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WHEN AND WHY TO REMOVE SNOW

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THE WILD WEST

With unusual weather influencing grass seed production, seed prices become unstable

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"I was fortunate I didn't have to compete against (Ron Hall.) His writing was more insightful and intelligent than anything I ever wrote."

SETH JONES, Editor-in-Chief & Associate Publisher

Cheers to Ron and Alan

There are two passings to note this month. I'll start with Ron Hall.

Hall was a veteran journalist covering the turf industry, working in it for 30 years, covering the business of turfgrass for various publications, including *Landscape Management* and *Athletic Turf*, both sister publications of *Golfdom*. Though he wasn't directly tied to *Golfdom*, he was very much in this universe, working closely with everyone in the green industry.

He was perhaps the industry's best storyteller, and it came naturally to him. North Coast Media's CEO Kevin Stoltman likes to tell the story about how Hall once packed up his lunch in the break room and excused himself, saying he needed to leave so he could start work on his column ... for a magazine that was due to press that afternoon. Another editor at the table was flabbergasted — he spent days grinding out his column. "Ron could fall out of bed and write a better column in an hour than most editors could produce in days," Stoltman says.



Me and my Father-in-Law, Alan, celebrating a Chiefs playoff win. Alan passed away last month, two weeks shy of his 79th birthday.

I didn't know Ron well, but I did read his stuff, and I was thrilled the day I realized he read mine as well. I share this story with reluctance because it'll come off as a brag, but it was a day I felt I had maybe 'made it' in the industry. I was a few years into my tenure with *Golfdom*. Ron and I were covering the same event when he walked by me and asked, "Seth, how does it feel?" I gave him a stupid look — *huh?* Then he continued, "To have made *Golfdom* the best magazine in the golf industry?"

Whether that was true or not, I was fortunate I didn't have to compete against him.

His writing was more insightful and intelligent than anything I ever wrote (But it could be said that insight and intelligence are two things that I just don't go for.) Here's a cheers to Ron Hall, a great man and a great writer who will be missed.

Cheers to Alan from McAllen

Recently I was in my father-in-law's closet. Turns out we wore the same size. Alan passed away last month. His widow, my wife's stepmom, told me to take any of his clothes I was interested in.

Alan was a fellow Kansas

University Jayhawk and a fellow Kansas City Chiefs fan. Lucky for me, he had good taste in clothes. While Alan was alive, he would have given me the shirt off his back. Now in death, he has.

Alan lived in the Rio Grande Valley, in McAllen, Texas. To give you an idea of how far South this is, we'd have to drive past the U.S./Mexico border wall to visit one of our favorite bars, The Riverside, which sits along the Rio Grande. Alan loved Texan and Mexican culture. He was fluent in Spanish and put it to good use, working for years as a private investigator.

Besides his work as a P.I., he also served in the Army, worked for the Peace Corps, the Department of Justice and the Department of Agriculture. He traveled to 30 different countries in his lifetime and Mexico extensively.

Alan was funny and a great storyteller with a quick wit. We found some of his letters from the 1970s. He wrote home, telling the family, "This town is so small, we don't even have a town drunk — so we all take turns."

Alan was buried in the Rio Grande Valley State Veterans Cemetery. Motivated by a cancer scare, he filled out the paperwork for his plot ten years ago. He wrote his own message for his headstone: Life's a journey without maps.

This tequila shot is to another great storyteller, my friend Alan from McAllen. ☺

Email Jones at:
sjones@northcoastmedia.net.



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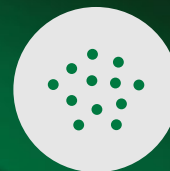
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Starter

NEWS, NOTES AND QUOTES



// SOUTHERN MAN

RUSS MYERS JOINS HANSE DESIGN FIRM

➔ Russ Myers, former superintendent at Southern Hills Country Club in Tulsa, Okla., recently resigned from his post to join Hanse Golf Course Design.

Hanse restored the course in 2019 prior to the 2021 Senior PGA Championship and 2022 PGA Championship.

Myers hosted a pair of PGA Championships at Southern Hills, once in 2007 and again in 2022. He also served as superintendent at Los Angeles Country Club from 2009 to 2015.

"I feel like we all go through phases in our career. The superintendent career has been good to me," Myers

says. "There was a point when I was introduced to the guys (at Hanse Golf Course Design) and I really enjoyed working with them. I felt that joining their team is a good opportunity for me to learn more, and to also move into the next phase of my career."

The club has begun a search for its next superintendent, according to general manager Nick Sidorakis. Myers will begin his role with Hanse Design in October, with an end date for his time at Southern Hills not yet determined. Myers says he will continue to live in Tulsa after his move to Hanse's firm.



Russ Myers will join the Hanse Golf Course Design team to assist with construction and agronomy according to Gil Hanse.

// SWITCHING SIDES

FMC ADDS FORMER AGRONOMIST

FMC appointed Jeff Rice as a market specialist for the Mid-Atlantic territory for sales of its GSS Professional Solutions division products.

Rice has more than 20 years of experience in the turf and golf business. He served the last eight years as general manager and director of grounds at Oak Creek Golf Club in Upper Marlboro, Md. He has managed both cool- and warm-season turf in the Washington D.C. metro area.

Rice also holds a turf and golf course management degree from the University of Maryland.



Jeff Rice

// MEETING OF THE MINDS

REGISTRATION OPEN FOR GOLF AND WATER SUMMIT

The National Golf Course Owners Association, the Golf Course Superintendents Association of America and the Southern California Golf Association recently announced the Colorado Basin Golf and Water Summit.

The one-day event is designed to provide golf course professionals with historical, current and forward-looking research, perspectives and guidance with water usage. The event will be held Oct. 12 at the Vdara Hotel and Spa in Las Vegas, Nev.

Attendees will be briefed on current federal and state-level policies, the impact of water reduction/restriction and what the future holds for these affected states. Education will also include a discussion of the best long- and short-term practices for maintaining operations and keeping golf course businesses viable, as well as how to communicate water usage changes to customers.

Golf agronomy professionals in Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming are welcome to register.

PHOTO BY: WELGLAD / ISTOCK-GETTY IMAGES PLUS / GETTY IMAGES (GOLFBALL); JOHN AMATUCCI PHOTOGRAPHY



FireFly Automatrix estimates its M100-AV provides a 65 percent maintenance cost reduction and a 76 percent longer machine life from traditional mowers.

//RISE OF THE MACHINES

FIREFLY AUTOMATIX SHOWCASES ELECTRIC MOWER

➔ FireFly Automatrix recently debuted its first all-electric (EV) M100-AV mower at the Turfgrass Producers International convention at DeBuck's New Lawn Sod Farm in Belleville, Mich.

The company says the M100-AV can operate without on-site supervision and includes LiDAR-enabled obstacle detection and avoidance for safety. FireFly's newest mower also provides path planning, so no boundary wires are needed.

Powered by a LiFePO4 battery, the M100-AV can mow up to 25 acres per charge at 7 acres/hour speeds and recharge in two hours. The machine requires no gasoline and has no operating emissions.

Other notable features include:

- Four independent electric drive motors synchronized with two independent steering motors.
- Wide stance and balanced weight distribution.

- A RoloRocker cutting unit.
- SyncLift position-based lift technology.
- Drive motors engineered for a 100,000-plus hour life and low required maintenance.

The company is currently accepting pre-orders and anticipates delivering the first production models this fall.

GOLFDOM ASKED

Do you think, in a year from now, we'll still be sharing ideas / thoughts / questions on Twitter, or will we have been forced to find a new platform by then?

Still on Twitter

84%

16%

We'll be somewhere else

Ask Thad

BY THAD THOMPSON

Superintendent
Terry Hills GC, Batavia, N.Y.



Ok, I follow you on Twitter. What's the big deal with golf course superintendents bringing their dogs to work?

— Eric Holliday (below-average golfer)

I've had three different turf dogs in my career. My first, Dahmer, lived on a couple of different golf courses for 13 years; my second, Trinity, made 17 ½ years; my current dog is Lita.

The main thing all three dogs have in common is that they are mutts. Dahmer was lab and shepherd, Trin was so mixed breed we could never pin down exactly what she was and Lita is 50 percent golden lab and 50 percent black German shepherd. The first two were rescues and my brother, Drew, and I got Lita and her brother Sammy from a farmer in Pennsylvania.

I can give you the practical reasons why we bring our dogs to the course. Dogs chase away geese — and we hate geese, but not enough to harm them. Lita is passionate about her required duties and takes it personally whenever the geese return. She is ever-vigilant and an incredible swimmer.

Dogs make the crew happy! We arrive at work at ungodly hours, and everyone is greeted by a dog that is excited to see them, especially if you bring a treat. If you ever have to deal with a pissed-off golfer, here's a trick. Bring the dog with you when you talk to them on the course. Nobody ever bitches at me while Lita is licking their hand or rolling over for a belly rub.

The personal reasons are the real reasons too. I have a running buddy everywhere I travel on the golf course. I used to laugh when this whole deal about "emotional support animals" started popping up several years ago.

Ask any golf course superintendent with a dog, we started that trend! We all have rough days; we all have small victories that we'd never tell another person about and there are times when you only need a good listener. I've relied on dogs as psychiatrists, confidants and secret keepers my whole life. In my eyes, I don't have a dog, Lita has a human.

Got a question for Thad? Tweet to @TerryHillsMaint and @Golfdom or email Thad at thadthompson@terryhills.com

// ENVIRONMENTAL CLUB

AUDUBON ADDS TO ITS CERTIFICATION TRACKS

Audubon International recently added nearly 20 new members to its Audubon Cooperative Sanctuary (ACSP) for Golf Certification and Green Lodging Certification tracks.

From April to July, 11 golf clubs from throughout the United States, as well as one club in Bogota, Colombia, enrolled in the ACSP for Golf Certification program. In the U.S., there are six new members from California and one each from Alabama, Colorado, Hawaii, Missouri and South Carolina. Five new Green Lodging Certification program enrollees are from Amelia Island, Fla.

"We continue to welcome a steady stream of new enrollees in all of our certification programs, and we invite all operators to join us in planning and implementing a more sustainable future for their businesses and the planet," Christine Kane, CEO of Audubon International, said.

// WISHES GRANTED

GCSAA AWARDS EDUCATION GRANTS

Fourteen Golf Course Superintendents Association of America (GCSAA) chapters received one-time education grants administered through the GCSAA Foundation in partnership with ClubProcure. The education grants total \$12,000 and range from \$700 to \$1,000 per grant.

ClubProcure has donated a total of \$27,000 in support of the GCSAA Foundation, establishing the chapter programming grant initiative, including a \$5,000 donation supporting the Larry Powell Scholarship. ClubProcure also donated \$10,000 to the annual fund.

The following chapters received a Chapter Education Grant in 2023:

Central Illinois GCSA
Central Texas GCSA
Connecticut Association of GCS
GCSA of Arkansas
GCSA of Cape Cod
GCSA of Central California
GCSA of New Jersey
GCSA of New York
Hawaii GCSA
Metropolitan GCSA
Nebraska GCSA
San Diego GCSA
Sierra Nevada GCSA
Southern Nevada GCSA

// FOR CLUB AND COUNTRY

Hazeltine National partners with Love Golf Design ahead of '29 Ryder Cup

➔ Hazeltine National Golf Club in Chaska, Minn., recently announced a long-term partnership with Love Golf Design to develop a comprehensive master plan ahead of the 2029 Ryder Cup.

The club says the partnership follows a year-long process of exploring, conversing with and interviewing the country's leading architects.

"My brother Mark, our architect Scot Sherman, and I are thrilled to be working with Hazeltine National Golf Club to reimagine the golf course and get ready for the 2029 Ryder Cup," said Davis Love III. "I've played major championships here and while serving

as the captain of the 2016 Ryder Cup, the support we got from Hazeltine for our Ryder Cup Team was incredible."

The master plan will identify areas of improvement on the course's greens, bunkers and fairways. It will also offer infrastructure improvements, including routing and irrigation.

Hazeltine — opened in 1962 — is a Robert Trent Jones design. Over the next two decades, Jones partially redesigned the course, including re-routing the 16th and 17th holes. The club also saw design input from his son, *Golfdom* editorial advisory board member Rees Jones.



#TurfTweetoftheMonth

Follow us @Golfdom

Matthew Woodcock @MattWoodcockGCS

Owner and Superintendent,
Old Erie Golf Club,
Durhamville, N.Y.

Some days are better than others. Meet my grandfather's best friend. Hasn't played golf in 3 years. We surprised him by borrowing one of these carts. The tears flowed today that's for sure.



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Grow a better tomorrow

Golfdom Gallery



1 Shop talk Brad Wunderlich, director of grounds and agronomy at Edgewood Tahoe Resort in Stateline, Nev., and Joe Ballmer, territory manager, Syngenta, take time for a photo during a busy American Century Championship.



2 Bear delay on No. 9 This foursome didn't win the outing, but at least they were successful in avoiding the bear that lives near the Omni Grove Park Inn in Asheville, N.C. Left to right are Seth Jones, *Golfdom*; Chuck Bowen, Outdoor Power Equipment Institute (OPEI); Troy Winebrenner, OPEI and Bill Roddy, *Golfdom*, at the OPEI Annual Golf Tournament.



3 A new Friend of Golfdom Associate Editor Rob DiFranco poses for a picture with Larry Napora, director of golf course maintenance at Firestone Country Club in Akron, Ohio. Check out the special Tour Guide issue of *Golfdom* for a profile on Napora and his team.



4 Don't be nasty Who knew Manolo (@manoloteachesgolf on Instagram) not only gives excellent golf lessons on Instagram to his 900,000 followers but also enjoys reading *Golfdom*? That's our *perro*!



5 Bring your partner to work day DiFranco and Digital Media Specialist Sydney Fischer (center left) had some company at the Kaulig Companies Championship, bringing their significant others Sammi (far right) and Justin (far left) to work for a day.

6 19th hole sneak preview Nothing like doing a 19th Hole interview in person during a tournament! Jones and Wunderlich, took some time off of the course for a quick question and answer. Look for the interview in next month's issue.

PHOTOS BY: GOLFDOM STAFF

The Golfdom F I L E S

FROM THE ARCHIVE

According to a GCSAA wage study, superintendent salaries have never been higher than they are in 2023, with the average superintendent earning \$109,621 annually. In this article from the September 1968 issue of *Golfdom*, agronomy consultant, Dr. Marvin H. Ferguson ponders whether it's worthwhile to hire a top-level superintendent at \$15,000 annually. For the full article, visit [Golfdom.com](https://golfdom.com).

Are your course maintenance \$\$ spent wisely?

BY DR. MARVIN H. FERGUSON, GOLFDOM AGRONOMY CONSULTANT

There are three major elements of golf course maintenance that influence the amount of value derived from the money spent. These are: (1) the quality of the supervision, or the ability and competence of the golf course superintendent and his assistant, (2) the quality of the golf course crew, and (3) the amount and quality of equipment available for maintenance.

Insofar as the first of these elements, the golf course superintendent is concerned, most of the nation's golf clubs are fortunate indeed. There are many excellent golf course superintendents. This is a profession that has made remarkable strides in a relatively few years. Pride and ability on the part of the top superintendents combine to provide excellent value for every dollar expended in the form of salary.

Those clubs fortunate enough to have the services of competent men should make sure their superintendents are not taken for granted and permitted to be lured away by a little more money offered by a neighbor club. There are many good men, but there are not enough top men to fill all the positions.

It has been demonstrated many times that a club that pays more for

supervision will receive much greater value for the money spent on labor and machinery. When the relative costs of supervision are weighed against the total budget, it makes sense to acquire the best supervision and planning ability that is available.

The second element mentioned is that of the golf course crew. Labor costs are usually calculated wrong. In the second case, a man with a spray gun overlapped some areas with a fungicidal spray. The

Dr. Ferguson gives his opinions on such questions as whether it is better to:

- Hire a superintendent at \$8,000 or \$15,000.
- Hire 20 men at \$1.75 an hour or six good men at a higher pay scale.
- Have eight mowers, each 10 years old or five machines, replaced regularly.

overdose caused burning of the grass.

"Cheap" labor is very costly indeed when its use creates damage of this kind. Observations made on many golf courses offer convincing demonstrations that it is more economical to hire more competent and more reliable men. Then if money is a limiting factor, find ways to get by with fewer men, but do not settle for incompetents.

The late O. J. Noer stated on many occasions that money should not be wasted on a golf course, but he also said to beware of trying to save money on the golf course to the detriment of expensive turfgrasses. Club memberships are much less forgiving of poor golfing conditions than they are of a budget that was exceeded in an effort to provide good playing conditions. **G**





“Every year, we all develop an agronomic plan, and every year we all deviate from that plan because Mother Nature has other ideas. But, just as deviation is a constant, so is adaptation.”

CHRIS NAVIN, Superintendent, The Club at P.B. Dye, Ijamsville, Md.

own research on products in addition to hearing the experiences of others.

Expect a curveball

Soon enough, early order season will be here, and having as much knowledge as you can regarding products makes ordering much simpler and more confident.

Every year, we all develop an agronomic plan, and every year we all deviate from that plan because Mother Nature has other ideas. But, just as deviation is a constant, so is adaptation.

As quick as I am to blame Mother Nature when we're grinding for good turf conditions, I'm just as quick to praise it when turf conditions are premium with little daily effort.

Regardless, how we prepare months before our current conditions set us up for success, failure or any variation in between.

Early order programs are a big part of that preparation. We've talked a lot about the constant deviations we face, but now, bask in the constant on our yearly calendar.

We know the binders and flash drives are on their way, filled with fantastic products. We know there will be savings and package deals for those products. We know the preparation for next season starts now. In a profession full of deviations, the welcomed relief of a constant will soon be with us. **G**

Chris Navin is the superintendent at The Club at P.B. Dye in Ijamsville, Md. Navin is *Golfdom's* 2023 Herb Graffis Businessperson of the Year award winner.

The importance of scouting your EOP options

A hhhh, early order. In your mind, did you hear that as a relaxing “ahhhh”? Or was it a frightened scream? Depending on how you approach early order programs, it could be either. So many products, so many packaged deals, so many savings, so many “Ahhhs.”

For many, by the time September rolls around, the end of the golf season is near. For plenty of others, their season is just starting.

There aren't many constants at this time of year. One of the few we do have is that kids are going back to school. Every August, it hits us when our invaluable college and high school team members head back to school. For some of you, it's when your own kids go back.

My daughter Charlotte is starting second grade this year, so I'm just starting to get the hang of this back-to-school business (I'll be a seasoned vet when Cody starts Kindergarten in a few years). Along with that business comes the shopping, the searching for deals and sav-

ings and all those outfits.

As parents, we try to take advantage of it and get all the supplies, clothes, book bags and lunch boxes so they have *MOST* of what they need for the school year. I say most because there's always something to forget.

Play ball!

Then, October rolls around, and it's early order season. Now, it's our turn to take advantage of all the deals, packages and savings. It's quite a bit more daunting since we are spending someone else's money, so research, education and word of mouth are all important.

With the variety of products available across all areas of managing turf, there's much to learn and keep track

of. In addition to that, new products launch every year, there are some products that didn't benefit your program that won't order and some are staples that you order every year.

Regardless of your situation, you likely attend educational seminars and meetings to exchange and learn new information. That is what convinced me to try and trust, Suprado in its very first year on the market. Then, we attend our other “meetings” at a local Buffalo Wild Wings or someone's maintenance facility parking lot, where word of mouth becomes the main source of spreading information.

Regardless of the place, take these opportunities seriously. There's plenty to be learned. But also, do your

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"We have enough (seed) for this year, but long term are we going to continue to see these variances in weather. How are we going to select for optimal seed production when we don't really know what environmental condition we need to select for," says Leah Brilman, Ph.D., director of product management and technical services for DLF.

THE WILD WEST

With unusual weather influencing grass seed production, seed prices become unstable

BY ROB DIFRANCO

Leah Brilman, Ph.D., director of product management and technical services at DLF, is a long-time Oregon resident, so she's no stranger to the weather you'd expect from the Pacific Northwest — a wet spring and a dry summer.

But the last few seasons have been different, she says, bringing unpredictability to turfgrass researchers and growers.

"I've lived in Oregon for 34 years now, and for the first 30 years, the weather was pretty predictable. But these last three years have just been weird, and it's influenced the seed crops," she says.

Like Brilman, the Fricker family are Oregon lifers. The Pure Seed brand dates back 40-plus years in the state, starting with Bill Rose and continuing with Crystal Rose-Fricker, president of Pure Seed and Pure Seed Testing.

Several of the company's species have a home on the course at Marco Simone Golf & Country Club in Rome, host of the 2023 Ryder Cup. The company also supplied turfgrass species for the 2022 World Cup in Qatar.

Rose-Fricker started working on her family's seed farm at 13 years old. Her son, Austin Fricker, now vice president of research for the

company, did the same. Both echo Brilman's feelings, the weather has never been as unpredictable as it is now in the Pacific Northwest, the country's cradle for turfgrass seed.

"It's been the most condensed growing season I've ever seen," says Rose-Fricker. "Every (species) was done flowering in about a three-week period, where normally it's spread out of six to eight weeks."

A fistful of dollars

Why is all of this a problem for those who rely on growing grass for a living, like you, the golf course superintendent?

The pricing uncertainty that has already affected mostly every product you use — fertilizer, herbicides, pesticides, etc. — is here to stay for turfgrass seed as well.

"It's kind of back to the wild west as far as pricing goes," Brilman says. "The weather is influencing grass seed production and we don't really know where it's going to finalize out."

This period of uncertainty really kicked off in 2019, when Oregon saw an uncharacteristically dry spring. That wreaked havoc on the yield for growers across the area, cutting crop yields drastically.

Continued on page 16

WHERE'S THE WATER?

With water availability issues rising, how can turfgrass adapt?

Traditionally, there are three pillars on which a great turfgrass variety is built:

- Drought tolerance;
- Cold tolerance; and
- Disease resistance.

But what about the plant's ability to use water from less than desired sources, or water that might be considered low quality?

"Not only is there importance in reducing the amount of water turf needs, but it's important to manage the different levels of water quality," says Crystal Rose-Fricker, president of Pure Seed.

To find that balance, producers like Pure Seed have shifted their focus

on how they develop new turfgrass varieties in recent years.

"We've shifted to more trait-specific varieties, so salt tolerance and being able to use lower-quality water," says Austin Fricker, vice president of research at Pure Seed. "We're seeing droughts become bigger and bigger issues, even in some places where we never thought that would be an issue."

As a result, species like seashore paspalum — which can take ocean levels of salinity, according to Rose-Fricker — have become more popular in areas of the country where access to quality water is difficult.

a lot of mergers and acquisitions happening, where retail companies were buying up large amounts of seed for home consumers," he says. "That created a lot of supply chain issues on the professional side of the market because those acquisitions were of companies traditionally involved in golf and sports turf."

As the season progressed that seed hoarded for retail consumers wasn't moving through the system, leading to inventory backups and further supply chain delays. Which, of course, led to further increases in the price of turfgrass seed for golf courses nationwide.

The good, the bad and the ugly

As far as the last year has gone, Fricker says the weather, yet again, has thrown a curveball the way of turfgrass producers.

"We had an extremely cold fall in 2022 and on top of that, it was dry all the way through October," he says. "We basically didn't have any significant rainfall from May until late October. Normally, we'd get rain into the middle of June, and it would start back up again in September."

Fricker says this meant crops didn't see much growth until the spring of 2023 when the area saw another extreme. At the beginning of May, temperatures shot up to the 90s and the rain all but stopped.

"That brings some uncertainty," he says. "A lot of the crop yield will depend on the species and the ability of the farm to irrigate the turf. Irrigated perennial ryegrass is probably OK, but anything that's dryland is going to be around 40 to 50 percent off of what the average would be."

The life cycle of perennial ryegrass — which lasts 2 to 3 years according to Fricker — is a double whammy as there isn't a backlog of acres that has been established for multiple years.

Fricker says turfgrasses such as tall fescue — which have an average life cycle of 5 to 7 years — won't see as much of a change due to the unpredictable changes in weather, at least not yet.

"It's still early, so things could change," he says. "But, from what we've seen so far, it looks like tall fescue isn't as affected, whereas perennial ryegrass is pretty bad."

Continued from page 15

That dry spell coincided with the outbreak of the COVID-19 pandemic in the United States, which raised several new issues for the turfgrass seed industry, Austin Fricker says.

"I mean it was crazy because we were coming off that short crop in 2019," he says. "We were already trying to allocate towards our most important customers, and then we had people that had never worked with us calling in because they were allocated down by their old supplier."

Similar to how most of the country reacted to the early stages of the pandemic, Fricker says the turfgrass seed industry went into a complete shutdown for the first few months of 2020.

That changed around April when the seed industry's sales picked back up as more and more people took an interest in beautifying both their lawns at home and their golf courses.

That demand was a blessing and a curse for turfgrass seed producers. To compensate for the lower crop yield in 2019, Fricker says turfgrass growers planted more acres than usual, expecting another low yield.

Instead, Mother Nature smiled upon Oregon's seed growers, leading to an extended growing season and a heavy yield in 2020. Unfortunately for those in golf, as Fricker explains, all of that extra seed wasn't necessarily there for the taking.

"On the business side of things, there were

“I’VE LIVED IN OREGON FOR 34 YEARS NOW, AND FOR THE FIRST 30 YEARS, THE WEATHER WAS PRETTY PREDICTABLE. BUT THESE LAST THREE YEARS HAVE JUST BEEN WEIRD, AND IT’S INFLUENCED THE SEED CROPS.”

— Leah Brilman, Ph.D., DLF

Continued on page 19



Turfgrass varieties go through years of testing under strenuous conditions before they're brought to market. That includes periods with no water for drought-tolerance testing or no chemical applications for disease-tolerance testing.

Superintendents describe it as reliable, proven, trusted, consistent and dependable



James Kerns

“It’s important to use fungicides because once fairy ring fungi enter a turf system, getting rid of them can be very difficult,” says James Kerns, Ph.D., professor and extension specialist in turfgrass pathology at North Carolina State University. “It could take a few years to successfully clean up a severe case of fairy ring. Pedigree is consistent and continues to perform well against diseases. Plus, it is a liquid formulation, which also helps.”

James Kerns, Ph.D.

Professor and Extension Specialist in Turfgrass Pathology at North Carolina State University

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The need for turfgrass to thrive on lower quality water sources — like saltwater or reclaimed water — has led to increased testing under extreme salt stress according to Austin Fricker, vice president of research for Pure Seed.

PHOTO COURTESY OF PURE SEED

“

“IT’S BEEN THE MOST CONDENSED GROWING SEASON I’VE EVER SEEN. EVERY (SPECIES) WAS DONE FLOWERING IN ABOUT A THREE-WEEK PERIOD, WHERE NORMALLY IT’S SPREAD OUT OF SIX TO EIGHT WEEKS.”

— Crystal Rose-Fricker,
President, Pure Seed

Continued from page 16

Know when to hold ‘em

What does this mean for superintendents looking to purchase seed in not only 2023 but the years to come? According to Brilman, more planning ahead, experimentation and innovation from golf courses across the country.

“The heat and, in some parts of the country, droughts, have increased interest in utilizing warm-season grasses over cool-season grasses in some cases,” she says.

But, as Brilman and Rose-Fricker have pointed out, it’s not just extreme heat and drought that affect golf course turf. Periods of extremely cold temperatures occur throughout the year just as much. To combat this, superintendents must make sacrifices on what time of the year they want the turf to look its best.

“In some of these environments it’s 110 or 115 degrees and most of your golfers don’t want to be out in that heat,” says Brilman. “So, if you’re getting more play in the fall, spring or even the winter months, knowing when your grass is actively growing and performing at its best is something that’s crucial.”

Atop Brilman’s list of things for superintendents to know is that the days of easily accessible turfgrass seed — specifically bentgrass — throughout the year are, more than likely, long gone.

“The stuff we have in the warehouse right now is basically spoken for already,” she says. “It’s all product for people who let us know in January or February that they were going to need it. It’s no longer possible to assume that we’re going to have everything instantaneously if you let us know in June.”

Most wanted

Rose-Fricker is quick to point out that even though turfgrass seed

A LONG, WINDING ROAD

A ‘new’ turfgrass is already a decade in the making

Researching, developing, testing and then taking a turfgrass seed variety to market is a long process. Add the fluctuations in temperature and weather year after year, and the process becomes that much more difficult for growers.

“It takes 10 years to develop a variety, so that’s 10 different environments that the test has to go through,” says Crystal Rose-Fricker, president of Pure Seed. “So right now, I’m not even selecting anything

because they’re all cooked in one of my trials.”

Despite those challenges, turfgrass breeders are still confident in their abilities to stay ahead of the game, says Austin Fricker, vice president of research at Pure Seed.

“It’s affirming to see that some of the things we’ve worked on, like more drought-tolerant ryegrass, has been worthwhile,” says Fricker. “It does make a difference and there is a place for it.”

researchers and growers are facing challenges now, that doesn’t mean there aren’t top-notch varieties on the market.

“Golf course superintendents can get comfortable with a variety on their greens if it performs well, even if it has some problems and they know how to manage it,” she says. “But, as researchers, we seed the variety side-by-side in trials at all of these different locations and it’s evident that these new genetics are so much better than the old ones.”

In order to discover those varieties, Rose-Fricker stresses, it’s crucial for superintendents to develop relationships with and ask questions of turfgrass seed providers and producers because the options are out there.

“You just have to be smart in this day and age,” she says. “There’s a lot of data and third-party validation. This isn’t the old days when people would take a picture of good-looking grass and call it whatever they wanted to sell it.”

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SPRING DISAPPOINTMENT WITH SPRING DEAD SPOT

By Mike Kenna, Ph.D.

Spring dead spot (SDS) is a destructive disease that affects bermudagrass but rarely harms zoysiagrass or buffalograss. This fungal disease can lead to significant damage and economic losses on golf courses if uncontrolled.

The name stems from its characteristic symptom, where circular patches of dead or dormant grass emerge in the spring as bermudagrass begins its active growth phase. These patches are typically 6 inches to 3 feet in diameter and are more pronounced in colder regions with prolonged winter conditions.

The disease is caused by three species of *Ophiosphaerella*, with *Ophiosphaerella herpotricha* being the most common and aggressive pathogen. The fungus overwinters

in infected plant debris and thatch, becoming active as temperatures rise in the spring. The spread primarily occurs through the movement of infected plants or infested soil by equipment, people, animals and running water.

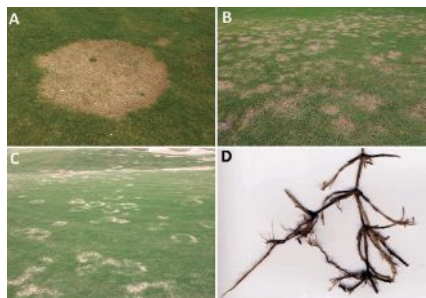
The pathogen attacks the roots and rhizomes, causing necrosis and hindering the plant's ability to take up water and nutrients. When the turfgrass breaks dormancy, the result is the formation of dead patches, which can persist throughout the spring and into early summer.

Several factors contribute to the development of SDS. The disease is more

severe in poorly drained soils with high thatch buildup. Compacted soils, improper irrigation and lack of proper cultural practices can also exacerbate the problem.

Management of SDS involves an integrated approach. Cultural practices such as proper mowing, adequate irrigation and avoiding excessive nitrogen fertilization are essential to maintain a healthy bermudagrass stand. Aerating the soil to reduce compaction and promote good drainage can also be beneficial. Newer bermudagrass cultivars selected for improved cold tolerance and resistance to SDS are less susceptible.

Fungicide applications are critical in controlling SDS. Experts recommend applying fungicides preventatively during the fall and early spring to protect the turfgrass from infection and minimize the impact of the disease. Fungicides containing active ingredients such as azoxystrobin, propiconazole or thiophanate-methyl have shown effectiveness.



NEWS UPDATES

ENVU'S RESILIA NOW AVAILABLE FOR PURCHASE

Envu's Resilia root health solution is now available for purchase in registered states.

According to the company, Resilia protects roots from destructive soilborne pathogens for up to 21 days and most up to 28 days.

The solution controls major root diseases in both cool-season and warm-season turf, according to Envu, allowing roots to stay healthy and reach their full potential.

"The results we observed with Resilia root health solution in our spring dead spot trials were shocking," Jim Kerns, Ph.D., professor and extension specialist of turfgrass pathology for NC State University. "It provided excellent control."

The company adds that Resilia works well in conjunction with its Stressgard fungicides, to improve plant health both above and below ground.

**OPHIOSPHAERELLA
ARE THE FUNGAL
PATHOGENS THAT
CAUSE THE DISEASE
... THESE INFECTIONS
PREDISPOSE THE TURF
TO WINTER INJURIES."**

**J.N. Ploetz, E.L. Butler, C.M. Stephens
and J.P. Kerns**

(see story on page 22)

Understanding what causes SDS and implementing proper management practices, including cultural techniques and fungicide applications, are crucial in preventing and controlling the disease. **G**

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Fungicide efficacy on spring dead spot-infected bermudagrass

By J.N. Ploetz, E.L. Butler, C.M. Stephens and J.P. Kerns

Spring dead spot is a fungal disease that affects bermudagrass and zoysiagrass. As the name suggests, it typically appears as circular patches of dead or dormant grass in the spring. *Ophiophora* spp. are the fungal pathogens that cause the disease by infecting the roots and crowns of the grass during the fall. These infections predispose the turf to winter injury.

Spring dead spot thrives in poorly drained or compacted soil with heavy thatch. Cultural practices such as proper watering, fertilization and aerating can help prevent and manage the disease. Fungicides may be necessary for severe cases.

We conducted three fungicide efficacy studies at the North Carolina State University Turfgrass Field Lab in Raleigh, N.C., on 'Champion' bermudagrass maintained as a golf course putting green with USGA spec mix. Two of the experiments focused on adelpidyn (Syngenta) fungicide mixtures.

Adelpidyn provides effective control of a wide range of plant diseases, including those caused by *ascomycetes* and *basidiomycetes* fungi. It exhibits preventative, curative and translaminar properties, which means it can protect treated plant parts and penetrate the plant tissue to combat existing infections.

We mowed plots six times per week

TABLE 1

Fungicide trade name, active ingredients, FRAC* group, and company tested at North Carolina State University.

Trade name	Active ingredient	FRAC Group	Company
Appear II 4.1 SC	Potassium phosphite		Syngenta
Headway 1.39 ME	Azoxystrobin + Propiconazole	3 11	Syngenta
Kabuto 3.35 SC	Isofetamid	7	PBI-Gordon Corp.
Lexicon Intrinsic	Fluxapyroxad + Pyraclostrobin	7 11	BASF
Navicon SC	Mefentrifluconazole	3	BASF
Posterity 1.67 SC	Pydiflumetofen	7	Syngenta
Tekken 1.8 SC	Isofetamid + Tebuconazole	3 7	PBI-Gordon Corp.
Velista 0.5 WDG	Penthiopyrad	7	Syngenta

* Fungicide Resistance Action Committee

at 0.15 inches with clippings collected. For each experiment, individual plots were 3-by-6 feet and arranged in a randomized complete block design with four replications.

We applied treatments in water equivalent to 2 gallons per 1000 sq. ft. for each experiment with a CO₂-powered sprayer with a single TeeJet AI9508E nozzle at 50 psi.

EXPERIMENT 1

We applied treatments on Oct. 18 and Nov. 8, 2018, and immediately

watered in with 0.2 inches post-application irrigation. We assessed spring dead spot severity on April 16, May 7 and May 21, 2019, using a 281 intersect grid to determine the area within each plot exhibiting symptoms. The area under the curve (AUC) was calculated using the trapezoidal method with the formula $\sum [(y_i + y_{i+1})/2][t_{i+1} - t_i]$, where $i = 1, 2, 3, \dots, n-1$, where y_i is the rating, and t_i is the time of the i th rating.

Spring dead spot severity peaked at 26.8 percent on April 16 in the nontreated control plots and above 17 percent in the nontreated control through May 21 (Table 2). All treatments suppressed spring dead spot compared to the nontreated control at each rating date. Plots treated with Lexicon Intrinsic (BASF) and Velista (Syngenta) had AUDPC values that were not statistically different from nontreated control plots.

Continued on page 25

Spring dead spot thrives in poorly drained or compacted soil with heavy thatch. Cultural practices, such as proper watering, fertilization and aerating can help prevent and manage the diseases.



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TABLE 2

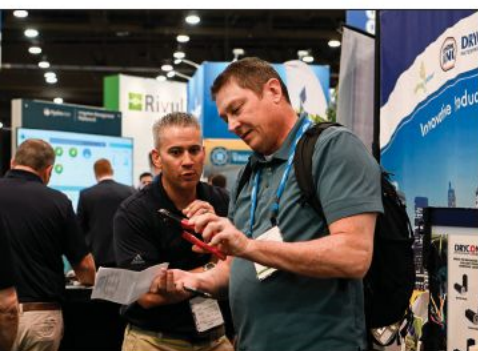
Fungicides were applied in the fall of 2018 to control spring dead spot in a 'Champion' bermudagrass putting green.

Treatment, formulation, rate/1000 sq. ft.	Application Code ^z	Spring dead spot severity (percent)			Spring dead spot AUDPC ^y
		April 16	May 7	May 21	
Kabuto 3.3SC 1.0 fl. oz.	AE	1.9 bx	0.6 b	0.2 b	27.5 cd
Kabuto 3.3SC 1.6 fl. oz.	AE	0.1 b	0.0 b	0.0 b	0.5 e
Kabuto 3.3SC 0.75 fl. oz. + Tekken 1.8SC 3.0 fl. oz.	AE	0.5 b	0.2 b	0.1 b	5.0 de
Kabuto 3.3SC 1.2 fl. oz. + Tekken 1.8SC 3.0 fl. oz.	AE	0.1 b	0.1 b	0.0 b	0.9 e
Lexicon Intrinsic 4.17SC 0.47 fl. oz.	AE	9.2 b	7.3 b	5.8 b	249.7 ab
Velista 0.5WDG 0.7 fl. oz.	AE	5.7 b	4.9 b	2.6 b	107.7 abc
Posterity 1.67SC 0.32 fl. oz.	AE	7.3 b	4.2 b	1.9 b	72.8 bc
Navicon SC 0.85 fl. oz.	AE	4.4 b	2.9 b	1.3 b	38.8 bcd
Nontreated control	A	26.8 a	21.2 a	17.7 a	690.4 a

^z Application code indicates the date of each treatment: A – Oct. 18 and E – Nov. 8, 2018.

^y AUDPC represents the Area Under Disease Progress Curve.

^x Means within columns followed by the same letter are not significantly different according to Fisher's Protected LSD test ($P=0.05$).



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TABLE 3

Fungicides were applied in the fall of 2019 to control spring dead spot in a 'Champion' bermudagrass putting green.

Treatment, formulation, rate/1000 sq. ft.	Application Code ²	Spring dead spot severity (percent)		
		April 16	May 7	May 21
A19649H 1.67SC 0.16 fl. oz.	AE	16.9 by	12.7 b	4.4 b
Posterity 1.67SC 0.16 fl. oz.	AE	14.2 bc	9.6 b	5.1 b
A19649H 1.67SC 0.32 fl. oz.	AE	3.5 de	1.4 c	0.8 c
Posterity 1.67SC 0.32 fl. oz.	AE	8.2 cd	3.7 c	1.4 c
Velista 0.5WDG 0.5 fl. oz.	AE	3.1 de	1.1 c	1.1 c
Posterity 1.67SC 0.24 fl. oz.	AE	2.4 e	1.0 c	0.3 c
Nontreated control		37.4 a	36.2 a	26.1 a

¹ Application code indicates each treatment date: A – Oct. 17 and E – Nov. 22, 2019.

² Means within columns followed by the same letter are not significantly different according to Fisher's Protected LSD test (P=0.05)

Continued from page 22

EXPERIMENT 2

In this experiment, we applied treatments on Oct. 17 and Nov. 22, 2019 and

immediately watered in with 0.2 inches post-application irrigation. We evaluated spring dead spot severity on March 27, April 28 and May 26, 2020 to visually

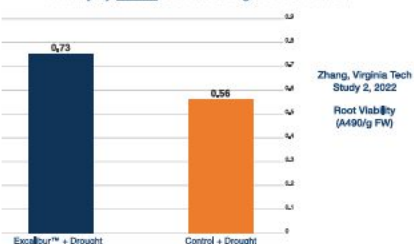
estimate the percent symptomatic area within the plot. Data were subjected to analysis of variance and mean separation

Continued on page 26

Volumetric Water Content and Surface Firmness



Under simulated heat and drought stress, Excalibur increased root viability by 29.6% over the drought stress control

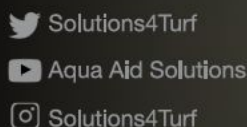


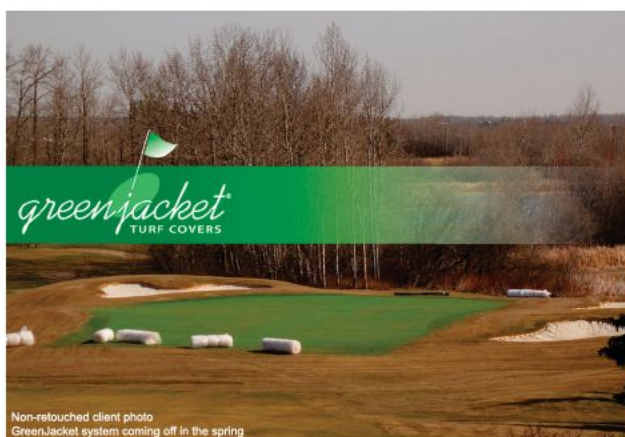
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Continued from page 25

by Fisher's Protected LSD test ($P = 0.05$).

Spring dead spot 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 (Table 3). All treatments suppressed spring dead spot when compared to the nontreated control at each rating date. On April 28 and May 26, plots treated with Posterity (Syngenta) at 0.24 fl. oz and 0.32 fl oz, A19649H at 0.32 fl oz, and Velistat provided better suppression of spring dead spot than the other two treatments.

EXPERIMENT 3

We initiated treatments for this experiment on Oct. 17 and reapplied either on Nov. 9 or Nov. 21, 2019. Fungicides were immediately watered in with 0.2 inches of post-application irrigation. We assessed spring dead spot severity on March 27, April 28, and May 26, 2020, to visually estimate the percent symptomatic area within the plot. Data were subjected to analysis of variance and mean separation by Fisher's Protected LSD test ($P = 0.05$).

Spring dead spot severity peaked at 25.9 percent on March 27 in the nontreated control plots, only dropping to 21 percent in the nontreated control by May 26 (Table 4). All treatments suppressed spring dead spot when compared to the nontreated control on each rating date. **G**

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Research Takeaways

- An October and November application of Kabuto (PBI-Gordon) 3.3SC at 1.6 fl. oz. per 1000 ft. sq. significantly controlled spring dead spot in bermudagrass.
- Lower Kabuto application rates of 0.75 and 1.2 fl. oz. per 1000 sq. ft. in combination with Tekken (PBI-Gordon) 1.8SC at 3.0 fl. oz. provided adequate control.
- Lexicon Intrinsic 4.17 SC at 0.47 fl. oz. and Velistat 0.5 WDG at 0.7 fl. oz. per 1000 ft. sq. provided some control; however, both fungicides did not have significantly different AUDPC estimates compared to the nontreated control in 2018.
- Two fall applications of Posterity 1.6SC at the higher rates of 0.32 and 0.24 fl. oz. performed significantly better than the nontreated control.
- In 2019 Velistat 0.5 WDG at 0.5 oz per 1000 ft. sq. performed better than the previous fungicide trial in 2018.
- All application rates of both Posterity Forte 2.5SC and Posterity 1.67SC alone and combined with Headway (Syngenta) 1.39ME applied at 1.5 fl. oz. per 1000 ft. sq. provided significant control compared to the nontreated control.

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TABLE 4

Fungicides were applied in the fall of 2019 to control spring dead spot in a 'Champion' bermudagrass putting green.

Treatment, formulation, rate/1000 sq. ft.	Application Code ^z	Spring dead spot severity (percent)		
		March 27	April 28	May 26
Posterity Forte 2.5SC 0.42 fl. oz.	AE	2.4 b ^y	1.2 b	1.4 b
Posterity Forte 2.5SC 0.84 fl. oz.	AE	6.3 b	0.8 b	2.0 b
Posterity 1.67SC 0.16 fl. oz. + Headway 1.39ME 1.5 fl. oz.	AE	3.8 b	0.8 b	1.1 b
Posterity 1.67SC 0.16 fl. oz. Posterity 1.67SC 0.32 fl. oz. + Headway 1.39ME 1.5 fl. oz.	A E AE	3.5 b	0.7 b	1.3 b
Posterity 1.67SC 0.32 fl. oz. + Headway 1.39ME 1.5 fl. oz.	AD	2.3 b	0.6 b	1.6 b
Posterity 1.67SC 0.32 fl. oz. + Headway 1.39ME 1.5 fl. oz.	AE	3.4 b	0.7 b	1.3 b
Posterity 1.67SC 0.32 fl. oz. + Headway 1.39ME 1.5 fl. oz. + Appeal II 4.1SC 6 fl. oz.	AE	2.3 b	0.2 b	0.3 b
A22721F 2.5SC 0.262 fl. oz.	AE	0.9 b	0.3 b	0.0 b
Nontreated control		25.9 a	25.5 a	21.0 a

^z Application code indicates each treatment date: A – Oct. 17, D – Nov. 9, and E – Nov. 21, 2019.

^y Means within columns followed by the same letter are not significantly different according to Fisher's Protected LSD test (P=0.05).



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James Surico
Senior Assistant Superintendent
North Jersey Country Club, NJ





Snow removal is labor intensive and can damage greens, meaning it's important to only do it when absolutely necessary.

When — and why — superintendents should remove snow

Superintendents' snow removal strategies will vary from one course to the next.

By Chris Lewis

As superintendents prepare to remove snow from their greens in the winter, they generally do so for a few reasons, says Kevin Frank, Ph.D., professor and turf extension



Kevin Frank

specialist in the Department of Plant Soil and Microbial Sciences at Michigan State University.

A superintendent could remove snow before it melts to prevent ice formation, or they may remove it to expose and eliminate underlying ice layers.

Superintendents in mountain regions may remove snow to uncover their greens if they believe they're susceptible to snow mold. They may even attempt to hasten the melting process, potentially leading to a prolonged golf season.

"Such snow removal strategies are especially necessary on *Poa annua* greens, as they have much shorter time frames for survival under ice, in comparison to creeping bentgrass," Frank stresses.

Paul Koch, Ph.D., associate professor in the Department of Plant Pathology at the University of Wisconsin-Madison, agrees, adding that superintendents should also remove

snow from their greens if ice forms underneath it at the turf surface. He adds that superintendents should remove snow if its depth is considerable, which leads to a long melting process — two common issues in the Midwest, Mountain West and Northeast.



Paul Koch

"The goal is to minimize turf's injury from ice, along with damage from snow mold," Koch says. "Snow cover at a moderate depth (6 inches to a few feet) is very good for turf, as moisture will remain and greens won't dry out or have exposure to cold temperatures. However, if snow cover is extremely deep or it protects ice, turf can die, resulting in its necessary removal."

While preparing to remove snow from their greens, superintendents must remember that it's typically a difficult, expensive and labor-intensive process, which must only occur when it's absolutely vital.

"It's really a course-by-course situation," Frank emphasizes. "Superintendents must consider all conditions and conduct the process as carefully as possible." ©

PHOTOS COURTESY OF ENNA; KEVIN FRANK (INSET)

Envu

ZAC REICHER, PH.D.
Green Solutions Team Specialist



In most cases, superintendents should let nature take its course. Not only is snow removal time-consuming, but it may also damage turf and remove the warm, insulating blanket that snow provides, thereby exposing turf to desiccating winds and low temperatures. Consequently, the risks outweigh the benefits in most situations. However, there are some instances in which snow removal makes sense. For example, on high-elevation courses, some superintendents will remove snow after 3 to 4 months of snow cover and then reapply a second fungicide application to protect turfgrass for the next 2 to 3 months. Other courses may remove snow in early April — when extreme temperatures are no longer a concern — so they're playable sooner. Lastly, superintendents should remove snow when it covers an impermeable ice layer. Typically, turf can survive underneath ice for 60 to 90 days.

Syngenta

RON TOWNSEND
Technical Service Representative



Snow mold fungicide applications are crucial if courses experience persistent snow cover. Typically, superintendents should apply them as close to snow cover as possible, to maximize efficacy. If snow cover occurs before a preventive fungicide application, superintendents should consider removing snow so that they can make any necessary protective snow mold applications. Additionally, superintendents should remove snow if ice accumulates underneath it, as anoxia — due to increasing carbon dioxide levels, often a direct result of soil microbial activity — may damage *Poa annua* greens, which generally have a higher concentration of native soil. Therefore, superintendents, who manage *Poa* greens, should constantly check for ice accumulation and remove it. Aggressive ice removal strategies should begin once the turf has been underneath ice for 30 days. From there, less aggressive strategies can extend to 90 days, if necessary.

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Technical Service Manager,
Northeast and Midwest



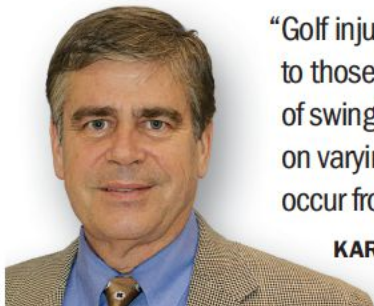
In some circumstances, snow cover can be beneficial for turfgrass. Snow acts as an insulating blanket, protecting turf from extreme temperature fluctuations and desiccation during winter. As a result, soil maintains its moisture and turf won't dry out or become susceptible to winter damage. By removing snow, superintendents can remove the protection that turf — in areas with cold climates and consistent snowfall — needs, thereby exposing it to harsh conditions and potential damage. Superintendents should remove snow in certain situations though, particularly when it becomes excessively heavy or it's exposed to frequent freeze-thaw incidents, which causes ice to form. Ice formation can lead to compaction and suffocation, resulting in snow mold and other diseases. This is especially true when cool-season turf remains partially active during winter months, and excessive ice cover creates a barrier that restricts sunlight and air circulation.

Quali-Pro

BOBBY KERR, PH.D.
Technical Service Manager



Superintendents should prioritize removing snow from greens during the spring, as thaw-refreeze events can cause serious winterkill. Snow removal is particularly necessary when surfaces have a mixed stand of *Poa annua* and creeping bentgrass. In addition, superintendents must ensure they have adequate surface drainage so they can remove standing water as snow melts. To do so, they can remove small strips of sod, which encourages the removal of standing water. Superintendents must also remember that snow cover limits the amount of sunlight that surfaces receive. It's important to initiate good, healthy growth in the spring for the season ahead. Furthermore, although snow doesn't typically accumulate to the same degree in the transition zone or below, if superintendents maintain warm-season turf, removal is still important. After all, if turf doesn't have exposure to sunlight, unhealthy growth may occur.



"Golf injuries, however, are not just limited to those associated with the physical action of swinging a golf club. Since golf is played on varying natural landscapes, injuries can occur from just walking the golf course."

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

How to injury proof the golf course

For those around the golf profession, there is little doubt that it is a competitive sport. Yet, to some, golf may appear more of a hobby or a leisure activity. What contributes to this questioning of golf might be rooted in its diversity of play.

You can play golf competitively by the rules, or you can play by your own rules; you can walk and carry your bag or ride around in a cart with music and a drink; you can play with a group or alone.

The health benefits associated with the physical exertion of golf were published in a research report by the R&A entitled *Golf and Health*. One of many benefits described derived by this study is that "golfers under the age of 80 had better strength and balance than sedentary non-golfers of similar ages."

Golf encompasses four major sports components — competition, physical effort, skill and rules. Given the effort hitting a golf ball a long way demands, a high level of physical fitness and conditioning is needed for a top-level golfer.

Gordon Sargent, a member of the Vanderbilt golf team, received considerable media attention this past summer for being the low amateur at the 2023 U.S. Open at Los Angeles Country Club.

His ball striking, as measured in ball

speed and clubhead speed, are what really made him popular, especially on social media. The average golfer's club head speed is around 93 mph. Mr. Sargent's normal ball speed is above 185 mph, with a personal best of 197 and a clubhead speed of 132 mph.

THE TURF MONSTER

Increasingly injuries to the lower back, wrist and neck are associated with swinging the golf club. Famous golfers like Tiger Woods have suffered back and neck injuries, while Paula Creamer, for example, has battled past wrist injuries. At current swing speeds being generated by elite golfers, how can injuries not be a part of the game?

Golf injuries, however, are not just limited to those associated with the physical action of swinging a golf club. Since golf is played on varying natural landscapes, injuries can occur from just walking the golf course.

This summer, I tore a calf muscle

walking up a relatively steep incline to tee off. The injury subsequently ended the golf season for me.

Although embarrassing to tell my healthcare specialist I injured my leg playing golf, I found out that it's a pretty common place to pick up an injury. The physical therapist conveyed stories of patients injured walking in and out of a bunker, around a steep pond or green embankment and even getting in and out of a golf cart.

BUNKER ETIQUETTE

Golf is described, by some, as an enjoyable walk through nature. I would suggest it's more like hiking, as you navigate the sometimes-sharp contours of a golf course.

Take, for example, bunkers. Increasingly, to challenge the improving skills of golfers, bunkers are becoming deeper with steeper faces. The increasing difficulty of bunker shots has increased the potential for lower leg stress, combined with balance issues climbing into and then out of the bunker.

One important point of bunker accessibility is the placement of bunker rakes. How often do you find bunker rakes on the steepest side of the bunker, requiring you either walk down a steep incline to get to the rake or through the bunker and up an incline to retrieve it?

Bunker rakes often direct the golfer to the point of bunker entry. Why not place rakes strategically that draw a golfer to the safest and less stressful means of entering a bunker?

While the majority of golf injuries associated with swinging a club are beyond our control, others can be minimized by identifying potential points of injury by being observant while walking the golf course and through the daily setup routine. **G**

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

How to stop the spread of kyllinga

Experts share how you can ID and control this pesky weed

By Brian Love

According to Peter Landschoot, Ph.D., professor of turfgrass science at Penn State University, kyllinga is a particularly pesky turf pest in the Northeast, affecting areas as far north as Connecticut and as far west as Pennsylvania.

In addition to Landschoot, Fred Yelverton, Ph.D., extension specialist at NC State University, and Matt Elmore, Ph.D., associate extension specialist at Rutgers University, discuss what to monitor to stop the spread of kyllinga.

HOW TO SPOT IT

Kyllinga is a genus of flowering plants in the sedge family known as spike sedges. Landschoot says it is often mistaken for nutsedge, a weed that infests lawns and flower gardens.

To spot the differences between kyllinga and nutsedge, Landschoot recommends checking the color of the weed. He adds that a darker shade of green usually means you're dealing with kyllinga.

On top of the shade of color, differences include:

- Kyllinga leaf blades are narrower;
- Kyllinga has three-sided stems, meaning when you cut it in a cross section, the stem is triangular;
- Nutsedge will produce nutlets, a small nut or seed, that must be dug out from the soil.

What consequences come from misidentifying kyllinga? They vary, but according to Landschoot, the most notable is the spread of kyllinga into large, unsightly, patches.

Patches of kyllinga spread via underground stems called rhizomes, especially from May through September when the

spread becomes aggressive, Landschoot says. Kyllinga may die during the fall and remain dormant during the winter months, but he warns that it can resume once springtime hits.

Another element that varies is which part of the turf is most susceptible to



Peter Landschoot

the weed. Landschoot says that fairway turf and tee areas are the most likely victims of kyllinga because these areas can tolerate low mowing heights, thus making it easier for kyllinga to spread.

The weed is not just limited to those specific areas, however.

Yelverton explains that kyllinga does not discriminate what turf area or species it invades. He does say that the weed prefers wet soils, making soil

moisture monitoring an important way to scout for potential outbreaks.

HOW TO STOP IT

Yelverton recommends products containing sulfentrazone for control. In addition, he says superintendents can use products with halosulfuron on cool-season turf as it usually only requires two applications.

Elmore recommends using imazosulfuron (Celero, Nufarm) when dealing with kyllinga, a postemergent herbicide that spreads to the roots to deliver control of the plant.

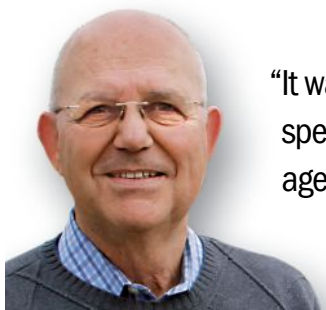
"We found that active ingredients that are used for nutsedge control can be most effective at dealing with kyllinga," Elmore says. "There are other effective active ingredients that we have found, such as pyrimisulfan."

Landschoot says that, even though kyllinga is though it is not a major weed in some regions of the country, it's always good a good idea to monitor movement no matter where you are.

"It's not as pervasive as some other weeds we deal with, but it's important to learn to recognize it," he says. "If you see it coming into your fairways, get on it fast so it can't spread." **G**



(Top left) If left untreated, kyllinga can spread into large patches; (bottom left) Kyllinga (left) and yellow nutsedge; (right) Patches of kyllinga on Kentucky bluegrass.



"It was not until 1989 that *Ophiosphaerella* species were discovered as the causal agent of SDS in bermudagrass."

MIKE KENNA, PH.D., Research Editor

Two names, one disease

The symptoms of spring dead spot (SDS) were first described in a publication from Oklahoma in the 1950s, although information indicates that the disease was present in Oklahoma as early as 1936.

The cause of the disease was unclear, but certain fungi seem to be involved. At the time, pathologists in Australia and California believed the causal pathogen to be *Leptosphaeria narmari* and *Leptosphaeria korrae*; however, there were doubts that this was true.

Leon Lucas, Ph.D., North Carolina State University, and postdoctoral research associate Bert McCarty, Ph.D., received funding from the USGA for SDS research. In 1986, they coordinated fall fungicide trials in Alabama, North Carolina and Virginia on fairways with SDS in the spring.

Rubigan (fenarimol) and Tersan (benomyl) provided the best control. Also, avoiding late fall nitrogen fertilization and preventing excessive thatch accumulation were thought to decrease disease occurrence.

During the 1990s, the USGA supported research to evaluate alternative disease control methods in response to environmental concerns and increasing restrictions on chemical pesticides.

A NEW THEORY

In 1991, William Casale, Ph.D., and Howard Ohr, Ph.D., University of Cali-

fornia, Riverside, sampled sites where the disease declined naturally. They thought the decline may be due to the increased activity of indigenous microorganisms. One hundred forty-seven microbial organisms were isolated from a UCR bermudagrass plot showing a decline of SDS caused by *Leptosphaeria korrae*. The disease had spread sufficiently so that green, symptomless patches were evident in the center of brown, diseased areas. They performed a comparison of microbial profiles from each of these areas.

Among this collection were 41 bacteria and 19 fungi that inhibited *Sclerotium rolfsii* growth (cause of southern blight) by antibiosis and six fungi that parasitized *S. rolfsii* in petri-dish experiments. Growth of *Rhizoctonia solani* (cause of brown patch) was inhibited by 25 bacteria and 26 fungi from the collection in the lab. Greenhouse studies narrowed the biocontrol candidates to one bacterial and one fungal isolate for field testing on SDS.

In a 1993 field experiment, the researchers compared bacterial and fungal isolates to fungicide treatments (e.g., Rubigan, Lynx and Bayleton). Un-

fortunately, there was no significant control compared to the untreated using the biocontrol agents.

GOTCHA!

It was not until 1989 that *Ophiosphaerella* species were discovered as the causal agent of SDS in bermudagrass. Research by Ned Tisserat, Ph.D., Kansas State University, identified this fungus as the primary pathogen causing SDS symptoms in bermudagrass. Identifying *Ophiosphaerella* as a causal agent marked a significant step in understanding the disease and developing effective management strategies for controlling SDS.

We now know that three closely related root-rotting fungi called *Ophiosphaerella korrae* (previously called *Leptosphaeria korrae*), *O. herpotricha* and *O. narmari* cause SDS. It's essential to determine which *Ophiosphaerella* species is the cause of SDS at a specific location because these pathogens may differ in seasonal development, sensitivity to fungicides and aggressiveness to individual bermudagrass cultivars.

Research in the early and mid-2000s by Nathan Walker, Ph.D., Oklahoma State University, showed that the fungus was able to colonize roots without causing cell death (necrosis) in the early stages of infection of Midlawn and all stages of *C. transvaalensis*.

However, infection of Tifway 419 roots almost always resulted in necrosis. Thus, bermudagrass susceptibility may result from its cell death response, while *C. transvaalensis* tolerance could stem from nonrecognition to a fungus presence.

Selecting cold-tolerant cultivars, mapping spring disease outbreaks for fall fungicide treatments, managing thatch and reducing fall nitrogen applications can significantly reduce SDS. **G**

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

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PBIGordon.com



2

2 | Green Dream Retractable Barrier

The **GREEN DREAM** Retractable Barrier system requires less manpower and, once in place, superintendents can extend and retract its barriers as needed. The system's visible design maintains the natural look of the golf course while promoting safety — making it fit for applications around construction areas and more.

GreenDreamLife.com



3

3 | Pure Eclipse creeping bentgrass

Pure Eclipse from **PURE SEED** features a dark green color and fine leaf texture that produces a reliable playing surface on greens, tees and fairways. Pure Eclipse variety pairs wear tolerance with disease resistance to brown patch, anthracnose, dollar spot, and pink snow mold and the ability to compete against *Poa annua*.

PureSeed.com



4

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5



6

4 | ProGator GPS Precision Sprayer

The **JOHN DEERE** GPS PrecisionSprayer increases application accuracy and consistency, decreases input costs and reduces operator fatigue. Automated individual nozzle control allows operators to turn boom sections on and off with AutoTrac Guidance, limiting manual labor and wasted product from pass-to-pass overlap while spraying in less time. Users can create coverage maps that can be shared with multiple units, eliminating application overlap.

Deere.com

5 | Tuque ExoGEM

Tuque ExoGEM from **SYNGENTA** provides snow mold control with a new formulation that helps protect the active ingredients — solatenol and fludioxonil — from unpredictable weather conditions. Superintendents can also tank mix the fungicide with Posterity XT, Daconil WeatherStik and Banner Maxx II. Tuque also provides control of in-season turf diseases, such as anthracnose, leaf spots and brown ring patch.

GreencastOnline.com

6 | WTP-T03 Trash Pump

The WTP-T03 Trash Pump is one of several offerings in both semi-trash and trash pumps from **MI-T-M**. The WTP-T03 features a 3-inch suction and discharge size with a suction lift of 28 feet and is capable of handling solids up to 1 inch in diameter. The pump features a heavy-duty powder-coated wraparound frame, along with an industrial OHV engine and a cast iron impeller for increased durability and longevity.

MITM.com

The 19th Hole



Patrick Joy

GOLF COURSE SUPERINTENDENT // Boot Ranch, Fredericksburg, Texas

Patrick, drinks are on me. What are you having? I've gotten into Yuengling Light. Especially in the summer, it's a good light beer.



Tell me about Boot Ranch. It's an 18-hole course with a 35-acre practice facility. It's a really cool, unique piece of property. Hal Sutton bought this ranch in 2005 and had this huge vision for a championship golf course in the Hill Country in the middle of Texas. Twenty years later, we've accomplished that vision ... they did a remarkable job using the lay of the land. It's a course that you play and enjoy, but you also remember it.

What about Fredericksburg? It's a really cool little town of German descent, over 100 years old. We're at 2,000 feet elevation, which is nice because we're a little more arid and not as humid as other parts of Texas. One thing I didn't know about it until I moved here — there are about 65 wineries, so our Main Street is very popular on the weekends. Something about the climate, they can grow grapes here.

How about growing turfgrass? These last two years have been an anomaly. We've been really dry and set drought

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records a few years in a row. It's been over 100 degrees 50 days in a row. No grass likes to grow when it's over 100. It's definitely been challenging, but we take it day by day.

You're from upstate New York ... how did you and Leah adapt to moving to southern Texas? We've absolutely fallen in love with living in Texas. We're both outdoors people. We can go hiking, to the beach, to the lake. You can rent a boat for a day, or you can float the rivers ... when it does rain and the rivers are flowing.

You're a Bills fan. Have you found a good spot to watch the games, or did you just have to settle in with the Cowboys fans? One thing that is unique about Bills fans is that we're everywhere, especially nowadays. There's something called "Bills Backer-Bars,"

there's a huge list of them, they're worldwide. There's one about 45 minutes away in San Antonio. I'm so glad I found it. It's raucous, they play our shout song on the PA every time we score.

Who, or what, is your archenemy?

If I put my superintendent hat on, it's Mother Nature. It hasn't been kind to us down here for the last couple of years. If you want to go sports? It used to be the New England Patriots ... but now it's your Kansas City Chiefs.

What do you miss most from back home?

I'm from a small town called Ilion, N.Y. Smack dab between Albany and Syracuse. Honestly, it's the food. Texans just haven't figured out pizza or wings yet.

As interviewed by Seth Jones, August 14, 2023.





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2023

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The Fall Classic

Tips to trust and mistakes to avoid during EOP season

Three former superintendents share what they learned about the EOP season and what mistakes they wouldn't repeat

By Brian Love

The month of September marks the end of the summer and the start of the fall season. With the autumn months comes the arrival of cooler temperatures, falling leaves and the promise of the winter. For superintendents, it also means the arrival of early order program (EOP) season.

During this time, superintendents prepare for the upcoming season. They

HAS INFLATION AFFECTED YOUR OPERATIONS IN 2023?



Source: *Golfdom* reader survey, August 2023.

look at the prices of products, see what they have used in the past, attempt to lock in a price and deal with issues (such as inflation) as early as possible.

Golfdom asked three former superintendents for their best tips and the most common mistakes during the EOP season.

Owen Coulson, owner and operator of golf course consulting business Grass Mentor, Paul Blodorn, key accounts manager for Quali-Pro, and Josh Lewis, partner/consultant at Grado-ville and Hertz Management Group, share their history with early order programs and offer what you can learn from their experiences.



Owen Coulson

Just do it

"Just do it" can be a powerful phrase. The phrase encourages people to move past any nerves and do what needs to

HEART OF THE ORDER			
	REASON TO PARTICIPATE	POS.	CHANGE
1			
2			
3	Locking in prices		
4	Taking advantage of rebates		
5	Ensuring products will be available		
6			
7			
8			
9			

be done. It's also the top tip Coulson, former superintendent at Vestavia CC in Birmingham, Ala., has for superintendents during EOP season.

Coulson says that superintendents already deal with too much stress. From managing the members to handling general maintenance on the course, it is always a plus when stress can be removed or reduced in any way.

"If you take all the stress that is already on a superintendent and add on (purchasing products), it can be overwhelming," he says. "Will they need this product because they know this disease? Will they know something is being delivered? You call every representative in the territory, and maybe none of them can get that product at

GETTY IMAGES VECTOLOOP / DIGITALVISION VECTORS (EOP LOGO); MAXIMIZABE / ISTOCK-GETTY IMAGES PLUS (HEADER); ADMIRALZ / E+ (BASEBALL); TOLGA TEZCAN / E+ (PAPER BACKGROUND)

that moment. Going ahead and doing it can reduce the stress of needing to worry about what you will need in the next season or year.”

Coulson adds that every season is not identical. Coming out of the summer, it is easy for a superintendent to not immediately jump into planning the EOP season. However, tackling it head-on helps to get the task done much earlier.

A fun bonus for him is the points and rewards from EOP purchases. Through his participation in EOPs, Coulson says he often used points for shirts, which he would give to his team members at the end of the year.

“When I go ahead and do it, it can be all done by October,” Coulson says. “By having that done, and letting (the product) sit on my shelf, it’s one less thing I have to worry about. It is good to get ahead while you can remember what the season has been like.”

Cover all your bases

Josh Lewis, former superintendent at Sharon Heights CC in Menlo Park, Calif., and at Chambers Bay GC in University Place, Wash., says it is critical to be as organized as possible entering the season.

“Remember that it is the busiest time of the year for your vendor partners through this process,” Lewis says. “They are trying to get around. They see a lot of people. You want to be efficient with their time.”

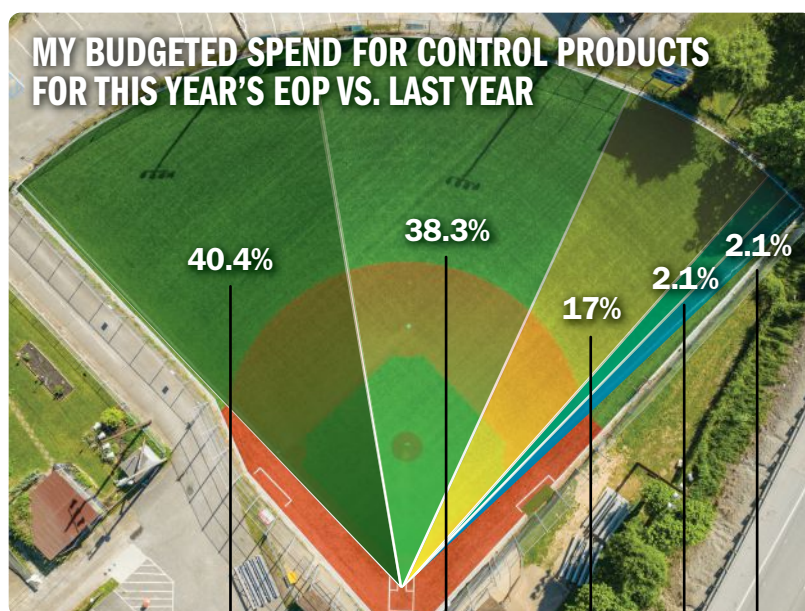
To do this, he says superintendents need to be as prepared as possible and

Continued on page EOP4



“Having a plan helps you know what you need, from fertilizer applications to topdressings. You can develop a really solid idea of what you need to spend on the large line items. The EOP season is a great kickoff in the budget season.”

— Josh Lewis



Flat

1 to 9% higher

More than 10% higher

1 to 9% lower

More than 10% lower



The Fall Classic

Continued from page EOP3

work together with vendors to cover all their needs.

Lewis says his top priority was to ensure his agronomic plan was solid. He would do his “year in review” in September before the salespeople show up in October. That way, he knew about any changes that he wanted to make. Anything he saw in the previous year that didn’t work, he would apply the necessary needs and changes to the plan.

“My way of looking is that the season will always start with my agronomic plan,” Lewis says. “I can put together a really solid program that will allow me to take the best advantage of each opportunity. The season is always a major avenue for savings and deficiencies, in my experience.”

For why this is his number one piece of advice, Lewis keeps it simple: being organized and having a plan helped him to cover all his bases. He reiterates that all the companies are putting a lot of time into their EOP programs, so it is imperative for the superintendent to get as much value while it is available.

“Having a plan helps you know what you need, from fertilizer applications to topdressings,” Lewis says. “You can develop a really solid idea of what you need to spend on the large line items. The EOP season is a great kickoff in the budget season.”

Start planning early

When considering his No. 1 tip for the EOP season, Blodorn thinks back to

HOW HAS INFLATION AFFECTED YOUR OPERATION?

“Unprecedented dues increase from a membership facet. More detailed discussions showing cost increases in every facet affected not only during the budgeting process as a club but also monthly at the Finance Committee level.”

— A reader from a private club in Michigan

“Adjusting to curative instead of preventive in many areas. We removed five acres of turf and converted it to a desert landscape. This year, we’ve overseeded 20 fewer acres than in years past.”

— A reader from a resort club in Arizona

when he was a superintendent at East Hampton (N.Y.) Golf Club.

From September into October, the golf course was still very busy, he says. Because of this, some superintendents wouldn’t put their full attention toward EOPs during this busy time.

“If I had to do it again, I would spend more time in mid-September and early October planning my research on the current program and where I could maximize my budgetary dollars,” Blodorn says.

He adds that giving more time to plan early for the season allows the superintendents to make “the most bang for your buck.”

A common mistake Blodorn says su-

perintendents make is having an, “I’ll take what I took last year” approach. Instead, he recommends sitting down and



Paul Blodorn

planning out what you expect to really use in the new season.

“You’re going to get the most programs from manufacturers,” Blodorn says. “A lot of them cut off at the end of October. You might miss out on some purchasing power if you wait. If you wait, you might not get the extra crunch time. You have to really put thought into what you want to do next year and get the right products for those programs. Keep your eyes open and pay attention.”

GETTY IMAGE: DREWBUZZ / ISTOCK-GETTY IMAGES PLUS (QUOTE BORDER)



SWING INTO SAVINGS!

WITH  **QUALI-PRO**



Quali-Pro is offering special incentives beginning August 15th, 2023.
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PROGRAM SPOTLIGHT



New name. Same easy rewards program.

In the fall of 2023, to establish consistent name recognition across all markets. Prime Source was renamed **Albaugh Specialty Products**.

Along with this change, Prime Rewards is now the **Advantage Rewards Program**.

Just as the product performance and support you've come to trust will continue uninterrupted, Albaugh Advantage Rewards will also remain the same simple

points-to-dollars program that makes earning rewards easy – with no limits or complicated levels.



Now, the Advantage is yours.

Stock up on more than 20 proven herbicide, fungicide, insecticide and PGR solutions from Albaugh Specialty Products to earn points-to-dollars

Advantage Rewards. It's not only incredibly easy, the earning potential is limitless.

And we've kept our handy earnings calculator on the website: **AlbaughSpecialtyRewards.com**. All to make it easier for you to evaluate different purchase scenarios and see exactly how fast your total rewards will add up with Albaugh Specialty Products. It's also available as an Excel download for offline use. Now's the time to take ADVANTAGE.



ALBAUGH SPECIALTY PRODUCTS
Advantage
REWARDS PROGRAM

Advantage Rewards Program Dates

PROMOTIONAL PERIOD: Sept. 1, 2023 – Jan. 31, 2024

SUBMISSION DEADLINE: Jan. 31, 2024

How to Redeem Your Rewards:

1. Place order for qualifying products.
2. Ask your distributor to go to **AlbaughSpecialtyRewards.com** to enter your submission, along with corresponding distributor invoices.
3. Collect your rewards.

A minimum of 200 points is required to earn a gift card. Each additional 100 points earns \$100 in gift cards. No earning limit. Reward payout will begin April 1, 2024. See program details, terms and conditions at **AlbaughSpecialtyRewards.com**.

ALBAUGH
SPECIALTY PRODUCTS

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NEW NAME, SAME GAME.

ALBAUGH SPECIALTY PRODUCTS *Advantage* **REWARDS PROGRAM**

Albaugh's Advantage Rewards is the easiest program in the business - no limits, no levels, just a straight up points-to-dollars system on 24 exceptional Albaugh products. Order what you need, then redeem your points for gift cards you can spend anywhere, any way you want. It's that easy. Take advantage at albaughspecialtyrewards.com.



PROGRAM DATES: SEPTEMBER 1, 2023 - JANUARY 31, 2024

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The Fall Classic

PROGRAM SPOTLIGHT



Same Great Program. More Ways to Save.

With new enhancements and products, the **GreenTrust® 365 program** from Syngenta offers more ways to save than ever so you don't have to think outside the box to find new savings. Maximize your turf quality and your budget during the **Early Order Period: Oct. 1 – Dec. 8, 2023** with the enhanced **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 during the Early Order Period to lock in your **yearlong rebate of up to 10%** (valid for purchases made during the Program Year: Oct. 1, 2023 – Sept. 30, 2024). This includes purchases of our latest innovations:

- Acelepryn® Xtra insecticide
- Recognition® herbicide
- Tuque™ exoGEM™ fungicide

Plus, purchases of on-fertilizer products through May 31, 2024, also qualify toward yearlong rebates as an Early Order Period purchase.

Step 2: Enhanced Plan It Your Way Rebate



Earn an **additional 6 - 12% rebate** with qualifying purchases of **Posterity®, Daconil®** and/or **Secure®** fungicide brands.

- **New for 2024:** Once you qualify, you also automatically earn an additional rebate on **Acelepryn Xtra** (our **latest** product for broader-spectrum insect control), **Acelepryn 0.5 gal.**, **Ference®** and **Provaunt® WDG** insecticides.

- For an additional 10% savings, look for **volume discounts** on Acelepryn and Ference insecticides.
- Purchases of **Multipaks** can be applied to your Plan It Your Way qualification level.
 - **New for 2024:** Posterity XT + Ascernity® Multipak
- While no pallets earn Plan It Your Way rebates, the following pallets qualify you for the 12% rebate level for all additional Plan It Your Way product purchases
 - **New for 2024:** XT Solution Pallet
 - **New for 2024:** Forte Soution Pallet

Steps to Earn the Plan it Your Way Rebate

Step 1	Step 2 ¹	Plan It Your Way rebates ²	Once earned, this rebate also applies to the purchase of these insecticides
Purchase the following amounts of Posterity fungicide brands	Purchase the following amounts of Daconil, Secure and/or Posterity brands		
\$3,000	\$10,000 to < \$20,000	6%	Acelepryn Xtra Acelepryn 0.5 gal, Ference, Provaunt WDG
\$6,000	\$20,000 to < \$40,000	8%	
\$9,000	\$40,000+	12%	

Step 3: Purchase in October for the Greatest Savings



Qualifying participants automatically earn an **additional 2 – 3% rebate** on purchases made in October in addition to the yearlong rebate. The more you spend, the more you earn.

New



Purchases from Oct. 1 – Dec. 8, 2023	Bonus Booster rebate earned for October purchases	Yearlong rebate for Oct. 1, 2023 – Sept. 30, 2024	Total October rebate
\$5,000 to < \$10,000	2%	5%	7%
\$10,000 to < \$20,000	2%	6%	8%
\$20,000 to < \$40,000	3%	7%	10%
\$40,000 to < \$70,000	3%	8%	11%
\$70,000 to < \$100,000	3%	9%	12%
\$100,000+	3%	10%	13%

Step 4: Pallets Offer Significant Savings



- **New Pallets for 2024:** Three new pallets will be available for order:
 - **XT Solution** features Acelepryn Xtra, Posterity XT and Secure Action™ fungicide
 - **Forte Solution** features Acelepryn Xtra, Posterity Forte and Secure Action
 - **ABW Solution** features Acelepryn, Ference and Provaunt WDG
- Pallets are **ONLY** available during the **Early Order Period**
- Designed to meet specific agronomic needs and volumes
- 12 of 14 pallets **automatically** qualify you for GreenTrust 365 rebates
- Pallets can be combined with additional rebates for savings up to 35%

Step 5: 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 add up.



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

GreenCastOnline.com | @SyngentaTurf | #GreenTrust365

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

² The PIYW rebate will be applied to all purchases of Posterity, Daconil, Secure, Acelepryn 0.5 gal, Acelepryn Xtra, Ference and Provaunt WDG made from Oct. 1 – Dec. 8, 2023

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The Fall Classic

PROGRAM SPOTLIGHT



Envu NOW Solutions Early Order Program

It's that time of year again! Summer is winding down, the days are getting shorter and, best of all, the NOW Solutions program is back. With the NOW Solutions program from Envu, you can save big on all the products you depend on to protect your turf from common threats like diseases and weeds this fall.

From Aug. 1- Sept. 30, the NOW Solutions program has various ways to save on industry-leading turf care solutions so you can stock up on the products you need right now. The four ways to save include: off-invoice discounts, select product rebates, agronomic pairing incentives and NOW Solutions/Fall Solutions purchase tier rebates.



Start shopping for popular products like the all-new Resilia™ root health solution and fungicides like Densicor®, Interface® Stressgard® and Mirage® Stressgard® fungicides to protect your turf from upcoming threats. Just log in to My Envu Rewards to get started.

You can even rack up rewards and calculate your savings on the spot with an easy-to-use calculator spreadsheet. Plus, Envu is committed to meeting your timeline, so you can start taking action right away.

Because when it comes to your business, you need to control all that you can.

So, trust in your favorite products and your own expertise, and don't worry about what Mother Nature might bring in the coming months. With Envu as your partner for leading-edge solutions, you can handle just about anything.



Don't wait. Save today and thrive tomorrow when you start taking advantage of the NOW Solutions program's four ways to save. Whether it's through product rebates, agronomic pairings, off-invoice discounts or purchase tier rebates, these deals are too good to miss. Join or log in to My Envu Rewards at rewards.envu.us.



ALWAYS READ AND FOLLOW LABEL INSTRUCTIONS.

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Rewards.Envu.us



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Envu Turf & Ornamentals Management



Save today. Thrive tomorrow.

With the turf solutions you need now.

From **August 1-September 30**, our NOW Solutions program has multiple ways to save, and we're committed to meeting your timeline.

Access the program through My Envu Rewards to save on Envu products that help you master your course. So you can focus on facing whatever challenges the rest of the year brings.

Scan to join or log in
to My Envu Rewards
rewards.envu.us



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The Fall Classic

PROGRAM SPOTLIGHT



The PBI-Gordon Green Dividends Early Order Program

Start the march toward a successful 2024 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. 1, 2023**.

The PBI-Gordon EOP features 17 of our most popular products, including:

- **Arkon™ Herbicide Liquid** – An innovative solution for sedge and kyllinga control.
- **Segway® Fungicide SC** – The industry standard for control of Pythium root dysfunction, blight, damping-off and root rot.
- **Q4® Plus Turf Herbicide** for Grassy and Broadleaf Weeds – Save money and labor with rapid, broad-spectrum control of tough grassy and broadleaf weeds from a single product.
- **SpeedZone® EW Broadleaf Herbicide for Turf** – The fast, broad-spectrum control of the No. 1 speed herbicide in an advanced emulsion-in-water formulation.
- **Pedigree Fungicide SC** – The same proven performance as granular flutolanil in an easier-to-handle liquid formulation.



Level-up for a bigger rebate!

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

New calculator

Want to see how big that rebate can be? Try our new calculator at

PBIGordonTurf.com/GreenDividendsEOP



Registration is easy!

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

Visit **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

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PBI-Gordon

GREEN DIVIDENDS

EARLY ORDER PROGRAM

EFFECTIVE DATES: SEPTEMBER 1, 2023 THROUGH DECEMBER 1, 2023

2024 STARTS NOW WITH THE PBI-GORDON EOP!



The PBI-Gordon Green Dividends EOP gives end-users the best prices when they order qualifying products from a PBI-Gordon distributor.



The PBI-Gordon Green Dividends EOP features 17 of our most popular products, including:

- Segway® Fungicide SC
- Pedigree Fungicide SC
- Arkon™ Herbicide Liquid
- SpeedZone® EW Broadleaf Herbicide
- Q4® Plus Turf Herbicide



The planning calculator makes it easier to estimate your savings!

Visit PBIGordonTurf.com/Green-DividendsEOP to see the full list of qualifying products and program details!

PBIGordonTurf.com/GreenDividendsEOP



Employee-Owned



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PROGRAM SPOTLIGHT



Nufarm Edge Rewards

With more ways to save and a new line of products, stocking up has never been easier thanks to Nufarm Edge Rewards. Running from Sept. 1 through Dec. 8, 2023, this early order program gives turf and ornamental professionals savings on popular plant growth regulator, herbicide, fungicide and insecticide brands for the upcoming season.

During EOP Period 1 — Sept. 1 – Oct. 31, 2023 — customers can get an 8 percent rebate on eligible products ordered and shipped between Sept. 1 and Oct. 31.

EOP Period 2 — Nov. 1 – Dec. 8, 2023 — offers a 5 percent rebate on eligible products ordered between Nov. 1 and Dec. 8 and shipped by March 15, 2024.

Nufarm has introduced two new liquid formulation products to the program – Anuew® EZ Plant Growth Regulator and Tourney® EZ Fungicide. Also new this year, Nufarm EZ Solution Savings with product pairings are designed to provide multiple solutions at the best value.



EZ Solution Savings include growth regulators, weed control and disease management combinations.

Nufarm's Volume Bonus Rewards in the program introduces six new but well-known brands and includes Anuew®, Anuew® EZ, Tourney® EZ, Traction™, Pinpoint®, Millennium Ultra® 2, Sure Power®, Cool Power®, Horsepower®, 4-Speed XT®, Aloft® and Escalade® 2 brands. Additional eligible products include Traction®, Pinpoint®, Millenium Ultra 2, Aloft®, and more. For a complete list of eligible products, and to get registered, visit nufarmrewards.com.

Program Highlights:

- Two new products
- Save up to 22 percent with new EZ solutions
- Seven new volume bonus rebates
- Earlier Period 1 start on Sept. 1

Nufarm | 11901 South Austin Ave., Alsip, IL 60803 | 708-377-1330

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SYNGENTA TURF NEWS TODAY

XTRA! XTRA!

ACELEPRYN XTRA PACKS
AN XTRA PUNCH FOR
EVEN *MORE* CONTROL



Breaking news: With two modes of action, Acelepryn® Xtra insecticide offers even more insect control than the original Acelepryn. In addition to **grubs**, **billbugs** and **caterpillars**, it's labeled for greater control of **chinch bugs**, **ants** as well as **curative grub control**.



For more on this developing story,
visit [GreenCastOnline.com/
AceleprynXtra](https://www.GreenCastOnline.com/AceleprynXtra)



Controls more insects with
just **one application**



10% volume discount
available for purchases of
25 gallons



@SyngentaTurf #Time4AceleprynXtra



Acelepryn® Xtra
Insecticide

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Innovations You Can Trust. People You Can Count On.

2023

FMC **EFFORTLESS** **EARLY ORDER PROGRAM**

Stock up and save with the industry's easiest rebates:

- 
- 1 UP TO 41% OFF FMC PRODUCTS**
 - 2 LOW-MINIMUM VOLUME BUYS**
 - 3 UP TO A \$300 BONUS REBATE
WHEN YOU BUY MULTIPLE
FUNGICIDE PRODUCTS**



To qualify for a rebate, a combined September Spotlight and Early Order Program rebate must total at least \$400. Offers valid October 1, 2023 through December 8, 2023. Terms through July 2, 2024.

SAVE EFFORTLESSLY ON YOUR FAVORITE FMC PRODUCTS

Brand-qualifying fungicide (see back page)

Volume buy

Bigger rebates, fewer headaches. Save up to 41% on top insecticides, herbicides, and fungicides when you order during FMC's EOP.

Fungicides



SKU	Name	Agency Price	October Rebate per Unit	% Off	Nov-Dec Rebate per Unit	% Off	FRAC
11008377	Fame® +C Fungicide 2.5 gal	\$564	\$40	7%	\$20	4%	11, M5
11008393	Fame® SC Fungicide 16 oz	\$445	\$120	27%	\$105	24%	11
11008557	Fame® SC Fungicide 64 oz	\$1,599	\$350	22%	\$296	19%	11
11009500	Fame® SC Fungicide 2.5 gal	\$6,729	\$1,000	15%	\$605	9%	11
11013671	Kalida® Fungicide 64 oz	\$825	\$125	15%	\$94	11%	7,3
11013671	Kalida® Fungicide 64 oz 4+ units	\$825	Vol. rebate: \$300	36%	Vol. rebate: \$300	36%	7,3
11003880	Rayora® Fungicide 2.5 gal	\$613	\$75	12%	\$56	9%	3
11003880	Rayora® Fungicide 2.5 gal 6+ units	\$613	Vol. rebate: \$220	36%	Vol. rebate: \$220	36%	3
11014245	Serata™ Fungicide 35 oz	\$475	\$100 bonus for each additional fungicide brand purchased				U17

Herbicides



SKU	Name	Agency Price	October Rebate per Unit	% Off	Nov-Dec Rebate per Unit	% Off
11008351	Blindside® Herbicide 0.5 lb bottle		\$15		\$8	
11008409	Dismiss® NXT Herbicide 10 oz	\$104	\$25	24%	\$13	12%
11008589	Dismiss® NXT Herbicide 60 oz	\$590	\$170	29%	\$128	22%
11008589	Dismiss® NXT Herbicide 60 oz 8+ units	\$590	Vol. rebate: \$225	38%	Vol. rebate: \$225	38%
11008357	Dismiss® CA Herbicide 6 oz bottle		\$22		\$15	
11008474	Dismiss® South Herbicide 1 pint		\$45		\$18	
11008475	Dismiss® Turf Herbicide 6 oz bottle		\$22		\$15	
11008336	Dismiss® Turf Herbicide 64 oz bottle		\$200		\$150	
11008464	Echelon® 4SC Herbicide 1 gal	\$435	\$45	10%	\$34	8%
11008464	Echelon® 4SC Herbicide 1 gal 16+ units	\$435	Vol. rebate: \$140	32%	Vol. rebate: \$140	32%
11008447	QuickSilver® Herbicide 8 oz. bottle		\$35		\$26	
11008369	Solitare® WSL Herbicide 3/4 gal		\$15		\$8	
11013862	Solitare® WSL Herbicide 2.5 gal	\$245	\$30	12%	\$23	9%
11013862	Solitare® WSL Herbicide 2.5 gal 16+ units	\$245	Vol. rebate: \$55	22%	Vol. rebate: \$55	22%
11013862	Solitare® WSL Herbicide 2.5 gal Pallet 48+ units	\$245	Vol. rebate: \$85	35%	Vol. rebate: \$85	35%
11008482	Solitare® Herbicide 1 lb jar		\$15		\$8	
11008522	Solitare® Herbicide 4 lb bottle	\$579	\$65	11%	\$33	6%
11008590	Xonerate® 2SC Herbicide 12 oz bottle	\$533	\$100	19%	\$50	9%

Insecticides



11008513	Aria® Insecticide 160 gram bottle		\$18		\$11	
11009495	Scion® Insecticide 32 oz	\$152	\$34	22%	\$26	17%
11008459	Talstar® Professional Insecticide 1 gal		\$8		\$4	
11008459	Talstar® Professional Insecticide 1 gal 4bt (case)		Vol. rebate: \$11		Vol. rebate: \$11	
11008459	Talstar® Professional Insecticide 1 gal 108bt (pallet)		Vol. rebate: \$15		Vol. rebate: \$15	
11007753	Talstar® Professional Insecticide 30 gal		\$120		\$60	
11008457	Talstar® Select Insecticide (RUP) 1 gal		\$8		\$4	
11008521	Triple Crown® Golf Insecticide (RUP) 1 gal	\$338	\$45	13%	\$20	6%
11008521	Triple Crown® Golf Insecticide (RUP) 1 gal 12+ units	\$338	Vol. rebate: \$50	15%	Vol. rebate: \$50	15%
11008520	Triple Crown® T&O Insecticide 1 gal	\$338	\$45	13%	\$20	6%
11008520	Triple Crown® T&O Insecticide 1 gal 12+ units	\$338	Vol. rebate: \$50	15%	Vol. rebate: \$50	15%

2

BOOST YOUR REBATE WITH VOLUME BUYS

Save more when you stock up. Volume buys start at just four units.

New for 2023: You can now maximize savings by purchasing entire pallets.

KALIDA®
FUNGICIDE

GET KALIDA FOR
\$139/ACRE
WHEN YOU BUY 4 UNITS.

Highest single-unit rebate: **\$150**

Volume rebate per unit: **\$150**

Total rebate (@ 4 units): **\$300**

RAYORA®
FUNGICIDE

GET RAYORA FOR
\$76/ACRE
WHEN YOU BUY 6 UNITS.

Highest single-unit rebate: **\$90**

Volume rebate per unit: **\$130**

Total rebate (@ 6 units): **\$220**



DISMISS®NXT
HERBICIDE

GET DISMISS NXT 60 OZ FOR
\$52/ACRE
WHEN YOU BUY 8 UNITS.

Highest single-unit rebate: **\$170**

Volume rebate per unit: **\$30**

Total rebate (@ 8 units): **\$225**

ECHELON®4SC
HERBICIDE

GET ECHELON 4SC FOR
\$83/ACRE
WHEN YOU BUY 16 UNITS.

Highest single-unit rebate: **\$45**

Volume rebate per unit: **\$85**

Total rebate (@ 16 units): **\$140**

SOLITARE®WSL
HERBICIDE

GET SOLITARE WSL 2.5 GAL FOR
\$103/ACRE
WHEN YOU BUY 16 UNITS.

Highest single-unit rebate: **\$30**

Volume rebate per unit: **\$25**

Total rebate (@ 16 units): **\$55**

SOLITARE®WSL
HERBICIDE

GET SOLITARE WSL 2.5 GAL FOR
\$87/ACRE
WHEN YOU BUY 48 UNITS.

Highest single-unit rebate: **\$30**

Volume rebate per unit: **\$55**

Total rebate (@ 48 units): **\$85**

TALSTAR®P
PROFESSIONAL INSECTICIDE

GET TALSTAR P 1 GAL FOR
\$44 OFF
WHEN YOU BUY 4 UNITS.

Highest single-unit rebate: **\$8**

Volume rebate per unit: **\$3**

Total rebate (@ 4 units): **\$11**

TALSTAR®P
PROFESSIONAL INSECTICIDE

GET TALSTAR P 1 GAL FOR
\$1,620 OFF
WHEN YOU BUY 108 UNITS.

Highest single-unit rebate: **\$8**

Volume rebate per unit: **\$7**

Total rebate (@ 108 units): **\$15**

TRIPLE CROWN®GOLF
INSECTICIDE

GET TRIPLE CROWN GOLF FOR
\$79/ACRE
WHEN YOU BUY 12 UNITS.

Highest single-unit rebate: **\$45**

Volume rebate per unit: **\$5**

Total rebate (@ 12 units): **\$50**

TRIPLE CROWN®T&O
INSECTICIDE

GET TRIPLE CROWN T&O FOR
\$79/ACRE
WHEN YOU BUY 12 UNITS.

Highest single-unit rebate: **\$45**

Volume rebate per unit: **\$5**

Total rebate (@ 12 units): **\$50**

GOLF SOLUTIONS

Solutions	Package Sizes (Formulation Type)	Active Ingredient(s)	Tolerant Turf
DISMISS[®]NXT HERBICIDE	10 fl oz (Suspension Concentrate) 60 fl oz (Suspension Concentrate)	Sulfentrazone + Carfentrazone	Creeping Bentgrass, Perennial Ryegrass
			Cool-season turf
			Warm-season turf
ECHELON[®]4SC HERBICIDE	1 gal (Suspension Concentrate)	Sulfentrazone + Prodiamine	Creeping Bentgrass, Perennial Ryegrass
			KY Bluegrass, Tall Fescue Warm-season turf
			Bermudagrass* St. Augustinegrass
DISMISS[®] HERBICIDE	6 fl oz (Suspension Concentrate) 64 fl oz (Suspension Concentrate)	Sulfentrazone	Creeping Bentgrass
			Cool-season turf
			Warm-season turf
DISMISS[®]SOUTH HERBICIDE	1 pint (Suspension Concentrate)	Sulfentrazone + Imazethapyr	Bermudagrass, Zoysiagrass, Centipedegrass, Buffalograss, Bahia grass, Kikuyugrass
SOLITARE[®] HERBICIDE	1 lb (Water Disp. Granule)	Sulfentrazone + Quinclorac	KY Bluegrass, Tall Fescue, Rough Bluegrass, Perennial Ryegrass
	4 lb (Water Disp. Granule)		Bermuda, Zoysia, Centipede, Seashore Paspalum, Buffalograss
SOLITARE[®]WSL HERBICIDE	3/4 gal (Water Soluble Liquid)	Sulfentrazone + Quinclorac	KY Bluegrass, Tall Fescue, Fine Fescue, Perennial Ryegrass, Rough Bluegrass
	2.5 gal (Water Soluble Liquid)		Bermuda, Zoysia, Centipede, Seashore Paspalum, Buffalograss
QUICKSILVER[®]T&O HERBICIDE	8 fl oz (Emulsion in Water)	Carfentrazone	Cool- and warm-season turf
BLINDSIDE[®] HERBICIDE	1/2 lb (Water Disp. Granule)	Sulfentrazone + Metsulfuron	Bermudagrass, Buffalograss, Centipedegrass, St. Augustinegrass, Zoysiagrass
XONERATE[®]2SC HERBICIDE	12 fl oz (Suspension Concentrate)	Amicarbazone	Creeping Bentgrass
			Cool-season turf
			Bermuda-overseeded with ryegrass
			Warm-season turf

Use Rates*		Target Weeds*	Application Timing & Tips
Oz/Acre	Oz/1000 ft ²		
5	0.12	Yellow Nutsedge, Kyllinga, Purple Nutsedge**	POST-EMERGE **Two applications
5 – 10	0.12 – 0.23		
6 – 15	0.137 – 0.35		
8 – 12	0.184 – 0.275	Yellow Nutsedge, Kyllinga, Crabgrass, Goosegrass, Poa Annua	PRE-EMERGE/EARLY POST-EMERGE *Ask about our Echelon Herbicide Performance Assurance Program for Bermudagrass
18 – 24	0.413 – 0.551		
24 – 36	0.551 – 0.826		
18 fb 18	413 fb 0.413		
4	0.092	Yellow Nutsedge, Kyllinga, Purple Nutsedge**	POST-EMERGE Labeled for directed sprays in ornamental beds **Two applications
4 – 8	0.092 – 0.18		
6 – 12	0.137 – 0.275		
9.5 – 14.4	0.22 – 0.331	Purple Nutsedge, Yellow Nutsedge, Kyllinga, Tropical Signalgrass***	POST-EMERGE Not for use on St. Augustinegrass or Seashore Paspalum ***Used with Xonerate (see below)
16 – 20.8	0.367 – 0.478	Crabgrass, Yellow Nutsedge, Kyllinga, Dandeloin, White Clover, Dollarweed, Ground Ivy	POST-EMERGE Not for use on St. Augustinegrass, Bahiagrass, or Bentgrass
16 – 32	0.367 – 0.735		
5.4 – 9 Quarts/Acre	4 – 6.5	Crabgrass, Yellow Nutsedge, Kyllinga, Dandeloin, White Clover, Dollarweed, Ground Ivy	POST-EMERGE Not for use on St. Augustinegrass, Bahiagrass, or Bentgrass
5.4 – 10.7 Quarts/Acre	4 – 7.9		
0.9 – 2.1	0.023 – 0.048	Broadleaf Weeds	POST-EMERGE Addition of a non-ionic surfactant (NIS) can improve control
2 – 6.7	0.046 – 0.154	Silvery Thread Moss	
6.5 – 10	0.15 – 0.23	Dollarweed, Doveweed*, Virginia Buttonweed*, Yellow Nutsedge, Kyllinga, Clover, Wild Violet, Ground Ivy, Spurge, Winter Annuals	POST-EMERGE *2 applications may be required Not for use on Bahiagrass, Kikuyugrass, Seashore Paspalum
3 (up to 4 apps)	0.06 (up to 4 apps)	POST Poa Annua	Fairway and trees only
3 to 6	0.06 – 0.14	POST Poa Annua	Apply 6 fl oz 2 appl. 21 days apart
8 – 9 (x2 apps)	0.18 – 0.21	POST Poa Annua	Apply 14 days apart
9 – 14 (x2 apps)	0.21 – 0.32 (x2 apps)	POST Poa Annua Tropical Signalgrass	For Tropical Signalgrass in bermudagrass, apply spring or fall w/ Dismiss South (9 x 7.2 oz)

GOLF SOLUTIONS

Solutions	Package Sizes (Formulation Type)	Active Ingredient(s)	Use Rates*	
			Oz/Acre	Oz/1000 ft ²
KALIDA [®] FUNGICIDE	64 fl oz (Suspension Concentrate)	Fluindapyr + Flutriafol	12 – 17	0.25 – 0.4
RAYORA [®] FUNGICIDE	2.5 gal (Suspension Concentrate)	Flutriafol	32 – 62	0.7 – 1.4
FAME [®] SC FUNGICIDE	1 pint (Suspension Concentrate) 64 fl oz (Suspension Concentrate) 2.5 gal (Suspension Concentrate)	Fluoxastrobin	8 – 16	0.18 – 0.36
FAME [®] + C FUNGICIDE	2.5 gal (Suspension Concentrate)	Fluoxastrobin + Chlorothalonil	Pints per acre: 4 – 16	Ounces per 1000 ft ² : 1.5 – 5.9
SERATA [™] FUNGICIDE	35 oz (Water Disp. Granule)	Picarbutrazox	26	0.6 – 0.8
TRIPLE CROWN [®] GOLF INSECTICIDE	1 gal (RUP) (Suspo-Emulsion)	Bifenthrin Zeta-Cypermethrin Imidacloprid	10 – 35	0.23 – 0.8
TALSTAR [®] SELECT INSECTICIDE	1 gal (RUP) (Suspension Concentrate)	Bifenthrin	5 – 40	0.33 – 1

*ALWAYS READ AND FOLLOW LABEL DIRECTIONS. Consult product label for full and detailed target weed lists and use rates prior to using the listed products. Triple Crown Golf and Talstar Select are RESTRICTED USE PRODUCTS. Some products may not be registered for sale or use in all states. FMC, FMC logo, Blindside, Dismiss NXT, Dismiss, Echelon, Fame, Kalida, Solitare, QuickSilver, Rayora, Serata, Talstar, Triple Crown, and True Champions are trademarks or service marks of FMC corporation or an affiliate. Xonerate is a trademark of Arysta LifeScience North America, LLC. ©2023 FMC Corporation. All rights reserved.

Target Pests/Diseases	Application Timing & Tips
Take-All Root Rot, Bipolaris leaf spot, Anthracnose, Large Patch, Spring Dead Spot, Brown Patch, Fairy Ring, Dollar Spot	Apply the high rate (17 fl oz/A or 0.4 fl oz/1000ft ²) preventatively at 14-28 day intervals when conditions are favorable for disease development.
Dollar Spot, Brown Patch, Anthracnose, Gray Leaf Spot, Spring Dead Spot, Summer Patch	Apply preventatively at 14-day intervals when conditions are favorable for disease development at the high rate. Apply on a 14-day interval for curative Dollar Spot. For Spring Dead Spot, apply 62 fl oz/A preventatively in the fall using two applications 21 – 28 days apart.
Brown Patch, Fairy Ring, Summer Patch, Take-All Patch, Large Patch, Pythium Root Dysfunction	For spring diseases, apply Fame SC when soil temperatures at 2-in. reach 55-60 F.
Anthracnose, Dollar Spot, Brown Patch, Gray Leaf Spot, Leaf Spot, Pythium Blight, Pythium Root Dysfunction	Fame +C combines systemic and contact active ingredients for effective control. For foliar diseases, use appropriate nozzle tip and spray volume to maximize leaf coverage. Under severe disease pressure, apply on 14-day intervals.
Pythium Root Rot, Pythium Root Dysfunction, Pythium Blight	Picarbutrazox, a new compound from a new class of chemistry the tetrazolyloximes, has translaminar activity and no known cross resistance between it and other oomycete chemistries, making it an ideal tool for pythium control and resistance management.
Controls 30+ pests including: ABW, White Grubs, Ants, Billbugs, Chinch Bugs, Fire Ants, Mole Crickets	RESTRICTED USE PRODUCT Controls both surface and sub-surface pests and also works as part of a rotational program. Treatment timings vary depending on cool- or warm-season turf and the target pest/ life stage.
Fire Ants (inc. quarantine), Billbugs, Chinch Bugs, Armyworms, Cutworms, Webworms, and more	RESTRICTED USE PRODUCT Long-lasting residual control when applied in temperate regions. Controls over-wintered annual bluegrass weevil adults for 3 to 4 weeks.

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EARN UP TO \$300 IN EXTRA REBATES WHEN YOU BUY SERATA™ FUNGICIDE PLUS ANOTHER FMC FUNGICIDE

Buy two or more cases of Serata and get an extra \$100 for each additional fungicide product brand you purchase, including Fame® SC Fungicide, Rayora® Fungicide, and Kalida® Fungicide.

SKU	Name	Agency Price	October Rebate per Unit	% Off	Nov-Dec Rebate per Unit	% Off	FRAC
11008557	Fame® SC Fungicide 64 oz	\$1,599	\$350	22%	\$296	19%	11
11009500	Fame® SC Fungicide 2.5 gal	\$6,729	\$1,000	15%	\$605	9%	11
11013671	Kalida® Fungicide 64 oz	\$825	\$125	15%	\$94	11%	7,3
11003880	Rayora® Fungicide 2.5 gal	\$613	\$75	12%	\$56	9%	3



GET AWARD-WINNING RESULTS WITH SERATA

Discover the Pythium solution voted by superintendents as their “All-Time Favorite” in the Golfdom 2022 Supers’ Choice Awards.

“We have the best roots we’ve had in 15-plus years on A1 bentgrass greens in the Southeast after adding Serata into our program.”

— Craig Harris, Director of Agronomy, Greenville (S.C.) CC

See for yourself why leading golf superintendents choose Serata. Visit www.SerataFungicide.com today.



THE AVERAGE FMC CUSTOMER SAVED \$3,000 DURING 2022’S EOP. HOW MUCH WILL YOU SAVE?

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