds are in flux and a question needs answering. I said,

"Hey Google, what's the definition of balance?"

The Google cube voiced various definitions back to me in noun and verb form, but one definition — in verb form caught my undivided attention. Under this definition, balance is defined: To offset or compare the value of (one thing) with another.

With this definition, it's safe to state that there is not a one-size-fits-all approach to achieving a life balance. You can't standardize things that are valued differently by others. All of us have select styles in clothing, recreational activities, art, music, colors, taste for food — the differences go on and on. By definition, all living organisms, including golf courses,

are unique and require specific management to achieve desired results.

No matter how different living organisms are, there is one inescapable reality. In time, all things evolve. Evolution occurs by force or by desire. Though that sounds harsh, the beauty is that there is a path that allows you to choose. You get to decide your definition of turf/life balance. You get to focus on what's important to you and prioritize your life and work. Some of us are wired to be on a golf course from sun up to sundown, while others find ways to manage their workdays to be shorter and still achieve great success. Others may be working for demanding groups and find great fulfillment in meeting tremendous expectations.

No matter what you've experienced and how your evolution occurs, there is one other certainty; you are not wrong! Based on the definition I shared with you, it's your balance; it's your custom size that fits only you.

As our golf courses take shape daily and evolve with time, let's not lose focus on our own evolution. Think clearly about what turf/life balance looks like for you.

I challenge you to perform an exercise, one that requires you to have others participate with you. Write yourself a draft of what you think turf/ life balance should be for yourself. Next, ask your boss to do the same thing from his/her viewpoint regarding your professional life. Lastly, ask your family to draft their view on what they think it is. Somewhere during the exercise, you will learn more about what's actually required and not required in managing turf, then life items will be highlighted for you.

Finally, you can have a clear view of what balance means in your world. A custom fit! As you journey forward, double-check your balance and support others who have not yet learned that balance is not only possible but achievable. Balance does exist. It's your own and it evolves. Enjoy living your best turf/life balance. @

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



CONDITION. PERFORM. RECOVER.

Divanem: An outstanding tool for nematode control

uring spring 2017, Dennis Croumie, superintendent at Vero Beach, Fla.'s Riomar Country Club, began to conduct a trial of Divanem nematicide with an experimental use permit. The

nematicide had just been released to the public and was already gaining global recognition for its nematode control.



Dennis Croumie

Seeking to significantly reduce the lance, root-knot and sting nematodes on Riomar Country Club's greens, Croumie applied Divanem at various rates on the private club's 10,000 ft² Tifeagle croquet court - by itself and in combination with a variety of fungicides, insecticides and surfactants. In all, four monthly applications were performed throughout the trial.

The results were nearly immediate on plots that were treated at Syngenta's recommended spot treatment rate, as Croumie noticed a considerable difference in turf quality, especially under stressed conditions. Aside from a substantial improvement in the turf's conditioning, Croumie also observed an increase in core aerification recovery. In particular, the plots with spot treatment

rates of Divanem recovered up to two weeks faster than any of the non-treated plots.

Divanem's performance was so effective, in fact, that Croumie decided to incorporate the nematicide into Riomar Country Club's nematode management program shortly after the trial ended. Beginning in September 2017 and continuing through March 2018 (the same timeline that the club has followed ever since), Croumie applied Divanem to Riomar Country Club's greens, along with a surfactant, on a monthly basis.

"I've found Divanem to be an outstanding tool for our greens management program," Croumie says. "It's not only helped us achieve better root density and stress recovery, but overall plant health as well."

As the demands for higher quality turf conditions continue to increase, Croumie believes superintendents can rely on Divanem as a vital component of their maintenance program, primarily to control nematodes and improve spot treatments, regardless of their course's location. However, to ensure full effectiveness - vastly improved turf conditions, utmost performance of nematode management and faster core aerification recovery — Croumie advises superintendents to apply Divanem at the recom-



Tifeagle croquet court

mended spot treatment rate: 12.2 oz./10.000 ft².

Due to Divanem's effectiveness. Riomar Country Club's nematicide program has evolved to a point that is more in line with a fungicide program, as he also uses the Action brand fungicides from Syngenta (Daconil Action, Heritage Action and Secure Action) in rotation. The fungicides have provided Riomar Country Club additional tools to control diseases and increase the timeliness of recovery from physical stresses.

"I have moved away from worrying about what the number is on the assay report, and instead I focus on overall plant health and developing a program that maximizes nematicide performance," Croumie says. "Divanem is certainly a big part of that

program now, especially with its broad-spectrum appeal."

He adds, "As I continue to focus on further improving Riomar Country Club's greens conditioning, performance and recovery, I'm looking forward to establishing a long-term relationship with Syngenta. And I'm sure Divanem will be at the forefront of that relationship for many years to come."

To learn more about Divanem, visit GreenCastOnline.com/ **Divanem** or scan the QR code.

Divanem is a Restricted Use Pesticide.



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Four-legged loopers

ilvies Valley Ranch is home to four golf courses. It has an 18-hole reversible course, a 9-hole course for warm-up and family rounds and a 7-hole challenge course called McVeigh's Gauntlet. Reversible courses are unique, but overall, there's nothing strange there.

Silvies, which is located in eastern Oregon, also is home to a cattle and goat ranch. Both herds graze on the ranch and are used for meat production.

Though goat meat isn't terribly common fare in the United States, there's nothing too odd about that <u>either.</u>

But a much different fate befalls a few lucky goats, and it certainly might seem a little strange. The fortunate goats who make it out of the kitchens head up the hill to a little shack, don specially made backpacks and are employed on the golf course as <u>caddies</u>.

IF YOU'VE GOT 'EM, USE 'EM

The concept of goat caddies originated on McVeigh's Gauntlet because of the challenge course's unique t<u>errain.</u>

"The Gauntlet is so steep up and down and we don't have traditional two-legged caddies, so we figured out Silvies Valley Ranch is home to four golf courses, a cattle and goat ranch and several caddies that literally work for peanuts

BY CLARA RICHTER

how someone could haul their clubs around the golf course," says Colby Marshall, general manager at Silvies. The course also doesn't have carts, so for someone who didn't want to or was not able to carry their clubs, there weren't a lot of options.

The solution was the goats, which are plentiful on the ranch. Some even had experience working as pack animals for the Peruvian herders who are employed at Silvies.

So, it seemed like a logical jump from having the creatures haul water and lunches and snacks for dogs to carting around a couple sets of golf clubs and a six-pack of beer. "We got to talking about this and thought, 'Could we actually do this?" Marshall says. "We thought about it and thought maybe we could incorporate the goats. Could we create something that would be a unique opportunity, but also fit so well with the ranch?"

Turns out, they could. The course has been working with goat caddies for about a year and a half, and the program made its debut when the Gauntlet opened about a year ago.

Silvies currently has four goats that work as caddies, Continued on page 16

// IT'S A GOAT TRACK. SO WHAT?

Continued from page 15

and the program is now also available on Chief Egan — the 9-hole course because many people want to play with a goat caddie but may not want to play the type of challenging golf associated with McVeigh's Gauntlet.

Goats aren't great at picking out clubs, and it's pretty likely they'll misjudge the distance to the pin every time. So why use goats as caddies, other than that they are readily available and are familiar with being used as pack animals?

According to Marshall, the goats are extremely social and like to be around humans. The goat caddies that do best in the program are those that have been part of the bottle-baby program. Those goats are fed by humans from infancy and want to be around them because humans always have been the ones caring for them.

Goats also are quite intelligent, Mar-



In addition to the goat caddies, Silvies Valley Ranch also is home to an 18-hole reversible course.

shall adds, and quickly learn the ropes of the program, especially if they're promised peanuts — their favorite treat — for good behavior.

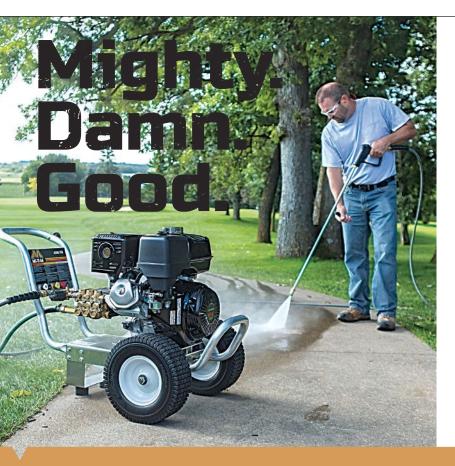
"They are smart enough that you could

pick them out and do a training program with them. That is totally reasonable because of the nature of the goat and because of how intelligent they are," Marshall says. Continued on page 18

SILMES VALLEY RANCH/KEMPERLESNIH

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PYTHED OFF?





As the smile indicates, the goats enjoy being around humans and see themselves as part of their herd.

Continued from page 16

"They have this endearing nature toward people, so they're happy to be around you, happy to work with you and they look at themselves as part of your herd."

WORKING FOR PEANUTS

To carry clubs, the goats are outfitted with a special backpack designed by Seamus Golf. The packs hold two sets of golf clubs and a six-pack of beer. They also have a special compartment for the peanuts the goats crave.

As part of their training, the goats chosen for the program are outfitted with the backpacks, which are then loaded up with clubs so the goats can get used to the weight. The goats are then walked around the course either singly or in pairs.

They also spend some time stationed at various places around the course so they can get comfortable with the experience of walking around and being on a golf course. The goats are rewarded with peanuts for good behavior during training.

This process is done for weeks before a goat is allowed to officially start caddying.

If the goats are starting their training young, they also learn the process of walking and the pressure and release of the lead rope. Additionally, they spend more time getting used to the weight of the backpack, both empty and filled with clubs.

The goats have a caddie shack where their backpacks and peanuts are stored and where they wait between rounds. So they don't forget their humble roots, they stay in the livery stables



with the other livestock in the evening.

The goats used as caddies weigh roughly 250 pounds when they are full grown. Even with a fully loaded backpack, the goats carry only about 15 percent of their body weight, Marshall notes. "These are large goats," he adds. "These are not the goat yoga goats — you would not want to do goat yoga with these goats. You'd have to go down to the spa and get readjusted afterward."

The program is self-selecting, so if someone doesn't want to use a goat they are welcome to carry their own clubs. A goat caddie runs \$38 per player. They are double bagged, so it's \$77 for one goat caddie to carry for two people playing a round.

GOATS ON THE GREENS

"Generally, if you want to insult a golf course superintendent, you tell him his golf course is a goat ranch, but for us out here, it's really part of the story of the sustainability of the course," Marshall says.

So, what exactly do goats on the course mean for the person who has to take care of the turf they're hoofing around on?

Sean Hoolehan, CGCS, is superintendent at Silvies. He oversees all four courses at the ranch and has been there since it opened about a year and a half ago. From the beginning, he says he never gave the goats a second thought. "I had my hands full getting a golf course ready to open," he says.

His lack of concern about the goats isn't necessarily a bad thing. It might even suggest that the goats are doing their job well and tend to not stray too far off course and damage the turf.

Continued on page 20

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// IT'S A GOAT TRACK. SO WHAT?



The goat caddies make hauling clubs over the rolling hills of eastern Oregon easier, without the need for golf carts.

Continued from page 19

It helps that the goats aren't allowed everywhere on the course, according to Hoolehan. They mostly stick with the players.

Each goat has a ranger — a member of the outdoor experience staff at Silvies — who goes with the caddies and walks them

on a lead, so the goat isn't able to go too far out of range of the golfer or golfers it's carrying for.

"The goal is to have the program to the point where the golfer can lead the goat caddie by themselves, and then there's locations at the tee boxes where they can clip a lead to a post while they tee off and putt," Marshall says.

The goats don't generally walk on the greens, he adds, but their hooves are small so even if they did it wouldn't create a large problem.

The goats are well-fed and well-watered before they go out for a round, which keeps them from snacking too much while they're out on the course. Marshall admits that they may take a few nibbles here and there, but because of the way they're cared for, eating on the job isn't really a huge problem.

It also helps that only about 10 percent of a goat's diet is grass, while the other 90 percent is weeds, brush, shrubs and invasive plants. "In my experience with them, they're very selective on what they enjoy. They will select for the weed species, the brush, the shrubs, the choke cherries, the juniper berries," Marshall notes.

Continued on page 22



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// IT'S A GOAT TRACK. SO WHAT?

Continued from page 20

But if a goat eats, it's eventually going to have to do its business somewhere, which could pose some potential issues for a course. However, Marshall says that there isn't really a problem with goats leaving behind droppings on the course. If they do, it doesn't hurt the grass, he says, but they are very clean animals, so generally that isn't an issue.

Hoolehan jokes that the goats aren't loud animals so they don't make a lot of noise out on the course. But depending on your swing, they might make fun of you. "I don't recommend people take advice from the goats because it's always bad," he laughs.

COME FOR THE GOATS, Stay for the Golf

Hoolehan says that the goats are a novel way to draw people to the courses, and



The goats are well fed and watered before they go to work, so there hasn't been much trouble from them trying to grab a snack on the job.

once visitors realize how good the golf is, they are likely to want to play at Silvies again and again, with or without the goats.

"What's the real big news is the Hankins and Craddock courses — the two reversible courses," Marshall says. "They're spectacular golf. The setting is in the high mountain meadow."

He adds that 90 percent of the guests who visit Silvies are there for the golf, but part of the experience is exposing them to frontier Oregon and the goats are a part of that. He says he has never met anyone who has spent time with the goat caddies who has had a bad experience.

"It's been a lot more fun than I would have thought," Hoolehan says. "I was surprised at the variety of people who come just to see the goats. Some of these people coming hardly play golf, or they're professional golfers, but they want to have the experience of having a goat caddie, and you can't do it anywhere else in the world to my knowledge." **G**

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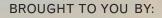




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2019 TOUR CHAMPIONSHIP PREVIEW August in Atlanta

At East Lake Golf Club, the crew is preparing to host the Tour Championship in August for the first time

BY CLARA RICHTER

Yes, you're sitting back, relaxing and reading the July issue of *Golfdom*, but for the crew at East Lake Golf Club — the permanent home of the Tour Championship — August looms.

This year, the Championship will be held Aug. 21-25, instead of its usual time during the third week of September. So, by mid-July, the

pressure's really on. "Our biggest goal is to make sure we meet our standards and expectations and are satisfied with our product come tournament time, with the change in date," says Charles Aubry, superintendent at East Lake.



Charles Aubry

Aubry says it wasn't difficult to wrap his head around the date change, but knew it was going to be a learning experience in the 11 months between the end of the 2018 Tour Championship and the start of the 2019 Tour Championship. He says once the crew gets through this first year, the expectations will be better for next year.

According to Ralph Kepple, director of agronomy at East Lake, "losing one month feels like we lost two."

The turf isn't too upset about the change in *Continued on page 26*

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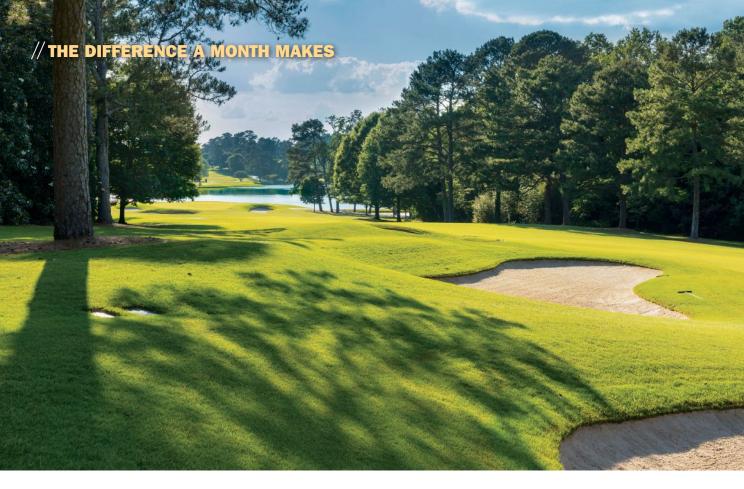
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Despite being down a few members, the East Lake crew expects to have about 75 volunteers from all over the world help out on the course during the week of the Tour Championship.

Continued from page 24

date. The bermudagrass greens at East Lake like it hot, dry and sunny, so if the weather cooperates, Kepple is hopeful for healthy, tournament-ready turf by the end of next month.

The tournament is being held in August for the first time after the PGA Tour shifted the schedule in 2018 to better highlight the majors in their own specific months. The Tour will now culminate with the Tour Championship at the end of August.

"If we're going to have a tournament in August (in Atlanta), we definitely want it on bermudagrass greens," he says. "It's a pretty good time of year for us, we're able to provide a healthy rough and should be able to provide healthy greens. Everything is growing really well in August. Almost too well."

Though the golf course benefits from the heat of Georgia in August, the spectators may not, he jokes. However, the PGA Tour will have additional cooling stations to help spectators beat the heat, and there is plenty of shade throughout the course to keep them comfortable.

Aside from the potential discomfort of attendees, Kepple also is wary of the weather. August in Georgia means hot, humid weather that breeds thunderstorms. And with thunderstorms come delays and damp playing conditions.

Prep makes perfect

However, neither Kepple nor Aubry can control the weather, so they've just got to prepare and hope any thunderstorms hold off.

Kepple says the prep this year isn't a whole lot different from past years, they've just had to change their timing. Prep for the Championship began on July 1, about seven weeks before the tournament.

"In that time period, it's just about hitting our marks with topdressing and verticutting and getting the texture of the greens dialed in," Aubry says. "Starting to jump on top of details of the course, adding fertility in some of the areas we may need a little thicker or to play a little more stout."

The crew lays out a program on the calendar that works back from the first Monday of Championship practice rounds. After that, Aubry says, it's just making sure the crew finishes every one of those things within that time frame.

This year, along with having to be prepared Continued on page 28

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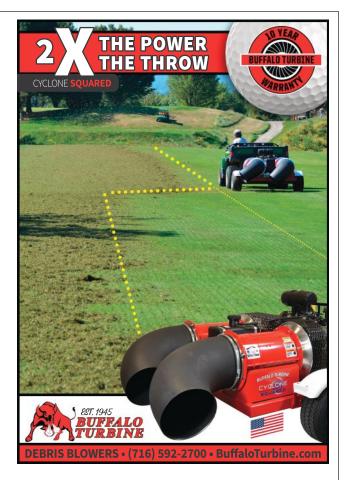


// THE DIFFERENCE A MONTH MAKES

"We put pressure on ourselves to try to make (the course) better every year. Everything is on the table. We just look at everything we can."

RALPH KEPPLE

DIRECTOR OF AGRONOMY, EAST LAKE GOLF CLUB



Continued from page 26

for the tournament a month earlier than they're used to, Aubry and Kepple face the added challenge of being down a few crew members.

They are supposed to have about 36 crew members, but currently have only 25. They are hopeful they can at least get that number up to 30 before August hits. "Like everyone else, we're having trouble finding help," Kepple says.

Luckily, during the week of the tournament, the course gets a lot of volunteers who lend their services to the crew. This year, East Lake is slated to have about 75 volunteers, many of them from all over the world, including Ireland, England, Sweden, Spain and Abu Dhabi.

Aubry says the volunteers do everything from mowing greens, tees and roughs to raking bunkers, while a few staff members are assigned to specific detail-oriented jobs that require the eye of somebody on the property, like mowing fairways and cutting and changing cups in the morning.

The crews and the volunteers primarily use John Deere equipment. According to Aubry, they use pretty much everything, including 180 and 260 walking greensmowers, 2500 triplex mowers, 7700 fairway mowers and several Gators.

East Lake has had a relationship with John Deere since 1995, and according to Kepple, the company even joined the club as a corporate member.

"I am able to pick up the phone and call people at Deere," Kepple says. "If I have an issue, I can call and talk to someone and they *Continued on page 30*

Getting to know **you**

A pair of speakers at the Bayer Women in Golf event will help attendees harness their emotions and strengths to be better turf managers

olf industry educational events are often about getting to know other people. Networking will take place at the upcoming Bayer Women in Golf event, but one focus will be on attendees understanding *themselves* better, so they can harness their emotions and strengths to excel as leaders.

The two-day conference, set for Sept. 18-20 in Raleigh, N.C., will cover personal and professional development topics in addition to agronomics. Attendees also will visit the Bayer Research and Educational Facility in Clayton, N.C., and the Bayer Environmental Science division headquarters in Cary, N.C.

The two speakers encouraging attendees to better understand themselves are Darrin Batisky, area sales manager for Bayer, and Susan Hite, president of consulting firm Hite Resources.

EQ equation

Golfdom.com

Batisky, a former superintendent, was first introduced to the concept of emotional intelligence — or EQ through a leadership development program in his previous role at Jacobsen.

During his talk on EQ, Batisky will cover four pillars: self-awareness, selfmanagement, social awareness and relationship management. Attendees will complete an EQ assessment and take home a book on the topic.

"The foundational skill is identifying your own emotions," he says. "Then you're able to figure out how to react in situations rather than let the emotional part get the best of you."

Batisky says EQ is a vital skill for anybody — male, female,



superintendent or otherwise — but superintendents may greatly benefit from it because of all the interpersonal relationships they have to maintain to

Darrin Batisky do their jobs well.

"I know I'm a better friend, brother, spouse, father and leader now," he says. "The big thing about it is it's a journey. It's not a destination."

Shape smarts

Hite's talk will build on Batisky's, highlighting how women can better understand themselves and achieve their goals by using a system called Psycho-Geometrics.

Attendees will take an assessment to learn their shape: box, triangle, rectangle, circle or squiggle. Each shape represents behavioral attributes. Identifying your shape helps you link your behaviors to the results you want, Hite says.

"No matter the profession, sometimes people are trying to fit in so hard that



it's hard to stand out," Hite says. "The approach is connecting with people and treating them the way they want to be treated without losing who you are."

For example, if you are the only woman on the maintenance staff — and you're in charge — you may struggle with your position of authority.

"I think the biggest mistake people make is trying to be more like the people around them instead of being who they are," Hite says. "It's all about having

WELCOME

CLUB

Susan Hite

self-awareness for what your natural strengths and challenges are when it comes to behavior."

Psycho-Geometrics also helps leaders clarify instructions and expectations — a crucial skill for someone managing a few assistants and a crew.



// THE DIFFERENCE A MONTH MAKES





Continued from page 28 are going to listen and typically try to find a resolution to a problem for us."

The course closes for 10 days to prep for the tournament, and this year John Deere and Greenville Turf and Tractor the dealer East Lake works with — will provide the course with some extra equipment during the closure and a few pieces for a renovation project that is currently underway.

The last time East Lake did major renovations on the course was 2016, but there is some work going on at the course this year.

The changes don't affect tournament play, Kepple says, rather it affects the hospitality layout during the tournament and what the course is able to do with its own experiments. Crews rebuilt the 100yard practice areas and moved the nursery green 140 feet.

This gives the tournament more space in its hospitality areas, and allows the course to build a green with five varieties of grass for future renovation. John Deere lent a couple of greensmowers to the course for the project.

Evaluation is key

East Lake hosts the Tour Championship each year, so each year it has an opportunity to evaluate its performance and see what it can do better.

"We put pressure on ourselves to try to make it better every year," Kepple says. "Everything is on the table. We just look at everything we can."

The team's goal after each tournament is to do a review and search out improvements. According to Kepple, the 2018 tournament was "pretty darn good," which made it challenging to find something to improve on for 2019, but it can be something as seemingly simple as finding a better way to rake bunkers.

"They were good last year, we had no issues with bunkers, but there may be a different way we can rake them to make them much better, or a different way to prepare them going into the tournament."

Never resting on its laurels seems to work well for the East Lake crew. According to Kepple, players always seem pleased with the course and the way it plays, making it an ideal location for the tournament year after year. **G**

RESEARCH FOR REAL SUPERINTENDENTS

Hosted by Clark Throssell, Ph.D. | clarkthrossell@bresnan.net

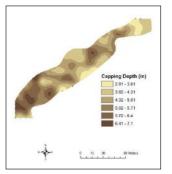
Super Science

// PUT ON YOUR THINKING CAPS

DATA-DRIVEN IRRIGATION SCHEDULING TECHNIQUES FOR SAND-CAPPED FAIRWAYS

By Reagan Hejl, Benjamin Wherley, Ph.D., Kevin McInnes, Ph.D., and Rebecca Grubbs, Ph.D.

ith current strains on water resources and with the increasing trend of capping degraded golf fairways with sand, the golf industry needs research toward efficient methods for irrigation management on sand-capped soil. While Reference ET-based scheduling — based as it is on weather data — provides an effective means of predicting irrigation require-



Krigged map extrapolating capping depth from a 20-footby-20-foot sampling grid.

ments, reliable access to locally representative data is often a barrier for implementation.

The recent availability of open-access NOAA Forecasted Reference ET (FRET) data provides ET data regardless of proximity to a weather station and offers superintendents another tool for managing irrigation. Unfortunately, research is lacking on how FRET values compare to the standard Penman-Monteith ETo at given locations.

Field observations by turf managers suggest variability in turf performance on sand-capped soil is due to variation in water availability. In-ground soil moisture sensors (SMS) could be a potential tool to alleviate some of the variability.

A field study is under way on newly constructed sand-capped plots at the Texas A&M Turfgrass Field Research Laboratory in College Station, Texas. The study is evaluating turf performance and water savings potential of four irrigation scheduling techniques, including: 1) wireless SMS, 2) Penman-Monteith Reference ETo, 3) FRET and 4) visual wilt-based approach.

A companion study is being conducted at a nearby golf course to explore factors influencing soil moisture variability in sand-capped fairways. Potential sources of variability being examined include capping depth, subgrade texture, surface organic matter levels, proximity to sprinkler heads and elevation/slope. So far, capping depth across three fairways have been sampled, and despite a targeted 5-inch depth at construction, considerable spatial variability has been identified. ^(C)

Reagan Hejl, research associate and Ph.D. candidate, Benjamin Wherley, Ph.D., turfgrass scientist, Kevin McInnes, Ph.D., soil physicist, and Rebecca Grubbs, Ph.D., turfgrass scientists are at Texas A&M University. You may reach Reagan at Reagan.hejl@tamu.edu for more information.

NEWS UPDATES

TARGET SPECIALTY PRODUCTS INTRODUCES NEW WETTING AGENT

Target Specialty Products, a provider of turf and ornamental solutions in the U.S. and Canada, introduces Turf Fuel Kraken.

The Kraken is an advanced wetting agent designed for turf surfaces that require the highest level of consistency and firmness.

"Through exhaustive university trials and close consultation with our network of industry experts, we have learned that professionals at the highest level demand control over their soil hydration," said Mark Jull, head of Turf Fuel Products' division at Target Specialty Products. "Kraken combines multiple components to provide ultimate control of hydration and firmness."

The research was conducted by Doug Karcher, Ph.D., at the University of Arkansas.

Kraken can be used at any time during the season; however, many turf

professionals strategically use Kraken in

conjunction with Turf Fuel Cleanse, Abyss and Vanquish, depending on season and soil conditions to achieve the best results.

"Kraken is completely unique in the market because of its ability to hold water consistently deep in the profile, while keeping the soil near the surface dry," added Jim Turner, Turf Fuel specialty product development manager.

MANY GOLF COURSE SUPERINTENDENTS HAVE REPORTED THAT GOOSEGRASS CONTROL HAS BECOME MORE CHALLENGING IN RECENT YEARS."

Jim Brosnan, Ph.D. (see story on page 32)

n page 32)

//THE CHALLENGE IS GROWING

Trouble with goosegrass control

By Jim Brosnan, Ph.D.

oosegrass (*Eleusine indica*) is a problematic annual grassy weed found on golf course turf across the United States in summer. This species germinates from seed each spring, with emergence typically occurring several weeks after superintendents begin to see summer annual weeds such as crabgrass (*Digitaria* spp.) and prostrate knotweed (*Polygonum aviculare*).

Often termed an indicator weed for its ability to thrive in compacted soils, goosegrass most commonly is found in highly trafficked areas on golf courses such as cart paths, entry/exit areas from teeing/greens complexes, collars and putting surfaces (Figure 1).

Preemergence herbicides are a principal means of controlling goosegrass. Herbicides including oxadiazon (e.g., Ronstar), indaziflam (e.g., Specticle Flo), prodiamine (e.g., Barricade), dithiopyr (e.g., Dimension) and pendimethalin (e.g., Pendulum AquaCap) are labeled for goosegrass control in warm-season and/or coolseason turfgrass. Superintendents also can find combination products containing these active ingredients in mixture with one another or other herbicides.

For example, superintendents use a mixture of bensulide plus oxadiazon (e.g., Anderson's Crab/Goose Preventer) for goosegrass control on creeping bentgrass (*Agrostis stolonifera*) putting surfaces in the Southeast. Superintendents typically apply reemergence herbicides for goosegrass control in sequential application regimes; the first application is timed to combat crabgrass emergence, with



Goosegrass (*Eleusine indica*) infesting clean-up passes on a creeping bentgrass (*Agrostis stolonifera*) putting green.



Seedling goosegrass (*Eleusine indica*) emerging in late spring.

the sequential application positioned to target goosegrass.

Superintendents electing to control goosegrass with postemergence herbicides have a small group of herbicides from which to choose. Warm-season turfgrass options include the acetolactate synthase (ALS) inhibitors (foramsulfuron [i.e., Revolver], thiencarbazone-methyl plus foramsulfuron plus halosulfuron [i.e., Tribute Total]), metribuzin (i.e., Sencor), MSMA, 2,4-D plus MCPP plus dicamba (i.e., SpeedZone), as well as spot applications of topramezone (i.e., Pylex). In cool-season turfgrass, superintendents can make broadcast applications of Pylex, as well as SpeedZone, and fenoxaprop (i.e., Acclaim Extra). None of these options are labeled for use on putting greens, and many can induce transient turfgrass injury even when applied under optimal conditions.

THE PROBLEM

Many golf course superintendents

have reported that goosegrass control has become more challenging in recent years. Reasons for this turn of events are not clear, but several factors likely are involved.

Species adaptations

Weed species adaptation has shifted over the past several years, with warm-season weed species infesting golf course turf in more northern geographies. For example, doveweed (Murdannia nudiflora), once confined to the Gulf Coast, has become a problematic turfgrass weed as far north as central Tennessee. Green kyllinga (Kyllinga brevifolia) and falsegreen kyllinga (Kyllinga gracillima) are now problematic throughout the mid-Atlantic, north-central and northeast regions of the United States, as well. Once confined to more southern regions of the United States, goosegrass has become a common problem in states as far north as New Jersey and Pennsylvania, challenging superintendents with a new weedcontrol hurdle.

Loss of active ingredients

In the southern United States, two herbicides available to superintendents for postemergence goosegrass control have become limited. Diclofop (e.g., Illoxan) was once an effective option for postemergence goosegrass control in bermudagrass (*Cynodon* spp.) but is no longer sold commercially. Additionally, MSMA has activity on goosegrass, but in most states it can be applied only as a spot treatment to limited acreage. Use of MSMA in Florida is prohibited as of this writing.

Resistant biotypes

Cases of goosegrass evolving resistance to pre- and/or postemergence herbicides have become more common in recent years. While conversations about herbicide resistance often center on annual bluegrass (*Poa annua*), goosegrass is by no means immune



Mature goosegrass (Eleusine indica) in late summer.

"Many golf course superintendents have reported that goosegrass control has become more challenging in recent years. Reasons for this turn of events are not clear, but several factors likely are involved."

to the problem. There are confirmed instances of goosegrass evolving resistance to mitotic inhibiting herbicides such as prodiamine (e.g., Barricade) and pendimethalin (e.g., Pendulum AquaCap), as well as oxadiazon (e.g., Ronstar), an inhibitor of protoporphyrinogen oxidase. Additionally, goosegrass has evolved resistance to the postemergence herbicide metribuzin (e.g., Sencor), and there are reports of populations evolving resistance to foramsulfuron (e.g., Revolver) as well. The development of herbicide resistance further limits the number of herbicides available to control goosegrass on a golf course.

PLAN OF ACTION

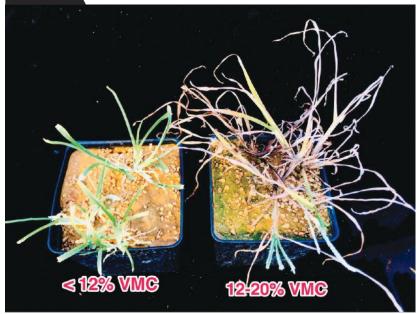
What can superintendents do to

combat the goosegrass issue? The answer to this question is not simple and will require diverse tactics.

1) Identify the root cause of the issue. It is important to remember that goosegrass is an indicator weed. The presence of goosegrass should be a signal that soil conditions need to be improved to support the growth of healthy turfgrass. Doing so will allow turf to be more competitive against goosegrass infestation. Research conducted at the University of Florida demonstrated that the lack of bermudagrass cover on trafficked tee complexes was more of a factor in goosegrass infestation than soil compaction. Take time to improve the growing environment, but also to identify the causes of its Continued on page 34

Super Science

FIGURE 4



Effect of volumetric soil moisture content (VMC) on goosegrass control 28 days after treatment with Tribute Total at 3.2 oz/A in a greenhouse with surfactant.

Continued from page 33

deterioration. Can course traffic patterns be altered? Does turf receive enough light to grow optimally? Far too often, the immediate action once goosegrass is present is to chemically remove plants with an herbicide. That process does not address the root cause of the issue, and goosegrass is then a continual problem.

2) Scouting for timely applications. As a rule, weeds are easier to control when they are smaller in size. This is certainly true in the case of goosegrass. Scouting problematic areas of the golf course for goosegrass plants can facilitate applying postemergence herbicides when plants are most vulnerable (Figure 2). It is difficult to control large, multi-tiller goosegrass (Figure 3) with a single herbicide application.

Recent research conducted at the University of Tennessee highlighted that soil moisture can affect the efficacy of many postemergence herbicides labeled for goosegrass control. For example, my team reported only 20-percent control of goosegrass when we applied Tribute Total to plants acclimated to soils of less than 12-percent moisture content, compared with 95-percent control when the application was made to goosegrass growing in soils with a moisture content of 12 percent to 20 percent (Figure 4). Although we still have more to learn about this response (follow-up research is being conducted in 2019), superintendents should avoid making applications to plants that have been acclimated to dry soils for extended periods in order to maximize product effectiveness.

While scouting can help maximize effectiveness of postemergence herbicides, timing is a critical component in maximizing effectiveness of preemergence herbicides as well. Rutgers University has conducted elegant research the last two seasons to better understand environmental factors that trigger goosegrass germination in soil. The researchers aim to use their findings to develop a model that superintendents can use to optimally time preemergence herbicide applications for goosegrass control.

3) Managing potential resistance. Continually applying the same treatment for goosegrass control ultimately will select for resistant biotypes on the golf course. Resistance creates many challenges for superintendents. It reduces the number of herbicide options available for goosegrass control and often increases

FIGURE 5



Bleaching of bermudagrass (*Cynodon* spp.) following applications of topramezone to control herbicide-resistant goosegrass (*Eleusine indica*).

the overall cost of management. For example, researchers confirmed the presence of dinitronaniline-resistant goosegrass in Georgia following continued use of prodiamine (e.g., Barricade) and showed that superintendents could use oxadiazon (e.g., Ronstar) and indaziflam (e.g., Specticle Flo) as alternative preemergence options. However, most superintendents would find the cost of these alternatives to be greater than prodiamine.

Additionally, resistance can force superintendents to use herbicides that may induce temporary injury to desirable turfgrasses. In Tennessee, my team documented the presence of dinitroaniline-resistant goosegrass on golf courses and reported that topramezone (e.g., Pylex) could be used as an option for postemergence removal. However, these applications injured bermudagrass in research plots 34 percent to 60 percent for two weeks after treatment, with recovery not occurring for over a month. When applying over large acreage, the results may be objectionable to many (Figure 5). Similar issues with transient turfgrass injury can accompany summer applications of MSMA and metribuzin (e.g., Sencor) for goosegrass control in warm-season turfgrass as well.

To that end, it's critically important that golf course superintendents diversify herbicides applied for goosegrass control. Have you used the same preemergence option for several years in a row? Change to something new this season, even if only on select holes of the course. Have you applied the same postemergence herbicide for several seasons to remove escapes? Consider a new mode of action this season, or even treating with a mixture of different products. Data clearly show that rotating or mixing herbicidal modes of action will reduce selection pressure for resistant weeds in a diversity of agricultural settings, including turf.

Goosegrass control is a challenging

endeavor that has become more complicated in recent years. Superintendents will need their entire agronomic skill set to manage populations of this summer annual weed. **G**

Jim Brosnan, Ph.D., is a turfgrass weed scientist at the University of Tennessee. You may reach Jim at jbrosnan@utk.edu for more information.

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Super Science // EXPERTS' INSIGHTS



Fairy ring is caused by a fungus that in its most severe form causes turf and the surrounding soil to become hydrophobic.

Fighting fairy ring

YOU'LL NEED MORE THAN A MAGIC WAND TO DEFEAT THIS DISEASE

Fairy ring manifests as circular or arc-shaped patterns in turf that can vary from just a few feet to more than 20-25 feet in diameter. The patterns will look different, depending on which of the three types of fairy ring is affecting the turf.

Type one is the most severe type of fairy ring. The turf and soil around the ring become hydrophobic, so they repel water and become dry. Type two forms darker green rings or arcs in the turf that grow faster than the surrounding turf. Type three is the least severe. Its symptoms include a ring or arc of mushrooms or puffballs in the turf.

The symptoms of fairy ring are likely to recur in the same places every year, and it is most likely to see them once summer stress begins in warm- and cool-season grasses, says Karl Danneberger, Ph.D., professor at The Ohio State University.

According to Danneberger, treatment depends on the severity of the disease. "If it's severe," he says, "they'll go in and core cultivate, usually with hollow tines, and apply a wetting agent because you want to get the water movement. Then you make a fungicide application."

Mike Fidanza, Ph.D., professor of plant and soil sciences at Penn State Berks, recommends managing soil biometric water content by using wetting agents. Wet-dry cycles help the fungus flare up because it's related to soil moisture content, he says.

Additionally, controlling organic matter helps control fairy ring, Danneberger adds. **G**

Bayer

PAUL GIORDANO

Green Solutions Team member, Bayer Turf and Ornamental Division



A key practice in mitigating fairy ring is to minimize thatch via core aerification, vertical mowing and frequent sand topdressing. Another best practice is using wetting agents, which help improve water movement and distribution in an otherwise hydrophobic soil profile. Seasonal timing of applications may differ, but the overall control strategy is similar for cool- and warm-season turfgrasses. Fungicide applications should be made when 2-inch soil temperatures average 55-60 degrees F for five consecutive days. Some of the telltale symptoms of fairy ring include rings, arcs or patches of green or dry-looking turf damage that can vary greatly in size. With more research dedicated to the turfgrass soil microbiome, I suspect our understanding of suppressive soils and microbial dynamics will improve immensely. This could lead to solutions tailored toward soil conditioning or biological control products that will ultimately disfavor the fairy ring fungi and remedy symptoms without a complete reliance on traditional fungicides.

Nufarm

RICK FLETCHER

Technical Services Manager – Turf and Ornamentals

One of the best practices for

controlling fairy ring is understanding the life cycle of this group of fungi. There are more than 60 different species of fairy ring-causing fungi, so when someone says "I have fairy ring," it could be a different organism in different places. That doesn't mean a whole lot to management as far as chemical or agronomical, but it does explain why someone gets great results with product A, but only fair results with product A somewhere else. Fairy ring control typically does not differ regionally. The easily identifiable part of fairy ring is the green ring or the mushrooms. It is a highly concentrated group of fungi and treatment areas don't have to go too far outside of the green symptomology of fairy ring, since that is where the colony is. The future is going to be whether or not we get additional classes of chemistry that show activity.

Quali-Pro

IAN RODRIGUEZ Technical Services Manager Control Solutions Inc.



Minimize or prevent the

conditions favoring fairy ring such as poor fertility, thatch buildup and dramatic swings in soil moisture. Wetting agents can mitigate the severity of hydrophobic conditions and help move fungicides into the soil profile where the fungus is active. On a site with a history of issues, preventive use of fungicides may be successful if applied when soil temperatures are 55-65 degrees F. Regional differences in approach include the timing of fungicide applications along with the duration of occurrence. Sensitivity to DMI fungicides narrows the options of effective active ingredients for bermudagrass. I would expect to see increased use of wetting agents and additional fungicide combinations. We will also probably see increased focus on using irrigation to move fungicides down to the appropriate depth.

FMC Professional Solutions

TINA BOND

Technical Service Manager

Fairy ring can be difficult to control as there are some species that produce mycelium 2 to 3 feet deep in the soil profile. In infested areas, core



aerification and localized irrigation can help reduce dry areas associated with fairy ring. In general, preventative applications should begin once soil temperatures at 2 inches reach 55 degrees F. Depending on the season, it may require two to three applications for season-long management. Applying fungicides with a penetrant or wetting agent is highly recommended. Fairy ring is caused by a group of fungi classified as basidiomycetes. These are soil-borne fungi that colonize soil particles in the root zone as well as thatch layer. There are more than 50 species of fairy ring. Fairy ring control can be very difficult. What works for one turf manager may not work for another. Fungicides are an important tool when it comes to fairy ring control. Keeping abreast of research can help us understand control options and how to better manage fairy ring.



"The shape of collars predisposes them to wear injury. Mowing in straight lines like on a putting green is less stressful than mowing the curved or serpentine pattern that often is required when mowing collars."

KARL DANNEBERGER, PH.D., Science Editor

Don't get collared by trouble

ithin the rules of golf, the collar falls in the category of "through the green." The definition of "through the green" (the term was changed, but more on that later) was:

The whole area of the course except:

a. The teeing ground and putting green of the hole being played; and *b*. All hazards on the course.

The expression "through the green" has an interesting history. In golf's early days, "the green" meant the entire golf course. In time, "the green" came to mean just the putting green.

In the 2019 Rules of Golf "through the green" was changed to general area. The general area covers most of the course and is where a player's ball is most often played. It includes every type of object found in that area such as fairway, rough and trees. It does not include teeing areas, penalty areas, bunkers or the putting green.

The collar acts as a buffer between the putting green and the surrounding first cut of rough. A collar's width and height can vary, but it's meant to prevent a too-severe penalty to the golfer who faces the possibility of their ball rolling just off the putting green.

By definition, collars are general areas. To superintendents, collars are an agronomic hazard. Per given foot, the collar is subject to the most intensive and damaging wear on a golf course. The second-most prone area to damage resides next to the collar — the clean-up pattern on the putting green.

Collar maintenance difficulties result from the dimensions and shape of the collar, construction, equipment and golfer wear and proximity to bunkers. There is no set width for a collar. Some are as narrow as the width of a cutting unit of a walk-behind mower, to widths mowed with triplexes. To minimize wear, especially with narrow collars, make them the width of a cutting unit or multiples of the cutting unit width to minimize overlap. Continual overlap causes significant injury.

The shape of collars predisposes them to wear injury. Mowing in straight lines like on a putting green is less stressful than mowing the curved or serpentine pattern that often is required when mowing collars. The slightly higher height of cut on collars, combined with the turning and sliding of the mower while mowing, exposes much of the leaf blade to a tearing action. Practices to reduce tearing include throttling down the mower, and in some cases, reducing collar height slightly to enhance more upright growth. Dense, upright turf supports more of the mowing unit on the leaf tips. Additionally, minimizing turning greensmowers on collars reduces collar wear. Instead, turn on the first-cut rough or use the collar boards.

Collar root zone construction influences turf health. Collars often exist on a shallow, feathered-out green's root zone mix. In this situation, the collar may remain wet compared to the green, resulting in saturated soil that is unhealthy. Inserting appropriate drainage in the lower-lying area helps relieve excess moisture.

Conversely, if the collar is on fine sand, the surrounding soil that supports the rough may siphon water out of the root zone, making a droughty condition. Once turf is established, installing a wicking or plastic barrier to prevent moisture from moving into the surrounding soil is difficult or impossible unless renovating the collars. It's critical to monitor soil moisture content in the collar.

Where greenside bunkers are in close proximity to the green, sand can accumulate in the collars from repeated sand shots. The impact is to create a deeper root zone prone to drought and temperature stress. Coring aggressively in the fall and removing cores can help slow the buildup of sand in the collar.

Pin placement influences collar wear. Minimize isolated pin placements where golfers would enter and exit the putting green along the same path. This practice would be most effective during expected heavy play.

Successful management programs that promote a healthy collar become the template for all general areas. **G**

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

PUTT-SAVER TOURNAMENT FLAGSTICK

The Putt-Saver is a one of a kind golf flagstick. Not only is the flagstick two pieces to help reduce shipping surcharges, but the diameter of the stick at the bottom is the narrowest in the game of golf. This allows more room for the ball to fall into the cup.

A direct hit to the flagstick gives the ball more cup coverage to fall into, as well as leaving more room for an off-center putt to catch the cup and fall - as opposed to deflecting off the flagstick and not falling.

And yes, the Putt-Saver is "Permitted under the Rules of Golf."



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Lyme disease and deer ticks

Timothy Gibb, Ph.D., is an entomologist at Purdue University. Tim has worked on numerous insect problems throughout his career, including turfgrass pests and insects that impact human health. You may reach Tim at gibbs@purdue.edu for more information.

QDescribe the distribution and life cycle of the deer tick.

The deer tick, properly called a black-legged tick, is widespread on the East Coast, throughout the Midwest and along the West Coast. It continues to spread and is now found in isolated pockets throughout the country.

The black-legged tick has four major life stages; egg, larva, nymph and adult. The adults lay eggs that overwinter in soil and hatch in spring. The eggs develop into larvae, nymphs and then into adults. Except for the egg stage, each life stage of the black-legged tick requires a blood meal to survive. Rodents, deer, birds, horses, dogs, humans and other animals can serve as a source for the blood meal.

QWhat has to happen for the black-legged tick to transmit Lyme disease to a person?

First, not all black-legged ticks carry Lyme disease. Nymphs are the most likely life stage to transmit Lyme disease to humans, and most disease transmission occurs from May through July. Nymphs are about the size of the head of a pin. When a nymph comes in contact with a human, it seeks an area of bare skin and bites. People are unable to feel the bite, and the nymph needs to attach for a minimum of 24 hours to transmit the bacteria to a person.

QHow do nymphs come in contact with people?

Nymphs of black-legged ticks crawl to the top of knee or waist-high vegetation and wait for an animal or person to brush against the vegetation. As the animal or person brushes the vegetation, the nymph grabs onto the person or their clothing with its legs and crawls until it finds a suitable area of bare skin to bite.

Q What can be done on a golf course to minimize contact with black logged ticks?

black-legged ticks? Black-legged ticks are not found in mowed areas. Therefore, regular mowing of rough, fairways, tees and greens is a good way to exclude black-legged ticks. Golfers and maintenance staff should avoid areas of tall vegetation when possible. They also should conduct a tick check after being on the golf course, particularly if they have been in knee- or waist-high vegetation, and take a shower.

Spraying an over-thecounter insect repellant that contains DEET on legs, ankles, feet and shoes is a good idea before venturing out on the golf course. It's not practical or necessary to spray an insecticide on large areas of a golf course to control black-legged ticks. disease show the "bulls-eye" rash commonly associated with the disease.

Lyme disease can have serious health consequences for those bitten by a diseasetransmitting black-legged tick. Left untreated, or not treated in a timely fashion, Lyme disease can cause significant long-term health

GOLFERS AND MAINTENANCE STAFF SHOULD AVOID AREAS OF TALL VEGETATION WHEN POSSIBLE. THEY ALSO SHOULD CONDUCT A TICK CHECK AFTER BEING ON THE GOLF COURSE, PARTICULARLY IF THEY HAVE BEEN IN KNEE- OR WAIST-HIGH VEGETATION.

QWhat are the symptoms and long-term health consequences of Lyme disease?

Each person reacts differently to Lyme disease, but common symptoms that occur seven to 14 days after being bitten by a black-legged tick are fever, headache, fatigue, neck pain and stiffness in joints and muscles. If diagnosed early, Lyme disease can be effectively treated with antibiotics because the causal disease agent is a bacterium. If you suspect that you have Lyme disease, a medical care provider can perform a test to determine the presence of the disease-causing bacteria. Only about 60 percent of people infected with Lyme

problems, including arthritis in large joints and damage to the nervous system that may lead to incapacitation and even death.

The incidence of Lyme disease is increasing, and people — including golfers and golf course maintenance staff who enjoy outdoor activities — need to be vigilant about Lyme disease. **G**



Clark Throssell, Ph.D., loves to talk turf. Contact him at clarkthrossell@bresnan.net.



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1 HM Series hover mower

BLUEBIRD's HM Series hover mowers are designed for durability and productivity to conquer demanding golf course applications, according to the company. Their precise CG aspect ratio provides optimum balance and maneuverability in all operating conditions. The machine also features a proprietary fan and cutting blade designs. The cut height is adjustable from 0.5 to 3 inches. Models include the 16-inch HM160 and the 20-inch HM200.

bluebirdturf.com

2 Aera-vator

The Aera-vator from FIRST PRODUCTS

uses a vibrating action to loosen and break up compacted soils without tearing established turf. This action helps improve infiltration of water, air and nutrients, with no cores to clean up post-aerification. It works well for tees, roughs and high-traffic areas, the company says. The Aera-vator's swing hitch allows users to turn while operating. The Aera-vator also allows the user to change the shafts between three different aerator shaft options: the core, slicer and original Aera-vator shaft. 1stproducts.com

3 Air Force F-15 hover mower

The Air Force F-15 hover mower by SEAGO INTERNATIONAL is a light, two-stroke hover mower. The 60cc EPAcompliant engine provides excellent lift and a high cutting power for the all-angle mower, according to the company. At 22 pounds, the F-15 is easy to lift and maneuver and features three stainless steel cutting blades for maximum cutting power, even in taller grass. seagousa.com







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4 Velista fungicide

SYNGENTA's Velista fungicide can provide a solid foundation for a preventive fairy ring program in the spring when soil temperatures reach 55 degrees F, the company says. Applications at 0.5 oz./1,000 ft.² on a 28-day interval, or at 0.3 oz./1,000 ft.² on a 14-day interval, can provide excellent fairy ring prevention, according to the company. Syngenta also offers automated soil-temperature-based alerts that notify users when conditions in their location are favorable for fairy ring.

syngenta.com



Tartan Stressgard, a demethylation inhibitor (DMI) fungicide by **BAYER**, offers preventive control of fairy ring, plus the added plant health benefits of Stressgard formulation technology, the company says. Tartan Stressgard helps manage turf health and turf stress, such as midday wilt caused by fairy ring and localized dry spot. According to Bayer, an effective preventive fairy ring program begins with two spring applications of a DMI fungicide spaced 28 days apart.

es.bayer.us

5

6 GT230 HighSpeed-Corer

MAREDO's GT230 HighSpeed-Corer's heads turn a triplex greensmower into an aerator. It is fast, clean and has a quick hole recovery. There are three different hollow tines available alongside several solid (needle) tines. The aerator works at mowing speed and punches about 4 million holes per hour. The max depth is 1 inch, and it is a suitable alternative to removing thatch, according to the company. maredocommercial.com

The 16 th

Drew Barnett

SUPERINTENDENT // Knollwood CC, Lake Forest, III.

Drew, what can I get you? I'll have a beer ... any IPA.

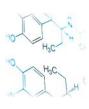
What's the golf season been like so far for the Chicago market? Wet and cold! We had the wettest May on record, and that came after our wettest fall on record. It's always a cold, wet spring here ... but hopefully this breaks soon.

Tell me about Knollwood CC. It's a great family club with a lot of activities. It's a beautiful layout. As far as playing it — you have to keep it below the hole, in the short grass.



What are your sports teams? No. 1 is the Penn State Nittany Lions football team. Everyone else after that is No. 2.

What was your favorite class at Penn State? Organic Chemistry.



It was a weed-out class, and I got an A in that class. I'm still proud of that ... and I

also still have nightmares about the class.

What's your favorite tool in

the shop? A cup-cutter. It's the best job in the morning, and you get to see the whole golf course. I try to cut cups three or four times a week.



What do you like about living in northern Chicago, and what do you recommend to people who visit here? The great thing is, I've got a 15-minute commute to work, but I'm

also a 40-minute train ride from anything in the world you could want to do. As far as what to do, I always tell

people they need to go to Wrigleyville, catch a Cubs game, then get a beer in Wrigleyville afterwards.



How is your crew here? We have an awesome staff. Half of our crew has been here 10-plus years, and some of the guys have been here 20-, 30-plus years. There's a lot of great experience, and the guys are happy to train the new people and welcome them to the team.

You mentioned to me out on the course that you haven't struggled with labor here at Knollwood. Why

is that? I think it's for two reasons. One, we're the closest golf course to the largest Hispanic population in Chicago. And two - and most important - the club supports us with competitive hourly wages.

You were previously at Philadelphia Cricket Club, a great course. And now you're at Knollwood, another great course. To what do you

attribute your success? I've worked for the right people at the right types of places — places that do a lot of projects or are well known for their conditioning. You have to do that more than working locally ... that sets you apart.

As interviewed by Seth Jones, June 14, 2019.



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