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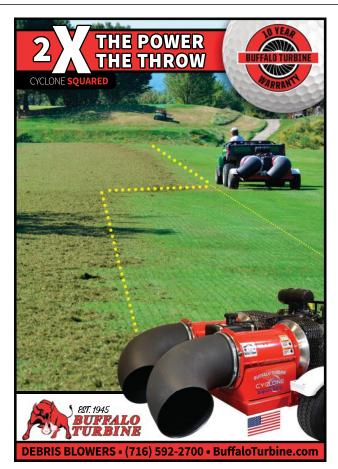


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GOLFDOM (ISSN 1526-4270) is published monthly by North Coast Media LLC, IMG Center, 1360 East 9th Street, 10th Floor, Cleveland, OH 44114. Subscription rates: For US, Canada and Mexico, 1 year 558.95 print and digital; two years \$88.95 print and digital \*1.01 other countries\*, 1 year print and digital \$109.95, 2 years \$169.95. For air-expedited service, include an additional \$75 per order annually. Single copies (prepaid only) \$10 plus postage and handling. For current single copy or back issues, call 847-513-6030. Periodicals postage paid at Cleveland OH 44101-9603 and additional positions of files. and additional mailing offices.

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"I'm thankful Quali-Pro put together such a fun event with a great group of superintendents. And now I can say I've watched batting practice from atop the Green Monster."

SETH JONES, Editor-in-Chief & Associate Publisher

#### Reaching new heights

reetings from the Hall of Justice, our Morton Building-turned-sports-bar. The "HOJ" has become my happy place to write. Monday Night Football is on mute, and the jukebox is pumping out the jams. Coors is in the kegerator, not because it's my favorite but because it was only \$59 for the half-barrel, and I never say no to a great deal.

I'm happy to report I've been able to get out and travel some these last few weeks. While traveling for work, I caught games at Fenway Park in Boston, Coors Field in Denver and closer to home, I saw the Chiefs play the Browns at Arrowhead.

The trip to Fenway was for Quali-Pro's launch of Suprado, an insecticide for annual bluegrass weevil. Ben McGraw, Ph.D., Penn State University, presented along with Quali-Pro's Ian Rodriguez, Ph.D., on the results they're seeing with the new chemistry. (There's a recap of this event and the other Suprado events inserted in this issue.) Once the formal part of the meeting was over, it was time to hit the ballpark and catch a game. I'm thankful Quali-Pro put together such a fun event with a great group of superintendents. And now I can say I've watched batting practice from atop the Green



At the annual TOCA meeting in Denver, Mark LaFleur of Syngenta and Jones were able to catch a recent Colorado Rockies game.

Monster. It might be true that I'm not good with heights.

The Turf and Ornamental Communicators Association (TOCA) — an association of people who work as communicators in the green industry, proving that there is an association for everything — is what took me to the Mile High City. It was the first time this group had been able to meet in person in 18 months.

At the meeting, former

Golfdom Editor-at-Large Ed Hiscock was inducted into the association's Hall of Fame. The longtime industry editor — he worked for Grounds Maintenance magazine, then Golf Course Management magazine and then for us — was in attendance with his wife, Pat. Ed was gracious as always and asked if it was really a hall of fame, or a wall of shame? Then he said it didn't matter to him, he was happy to be in either.

Ed taught me a lot in our time together, so I was thrilled to see him recognized. Ed got me my start in the industry 23 years ago when he hired me as an intern at GCSAA. He hired me full time when I graduated. And he was kind enough to wait about three years before telling me I was his second choice for the internship — his top choice turned the job down.

Cheers to you, Ed Hiscock, TOCA Hall of Famer.

Proud dad update: Evey's first season playing high school golf was a success! She played on the JV team, and she and her scramble teammate, a foreign exchange student from Sweden, won the last event of the season (I told Evey I also know a pretty good female golfer from Sweden). They ham-and-egged it, Evey's long off the tee (she didn't get that from me), while her teammate has the short game.

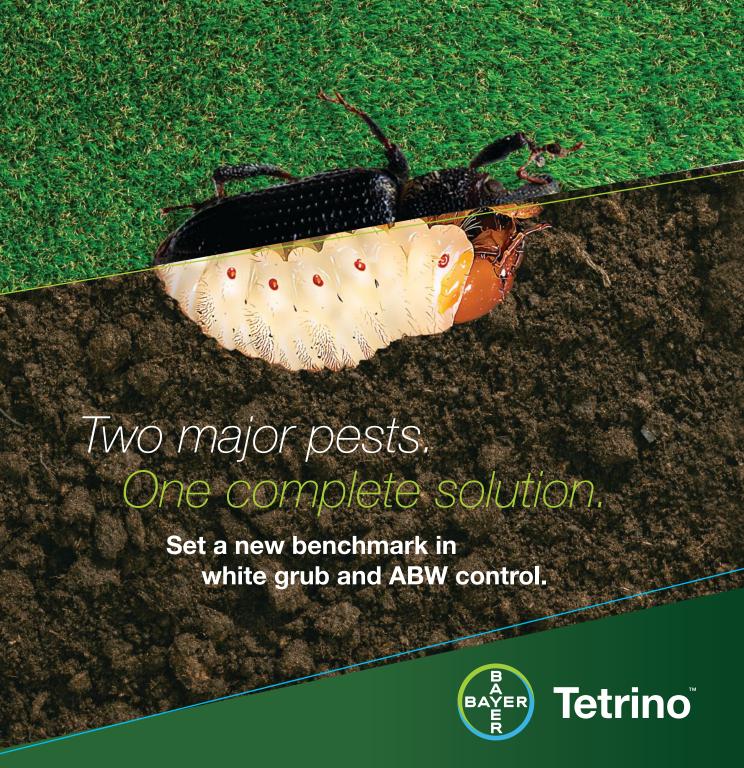
Evey playing on the high school team had a great unexpected side effect: It inspired my son and me to play more often, and with her whenever possible. We had an amazing moment on the golf course this weekend when the three of us (ages 44, 14 and 9) all parred the same hole.

How cool is that for me as a dad to see these two kids looking so good on a golf course at such young ages?

I could be invited to play the finest golf course in America tomorrow ... and it wouldn't beat the feeling of that moment. Man, I love this game. **©** 

Email Jones at: sjones@northcoastmedia.net.

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# NEWS, NOTES AND QUOTES



#### 'MONSTROUS' FALL ARMYWORM OUTBREAK ATTACKS COURSES

BY ROBERT SCHOENBERGER // Senior Editor

Fall armyworms, typically a problem for Southern golf courses, wreaked havoc from Illinois to the East Coast this year, causing significant damage in Pittsburgh and other cities not used to seeing the pest.

"I heard about it on Twitter hitting Morgantown, W.V., so I started getting worried," said John Shaw, superintendent of Valley Brook CC south of Pittsburgh in McMurray, Pa. Within a few weeks, he noticed some brown patches near his practice tees and on a fairway slope that had been too steep to treat for grubs and worms.

Shaw treats his course for grubs with chlorantraniliprole, and that prevented damage, but a friend sent him pictures of heavily blighted areas, saying he was experiencing the worst dollar spot outbreak he'd ever seen. Shaw told him to look for armyworms, and within a few minutes, texts of fall armyworm images poured in, showing the signature Y-shaped markings on their heads.

Ohio ag scientists called it the worst outbreak in 30 years. Ohio State University (OSU) Extension Educator Curtis E. Young, Ph.D., said, "It could

Continued on page 9

#### **//EXTINGUISHING THE LANTERN**

### QUALI-PRO'S BIFEN I/T APPROVED FOR SPOTTED LANTERNFLY

Quali-Pro's Bifen I/T is now approved for control of spotted lanternfly. Quali-Pro has received approval for a Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) Section 2(ee) recommendation, which allows the product to be used for control of the invasive pest.

Bifen I/T is labeled for use in Connecticut, Delaware, Maryland, New York, New Jersey, Pennsylvania, Virginia, West Virginia, North Carolina, Ohio, Kentucky, Rhode Island, Michigan, Indiana and Massachusetts.

According to the Pennsylvania
Department of Agriculture, spotted
lanternfly causes serious damage
including oozing sap, wilting, leaf
curling and dieback in trees, vines,
crops and many other types of plants.
It was originally discovered in 2014 in
Pennsylvania and has spread along
the East Coast.

#### //TEAMING UP

#### SOLLIO AGRICULTURE, PURSELL BUILDING FERTILIZER COATING PLANT

Canada's Sollio Agriculture and Alabama's Pursell plan to spend \$18 million to build a controlled-release fertilizers plant in St. Thomas, Ontario, a Canadian town on the north shore of Lake Erie, about halfway between Detroit and Buffalo, N.Y.

The plant will break ground in the fall of 2021 and is expected to become operational in August of 2022. Controlled-release fertilizer coatings improve the uptake of nutrients by plants. The St. Thomas plant will produce more than 100,000 metric tons once full capacity has been reached.

Pursell opened a new flagship fertilizer coating plant in Sylacauga, Ala., in early 2018 and plans to open an additional plant in Savannah, Ga.

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//A NEW STANDARD

#### Standard Golf moves into the fertilizer world

Selling fertilizer was part opportunity and part necessity for Iowa-based Standard Golf. Golf course management trends — cleaner sight lines that eliminate ball washers and trash cans - might highlight natural beauty, but it's a problem for a company that sells accessories.

kind of been attacked a little bit over the years in terms of some removal, so we thought 'What could we do, Matt Pauli what can we find that won't have that same fate," said Matt Pauli, Standard Golf's director of marketing.

"Accessories have

And, while the COVID-19 pandemic has pushed rounds played to record levels, hygiene trends are working against shared equipment such as the bunker rakes Pauli's company sells.

Late this summer, Standard Golf

began marketing Green Activator, a liquid fertilizer with humic and fulvic acids. Iowa-based producer AgLogic partnered with Standard Golf to tap connections to golf superintendents.

"Two employees, one for us and one for them, met at a John Deere tractor show, of all place. It's Iowa," Pauli said. "They were looking for a way to expand their product and get it out from only agriculture."

Standard Golf tested the fertilizer on some courses and got good results, Pauli added. "Corn is a grass, it all comes from the same family."

Most superintendents have used humic and fulvic acids, so Pauli said Standard Golf's move into fertilizer will come with a familiar product. For now, the company doesn't plan any more moves into the chemical space, but that could change if the right opportunity arises.



Fall armyworms feed on grass leaves, not the roots.

Continued from page 8 be that the fall armyworm is spread across Ohio every year, but this year, it is a monstrous outbreak."

Experts blame a larger-than-usual brood in the South, and summer storms carried moths northward.

When the caterpillars move into a region, they eat until there's no food left or they enter their next development stage. The worms eat grass leaves, not the roots, so OSU researchers say damaged turf can come back, but it needs to be watered to keep the areas cool and hydrated as late summer heat can bake the soil, killing roots.

//A FAMILIAR NAME

#### THE ANDERSONS ADDS KEN KLOPP

The Andersons hired Ken Klopp to serve as territory manager for the company's turf and specialty business. Klopp will manage the distribution of the business's turf and ornamental products in the Southeast region of the U.S.

Klopp has a turf degree from The Ohio State University Agricultural Technical Institute. He brings a wealth of previous experience from working in distribution and manufacturing with companies such as Lebanon, Agrium and Koch Fertilizer.

"We are very excited to have Ken join our Professional Turf Products team," said Tony Goldsby, director of sales for The Andersons. "Ken's vast experience in both the green industry and developing end-user technology platforms will make him a valuable resource for our customers."



//MAKING A COMEBACK

#### **UNDERDOGS** OF TURF BACK **FOR 2022**

Man's best friend is making a comeback for the 2022 Underdogs of Turf calendar. Presented by Rain Bird, John Deere and Golfdom, the Underdogs of Turf calendar is back for the fifth year, and it's the fourth year with Golfdom's participation. The brainchild of Kasey Kauff, director of grounds at Trinity Forest Golf Club in Dallas, the calendar features hundreds of dogs from superintendents around

Craig MacGregor, publisher of Golfdom, added, "The Underdogs of Turf calendar has become a great tradition for us here at Golfdom. I want to thank everyone who makes this calendar possible - our partners, Rain Bird and John Deere, as well as everyone who participates and sends in a photo of their dog. Remember, with our calendar, every dog doesn't just get his day ... he gets an entire month!"

### Starter



#### How old do you want to be when you retire?

- Matt, Boalsburg, Pa.

I'm not sure I will ever fully retire from golf course life. Golf courses, getting up early, solving problems on the fly and the daily routine are a big part of who I am. I always hear from people smarter than me, who usually are not in the golf business, that your work shouldn't define you. I disagree. I'm proud as hell about what I've accomplished over the last 33 seasons and what it says about me and my character. I was allowed to make mistakes and learn from them. I've gotten to mentor several young people, including my two boys who both spent the season after high school working for me. I've made invaluable contacts and friends across the country because of what I do for a living. At some point in the distant future. I may not be able to work on the golf course, but I will never retire from the life.

#### What's your take on White Claw?

- Eric, Orchard Park, N.Y.

A few years ago, it was lime-flavored beer, now it's White Claw. Any golf course worker can clearly see what's trending week to week and year to year. Go collect the garbage tomorrow morning at your course. Now you're an



expert also. I'm a Keystone Light guy. Not the most elite taste, I'll grant you, but some of the greats still enjoy it. It's Flecky's beer, so that's good enough for me. I see a bunch of craft beer snobs drinking 18-percent Triple IPA Skunk Water, and it makes me shiver. White Claw is probably the latest fad, but we'll see what's next in a couple years. I'd drink a White Claw before an IPA, but I'd need a glass.

Got a question for Thad? Tweet to @Terry Hills Maint and @Golfdom or email Thad at thad thompson@terry hills.com

#### //WINNER, WINNER, CHICKEN DINNER

#### GOLFDOM BRINGS HOME HARDWARE



At the 2021 Turf and Ornamental Communicators Association (TOCA) in Denver, *Golfdom* walked away with eight awards.

"I'm very proud of the *Golfdom* team for earning these awards and even more proud of how the team has come together during the past year-and-a-half to produce top-notch reporting during such turbulent times," said Seth Jones, editor-in-chief and associate publisher of *Golfdom*. "I'm looking forward to what 2022 brings us."

#### **GARDNER AWARD:**

• Photography, video and multimedia – Portrait/personality – Pete Seltzer, Seth Jones, Tim Klein, "Carl's Back!"

#### FIRSTS:

- Column Writing Sarah Webb, "So Long, Comfort Zone"
- Best single photo Pete Seltzer and Treetops Resort, "The view from the Treetops"
- Best magazine cover Pete Seltzer and Jeff Wilson, "The Moores, the merrier"
- Photography, portrait/personality Pete Seltzer, Seth Jones, Tim Klein, "Carl's Back!"

#### MEDITS

- Column writing, series Seth Jones, "Keeping up with the Jones"
- Column writing Seth Jones, "Hail, hail to the lucky ones"
- Photography portrait/personality Pete Seltzer and Jeff Wilson, The Moores, the merrier

#### #TurfTweetoftheMonth

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#### Andrew Getty @Andrew\_Getty

Superintendent, The Prairie Club (Dunes Course), Valentine, Neb.

Our first real taste of autumn came today with a high in the mid 60s. The turf is absolutely loving life right now. Just three more weeks until closing day.

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PHOTO BY: ANDREW GETTY

**10** // **Golfdom** *Month* 2021

Hannan and J-Z Golfdom Eastern Regional Sales Manager Dan Hannan (left) was at Inverness Club in Toldeo, Ohio, to cheer on the Americans in the Solheim Cup and to get this photo with Superintendent John Zimmers.

Great to be back in Wayne
A longtime tradition at Golfdom
that we missed last year is our
regular stop by Wayne, Pa., to visit our
friends at Smithco headquarters. You'll
always find (left to right) Kim Griffin,
Don Smith and Judy McDowell there to
greet you with a smile. It was great
to be back.

Joey and 630 horses. Golfdom Digital Editor Joey Ciccolini gets to drive a Lamborghini Huracán at New Jersey Motorsports Park in Millville, N.J., as part of Quali-Pro's Suprado launch.

Team Suprado The Quali-Pro team came ready to Pittsburgh's PNC Park in custom Suprado baseball jerseys. From left to right, Ian Rodriguez, Ph.D.; Allan Fulcher; Shannon Slevin; Tracy Reuther; Erica Cardenas; Paul Blodorn and Paul Fox. Let's play two!

**Start your engines** Brett Snyder, North Course superintendent at Wilmington (Del.) CC, gets ready to get take a Ferrari 488 GTB for a spin around the track.

An ideal decoration We were thrilled to see that our article from the February issue, commemorating Plant Food Co.'s 75th anniversary, made the wall at Plant Food Co.'s Cranbury, N.J., headquarters. We got Grant and Ted Platz to pose for a photo with the awesome wall art.



PHOTOS BY: GOLFDOM STAFF

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# le the golf, half the workers

#### BY SARAH WEBB

What do you do when you have nearly double the normal number of rounds at your course but half the workforce to keep it in shape?

Thanks to a global pandemic, a tight-asever labor market and higher-paying jobs in other industries, that very situation has played out over and over again at golf courses around the country — the golfers are there, the mowers are gassed up and ready to go, but the workers are not.

Many courses are down, on average, about three to five people, according to Tyler Bloom, principal and owner of Tyler Bloom Consulting, which assists golf courses from Rhode Island to Florida in finding and keeping quality labor.

"You hear from everyone that it wasn't an issue when they were coming up in the industry, but I think this has been going on for five

to 10 years, maybe even longer," Bloom says. "Now that other industries are struggling, it's just more exacerbated."

Bloom and other industry veterans discuss ways to fill the labor gap and what's around the corner for the next nine in the golf course labor market.

#### Pay them and they will come

When it comes to enticing people into the golf industry, Zach Bauer, superintendent of Valley Country Club in Aurora, Colo., believes there's a simple answer: It all comes down to money.

"I saw a sign that McDonald's was hiring at Continued on page 17 Superintendents and industry consultants lay out what's worked for them when it comes to finding and keeping good labor



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#### LEGENDS INITIATIVE



#### **BOB FARREN**

#### Director of Golf Course and Grounds Management

Pinehurst Resort & CC, Village of Pinehurst, N.C.

#### By Seth Jones

Started by Anuvia, the Legends Initiative celebrates superintendents who have gone above and beyond in their careers — not just in maintaining tremendous golf courses, but also in their contributions to the industry, creative problem-solving and mentorship. *Golfdom* sat down with Anuvia Legend Bob Farren to discuss how he found his career, hosting back-to-back U.S. Opens in 2014 and what his future plans are beyond the 2024 U.S. Open.

#### How did you find your way into golf maintenance?

My father was a greenkeeper. I grew up on a public golf course. The family who owned it took in Dad like a son. It really gave me a sense of the business aspect of it, the social aspect of it. I never considered anything else. I would say in high school, "I'm going to go to college, then I'm going to North Carolina to be a golf course superintendent." I had never even been to North Carolina!

### As the science of maintaining golf courses has evolved over the years, what has caught your eye as being particularly interesting?

I think plant growth regulators are playing a big role in helping to manage nutrition, density, texture, mowing, quality and characteristics of mowing . . . they have a far-reaching impact on all aspects of turf. I think those will continue to be advantageous in the future.

#### When I say "back-to-back U.S. Opens." what comes to mind?

The fact that we were able to successfully do it and that the USGA had the confidence in us to do it. It's the best that's ever been done because it hasn't been done since! I remember we were worried about the range tee capacity . . . it was like we were looking for something to worry about. Later that week, a USGA executive said to me, "The only (complaint) we've heard is that the cart paths are a little dusty." And I thought, if that's only problem we're experiencing, we're doing pretty good.

#### What does your future hold? I'm looking forward to the '24 U.S. Open

and making a determination going into that at what retirement might look like and how good I would be at retirement. I don't know how good I would be because I still have too much I want to do.

# You've accomplished so much in your career, and Anuvia bestowed this "legend" honor on you ... do you ever think about it? I reflect on it some. It's very humbling to see those of us who have been selected and those who have been considered. To be in the same sentence as those people is very humbling. It wasn't a career goal, but it was an ambition to be respected by these people. If you choose the right people and do it the

right way ... you will have success.







#### **// LABOR WOES**



A strong culture makes the crew come together when a big project or event arrives on the calendar, like aerification.

Continued from page 15

\$15 an hour. If those places are paying \$15, why can't golf pay \$16 to \$19 an hour?" Bauer says. "I've seen a lot of low pay from golf courses. Man, you just can't do that anymore. You're not going

to be competitive at all. We need to start paying people what they're worth and offer them a wage they can live on."

Bauer admits that his course's location near Denver drives up wages, but he believes courses nationwide should no longer get away with using cheap labor.

Bloom agrees, noting that clubs may need to reevaluate their current financial models, raise their member dues and reconsider their pay tiers.



**Zach Bauer** 

"Smart businesspeople understand that the cost of business is going up, and the industry for years has gotten away with paying people pretty cheaply," Bloom says.

Bloom says it's important not to forget employees who have been working at the club for years and who already fall in the higher pay range.

"Employees in that \$15 to \$19 range are going to start saying, 'What about me now?' Clubs have to be strategic on whether they decide to give those people more responsibility to justify that level of pay," Bloom says.

#### Where to find them

To bridge the labor gap, many courses seek out the up-and-coming

For example, Desert Mountain GC in Scottsdale, Ariz., implemented a program where it hired the kids of parents who already worked at the golf course, so long as they were older than 15.

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"It was like 'go to work with your parents,' and that was a very successful program for us, especially during the

tant. "We just worked out programs so



**Shawn Emerson** 

pandemic when kids weren't going to school on a normal schedule," says Shawn Emerson, former director of agronomy at Desert Mountain Club, now an industry consulValley Country Club in Aurora, Colo., has relied on the younger generation to help fill the labor gap.

they could bring their kids to work and make money."

The program of recruiting young workers expanded from there, with representatives from the golf course talking to high school and college teams about the potential career paths available at golf courses. All in all, Desert Mountain employs around 20 to 25 high schoolers seasonally.

"Always start within one set of people because if you have a workforce that enjoys working there, they're going to tell others," Emerson says. "We need to work together to motivate kids at the high school level that golf is a career. And then, we need to look at the pay and the wages of every position and make those livable, desirable positions."

Valley CC uses a similar tactic, employing around 10 high school kids — some of them members' kids and others from the local golf teams who also receive free golf in addition to their hourly wage. The high schoolers typically work the morning

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### **QUALI-PRO**

### MAJOR LEAGUE DEBUT

#### QUALI-PRO'S SUPRADO "TOUCHES 'EM ALL" WITH A TRAVELING TOUR

hen a new chemistry and mode of action for a pest as damaging as the annual bluegrass weevil (ABW) comes along, it deserves a proper major league debut. And that's just what Suprado got as Quali-Pro celebrated the EPA-approved insecticide with events at two Major League ballparks and one professional raceway.

"We felt that launching a new mode of action against a super invasive pest was critical to generate the initial buzz," says Allan Fulcher, vice president of turf for Quali-Pro. "Once Suprado gets in the superintendents' hands, the product will create its own buzz."

"All insects have an exoskeleton. If it's going to get bigger, they have to bust through that ... This is where (Suprado) works, and it's totally different from how other chemistries work."

Golfdom joined Quali-Pro on this Major League tour to learn more about the product and hear what experts and superintendents had to say about Suprado and what it could mean to the industry.

#### **GREEN MONSTERS**

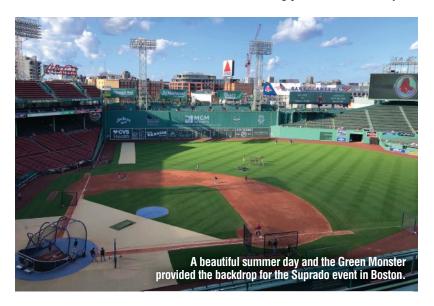
The Suprado tour visited iconic Fenway Park in Boston twice, PNC Park in Pittsburgh and the New Jersey Motorsports Park in Millville, N.J.



"With Suprado's longevity and application window, it's a home run!"

Visitors to Fenway were given a behind-the-scenes tour of "America's most beloved ballpark." The group got to watch batting practice from atop the famed Green Monster, then walked through the park's Hall of Fame and saw the park's rooftop garden. A group of attendees then got a question-and-answer session with longtime Fenway head groundskeeper David Mellor before settling in for a 11-9 Red Sox victory over the Minnesota Twins.

At the PNC Park event in Pittsburgh, attendees were slated to take batting practice and field fly



### **QUALI-PRO**

"Suprado might be the sledgehammer for ABW because I think it has the potential to really level the playing field and be a very useful tool."

balls at the home of the Pittsburgh Pirates, but as superintendents know all too well. Mother Nature can change the best-laid plans — who knows, maybe Mother Nature saved someone's ACL this time — when that part of the program got rained out. Attendees still were treated to dinner and a panel discussion featuring Ben McGraw, Ph.D., Penn State University; Ian Rodriguez, Ph.D., technical services manager, Quali-Pro; and Dave Delsandro, director of grounds at Oakmont CC. A cameo was made by Golfdom Editor-in-Chief Seth Jones. who gave away two Quali-Pro sponsored "golden tickets" to the 2021 Goldom Summit.

Finally, at the Xtreme Xperience event at New Jersey Motorsports Park, attendees were allowed to jump in the driver's seats of some of the fastest sports cars known to man. A Lamborghini Huracán and a Ferrari 488 GTB — a \$350,000 car — were two of the vehicles available. Attendees were

told to punch it full throttle on the straightaways and drive as fast as they could, and every car came

back to the finish line in the same condition it was driven off in.

But all this celebrating of Suprado couldn't be done without first taking care of some business and learning more about the insect growth regulator.

#### **BUILT DIFFERENT**

At the Fenway Park event, Ben McGraw took to the stage just a little late (he managed to get trapped in a locked stairwell) but in time to tell attendees about what he has seen when it comes to how Suprado can treat ABW differently than other products.

"It's an insect growth regulator ... it reduces the integrity of the insect's cuticle," McGraw explained. "All insects have an exoskeleton. If it's going to get

bigger, they have to bust through that. It's an energy-expensive process, and a lot of things can

> go wrong. This is where (Suprado) works, and it's totally different from how other chemistries work."

McGraw added that Suprado, powered by insect growth regulator novaluron, treats ABW in overlapping lifecycles.

It has demonstrated control in all larvae stages, both when found in and out of the plant. When applied to adults, Suprado hinders the ability to lay eggs.

For a pest that prefers the shorter-mowed, high-visibility areas, Suprado is a welcome addition for superintendents, especially considering solutions have been limited over the years. ABW populations are developing resistance; as far back as 2006, pyrethroids started showing resistance; in 2009, diamides



Ben McGraw





and oxadiazines also starting showing resistance.

"This insect is incredibly difficult to manage, this one is built differently than other pests," McGraw said. "ABW is far more challenging from a biological standpoint, and it likes to hide."

In Pittsburgh, Rodriguez spoke about how novaluron has been in Control Solutions' arsenal for some time, sold on the company's pest control side. It was in 2019 when it was suggested to the company by an entomologist that it could be an excellent tool for turf pests. The resulting field tests showed that Suprado offers excellent control in small, medium and large larvae of ABW.

"We expect Suprado will raise our profile, it's really the first AI we've launched in the Quali-Pro line before anybody else," Rodriguez said. "We'll continue to look at other avenues that are available to us through the pipeline we have available through (parent company) Adama."

#### THE SLEDGEHAMMER

Logan Freeman, superintendent at Mountain Branch GC in Joppa, Md., said he was excited about having a new tool in the toolbox for a pest that ranks at the top of his insect stress chart. He was given an opportunity to test Suprado in a field trial at his course, and he said the results were promising.

"(ABW) is the most important pest that I manage against. For me, if I don't control ABW correctly in the spring, it can throw off my entire year," he said. "The control that they show here and when I

tested it is promising. I'm looking forward to using it to see how it improves my golf course and takes the pressure off of the control of that one pest that can do so much damage ... it will allow me to maybe control it, whether it's fewer apps or

just a different AI that they haven't seen before."

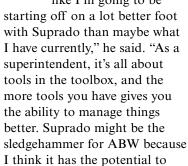
Michael Bostian, superintendent, Waverly Woods GC, Marriottsville, Md., hadn't tried Suprado yet but said he was excited after seeing the cost and the price per acre for what has been a costly pest for his course.

"When you find out more about the longevity and the window of the application, it makes it sound like a home run," Bostian said. "The most exciting thing is being able to target the adults and time that peak activity and knowing that we are going to get success in thinning out that population and reducing the amount of reproductive possibilities from those adults."

Freeman added that having a new product that offers longer control and more flexibility than what was the previous industry

standard can make his job easier.

"I know I'm putting a heavy hitter down, and then if I need to do something different rotational down the road, I have that flexibility. I feel like I'm going to be



really level the playing field and

be a very useful tool."



Logan Freeman

**NEW** 

## INTRODUCING SUPRADO INSECTICIDE

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Continued from page 18

shift, putting in around six hours before heading out around noon.

"The high school golf teams have really saved us in the past couple of years. The kids do all the harder labor, so that the retirees we employ don't have to," Bauer says. "Also, it's nice, because with the golf coach, we actually have someone else helping with accountability. Barely any of them are ever late to work, and they all work their butts off."

Other potential recruiting avenues include hiring retirees part time, enlisting the help of temp agencies and hiring someone whose role mostly revolves around the recruitment process, sources say.

#### Give them reasons to stay

When Greg Brandriet started as the assistant superintendent at Elkhorn Ridge GC in Spearfish, S.D., in 2009, employee

#### Make their jobs more efficient

To keep the maintenance ball rolling, Forest Park GC in St. Louis, Mo., cross trains staff on everything related to course setup.

"Everyone has to be able to do everything except for equipment technician and spray technician, as far as course setup," says Chad Carpenter, superintendent.

At Elkhorn Ridge GC in Spearfish, S.D., employees found shortcuts such as attaching blowers to the back of greens mowers and doubling up on jobs such as raking bunkers and cleaning bathrooms in one pass, according to Greg Brandriet, former superintendent.

Shawn Emerson, former director of agronomy at Desert Mountain GC, notes that technology such as soil moisture meters, autonomous equipment and wide-area mowers help pick up the slack.

The course also looked to drone technology for immediate feedback on course conditions so that problems could be solved quicker and GPS technology to determine where turf could be removed in nonplay areas.

"We used the GPS systems to see where the golfers were really playing the golf course from and finding out what acreage could be reduced," Emerson says. "A lot of it was on the sides of the golf course, or the first 100, 150 yards off the tees."

turnover from year one to year two came in at a whopping 70 percent.

From the time he became superintendent about a year later to 2020, turnover dropped to 5 percent overall of his fulltime staff of 10.

"The more that I grew as a superintendent and grew into my role as a leader, the easier it was for me to understand what Continued on page 24

#### United States Postal Service Statement of Ownership, Management, and Circulation (Requester Publications Only)

1. Publication Title: Golfdom 2. Publication Number: 1526-4270 4. Issue Frequency: Monthly 5. Number of Issues Published Annually: 12

3. Filing Date: 09/10/2021

Average No. Copies

No. Copies of Single

Annual Subscription Price (if any): \$58.95
 Complete Mailing Address of Known Office of Publication (Not printer) (Street, city, county, state, and ZIP+4\*): North Coast Media LLC, 1360 East 9th St., Tenth Floor, Cleveland, 0H 44114

Contact Person: Antionette Sanchez-Perkins Telephone (Include area code): 216-706-3750

8. Complete Mailing Address of Headquarters or General Business Office of Publisher (Not printer):

North Coast Media LLC, 1360 East 9th St., Tenth Floor, Cleveland, OH 44114

9. Full Names and Complete Mailing Addresses of Publisher, Editor, and Managing Editor (Do not leave blank)

Publisher (Name and complete mailing address):
Craig MacGregor, North Coast Media LLC, 1360 East 9th St, Tenth Floor, Cleveland, OH 44114

Editor (Name and complete mailing address): Seth Jones, North Coast Media LLC, 1360 East 9th St., Tenth Floor, Cleveland, OH 44114 Managing Editior (Name and complete mailing address): Sarah Webb, North Coast Media LLC, 1360 East 9th St., Tenth Floor, Cleveland, OH 44114

10. Owner (Do not leave blank. If the publication is owned by a corporation, give the name and address of the corporation immediately followed by the names and addresses of all stockholders owning or holding 1 percent or more of the total amount of stock. If not owner by a corporation, give the names and addresses of the individual owners. If owned by a partnership or other unincorporated firm, give its name and address as well as those of each individual owner. If the publication is published by a nonprofit organization, give its name

Full Name: North Coast Media LLC Complete Mailing Address: 1360 East 9th St., Tenth Floor, Cleveland, OH 44114

11. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds,

Mortgages, or Other Securities. If none, check box.
Full Name: Complete Mailing Address:

12. Tax Status (For completion by nonprofit organizations authorized to mail at nonprofit rates) (Check one)

The purpose, function, and nonprofit status of this organization and the exempt status for federal income tax purposes: Has Not Changed During Preceding 12 Months

Has Changed During Preceding 12 Months

Has Changed During Preceding 12 Months (Publisher must submit explanation of change with this statement.)

13. Publication Title: Golfdom

14. Issue Date for Circulation Data Below: August 2021 15. Extent and Nature of Circulation: Free to Qualified

	Each Issue During Preceding 12 Months	Issue Published Nearest to Filing D
Natal Number of Copies (Net press run): egitmate Paid and/o r Requested Distribution by mail and outside the mail) (1) Outside County Paid, Requested Mail Subscriptions stated on PS from 3541. (Include direct written request from recipient, telemarketing, and Internet requests from recipient, paid subscriptions including nominal rate subscriptions, employer requests, advertiser's proof copies,	20,123	20,487
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Outside USPS®: (4) Requested Copies Distributed by Other Mail Classes	22	23
Through the USPS (e.g., First-Class Mail®):	0	0

c. Total Paid and/or Requested Circulation (Sum of 15b (1), (2), (3), and (4)):	14,040	15,541
d. Non- requested Distribution (By mail and outside the mail)		
(1) Outside County Nonrequested Copies Stated on		
PS Form 3541 (include sample copies, requests over		
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Mail® or Package Services rates):	0	0
(4) Nonrequested Copies Distributed Outside the Mail		
(Include pickup stands, trade shows, showrooms, and		
other sources):	97	96
e. Total Nonrequested Distribution (Sum of 15d (1), (2), (3) and (4)):	6,078	4,941
f. Total Distribution (Sum of 15c and e):	20,118	20,482
g. Copies not Distributed (See Instructions to Publishers #4, (page #3)):	5	5
h. Total (Sum of 15f and g):	20.123	20.487
i. Percent Paid and/or Requested Circulation (15c divided by 15f times 100):	69.8%	75.9%

\* If you are claiming electronic copies, go to line 16 on page 3. If you are not claiming electronic copies, skip to line 17 on page 3. 16. Electronic Copy Circulation

	Average No. Copies	No. Copies of Single	
	<b>Each Issue During</b>	Issue Published	
	<b>Preceding 12 Months</b>	Nearest to Filing Date	
a. Requested and Paid Electronic Copies	1,792	1,891	
b. Total Requested and Paid Print Copies (Line 15c) +			
Requested/Paid Electronic Copies (Line 16a)	15,832	17,432	
c. Total Requested Copy Distribution (Line 15f) +			
Requested/Paid Electronic Copies (Line 16a)	21,910	22,373	
d. Percent Paid and/or Requested Circulation			
(Both Print & Electronic Copies) (16b divided by $16c  imes 100$ )	72.3%	77.9%	

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17. Publication of Statement of Ownership for a Requester Publication is required and will be printed in the October 2021 issue of this publication.

18. Signature and Title of Editor, Publisher, Business Manager, or Owner:

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#### // LABOR WOES

Continued from page 23

people expect and what brings loyalty out of people. You learn how to treat people like human beings," Brandreit says. "At the end of the day, we all have families, cars that break down or alarms don't go off."

Elkhorn Ridge utilized a culture testing system where employees answered questions that revealed the best way to lead employees, based on their personalities.

"With millennials coming up, there's a whole new playbook as far as what managers and superintendents have to do and understand what their mindset is," Brandreit says. "I think it's being flexible and being adaptive to managing different people in different ways. With the younger generation, I think that'll be key in retaining and attracting workers to the golf course in the future."

Brandreit says initiatives such as employee of the week, employee barbecues

and a companywide round of golf at another local course helped sustain the type of culture where people feel they belong.

Overall, the efforts paid off — especially when it came to managing the course during the pandemic.

"Our staff was cut in half, but we were twice as busy. We were putting out a product that was just as good if not better with half the people because they all sensed that they needed to step up,"

Brandreit says. "The way we treated them got them to buy into the system we were running."

Flexible scheduling also serves as a plus for potential employees, accord-



**Chad Carpenter** 

ing to Chad Carpenter, superintendent of the 27-hole Forest Park GC in St. Louis, Mo.

"It's not the highest-paying industry in our country, but flexibility is one of the key perks," Carpenter says. "The crew knows when we have big functions and they come together, but when it's business as usual, they can be flexible about when they want time off with their families."

Retention bonuses, tuition reimbursement and more paid time off can sweeten the deal even further, but no matter what methods a course employs, Bloom says it's important to always keep its biggest asset — the people — top of mind.

"Superintendents and general managers have to be advocates for their teams, instead of lamenting people not showing up for work or not getting anyone in for interviews," Bloom says. "Sometimes it's just acknowledging them, a pizza party or new work uniforms, but don't forget about the people who are keeping your business alive and make sure you take care of them."

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### Super Science

// WEEDS IN THE ROUGH

#### WEED CONTROL IN FINE FESCUE ROUGH

By Mike Kenna, Ph.D.

eed control for "naturalized areas" on golf courses can be difficult without the application of herbicides. Central Region USGA Green Section Agronomist Zach Nicoludis, in his August update, discussed herbicide programs.

Adequate weed control is possible with a combination of preemergence herbicides, broadleaf weed herbicides and grassy weed herbicides. Mixing products for application can improve efficiency, but there must be an understanding of how certain products interact to reduce effectiveness.

Nicoludus suggests using herbicides such as sethoxydim, fluazifop and fenoxaprop for grassy weed control in fine fescue naturalized areas. However, be aware of the dangers of mixing grassy weed control products such as MCPA or 2,4-D. Aaron Patton, Ph.D., says it is best to apply grassy and broadleaf weed control products separately. Wait at

least seven days between applications if 2,4-D or MCPA is used first and at least two days between applications if sethoxydim, fluazifop or fenoxaprop is applied first (Patton).

At Rutgers University, Matt Elmore, Ph.D., and graduate student Katie Diehl work on deer-tongue grass (Dichanthelium clandestinum) control in fine fescue (Festuca spp.) rough. Deer tongue is a broad-bladed perennial native to the eastern United States. The branching growth habit can form a dense canopy that reduces the playability of golf course rough.

Currently, deer-tongue grass is removed manually or with appli-

Researchers at Rutgers University evaluate herbicide treatment timing in combination with nonmowed and infrequent mowing of fine fescue golf course rough. A) Nonmowed and no herbicide, B) Mowed June 9 and July 7, 2021, C) Prograss and D) Proxy plus Primo Max.

cations of glyphosate. However, studies evaluating glyphosate safety for fine fescue injury are inconsistent. The selective herbicide fluazifop can be effective, but only if applied sequentially at three-week intervals. The researchers conducted experiments at the Mendham Golf and Tennis Club (Mendham, N.J.) and found that glyphosate still performed better than fluazifop. Glyphosate applied at 175 growing degree days (GDD) (base 50 degrees F) and spring-flowering provided greater control (89 and 97 percent) than glyphosate used at 75 GDD and 25 cooling degree days (base 68 degrees F) and all fluazifop treatments (11 to 59 percent) on Oct. 22, 2020.

Elmore and Diehl presented a new experiment combining mowing practices with herbicide and plant growth regulator treatments at the Rutgers Turfgrass Field Day (see Figure 1). This research is in its first year and is already showing some interesting results.

#### **NEWS UPDATES**

#### ADVANCED TURF SOLUTIONS HIRES BETH BERRY

Advanced Turf Solutions hired Beth Berry as vice president of turf and ornamental sales.

"Beth is a seasoned green industry executive with more than two decades of experience leading marketing, sales, business development, partner integration and customer support teams," said Scott Brame, Advanced Turf Solutions president.

Most recently, Berry was vice president of growth and alliance for Real Green software. Prior to Real Green, Berry was the director of customer service for Scotts Miracle-Gro. Berry serves on the boards of Project EverGreen, National Pest Management Association-Technology and the National Association of Landscape Professionals, Membership.

In 2020, Berry was named one of the Top 50 Women Leaders in SaaS by the Software Report.

Mowing the Beudin hard fescue and Quatro sheep fescue rough on June 9 and July 7, 2021, reduced deer tongue grass compared to the nonmowed plot. Also, Proxy (5 fluid ounces per 1,000 square feet) plus Primo Max (25 fluid ounces per acre) was better than the nonmowed and no-herbicide plot. They will continue to monitor spring and fall applications of glyphosate, fluazifop, ethofumesate (Prograss) and Turflon Ester in combination with the mowing schedule. @

#### Additional Information

Nicoludis, Zach. 2021. Make Every Herbicide Application Count. USGA Green Section Central Region Update. 2 pp.

Diehl, Katie H., Matthew T. Elmore, and Phillip L. Vines. 2021. Herbicide Application Timing Affects Deer-tongue Grass (Dichanthelium clandestinum) Control in Native Areas in Proceedings of the Thirtieth Anniversary Rutgers Turfgrass Symposium. p 27.

Patton, Aaron, ed. 2019. Turfgrass Weed Control for Professionals (TURF-100). Purdue University Extension. 128 pp.



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

**//KICKING OUT CRABGRASS** 

### Crabgrass weed suppression in fine fescues

By Florence Breuillin-Sessoms, Dominic P. Petrella, Jon M. Trappe, Nicole T. Mihelich, Aaron J. Patton and Eric Watkins

ine fescues, a group of low-input turfgrasses, have exhibited weed suppression. Smooth crabgrass is a ubiquitous, warm-season, grassy weed that outcompetes many cool-season turfgrasses in summer (9). The presence of summer annual weeds like crabgrass may decrease or nullify the ecosystem services provided by cool-season turfgrasses due to dying back in autumn or leaving bare soil until late spring.

Fine fescues require lower inputs than other cool-season turfgrasses due to improved resistance to drought, decreased fertilizer requirements, greater resistance to common diseases and the ability to adapt to shade (2, 6). Having fine fescue cultivars that can also consistently reduce crabgrass would help increase the usage of these beneficial turfgrass species.

Maintained as a golf course fairway, various cultivars of fine fescues were highly weed suppressive in New York State (2). Of the fine fescue taxon, Chewings fescue (Festuca rubra ssp. commutata; CH) and strong creeping red fescue (F. rubra ssp. rubra; ST) displayed the most robust weed suppression ability, while hard fescue (F. brevipila; HF) did not appear to have the same level of suppression. However, most of this research occurred more than 10

Research Takeaways

- Festuca rubra taxa are more crabgrass suppressive than F. ovina.
- There is considerable variability in weed suppression across entries within each fine fescue taxon.
- Opportunities exist for plant breeders to develop new weed suppressive cultivars.
- Future studies should aim to separate allelopathic effects from plant competition.

years ago and did not lead to improved cultivars. Other taxon included in our weed suppression research are slender creeping red fescue (*F. rubra* ssp. *litto-ralis*; SL) and sheep fescue (*F. ovina*, SH).

We need to confirm the previous results using diverse germplasm with genetic variability for weed suppression to aid our breeding efforts. Our objective was to screen for weed suppression abilities in 19 fine fescue accessions collected initially in Europe, at two distinct field locations, St. Paul, Minn., and West Lafayette, Ind., infested with smooth crabgrass (*Digitaria ischaemum*).

#### FIELD EXPERIMENT

Field experiments were located at the Turfgrass Research Outreach and Education Center at the University of Minnesota in St. Paul and the William H. Daniel Turfgrass Research and Diagnostic Center at Purdue University in West Lafayette. Both fields were initially sprayed with glyphosate in the autumn of 2016 and in early April 2017 (2 pounds per acre, GlyphoMate 41, PBI/Gordon), then rototilled two days before planting to a depth of 2 inches in West Lafayette, and 2- to 4-inch depth in St. Paul. We removed plant residues immediately prior to planting in both locations.

Seventeen accessions originating from Europe were chosen based on their ability to reduce white clover (*Trifolium repens*) and annual bluegrass (*Poa annua*) root development in a preliminary study (4). In addition, we included two commercially available fine fescue cultivars: Navigator II ST and Beacon HF.

Fine fescue plants were transplanted on April 25, 2017, in St. Paul and April 27, 2017, in West Lafayette. Each field experiment consisted of four replications of 20 plots (one crabgrass only control and 19 plots with fine fescues) in a randomized complete block design. Each plot was 1-foot by 1-foot, separated from other plots with a 1-foot border. Plugs of fine fescue entries were planted in a 3-by-3 pattern (nine plugs total per plot), spaced equally, and occupied an area of 4 feet<sup>2</sup> within the plot.

During spring 2017, plots were mowed once per week with a walk-behind rotary mower at 3.5 inches with clippings returned. We applied urea (0.5 pounds per 1,000 feet<sup>2</sup>) to the field areas in June 2017 and stopped mowing when we saw crabgrass seedhead formation in the majority of the plots.

#### DATA COLLECTION

Smooth crabgrass seedheads. In August 2017, the presence of smooth crabgrass seedheads was rated in St. Paul with a scale of 1 to 9, where 1 indicates 100 percent seedhead density based on the crabgrass-only control plot, and 9 indicates plots without crabgrass seedheads.

End of season smooth crabgrass biomass. At the end of September 2017, crabgrass biomass was estimated for each plot at both locations. An 8-inch diameter circle template was placed at three different fine fescue plug locations within each plot, and the entire crabgrass leaf biomass was harvested within the ring. The samples were dried for a minimum of 48 hours at 221 degrees F before being weighed.

Plant height: In August 2017, the height of each unmown fine fescue plug (nine plugs per plot) was measured.

Smooth crabgrass seedling density. In spring 2018, a circle template of 8-inch

#### TABLE 1

#### Effect of fescue taxon on 2017 smooth crabgrass seedhead rating, 2017 end-ofseason smooth crabgrass biomass, 2018 fine fescue.

	Crabgrass seedhead rating <sup>a</sup>	Crabgrass biomass (g) <sup>b</sup>	Fine fescue area(cm²)°	Crabgrass seedlings density <sup>d</sup>		
St. Paul						
Control	1.75	2.51	_	0.72		
HF	2.55	1.43**	39.80ª	0.52		
СН	3.75*	0.98**	48.31 <sup>ab</sup>	0.41*		
SL	3.82*	1.17**	62.55 <sup>b</sup>	0.35**		
ST	3.00	1.22**	61.03 <sup>b</sup>	0.34**		
		West L	afayette			
Control	-	1.17	_	0.14		
HF	=	1.14	74.89	0.04*		
СН	ad	1.04	71.74	0.09		
SL	_	0.64 <sup>†</sup>	68.29	0.07		
ST	_	1.13	79.87	0.06*		

<sup>\*2017</sup> smooth crabgrass seedhead ratings ranged from 1 to 9 in St. Paul. The smallest rating number (1) indicates plots with 100 percent seedhead density based on the crabgrass-only control, and the highest rating numbers (9) indicates plots with no smooth crabgrass seedheads. Taxon were compared to control plots using a Dunnett's test.

diameter was centered on the middle fine fescue plug within each plot. The number of crabgrass seedlings was assessed, and we measured the size of the fine fescue plug. Because the size of the fine fescue plug varied among entries, we calculate crabgrass seedling density for the area without turf.

#### Equation 1:

Density<sub>coalogiass</sub> = Sum<sub>coalogiass</sub> /(Area<sub>cicle</sub>-Area<sub>turf</sub>) (1), where density<sub>crabgrass</sub> is crabgrass seedling density, sum<sub>crabgrass</sub> is the total number of crabgrass seedlings in the 8-inch diameter circle, area<sub>circle</sub> is the circle area and area<sub>turf</sub> is the area of the fine fescue plug. The difference in area circle and area turf gives us the unoccupied soil surface area from which crabgrass had the potential to emerge.

Across the two locations, the environmental conditions and crabgrass

populations were not the same, so we analyzed all data collected from St. Paul and West Lafayette independently. Furthermore, there was significant entry-by-location interaction for characteristics evaluated.

We averaged the three crabgrass biomass measurements and the nine fine fescue plant height subsamples before analysis for each plot. Data were analyzed using a mixed model with fine fescue taxon or entry as fixed effects and replicated as a random effect for both locations.

For taxon analyses, comparisons to the control plots were performed using a Dunnett's test, and statistical differences (P < .05) were obtained. For the entry analysis, multiple mean comparisons were performed with a Student's t-test, and statistical differences were obtained (P < .05).

Similar analyses were performed for the fine fescue areas, except that the controls (empty plots) were removed; multiple mean comparisons for the taxon and entries were performed with a Student's t-test, and statistical differences were obtained (P < .05).

#### **EFFECT OF TAXON**

Taxon had a significant effect on smooth crabgrass seedhead rating in St. Paul and end-of-season biomass in both locations (Table 1). Both SL and CH displayed significantly reduced smooth crabgrass seedhead presence in St. Paul compared to the control plots. Strong creeping red fescues also reduced smooth crabgrass seedheads, but this reduction was not significant compared to the control.

Continued on page 28

<sup>&</sup>lt;sup>b</sup> Smooth crabgrass biomass was harvested around three different fine fescue plug locations within the plot at the end of the 2017 growing season, and these subsamples were averaged for each plot. Aggregates were compared to control plots using a Dunnett's test.

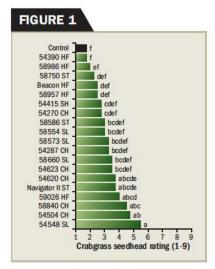
<sup>&</sup>lt;sup>c</sup> Fine fescue area was measured on the middle fine fescue plug for each plot in Jun. 2018. Values not sharing a common letter indicate significant difference between the aggregates at the .05 probability level. For the fine fescue area, comparison between the aggregates was obtained by a Student's t-test.

<sup>&</sup>lt;sup>d</sup> Smooth crabgrass seedling density was determined around the middle fine fescue plug within each plot in June 2018. Aggregates were compared to control plots using a Dunnett's test.

<sup>\*</sup> Significant at the .05 probability level compared to the control; "Significant at the .01 probability level compared to the control

<sup>†</sup> This value was statistically different from the control at the .06 probability level compared to the control

#### Super Science



#### Continued from page 27

Smooth crabgrass biomass was lower than the control for all taxa in St. Paul, whereas, in West Lafayette, this was only the case for SL (Table 1).

In earlier research at Ithaca, N.Y., several fine fescues cultivars were evaluated for weed suppression, but only four were SL (1). Our results indicate that SL cultivars and/or accessions may be more weed suppressive than previously thought, which is primarily due to a combination of under-representation in turfgrass trials and misidentified germplasm collections.

A significant effect of taxon on crabgrass seedling density was observed for both locations. Seedling density was significantly lower for CH, ST and SL (compared to the control) in St. Paul, whereas HF led to a nonsignificant reduction in seedling density (Table 1).

In West Lafayette, smooth crabgrass seedling density was significantly lower than the control for ST and HF. While CH and SL reduced seedling density to some extent, it was not significantly different from the control. Similarly, HF spread more slowly (lower turf area) in St. Paul but was similar to the red fescue taxa in West Lafayette.

Hard fescue growth differences may be due to the effects of a longer growing season in Indiana. Data obtained from the National Turfgrass Evaluation Program (NTEP) showed that Minnesota (two locations in St. Paul) possessed lower fine fescue spring green-up ratings compared to more southern states such as Illinois (Carbondale location). The spring green-up rating for HF was 2.3 and 3.6 in St. Paul and 6.8 in Carbondale, Ill. (5). This difference was not as dramatic for the CH (4.8-5.1 for Minnesota and 6.8 for Illinois), ST (4.8 for Minnesota and 6.7 for Illinois) and SL (4.2-5.6 for Minnesota and 7.3 for Illinois).

In a relatively more southern location such as Carbondale, HF and SF green-up ratings were similar to the other red fescues (CH, SL, ST). Fine fescues are cool-season grasses adapting to the northern two-thirds of the United States, yet we know little on taxon-specific performance within certain areas within this zone. Fine fescues seem to establish quicker in the more southern regions (longer spring and fall seasons, faster spring green-up) of temperate climates, especially HF.

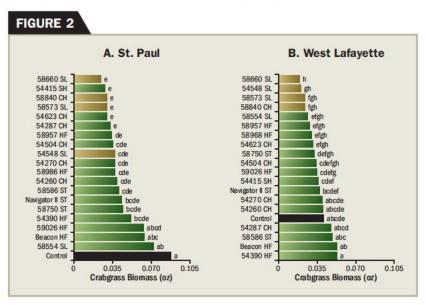
The improved green-up of HF in warmer climates could explain why HF reduced smooth crabgrass density in West Lafayette but not in St. Paul. Turfgrasses that green up more quickly or are denser in spring should reduce crabgrass infestation as they shade the soil surface in spring, resulting in a reduction in crabgrass-seed light interception (9).

The light requirement for smooth crabgrass germination is not well studied and inconclusive (8), but other *Digitaria* species such a *D. ciliaris*, *D. longiflora* and *D. sanguinalis* require light for germination, or their germination is increased by light (3, 8). As such, the reduction in crabgrass density could be from allelopathy, plant competition or both, and this needs further study.

We did not include the single SH entry in this experiment in either aggregate or taxa analysis. In this experiment, SH plots were among the entries with the smallest area and highest crabgrass density at both locations. Since there were differences between HF entries in this experiment, and there is tremendous genetic variation among *F. ovina* (7), there may be an opportunity to improve the weed suppression potential of SH.

#### EFFECT OF ENTRY

We observed a significant entry effect for smooth crabgrass seedhead rating, end-of-season biomass, seedling density and fine fescue areas in both locations. The highest seedhead rating (most suppressive) belonged to accession 54548 SLin St. Paul (Figure 1). Furthermore, the HF, CH, SL and ST entries were not significantly different from the control plots. Only Navigator II ST, 59026 HF, 58840

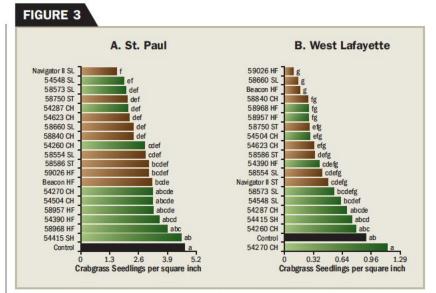


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CH, 54504 CH, 54548 SL and 54260 CH displayed a higher seedhead rating (low crabgrass incidence) in St. Paul.

We recorded fine fescue plant height within 24 hours of the crabgrass seedhead rating. Because the fine fescue plants were not moved to allow crabgrass seedhead development, plant height was used to proxy growth during the 2017 growing season. We performed a correlation analysis (data not shown) between smooth crabgrass seedhead rating and the fine fescue height to examine if entries that grew taller led to greater crabgrass suppression. Entries in St. Paul displayed a positive and significant correlation between fine fescue plant height and the crabgrass seedhead rating (r = .31, P < .0001). These data suggest that plant height and/or vigor may play a role in the smooth crabgrass biomass suppression observed in 2017.

Accession 58660 SL had the lowest end-of-season smooth crabgrass biomass observed in St. Paul and West Lafayette (Figure 2). In St. Paul, the control plots displayed the highest smooth crabgrass biomass on average, but this was not the case for the West Lafayette location; in fact, accession 54390 HF had the highest smooth

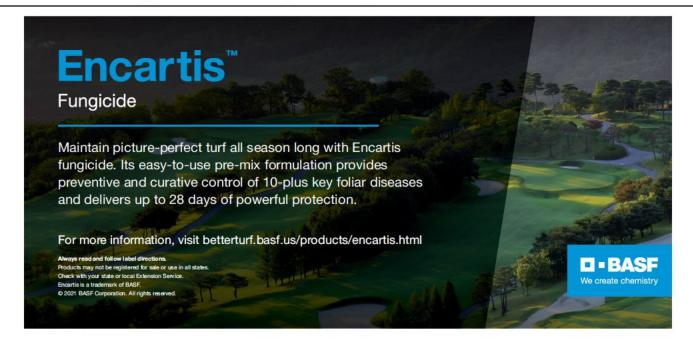


crabgrass biomass in West Lafayette, and Beacon HF presented the highest smooth crabgrass biomass across both locations. Accessions 58840 CH, 58573 SL, 58660 SL and 54548 SL were significantly lower than the control plots at both locations and were associated with the least smooth crabgrass biomass.

In St. Paul, the lowest smooth crabgrass seedling density was observed with Navigator II ST and 59026 HF inWest Lafayette (Figure 3). The control plots in St. Paul and entry 54270 CH in West Lafayette had the highest smooth crabgrass seedling density. Navigator II ST, 58586 ST, 58750 ST, 58660 SL, 58554 SL, 54623 CH, 58840 CH, Beacon HF and 59026 HF had lower crabgrass seedling density than the control plots at both locations. Entry 58660 SL and Beacon HF covered the greatest areas in St. Paul and West Lafayette, respectively (Figure 4).

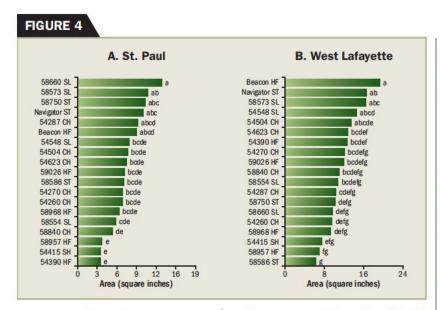
#### CONCLUSION

Our results revealed a significant degree of variability among accessions of the same taxon on the measured Continued on page 30



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crabgrass parameters. We found several CH entries (3 of 6) reduced seedhead presence, whereas most SL entries (3 of 5) led to reduced end-of-season crabgrass biomass. Interestingly, smooth crabgrass seedling emergence was affected by ST, SL, CH and HF entries at both locations, with a more substantial effect of HF entries in West Lafayette.

In this field experiment, differences in correlations (data not shown)

between fine fescue growth (plant height and plot area covered) and smooth crabgrass development (biomass and seedling density) for St. Paul and West Lafayette emphasize the presence of a strong location effect. The differences may be partly due to growing season length, growing degree day accumulation, rainfall and snowfall between the locations. Future studies should more closely examine the effect of location and abiotic factors, such as temperature on the magnitude of fine fescue weed suppression.

Overall, while our results confirmed the weed suppressive ability of some CH and ST entries, they also point to the need for a greater understanding of how this suppression works and what role environmental conditions play in the response, especially in HF.

Our results confirmed previous reports that the F. rubra taxa are more



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crabgrass suppressive than HF. Results also indicated that there is significant variability between the entries within each taxon, including within HF. Chewings fescue and slender creeping red fescue (*F. rubra* ssp. *littoralis* SL) displayed the most robust ability to suppress smooth crabgrass. However, not all CH or ST entries are weed suppressive, and some HF entries are as weed suppressive as the best CH and ST.

Results suggest further opportunities for plant breeders to develop new weed suppressive cultivars for low-input turfgrass systems. The variation in crabgrass suppressive ability among fine fescue taxa indicates that if there is no selection for the trait, it could be lost or become a weak trait within a cultivar.

#### Acknowledgments

The authors wish to acknowledge the funding support by the National Institute of Food and

Agriculture, USDA, Specialty Crop Research Initiative under award number 2017-51181-27222. Thank you also to William Meyer, Ph.D., Rutgers University, for sending germplasm for screening. The authors would also like to thank all the undergraduate students and Geoffrey Schortgen for their participation in collecting the data presented.

#### **Author Contributions**

Information in this article was adapted from: Breuillin-Sessoms, F, Petrella, D P, Trappe, J M, Mihelich, N T, Patton A, & Watkins E. Field evaluation of weed suppression in fine fescue (Festuca spp.). Crop Science. (2021);61:2812–2826. https://doi.org/10.1002/csc2.20506. For more information, contact Florence Breuillin-Sessoms, Ph.D., University of Minnesota, fsessoms@umn.edu.

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**Golf course hazard** The best way to stop the spotted lanternfly's spread is to scout for egg masses, which resemble mud splatters (right). Females can lay eggs on almost any surface (center). Expect higher populations around tree of heaven (left).

### Why spotted lanternfly is a golf course hazard

SPOTTED LANTERNFLY MAY NOT DESTROY YOUR TURF, BUT IT MAY DRIVE YOU AND YOUR MEMBERS NUTS WITH ITS UNUSUAL BEHAVIOR

By Christina Herrick

The first thing to know about the spotted lanternfly is it's not a turfpest, but that doesn't make it any less of a nuisance, experts say. The spotted lanternfly has been slowly spreading since its original discovery in Pennsylvania in 2014, and along the way, researchers are learning a lot more about the pest's behavior.

Expect higher populations if the wooded areas of your courses have tree of heaven, *Ailanthus altissima*. The spotted lanternfly also feeds on grapevines and walnut trees. Other possible food sources include *Styrax*, *Evodia*, river birch, willow, Staghorn sumac and red and silver maple trees.

"Sometimes they're parking lot trees," Emelie Swackhamer, Penn State Extension horticulture educator says. "And if they're right above where everybody's parking their cars, it's possible that they could lay their eggs on those cars. It only takes the female an hour or less to lay one egg mass."

Swackhamer says a golfer could inadvertently transport and spread spotted lanternflies to a new area.

When lanternflies feed, the adults secrete a sticky substance called honeydew. This honeydew, aside from being messy, can also attract yellow jackets and other stinging insects. Sooty mold is also present in areas of large spotted lanternfly populations, and sometimes, a distinguishable smell comes along with the spotted lanternfly feeding on tree of heaven.

"This really sour smell develops, and it has to do with the microbes that are present because of all the honeydew," she says. "It can really stink."

While spotted lanternfly has been found in the Mid-Atlantic and some Midwestern states, Swackhamer says the first line of defense against new populations should be trapping and scouting for eggs and the pest itself. She recommends circle traps as sticky bands can catch unsuspecting wildlife. Swackhamer says superintendents can help slow the pest's spread through trapping and communicating to members about its threat.  $\Theta$ 

PHOTOS BY: EMELIE SWACKHAMER, PENN STATE EXTENSION

#### PBI-Gordon Corp.

CHRIS WILLIAMSON, PH.D.
Midwest research scientist

Spotted lanternfly (SLF) causes serious damage including oozing

sap, wilting, leaf curling and dieback in trees, vines, crops and many other plants. SLF feeds on more than 70 different species of herbaceous plants. Tree of heaven (TOH) is the preferred host. When SLF occurs in a new area, adults are most likely to be found on TOH. SLF also excretes a sugary substance called honeydew that encourages the growth of black sooty mold. This mold is harmless to people. However, it causes damage to plants. Females lay one or two egg masses on any hard, smooth surface, each containing 30-60 eggs in rows. After a few weeks, the egg mass turns a darker tan and starts to crack, resembling a splotch of mud and can be extremely camouflaged. This may include cushions on outdoor furniture and the rough bark of conifers. Several actions can be employed to exclude the pest: sticky bands around trees, biological control, destruction of egg masses and insecticides.

#### Arborjet

DON GROSMAN, PH.D.

Technology advancement manager and entomologist

SLF is a major nuisance pest,



congregating on buildings and producing honeydew and sooty mold. It's capable of killing grapevines, tree of heaven and walnut saplings. Established populations are found in Pennsylvania, Virginia, New Jersey, New York, Connecticut, Maryland, Delaware, West Virginia, Ohio and Indiana. The pest has been identified in Massachusetts. Rhode Island, Vermont and North Carolina, with bordering states on alert. Spotted lanternfly nymphs feed on a wide range of plant species, while adults prefer to feed on trees, particularly the tree of heaven, walnut, maple and birch. Adults lay 1-inch-long egg masses in the fall on nearly anything from tree trunks and rocks to vehicles and firewood. With no native predators, the SLF population has flourished. To treat for spotted lanternfly, we apply IMA-jet, a systemic micro-injectable product. In recent field trials, this treatment proved successful in eliminating the pest from the host tree and reducing

honeydew, sooty mold production and egg masses.

#### Quali-Pro

SHANNON SLEVIN

Mid-Atlantic territory manager



SLF is spreading quickly through New England and Mid-Atlantic

states because it's an opportunistic traveler. Adults emerge from June to August. The pest will lay egg masses on nearly any surface, including vehicles, outdoor equipment and trees, and it can be transported outside quarantine areas. Prevention is dependent on routine scouting. Continue to monitor susceptible trees on your property, such as black walnut, birch, maple and fruit trees for egg masses, which are typically laid on the outer tree trunk 4 feet from the ground. Remove egg masses from the surface and collect them in a container filled with rubbing alcohol to kill the eggs. Adults and nymphs should be crushed. Control options for SLF include traps and using a bait plant such as the tree of heaven to attract the insect. Chemical control options include imidacloprid, bifenthrin and dinotefuran.



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"The fall armyworm invaded and devastated turf throughout the Upper Midwest ... and made this year more than your typical 'run of the mill' year."

KARL DANNEBERGER, PH.D., Science Editor

#### What happened to my turf?

s the summer comes to an end, recapping agronomically follows, in many ways, a similar pattern. Dollar spot, brown patch and summer patch were issues on numerous golf courses, as well as annual bluegrass weevil from the east coast through Pennsylvania. Surprisingly, anthracnose, which was severe in some areas, was not as severe as in past years. Crabgrass had a strong year, as well as annual bluegrass. Although all of these examples are serious agronomic issues, we often treat them like "another year."

However, this year, the fall armyworm invaded and devastated turf through the Upper Midwest. Normally a sporadic or localized pest in the North, this August, it caused devastation across golf courses and home lawns. The insect's name is quite appropriate. Fall is the time of year this pest causes damage, and army refers to how it marches across the turf or through a field like an army devouring the vegetation.

Fall armyworm is a chronic problem on turf in the Southeastern United States. The insect overwinters in southern Texas, southern Florida, Central America and South America. Anywhere north of these areas the fall armyworm can't survive the winters, even in regions like central Alabama. In the spring, the moths migrate north by being carried on wind currents. The moths can travel 500 miles on wind currents in a 24-hour period. The moths become present in the Southern United States in late July and August. A moth can lay eggs,

resulting in several hundred to a thousand or so caterpillars hatching.

The egg masses are often laid on light-colored surfaces. This could be on flags, hole markers, bridge railings, almost any flat surface. Once the eggs hatch, which can be days after laying, it takes about two weeks for the larvae to become fully grown. At this point, the caterpillars will burrow into the ground (pupate) and then emerge as adult moths in about two weeks. The caterpillars are most evident in the early morning or during late evening but have the potential to feed all day.

Damage, which looks like drought, comes quickly. A turf area, whether a golf course rough or a home lawn, can look fine one day, but in a few days, it can become defoliated. Defoliation can continue as the caterpillars continue to "march" along the turf. What made this year out of the ordinary throughout the Southeast and Northern United States was the early arrival of the fall armyworm with higher infestation numbers than expected, contributing to a rapid



Fall armyworm damage near Mount Vernon. Ohio.

defoliation of the turf.

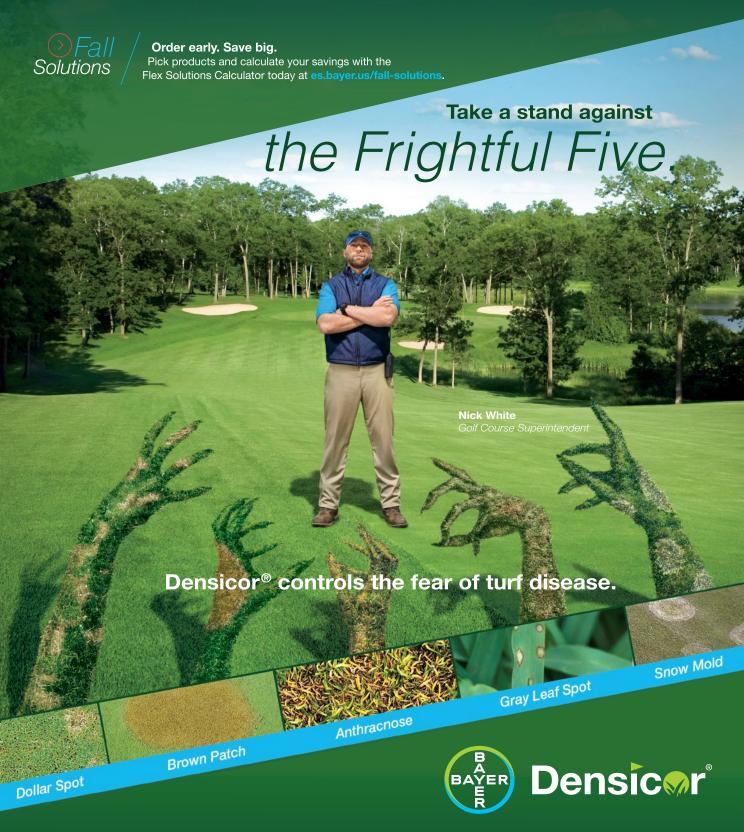
Some perspective on how quickly this pest can spread and cause devastation occurred four years ago. In January 2016, a shipment of maize infested with fall armyworm arrived in West Africa. One year later, fall armyworm assessments found the pest in 12 sub-Saharan African countries, devastating hundreds of thousands of acres at a cost estimated to be between \$3 billion and \$6 billion. In the United States, fall armyworm damage is mitigated by maize (corn) that is genetically modified to combat the pest. In Africa, there is widespread resistance to using genetically modified crops. In turf, several products are available to control fall armyworm.

Besides golf courses, the most popular topic in garden centers and neighborhoods was fall armyworm. I can't remember a time when both professionals and nonprofessionals (homeowners) became so knowledgeable of a pest in a short period of time. Around Labor Day, I visited a few garden centers. Standing in line at the cash register line at a garden center the No. 1 topic of discussion was not Ohio State football but the fall armyworm and how it was killing their lawns.

The fall armyworm made this year more than your typical "run of the mill" year. I wonder if this pest is an indicator that pests may start occurring sooner, lasting longer and with an increased intensity than what we have seen in the past. The management of golf courses is difficult enough without having to plan for the unexpected.  $\Theta$ 

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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\*Dollar spot, brown patch, anthracnose, gray leaf spot and snow mold were the five most common diseases according to a national survey among golf course superintendents.



#### Back to nature

racking the changes in the management of golf facilities in the U.S. is a great accomplishment. In 2006, the Golf Course Superintendents Association of America (GCSAA) took the lead on this effort with its first round of environmental profiles conducted through the Environmental Institute For Golf.

Ten years after the first round, the GCSAA conducted the second round of Environmental Profiles with substantial financial support from the USGA. One of these profiles is Phase II – Land Use Characteristics and Environmental Stewardship Programs on U.S. Golf Courses.

This time, comparisons could be made, for instance, between 2005 to 2015 for the land use characteristics of golf courses. The two surveys, taken 10 years apart, document, characterize and quantify national and regional trends in:

- Land use on U.S. golf courses;
- The use of turf types and overseeding practices;
- The role of climate, geography and facility type on land use patterns; and
- Participation in environmental stewardship programs.

It was not surprising that median golf facility acreage did not significantly change from 2005 (151 acres) to 2015 (150 acres). The maintained turfgrass acreage decreased 4 acres from 2005 (99 acres) to 2015 (95 acres). Not a large change, however, 46 percent of the facilities have increased their acreage of natural, native or unmowed areas acres since 2005.

So, the good news is the trend toward less maintained turfgrass on the golf course. The bad news is deciding where these areas should exist, and now, how do you manage them?

Most superintendents that know their course and golfing clientele could map out several potential areas. Selling the concept to the players is sometimes tricky. A great tool to reduce managed turfgrass or rough is GPS tracking golfer usage of the property. The USGA has a great program set up for this job.

What do you do with the out-of-play areas identified? The USGA Green Section has repeatedly asked the same question during the last 40 years. Here are a few ideas.

Two trends are establishing native grasses and wildflowers, or if you are lucky to have sandy soils, removing trees, grass and other vegetation to create waste areas. Several successful golf course architects have worked with courses to achieve excellent results. Reflect on how Pinehurst No. 2 has changed from bermudagrass rough to sand waste areas with minimal vegetation. The tree removal and subsequent establishment of native grasses at Oakmont Country Club is another example.

Maintaining natural areas does not come without cost. If you are in a higher rainfall area, you will be fighting a host of invasive plants, as well as trees trying to take over. More research exists on maintaining these areas similar to what is in the Super Science section in this issue of *Golfdom*.

Another aspect to consider is how these areas provide habitat for birds or pollinators. Pages of information exist on bird boxes or wildflowers that attract species needing food, water and shelter. Again, the USGA Green Section worked with Audubon Cooperative Sanctuary Program for golf on how you can manage these areas.

Do not forget about establishing buffer vegetation between maintained turfgrass and surface water features. The research demonstrates that you can reduce the impact of golf course maintenance practices on surface water with buffer areas. Water quality is not only improved but provides a better habitat for reptiles, amphibians and fish.

The word stewardship appears 28 times in the report, and improvements to help protect the environment have increased significantly in the last 30 years. I hope the trend continues to find ways to reduce excessively managed turfgrass on golf courses. I think golfers understand that this movement will help golf become more sustainable. It also bodes well for golf courses to provide some excellent ecosystem services to the nearby community. **②** 

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



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TimberWolfHandCleaner.com

#### 2 | TV60 RHD

HARPER TURF's TV60 RHD is designed for verticutting, dethatching and vacuuming, without disrupting play nearby. Superintendents can turn a twoman job into a one-man job, backed by Harper Turf's verticut and vac one-pass technology. The 60-inch-wide swath adapts over contours for a continuous and clean finish. It also features a recirculating air system that minimizes dust for a clean sweeping environment. HarperIndustries.com

#### **3** | Kujo X1 Landscape Boots

KUJO's X1 Landscape Boots are optimal footwear for golf course workers as the boots feature an Occupational Safety and Health Administration-compliant composite safety toe, exceptional traction and ankle support. The company says the X1 stands out with optimized breathability and lightweight design to fight foot fatigue. Kujo.com

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#### 4 777 Creeping Bentgrass

777 Creeping Bentgrass by **DLF SEEDS** has shown high performance under heavy stress and with wear conditions. In addition, 777 (featured in *Golfdom*'s September issue) produces a turf with attractive green color, no purpling in cool weather, great heat resistance in summer and high disease resistance, according to the company. The bentgrass also blends well with other leading bentgrass varieties. **DLF.com** 

#### 5 | John Deere QA5 and QA7 verticutters

The **JOHN DEERE** QA5 and QA7 Verticutters deliver an efficient, consistent verticutting depth. The QA5 features 5-inch verticutter blades on a 0.75-inch standard spacing with standard carbide tips, while the QA7 is equipped with 7-inch blades on a standard 1.125-inch spacing. The patented Speed Link system ties both ends of the rear roller together with a spring-loaded rod and worm gears, meaning adjustments can be performed from either end of the rear roller, automatically adjusting the other side at the same time. A simple front roller design allows for paralleling the front roller to the blades.

Deere.com/Golf

#### **6** | Verti-Cut Series

The Verti-Cut Series from **REDEXIM** is offered in 80-, 64- and 51-inch versions; the larger units can verticut more than 107,000 square feet per hour and 86,000 square feet per hour, respectively. 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 is sized to be used on smaller tractors and the Redexim Carrier walk-behind multifunction implement carrier.

Redexim.com

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### 19th Hole

#### **Phil Rosati**

**ASSISTANT SUPERINTENDENT** // Indian Hills CC, Northport, N.Y.



After 18 holes, what are you drinking? It depends. If we're just hanging out, a couple IPAs; if we're going to have a night of it, a Jack

Daniels, Angel's Envy or an Eagle Rare.

Tell me about Indian Hills. We're celebrating our 60th anniversary this year. I've been there for 11 seasons working under John Paquette, superintendent. We were taken over by new ownership about five years ago. They let go of the reins and let us do our thing. We had a big tree removal program, some bunker renovations and a couple new green complexes. Things are going forward every year.

**Do you have a family?** My wife Patricia and I have been married for almost 12 years now. We have two daughters:

Alyssa is 11, and Haley is 9.

#### What's your favorite tool in the shop?

My trusty sprayer. The way I look at things on the golf course is you can have all the mowers, all the irrigation and manpower, but it doesn't mean anything if you can't keep it alive. That's my go-to tool. Every day, that's going out for something, whether it's spot-spraying weeds or hitting greens, fairways and tees.

Who is someone you'd like to have met?

Bobby Jones. When I was younger, getting started out in golf, I had an old man I used to work with

who taught me a lot: how to grind, how to lap. He was an avid golfer, and he taught me the lessons that Bobby Jones would teach in his videos. Looking at those and the way Bobby Jones built Augusta National, I'd love to pick his brain.

What's your personal motto? Don't put off till tomorrow for what you can do today. Every little thing that makes the operation run smoother, rather than putting it off, get it done, rather than giving yourself more work the next day.

If you had an hour of free time, how would you spend it? I like taking a walk through the woods around the property. I like spotting deer or finding trails, or I look for anything old, maybe an old bunker here or an old green there. You never know what you're going to find.

What's on the menu at the Rosati household tonight? Well, it's Friday, and we're in New York. So, either pizza or pasta.

or pasta.

Fill in the blank: This golf season
has been \_\_\_\_\_. An adventure.

A lot of ups and downs, especially here in the Northeast with the weather. Heat, heavy rains, damaging rains. Short-staffed. It's been a challenge. "Adventure" is the word.

As interviewed by Seth Jones, Sept. 10, 2021.

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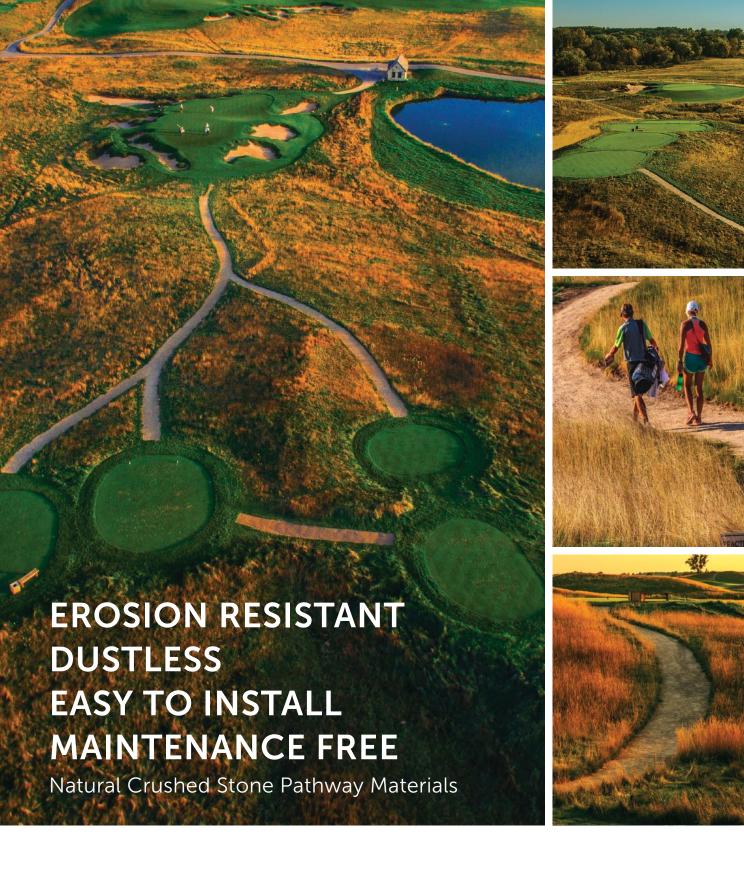


"GO AND MAKE A
DIFFERENCE AND BE
A LEADER. IF YOU SEE
SOMETHING WRONG,
TAKE THE GUY ASIDE
AND SHOW HIM THE
RIGHT WAY. IT'S THE
LITTLE THINGS."

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