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02.23

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Before one-on-one meetings with these top-tier superintendents, partners had eight minutes to address the supers as a group. Here's what they said

Golfdom *Summit*

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A detailed view of a Smithco Spray Star 1200 sprayer machine. The machine is primarily orange with a white tank and black frame. It features a large, articulated spray boom extending upwards and outwards. The operator's seat is white, and the steering wheel is black. The machine is set against a dark blue background with a large, stylized grey star graphic. The text "Spray Star 1200" is positioned to the left of the machine's tank.

Spray Star 1200

The bottom section of the image features a black background with a white diamond plate pattern. The Smithco logo, which includes a stylized star, is positioned to the left of the slogan. The slogan "WE TAKE YOUR TURF SERIOUSLY" is written in a bold, sans-serif font.

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Short Game

Before one-on-one meetings with these top-tier superintendents, partners had eight minutes to address the supers as a group. Here's what they said



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“(Cuban) told CBS’ Jim Axelrod, ‘Life is half random. There’s half you have some level of control over and half, it is what it is.’”

SETH JONES, Editor-in-Chief & Associate Publisher

That was the moment

It’s amazing how good timing can change someone’s life. Right place at the right time. I’ve been reminded of this lately, both in mainstream media and while doing interviews for *Golfdom*. It’s inspiring to consider that on any day, a young person’s first days or weeks at work might be changing their life forever.

One of the biggest bands of the last 20-plus years — Foo Fighters — was created by Dave Grohl. Before Foo Fighters, he was the drummer for Nirvana. In his autobiography, Grohl tells the story of sleeping on a friend’s floor in Los Angeles, desperate for money, when a friend gave him the phone numbers for the guys from Nirvana.

The band he was drumming for, *Scream*, had fallen apart. Kurt Cobain and Krist Novoselic saw Grohl a few weeks earlier at a show in Seattle and were impressed. They invited him to move to Seattle to rehearse for recording their second album, 1991’s *Nevermind*.

Grohl accepted and packed his duffel bag. *Nevermind* would go on to sell 30 million copies worldwide.

On a recent episode of *CBS*

Sunday Morning, Mark Cuban, entrepreneur and owner of the Dallas Mavericks, recalled how he and a friend were living in Dallas and wanted to listen to Indiana University basketball games but couldn’t. It was the early days of the internet, and by troubleshooting this problem, they essentially invented online livestreaming — something they sold to Yahoo! for \$5.7 billion in stock.

Change of plans

The fortunate timing of the internet being an up-and-coming technology is not lost on Cuban. He told CBS’ Jim Axelrod, “Life is half random. There’s half you have some level of control over and half, it is what it is. If I was born five years sooner and not during the early days of the internet, you might not know

my name. And I’ll never take that for granted.”

In a recent conversation with Marc Muniz, director of agronomy at The Club at Lansdowne (Va.), he shared his own ‘right place, right time’ moment with me (my Q&A with Marc appears on page 36.)

Muniz was pursuing a criminal justice degree while working part-time at a country club on the food and beverage side. He was let go from the course but told by the superintendent that there was an open position at Ridgeview CC in Paramus, N.J. — on the maintenance crew — if he was interested.

“I had no turf knowledge at all, but they liked what they saw in me, and they offered me a position as an intern,” Muniz recalls. “After the (2010 Barclays), they offered

me an assistant-in-training position. When they offered me that, I thought, ‘I could make a career out of this.’ It was so exciting. After that, it was game on.”

A leap of faith

Muniz asked his boss, Ridgeview Superintendent Todd Raisch, CGCS, what he should do to make it a career. Raisch, well known for his passion for the Buckeyes, told him to enroll at Ohio State.

Muniz told him he didn’t see himself moving to Columbus. Raisch said, “Well, just don’t go to Penn State!” Muniz decided to attend UMass and got an associate of science in turf and turf management. The rest, as they say, is history — now Muniz is the director of agronomy at a 45-hole facility.

“That was the moment,” Muniz told me. “When they saw something in me that I could be more? ... That gave me the self-confidence. I said, ‘OK, I’m going to make it happen.’”

If that superintendent didn’t point out that job at Ridgeview, how different might his life be today?

As the 2023 season is set to begin, courses around the country will be ramping up and adding staff. Some staff work out, others come and go. None of us will sell 30 million copies of an album or make Mark Cuban kind of money ... but for those who find a career they love, the moment will be remembered forever. **G**

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Starter

NEWS, NOTES AND QUOTES



//NORTHEAST OF KNOXVILLE

GREENWORKS COMMERCIAL LAYS ROOTS IN EASTERN TENNESSEE

The battery-powered mower manufacturer opens its first U.S.-based manufacturing facility

BY ROB DIFRANCO // Associate Editor

➔ Greenworks Commercial, a manufacturer of battery-powered handheld tools and mowers, opened its new Commercial Center of Excellence for Manufacturing and Engineering in Morristown, Tenn., last month.

The 180,000-square-foot facility is the company's first manufacturing facility in the United States.

"We were determined to make Morristown our home for manufacturing in North America," said Greenworks founder Yin Chen. "We have a very diversified team. We have people from China and Europe working together with a local team here. Our common goal is for this factory to produce the best battery-powered equipment on the market."

The facility is semi-automated, featuring robotic guided vehicles, which shuttle mowers through the assembly line, and a fully-robotic welding center.

"I saw this factory 18 months ago when it was still a (General Electric)



Greenworks Commercial will produce its new OptimusZ battery-powered mower at a new facility in Morristown, Tenn.

factory, and it's still transforming," said Klaus Hahn, president of Greenworks. "It's changing every day. What you see here is just a glimpse of what's to come."

Currently, the facility manufactures Greenworks' new OptimusZ zero-turn mowers. The lithium-ion battery-powered mowers, which the company announced in late 2022, offer up to eight hours of runtime with a top cut speed of 16 mph.

The company plans to manufacture its first fully-autonomous mower, the OptimumAI, at the facility by late 2023. It also will expand with a parts and service warehouse and automatic assembly lines for its large commercial-grade battery modules to the facility by early 2024.

//SALES PROS OF THE YEAR

HARRELL'S HONORS NOWAKOSWKI, JENSEN

Harrell's, a distributor of fungicides, herbicides and insecticides, named Dave



Dave Nowakowski

Nowakowski and James Jensen as its 2022 Sales Professionals of the Year.

Nowakowski of Turf Florida and Jensen of Turf South Central have been with Harrell's for eight years.

"Dave operates in a quiet manner, but if you spend time with him, his passion for the industry, Harrell's and success is very evident," says Clay Breazeale, sales director of Turf Florida.

The company says it named both men winners of the award based on their great years and work in 14 leadership areas within its core values.

"James has proven to be a leader of this region and has helped other sales reps, including new reps, with recommendations or advice and provided them with his own ways that he takes care of customers and others around him," says JJ Jansen, sales director of Turf South Central.



James Jensen

//RAZO THE ROOF

ILLINOIS SUPERINTENDENT NAMED EMERGING LEADER

The Golf Course Superintendents Association of America (GCSAA) recognized Brandon Razo, superintendent at Panther Creek Country Club in Springfield, Ill., and president of the Hoosier GCSA, with the Emerging Leader Award.



Brandon Razo

The award recognizes either a superintendent with less than five years of experience, a student, an associate or an assistant who displays continuous growth in service and leadership.

"I am very excited and grateful to receive this award," Razo said. "It is great to be recognized. I want to thank the GCSAA board members who have helped me become more involved with helping others and to lead out."

//EXPANDING THE MISSION

Audubon International beefs up its board

➔ Audubon International added two golf industry executives to its board of directors: Jake Riekstins, chief development officer of Landscapes Unlimited, and Dan Murphy, CEO of Bridgestone Golf.

As at-large board members, Riekstins and Murphy will further Audubon core mission and execute its strategic plan.

"Dan and Jake bring a great deal of business acumen, environmental knowledge and a wide range of contacts to our board," Christine Kane, CEO of Audubon International, said. "We're looking forward to working with them as we move forward with new initiatives to further our mission."

As chief development officer for



Dan Murphy

Landscapes Unlimited, Riekstins leads the company's strategic planning process, executing key initiatives. Riekstins is also a 23-year member of the Golf Course Superintendents Association of America.

"There are many eco-friendly steps golf courses need to take to preserve our natural habitat," said Riekstins. "It's a great time for courses to highlight environmental stewardship by enrolling in Audubon International."

Murphy became president and CEO of Bridgestone Golf in 2018. He is responsible for directing the company's core functions, including product planning and production, marketing and customer relations.



Jake Riekstins

//BERMUDIAN RHAPSODY

PURE SEED AND ATLAS TURF DEBUT NEW BERMUDAGRASS

Sun Queen, a new seeded bermudagrass release, features reliable growth, maximum protection and advanced playability and appearance, according to Pure Seed and Atlas Turf.

"Pure-Seed Testing developed Sun Queen using germplasm obtained from Mississippi State University," says Melodee Fraser, Ph.D., director of Pure Seed testing East. "It has demonstrated wide adaptability by exhibiting excellent turf performance in multiple trial locations over a range of environments and management conditions. Sun Queen is well-adapted for golf courses, sports turf, parks, lawns and amenity turf areas."

The companies say Queen features a dark green color, refined leaf texture and early spring green-up. PureCoat+, a water-absorbent seed coating, guards the seed against environmental pressures and provides a faster germination process, quicker establishment and improved water efficiency.



//ADD IT TO THE LIBRARY

TURFGRASS DISEASES GETS NEW FOURTH EDITION

Compendium of Turfgrass Diseases, Fourth Edition — a resource on turfgrass diseases, pathogenic causes and effective management — was recently released.

The fourth edition's editors — including Syngenta Technical Services Manager Lane Tredway, Ph.D. — say advances in turfgrass pathology have occurred since the publication of the third edition in 2005, calling for a revised edition.

Approximately half of the fourth edition text is new or revised, with more than 200 new figures added, including disease symptom images, photomicrographs, pathogen drawings and disease cycle diagrams.

The new edition covers approximately 75 diseases and abiotic disorders, with detailed descriptions of characteristic symptoms and causal agents. It also describes each disease's cycle and epidemiology, emphasizing the conditions that stimulate disease development.



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**Golfdom
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EDITION



1 Welcome to the party *Golfdom* Editor Christina Herrick and David Wells, Nufarm customer and brand marketing manager, T&O, were better than the door greeters at Walmart.

2 GPS sensor Leave it to Ken Rost, president, Frost, to perfectly time this photobomb of (left to right) Kevin Stoltman, president and CEO, North Coast Media; Rost; Allan Fulcher, vice president, turf, Quali-Pro and Bob Farren, CGCS, director of golf course and grounds management, Pinehurst Resort.

3 Book club *Golfdom* Editor-in-Chief Seth Jones and Doug Vogel, superintendent at Preakness Valley GC, Wayne, N.J., who gave Jones a copy of his book, *Babe Ruth & the Scottish Game*.

4 Major reunion These four worked at the 2013 U.S. Open: Curtis Schriever, Wichita (Kan.) CC; Arron McCurdy, Shoreacres GC, Lake Bluff, Ill.; Matt Shaffer, superintendent emeritus, Merion GC, Ardmore, Pa.; and Patrick Joy, Boot Ranch, Fredericksburg, Texas.

5 #Winning The winners of the Summit scramble! From left to right, Erik Spong, North Central account manager, Sipcam Agro; Paul Van Buren, Kanawha Club, Manakin-Sabot, Va.; Tim Connolly, PGA Tour, and Dave Plaster, director of business development, Husqvarna.

6 Gentlemen's agreement Andrew Kjos, CGCS, The Club at Admiral Cove, Jupiter, Fla.; Scott Simpson, Benton (Ill.) CC; and Joey Ciccolini, senior digital specialist, North Coast Media, will never discuss how poorly their partner (handed a book in photo No. 3) played.

7 A new Anuvia Legend (Left to right) Chuck Barber, vice president, Anuvia Plant Nutrients; Farren; Tim Hiers, CGCS, golf course manager at White Oak Conservation, Yulee, Fla.; Shawn Emerson, Ethos Club and Leisure; Shaffer; John Fowler, vice president of sales, Anuvia Plant Nutrients, at Hiers' inauguration into the Anuvia Legends.

PHOTOS BY: GOLFDOM STAFF





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“As superintendents, we think we are in the grass-growing business, but at the end of the day, we are in the service industry.”

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

In this business, perception matters

It was one of those days during the dog days of summer. I was early in my career as a superintendent with the energy that comes along with youthful ignorance, not yet beaten down by the wisdom that comes with age. The result was that I felt and looked busier than I needed to be, and my priorities were my priorities.

That was until, a board member stopped me and asked me to take care of some mundane (to me) item. Obviously, it was so important that I have no recollection of what it was. Although I do remember one important part, which ended up being a fundamental learning moment.

I told him — with the attitude that accompanies inexperience — that I knew about it. After accepting that it needed to be done, I proceeded to give all of the reasons why it couldn't be done right now and how, in the whole scheme of what needed to be done, it was not that important.

After acknowledging that he, too, knew it was not that

important, he told me the issue was, to members, it looked like it was not being addressed. Therefore, ‘that kid’ running around wasn’t taking care of it. Which, by default, meant he was not very good at his job.

He finished with a comment, “perception is reality.”

Eureka!

While, in the moment, it didn’t quite make sense, I reluctantly accepted that I had no other choice and immediately took care of the issue. That comment kept eating at me, however.

How can something you know to be true not be the reality to someone else? When I eventually realized that it should be “your perception is

your reality,” things clicked.

It was a eureka moment for me in my career. The reason my immature brain couldn’t comprehend the statement was that while your reality is reality, it is just that, your own. Just because you have decided it is, does not mean that someone else sees it the same way.

Having been taught a new lesson in the school of hard knocks, the light went off, and I started taming that youthful ignorance. I was not just prioritizing what I thought was important but also looking at how others would perceive it.

Take the pressure off

We make decisions every day based on staffing, budget, the

weather and numerous other things out of our control. But inevitably, there will still be the “What are they doing to the course now?” “Why is that idiot doing that?” comments.

Communication is clearly a big help in ensuring the correct reality (my own) is observed, but it still does not prevent people from making up their minds on something.

As superintendents, we think we are in the grass-growing business, but at the end of the day, we are in the service industry. No matter how good we think the turf is or how perfect everything looks to us, someone will see it differently.

There is an old adage that 10 percent of people are always happy, 10 percent are always miserable and 80 percent are indifferent. Who are the ones we should cater to? The key is to avoid falling into the trap of listening to that unhappy 10 percent.

By acknowledging the differences in how you and others perceive your surroundings, you can make small adjustments. Those changes show the naysayers that you are trying to address those otherwise ignored lower-priority items, all while still keeping the majority happy.

Who knows, maybe in the process of doing so, you will take some of the pressure off yourself and make yourself a little less crazy, or at least the perception that you are. **G**

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

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Short game

As told by the partners of the 2022 Golfdom Summit

To kick off the 2022 Golfdom Summit, a room full of top-level superintendents from around the U.S. assembled at Reunion Resort near Orlando. Before the one-on-one individual meetings would begin the following day, partners were given eight minutes to address the superintendents as a group. One by one, the 18 partners entered and exited the room. Here are some take away messages from each of them.

The company: [Smithco](#)

What: Sprayers, rollers and bunker rakes

Who: Steven Johnson, sales

What he said: “We’ve been doing this for an extremely long time. And we like to pride ourselves on the fact that we are innovators; we tend to lead the marketplace when it comes to new ideas. One thing that we like to brag about is that we are one modular component, tip to toe. Every component that we use on our spray rigs are TeeJet components. Dave Annis is our spray tech. So we actually have somebody that if it’s something that distribution can’t figure out or can’t be sorted out over the phone, Dave will actually be on your property. He is a true asset to Smithco and

what we do as far as our sprayer lines go.”

For more: [Smithco.com](#)

The company: [Turfco](#)

What: Widespin 1550 Broadcast Topdresser

Who: Scott Kinkead, executive vice president

What he said: “The 1550 is all about helping you and your staff be more productive. It’s easier to load with an 80-inch hopper opening, it reduces the number of passes on your greens with its edge-to-edge consistency. A lot of time was spent on the design of the spinners and where the sands come into the spinners, so you can get different applications without any mechanical adjustments. Just set your eight different preferred applications for both the 1550 and the



Jeff Churchill of Smithco walks superintendent Derrick Dreyer of Frost Creek through Smithco's battery-powered bunker rake.

PHOTO LEFT: GOLFDOM STAFF; DARIA DOROSHCHUK / ISTOCK-GETTY IMAGES PLUS / GETTY IMAGES (HEADER)



Turfco's Widespin 1550 Broadcast Topdresser helps superintendents save time with eight different customizable application modes, according to the company.

CR15 and you're able to get all your different applications with just the push of a button. What guys love about the 1550s is the confidence they have knowing you're always getting the perfect application you want so you and your staff can tackle other tasks."

For more: Turfco.com

The company: Quali-Pro

Who: Jeff Rampino, Florida territory manager

What he said: "We like to think of ourselves as a hybrid company. We're developing active ingredients. I think everyone has felt the pain of the supply chain issues; we've been affected a lot less than others because of our ability, through our parent company Adama Group, to pull material from China and Israel because we are fully backward integrated. Adama gives us access to more than 270 active ingredient building blocks to put together new products for superintendents. All our products are formulated here in the U.S., our pesticides and fungicides are formulated onsite in our Houston facility and our herbicides

are formulated in Georgia."

For more: ControlSolutionsInc.com

The company: PBI-Gordon

What: Pedigree, Reunion

Who: Andrew Scott, product manager and Melissa McDonald, marketing manager

What they said: "While we're certainly

proud of our brands like SpeedZone EW, Segway and Q4 Plus, we're looking forward to talking about some of the newest solutions we've brought to market. Solutions like Pedigree fungicide and Reunion fungicide, among others." — *Scott*

"We also have a vast array of training and resources available online for superintendents and their staff to use. We're continuing to add more training modules and information that give short snippets that give a good overview of the products and some industry information. Supers can also earn points that are redeemable for gifts by completing training." — *McDonald*

For more: PBIGordon.com

The company: Seago International

What: F-19 Gen 3 hover mower

Who: Scott Sweeney, president

What he said: "We launched our F-19 Gen 3 about nine years ago, and we've taken a lot of input and put what we've learned from superintendents, equipment managers and mechanics into the machine. We have an incredibly strong nylon-injected polymer deck, a tall impeller for maximum flow, stron-

Continued on page 14



2022 Herb Graffis Businessperson Award winner Alex Stuedemann, CGCS (top right) and Alex Beson-Crone (right) meet with the team from Quali-Pro.

Golfdom Summit 2022 RECAP



Seago International President Scott Sweeney says the F-19 Gen 3 brings together input from superintendents and mechanics alike.

Continued from page 13

ger and longer handles and a high lift kit. To steal something from Papa John's, better ingredients make better hover mowers. Our normal decks get up to about 2 ½. Our high lift kit clips into place, which takes our max height up to 3 ¾. All of these machines are hand-assembled in Hickory, N.C. The machine has three blade options, stainless steel, quick change and a string option."

For more: SeagoInternational.com

The company: Frost

What: Ninja GPS Spray Control System

Who: Ken Rost, president & CEO

What he said: "When we came to this *Golfdom* Summit, we had superintendents ask us, 'why don't you have some turn-key sprayer that you can offer, that way we can put it in our budget and we can ask for it and get the whole thing wrapped up in one?' When we listened to that, we started looking for vehicle platforms. We chose the Kubota RTV 1140. That has proven to be the best move we have made. That machine, combined with our Ninja GPS Spray Control System, creates a sprayer that is accurate, reliable, repeatable and very productive. It gives the operator knowledge of what he is doing, and the superintendent a lot of feedback as to what is going out on the course. And we don't stop there, we keep listening. If you have ideas, we want to hear them. That's why we're here."

For more: FrostServ.com

The company: Harper Turf Equipment

What: TV60 RE and TV60 RHD Tow-Behind Sweepers

Who: Byron Riesen, territory manager

What he said: "We manufacture niche products for the turf industry, specializing mostly in sweepers and vacuums. We're based out of Harper, Kan., and we've been around since the early 1970s. One of the technologies we have in all our sweepers is called recirculating air. It is a dust-control technology that keeps the dust, dirt and even some of the noise pollution, contained within the system. You don't need screens or filters that need to be cleaned out regularly. And you have a cleaner working environment for the operator and you're less disruptive to the golfers. This is patented technology that we use on all our sweepers."

For more: HarperTurfEquipment.com

The company: The Andersons

What: Contec DG

Who: Alan Hollen, territory manager

What he said: "We've been doing Contec DG for quite some time, and it's been very successful. We've expanded that technology to our humic lines and we're going to continue to develop new products. We really pride ourselves in our technologies. A lot of people can make nice N, P and Ks, blend them and make a nice homogeneous product. We take it a step further. We have a robust research and development team. Last year we brought on Dr. Ben Pease from Iowa State, fantastic guy, very smart. He's sitting there in research and development and that's why, every year, you're going to see new products from us when you come to the golf show."

For more: AndersonsPlantNutrients.com/Turf

Continued on page 16



Legends Shawn Emerson, Bob Farren and Tim Hiers discussed The Andersons' products with Allen Hollen and Darren Johnson.

PHOTOS BY: GOLFDOM STAFF

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Golfdom Summit 2022 RECAP

Continued from page 14

The company: Steel Green Manufacturing

What: SGXL

Who: Caleb Myers, demo rep

What he said: “We make stand-on spreader-sprayers. Over the last four years, our bread and butter has been in the lawn care industry, but we’re venturing out into golf and sports turf. We just celebrated our four-year anniversary. The SGXL is a 120-gallon sprayer with a 14-foot rear boom. Adjustments from rate to rate are very simple. This machine is not limited to liquid. The tank lifts off with four bolts and two hydraulic hoses, and you can drop on a 350-pound (capacity) stainless steel hopper. The fert trays on the sides hold five bags of fertilizer on either side, giving you an additional 500 pounds of capacity.”

For more: SteelGreenMfg.com

The company: FMC

What: Fame, Rayora, Kalida and Serata

Who: Tracy Tudor, key customer manager

What he said: “In 2020, we moved into the next generation DMI with Rayora for dollar spot, gray leaf spot, brown patch control, in cool season grasses, as well as spring dead spot in warm season grasses. In 2021 we launched a superior combination product that has an SDHI and a DMI product called Kalida. We had a huge presence at the golf show in 2022 with our brand new *Pythium* (product), a brand new FRAC code, Serata. It’s been in the market for a season, we’ve had a really good response. But we’re here because of you. We’re investing in the industry. Since 2020 we’ve donated \$110,000 back to local chapters. We believe in a strong relationship between us and you, the end user.”

For more: FMCProSolutions.com

The company: Bernhard and Co.

What: Reel grinders, bedknife grinders

Who: Gary Ray, business development manager

What he said: “We are the second-oldest equipment manufacturer in the turf business. We’re a global company. But we also represent SubAir and TurfBreeze fans everywhere in the world, except for the U.S. Our mission is to provide education and to create better playing surfaces. We do an awful lot of education and support in training to achieve those things. We work alongside all of the industry partners ... GCSAA, PGA Tour, LPGA Tour, USGA, PGA of America, we do a lot of tournament support ... We also have a very good customer service support center. We basically have people positioned throughout the world so we can handle support on a 24-hour basis. We overnight all our parts to customers.”

For more: Bernhard.Co.UK



Matt Smith of Steel Green Manufacturing walks Ryan Emerich through the company's SG52 zero-turn spreader-sprayer.

The company: Sipcam Agro USA

What: Coastal and ETQ product family

Who: Todd Mason, senior director of sales and development

What he said: “Sipcam is a 76-year-old privately held, Italian, family-owned company. We stand out because we have the ability to be a little bit more agile, maneuver a little bit quicker and hopefully bring things to the market faster ... innovation, passion, experience, independence and discipline. ETQ was one of our product lines, our enhanced turf quality products. Coastal, one of our newest herbicides, a warm season product. ... It's not just fungicides. It's not just insecticides. It's not just herbicides. It's biostimulants. It's bionutritionals. One thing that's nice is being a family-owned company out of Europe, we have access to things that are very much in the pipeline there because of the European Union and their regulatory restrictions.”

For more: SipcamAgroUSA.com

The company: Nufarm

What: Anuew PGR, Tourney EZ

Who: Chris Fronczek, golf market manager

What he said: “What we’re excited about at Nufarm in the next two, four, six years as we bring (new products) to the market to our customers. ... Anuew is a popular late-stage GA-inhibiting growth regulator ... we’ll be moving over to a liquid formulation, as will Tourney EZ fungicide, a great cool-season, warm-season fungicide for some hard-to-control diseases, fairy ring in particular. Allstar is a four-way postemergent herbicide that will

Continued on page 18

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Golfdom Summit 2022 RECAP

Continued from page 16

be coming out in summer — June or July 2023. Great on crabgrass, grassy weeds, sedges and hard-to-control broadleaf weeds. (Decide fungicide) we're waiting on EPA in this, but a third-generation SDHI that we're really excited about. This will be a foundation product to build on to combo products."

For more: [Nufarm.com/USTurf](https://www.nufarm.com/USTurf)

The company: Jacobsen / Cushman

What: Eclipse 360 Elite, AR530

Who: Josh Haggas, corporate accounts

What he said: "We're taking our Eclipse 322, which I consider to be the best greens mower in the business, and making it completely lithium-ion (Eclipse 360 Elite). The AR530, our five-gang rotary mower ... we've made some great efficiency changes to that machine, some traction changes. We're taking lithium-ion into our fairway unit (with the Eclipse 360 Elite). It went up to over 70 holes on one charge with the lithium-ion placed in the unit. And they thought it could have been more, they just stopped counting at 70. Our (Electric Light Fairway) unit, which basically means we're taking lithium ion into the old LF5



Golfdom Summit attendees got the inside scoop on Jacobsen's Eclipse 360 Elite from Klasie Baard, regional sales manager for Jacobsen.



Jim Pavonetti and Glen MacDonald learn more about Kafka Granite's wax polymer pathway mix from company owner Glenn Kafka (right).

series. ... We have taken that lithium-ion into the Hauler Pro Elite and the Hauler Pro X Elite."

For more: [Jacobsen.com](https://www.jacobsen.com) / [Cushman.com](https://www.cushman.com)

The company: Kafka Granite

What: Wax polymer pathway mix

Who: Jason Chilson, sales representative

What he said: "We're trying to provide a solution to areas that we can offer a natural looking pavement or equivalent that also stands up to Mother Nature and address some of the main issues that you are all facing. There are different color options to fit your aesthetic needs. We address erosion issues in areas of heavy rains and drought areas and areas with high winds. We can minimize the amount of dust. The biggest thing for you is the reduced maintenance costs. It's also works well with the environment. It's flexible. It's not going to crack and fall apart like a typical hardscape pavement. We took the same proprietary wax product, we manipulated the aggregate gradations and we made a bunker sand out of that. Your out-of-play bunker faces and your target bunker are great areas where you can put this material in."

For more: [KafkaGranite.com](https://www.KafkaGranite.com) / [Golf](https://www.Golf)



Dave Plaster, director of business and golf for Husqvarna, shares with Steve Gonyea how Automowers offer a look into the future.

The company: Husqvarna

What: Automowers

Who: Dave Plaster, director of business development and golf

What he said: "(Autonomous mowing) is where the technology in the industry is going. The best part about robots is that they never call in sick, so you don't have to worry about labor issues. They

Continued on page 20

PHOTOS BY: GOLFDOM STAFF

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Your livelihood depends on a consistently great playing experience. Your pride drives you to achieve a great looking course. Score both with the holistic - above and below ground - turf health boost from GreenActivator. By enhancing root mass with GreenActivator you achieve greater water uptake and greener, overall healthier grass that delivers a great golf course experience.

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"Superintendents are doing less vertical removal of the plant because its expending energy below the surface. You don't need to mow as often which is a huge savings both from the mechanic standpoint from reels and bed knives, but also from the hours of somebody out there on the mower physically mowing."

Adam Thoms, Ph.D.

Assistant Professor,
Commerical Turfgrass
Management and State
Turfgrass Extension Specialist

"With GreenActivator, I've noticed much lusher fairways. For me, it was like mowing on a cloud because the grass was standing up. The grass is thicker, but not higher, so the ball sits up better for golfers and improves playability. I get positive comments from golfers constantly."

Scott Rohlfsen

IAGCSA 9-Hole Superintendent of the Year



SUBJECT: Treated with equivalent dose of GreenActivator

CONTROL: Treated with 0.5 lbs or UAN



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Golfdom Summit 2022 RECAP



The increased availability of data is the name of the game for the POGO Turf Pro platform according to President Carmen Magro.

Continued from page 18

run 24/7, rain or shine. That doesn't mean that we're taking away jobs from anybody. You're freeing up the labor that you had, and you can put it into more detailed work areas like greens and bunkers. Robotic mowing is not about event mowing, where you let the grass grow to a certain height and then cut it. With robotic mowing, you set the cut to a certain height and then maintain it forever."

For more: Husqvarna.com/US

The company: [Redexim](https://Redexim.com)

What: Verti-Drain 2519 and Top-Brush 6000

Who: Darren Powers, eastern regional sales manager

What he said: "Our newest Verti-Drain aerator, called the 2519, is here at the *Golfdom Summit*. It's a deep-tine aerator that will go up to 10 inches deep to relieve compaction. You can put coring and solid tines in there — any tine you want, even down to pencil and bayonet tines. We've also developed a 19-foot-wide top brush — the Top-Brush 6000. These brushes are really popular in Europe, and we've brought

them to the U.S. within the last year or so, and they're starting to gain popularity. A lot of people don't want to spray or can't spray for worms out on their course. This does a great job getting rid of worm cast-


ings, plus it's also great for removing dew and lifting up your turf."

For more: Redexim.com

The company: [POGO Turf Pro](https://POGO-Turf-Pro.com)

What: POGO Turf Pro platform

Who: Carmen Magro, president

What he said: "We want to give you the confidence to make the best decisions possible. The platform collects key information that gives you a precise analysis to make the decisions that you have to make every single day. We measure soil, turf, weather, water and much more. You'll know if you're headed toward better conditions or away from them. We've all been there where we go out on the course and think, 'Why can't I have it this way every day?' If you measure it, you can get to that point and maintain it over time. It's also a full-scale mapping platform. You can map anything with POGO. You can log wildlife and all of your irrigation assets. We've even had courses in California that mapped out trees that they lost in fires for insurance claims." 

For more: PogoTurfPro.com



Redexim's Verti-Drain 2519 is the company's latest deep-tine aerator, continuing the Verti-Drain line of products, which the company invented in the 1980s.

PHOTOS BY: GOLFDOM STAFF

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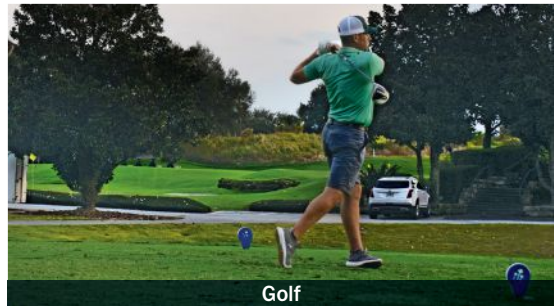
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// DIGGING IN

A NOVEL MANAGEMENT STRATEGY FOR ROOT-KNOT NEMATODES

By Mike Kenna, Ph.D.

Meloidogyne spp., root-knot nematodes, are among turfgrass's most economically-important plant-parasitic nematodes in the U.S.

Recent work at Auburn University demonstrated the potential for microbial control of root-knot nematodes in turfgrass. The research team included Will Groover, Ph.D., David Held, Ph.D., Kathy Lawrence, Ph.D., and Kendra Carson.

The researchers evaluated the efficacy of 104 plant growth-promoting rhizobacteria (PGPR) strains isolated from grasses in Alabama against *M. incognita* in laboratory experiments. They also conducted greenhouse and microplot studies to examine the ability of PGPR to manage plant-parasitic nematodes.


In lab studies, root-knot nematode mortality ranged from 0.9 percent to 94.6 percent by all strains screened. Researchers selected ten individual PGPR strains and one three-strain blend for testing in the greenhouse microplots.

Six of the 11 PGPR treatments significantly reduced population density of root-knot nematodes in greenhouse studies. A few strains also appeared to promote some root growth. Five of the 11 treatments significantly reduced population density of root-knot nematodes in microplot experiments.

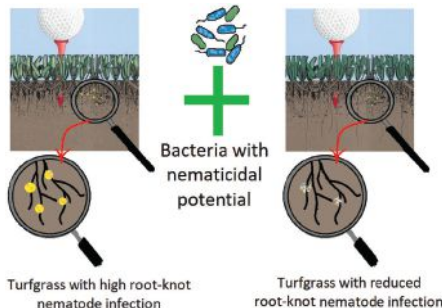
Of these strains, the researchers identified 11 as *Bacillus* spp., one as *Stenotrophomonas rhizophila*, and one as *Paenibacillus sonchi*. Eight of these strains also were found to have nitrogenase activity, and seven could produce siderophores.

Siderophores are iron-chelating compounds secreted by microorganisms. They help organisms accumulate iron and show a potential mechanism for growth promotion.

Results indicate that multiple strains of *Bacillus* spp., and one strain of *S. rhizophila* can potentially reduce the density of root-knot nematodes and enhance root growth.

Generally, microbial controls of turfgrass pest problems are challenging to scale up to the golf course. However, it is interesting evidence that a lot is happening in the plant-soil microbiome. 

Will Groover, David Held, Kathy Lawrence, Kendra Carson. 2020. Plant growth-promoting rhizobacteria: a novel management strategy for *Meloidogyne incognita* on turfgrass. *Pest Management Science*. 76(9):3127-3138. <https://doi.org/10.1002/ps.5867>



Some bacterial strains can potentially reduce the population density of root-knot nematodes and enhance turfgrass root growth.

NEWS UPDATES

PRIME SOURCE NAMES TURF PRODUCT DEVELOPMENT MANAGER

Prime Source, a division of Albaugh, promoted Bret Corbett to the role of product development manager for turf and ornamental. In his new role Corbett is responsible for providing developmental, technical and marketing support to the Prime Source specialty products commercial team for all current and new product introductions.



Bret Corbett

He previously held the role of technology and field development manager for turf and ornamental with Albaugh. Corbett is currently completing his Ph.D. at Virginia Polytechnic Institute and State University in plant and environmental sciences, with an emphasis in weed science.

"Bret has been a tremendous asset to the Prime Source team since joining the company in 2019," said Tim Stoehr, vice president of development and marketing. "His technical, data development and agronomic skill, along with his understanding of the product development process made him a natural fit for this role."

FINDING A NEW MANAGEMENT OPTION FOR NEMATODE SUPPRESSION WOULD BE EXTREMELY VALUABLE."

Will L. Groover, Ph.D., and Kathy S. Lawrence Ph.D.

(see story on page 24)



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



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//SOIL, SOIL, TOIL AND TROUBLE

Taking a look at a new option for nematode management in turfgrass

By Will L. Groover, Ph.D., and Kathy S. Lawrence, Ph.D.

Plant-parasitic nematodes are a significant pest of turfgrass in the U.S., yet there are few options for successful management. Most current management strategies rely on using a limited number of chemical nematicides, so finding a new management option for nematode suppression would be extremely valuable for turfgrass managers.

One potentially helpful chemical nematicide for turfgrass is fluazaindolizine (Reklemel, Corteva Agriscience), a novel sulfonamide recently discovered to have nematicidal properties (5,6,7).

EFFECTIVENESS IN SPECIALTY CROPS

Assessments of Reklemel in vitro show its ability to significantly reduce the motility and activity of *Meloidogyne incognita* (root-knot nematode) juveniles compared to untreated juveniles. Greenhouse assays of Reklemel on tomatoes have lowered root-knot reproduction (8). In similar research, Reklemel reduced root gall index, eggs per gram of root and nematode reproductive factor in tomatoes compared to an untreated control (3).

Reklemel was also effective as a nematicide treatment over a multi-year field study on root-knot nematode in carrots (1). Reklemel effectively reduced the root gall index and root-knot nematode population density and provided a consistent yield increase compared to an untreated control in cucumber trials (4).

With such a limited number of chemical nematicide options available for plant-parasitic nematode management on turfgrass, Reklemel would be a beneficial addition for nematode management.

PHOTO 1



Belonolaimus longicaudatus (sting nematode) is a large nematode, reaching sizes of about 1/8-inch long when mature.

MATERIALS AND METHODS

We evaluated three rates of Reklemel to reduce both root-knot (*Meloidogyne incognita*) and sting nematode (*Belonolaimus longicaudatus*) nematode population density throughout the study. We included fluopyram (Indemnify; Bayer CropScience) as a chemical control and an additional tap water treatment as a negative control.

Treatments for the experiments were:

- ① Four applications of Reklemel (fluazaindolizine) at a rate of 1 pound per acre at 0, 4, 8, and 12 weeks after trial initiation
- ② Two applications of Reklemel at a rate of 2 pounds per acre on weeks 0 and 8
- ③ One application of Reklemel at a rate of 4 pounds per acre on week 0

PHOTO 2



Sting nematode has a long stylet that allows it to feed deep within root tissues.

- ④ Two applications of fluopyram at 0.22 pounds per acre on weeks 0 and 8

- ⑤ An application with an untreated tap water control

We conducted separate research trials on bermudagrass infested with root-knot and sting nematode in field settings in 2018 and 2019. In 2018, our field trial for sting nematode was on infested common bermudagrass grown under fairway conditions at the Auburn University Gulf Coast Research and Extension Center (GCREC) in Fairhope, Ala.

Individual plots were 5-by-10 feet, with a 2-foot border between adjacent plots. Each treatment was mixed with water to a total volume of one gallon and sprayed on the plots with a carbon dioxide-powered backpack sprayer in a randomized complete block design with five replications.

In 2019, we conducted two field trials evaluating Reklemel as a turfgrass nematicide. We conducted trials at GCREC in the same location as in 2018 for sting nematode evaluations and an adjacent location with a confirmed population density of root-knot

PHOTOS BY: BRUCE MARTIN

nematodes (*Meloidogyne* spp). The treatment list remained the same as in previous studies for both nematode trials.

FIELD DATA COLLECTION

We took visual turfgrass ratings and NDVI values with a handheld sensor at the start of the experiment, followed by approximately two-week intervals throughout the trial as previously described. Along with these measurements, we mapped field trials with a DJI Phantom 4 Pro, equipped with a MicaSense RedEdge-M sensor.

We used Pix4D mapper for image processing and ArcMap for image analysis, providing NDVI and NDRE ratings for each plot. Nematode samples were taken three times in 2018 (Aug. 7, Sept. 4 and Oct. 2) and four times in 2019 (July 25, Aug. 22, Sept. 24 and Oct. 23), approximately at four-week intervals.

For nematode sampling, we used seven 0.875-inch-by-4-inch deep cores from each plot, thoroughly mixed. We extracted nematodes from a 40 cubic inch subsample and enumerated them as previously described.

STATISTICAL ANALYSIS

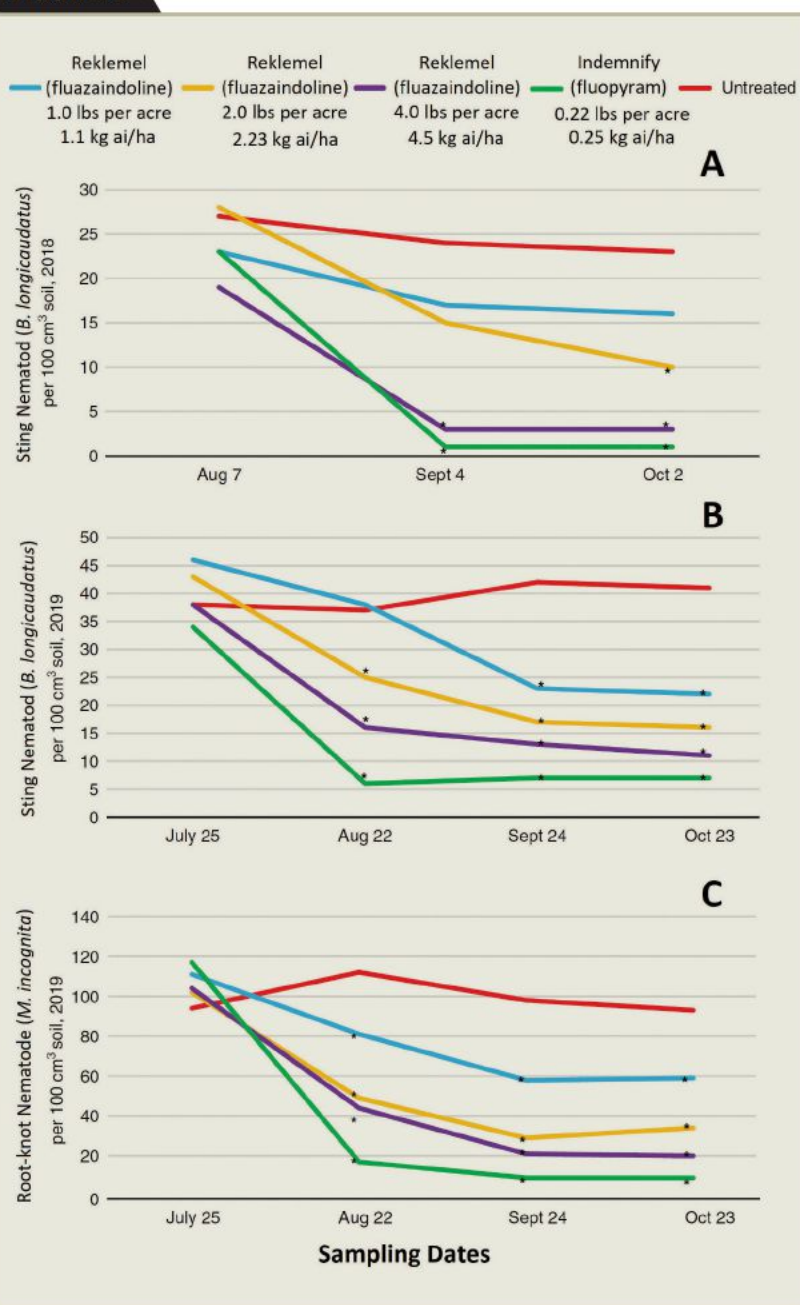
To analyze data collected from field evaluations, we used the PROC GLIMMIX procedure (SAS version 9.4, SAS Institute). Dependent variables included each nematode per 100 cm³ soil, visual turf quality and NDVI. The fixed effect was nematicide treatment, and random effects included replication, test repeat and location.

RESULTS AND DISCUSSION

For both 2018 and 2019 field evaluations, nematicide treatments significantly impacted plant-parasitic nematode population density (Figure 1). However, we did not observe visual symptoms in the trial. Thus, we reported no significant differences for visual ratings, handheld NDVI, or drone NDVI and NDRE values for either year (data not shown).

In 2018, the 4 pounds per acre rate of Reklamel and the two 0.22 pounds

FIGURE 1



Sting nematode (*Belonolaimus longicaudatus*) population density in 2018 (A) and 2019 (B) and root-knot nematode (*Meloidogyne incognita*) population density in 2019 (C) as affected by treatments in nematicide trials at Fairhope, Ala. Nematicide rates were applied as: Reklamel (fluazaindoline) 1 pound per acre at weeks 0, 4, 8, 12; 2 pounds per acre at weeks 0, 8; 4 pounds per acre at week 0; fluopyram 0.22 pounds per acre at weeks 0, 8.

*Different from the untreated according to the pairwise comparison of each treatment to the untreated control (Tukey-Kramer; $P \leq 0.05$).

per acre of fluopyram significantly reduced sting nematode population density at the September and October sample dates. The 2 pounds per acre

rate of Reklamel significantly reduced population density at the October sample date ($P \leq 0.05$).

Continued on page 26

Continued from page 25

In both the sting and root-knot nematode 2019 field trials, three of the four nematicide treatments significantly reduced nematode population density compared to the untreated control at the August evaluation date (Figure 8, B and C). All nematicides significantly reduced nematode population density at the September and October evaluation dates ($P \leq 0.05$).

RESULTS

The results from both years' field evaluations of Reklmel indicate a strong potential for its use in plant-parasitic nematode management in turfgrass. The plant-parasitic nematode population density was significantly lower compared to an untreated control. These significant population declines reduced sting and root-knot nematode numbers below the standard

Research Takeaways

- The experiment evaluated a new nematicide, fluazaindolizine (Reklmel), for its ability to reduce plant parasitic nematode population density and improve turfgrass quality.
- We conducted separate research trials on bermudagrass infested with root-knot (*Meloidogyne incognita*) and sting (*Belonolaimus longicaudatus*) nematode in field settings over 2018 and 2019.
- Field trials demonstrated a significant reduction for both sting and root-knot nematode population density by multiple rates of Reklmel.
- No significant differences for both visual turfgrass quality ratings and NDMI, but population declines reduced sting and root-knot numbers below the standard 10 and 80 per 100 cm³ of soil.
- Overall, Reklmel shows promise as a nematicide for plant-parasitic nematode management on turfgrass.

10 and 80 per 100 cm³ of soil.

Field trials showed substantial reductions in both sting and root-knot

population density by Reklmel. While all nematicide rates and applications led to nematode population density reduction, the medium and high rates of Reklmel and Indemnify most consistently lowered population density across all trials.


Despite confirming strong population density for both sting and root-knot nematodes at the field sites for these trials, we did not observe visual symptoms. Thus, while the higher rates of Reklmel again had substantial impacts on nematode density, we cannot substantiate the effect of Reklmel on plant vigor in the field setting.

Our research confirms previous studies that have shown a similar efficacy of Reklmel to root-knot nematode for reducing population density on crops including cucumber, carrot and tomato (1,3,4).

While *Meloidogyne incognita* is pathogenic to bermudagrass, it is not

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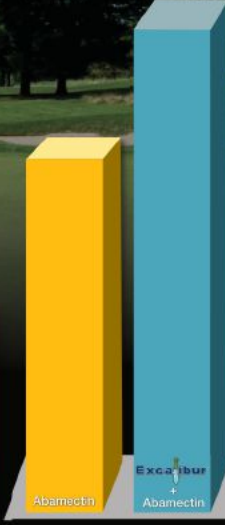


Excalibur + Abamectin

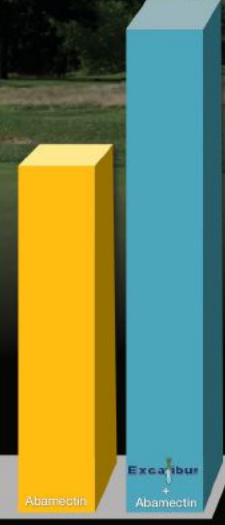


Dr. Martin - 2021
Location - South Carolina


TURF DENSITY RATING



TURF QUALITY RATING



"What I see is that Excalibur has a stronger influence on turf density and quality than Divanem alone. The combo is superior and is the strongest treatment effect I have ever seen from Divanem and a wetting agent" - Dr. Bruce Martin

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traditionally the main *Meloidogyne* species identified on turfgrass in the Southeast (2,9,10). We used *M. incognita* for this research because all research plots were inoculated to obtain infested turfgrass, and *M. incognita* was available at a high enough population density for successful inoculation.

In the future, evaluations need to include field locations with species more commonly found on turfgrass (*M. graminis* and *M. marylandi*) to confirm the findings of this study. To our knowledge, this is the first published study on Reklmel's (fluazaindolizine) efficacy as a turfgrass nematocide.

While these results show promise for this product, more research is needed. Overall, fluazaindolizine appears to have strong potential for inclusion in a turfgrass nematode integrated management program. 📍

Acknowledgments

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For more information, contact Kathy Lawrence (lawrekk@auburn.edu), professor of entomology and plant pathology at Auburn University.

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The iconic fire ant mound is a surefire way to spot the pest on your course. The mound won't have any visible entrances.

Don't get burned by fire ants

Blake Layton, Ph.D., says a combination of granular baits and broadcast insecticides can help superintendents stamp out these firey pests

By Rob DiFranco

Fire ants are the No. 1 pest affecting courses in the southeast U.S., according to Blake Layton, Ph.D., Extension entomology specialist at Mississippi State University.

The ant's mounds are easy to spot; they commonly appear as large mounds with no visible entrances. Fire ants prefer to set up colonies in low-play areas, like the rough or up against a sidewalk, but superintendents can occasionally find them on a green or a high-traffic area.

"If an area is mowed and disturbed, they'll just quit heaping that soil up and live down in the soil," he says. "So, you can still have a colony even on your green or someplace like the tee box."

While fire ants don't damage turf, the pest's mounds can hurt equipment like mowers and be an issue with their aggressive nature.

"Mowing through those mounds can be an issue," Layton says. "But really, it's their unsightliness and the fact that they sting.




Blake Layton

Nobody wants to play a ball that landed in a fire ant mound on a fairway."

Fire ant control hasn't changed much in recent years, Layton says. There are several baseline ways to control the pest using broadcast insecticide treatments — like bifenthrin and fipronil — either in a problem area or directly to the mound and granular bait.

"Granular baits can be used as an effective baseline control," says Layton. "Bait alone won't give you 100 percent control. You also need broadcast treatments where you're putting insecticides down to kill workers that are foraging."

As for timing, Layton suggests four applications of bait throughout the year, twice in the spring, once mid-summer — around the Fourth of July — and another in the fall. Superintendents can use broadcast treatments as needed, but Layton says most applications should occur in the spring as soon as fire ants become active.

"That (fall bait application) will help to make sure that when the course opens back up in the spring, you won't have an infestation of fire ant mounds," he says. 

PHOTOS COURTESY OF: BLAKE LAYTON, PH.D.

Quali-Pro

BRITTANY CAMPBELL,
PH.D., B.C.E.
Technical service manager



There is no good way to prevent fire ant infestations on golf courses, but there are strategies for controlling them once they become established. Broadcast bait applications are one of the best control methods for fire ant control. For this method, granular baits are spread across an area, and foraging fire ants find the bait and take it back to the colony, where it is shared among nest mates and the queen. Another method is individual mound treatments, but these treatments only control the mound where the application is applied and will not affect other mounds in an area. For broadcast bait applications, the first application should be in the spring and then a follow-up application in the mid-summer or fall.

BASF

JEN BROWNING, PCA
Technical service specialist



The easiest way to control native and imported fire ants is with insecticide fire ant baits like Siesta. This material is a highly attractive bait matrix formulated specifically for fire ants. Baits let you spot treat mounds or broadcast onto larger areas safely and easily without risk of bites and stings: the ants do the work. Worker ants take the bait back to the nest and distribute the insecticide, feeding the colony and queen. Within days, the colony dies.

Syngenta

LANE TREDWAY, PH.D.
Technical services manager



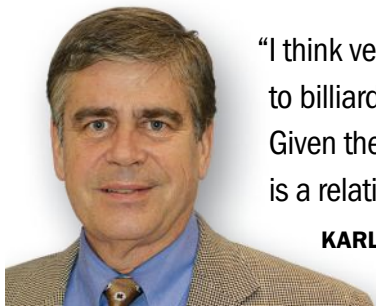
Several products are available for fire ant control via broadcast applications or individual mound treatments. Mound treatments with contact insecticides work quickly but often fail to provide complete control. Broadcast application of systemic insecticides or IGRs provides more complete control but takes weeks to kick in fully. Advion fire ant bait is a unique product that provides both rapid and long-lasting results, with complete colony control within 72 hours and season-long control with just two applications. Syngenta recommends a broadcast application in the spring (April-May) and a second in late summer to fall (September-October) for season-long control of fire ants.

FMC

BRIAN MOUNT, M.S., B.C.E.
Technical service manager



Golf course superintendents can control fire ants by using residual insecticides, such as Triple Crown Golf as broadcast treatments or spot treatments to mounds or by utilizing baits in the same manner. Insecticides are most effective when temperatures are higher in late spring and summer when ants are more active and likely to contact the treatment. Broadcast insecticide treatments will help control ants that are present today and those that may fly in later. Mound treatments will only control the mounds that are directly treated. Broadcast bait treatments are also a good option where foraging ants pick up the bait and bring it back to the colony, ultimately killing the queen.



"I think velvet bentgrass greens are as close to billiard-table surfaces as you can get. ... Given the high shoot density, velvet bentgrass is a relatively low-maintenance turf. "

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

Are forgotten bentgrass varieties worth a second look?

There are more than a hundred species of bentgrass. The most dominant is creeping bentgrass, but other species have had a history of use on golf courses. Three of those bentgrasses are Redtop (*Agrostis gigantea*), colonial (*Agrostis capillaris*) and velvet (*Agrostis canina*). I want to focus on these three because of their history and use in niche situations.

Redtop, colonial and velvet bentgrass, along with some creeping bentgrasses, comprised the earliest seed mix for golf course greens. The mix was known as South German bent. This mix was quite popular in the early 20th century throughout Northern Europe and the United States. Although South German bent no longer exists, each of its components does.

REDTOP

Redtop, also known as black bent, is a widely adapted turfgrass. One limitation of its adaptability is its susceptibility to winter injury. Its life cycle is variable, considered an annual to a perennial. Redtop's contribution to a seed mix, like that South German bent, was as a nurse crop. At the time, it was believed that Redtop had a rapid establishment rate.

Due to a lack of tolerance to cold and low mowing heights, Redtop would gradually disappear, replaced with the more desirable turfgrasses in the mix. Later, Redtop was found not to

establish any quicker than some of the other grasses and was replaced by other species in the seed mixes, like perennial ryegrass. As golf course quality improved, Redtop's leaf coarseness made it unacceptable. Basically, Redtop use ceased by the 1940s.

COLONIAL BENTGRASS

Colonial bentgrass is the second most used bentgrass on golf courses, behind creeping bentgrass. Colonial bentgrass is also known by the common name, browntop and, in a few instances, common bent. Colonial bentgrass is suited for the cool, humid regions of the world. Where we associate its use on courses is under links-type conditions.

Colonial bentgrass does not hold up well under heat or drought conditions. It is also extremely susceptible to the summertime disease, brown patch. Colonial bentgrass does not compete or persist at mowing heights less than a quarter inch — a major limitation in current golf course green management.

Colonial bentgrass has an upright, non-aggressive growth habit. Although given a rhizomatous growth habit, it will tend to get thatchy. In the past, fairway mixes featured colonial bentgrass and creeping bentgrasses like Pennncross. The thinking was that the colonial bentgrass would reduce the aggressiveness of the creeping bentgrass. Unfortunately, colonial bentgrass did not persist — largely due to its adaptive limitations.

Seeded colonial bentgrass is a part of a mix of predominantly fine fescue. This type of seed mix is becoming quite popular on links-types golf courses built in New England and the Pacific Northwest. Management practices in colonial bentgrass and fine fescue mix should lean toward fine fescue.

VELVET BENTGRASS

Velvet bentgrass forms a turf that has the highest density and finest leaf texture as any of the bentgrasses. I think velvet bentgrass greens are as close to billiard-table surfaces as you can get. Interestingly given the high shoot density, velvet bentgrass is a relatively low-maintenance turf.

Primarily used in the New England area, the drawbacks to velvet bentgrass are its relatively poor environmental stress tolerance and poor wear tolerance, which may be the result of some degree of its slow vertical growth rate. It also needs to be established on well-drained acidic soils.

Although creeping bentgrass is the proverbial 800-pound gorilla in the room, bentgrasses like colonial and velvet could play a larger role in future management. As we continue to face climate and sustainability issues in golf, maybe a second look at turfgrasses that are forgotten or pushed to the side is worthy in certain situations. **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.

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“At the time, we thought alternative controls had a promising future if universities had the means to investigate.”

MIKE KENNA, PH.D., Research Editor

Challenges with research into alternative controls for nematodes

In 1990, the USGA Executive Committee approved and funded a new three-year environmental research program. This research program aimed to quantify and document the impact of golf courses on the environment.

The overall objectives were to:

- 1 Understand the effect of turfgrass pest management and fertilization on water quality and the environment
- 2 Evaluate valid alternative methods for pest control to be used in integrated turfgrass management systems, and
- 3 Determine the human, biological and environmental factors that golf courses influence.

At the time, we thought alternative controls had a promising future if universities had the means to investigate.

ALTERNATIVE CONTROLS

After seven years, nearly \$1.2 million funded 16 projects, primarily on alternative disease and insect control methods. One project at the University of Florida evaluated new *Pasteuria* species for the control of sting nematodes.

From 1985 to 1989, Robin Giblin-Davis, Ph.D., surveyed bermudagrass fairways in Florida for nematode pathogens. He found distinct isolates of *Pasteuria* on five species of plant-parasitic nematodes, including the sting

nematode (*Belonolaimus longicaudatus*).

A one-year greenhouse study demonstrated that soil infested with the isolate *Pasteuria* n. sp. (S-1) from sting nematodes showed promise as an alternative control method.

The USGA funded his project to:

- 1 Determine if the *Pasteuria* isolate was a new species,
- 2 Show if it had the potential for density-dependent regulation of the sting nematode in natural turfgrass populations, and
- 3 See if researchers could manipulate it as a biological control measure.

A NEW DISCOVERY

Giblin-Davis documented that *Pasteuria* n. sp. (S-1) was a new species. Because the obligate endoparasitic nature in the genus *Pasteuria* prevented the isolation of definitive strains, he proposed strain S-1 as *Pasteuria usgae*.

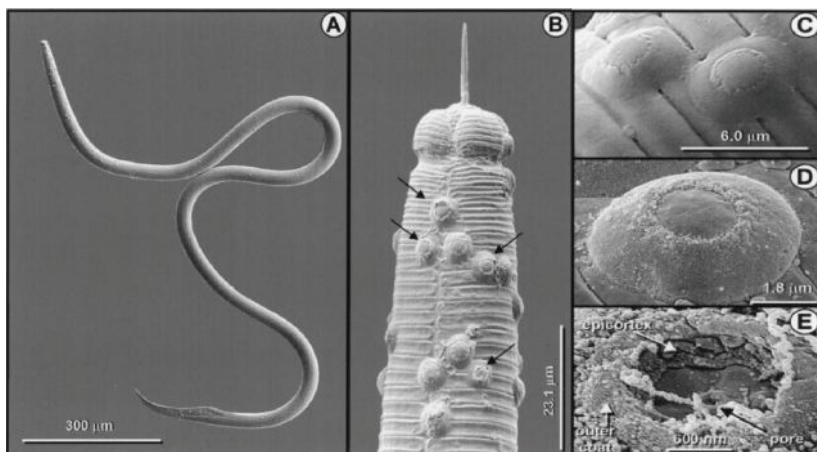
Scanning electron microscope images depicting morphology and molecular techniques proved *Pasteuria usgae* was a new species (Figure 1). Giblin-Davis gave USGA credit, using ‘*usgae*’ in the scientific name.

Since S-1 was an obligate nematode parasite, it could only reproduce after infecting sting nematodes. Researchers conducted a series of field experiments using soil infested with S-1, inoculated plots with S-1 and monitored sting nematode density. Data suggested that a small amount of S-1-infested soil could quickly reduce nematode density.

Unfortunately, the story ends without a helpful product. The obligate parasitic bacterium of sting nematodes could not be cultivated on artificial media. It could only be produced by endospore attachment to sting nematodes in greenhouse plant cultures. **G**

Source: R. M. Giblin-Davis, D. S. Williams, S. Bekal, D. W. Dickson, J. A. Brito, J. O. Becker, and J. F. Preston. 2003. ‘*Candidatus Pasteuria usgae*’ sp. nov., an obligate endoparasite of the phytoparasitic nematode *Belonolaimus longicaudatus*. International Journal of Systematic and Evolutionary Microbiology. 53:197-200 <https://doi.org/10.1099/ijs.0.02292-0>

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



Photomicrographs of *Pasteuria usgae* attached to sting nematode (*Belonolaimus longicaudatus*): A) male sting nematode with >30 spores, B) close-up of the spore-encumbered head region, C) close-up of attached spores, D) close-up of attached spore showing microfiber surface coating, and E) close-up of spent spore where the top of outer spore coat has become dislodged.



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2 Verti-Cut Series

REDEXIM offers its Verti-Cut Series in 80-, 64- and 51-inch versions. Its largest unit can verticut more than 107,000 square feet per hour. Blade spacing is standard at 1.18 inches with spacing kits available, and the working depth is easily adjustable down to 2 inches. The 51-inch model can be used on smaller tractors and even the Redexim Carrier walk-behind multi-function implement carrier.

Redexim.com

3 Acelepryn

Acelepryn insecticide from **SYNGENTA** provides long-lasting control in turf and season-long prevention of grubs, billbugs and turf caterpillars with a single application. Acelepryn has a wide application window from April to June, allowing superintendents to apply when the timing is right. Acelepryn also has no adverse effects on beneficial organisms such as honeybees.

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4 Steiner Slip Scoop

The **STEINER** Slip Scoop bucket attachment is built for moving material during all four seasons, whether it's gravel, dirt or snow. The Slip Scoop is compact to help get work done in crowded areas and has a robust frame and updated hitch arms, assisted by commercial-grade hydraulic lifting power. Superintendents can use the Steiner Slip Scoop to move bulk material, level topsoil and dig.

SteinerTurf.com



5



6

5 Trivium G

LESCO's Trivium-G is a granular insecticide powered by three active ingredients that bring powerful residual insect control. LESCO combines the three active ingredients — fipronil, bifenthrin and lambda-cyhalothrin — in one uniform granule to deliver fast and long-lasting fire ant control. The LESCO Trivium-G granule combines two unique modes of action to maximize results in a single application.

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6 Sand Guard

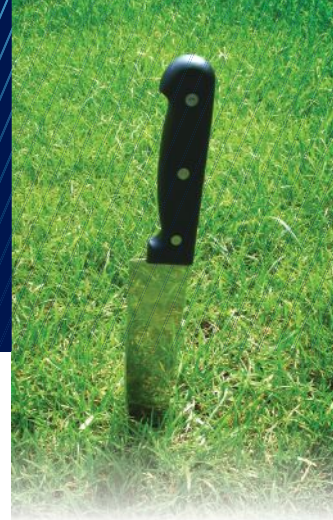
POROUS PAVE's Sand Guard adheres to steep bunker faces, while its flexible and strong construction excels in areas with significant ground movement and freeze/thaw cycles. Sand Guard is a low-impact installation mixed and installed right at the bunker feature without the need to heat material or concrete trucks. It's made from recycled tires and reduces bunker sand contamination and maintenance. Certified golf course contractors or trained course maintenance crews can install Sand Guard.

PorousPaveinc.com

The 19th Hole

Marc Muniz

DIRECTOR OF AGRONOMY // The Club at Lansdowne (Va.)



Marc, what can I get you?

An IPA. Partly Cloudy from Solace Brewing Company.



Tell me about the Club at Lansdowne.

We have 45 holes. A (Robert Trent) Jones course, a (Greg) Norman course and a spinoff of a Norman design called Shark Bite. And the grasses are all different — Norman and Shark Bite are bentgrass greens, tees and fairways with cool-season grass rough. The Jones course has Meyer Zoysia fairways, bentgrass tees and bent/*Poa* greens. And I have a bermudagrass range and tees.

Which is your favorite grass to take care of? The greens on the Jones course. I'm from up north in Jersey, so I'm familiar with the New York Metro area and those *Poa* greens. And the Meyer Zoysia fairways, they practically watch themselves.

Tell me about yourself. I'm married — for three years — to Krysta. But we've been together for almost 13 years. We met on the Jersey Shore during prom weekend. We have a dog, Tucker, who just turned 10.

What do you and Krysta do for fun?

The food here is great, and there are 35 to 40 breweries in the area. But our big thing is, we have seen Eric Church every time he's been on tour.

You're lucky you and your wife have the same taste in music. That's the only one we settle on, country music. I'm mostly a '90s grunge guy. She'll get in the car, and I've got Alice in Chains on, and she says, 'What is *this*?' I say yeah, this is a normal day.



What was your toughest course at UMass? Soils were a hard concept to understand. But I would say, now, knowing what I know about it, it's the most important class that you could possibly take. UMass was great; I got to work at the Joseph Troll Research Center and helped with NTEP research. I felt like after I left the program, I was agronomically ready to do whatever.

Do you have any good luck charms? Are you superstitious?

I have one. There's this Spanish myth that if you need to get something done before it starts raining, stick a steak knife in the ground. And the key is, if it starts to drizzle, you have to pull it out. It gives you a little window. It's got me out of a jam a ton of times! I've watched the radar and seen storms go right around us.

//BEST ADVICE

"MY OLD BOSS, KEVIN SEIBEL FROM CENTURY CC, TOLD ME THIS: ALWAYS THINK OF WHAT'S NEXT, EVEN TO THE SMALLEST MINUTE STUFF. I'M ALWAYS ONE STEP AHEAD OF WHEREVER WE'RE GOING, AND IT HELPS IMMENSELY."



Did you get this from the crew? I got it from my wife's stepmom. I told her I'd try it because it was one of those years where you couldn't get anything done. I was coming off the last green, and it started drizzling, so I ran behind the shop and pulled it out, and it just started dumping. And I'm like, all right, that's cool, I'm in. As interviewed by Seth Jones, Jan. 19, 2022.

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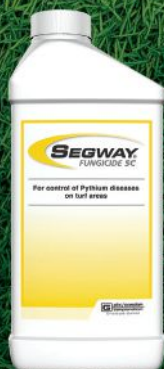
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