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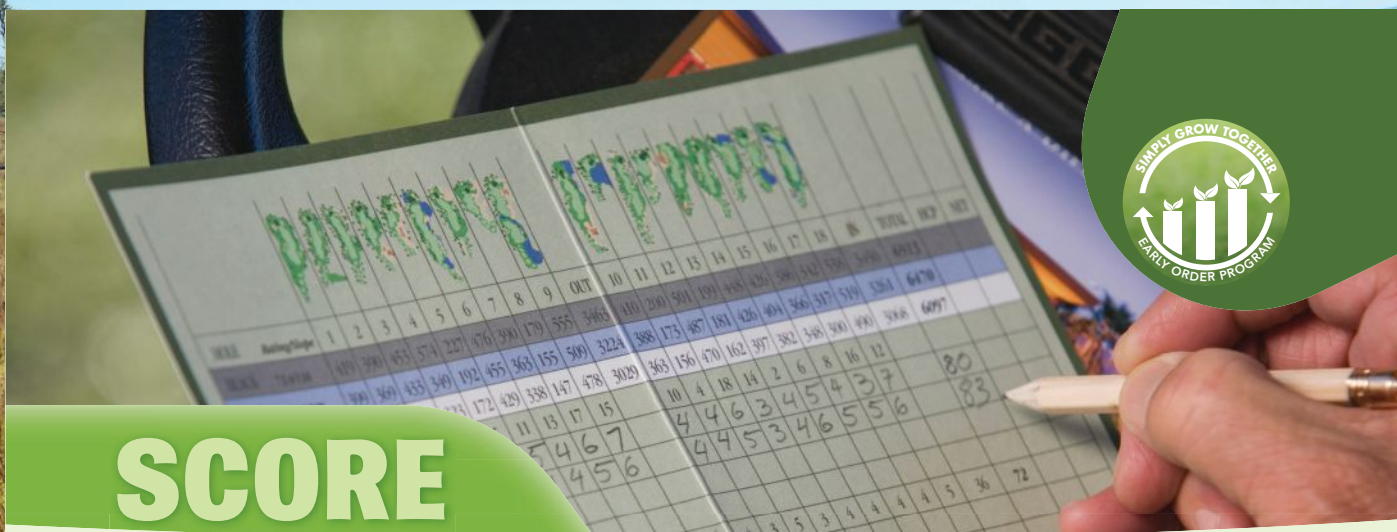
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// 18

COLUMNS

- // 4 **Keeping up with The Jones**—Seth Jones
Jones recaps his summer travels and puts out an open invite if you're ever in the Kansas City area
- // 14 **A note from RISE**—Megan Provost
Provost offers a closer look at the EPA's pesticide registration programs and what they mean for the industry
- // 16 **Musings from the Ledge**—Alan FitzGerald
FitzGerald explains why it's important to keep calm when faced with a disagreement on the course
- // 32 **The Turf Doc**—Karl Danneberger, Ph.D.
Danneberger shares how superintendents can help teach the younger generation hands-on skills
- // 35 **Off the Record**—Mike Kenna, Ph.D.
Kenna breaks down spring dead spot research from North Carolina State and Clemson

EOP GUIDE

- // EOP1 **Going for Gold:**
(enclosed with main issue)
Early Order Programs



DEPARTMENTS

- // 6 **Starter** // 10 **Golfdom Gallery** // 12 **The Golfdom Files** // 36 **The 19th Hole**



SUPER SCIENCE

- // 23 **Fungicides that reduce spring dead spot in fairway bermudagrass**
- // 24 **Precision spring dead spot control**
- // 30 **How to winterize irrigation systems properly**
- // 34 **Conquering kyllinga on your course**



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“How busy was the course? Does your significant other still recognize you when you walk in the door?”

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

Put a bow on the summer of 2024

The last day of summer is near. For me, that means the kids are going back to school (Evey, somehow, is now a senior while Boyd starts seventh grade). But for many readers of this magazine, the end of summer means the busiest, most hectic time of the year is almost over.

How did you fare? How busy was the course? Does your significant other still recognize you when you walk in the door?

My summer was packed with travel. And while I don't like being away from my family, I'll admit that my travels were a lot of fun. I crossed Alaska off my bucket list with a trip to Bristol Bay for some fishing and bear watching (SO MANY BEARS!). I made it to Cleveland to visit the home office of North Coast Media but somehow managed to whiff on both the Sammy Hagar concert and the Def Leppard show that were in town at the same time. And most recently, I was in Park City, Utah, for a couple of days

of golf and meetings with some friends in the industry. (Thanks to Brian Renschler, director of agronomy at Talisker Club, for hosting us on his beautiful course. You can read my 19th Hole interview with Brian on page 36.)

Whenever I post a photo on social media from a scenic location, I usually get someone who is local to the area who responds, “You were in (insert location) and didn't call me? I live near there; we could have grabbed lunch!” I instantly feel guilty about not thinking of contacting the person ... and then a few moments later, I consider how many people skirt through Kansas City in a given year and don't think to call me. Hey, it happens; we're

busy when we're traveling. But it is something I have to get better at because I love it when people reach out to me when they're in my area.

Recently, Steve Sarro, a longtime superintendent I've known for two decades, pulled his U-Haul into my driveway. He was on a cross-country trip, moving his family's belongings to Destin, Fla., where he is now the superintendent at Kelly Plantation GC. Steve and I got to catch up over a few drinks in the Hall of Justice (a photo is in this month's Gallery on page 10.) Similarly, current GCSAA President Jeff White, CGCS at Indian Hills CC in Mission Hills, Kan., stopped by the HOJ recently. I think

Whitey will vouch for the HOJ if you ask him. Maybe I can talk him into hosting a board of directors meeting there someday.

The results of this month's cover story are from another one of those calls. I met Jeff Stahman of TurfMend at the Equip Exposition show in Louisville, Ky., last October. A few months later, he passed through Kansas City and reached out. We decided to meet up for dinner. He told me he was with his friend “Lew.”

Turns out Lew is Lewis Sharp, head agronomist for Tee-2-Green. Despite both of us being in the golf industry for decades, we'd never crossed paths until this dinner. That dinner led to a new friendship in an industry full of friends. Lew helped me wrangle the sources for this month's cover story on bentgrass seed farmers, and he even took the photos featured on the cover and inside this issue. Like one of my sources this month told me, “Lew is one-of-a-kind.”

That dinner in Kansas City also led to my recent golf trip to Park City, Utah. But more on that story in a later issue ...

Congratulations on getting through another busy summer. I hope someday you can tell me all about it, maybe while I'm at your course ... or maybe at a restaurant in Kansas City or even over a cold beer in the HOJ. ☺

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Starter

NEWS, NOTES AND QUOTES



// A DECADE OF SERVICE



Interested in becoming a Grassroots Ambassador? Contact Michael Lee, GCSAA senior manager, government affairs, at 800-472-7878, ext. 3612, to learn more.

GRASSROOTS AMBASSADOR PROGRAM CELEBRATES 10TH ANNIVERSARY

➔ The Golf Course Superintendents Association of America's (GCSAA) Grassroots Ambassador Program celebrated its 10th anniversary in July. Since its inception in 2014, the program has paired GCSAA members with members of Congress to build strong working relationships.

The program was created to promote, protect and defend the golf course management industry by providing an avenue for golf course management professionals to share their stories with members of Congress.

Many of the facility tours hosted by ambassadors for members of Congress have focused on how superintendents implement environmental best management practices (BMPs) in their course maintenance. Welcoming lawmakers to their golf courses also allows GCSAA members to showcase the environmental, economic and recreational benefits that golf courses provide to

their communities.

"Advocacy is a top priority for GCSAA, and Grassroots Ambassadors are a driving force behind much of our advocacy work. Ambassadors are a key link between our industry and policymakers at the federal, state and local level," said GCSAA CEO Rhett Evans. "Their voices are crucial for the promotion, protection and defense of the golf industry, so we encourage all GCSAA members with an interest in advocacy to join this important program."

Grassroots Ambassadors also discuss GCSAA's Priority Issues Agenda with lawmakers. Those conversations enable ambassadors to advocate for policies that benefit the future of the profession and industry.

With more than 530 participants, the Grassroots Ambassador program spans 413 congressional districts nationwide, representing 78 percent of districts.

// FAMILIAR FACE, NEW PLACE

KAFKA ADDS DAN HANNAN

Kafka Granite, a golf course erosion solutions provider, recently added Dan Hannan as its business development manager for golf and recreation. In this role, Hannan will drive the growth of Kafka Granite's products within the golf and recreation industry.

Hannan will work closely with Kafka's management, sales, marketing and product development teams to enhance its market presence and better serve its customers.



Dan Hannan

"We are thrilled to have Dan Hannan join our team," said Tiffany Koss, president of Kafka Granite. "I've known Dan for many years, and his extensive experience in construction, golf and landscape makes him a perfect fit for this position. We are confident that Dan will play a key role in expanding our reach and continuing to deliver top-quality solutions to our customers."

// SUNSHINE STATE STAR

FLORIDA GCSA HONORS JORGENSEN

The Florida Golf Course Superintendents Association (GCSA) awarded Andy Jorgensen, CGCS and director of community maintenance operations



Andy Jorgensen

for On Top of the World Communities in Ocala, Fla., with its Distinguished Service Award (DSA). Jorgensen received his award during the association's annual meeting at Sailfish Point Golf Club in Stuart, Fla.

Jorgensen is a past president of the Florida GCSA, the Florida Turfgrass Association and the Seven Rivers GCSA. He has served on and chaired numerous association committees over the past 20 years and has also served as a Golf Course Superintendents Association of America (GCSAA) Grassroots Ambassador since 2015. Plus, Jorgensen was a GCSAA's Best Management Practices (BMP) Resource Task Group member.

PHOTO BY: WELIGLAD / ISTOCK-GETTY IMAGES PLUS / GETTY IMAGES (GOLFBALL); GCSAA (GRASSROOTS)

//HONORING A LEGEND

Robert Trent Jones Jr. to receive Donald Ross Award

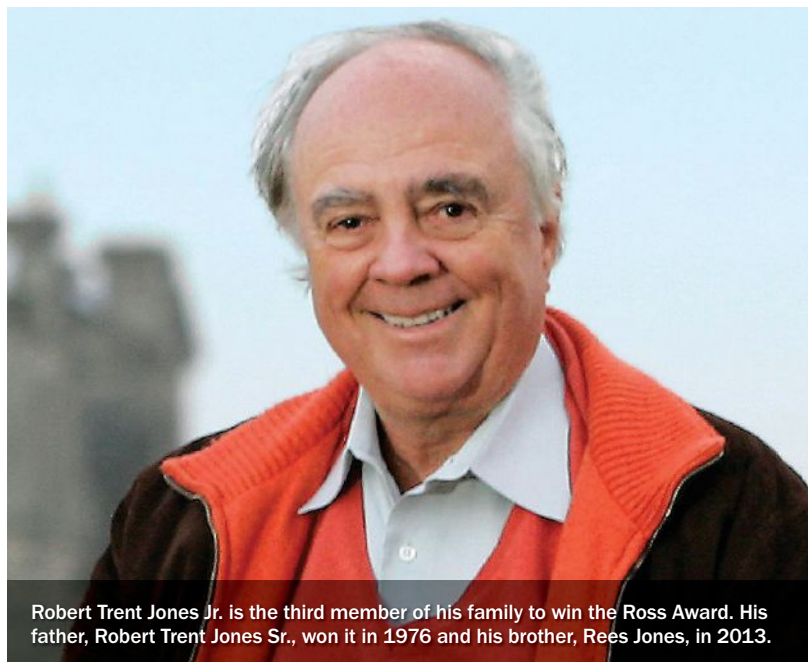
➔ The American Society of Golf Course Architects (ASGCA) selected Past President Robert Trent Jones Jr., founder of Robert Trent Jones II Golf Course Architects based in Palo Alto, Calif., as the 2024 ASGCA Donald Ross Award recipient.

The ASGCA presents the award, given since 1976, to a person who has made a significant contribution to the game of golf and the golf course architecture profession. Jones will receive the award at the ASGCA Annual Meeting in San Francisco on Nov. 11.

Jones' earliest experience was working alongside his father, ASGCA Founding Member Robert Trent Jones Sr., on Spyglass Hill Golf Club in Pebble Beach, Calif., and other projects in the 1960s. After an apprenticeship with his father and running West Coast operations, Jones expanded into Asia with solo international efforts.

In 1972, he formed his own firm. Jones has designed more than 300 golf courses in more than 50 countries on six continents, including Chambers Bay Golf Course, University Place, Wash. (host to the 2015 U.S. Open); The Links at Spanish Bay, Pebble Beach, Calif.; and Hanalei Bay, Kauai, Hawaii.

In 2024, Jones' long-time efforts to secure copyright protection for the creative work of golf course architects advanced with the introduction of a bill in the U.S. Congress, the Bolstering Intellectual Rights against Digital Infringement Enhancement (BIRDIE) Act. The bill would update the Architectural Works Copyright Protection Act of 1990 — which provided copyright protection for buildings — to extend the protections to include golf courses. The bipartisan bill, H.R. 7228, continues to be discussed by the Judiciary Committee.



Robert Trent Jones Jr. is the third member of his family to win the Ross Award. His father, Robert Trent Jones Sr., won it in 1976 and his brother, Rees Jones, in 2013.

PHOTO COURTESY OF : AMERICAN SOCIETY OF GOLF COURSE ARCHITECTS

//FACE OF THE FUTURE

CHAD ALLEN NAMED 2025 EMERGING LEADER

Chad Allen, superintendent at The Club at Chatham Hills in Westfield, Ind., is the winner of the 2025 Emerging Leader Award from the Golf Course Superintendents Association of America (GCSAA). Allen will be honored on Feb. 6 during the Send-Off Celebration of the 2025 GCSAA Conference and Trade Show in San Diego, Calif.



Chad Allen

Allen, a six-year GCSAA member, took a nontraditional path to the turf industry. He started college in his early 30s and eventually became a substance abuse counselor. However, the stress of the job, combined with the needs of his young family, led him to seek a new career. His brother Brad, a 21-year GCSAA member who is the certified golf course superintendent (CGCS) at Hickory Stick Golf Club in Mooresville, Ind., suggested he try golf course management.

"I got hooked right away," Allen said. "Little did I know it would turn out to be something that would profoundly impact my life."

//GETTING INVOLVED

NIELSEN JOINS EPA PESTICIDE COMMITTEE

Robert Nielsen, CGCS, superintendent at Bedford (N.Y.) Golf & Tennis Club, a 34-year Golf Course Superintendents Association of America (GCSAA) member, has joined the EPA's Office of Pesticide Programs Dialogue Committee (PPDC).

Nielsen will take over for Mark Johnson, GCSAA director of environmental programs who served from 2020 to 2023, by joining the federal advisory committee in 2024 and 2025.

"Bob brings a wealth of knowledge and firsthand experience to the PPDC, and he'll be able to share the environmental best practices that superintendents engage in every day," GCSAA CEO Rhett Evans said. "His appointment means that GCSAA members will continue to have a voice on this crucial EPA committee."

Established in 1995, the PPDC is a group of stakeholders chartered under the Federal Advisory Committee Act to provide feedback to the EPA on various issues related to pesticide regulations, policy and program implementations.

Starter

Friends in High Places

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“I’m always appreciative of the grounds crew guys.”

CC Sabathia, professional baseball player

A MAJOR LEAGUE BASEBALL PITCHER for 19 seasons, CC Sabathia was a force to be reckoned with on the mound. The Vallejo, Calif.-native — born Carsten Charles Sabathia Jr. — made his MLB debut in 2001 for the Cleveland Indians. The big lefty won the Cy Young Award in 2007 while helping the Indians make the playoffs, coming a game shy of the World Series.

After a short stint with the Milwaukee Brewers, Sabathia signed a seven-year, \$161 million contract with the New York Yankees. In Yankee pinstripes, Sabathia led the MLB in wins in 2009 and 2010 and helped the Yankees win the World Series in 2009.

Sabathia retired from baseball in 2019, amassing a 251-161 record and more than 3,000 strikeouts. He was a six-time All-Star and the American League Championship Series MVP in 2009. Last month, the Cleveland Guardians inducted CC into their Hall of Fame. Sabathia will debut on the Baseball Hall of Fame ballot in 2025 with a solid chance of being enshrined in Cooperstown.

— **Seth Jones** // Editor-in-Chief

“I love golf ... it’s something I can be competitive at, and it’s low-impact.”



(Conditions) are important, but it’s more important that these guys are appreciated for taking care of the golf course. The groundskeepers do a lot of work, and it’s hard. Even in other sports — baseball and football — and golf, I’m always appreciative of the grounds crew guys.”

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Golfdom Gallery



1 U-Haul parking at the HOJ Long-time Colorado superintendent Steve Sarro stopped by Jones's "Hall of Justice" as he drove from Denver to his new home state of Florida, where he has become the superintendent at Kelly Plantation GC in Destin.

2 Hitting 'em straight The *Golfdom* team got in 18 with an appearance by the course's superintendent. From left to right are Seth Jones, editor-in-chief; Dave Swartzel, director of grounds, Omni Bedford Spring Resort, Bedford, Pa.; Michelle Mitchell, VP of marketing; and Bill Roddy, *Golfdom* group publisher.

3 Kentucky boys David Littrell, Bobby Nichols GC, Louisville, Ky., and Damon Hitti, Weissinger Hills GC, Shelbyville, Ky., at the 2024 PGA Championship at Valhalla GC.

4 A presidential pit stop "Whitey" recently made good on a promise to see the HOJ. From left to right are Jones; *Golfdom* Editor Scott Hollister; the lovely Adrienne Jones and Jeff White, CGCS, GCSAA president and superintendent at Indian Hills CC, Mission Hills, Kan.

5 The boys are playin' some ball! Bill Irving, superintendent, Wolf Creek Golf Links, Olathe, Kan.; Eric Neuteboom, director of operations, Allen Fieldhouse and Jones at a recent Royals game in Kansas City.

6 Road game "Pistol" Pete Seltzer, *Golfdom*'s art director; Nathan Mader, associate editor and Jones at a recent Guardians-Royals game in Cleveland. Give Mader credit — he knows how to warm up to the boss by rocking the Royals jersey with Seth!

7 Beach bums Following the wrap-up of North Coast Media's annual Content Meeting, the guys — Jones, Hollister and Roddy, joined by *Golfdom* Publisher Craig MacGregor — caught a great view from Huntington Beach.



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FROM THE ARCHIVE

Do you have aspirations to expand your management responsibilities at your club? In the April 1967 issue of *Golfdom*, a Long Island superintendent shared steps he took to make that a reality. To read the full story, visit Golfdom.com.

A question of management

Superintendents should not be shy about their ability but show their clubs what they can do

BY KAYEM OVIAN // The Woodmere (N.Y.) Club

Yes, there are opportunities for young, intelligent and ambitious superintendents to become superintendent-managers and, later, general managers. More and more clubs are favoring superintendents as managers because of the many advantages for this type of move.

Superintendents become qualified more readily because of their knowledge of turf management, and by applying good management practices into the clubhouse area, adjust quickly. They have a better knowledge of the mechanics of a clubhouse, because of their training with course equipment. Most managers lack this type of training.

Therefore, from our experience for approximately seven years, we have a split management system at Woodmere. The maitre d' was promoted to food manager, and the superintendent of the golf course was promoted to superintendent manager of this Long Island club. There were several factors that influenced the Woodmere board of governors' thinking at the time:

- There had been a large turnover of managers.
- The superintendent was establishing himself with the club by his management of the greens budget, and showing progress with the golf course.



- The superintendent is in a better position to coordinate help from the various departments when needed rather than hire additional help which becomes costly.

- The superintendent is on the job seven days a week and the club supplies a home with the job. Therefore, if the superintendent is qualified and the club has given him a home, hoping that he will stay for many years, why not give him the opportunity to better himself?

My responsibilities at the Woodmere

Club are mainly: golf course, maintenance of all buildings and equipment, golf cars, parking, locker rooms, pool, tennis and boat docks. These include hiring of personnel and the purchasing of supplies. I am not involved with the dining room and/or food operation unless it pertains to equipment and maintenance.

I usually begin my day first covering the golf course in a golf car between 8:00 and 9:30 a.m. All during the day I am in contact with my greens foreman and mechanic, for any changes in schedule or problems.

I am in my office at the clubhouse between 9:30 a.m. and noon, clearing my desk of paperwork, payroll, phone calls and meeting with salesmen. During the lunch hour, I am available for more club business and phone calls.

After 1 p.m. and the remainder of the afternoon, I roam around to other areas, such as the pool, parking, tennis, golf course and clubhouse. During the evenings, I am available for any emergency or club meeting, as I am located across the front entrance to the clubhouse. Also, it is very convenient for me to stroll with my dog during late evenings and talk to my night-watering man.

I have always enjoyed golf and try to play on Monday or Tuesday, and again on Thursday or Friday. No matter how much you cover your golf course on wheels, it is not like playing the course and getting the feel of its condition from a player's viewpoint.

This is my 13th year with the Woodmere Club — I started October of 1954. At that time, I began a major renovation on the golf course and completed it five years later, involving a badly needed drainage system. We are only a couple of feet above sea level and have a heavy clay-based flat golf course. **G**

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“RISE will collaborate with golf industry leaders and federal regulatory agencies to ensure the golf and specialty pesticide industries are represented and considered at each stage of the process.”

MEGAN J. PROVOST, *President, RISE*

A closer look at the EPA's pesticide registration programs

The Environmental Protection Agency's (EPA) pesticide registration program is changing to meet Endangered Species Act (ESA) consultation obligations under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). While the primary focus is on agricultural applications, we anticipate impacts on non-agricultural applications — including golf course management — as the process evolves.

The changes that will impact pesticide applicators and superintendents are happening at an unprecedented pace due to the EPA settling a major lawsuit that challenged the agency's process. With hundreds of species across our nation listed as either endangered or threatened, we anticipate an impact on our ability to keep green spaces like golf courses maintained and safe from pests.

Under the ESA, federal agencies are required to ensure actions taken or permitted by the federal government do not compromise threatened species or their habitats. In recent years, the EPA has faced numerous lawsuits alleging its failure to fulfill ESA obligations. As a result of these legal challenges, the EPA settled several cases, resulting in the agency agreeing

to reevaluate its approach to further comply with ESA obligations within its pesticide registration program.

The EPA published draft strategies for herbicides and a vulnerable species pilot, with future strategies anticipated for rodenticides, insecticides and fungicides. These strategies focus on mitigations to manage potential pesticide exposure to endangered species.

Now that it's time for change, the voices of the golf industry must be heard. Awareness, representation and education surrounding these changes are essential to developing practical and sustainable solutions that balance species protection and effective pest management.

We are working with national partners to ensure the EPA hears directly from applicators about their best

management practices and the unique nature of non-agricultural pesticide applications. These conversations are essential to ensuring any mitigations are appropriate to the use pattern.

In 2022, the EPA released a work plan outlining new pesticide evaluation strategies to improve outcomes for vulnerable species by assessing active ingredients, mitigation techniques and use patterns. As a first step in this process, the EPA launched pilot programs to evaluate the ecological risk of several active ingredients in pesticide products on vulnerable species.

With those programs now completed and new regulatory strategies in development, RISE and fellow stakeholders are proactively participating in comment periods and working sessions

to ensure industry businesses and professionals across sectors are considered.

The EPA is on a court-ordered timeline to finalize regulatory strategies for herbicides by year-end 2024 and insecticides by 2025. This year, we anticipate the announcement of final herbicide strategies, a draft insecticide strategy and rodenticide updates.

When used responsibly, our products encourage the best from our natural resources, help control invasive species and protect us from pests that spread disease. RISE will collaborate with golf industry leaders and federal regulatory agencies to ensure the golf and specialty pesticide industries are represented and considered at each stage of the process. As strategies are finalized, we will update you on how these changes will impact our collective future.

We think the most important thing you can do as a leader in the golf industry is stay informed. Right now, I urge you to become familiar with the online resources *Bulletins Live! Two*, to stay up to date with what's happening. We are in this conversation with the EPA to ensure the best outcome and appreciate the engagement of golf industry leaders nationwide. **G**

Megan Provost is the president of RISE (Responsible Industry for a Sound Environment), the national trade association representing manufacturers, formulators, distributors and other industry leaders involved with specialty pesticides and fertilizers.



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“The irony of the situation was not lost on me when, at home a few Saturdays later at 7 a.m., that person’s landscaping company fired up a chipper outside my neighbor’s house.”

ALAN FITZGERALD, CGCS, MG
Rehoboth Beach (Del.) Country Club

Patience is a virtue

Patience! That thing that you need when dealing with certain people or to save yourself frustration when things are just not going your way. Learning to adapt to new challenges and how to react in these situations can be the making or breaking.

Rehoboth Beach Country Club is surrounded by houses, unlike the other courses where I’ve worked, which only had a few.

One time at one of my previous courses, I didn’t realize where the tree crew was starting, and, at 6 a.m. on a Saturday, they fired up a chipper behind the one house backing directly up to the property. It turns out people frown upon that, and the irony of the situation was not lost on me when, at home a few Saturdays later at 7 a.m., that person’s landscaping company fired up a chipper outside my neighbor’s house. The difference was that I didn’t find the need to pay the crew a visit and give them a piece of my mind.

We all know people react differently to different things, and when it is something they are particularly passionate about, the situation can escalate quickly. So, how do you deal with it? Earlier in the year, I had a contractor remove all the dead trees around the property. Due to flooding issues, there were many of them, and as we walked the woods checking them out, we also marked any hazardous living trees, such as ones leaning over the neighboring properties.

Since the course was closed for aeration, it was the perfect opportunity for him to safely drop the trees. He called me late in the morning, saying there “is a lot” and asking if he should stop, but I reassured

him that I’d rather just get them all down since we were closed. When I finally broke away from aeration and made it over to the area, it turned out there *were* a lot of trees, and I would probably hear about it.

I got out in front of it by contacting some of the neighbors who I knew would not be happy. They were very appreciative of not only being informed but also that the hazardous trees were being taken care of. I thought I was good, but it wasn’t long before someone complained, which then led to some awkward meetings.

Tree removal is controversial, especially on golf courses. While I might get my superintendent card taken

away for saying this, I like trees — provided, of course, they are healthy, in the right spot and not a hazard to people, play or turf quality.

People can lose all common sense and sense of reality when they are extremely passionate about something. Dealing with this properly is the challenge. It’s a tight-rope of balancing everyone’s best interests while also not appeasing any one person; otherwise, everyone will want something. Sometimes, doing or saying nothing is best, even if doing nothing is difficult.

I was once told that I’m always right, but my reply was that I don’t argue when I know/realize that I am wrong — although that answer may have proved their point! My point is, be willing to admit when you’re wrong, or just be willing to eat some humble pie to de-escalate the situation while at the same time being fully prepared and having the patience to fight your side when you know that you’re right.

No matter how silly an argument gets, you can’t argue with facts. The tough bit is staying calm and focused while staying the course until the facts are accepted and both sides can reach an understanding. Only when both parties come to an agreement can the communication begin to work on a solution. Patience truly is a virtue! **G**

Alan FitzGerald (superintendent@rehobothbeachcc.com) is superintendent at Rehoboth Beach (Del.) Country Club.



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Oregon Trail

Farming bentgrass seed for the golf industry is a multigenerational family affair

BY SETH JONES

“Average” — that is the prediction of Terry Plagmann, president of Tee-2-Green, for this year’s crop of bentgrass.

But there is nothing average about the

work that goes into harvesting this seed, or the levels Tee-2-Green farmers go to in their efforts to ensure the seed is pure.

“This isn’t like farming wheat and you know exactly how much you got by the bushels or by the weight of the truck,”

Plagmann says. “Bentgrass is a whole ‘nother thing because it’s so small.”

Rodney Hightower is an Oregon farmer and a board member of Tee-2-Green. He farms eight different crops on 700 acres, including turf type perennial ryegrass, turf type tall fescue, sugar beets for seed, coriander (cilantro), brown teff and ivory teff. But he says that by far, creeping bentgrass is the most intense crop.

“We have a couple crops that the details

Continued on page 20

PHOTO: LEWIS SHARP



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Dalton Viering
Superintendent
Julington Creek Golf Club, FL





(Left) Modern farming equipment, like the bentgrass thrasher, has improved efficiency for bentgrass seed farmers. (Above) Terry Plagmann (left) and Garrett Hightower check out the bentgrass crop.

Continued from page 19

are important — when they need to be sprayed, they need to be sprayed. When they need to be irrigated, they need to be irrigated *now*,” he says. “But our bentgrass that we grow for Tee-2-Green is one of the most intense crops we grow. There are just a lot of little details you have to pay attention to to get a quality crop.”

Certified platinum

For example, creeping bentgrass requires irrigation. It needs to be fertilized. And the farmers pay close attention to potential pests, more so than in their other crops.

Bentgrass seed is harvested in mid-August — as *Golfdom* was going to press in mid-August last month, the Oregon farmers were at the same time wrapping up the harvest. Bentgrass pollinates later and is harvested later than most grasses. The harvest life of a field is six years before it is changed out for another crop.

Oregon State University (OSU) offers the Oregon Seed Certification Service (OSCS), through the Department of Crop and Soil Science. OSU has been certifying seed in Oregon since 1937, about 250,000 acres annually.

The OSCS certification is a big deal to Plagmann and his board of directors.

“Certification through Oregon State University is basically your guarantee, if you’re a buyer, that the seed is authentic and what’s in the bag is what the label says it is,” Plagmann says. “(OSU) comes out and inspects the field — the seedling — annually every year before the harvest. They give it a rating on what they see in the field. If it passes, then you get the Oregon blue tag.”

Tee-2-Green goes one step beyond that, Plagmann says.

“Our quality is zero crop, zero weeds,” he says. “You can get a certified blue tag with .04 crop and .03 weeds and still have a certified blue tag. But we do not accept any seed from our growers that has any other crop or any weed seed in it, period.”

“Tee-2-Green prides itself on growing quality seeds — and we appreciate the people that make the decisions to purchase our seed and plant it on their courses,” Hightower adds. He says that when the seven farmers who comprise Tee-2-Green meet for their regular board of directors meetings, the group has a mutual respect for their fellow farmers.

“There’s not a lot of dissention, there’s not a lot of arguing,”

PHOTOS: LEWIS SHARP

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(Above) Brothers Austin and Garrett Hightower with their dad Rodney. (Above right) The process of seed cleaning. (Right) Austin Banzet shows off Pure Distinction roots on a plug from Wolf Creek Golf Links, Olathe, Kan.

Hightower says. "We all respect each other. I'm not saying that somebody doesn't have a different opinion occasionally, but we all agree most of the time. Sometimes we have to make difficult decisions. If we have too much seed, you have to take a field of bentgrass out early, and that's a hard decision. But we understand that we have to make a decision that's best for the company."

A family affair

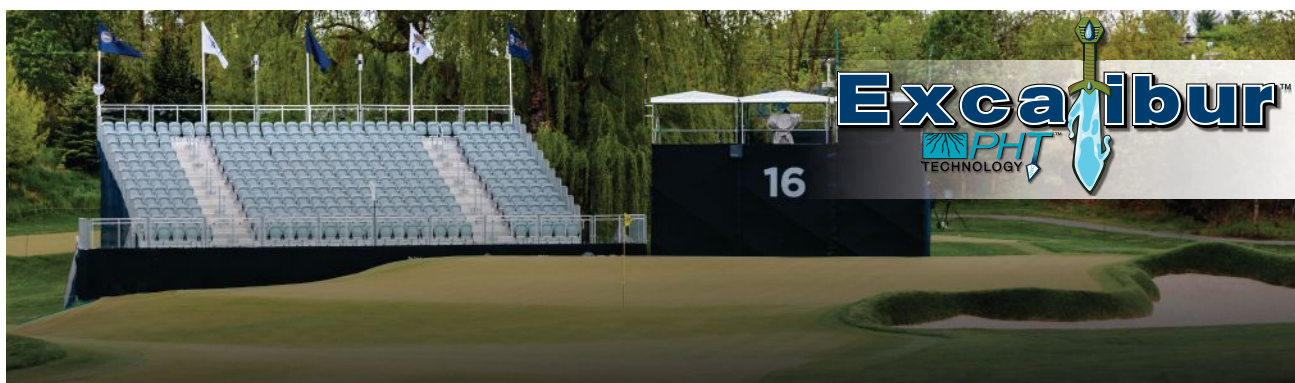
Hightower is a second generation farmer, and his sons, ages 36 and 31, farm alongside him. Growing bentgrass seed seems to be a multigenerational family affair for most of the farmer co-owners of Tee-2-Green, Plagmann says.

"My dad started (farming bentgrass seed) before I started high school ... and I'm literally going to my 61st high school

Continued on page 22



PHOTOS: LEWIS SHARP

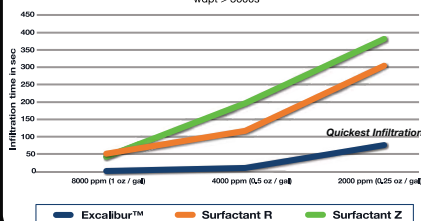


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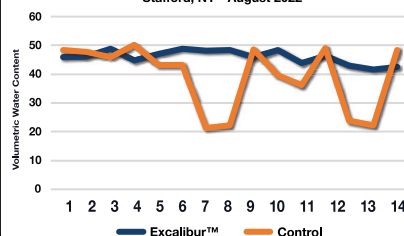
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The legend of Lew

A self-proclaimed "Indiana hillbilly" is a friend to superintendents worldwide

Lewis "Lew" Sharp grew up in the game of golf. He started working in golf course maintenance at age 10, dragging hoses and string trimming. He was further pulled in that direction by his friendly neighbors — Pete and Alice Dye. Working with the Dyes, he amassed dozens of golf course builds and hundreds of renovations around the world.



Lewis "Lew" Sharp

For the last 20 years Sharp has traveled the world representing Tee-2-Green. It seems that he knows about everyone in the golf business, and with a sharp memory, he recalls every course he's ever worked on.

"My main mission is to be answering agronomy questions, helping out superintendents when they're in trouble," Sharp says. "It could be anything from disease issues, fungicides, bunker sand, the latest equipment. I don't care what they call me about I will be there to back them up. Some days you're the agronomist for Tee-2-Green and the next you're a counselor during the high stress times. To me this job is all about the relationships and turning those relationships into a long-term friendship."

The hardest thing about Sharp's job, he says, is staying well versed on the new fungicides, herbicides and insecticides. When he gets a call about what product to apply, he needs to know what is legal and safe to use in various locations, including in the U.S., Canada and Europe.

Every December Sharp travels to Oregon to see the Tee-2-

Green farmers in person for a holiday party. He's made a tradition of treating everyone to a year-in-review show and dinner. The year in review includes testimonials from superintendents from around the globe, short movies where the growers can see how and where their bentgrass is being used.

"It's always good to see the farmers," Sharp says. "They're all pretty much third generation (farmers). I get a lot of knowledge watching fathers, father-in-laws, sons, grandsons all working together. It makes me feel good to know we're backed up by all these years of knowledge and experience."

Rodney Hightower recently welcomed Sharp to his farm to see him and his sons at work. Hightower always looks forward to Sharp's visit.

"I have never met anybody quite like Lew," Hightower says. "I love that guy. He's become a very good friend of mine. The experience and the knowledge he has is amazing."

"Lew is one-of-a-kind," says Tee-2-Green President Terry Plagmann. "I travel with him two or three times a year. He walks into a place in California, and the superintendent says, 'Hey, Lew, what do I do about this algae in my pond?' And he doesn't sell him anything, he just helps him out. Then he gets in the car and takes a call and I hear him say, 'I got some spare time, I'll come help you tomorrow.' You just don't find people like that very often."

Not bad for a person who refers to himself as an "Indiana hillbilly."

"I'm so proud to work with these farmers," Sharp says. "We're a co-op, I answer to a board of directors. I answer to farmers and I'm so proud to have them as my bosses because I know that I have a quality product to deliver year after year." — S.J.

Continued from page 21

reunion this weekend," Plagmann says. "These growers are second, third, some of them have teenage young people, sons or daughters working for them, driving combines. We've actually got fourth generations doing this."


It has gotten easier over those 60 years, Plagmann says. Mod-

ern farming machinery has taken giant leaps compared to the farm equipment he was using in the 1960s and 1970s.

Hightower says the best thing about having his job is the diversity it offers. Similar to a superintendent, he finds himself doing something different each day. Also similar to the work of a superintendent, he likes the satisfaction of growing a crop.

"You start preparing the ground and planting the seed, and you tend the crop and you get to see the fruits of your labors when the harvest comes around," he says. "There's some satisfaction in that."

Though he doesn't play golf himself — his summers are too busy farming, he says — Hightower is well aware of what the results of his bentgrass seed farming means to the golf world.

"There is some pride in growing Tee-2-Green and growing a product that you know is very high quality," Hightower says. "There's pride in knowing that the seed I grow ends up on some of the most prestigious and well-managed courses in the whole world. There really is a lot of pride in that. I think all of the growers in Tee-2-Green take pride in those same things." 

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// TIGER TREATMENTS

FUNGICIDES THAT REDUCE SPRING DEAD SPOT IN FAIRWAY BERMUDAGRASS

By Mike Kenna, Ph.D.

Researchers at Clemson University evaluated fungicides for preventive control of spring dead spot disease caused by *Ophiosphaerella* spp. In the fall of 2019, they initiated the study at Florence Country Club in Florence, S.C., on a bermudagrass fairway constructed on sandy loam soil.

The researchers arranged treatments in 6-by-10-foot plots in a randomized complete block design with four replications. They applied treatments as a foliar spray in water equivalent to 2.1 gallons per 1000 ft² using a CO₂-powered walk-behind sprayer equipped with dual TeeJet 8002 nozzles.

The treatment applications on Oct. 29 and Nov. 25, 2019, received 0.125 post-application irrigation. The trial area was rated the following spring for spring dead spot development as a percent turf area affected. They also used these ratings to calculate each treatment's area under disease progress curve (AUDPC) values.

They chose an area of the golf course based on previous spring dead spot outbreaks, and symptoms were readily observed by late March, 2020. Disease pressure was moderate, with roughly 20 percent severity observed in the non-treated control on May 5, 2020.

The results of all rating dates show fungicides significantly reduced spring dead spot symptoms compared to the non-treated group (Figure 1). The bar values are the means of four replicates, and means followed by the same letter are not significantly different.

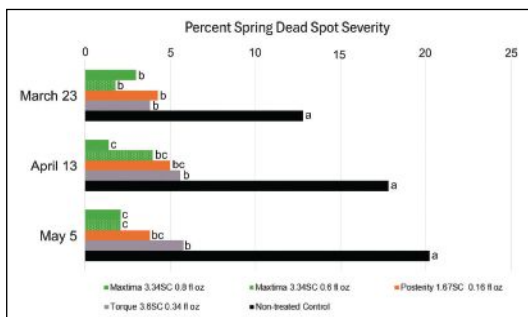
When comparing AUDPC values with the non-treated control (709.7), Maxtima (mefentrifluconazole) applied at 0.8 fl. oz. per 1000 ft² showed the best overall control (103.2) but was not different than Maxtima at 0.6 fl. oz. per 1000 ft² (138.3) or Posterity (pydiflumetofen) at 0.16 fl. oz. per 1000 ft² (153.2). By May, both Maxtima rates performed better than Torque (tebuconazole). ©

Reference

The article is adapted from Roberts, J.A., McBride, L., and Lynn, A. 2020. Evaluation of fungicides for prevention of spring dead spot disease in bermudagrass fairway turf. *Plant Disease Management Reports* 15:T034.



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



Fungicide control of spring dead spot in bermudagrass fairways. Researchers applied fungicides on October 29 and November 25, 2019, and collected disease ratings the following spring, 2020. Bar values are the means of four replicates, and means followed by the same letter are not significantly different.

NEWS UPDATES

NUFARM ADDS NEW NORTH AMERICAN GENERAL MANAGER

Nufarm recently selected Ken Barham as general manager for North America, effective Oct. 1, 2024.

Brendan Deck, the current general manager for North America, will return to Australia in December 2024 after helping build Nufarm in America for more than nine years.



Ken Barham

According to the company, Nufarm has achieved significant milestones in North America under Deck's leadership. These achievements include the greenfield development of Nufarm's formulation facility in Greenville, Miss., the modernization and expansion of Nufarm's facilities in Chicago Heights and Alsip and the development of important strategic relationships with customers and suppliers.

Barham is currently the vice president of sales for Nufarm's crop protection business in the U.S. Barham joined Nufarm in August 2017 as the North American customer marketing lead before moving into his current crop protection sales leadership role in 2021.

Barham has worked in the field for more than 20 years, including senior roles in operations, sales and marketing, with experience spanning Alligare, Syngenta and Nufarm.

MANAGERS ARE LEFT WITH THREE OPTIONS, USE EXPENSIVE, FUNGICIDES; CHEAPER, FUNGICIDES OR NO FUNGICIDES."

Jordan Booth, Dana Sullivan, Shawn Askew, Kevin Kochersberger and David McCall
(see story on page 24)

//RIGHT ON TARGET

Precision spring dead spot control

By Jordan Booth, Dana Sullivan, Shawn Askew, Kevin Kochersberger and David McCall

We are exploring precision turfgrass management at Virginia Tech University and have completed a project utilizing new technology for targeted spring dead spot (SDS) management in bermudagrass. SDS is a highly destructive disease affecting bermudagrass in the U.S. Transition Zone caused primarily by *Ophiosphaerella korrae* and *O. herpotricha*. These fungi infect bermudagrass in the fall, with symptoms appearing in the spring. The disease causes patches of necrotic turfgrass that often reoccur and expand, and traditional chemical control methods are costly and inconsistent.

Historically, superintendents applied fungicides broadly across all fairways, teeing grounds and green surroundings in the fall, requiring large amounts of fungicide. Turfgrass managers are left with three options: use expensive, effective fungicides; cheaper, less effective fungicides or no fungicides and manage recovery in the spring. Due to fungicide costs and golfer expectations, these options may be unsatisfactory for some courses.

Advances in technology now allow for easier mapping and documentation of SDS symptoms to guide targeted applications. Precision Turfgrass Management (PTM) adopts principles from precision agriculture, such as using unmanned aerial vehicles (UAV) and site-specific management of nutrition and pests. This approach aims to improve input efficiency and minimize environmental impacts.

MATERIALS AND METHODS

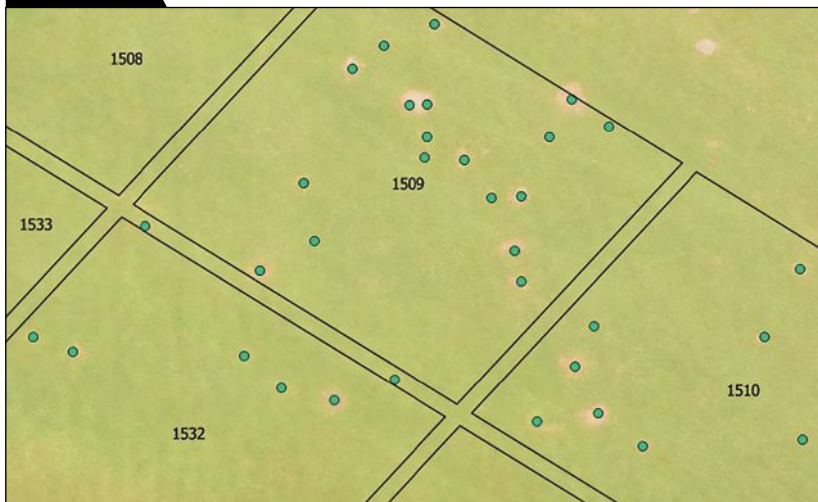
We collected aerial imagery on May 16, 2016, May 18, 2017, and May 7, 2018, from three Vamont hybrid bermudagrass fairways at the Country Club of Virginia's Tuckahoe Creek Golf Course

FIGURE 1



Plots overlaid onto spring dead spot incidence maps in QGIS software for analysis.

FIGURE 2



Plot 1509 (Location 15, Plot 9) in QGIS with points assigned to spring dead spot patches to count infection center incidence. Assigned points can be counted per plot or location and used to develop GPS-guided spray maps.

in Richmond, Va. We mowed fairways three times per week when actively growing at a height of cut of 0.5 inches.

Certificated remote pilots performed unmanned aerial vehicle flights to collect aerial imagery.

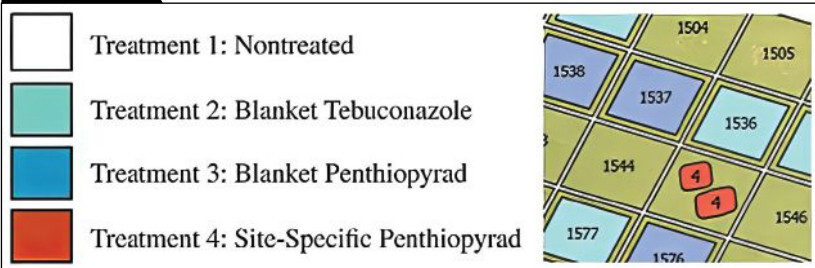
The treatment areas were three fairways with a history of SDS outbreaks, each designated as a single location. Collecting digital imagery from 11 a.m. and 2 p.m. local time minimized issues with dew, leaves, people, vehicles, grass clippings and shading. We selected 30 SDS patches to represent each location's spatial variability and used them to ground-truth the aerial maps.

GROUND VALIDATION

We captured the spectral reflectance of the SDS patches using a Crop Circle 470 (Holland Scientific) with geo-referenced GPS coordinates assigned to each patch. We also collected measurements of healthy turfgrass for comparison from portions of the fairway void of SDS.

After ground truthing SDS patches, we overlaid geolocations onto aerial maps in Quantum GIS (QGIS) using

FIGURE 3



Spray map (clipped) to illustrate the GPS-guided spray maps built in QGIS and used in 2017 with the Toro 5800 GeoLink sprayer.

GPS data to confirm the spectral characteristics of SDS patches and healthy turfgrass on the aerial maps. We used differences in spectral data between healthy turfgrass and ground-truthed SDS patches to validate voids in the turfgrass as symptoms of SDS on aerial maps.

PROCESSING AND ANALYSIS

We stitched the imagery together using PhotoScan Pro software, and the images were geospatially analyzed using QGIS. The SDS incidence maps were rectified with ground-truth GPS data created as a separate point shapefile for spatial accuracy within QGIS. We created

Continued on page 26

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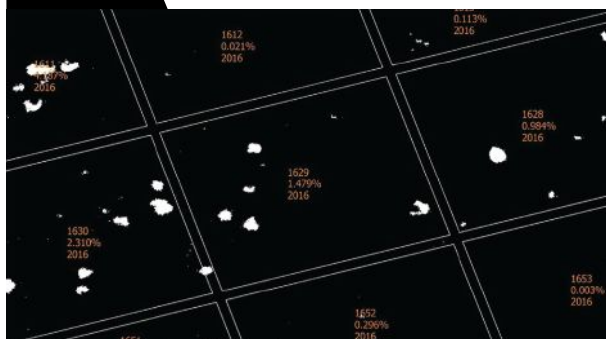
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FIGURE 4



Digital image analysis in QGIS to analyze diseased area per plot at Location 16 in 2016.

FIGURE 5



Digital image analysis in QGIS to analyze diseased area per plot at Location 16 in 2017 post treatments.

Continued from page 25

polygons and clipped them to represent the research plots laid out in the field to make a grid overlaid in QGIS for analysis.

After image processing, we subjected the clipped individual plots to digital image analysis (DIA) using various ratios of red, green and blue digital values in QGIS. The following equation was the most successful at differentiating SDS from healthy bermudagrass: for a given pixel, if (red+blue)/green > 1.7, that pixel represents SDS. The number of pixels in each plot representing SDS was divided by the number of pixels in the entire plot to give a percentage of SDS in the plot.

EXPERIMENTAL DESIGN

The study was conducted across three unique fairways, each with a history of SDS and varying severity and geographic distribution of SDS clusters. At each fairway location, 20 replications of four treatments were completely randomized. Disease incidence maps, created with aerial imagery collected in spring, were used to overlay plots in QGIS for evaluation (Figure 1). We counted and ranked SDS patches before treatment, with incidence ranging from zero to 39 patches per plot. Treatments were randomized within the disease severity class to ensure even treatment distribution.

TREATMENTS INCLUDED:

1. A nontreated control
2. Tebuconazole at 1.1 lbs. per acre

TABLE 1

Analysis of variance effects test of location, treatment and their interaction on two metrics of spring dead spot incidence following fungicide applications on bermudagrass golf fairways in Richmond, Va.

Effect	Pre-application Diseased area	Diseased area 2016-2017	Diseased area 2017-2018	Pre-application Patch count	Patch count 2016-2017	Patch count 2017-2018
Location	<.0001	.2581	.2815	.0198	.0511	<.0001
Treatment	.3683	<.0001	<.0001	.9992	<.0001	<.0001
Location × Treatment	.7432	.6073	.5345	1.000	.9518	.1115

across the entire plot

3. Penthioopyrad at 1.9 lbs. per acre across the entire plot

4. Targeted penthiopyrad at 1.9 lbs. per acre based on historical disease incidence

We initiated treatments in the fall when soil temperatures dropped below 70 degrees F for three consecutive days. In 2016, Treatment 4 plots were subdivided into three sections for left, center and right boom widths. SDS patches were counted in each subplot to determine disease severity, and fungicide was applied if the incidence exceeded two patches.

In 2017, we used an individual nozzle-controlled sprayer to make targeted applications in Treatment 4. A point layer shape file was created in QGIS for Treatment 4, representing each SDS patch (Figure 2). Using QGIS' buffering tool, a radial buffer was established around each

SDS point to make the targeted spray map (Figure 3). We downloaded these maps to the sprayer's onboard computer for precise applications with no overlap.

We laid out plots manually before treatment application, and the sprayer was calibrated to deliver 87 gallons per acre. We applied fungicides preventatively in the fall to assess activity against spring symptom development. Initial applications for 2016-2017 occurred on Sept. 26, 2016, with repeats on Oct. 17, 2016. For 2017-2018, applications started on Sept. 18, 2017, and repeated on Oct. 17, 2017.

DATA ANALYSIS

We analyzed disease incidence maps for 2016, 2017 and 2018 using manual patch counts (Figure 2) and digital image analysis (DIA, Figures 4 and 5). DIA provided the percent disease per plot, which was converted to diseased

TABLE 2

Means comparisons of four different spring dead spot suppression treatments

Treatment	Diseased area 2016 pretreatments	Diseased area 2016-2017	Diseased area 2017-2018	Patch count 2016 pretreatments	Patch count 2016-2017	Patch count 2017-2018
	----- mm ² m ² -----			----- Number -----		
1: Nontreated	19,266 ns ^a	10,951 A	55,114 a	8.08 ns	8.53 A	13.43 a
2: tebuconazole blanket	25,508 ns	9,889 A	47,328 ab	8.12 ns	7.30 A	9.02 b
3: pen thiopyrad Blanket	14,943 ns	2,282 B	12,488 c	8.20 ns	1.67 B	2.53 c
4: pen thiopyrad Targeted	22,630 ns	4,682 B	36,522 b	8.27 ns	3.45 B	6.58 b
LSD ^b (0.05)	14,400	4,310	16,020	2.71 ns	2.35	2.96

Note: Within a column, values not sharing a letter are significantly different ($\alpha = .05$) according to the Student's t-test.

^a ns indicates treatment differences were not significant.

^b LSD, least significant difference.

area per unit area (mm² m⁻²).

We analyzed data for treatment effects, location and treatment \times location interaction. Analysis of variance (ANOVA) was used, and means were separated using Fisher's LSD test. Pearson's correlation test explained the relationship between aerial DIA and ground-truth validation.

RESULTS

Before the study, we evaluated locations for SDS incidence. An analysis of the total number of patches (PC) and disease area (DA) per plot in 2016 indicates location effects but not for treatment or treatment \times location effects (Table 1). This result shows that our known-bias treatment distribution at initial application successfully distributed disease incidence across replications.

Although there was no significant difference, PC was listed for 2016 (Table 2) to illustrate the even distribution of disease between treatments. Differences in disease incidence across locations agree with previous research that states a large amount of variability in SDS incidence and illustrates the random nature of the disease.

DISEASED AREA (DA)

Plot main effects of location and treatment \times location interaction were insignificant in 2016–2017 or 2017–2018; therefore, treatment data were pooled across locations (Table 1). We did not pool data across years because application methods varied from subplot applications in 2016 to individual nozzle control in 2017.

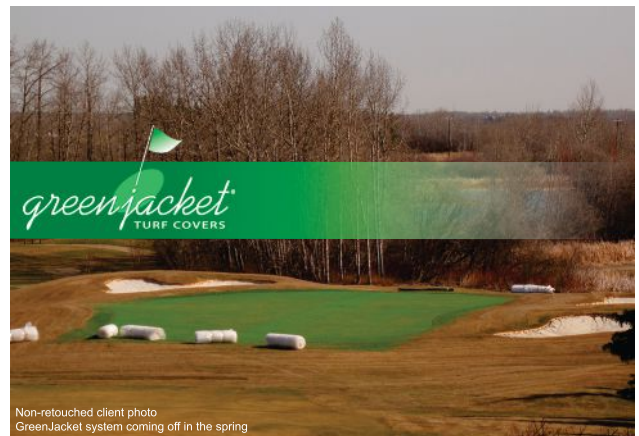
Blanket applications of tebuconazole were statistically similar to the nontreated control (Table 2). Targeted applications of pen thiopyrad in 2016–2017 provided statistically equivalent suppression of SDS compared to blanket applications of pen thiopyrad and had significantly lower DA than both the nontreated control and tebuconazole plots in 2017–2018. Targeted pen thiopyrad applications in 2017 were less successful

at suppressing DA from SDS symptoms in the spring of 2018 when compared to blanket pen thiopyrad.

PATCH COUNT (PC)

An analysis of the total number of patches per plot in 2016

Continued on page 28



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Continued from page 27

(pre-application) and 2017–2018 revealed location effects (Table 1). Significant differences among treatments occurred in 2016–2017 and 2017–2018. However, there were no location \times treatment differences in either year, so treatment means of PC were pooled across locations.

Plots treated with tebuconazole and the nontreated control were not statistically significant in 2016–2017 (Table 2). Plots treated with targeted penthiopyrad and as blanket applications had fewer SDS patches than plots treated with tebuconazole and the nontreated control in 2016–2017. However, blanket applications of penthiopyrad resulted in statistically fewer SDS patches than targeted penthiopyrad applications in 2017–2018.

In 2017–2018, tebuconazole and targeted penthiopyrad were not statistically significant and superior to the nontreated control, while blanket penthiopyrad provided superior SDS suppression compared to all other treatments.

CONCLUSION

The results of this project suggest that site-specific management is a viable option for successful SDS suppression while reducing fungicide inputs. Still, methods need improvement in using GPS-guided sprayers with individual nozzle control. While the GPS-guided sprayer successfully provided control by applying the blanket and full-coverage treatments, the buffers selected for targeted application of penthiopyrad may not have been adequate to maximize SDS suppression.

Abiding by the principles of precision conservation, the targeted applications of penthiopyrad based on spatial variability of SDS were superior to the nontreated control in both years. Targeted penthiopyrad applications were equivalent to blanket, full-coverage applications of penthiopyrad in 2016–2017 and blanket, full-coverage applications of tebuconazole in 2018. Overall, the targeted penthiopyrad treatments resulted in a 51

TABLE 3

Cost analysis of penthiopyrad spring dead spot suppression

SDS Suppression program	Area treated		Product	Cost
	acres	ha		\$
Blanket penthiopyrad	50	20	Two fall applications 1.1 lbs. a.i. per acre or 2.13 kg a.i. ha ⁻¹	25,382
Targeted penthiopyrad at 51% reduction	24	9.8	Two fall applications 1.9 lbs. a.i. per acre or 2.13 kg a.i. ha ⁻¹	12,437
Contracted service: SDS incidence maps and spray maps	50	20	Individual hole maps with spring symptoms	3,920
Sprayer upgrade: GPS-guided, Real-time kinematic positioning (RTK)-corrected spray system	N/A	N/A	Difference in cost of GPS unit vs. no GPS	35,000

percent reduction of fungicides applied in 2016 and a 65 percent reduction in fungicides in 2016–17 compared to the blanket treatments.

Further, we compared the cost of a blanket SDS suppression program vs. the costs associated with a targeted SDS suppression program (Table 3) on an average-sized golf course on tees, approaches and fairways. Pricing reflects two applications of penthiopyrad at the high label rate and the estimated price difference between a Toro 5800 Multi Pro sprayer and a Toro 5800 Multi Pro sprayer with GeoLink. Multiple manufacturers are capable of providing this technology.

When we consider targeted applications to larger areas with a GPS-guided sprayer similar to our methods in 2016, it is plausible that site-specific applications would be comparable to blanket applications. Using the numbers in Table 3, it would take three years of SDS suppression to see a return on the investment of the GeoLink upgrade using a targeted penthiopyrad SDS suppression program. However, this does not include additional savings incurred while using the GeoLink sprayer for other applications. Also, we estimate potential annual savings from improved precision and fuel and time savings ranging from 12 to 25 percent. ©

Acknowledgements

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Research Takeaways

- Spring dead spot (SDS) is a destructive disease that affects bermudagrass and hybrid bermudagrass in the Transition Zone of the United States.
- The study aimed to develop SDS incidence maps using digital imagery captured with an unmanned aerial vehicle (UAV) and evaluate the efficacy of targeted, site-specific penthiopyrad treatments guided by these maps.
- The results showed that targeted penthiopyrad treatments based on SDS incidence maps had significantly less disease than tebuconazole and the nontreated control in 2016-2017.
- Full-coverage penthiopyrad was superior to targeted penthiopyrad and tebuconazole in 2017-2018 for both diseased area (DA) and patch count (PC).
- Targeted penthiopyrad using SDS incidence maps required 51 percent fewer fungicides in 2016-2017 and 65 percent less in 2017-2018 compared to full-coverage penthiopyrad.
- Our results suggest that targeted, site-specific management of SDS can reduce the amount of fungicide applied and lower costs while still providing acceptable disease suppression.

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Improperly winterizing your irrigation system can lead to major problems for golf course superintendents

How to winterize irrigation systems properly

Follow these steps to reduce your irrigation systems' wintertime damage

By Chris Lewis

As superintendents prepare to winterize their irrigation systems, Joel Braun, owner of Medina, Ohio-based Technical Choice, advises them to review their historical records. Upon analyzing this data, they should choose whichever time frame their irrigation cycles have typically been completed each season.

For instance, in Northeast Ohio, Braun usually assists superintendents with their winterization processes in late October. From there, he assists superintendents at more southern courses throughout November. Ultimately, he completes his last winterizations in early December.



Joel Braun

While assisting superintendents, Braun drains out all their irrigation systems prior to performing blowouts. This speeds up the blowout process and minimizes any negative effects before each system is reused the following spring. Additionally, he uses a compressor that's properly sized for each superintendent's respective irrigation system.

"If a superintendent has 500 to 800 sprinkler heads, they can probably winterize their irrigation system with a 375 to 450 CFM compressor," Braun says. "If they have 800 to 1,800 sprinkler heads, they should utilize a 750 CFM

compressor, and if they have 1,800 or more sprinkler heads, I'd recommend a 900 CFM unit instead."

Furthermore, he believes superintendents should use 2-inch air hoses, as the maximum flow rate through a 2-inch line is roughly 1,200 CFM. If they utilize smaller air hoses instead, superintendents simply won't push enough air out to winterize their sprinkler heads properly, leading to potentially serious damage down the road.

Braun stresses that superintendents must use a pressure regulator when they blow out their systems too. Although most compressors have an internal regulator that superintendents can easily set, most can't be set below 50 psi. Therefore, he recommends superintendents utilize an external pressure regulator on their air compressor's discharge line.

As air is pushed into their irrigation systems, superintendents must open their pressure relief points. All systems should be opened as well, and quick couplers should be placed on a golf course's highest elevation areas.

"Drains, relief points and valves should only be closed (and quick couplers removed) once air and water are no longer being discharged," he adds. "As a result, superintendents will minimize their likelihood of wintertime damage — and any associated costs — considerably." ©

PHOTOS COURTESY OF: JOEL BRAUN

Hunter Industries

CARL EBERTS

Golf Category Manager



It's important for superintendents to stay proactive in managing their irrigation systems and courses. If action is not taken to properly shut down the irrigation, they risk severe damage to their entire system potentially. The main pipe, valves, swing joints and rotors are all susceptible to damage if excess water is left in the system and it freezes. Other parts of the system, such as water meters, flow sensors and backflow devices, can also be damaged by compressed air during the winterization process, so the air connection should be downstream of these sensitive components.

Due to the risks involved, I recommend that the blowout process be performed by a licensed contractor. Once pressure is completely expelled from the system after the blowout process, the final step is to ensure that no points of entry are left open for debris throughout the winter.

SiteOne Landscape Supply

STEVE REBHAN

Key Account Manager



When an irrigation system isn't properly winterized, every system component can be damaged.

Some of the consequences might be immediate, while others may take several years to appear. However, each will cause additional repairs and maintenance tasks and ultimately reduce the system's functional life.

If a superintendent blows out their system in colder temperatures, they may damage rotors and swing joints. However, if they blow it out properly — before it's too late in the season — this usually isn't a major issue. It's not uncommon for a superintendent in the northern United States to blow out their course's system when the air temperature is below 32 degrees F. As long as the ground isn't frozen and the pipes' water is still in liquid form, superintendents can winterize their systems.

The biggest danger of late winterization is tied to superintendents and staff members working long days in cold, wet conditions. Superintendents should make sure their team is properly outfitted and take breaks in heated areas and avoid potentially hazardous exposure.

Rain Bird

SERGE GAUTHIER

Global Specifications Manager



Each golf course should assess its own winterization needs, as weather varies so much across different regions. In cold climates, improper irrigation system winterization can be costly, particularly if it leads to equipment breakdowns. Water expands under 32 degrees F, and the expansion can cause pipes and fittings to burst, valves to crack and sprinkler cases to split open, among other issues.

During the winterization process, if insufficient air volume is used to blow out the system, the water will drain back into low points, leading to possible damage. In locations where pipe freezing isn't a problem, superintendents should consider winterizing exposed components, such as backflow prevention devices and liquid level controls.

Regardless of location, I recommend a written, documented winterization procedure that any staff member can follow step by step to avoid mistakes.

Winterizing an irrigation system too late will have the same risks associated with improper winterization.

Toro

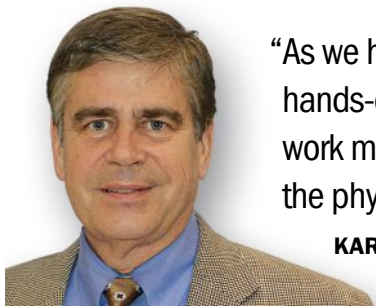
ANDY STROTHER

Senior Marketing Manager,
Irrigation



If a superintendent winterizes their golf course's irrigation system improperly, they'll notice two main consequences: costly repairs and permanent damage. If the system isn't properly purged of water, that water can freeze and expand, causing the pipes, valves and sprinklers to burst. During the pressurized air winterization process, compressed air travels through the piping system at a much higher velocity than water. Trapped water pockets, propelled by the compressed air, can move quickly through the pipe and damage whatever they hit along the way. To reduce the risk of damage, superintendents should regulate air pressure. Gravity draining is an effective alternative that can minimize sprinkler damage, but it may not completely empty the system, so a combination of both methods usually provides the best result.

As a general rule of thumb, superintendents should winterize their system after outdoor temperatures are three degrees below freezing for three or more days. If they wait too long, system components may break.



“As we have moved away from hands-on work and outsourcing that work more, we have lost touch with the physical world.”

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

Keeping hands-on skills alive

Over the years, I’ve discussed my 1969 Pontiac Firebird in columns — my experiences with it and how those experiences relate to the golf course. I’ve not always been successful in showing that relationship, but I keep trying. To this day, I continue to look forward to driving to my garage. Each time I look at that Firebird, it puts a smile on my face ... even if it’s not running.

Just hanging out brings enjoyment and a chance to reminisce. I eventually find myself piddling around checking the tire pressure and fluid levels, such as oil, transmission and brake. I think of what it was like as a teenager working on my car with my neighborhood friends and dads showing up to help. It was always a group project because no one had or could afford all the tools. You learned what it meant to “turn a wrench.”

Technology, for the better, has changed how cars are built and serviced. Onboard computer systems on new or later model cars automatically check fluid levels, eliminating the need to know how to check fluid levels manually. I still remember an early mobile phone TV advertisement from the 1990s that showed a couple of guys changing flat tires on their car while, in a third car, a woman was calling on her mobile phone for service.

The impact of technology, complexi-

ties and costs have made the last few generations less knowledgeable about our physical surroundings than previous generations. Much of that is due to technology, the device being too complex or just a lack of time... no one has time to tinker anymore.

When was the last time you saw a family member work on a toaster, washer or dryer? It’s often cheaper and faster just to throw away a broken device and buy a new one. The result is that knowledge of practical things seems lacking. How many of you would be shocked if your son or daughter knew how to change a furnace filter, unclog a sink, know the difference between a Phillips and flathead screwdriver, adjust house vents, change a tire, etc.?

As we have moved away from hands-on work and outsourcing that work more, we have lost touch with the physical world. Academically, David Kelley, Ph.D., at Stanford, has de-


scribed this stepping back from hands-on work as a loss of agency.

The agency includes various traits, but I tend to focus on curiosity, empathy and steadiness. The lack of learning physical skills impacts one’s knowledge and mental health.

Golf courses are laboratories for learning hands-on skills. What better place for a young person to gain needed physical skills, regardless of whether they are interested in a golf course industry career or just looking for a summer job?

From driving a Cushman truckster one summer, I learned how to drive a manual transmission. Of course, now I joke that manual transmissions are basically extinct, but from that experience, I gained a better understanding of transmissions in general that I continue to benefit from to this day.

As golf course superintendents, I think you have a tremendous opportunity to help young people grow and build their physical/hands-on skills. Making students aware and participating in standard maintenance and equipment check practices can add skills they can use throughout life. Acquiring basic physical skills helps with one’s well-being. The next time you find yourself thinking this person does not know how to do anything, especially something you think everyone should know, take the time and show them.

When I leave my garage, I seem happiest when I have basically just piddled around. I usually accomplish something with my hands, using videos from YouTube. 

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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Conquering *kyllinga* on your course

An equal-opportunity offender, *kyllinga* can be a pesky weed all over the golf course

By Rob DiFranco

Kyllinga is a perennial weed and a persistent one at that, making it a recurring foe for golf course superintendents.

Kevin Laycock, director of category management at SiteOne Landscape Supply, shares what superintendents need to know about identifying and controlling this pesky weed.

Traditionally a warm-season turf pest, *kyllinga* thrives in poorly drained soils and doesn't discriminate in terms of where it will pop up on your course.

"It could be anywhere," Laycock says. "It's more noticeable when you have higher cut turf, so you're going to see it more on fairways and roughs than you do on greens."

IDENTIFICATION

While southern superintendents might be the most familiar with *kyllinga*, Laycock says that those in the north-eastern areas of the country should

start to keep an eye out for it as well.

"We've actually seen it spread to more northern markets," he says. "It's definitely spread more to the northeast and into cool-season turf. Even as it has grown in terms of its presence in those parts of the country, it is still very prevalent in warm-season areas as well."

Identifying *kyllinga* shouldn't be a major issue for a seasoned superintendent, even though it can resemble turfgrass or several types of sedges.

The biggest difference between sedges and *kyllinga* is that the latter grows low to the ground while sedges grow tall. Thanks to its low growing height, *kyllinga* can survive low heights of cut and still produce flowers, which allows it to spread.

CONTROL

According to Laycock, the main goal of a control program should be limiting the number of tubers, which reduces

the amount of *kyllinga* in their turf.

While a superintendent can manually remove the weed if they are present in limited numbers, chemical control is the preferred option because of the way *kyllinga* spreads — using both seeds and underground rhizomes. Hand-removing *kyllinga* infestations will require superintendents and their crews to keep a close eye on the area to make sure it doesn't return.

Superintendents can also target *kyllinga* with several cultural control options, including promoting sufficient drainage, limiting irrigation and properly fertilizing.

Laycock recommends applying herbicides as early as your turf allows to achieve the best control. In cool-season turf, that could be in April or May, while in warm-season turf, it might be earlier in the year.

Products with the active ingredients sulfentrazone and imazosulfuron are atop Laycock's list of *kyllinga* control options. In addition to offering control of *kyllinga*, several sulfentrazone products can provide residual control of yellow nutsedge.

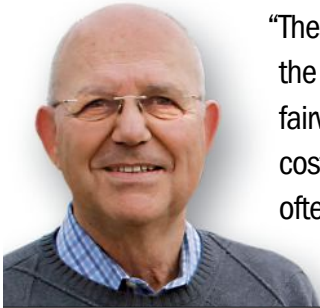
Laycock also mentions PBI-Gordon's Arkon herbicide liquid and its active ingredient, pyrimisulfan, as a new option available that directly targets both *kyllinga*, other sedges and more.

"A product like Dismiss NXT (from FMC) will start to work quicker than others. But ultimately, you're going to get the same control after a month or so," he says. "But what you see is a pretty quick visible result in the first seven days with a sulfentrazone product that you don't get anywhere else. But that depends on what your preferences are, what your needs are and, obviously, the price points." ©



Combined with its ability to grow low to the ground, *kyllinga*'s multiple ways of spreading make it a pesky weed for golf course superintendents.

PHOTOS BY: PETER LANDSCHOOT, PH.D.



"These SDS fungicide trials ... demonstrate the effectiveness of commercial products for fairways and putting greens. However, the cost of blanket treatments of all fairways is often prohibitive."

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

More preventive spring dead spot options

At North Carolina State University, Lee Butler, Jill Ploetz and Jim Kerns, Ph.D., continue to provide a wide range of fungicide studies to prevent turfgrass diseases. They routinely conduct spring dead spot (SDS) disease prevention on bermudagrass fairways at their Turfgrass Field Lab in Raleigh, N.C.

SDS symptoms appear in circular patches from six inches to several feet in diameter. The infected areas remain dormant as the turf greens up in the spring, and the patches eventually die. SDS patches recur in the same spot each year and increase in size each season.

Cultural practices to help prevent the disease include avoiding late fall nitrogen applications, reducing thatch and aerifying to reduce soil compaction. Fall fungicide applications when soil temperatures are between 60 and 80 degrees F can help prevent SDS. Mapping the affected areas in the spring can save money by only applying expensive fungicides in diseased areas.

The research team evaluated Posterity (pydiflumetofen) for preventing SDS in an 8-year-old Champion bermudagrass putting green. The rootzone followed USGA recommendations for putting greens. The team mowed plots

six times weekly at 0.15 inches with clippings collected and applied treatments in water equivalent to 2 gallons per 1000 ft² with a CO₂-powered sprayer with a single TeeJet AI9508E nozzle at 50 psi.

Treatments included Posterity 1.67 SC at 0.16, 0.24 and 0.32 fl. oz. per 1000 ft², Velist 0.5WDG at 0.5 oz. per 1000 ft², and a nontreated control. They applied the treatments on Oct. 17 and Nov. 22, 2019, and immediately watered in with 0.2 inches post-application irrigation. They evaluated the severity of SDS on March 27, April 28 and May 26, 2020, to visually estimate the percentage of diseased areas.

SDS severity peaked at 37.4 percent on March 27 in the nontreated control plots and declined to 26.1 percent in the nontreated control through May 26. All treatments suppressed SDS compared to the nontreated control at each rating date. On April 28 and May 26, plots treated with Velist and

Posterity at 0.24 fl. oz. and 0.32 fl. oz. provided better suppression of SDS.

In a second SDS trial on the same green, researchers tested Posterity Forte 2.5SC (i.e., a combination of pydiflumetofen, azoxystrobin and propiconazole) and Posterity 1.67SC alone, with Headway 1.39ME or Apear II 4.1SC, and with both Headway and Apear II. They applied treatments on Oct. 17 and reapplied on Nov. 9 or 21, 2019.

Researchers assessed the severity of the SDS on March 27, April 28 and May 26, 2020, as a visual estimation of the percentage of the diseased area within the plot. In the nontreated control plots, SDS severity peaked at 25.9 percent on March 27, and by May 26, only dropped to 21 percent. All treatments successfully suppressed SDS compared to the nontreated control on each rating date (March range = 2.3 to 6.4 percent, April range = 0.2 to 1.2 percent and May range = 0.3 to 2.0 percent).

These SDS fungicide trials and the studies at Clemson University demonstrate the effectiveness of commercial products for fairways and putting greens. However, the cost of blanket treatments of all fairways is often prohibitive. Turfgrass pathologists recommend mapping where the disease occurs in the spring.

I would direct your attention to this month's research article from Virginia Tech University that is taking precision fungicide applications to the next level. Progress with identifying effective fungicides, mapping with drones and targeted precision sprayer applications will dramatically improve the prevention of SDS. These advancements will save money and provide more sustainable SDS prevention. **G**

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

The 19th Hole

Brian Renschler

DIRECTOR OF AGRONOMY // Talisker Club at Tuhaye (Utah)



Brian, thanks for the tour. Let me buy you a drink, what can I get you? Gin and tonic.



Tell me about the Club at Tuhaye. As you saw, the course is strategic golf — it's definitely not easy. The nickname is *Too-hard*, not Tuhaye. But it's an aesthetically appealing course as far as visuals and scenery. Don't try to crush the ball out here, be strategic and you'll play fine.

How did you get into the industry?

I had to do an internship for my college degree in horticulture. I didn't want to work in a greenhouse or on a nursery. I wanted to work on a golf course. I went to Edwards, Colo., the Club at Cordillera, the Mountain Course, and did an internship. I've been doing this ever since.

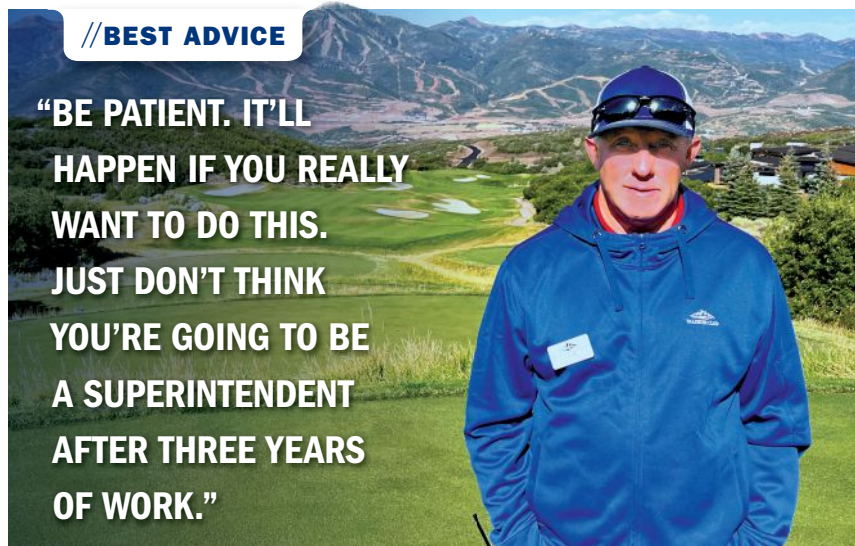
Tell me about your family. I'm married, two kids. My wife is from South Africa. We have a seven and a 12-year-old, a boy and a girl. Tobie is my 12-year-old daughter and Lincoln is my seven-year-old hellraiser. I met my wife while we were both at Cordillera, she worked in human resources. We've been married since 2009. We've also have a Bullmastiff dog named Bo.

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// BEST ADVICE

"BE PATIENT. IT'LL HAPPEN IF YOU REALLY WANT TO DO THIS. JUST DON'T THINK YOU'RE GOING TO BE A SUPERINTENDENT AFTER THREE YEARS OF WORK."



What's your favorite tool to get the job done? I've got lots of tools, but patience, learning to breathe and taking it one day at a time are my most valuable tools.

What teams do you root for? I am more of a sports fan than a team fan. I grew up in North Dakota, so you either root for the Vikings, Packers or Broncos. I was a John Elway fan so I still root for the Broncos. I mostly just want to see a good, competitive game.

Give my readers a recommendation, it could be a book, TV show, movie, podcast, anything. The only thing I recommend is breathing — I'm serious. This is definitely a high stress industry, guys get burnt out. I've learned that when I do get stressed out, I take five minutes to just breathe for a little while.

I don't get stressed too often, I'm a laid-back guy, but it helps.

Aside from seeing the course, what do you recommend people do if they're in the area? There's so much to do in Utah. If you've never been to Southern Utah — Zion, Canyonlands National Park, St. George, Moab — it's totally different than what you're seeing up here. There's so many different climates and things to do in Utah.

What is the best thing about having your job? Seeing what we can do in such a short growing season. It comes out of the winter looking not good — and that's a nice way to put it. Seeing it get better and better and better, and by the time it looks good? We're ready to put it to bed. As interviewed by Seth Jones, August 6, 2024.

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GOING FOR GOLD

EARLY ORDER PROGRAM GUIDE 2025

INSIDE

Going for the gold with EOPs

EOP users share their strategies for success and why EOP is so important

EOP3

The grass is greener

Compared to the challenges in the lawn care industry, golf maintenance is ideal for EOP purchasing

EOP6

SPOTLIGHTS

BASF	EOP8
Envu	EOP10
FMC	EOP12
Heritage Landscape Supply Group	EOP14
PBI-Gordon	EOP16
Quali-Pro	EOP18
Numerator Technologies	EOP20
Syngenta	EOP22



We create chemistry

--- 2025 EARLY ORDER PROGRAM ---

FOUNDATION

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A person wearing a dark jacket and a cap is crouching on a green golf course, looking at the large, 3D, white letters of the word "BUILDER" which are part of the "FOUNDATION BUILDER" headline. The letters are set against a backdrop of a golf course and a dramatic, cloudy sky.

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Going for the gold with EOPs

By Rob DiFranco

Early order program users share their strategies for success and why EOP is so important

Heading into 2025, Early Order Programs might be as important for golf course superintendents as they've ever been, according to Vince DiStefano.

DiStefano, superintendent at Musket Ridge GC in Myersville, Md., says with all that's going on in the world, both here in the U.S. and abroad, locking in prices on the products he uses the most is on the top of his to-do list.



Vince DiStefano

"I can think of ten scenarios where EOPs are going to be important this year," he says. "I can't think of any instances where you wouldn't want to do it."

Striving for success

Strategies for getting the most out of an early order program can vary from course to course. For instance, DiStefano has shifted his purchasing strategy towards more generic fungicides. He says that the lack of overall price drops in recent years is a major reason

behind that decision.

"We're a mid-range public course, and I've gone from treating my fairways — not every time — with premium products to where I don't even think about it. I mean, I don't even consider a brand product on the fairway anymore," he says.

DiStefano maintains bentgrass at Musket Ridge and says the most important products for his regimen are chlorothalonil and fluazinam, which

help him control dollar spot. Both of those active ingredients are among the several where DiStefano relies on branded fungicides, he adds.

"I've found that some of the lower offerings from Envy and Syngenta have worked really well for me," he says. "So, there's standard stuff. For greens, I'll do a combination. I'll do one or two systemics for one combination and then whichever contact I'm doing. But for fairways and tees, it's one contact, one systemic, hold on for 21 days and do it again."

Mike Bellino, superintendent at Heathrow CC in Lake Mary, Fla., buys nearly 90 percent of his chemicals for

Continued on page EOP4



Locking in fertilizer prices is a top priority for superintendents who utilize early order programs, especially with prices continuing to fluctuate.



Mike Bellino

“I can’t imagine going back and doing it the way we used to do it. It’s so much easier just getting everything at once, rotating fungicides, and having all your herbicides there ready to go. It’s fantastic.”

Continued from page EOP3

the year during early order season.

“I haven’t been doing EOP too long, probably 10 years maybe, but I can’t imagine going back and doing it the way we used to do it. It’s so much easier just getting everything at once, rotating fungicides, and having all your herbicides there ready to go. It’s fantastic,” he says.

With inflation where it is and uncertainty in the rest of the world, Bellino expects that he’ll spend more of his annual budget on early-order products in 2025.

“You never know what tomorrow’s going to bring,” he says. “I may not be able to get certain things, so if I can get ‘em now and have it here on the property, it means the world. It’s super important.”

Larry Napora, director of golf course maintenance at Firestone Country Club in Akron, Ohio, agrees with Bellino’s sentiments. Napora says he purchases almost all of his products for the upcoming year during the early order period.

“About 99 percent,” he says. “I’ve always done that. And the reason is that you get rebates, and I take advantage of every penny of those rebates.”

Napora says the rebate savings help him pay for other important necessities, including his snow mold program.

Damon Hitti, superintendent at Weissinger Hills GC in Shelbyville, Ky., says that early order program rebates are crucial for his team.



Larry Napora



Damon Hitti

“If I didn’t have an early order, we’d have to look at what we’re buying. I probably would have to cut some things out, maybe some specialty sprays that I normally get to do because of the savings.”

“Usually, the maintenance department is seen as a money drain,” he says. “So anytime that I can get a rebate check in the general manager’s hands, that’s a plus for me because it shows that, ‘Hey, they’re not just spending money, they’re getting money too.’”

Hitti adds that EOP rebates have actually helped him get budget increases year over year.

“(Our GM) expands the budget because he can see that I really need those products, and the rebates are like a bonus. But then he allows me to buy more because he knows it’s improving the golf course,” he says.

Trickle-down savings

Outside of money, Bellino’s biggest savings are time. By ordering the bulk of his chemicals early, his crew doesn’t usually have to worry about products being late or not in stock. This keeps them ready to tackle any challenges that might pop up.

Bellino’s top products include Manuscript Herbicide from Syngenta and



Larry Napora, director of golf course maintenance at Firestone CC in Akron, Ohio, uses early order programs to stock up on 99 percent of what he'll need for the year.

Specticle from Envu. Manuscript, he says, has helped him nearly eliminate tropical signalgrass from his course over the last three years.

"(Manuscript) has been super important for me," he says. "I would probably say fungicides for greens are what we spend the most on. It's just nice to have everything there. If we get a couple of cloudy days, or if it's raining, I don't have to wait for the SiteOne guy to come or go pick it up myself. It's right there. I feel like I can do a better rotation having them all there."


Steve Brown, general manager at Cleburne (Texas) Golf Links, works in a different situation than both Bellino and DiStefano. As GM of a municipal course, Brown has ultra-specific budgets he has to follow, making EOPs

extra important for his course.

"We've been doing a better job of shopping things around; being a part of the city government, we have to follow strict purchasing guidelines. So, we've been digging a bit deeper, getting extra quotes to make sure we're getting the best bang for our buck."

Brown adds that getting ahead with early order programs has not

only helped him save money on products but allowed for improvements elsewhere on the course.

"Fertilizer is one of the things that have helped us get our new cart fleet, which we got a little over a year ago," he says. "We don't have as much maintenance involved in those. We were running a 5-year-old cart fleet that we couldn't trust to go more than 18 holes. Now, we don't have that issue, so that's been great." 



Steve Brown

"We've been doing a better job of shopping things around; being a part of the city government, we have to follow strict purchasing guidelines. So, we've been digging a bit deeper, getting extra quotes to make sure we're getting the best bang for our buck."

The grass is greener

By Seth Jones

Compared to the challenges in the lawn care industry, golf maintenance is ideal for EOP purchasing

There's a big difference when it comes to buying products to sustain a golf course versus buying products to sustain a portfolio of lawns.

In golf, superintendents know how much acreage they need to care for. The only reason that might fluctuate is if some areas of the course are re-designed or used for other functions. They have a historical perspective on the weather in their exact location. And in most cases, they also have a shop to store supplies.

Meanwhile, the lawn care operators of the world are constantly deal-

ing with a fluctuation of customers — some cancel their services while others add them. Their service area may travel far and wide, meaning different weather conditions. And storage can be an issue.

"We don't get quite the participation for lawn care owners as we do in other industries, like golf and sports turf," says Beth Berry, vice president of sales at Advanced Turf Solutions. "(Lawn care companies) want discounts, they want terms, but they also need storage, and not everyone has storage."

Berry and her colleagues at Advanced Turf Solutions are working

to get the word out more with lawn care companies because they feel these businesses are missing out on discounts that could help them be successful. Berry recently hosted a webinar on this topic with *Golfdom's* sister publication, *Landscape Management*.

Jamie Heydinger, lawn care segment lead, Nufarm, agrees that historically, golf course superintendents are more comfortable with the concept of EOPs than their counterparts in lawn care.

"Some of the pushback I've had (from lawn care companies) in the past is, 'I don't know what I'm going to need.' I would challenge them that they probably know at least 80 percent of what they used the prior year. If they don't know if they're going to get back 80 percent of their business, they have bigger problems (than EOP)," Heydinger says. "At Nufarm, we try to make it easy, so we have a low minimum entry point. Based on feedback from partners, we created a volume bonus on key herbicides that are used in the lawn care industry."

Heydinger says he wants more companies to take advantage of EOPs because they're a win-win for the customer and the manufacturer.

"One of the things that is helpful, from a manufacturing perspective, (EOPs) helps us forecast what we need to manufacture," he says. "We're willing to pay a fee for that, which is the reward for Early Order Programs." **G**



Superintendents knowing the exact amount of turf they need to maintain every year gives them an advantage in mastering their EOP purchase.



“It’s funny, for a long time, I didn’t even want to participate when I was with a big management company ... I didn’t like having the inventory in the shop. Back in the day they would store it for you, and I didn’t have much space. But then I realized it’s a no-brainer to lock in what you need. We’re all good enough planners, it’s not a big deal.”

— Danny Fielder, *Dublin Ranch GC, Dublin, Calif.*



“I like it because I can have all my products ordered before the season starts. The obvious reasons

to participate are the discounts and rebates. I really enjoy Quali-Pro’s EOP; they have a nice rebate, and I have faith in their products. I have 27 holes and 40 acres of fairway, so I rely on this program.”

— Matt Borowiec,
Deerwood GC, North Tonawanda, N.Y.



“I think the big thing is, it gives us as superintendents a chance to see so many solutions to what we see in a growing season ... weevil control, wetting agents, pond solutions ... it’s all in one binder. We can see everything we need. The manufacturers do a fantastic job of giving us rebates and discounts in various packages. We know we’re going to get a discount for our ownership or our membership.”

— Chris Navin, *The G.C. at P.B. Dye, Ijamsville, Md.*



“I think Early Order Programs benefit the golf course both financially and agronomically. I’m getting what I need, and if I need a product, I don’t have to worry about wondering if I’m going to get it in time. I already have it there on the shelf.”

— Cody Sander, *Drumm Farm GC, Independence, Mo.*



“I like EOPs because I can lock in last year’s prices. Any time I can save the club some money, that’s a win.”

— Bobby Snyder,
Pinecrest CC, Longview, Texas



Foundation Builder — The 2025 BASF Early Order Program

DEADLINE: Dec. 6, 2024

Get ready to lay the groundwork for your most successful season yet with the 2025 BASF Early Order Program, “The Foundation Builder.” This year’s EOP is packed with the same industry-leading rebates and cutting-edge chemistries you’ve come to expect from BASF, plus new incentives that promise to elevate your rotation to new heights.

Start Simple. Start Strong.

Superintendents have a lot on their plates, especially in the current climate, where pressure and expectations come from all directions. That’s why BASF set out to deliver one the most customer-focused EOPs in the industry, and their effort shines through in 2025. This year’s program is about helping you build a strong foundation for the upcoming season with a user-friendly approach that helps you stock up on essential fungicides, herbicides and more, minus any overcomplicated process.

Earn Rebates up to 33%

Once again, BASF is setting the pace for savings during EOP with customer rebates up to 33% when

you take advantage of everything their program has to offer. Design Your Own Program with the solutions your course needs and earn more rebates as your order grows. No forced bundles. No products you don’t need or want. It’s never been easier to ensure your turf is in peak condition from day one while being efficient with your bottom line.

Introducing Aramax™ Intrinsic® Brand Fungicide — The Fairway MVP

The cornerstone of this year’s program is the introduction of Aramax™ Intrinsic® Brand Fungicide. This dual-active formulation powerhouse defends against 26 of the toughest turf diseases, including snow mold, large patch, brown patch, and dollar spot. It’s a strong

rotational partner that delivers impressive results on fairways with plant health benefits and significant savings when you add it to your order. With the “Max Out” kicker, you can earn an additional 6% rebate with 2.5 to 5-gallon purchases of Aramax Intrinsic brand fungicide or an additional 9% rebate with 7.5 to 10-gallon purchases, stacking your savings while adding powerful fairway defense to your toolbox.

From Par to Eagle - Savings for All

The 2025 BASF EOP is incredibly welcoming to newcomers. You can earn an 8% rebate when ordering just \$3,000. This straightforward entry level is perfect for new customers looking to experience the innovation of BASF chemistries for the first

MAXIMIZE
FAIRWAY DISEASE CONTROL

Introducing **Aramax™ Intrinsic®** brand fungicide. An MVP of fairway disease control designed to defend against 26 of the toughest turf foes including snow mold, large patch, brown patch, and dollar spot.

THE MAX OUT KICKER

ADD ARAMAX INTRINSIC BRAND FUNGICIDE AND EARN REBATES* OF:

6% When you order 2.5 - 5 gallons on Aramax purchases only

9% When you order 7.5+ gallons on Aramax purchases only

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1	Select your qualifying fungicide brand(s).	Qualifying Purchase Levels	Oct. 1 - Oct. 31 Earned Incentive %	Nov. 1 - Dec. 6 Earned Incentive %	Brands Required to Achieve Tier
2	Order at least \$3,000 to start saving.	Par \$3,000 - \$7,999	8%	4%	1
3	Order in October to lock in the highest rebates.	Birdie \$8,000 - \$19,999	14%	7%	3
		Eagle \$20,000 - \$29,999	17%	10%	3
		Albatross \$30,000 - \$39,999	20%	12%	3
		Ace \$40,000+	24%	14%	3
Extended payment terms to June 10, 2025					

time. Combine that with the Max Out kicker, and you'll start building a strong foundation of savings and superior turf health. Customers who spend at least \$20,000 on three DYOP fungicides achieve the Eagle level and automatically earn a 12% rebate on BASF Across-the-Course solutions, with the opportunity to save even more when you spend more. This tiered approach ensures that every new or returning customer can benefit significantly from participating in the BASF 2025 EOP.

Your Foundation for Greatness

A successful season on the course starts with a successful EOP, and in 2025, BASF is poised to deliver one of its strongest programs yet. By participating, you're not just checking boxes or crossing off lists—you're investing in a solid foundation for your course's health and success. With rebates up to 33%, innovative products like Aramax Intrinsic brand fungicide, and the dedicated support of the BASF

team, superintendents are poised to start their years stronger than ever. This comprehensive approach helps to provide peace of mind and exceptional results for your turf management program.

Don't miss your chance to participate in the 2025 BASF Early Order Program and build the foundation for your best season ever. For complete program details, visit betterturf.basf.us/EOP.





Envu Early Order Program

DEADLINE: Dec. 6, 2024

As your busiest season comes to a close, take a moment to reflect on this past year and plan ahead for next year. What unexpected challenges did you face? How did your turf hold up to stress? Is there anything you need to change or add to your course care?

Once you map out your plan of attack for the following year, take advantage of the Envu NOW Solutions program (available now) and the Fall Solutions program (starting Oct. 1). These promotions are designed to give you more flexibility and savings on the agronomic solutions you need to keep your course looking and playing its best when it matters most.

The agronomic programs include:

Greens Health program

Products: Signature™ XTRA Stressgard® fungicide and Banol® fungicide

Best for: Controlling Pythium root rot, foliar Pythium and summer decline

Recommended enhancer: Resilia™ root health solution for full-spectrum protection

Snow Mold program

Products: Interface® Stressgard® fungicide and Mirage® Stressgard® fungicide

Best for: Consistent snow mold control and early spring greenup

Recommended enhancer: NEW Castlon™ fungicide or Densicor® fungicide

PRE3 program

Products: Specticle® FLO herbicide and Tribute® Total herbicide

Best for: Proactive resistance management, increased flexibility and maximum control of *Poa annua*

Fairy Ring program (Starting Oct. 1)

Products: Resilia™ root health solution and Tartan® Stressgard® fungicide

Best for: Controlling fairy ring and other turf diseases

Recommended enhancer: NEW Castlon™ fungicide

Fairways Health program (Starting Oct. 1)

Products: Tartan® Stressgard® fungicide and Exteris® Stressgard® fungicide

Best for: Preparing for summer stress

Recommended enhancer: Densicor® fungicide

All of these programs have been expertly crafted by the Envu Green Solutions Team agronomists and are designed to not only help you tackle the unique challenges you face on your course but also help you boost overall plant health and playability.

To take advantage of this promotion, make sure you're a My Envu Rewards member or sign up at rewards.envu.us.com.

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FMC Early Order Program 2024

DEADLINE: Dec. 6, 2024

Exclusive Innovation, Exclusive Savings — only from FMC's 2024 EOP. With three simple ways to save on the products formulated to make your job easier, there simply isn't a better EOP.

First, you **get the best prices on industry-leading products**. That includes up to 12% off Serata® Fungicide — the award-winning pythium solution — and up to 30% off the new Durentis™ Insecticide for grubs and fall armyworms.

Save even more with volume buys on nearly a dozen of FMC's most popular products to get low costs per acre starting at as few as 2 units. Stock up on items like Rayora® Fungicide or Echelon® 4SC Herbicide and get savings that simply can't be beat.

What's more, the opportunity to **earn up to an extra 8% on all FMC agency purchases in September 2024** with



our Rebate Booster. Just spend at least \$10,000* — and purchase **Durentis™ 16 oz/64 oz** or **Fame® 64 oz/2.5 gal** — to get your booster savings added on, all the way up to 8%.

Enroll free at TrueChampionsEOP.com and earn year-best savings on the products your course needs.

*Individual locations of golf course management/ownership groups must qualify separately.





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Sept. 1 through Dec. 6, 2024

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LEADING PRODUCTS

With the lowest pricing during
September/October.



**UP TO
12% OFF**
THE AWARD-
WINNING
PYTHIUM
SOLUTION



**UP TO
30% OFF**
SEASON-LONG
CONTROL OF
GRUBS AND FALL
ARMYWORMS

SAVE MORE WITH **VOLUME BUYS**
ON BIG EXCLUSIVES

Available from **September 1 –
October 31, 2024.**

Minimum bulk purchases of as
few as two units.

SERATA®
FUNGICIDE

GET SERATA
35 OZ FOR
\$311/ACRE
WHEN YOU BUY **8+ UNITS**

ECHELON®4SC
HERBICIDE

GET ECHELON 4SC
1 GAL FOR
\$86/ACRE
WHEN YOU BUY **16+ UNITS**

DURENTIS™
INSECTICIDE

GET DURENTIS
64 FL OZ FOR
\$66/ACRE
WHEN YOU BUY **4+ UNITS**

EARN UP TO AN EXTRA 8%
ONLY IN SEPTEMBER

DURENTIS™
INSECTICIDE

FAME®SC
FUNGICIDE

- Purchase **Durentis 16 oz/64 oz OR Fame 64 oz/2.5 gal**
- Earn an additional 2-8% on all FMC agency products — **only in September**

Total Agency Purchases on Invoice	Additional Rebate	Rebate Booster
\$10,000-\$19,999	2%	\$200
\$20,000-\$29,999	4%	\$800
\$30,000-\$59,999	6%	\$1,800
\$60,000+	8%	\$4,800

*Booster with all other qualifying agency product-specific rebates earned for purchases made September 1-30, 2024.

*Individual locations of golf course management/ownership groups must qualify separately.

TRUE CHAMPIONS

FMC EARLY ORDER PROGRAM 2024

To qualify for a rebate, rebate must total at least \$500 minimum. Offer valid September 1 through December 6, 2024. All agency products invoiced between September 1, 2024 and December 6, 2024 will receive June 13, 2025 terms for the end-user.

**EARN YOUR EOP
REBATES AND MORE**

Enroll free at TrueChampionsEOP.com





Order Early. Save Green

DEADLINE: Dec. 13, 2024

Leverage Heritage Landscape Supply Group's Early Order Program for added savings and bonus offers. Act early and combine purchases from industry-leading suppliers and programs.

Save Even More with Packs

Heritage has bundled some of its most popular products for additional savings on top of EOP rebates.

Wetting Agent Golf Pack

Looking for an optimal combination for improving water flow and enhancing water retention, while maintaining firm surfaces? Aquiflo® Plus wetting agent helps resist excessive water retention at the soil surface while moving and distributing water uniformly through the soil profile. Aquicare® wetting agent helps maintain optimal moisture levels in the root zone to provide a firm, healthy playing surface.

Utility Adjuvant Pack

FoamForce® is an effective antifoaming/defoaming agent designed to eliminate foam in spray tanks, reducing mixing and filling times. PostFlight® is a versatile solution that serves as both a tank cleaner and a pigment remover to help maintain clean spray equipment free from stains caused by pigments and dyes.



Plant / Seed Starter Pack

Get growing with the combination of Gravity® L AMP liquid fertilizer and Gravity® SL PGS. Gravity® L AMP is a proprietary blend of fertilizers meant to stimulate plant growth, specifically root growth and establishment. Gravity® SL PGS is a blend of three plant hormones, Cytokinin, IBA and Gibberellic acid, which trigger plant root growth and break plant dormancy.

Herbicide Pack

Take control of broadleaf weeds with this convenient Herbicide Pack. Help improve control, reduce drift and increase coverage of application with the use of Gulfstream® Free adjuvant and Mystic® HC colorant in your herbicide applications.



New for 2024

All Heritage brand professional products now qualify for their early order program in addition to 15 other industry-leading suppliers. This includes NEW Gravity G PLUS Granular Fertilizer with add-ons including wetting agents, growth enhancers, soil conditioners and micronutrients.

ORDER EARLY SAVE GREEN

2025 EARLY ORDER PROGRAM

September 1st through December 13th, 2024

Purchase a minimum of **\$2,500** worth of product
from qualifying suppliers to earn rebates

- ▶ Earn **1-7%** based on total spend
- ▶ **1%** bonus if booked by October 31st
- ▶ **\$25** gift card for every \$1,000 of
Heritage PPG Products purchased

QUALIFYING SUPPLIERS: AQUATROLS • BAYER • BASF • CIVITAS • CORTEVA • ENVU • FMC
GRIGG • HERITAGE PPG • NUFARM • OHP • PBI GORDON • QUALI-PRO • SEPRO • SYNGENTA



Visit heritagelandscapesupplygroup.com
to learn more and find a distributor near you.





The PBI-Gordon Green Dividends Early Order Program

DEADLINE: Dec. 2, 2024

Start the march toward a successful 2025 with the PBI-Gordon Green Dividends Early Order Program. Green Dividends gives end-users the best prices when they order qualifying products between Sept. 1 – Dec. 2, 2024.

The PBI-Gordon EOP features 18 of our most popular products, including:

- **Aethon™ Herbicide SL for Turfgrass** — New Aethon delivers post-emergence control of listed broadleaf weeds, sedges and kyllingas on warm-season turf. <https://www.pbigordonturf.com/products/herbicides/selective-herbicides/aethon-herbicide-sl-for-turfgrass/>

- **Arkon™ Herbicide Liquid** — An innovative solution for sedge and kyllinga control. <https://www.pbigordonturf.com/products/herbicides/selective-herbicides/arkon-herbicide-liquid/>

- **Segway® Fungicide SC** — The industry standard for control of Pythium root dysfunction, blight, damping-off and root rot. <https://www.pbigordonturf.com/products/fungicides/segway-fungicide-sc-pythium-disease/>

- **Q4® Plus Turf Herbicide for Grassy & Broadleaf Weeds** — Save money and labor with rapid, broad-spectrum control of tough grassy and broadleaf weeds from a single product. <https://www.pbigordonturf.com/products/herbicides/selective-herbicides/q4-plus-yellow-nutsedge-crabgrass/>

- **SpeedZone® EW Broadleaf Herbicide for Turf** — The fast, broad-spectrum control of the No. 1 speed herbicide in an advanced emulsion-in-water formulation. <https://www.pbigordonturf.com/products/herbicides/selective-herbicides/speedzone-ew-rapid-broadleaf-weeds-goosegrass-nimblewill/>



[herbicides/speedzone-ew-rapid-broadleaf-weeds-goosegrass-nimblewill/](https://www.pbigordonturf.com/products/fungicides/pedigree-fungicide-sc-liquid-flutolanil-formulation-brown-patch-fairy-ring/)

- **Pedigree Fungicide SC** — The same proven performance as granular flutolanil in an easier-to-handle liquid formulation. <https://www.pbigordonturf.com/products/fungicides/pedigree-fungicide-sc-liquid-flutolanil-formulation-brown-patch-fairy-ring/>

Level-up for a bigger rebate!

- Level I rebate (\$500-\$999) earns an additional 15% rebate
- Level II rebate (\$1,000 or more) earns an additional 25% rebate

Rebate calculator

The PBI-Gordon Green Dividends EOP offers end users the opportunity to maximize their financial budgets by earning rebates on key products needed for the upcoming year. Want to see how big that rebate can be? Try our calculator at PBIGordonTurf.com/GreenDividendsEOP

Registration is Easy!

In fact, you might already be registered! If you've enrolled online and taken advantage of the PBI-Gordon Early Order Program in prior years, you're automatically enrolled. If you're new, or not sure if you've enrolled in the past or if you'd just like to verify your information, complete the online form at [PBIGordonTurf.com/ GreenDividendsEOP](https://PBIGordonTurf.com/GreenDividendsEOP)

Visit [PBIGordonTurf.com/ GreenDividendsEOP](https://PBIGordonTurf.com/GreenDividendsEOP) to see the full list of qualifying products and enroll!



PBI-Gordon Corp. | 22701 W 68th Terrace, Shawnee, KS 66226 | ☎ 800-884-3179
🌐 PBIGordonTurf.com | 📧 @PBIGordonTurf | 📘 @PBIGordonTurf

PBI-Gordon

GREEN

DIVIDENDS

EARLY ORDER PROGRAM

SEPTEMBER 1, 2024 THROUGH DECEMBER 2, 2024

HIT THE TURF RUNNING IN 2025!

PBI-Gordon's Green Dividends EOP gives end-users the best prices on qualifying products.

FEATURES 18 OF OUR MOST POPULAR PRODUCTS, INCLUDING:

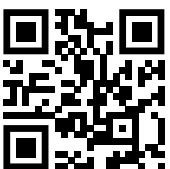
AETHON

ARKON

SpeedZone^{EW}

SEGWAY

Q4^{Plus}



Check out the
Planning Calculator!

PBIGordonTurf.com/GreenDividendsEOP

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CORPORATION
Employee-Owned



Simply Grow Together

DEADLINE: Nov. 30, 2024

Quali-Pro is a hybrid manufacturer specializing in both innovative and post-patent turf and ornamental solutions. This dual focus allows the company to offer a unique blend of products that cater to our customer's needs while maintaining a strong competitive edge in the market.

2024 Quali-Pro Early Order Program

Quali-Pro's EOP program, SIMPLY GROW TOGETHER, offers special incentives now through November 30th. For the biggest rebates, take advantage of the SGT early order program by October 31st. Products must be purchased from an authorized Quali-Pro distributor between September 15, 2024, and November 30, 2024.



To qualify, the participating end-user must earn a minimum rebate of \$100. This is an end-user promotion. Only purchases from authorized distributors may be used to qualify. Internet sales and purchases do not qualify. Distributors, dealers, and retailers are not eligible. End-user purchases used to qualify for this promotion are not eligible for any other free goods, cash back, or rebate programs. All submissions must be uploaded by January 12, 2025.

Visit us at simplygrowtogether.com





SCORE

MORE SAVINGS!

WITH  **QUALI-PRO**

Quali-Pro is offering special incentives beginning September 15th, 2024.
Take advantage of the SGT early order program for the biggest rebates of the year.



Snag your rebate at simplygrowtogether.com

EARLY ORDER PROGRAM GUIDE 2025







Keep it Super Simple

DEADLINE: Dec. 23, 2024

Don't count points like Weight Watchers, and don't wait for rebates. Keep it Super Simple (K.I.S.S.) with upfront savings. Visit numeratortech.com/eop for additional information and to order.

PRODUCT		K.I.S.S. DEAL
Retro 2x2.5-gallon case: 30-day preventative soil surfactant designed for push up greens. Removes the build-up of water repellent organic coating on sand particles. Best-selling surfactant for prevention and water movement		10% off
Span 2x2.5-gallon case: 120-day preventative long term soil surfactant designed for all areas of golf courses		10% off
Poseidon 2x2.5-gallon case: 30-day preventative soil surfactant designed for USGA Spec greens offers dew suppression		10% off
Cistern 2x2.5-gallon case: 30-day preventative soil surfactant ideal for areas with minimal irrigation contains a humectant		10% off
Passage Sprayable 2x2.5-gallon case: 30-day preventative soil surfactant for fairways, University proven to provide results equal to products more than double the cost		10% off
Game Changer 2x2.5-gallon case: 30-day preventative soil surfactant designed to work with all soil structures. Best for courses with both USGA Spec and Push up greens to provide a single solution		10% off
SupplemeNt18 2x2.5-gallon case: Amino Acid based supplemental fertilizer that works with any current fertility program to enhance stress response and increase photosynthesis		10% off
pHacid Sprayable 2x2.5-gallon case: Sprayable safe acid formulation that contains no urea and is non-corrosive. Dissolves bicarbonates and reduces sodium, frees bound up elements in soil profile		10% off
pHacid Sprayable 30-gallon drum		10% off
pHacid Injectable 55-gallon drum: Blend of acids to help manage bi-carbonates and reduce sodium in soil profile. Non-corrosive contains no urea.		10% off
pHacid Injectable 250-gallon tote		10% off
NuHumic 50 - 40 lb. bags per pallet: Highest amount of Humic substance available. Increases nutrient uptake, CEC, and water holding ability.		25% off

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PROTECT YOUR BATTLEFIELD

HERBICIDES

INSECTICIDES

FUNGICIDES

IGRS

PGRS



VIEW OUR TURF &
ORNAMENTAL LINEUP

Bootstrapped and ready to serve, Atticus delivers battle-tested chemistries and an experience like no other. Proud to be 100% American-owned and operated, our mission is to help you grow every step of the way.

BATTLE★TESTED CHEMISTRIES



The Rebate Ripple Effect: Only with GreenTrust 365

DEADLINE: Dec. 10, 2024

With new ways to save, the **2025 GreenTrust® 365 program** from Syngenta is the best way to save on the broadest portfolio of products. Maximize your turf quality and your budget during the **Early Order Period: Oct. 1 – Dec. 10, 2024** with the **NEW Acelepryn®/Ference® Bonus, NEW Multipaks, Plan it Your Way Rebate, GT Bonus Booster and more.** Explore the many benefits that make GreenTrust 365 the best value of the year.

Step 1: Earn Your Yearlong Rebate



Spend at least \$5,000 on qualifying products during the Early Order Period to lock in your **yearlong rebate of up to 10%**, valid for purchases made from Oct. 1, 2024 – Sept. 30, 2025.

Additionally, purchases of on-fertilizer products through May 31, 2025, also qualify toward yearlong rebates as an Early Order Period purchase.

Step 2: NEW Acelepryn/Ference Bonus



Now you can save **up to 46%** on Acelepryn insecticide brands and **up to 50%** on Ference insecticide. Purchases of Acelepryn, Acelepryn G, Acelepryn Xtra, Acelepryn on fertilizer, and new Multipaks during EOP will receive an additional rebate based on qualifying rebate level.

Other ways to save big on Acelepryn:

- **NEW:** Updated pricing with added rebates available
- **NEW:** Reduced purchase volumes needed for volume pricing
 - 4 gal. for Acelepryn
 - 10 gal. for Acelepryn Xtra
- **NEW:** Acelepryn + Ference and Acelepryn Xtra + Ference Multipaks
- **NEW:** GreenTrust 365 Yearlong Rebate
- **NEW:** GT Bonus Booster

Qualifying Product Purchases During EOP	Acelepryn/Ference Bonus (EOP Only)
\$5,000 to < \$10,000	10%
\$10,000 to < \$20,000	12%
\$20,000 to < \$40,000	14%
\$40,000 to < \$70,000	16%
\$70,000 to < \$100,000	18%
\$100,000+	20%

Step 3: Plan it Your Way Rebate



Earn up to an **additional 12% rebate** with qualifying purchases of **Posterity®, Daconil® and/or Secure®** fungicide brands.

• While no pallets earn PIYW Rebates, purchasing the following pallets automatically fast tracks you for the 12% rebate level for all PIYW product purchases:

- XT Solution Pallet
 - Contains Acelepryn Xtra, Posterity XT, and Secure® Action™
- Forte Solution Pallet
 - Contains Acelepryn Xtra, Posterity Forte, and Secure Action

Step 1	Step 2¹	
Purchase the following amounts of Posterity fungicide brands	Purchase the following total amount of Daconil, Secure and/or Posterity brands	Plan It Your Way rebates²
\$3,000	\$10,000 to < \$20,000	6%
\$6,000	\$20,000 to < \$40,000	8%
\$9,000	\$40,000+	12%



Step 4: Purchase in October for the Greatest Savings



Qualifying participants automatically earn an **additional 2 to 3% rebate** on purchases made in October in addition to the yearlong rebate.

The more you spend, the more you earn.

Purchases from Oct. 1 – Dec. 10, 2024	Yearlong rebate for Oct. 1, 2024 – Sept. 30, 2025	Bonus Booster Rebate earned for Oct. Purchases	Oct. Total
\$5,000 to < \$10,000	5%	2%	7%
\$10,000 to < \$20,000	6%	2%	8%
\$20,000 to < \$40,000	7%	3%	10%
\$40,000 to < \$70,000	8%	3%	11%
\$70,000 to < \$100,000	9%	3%	12%
\$100,000+	10%	3%	13%

Step 5: Pallets Offer Significant Savings



- **New Pallet for 2025:** Winter Solutions Pallet
- Pallets are **ONLY available during the Early Order Period**

- Designed to meet specific agronomic needs and volumes
- 11 of 12 pallets **automatically qualify** you for GreenTrust 365 rebates
- Pallets can be combined with additional rebates for savings up to 32%

Step 6: Rebate Calculators Maximize Savings



We've done the math for you with our online rebate calculators.

- Choose one of three calculators to best suit your needs
- Each calculator automatically maximizes your savings with optimal package sizes and configurations

Scan the QR code or visit GreenTrust365.com/Calculators to see how your savings could start a ripple effect.



Contact your local Syngenta territory manager or visit GreenTrust365.com/Golf to learn more.

GreenTrust365.com | @SyngentaTurf | #GreenTrust365
#RebateRippleEffect

¹You can qualify for the PIYW rebate by purchasing only Posterity brands

²The PIYW rebate will be applied to all purchases of Posterity, Daconil and Secure made from Oct. 1 – Dec. 10, 2024

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THE REBATE RIPPLE EFFECT

ONLY WITH GREENTRUST® 365

Start the wave of savings with a NEW Bonus for **up to 46% savings on Acelepryn® brands** and **up to 50% on Ference® insecticides**.



NEW Acelepryn/Ference
Bonus



Plan It
Your Way



NEW
Multipaks



GT Bonus
Booster

To see the full wave of savings, visit
GreenTrust365.com



@SyngentaTurf #GreenTrust365 #RebateRippleEffect



GreenTrust® 365

syngenta.

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