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Battling back

Superintendents describe how they control Anthracnose and meet member expectations.

by Scott Kauffman



Anthracnose appears as irregular yellowed or brown patches in turf.

DREAMSTIME, FORESTRYIMAGES.ORG



Greg Shaffer, superintendent at Elcona Country Club, turned to bi-weekly topdressing to help combat the disease.

“Every time I aerify, we’ll sponge seed into the greens at least two to three times a year.”

— Jason Adams, Blue Hill Country Club

Greg Shaffer feels pretty good about his annual anthracnose program. In his seventh season at Elcona Country Club in Bristol, Ind., the turning point for Shaffer was a shift in member expectations and an overhaul of his facility’s cultural practices that now allows him to better control anthracnose.

It started with more frequent bi-weekly topdressing. Shaffer says there’s a lot of research showing more frequent topdressing and other cultural practices perhaps do not injure the plant after all.

Another change to Shaffer’s maintenance regimen is semi-annual aeration in the spring and fall.

“We were having issues with the anthracnose based on trying to put member expectations on the forefront of our goal as opposed to turf health,” says Shaffer. “We were low on fertility, aggressively rolling, mowing at low heights. Just the simple fact of trying to keep the members happy. And it came back to bite us a few years ago.”

Of course, any superintendent who has experienced the wrath of

upset members due to inferior greens doesn’t relish that feeling. So Shaffer and his club reevaluated what they were trying to accomplish.

“Some guys are smarter than I am and they learned that before they have issues,” Shaffer says. “We never really dealt with a loss of turf. But with the anthracnose that we had we weren’t able to meet expectations. So it was kind of an uncomfortable circle.”

That’s when the more aggressive practices began. Shaffer usually aerates his greens the first week of April, and once they heal in three to four weeks, the bi-weekly topdressing kicks in. That usually lasts through September, when Elcona prepares for its October aeration.

As soon as Shaffer increased his rate of topdressing, the Purdue University graduate also increased his club’s fertility inputs, nearly doubling his rate of nitrogen to 3.5 pounds per year – sometimes even approaching four pounds depending on the type of foliar program. During the golf season, Shaffer alternates between foliar and root nitrogen applications.

“Every other week we’re either

spraying urea out with our fungicide (at about a tenth of a pound), and on the opposite week we’re spraying ammonium sulfate and watering it into the root,” says Shaffer. “That also gets mixed into the tank with our wetting agent, surfactant or any other type of micronutrients that we’re putting in for the soil.”

Elcona’s greens are about 80-90 percent annual bluegrass, according to Shaffer, so “we’re right in the wheelhouse for anthracnose.” Shaffer says his crew is “probably mowing at a higher height of cut than most guys are in the area.” The Elcona crew rolls its greens about three to four times per week, depending on the event.

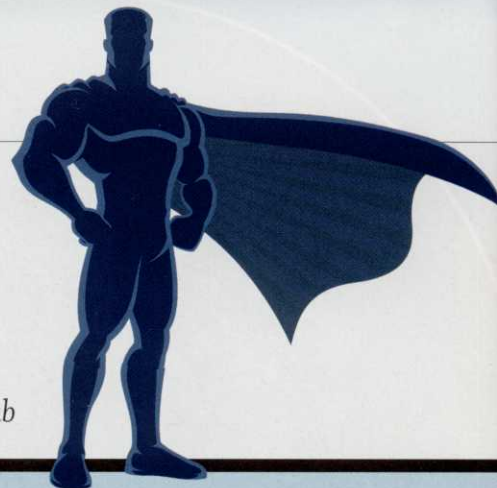
“A lot of the guys are mowing at 100 or under 100,” Shaffer says, “and we’re 115-120 on the (acting gauge).”

Besides keeping the anthracnose at bay, perhaps the best part of his newly adopted maintenance practices is Elcona members haven’t really noticed any effects on the quality of their greens. Membership has downplayed its public need for speed.

“From a playability standpoint, I don’t think they’ve really had to make

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—Greg Shaffer, *Elcona Country Club*



any sacrifices,” Shaffer says. “And not that what we do, we do for the sake of green speed, but the reality is it’s important. That’s kind of one of the things membership hangs its hat on. So one of the things we’ve gotten away from trying to focus on is green speed.”

For example, historically, Elcona staff would always post a green speed by the first tee as of certain morning intervals.

“It got to be a real pain in the rear end because guys’ days would be ruined before they even hit a ball,” Shaffer says. “They’d walk up and see ‘Oh, the speed’s only going to be 10 today.’ So we’ve changed that mindset a little bit that we’re going to more consistency. We still want to meet their expectations as far as speeds – they just don’t know what the speeds are.”

At Blue Hill Country Club in Canton, Mass., superintendent Jason Adams also finds his anthracnose “a little more manageable” these days. Typically, Blue Hill will see signs of anthracnose in late May and early June, especially after cool, wet winters, and a relatively less severe touch of it in the autumn months.

“I’m curious to see what this year brings with the warm weather we’ve had,” says Adams, who is going into his fifth season at Blue Hill. “With it being a drier season and coming out of the heat and spring, I’m hoping the severity isn’t as bad.”

One thing that has helped Adams keep anthracnose in check is continually overseeding his predominantly *Poa annua* greens with bentgrass as much as possible.

“We’re very aggressive,” Adams says. “Every time I aerify, we’ll sponge seed into the greens at least two to three times a year. During my first couple years I might have seeded greens eight to nine times during the growing season. That’s one of the biggest things and because of that, I’ve had some greens here that were probably 99 percent *Poa* when I first got here to the point we got the populations up quite a bit.

“I’ve got some that are as high as 60-70 percent (bent). And I only have three greens on the golf course now that probably have 20 percent bent versus nothing. It’s kind of a painful thing at some points. We’ve lost some *Poa* over the years – a little bit here and there in some of the cleaner cut. We kind of look at it as a silver lining. Yeah, you might lose some of the *Poa*, but it’s an opportunity to get some bentgrass in there.”

According to Adams, anthracnose was so bad at Blue Hill at times it would take the *Poa* right down into the crown. “We’ve come in a Sunday morning and seen the green just riddled with it,” Adams says.

Another significant change in Adams’ cultural practices is an aggressive deep tine “drill and fill” program that started when Adams took over the property in 2008. After evaluating the property, which dates to 1925 and once hosted the 1956 PGA Championship, Adams discovered significant thatch issues on some of the greens and some very heavy soils 4 inches below the surface. The combination of the two resulted in greens with severe dry spots, inconsistent

playing surfaces and poor drainage after heavy precipitation.

“By doing more deep tine, drill and fill (approximately 40 tons of sand was drilled into 8,500 square feet of greens last fall), we’re not staying as wet and soft on top for that disease,” says Adams. “Plus we’re top-dressing more often than we have in the past.”

Increasing the rate as much as 12-14 times now per year, Adams matches what he did at his previous club, after doing it just six to seven times historically at Blue Hill.

“For this particular club it was a lot busier and they didn’t like to see a lot of disruptions as far as green surfaces,” Adams says. “We’re going to go back probably to that 12-14 times. The only thing we’re going to do this year during the growing months (June-August) when this place is really packed wall-to-wall is do more of that bagged dry sand and spread it by hand.”

On the chemical front, Adams is “changing this up by using more of DMI” like Banner or tebuconazole, and even formulates his pesticide program more around anthracnose than anything right now. Another noticeable difference from a fertility perspective is Adams will likely use higher amounts of potassium this year.

“We played around with it last year and saw a pretty significant response,” Adams says. “I think we’re using 0-0-28 potassium fertilizer and we’re going to half pound rates per month. It seemed like going into fall we had to battle the disease far less than

we’ve had to in the past.”

A backup tool he is starting to use with success is Civitas, a mineral oil loaded with some bionutrition. Adams mixes it with Banner at half rates and gets instant results.

“Last year when we had the hurricane blow through,” Adams says, “we were just loaded with anthracnose about two to three days after. We’ll spray (Civitas) and it almost cleans everything up in a matter of two to three days. It’s amazing.”

Adams cautions to not use the oil once it warms up to 82-83 degrees because he’s seen it discolor or burn the tips of the annual bluegrass on some of Blue Hill’s collars.

“In the spring and fall when things are cooler, the moisture levels are better and there’s less stress on the plant,” Adams says. “You’ve got better roots on your plants so you don’t seem to have any issues. I just don’t spray it in the heat of the summer.”

Constantly juggling risk-reward attributes of various anthracnose practices with the watchful eye of demanding members is what makes this insidious disease so tough.

“If we didn’t have to worry about it and we could do what we want when we want as far as topdressing and skipping mowing, it would probably be a lot easier to control this disease,” says Adams. **GCI**

Scott Kauffman is a Clermont, Fla.-based freelance writer and a frequent GCI contributor.



Filling the void

Superintendents share their best-kept secrets for divot repair.

By Scott Kauffman

For golf generations, divots have been the bane of golfers and superintendents, making divot repair and divot management programs an integral part of golf course maintenance practices. In a 1941 installment of the “Greenskeeper’s Reporter,” a story even quoted three greens chairmen as saying, “divots were the “No. 1 pest.”

Oddly enough, despite this high-profile place in turf maintenance annals, little research had been done on the methods and materials used to control this “pest” – at

least until a recent study by the University of Illinois.

Among the findings published in 2005 by the GCSAA, respondents spent an average \$3,671 in labor and materials to repair divots on course tees, \$4,240 on fairways and \$3,383 on range tees. There was a wide range in annual divot-related expenditures, ranging from \$500 to \$33,000, according to the GCSAA.

Seven years later, vast differences continue to exist in the scope of superintendents’ turf practices in regards to divot repair. For

example, superintendent Jason Adams of Blue Hill Country Club in Canton, Mass., takes a measured approach to repairing his private course divots, including the use of a special mix supplied by New England Specialty Soils.

Adams says one critical tip in ensuring healthy divot repair is picking the “right mix that works



Divots cost courses thousands in repair through labor and materials - finding the right fill mix is critical to help fix them quickly.

for you.” In the case of Blue Hill, Adams uses an 80-10-10 mix of sand, peat and compost material, respectively. He also dedicates an individual every day to fill in divots not only on range tees, but the entire course as well.

Another key practice that Adams employs is making a point to give par-3 holes and range tees a “little extra moisture” a couple times a day just to “keep the mix a little bit on the moist side.”

Another ingredient Adams finds helpful is the EarthWorks Renovate Construction Mix.

Adams mixes in the amendment with his seed-soil mix and finds the extra source of minerals heals his turf quicker.

“For us we feel like we get quicker germination when we mix the Renovate in with the seed soil mix,” Adams says.

On the Southern California coast, superintendent Steve Thomas of the Resort at Pelican Hill implemented several changes to his divot repair regimen after Pelican Hill completely renovated its upscale courses in 2006-07 and converted the property from a ryegrass-Bermudagrass fairway mix to 100 percent Tifway 2 Bermudagrass fairways. For instance, Thomas now uses straight sand to fill in fairway divots that no longer need to be overseeded.

Thomas is experimenting with a darker custom divot blend to help speed up recovery because the darker compost material tends to “heat up the ground temperature and help the Bermuda recover a little quicker.”

In fact, when Thomas drew up the pros and cons of fully resodding Pelican Hill’s fairways with Bermudagrass the first one he came up with was divot repair, especially in the winter months when the Bermuda goes semi-dormant.

“So we fill (the divots) as fast as we can with sand,” says Thomas, who’s entering his 10th year at the Tom Fazio-designed resort course. “We still overseed the tees so we send a crew out typically as a second job and fill the tee-tops, particularly on the par-3s that get a lot of iron play. Our second jobs are usually around 9-10 o’clock. There’ll be some play, but we’ll go behind them and take care of the divots from the day before.”

Besides the new Tifway 2 fairways, two other noticeable changes to Thomas’ daily divot repair schedule are painted sand and re-filling divot boxes. Nei-

ther of these divot practices is deployed anymore.

Thomas stopped painting divot sand for cosmetic reasons as a cost- and labor-savings measure. He also got rid of his “tacky” divot boxes because golfers never utilized them, or didn’t know what to do with them, according to Thomas.

“We tried to use them in different locations but (golfers) seemed to ignore them, kick them and just put their drinks on ‘em,” says Thomas, who’s in his 10th year as Pelican Hill’s superintendent. “We just never really gotten use out of them. So our guys will do the balance of the divots in-house. We get pretty good control that way.”

At one of Florida’s newest private golf clubs, Bella Collina in Montverde, Fla., superintendent Jeff Helms doesn’t have anywhere near the budget or crew that Thomas enjoys. So Helms goes about his daily divot drudgery the old-fashioned way: divot-by-divot, and hoping members and guests fill in their part, too.

Helms relies on the golfers to replace and fill fairway divots due to his short staff situation. For the tees, especially during the winter overseed months, Helms goes out 1-2 times per week and simply fills in divots with Florida’s ubiquitous green divot sand – mixed with a 5-to-1 ratio of sand to ryegrass seed in large 5-gallon buckets.

“It’s not a big science project going on out there,” says Helms.

But it works for Bella Collina for now. And probably dozens of other cash-strapped superintendents driven to control those dastardly divots. **GCI**

Scott Kauffman is a Clermont, Fla.-based freelance writer and a frequent GCI contributor.

BY DOUG HOUSEWORTH

New chemistry for *Poa annua* elimination

In March, the Environmental Protection Agency approved a new post-emergent herbicide, Xonerate from Arysta LifeScience, which has shown to control *Poa annua*.

P*oa annua* is one of the most common and widely distributed winter annual grassy weeds in the world, and also is one of the most difficult to control on turfgrass. In March, the Environmental Protection Agency approved a new post-emergent herbicide, Xonerate from Arysta LifeScience, shown to effectively control *Poa annua*.

Poa annua survives as a weed due to its high genetic variability, short life cycle, tolerance of compacted soil and rapid germination; each *Poa annua* plant produces between 1,000 and 2,250 seeds in a season that can easily spread from equipment, human or animal contact. *Poa annua* is especially challenging in creeping bentgrass, which provides conditions that are ideal for its growth, including high moisture, nitrogen and traffic levels and routine fungi-

cide use.¹ Also, *Poa annua* is very susceptible to diseases, such as anthracnose, and doesn't tolerate heat well, which means it dies quickly in warm weather, leaving unsightly bare patches during high play times. The effect on golf courses is bumpier-than-normal surfaces, impaired playability and unattractive greens and fairways during the height of the play season.

Xonerate offers a solution to golf course superintendents.

Xonerate contains 70 percent amicarbazone in a convenient water-dispersible granule formulation, which is absorbed by leaves and roots of *Poa annua* for quick, residual, post-emergent activity. Xonerate is selective, so it kills the weeds, but not the turfgrass.

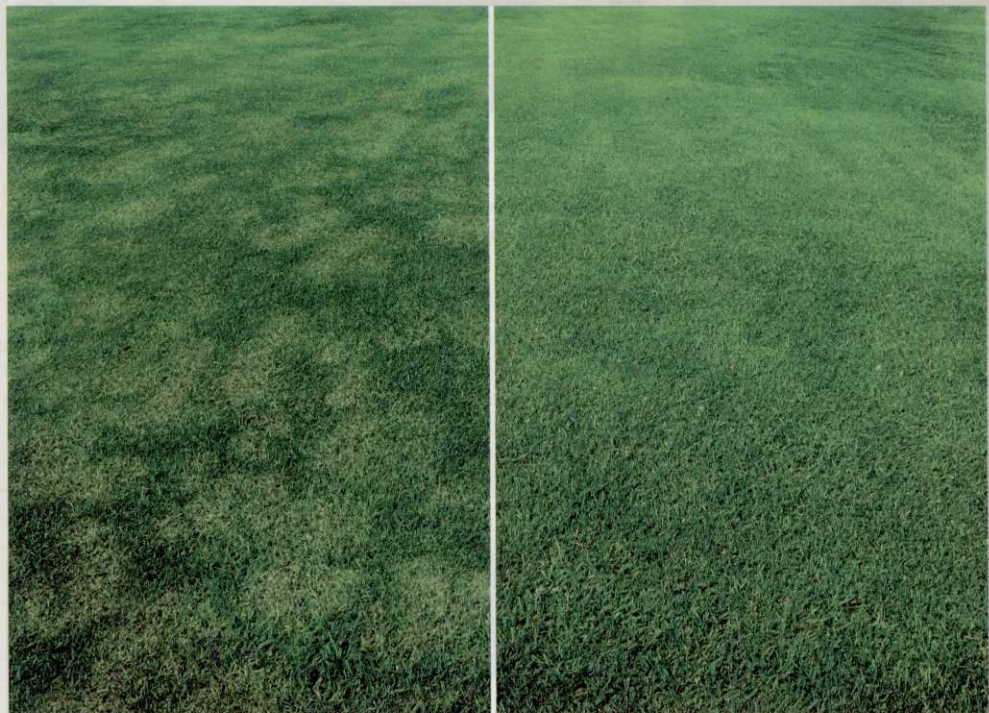
TRIALS. Over the past five years, numerous university and co-operator field trials have been conducted to examine the per-

formance of Xonerate in diverse geographic areas, under a wide range of climatic and turfgrass conditions. The trials found Xonerate to be 90 percent effective in controlling *Poa annua* – more than any product currently on the market.¹

TRIALS SHOW MINIMAL EFFECT ON TURFGRASS QUALITY. While trials prove Xonerate effective at eliminating *Poa annua*, they also showed Xonerate had minimal

Editor's Notes

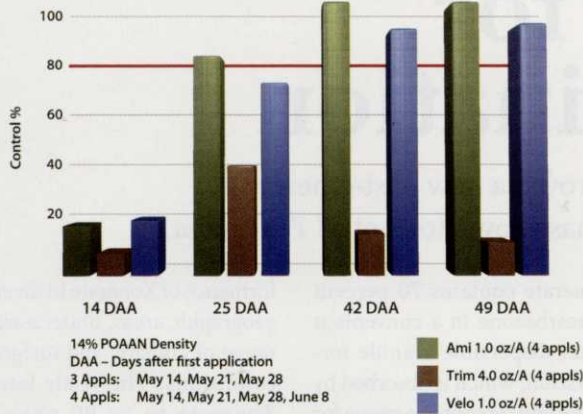
Since there's been considerable interest and discussion about this product in the market, we asked the technical team from Arysta to do this article to present what they know about the product and particularly how it should be used on greens.



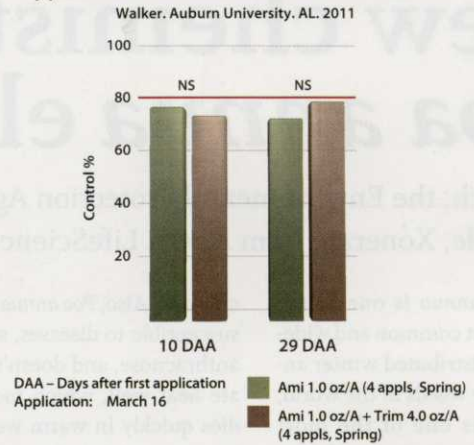
Poa annua is tough to control due to high genetic variability, short life cycle and rapid germination.

Results of control tests for annual bluegrass and *Poa annua*

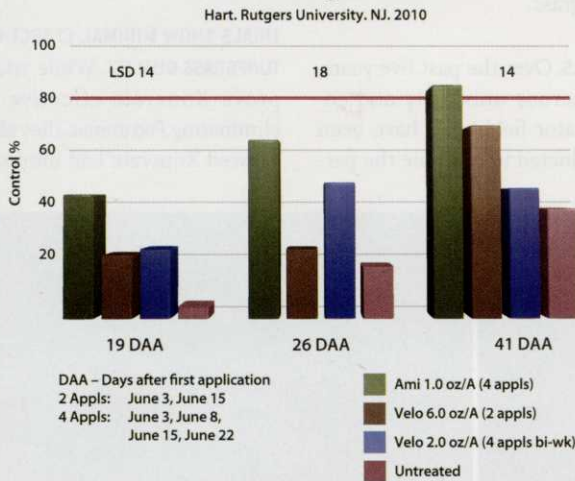
Effect of Amicarbazone on Annual Bluegrass Control
McDonald. Turfgrass Disease Solutions. PA. 2010



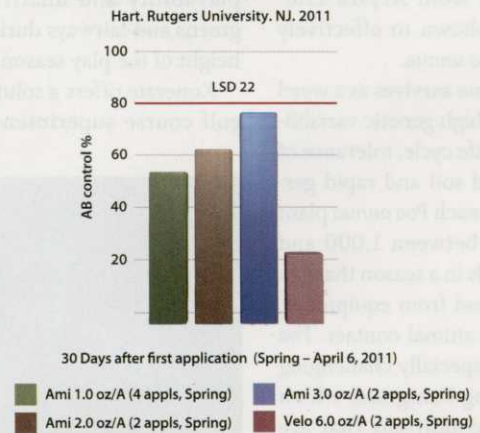
Perennial Poa Control with Spring Applications of Amicarbazone and Trimmit.
Walker. Auburn University. AL. 2011



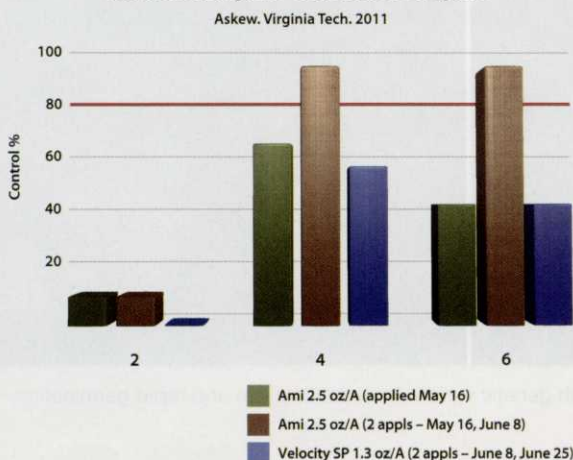
Effect of Amicarbazone and Velocity on Annual Bluegrass Control
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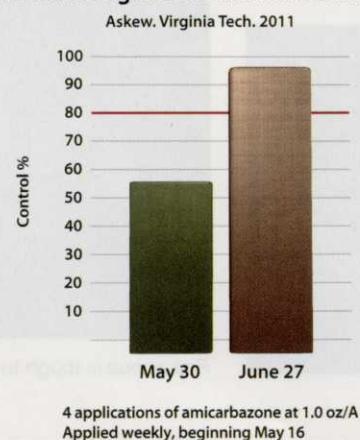
Effect of Spring Application of Amicarbazone on Annual Bluegrass Control on Bent Fairway
Hart. Rutgers University. NJ. 2011



Annual Bluegrass Control in Bentgrass
Askew. Virginia Tech. 2011

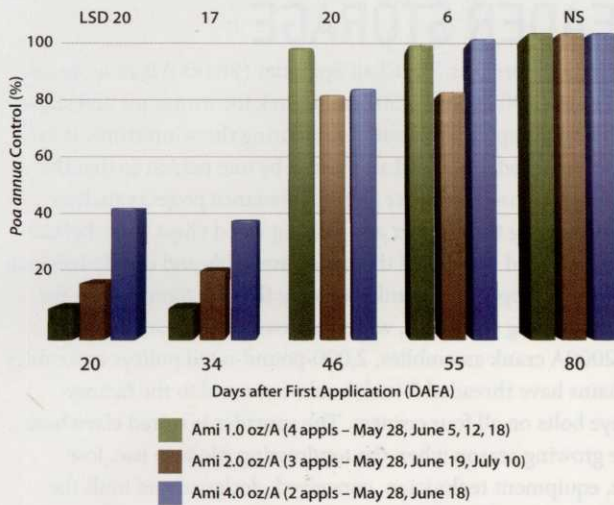


Spring Applications of Amicarbazone Annual Bluegrass Control on Bent Fairway
Askew. Virginia Tech. 2011



Poa annua Control in Kentucky Bluegrass with Amicarbazone

Street & Holdren, Ohio State University, 2011



effect on the quality of desirable turfgrasses. Many studies showed no visible effects to turfgrass. In some instances, a temporary yellowing of turf occurred after application, but turf recovered after 14 to 21 days.

HOW XONERATE WORKS. Xonerate offers selective removal of *Poa annua* in many cool- and warm-season turfgrasses including creeping bentgrass and Bermuda grass. The mode of action in Xonerate eliminates *Poa annua* with little to no disruption to the growth of bentgrass. Xonerate is absorbed by leaves and roots of *Poa annua*, where it inhibits photosynthesis by interfering with normal electron transport. Subsequent cell membrane and chlorophyll loss occurs. *Poa annua* initially becomes chlorotic (loss of green color), followed by necrosis (browning of plant tissue). Turfgrass remains mostly the same, with possible discoloration at first, lasting about two weeks as it fills back in. *Poa annua* control occurs over a three- to four-week time period.²

Xonerate may be tank-mixed (water is the recommended liquid carrier). It can be applied

up to four times at a 1-ounce-per-acre rate for bentgrass. (KBG and KBG/ryegrass up to 2-ounce rate at two applications). It should be used on turf that has smaller percentages of *Poa annua* (less than 10 percent *Poa annua* population), while transitioning to desirable turfgrass. Creeping bentgrass can be re-seeded as soon as seven days after the last application in roughs, fairways and tees.

Elimination of *Poa annua* should also include a management program that incorporates frequent topdressing, proper nutrient balance in the soil, proper soil pH and good water control (not overwatering) tailored toward encouraging optimum bentgrass growth and quality.³

SHORT-TERM BENEFITS; LONG-TERM GAINS. Golf course superintendents now have the choice to manage *Poa annua* or eliminate it with Xonerate herbicide. *Poa annua* requires intense management practices that are costly in terms of labor, water usage and fungicide/insecticide applications. At a cost of "X" per acre, the total cost of Xonerate is "X" in herbicide plus any additional monies in seed and fertilizer minus the reduced input needed to maintain *Poa annua* throughout the playing season. The first year cost will be the largest initial increase in budget expenses, subsequent annual applications of Xonerate will be required to maintain a clean stand of bentgrass.

The expense of this herbicide application in the future will be

offset, however by the reduced use of fungicides, insecticides, plant growth regulators and irrigation that would be required to maintain the *Poa annua*. Specifically, superintendents can anticipate savings of 10-20 percent in the fungicide budget once the *Poa annua* is removed.

Most importantly, the elimination of *Poa annua* improves the aesthetics of fairways, greens and roughs and increases turf quality and playability throughout the heavy play times. The loss of *Poa annua* during the heat of the summer will no longer be a problem, the consistency of the playing surfaces will increase, and color variation will decrease dramatically. **GCI**

Doug Houseworth, Ph.D., Turf & Ornamental Technical Manager, Arysta LifeScience North America

Notes

1. Grounds Maintenance, Controlling *Poa annua* in bent grass greens by Bert McCarty, Clemson University, Dec. 22, 2011.
2. Rates and applications will vary by turf type and geography.
3. USGA Green Section Record, The Continuing Saga of *Poa annua* May/June 1987.

XONERATE Fairway Application Cost Example:

Cost per Acre After All Applications are Made	Number of Fairway Acres Treated	Total Cost to Remove <i>Poa</i> from Fairways
\$450	20	\$9,000

The total cost to remove *Poa annua* will vary by application rates. This example represents four applications of Xonerate at 1.0 oz product per acre.

Hand Watering Example:

Number of Laborers Watering	Hourly Rate	1 hr/ Employee - 7 Days	Total Labor Saved
4	\$10	28	\$1,120.00/ week

The total amount of savings in labor from hand watering will vary with climate and amount of *Poa annua* present on the course.

Chemical Example:

Product	Rate	Cost/Gallon	Cost/Acre	Total Application Savings
Disarm C	2 gallons/acre	\$172	\$344	\$6,880

The amount of savings will vary based on the number of applications made targeting Anthracnose.



Terry Buchen, CGCS, MG, is president of Golf Agronomy International. He's a 41-year, life member of the GCSAA. He can be reached at 757-561-7777 or terrybuchen@earthlink.net.

Travels With Terry

Globetrotting consulting agronomist Terry Buchen visits many golf courses annually with his digital camera in hand. He shares helpful ideas relating to maintenance equipment from the golf course superintendents he visits – as well as a few ideas of his own – with timely photos and captions that explore the changing world of golf course management.



WINTER SAND/SALT SPREADER STORAGE

The Western Ice Breaker Sand/Salt Spreader (\$6,000) is mounted in the bed of the 2002 Ford F-350 dump truck for winter ice and snow removal. When the spreader is not in use during the wintertime, it can be temporarily loaded, unloaded and stored by one person so that the dump truck can be used for other golf maintenance projects such as hauling stuff, towing the chipper and loading wood chips. Two 4x4x10-inch lumber are used to support the pulley assembly and one 4x4x8-inch lumber below to support the crank assembly that are mounted on the Sandstor topdressing silo frame, which has two Dutton Lainsson Co. model D12000A crank assemblies, 2,000-pound-rated pulleys and cables and the chains have threaded 2-inch hooks mounted to the factory-installed eye bolts on all four corners. The spreader is stored elsewhere during the growing season when the topdressing silo is in use. Jose Rodriguez, equipment technician, conceived, designed and built the lift working closely with Brett Scales, golf course superintendent, at the Navesink Country Club in Middletown, N.J. It took about 12 hours for installation and it cost about \$250 for parts.



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