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KEY POINTS

Controlling any grass strain is difficult because of similar physiology and a lack of selective herbicides.

Poa annua is one of the most widespread plants in the world and has learned to adapt and thrive in a multitude of environments.

Poa control is very site specific because of the differences in the level of severity and weed pressure that vary around the course.

There are tested and effective products to control annual bluegrass, and a few new ones in the pipeline.

However, there is no silver bullet method. It's advised that multiple control methods – post-emergence, plant growth regulators, pre-emergence, cultural practices – must be put in place to effectively control *Poa*.

"*Poa annua* control is certainly region specific," says Paul Giordano, a graduate research assistant in the Plant, Soil and Microbes Department at Michigan State University. "Annual bluegrass is impressively genetically diverse, thus adapted to a wide range of environments. The annual types (*var. annua*) and the perennial types (*var. reptans*) of this species often differ greatly in their susceptibility to herbicide applications, diseases, drought, heat, and other management strategies." He says climate (air and soil temperature, humidity, etc.) also play a role in whether or not particular control strategies are effective. "Often times the survival and proliferation of *Poa annua* on a golf course is dependent on the disease pressure in the region. For example, anthracnose and summer patch are two limiting diseases of annual bluegrass, which of course can be much more severe in certain regions of the country than others."

Patrick McCullough, assistant professor and extension specialist at the University of Georgia, agrees that cultural and chemical practices used for annual bluegrass control vary by region and even golf course.

"The history of herbicide use will eventually affect the biotype of annual bluegrass that is prevalent on one golf course," he says. For example, exclusive use of dinitroanilines herbicides (pendimethalin, proflaminate, others) for annual bluegrass control over time may shift the population from a susceptible biotype to a resistant one. If this happens, it may take ten years or more using other herbicides with different modes of action to shift the population back to one that is susceptible to dinitroanilines herbicides. The presence of perennial biotypes will also vary by location, and are much more difficult to manage with herbicides than annual biotypes.

Aaron Hathaway, a research assistant II at the Hancock Turfgrass Research Center, concurs that *Poa annua* control is "definitely region and course specific." He adds, "Depending on the age of a site, especially a golf course, the question of controlling annual bluegrass may be a tougher decision. Golf courses that have been around for decades may have much more perennial type *Poa* (*Poa annua* *var. reptans*) than annual types. This annual bluegrass can produce less seed heads, be less susceptible to various stresses with deeper and more developed root systems, have more stoloniferous and tillering growth habits, and produce a beautiful stand for fairways and putting green surfaces."

However, he adds, the above-mentioned perennial types are much more difficult to control than annual types. "There are all kinds of *Poa annua* plants that fall somewhere in between the perennial and annual types and they all may respond differently to herbicides and plant growth regulators, and to cultural practices as well." All of

these biotypes may respond differently to weather such as heat, drought, and winter condition prone to causing winterkill (snow mold, desiccation, and freezing).

Hathaway believes winterkill causes superintendents to think more about controlling annual bluegrass on golf courses. "One winter can do a lot of damage to a fairway or green or many fairways or greens that are made up of some or mostly annual bluegrass. Creeping bent grass doesn't have this high susceptibility to winterkill and easily makes it a better choice for areas on golf courses that are prone to ice or have no wind breaks to prevent desiccation, etc."

McCullough claims *Poa* "was a tough weed to stay ahead of" last fall in the southeast because of a cool and wet summer. "We had annual bluegrass germinate a few weeks early in Georgia this year, and we may be setting up for a tough winter and spring. Timing pre-emergence herbicide treatments this year was difficult and we may see a lot of cleanup applications needed this winter for uncontrolled annual bluegrass from pre-emergence herbicides applied too late." Superintendents may need to switch chemistries of the herbicides they are using, and have an appreciation for how resistance in weed populations may develop as a result of repeated use of herbicide or modes of action year after year, he says.

Dr. Jason Fausey, regional field development manager for Valent Professional Products, says *Poa* generally survives in shady, wet, compacted soils where desirable turfgrass is weakened. "The weakened turf allows for an opening and *Poa* will take advantage and fill in those areas. *Poa*, being a weed with a tremendous amount of

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—Paul Giordano, Michigan State University

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natural diversity in the gene pool, makes it very difficult to control. There are annual, biennial and perennial biotypes that all show varying degrees of sensitivity to herbicides."

Focusing on the basics, i.e. proper use rate, timing, product choice and application techniques, can help. "Managing all the different aspects to maximize a *Poa* control program is essential to either keeping *Poa* out or reducing the amount of *Poa* on the course," Fausey says.

Putting green height turfgrass is a bit more difficult to manage since fewer options exist for selective annual bluegrass control, Giordano says. Many of the products like Velocity are not labeled for use on greens. The best approach on putting greens is likely an integrated one, he adds, using management strategies that favor the growth and development of creeping bentgrass rather than annual bluegrass. "Over watering, for instance, can favor annual bluegrass invasion, as well as extremely low mowing heights that may create voids in the turfgrass stand," he says.

Reicher and Gaussoin's report states annual bluegrass in roughs can be controlled by turning off irrigation in July and/or August to force the desired grass into dormancy, which should kill the annual bluegrass. Apply any labeled pre-emergence herbicides (other than siduron) and start regular irrigation to bring the desired turf out of dormancy. The desired turf should recover fairly quickly, whereas the pre-emergence herbicide will prevent the annual bluegrass from germinating. A second application may be needed later in the fall or early next spring to maximize annual bluegrass control. Since some seed will remain viable, continue the late summer pre-emergence herbicide application for two to three years or until annual bluegrass is no longer a problem.

There are tested and effective products to help superintendents control annual bluegrass, and a few new ones in the pipeline. "Sureguard (flumioxazin) is a new herbicide we have been working with for the last several years in Bermudagrass," says McCullough. "This is a new chemistry for pre- and post-emergence control of annual bluegrass with significant residual control of annual weeds, such as crabgrass and goosegrass. Sureguard is the only chlorophyll synthesis inhibiting herbicide (protox inhibitor) available in turfgrass, and offers a new mechanism of action for post-emergence annual bluegrass control. It also picks up annual broadleaf weeds pretty well including henbit, hop clover, and chickweeds."

Giordano offers, "Some golf courses with extensive budgets may employ any measures available, including frequent use of growth regulators like paclobutrazol and flurprimidol, as well as post

emergent herbicides like bispyribac-sodium on creeping bentgrass fairways." These strategies are used to progressively shift the stand in favor of creeping bentgrass, slowly and gradually phasing the annual bluegrass out.

Hathaway says the product PoaCure (methiozolin) is "the newest and most promising product for poa control." It is not yet labeled. "The best thing about PoaCure is that it is extremely safe on other cool season turfgrass species, like creeping bentgrass and Kentucky bluegrass. Xonerate (amicarbazone) is new and I would say comparable to Velocity--it will injure creeping bentgrass some. You must make multiple application with a short application interval to achieve subtle conversion from annual bluegrass to creeping bentgrass, and it works best in warmer temperatures."

Trimmit (paclobutrazol) and Cutless (flurprimidol) are common plant growth regulators that have been around for a while and have proven to work well for annual blue grass control. "But you must just keep using them as a program approach year after year for the most part," Hathaway says.

It is important to understand the active ingredient in the new products they are using, says McCullough. "Although there have been new products released recently that have improved turf tolerance or efficacy for annual bluegrass control, many of these herbicides are old modes of action with significant resistance issues." Turf managers trying new products need to do their homework on the active ingredients, he advises, and consider rotating modes of action to minimize resistance issues in annual bluegrass populations.

"Time will tell," he adds, on whether there is a breakthrough *Poa annua* control product in the not too distant future. "We have been testing several new herbicide chemistries with significant potential for controlling annual bluegrass. However, the cost, selectivity, and labeled areas may not be suitable for all golf courses, if and when they are released."

New herbicides or plant growth regulator will aid in the fight against *Poa*, says Dr. Fausey. "However, long-term, the best management programs in the future will intergrade all available control options."

Hathaway adds, "Supers should know that there simply is no silver bullet method for *Poa annua* control. If control is desired, multiple control methods (post-emergence, plant growth regulators, pre-emergence, cultural practices) must be put in place to do it well." GCI



Annual bluegrass is impressively genetically diverse, thus adapted to a wide range of environments.

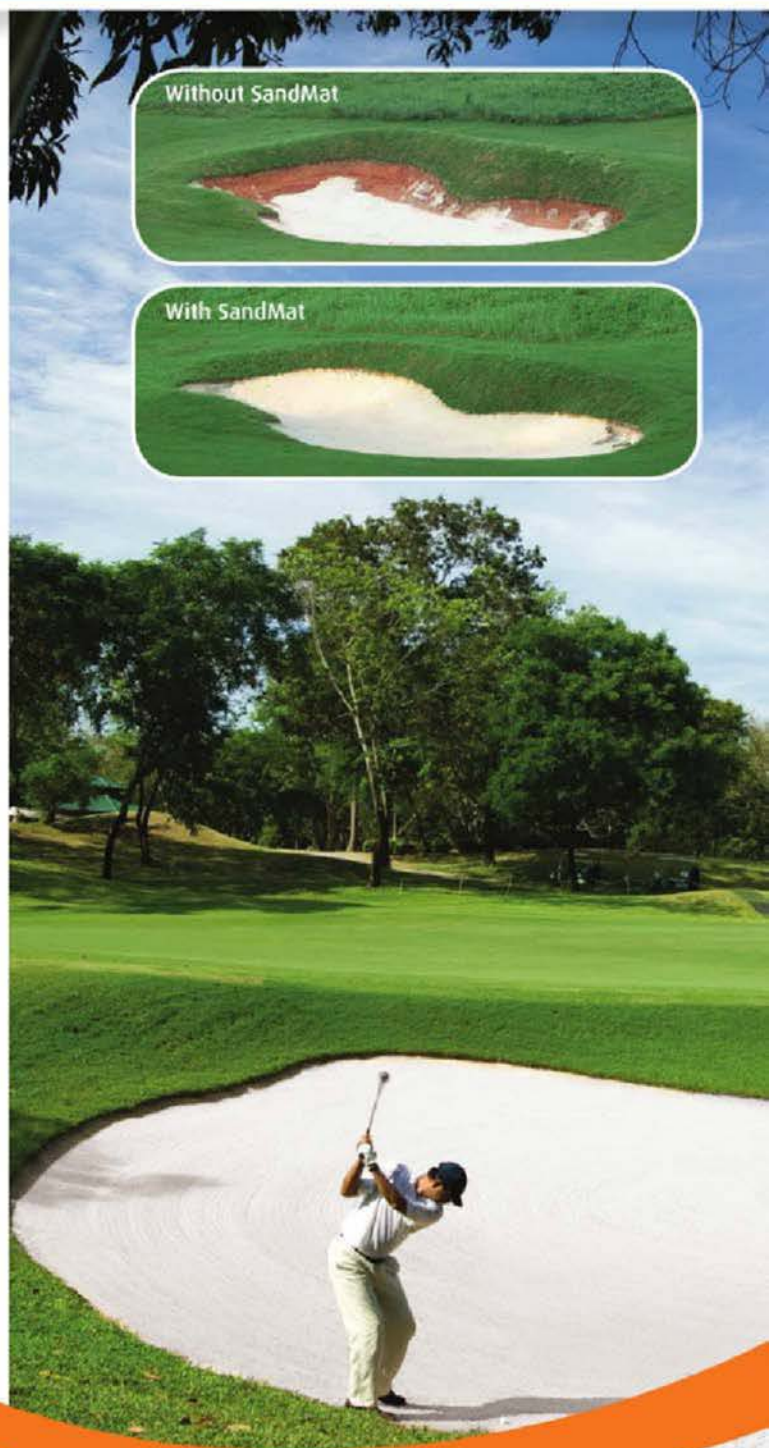
John Torsiello is a Torrington, Conn.-based writer and a frequent GCI contributor.

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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.

FOAM MARKER

This 2010 John Deere Model 4520 Tractor with a 2010 Lely Model L2010 fertilizer spreader has a Richway Industries Model TF2020SD foam marker that is used when fertilizing fairways and roughs. The holding box was built using a 3/4-inch by 1/2-inch thick angle iron welded together that then is mounted to the ROPS using existing bolts. The electric harness, included with the foam marker, was wired to an on/off switch on the tractor's right side control panel. The 1/2-inch-diameter discharge hose has a special "collector head" nozzle for foam disbursement that is placed next to the tractor's differential approximately 8-12 inches above the ground. Foam Trail is used at 2-4 ounces per gallon of water where the control knob adjusts the foam discharge rate as desired. The cost for the installation materials was about \$7 and the labor time was about 2 hours. This very exclusive private golf club requested to not be identified.



MECHANIC'S SERVICE VEHICLE

This 2008 Club Car Carryall 295 started out life as a beverage cart. The cargo box was built in-house using 16-gauge sheet metal and 14-gauge diamond plate on the bottom with a 1-inch-by-1-inch by 1/2-inch square tubing frame. Spare tires, fuel cans, shop rags, tire-repair kits, straps, cutting tools are some of the items carried in the box. The materials, including the paint and bed coating, cost about \$400. The 2010 John Deere Model AC2-CG35H-P Compressorator combination unit has a 3500/2300 watt generator that also powers a 15.4 cfm @ 175 PSI air compressor with a 3/8-inch diameter, 25-foot air hose mounted on a retractable hose reel. Mounting used rubber mounts and 5/16-inch-by-3-inch bolts and lock nuts. The 2011 Craftsman Model C931018 tool box was mounted to the front-mounted factory-installed Class III 2-inch receiver hitch with a mounting frame built measuring 26 3/4 inches by 12 3/4 inches by 11 inches made with 1 3/4-inch angle iron and supported by 2-inch-by-2-inch square tubing with side reinforcements made of 1-inch-by-1-inch square tubing inserted and bolted together. The materials cost about \$70. The two large Balkamp Model BK827459 side rear view mirrors, and mounting hardware, were installed by drilling holes in the front cowl per manufacturer's directions. They cost about \$35 each. About 16 labor hours were required. This very exclusive private golf club requested to not be identified.



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(DELOZIER continued from page 10)

market, the winners are the clubs that consistently perform at the highest level. Think of these three actions that can be launched immediately and with very little added expense:

1. Elevate course conditions. No one wants to play a course in poor condition. The golf course must be in great shape. There is no forgiveness for dead grass, weeds, mud-holes and unfinished projects.

2. Clean up! Thoroughly clean the clubhouse and keep it clean. Malcolm Gladwell points out in *The Tipping Point*, his best-selling book about trends

of change, that the first step in reducing crime in New York City was eliminating graffiti and broken windows. This simple step reinforces brand standards, admirable personal and professional habits and the sense of well-being for members, guests and employees.

3. Engage your staff. Ask the staff for ideas that will add to members' enjoyment and the operational efficiency of your club. Remember, everyone wants to play for the winning team and great ideas are hiding inside of every employee.

A few simple steps can make 2014 the year we get out of our ruts. **GCI**

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GLO

During a painful ordeal, one superintendent bares his soul on social media.

I met Jason VanBuskirk a year ago at the GIS when Bill Brown introduced him to me as part of the fledgling Turf Republic team. Honestly, the only thing that struck me about him at the time was that he was another sharp young guy committed to using social media to communicate with his members at Stow Acres CC in Massachusetts and industry peers. I knew him more by his Twitter handle – @URITurf – than as a person.

That's a funny thing about social media. It's sometimes awkward when you actually meet people with whom you've chatted endlessly with on Facebook or Twitter. There's a disconnect for a minute. The virtual relationship gets lost in translation when you're actually shaking someone's hand.

Flash forward to early December. I was talking with Bill and he mentioned Jason was dealing with something unexpected and terrifying: His wife Gloria was hospitalized after suffering a series of horrendous seizures. No history, no warning signs, no nothing. Her brain was short-circuiting badly. The doctors had no idea what to do and the picture was bleak.

I looked at pictures of Gloria on Jason's Facebook page. Young, healthy, fitness nut, pretty, always smiling... vivacious! Yup, that's the word: vivacious. Full of life and madly in love with her husband and two toddlers.

Then I imagined that same woman lying in an intensive care unit, wired up to a respirator to keep her alive and surrounded by physicians who apparently had no clue why this woman's central nervous system was going completely haywire.

Then I imagined Jason facing the reality that his wife was gravely ill. It must feel like the world has turned

upside down. Every bit of hardship I've gone through pales in comparison to sitting next to the woman you love in an ICU and wondering why something so terrible could be happening.

I talked with Bill again and he confirmed the seizures were getting worse and the doctors were putting Gloria into a medically induced coma.



Jason VanBuskirk with his wife, Gloria.

Not good. Then he told me Jason was blogging about the experience. I gulped hard and clicked on the WordPress link he sent and found... well, something completely unexpected.

For two months, Jason has been sitting in her hospital room at night and writing about Gloria. To me, he seems to be trying to capture both the beautiful and mundane moments of their life together. Each entry is a warm memory... some little thing she'd done that exemplifies what kind of person she is, something funny she'd said. He's painting a lush and gorgeous portrait of her with words and images. Promise me you'll follow this link to go read Jason's blog. You absolutely won't regret it.

<http://bidmcgvb.wordpress.com/>

Jason's writing is magnificent because it's coming from the very core of his soul and he's doing it for the highest possible purpose. No matter what the future holds, Jason has given an amazing gift to his children, his family and all of us by portraying the vivacious, funny, warm and wonderful woman he loves very, very deeply.

Each blog entry ends with an update on Glo's condition. As I'm writing this on Jan. 31, she was out of her coma, breathing on her own and showing signs of recovery. She's still trapped inside a dysfunctional body and unable to speak, but she smiles and giggles! And she gives kisses! She inspires everyone around her by fighting through this crazy awful thing to be a wife and mother again... to again be the vivacious Gloria that Jason has animated so beautifully with words.

This is chancy business writing this now. Much is still unknown about Gloria's condition and the road ahead is risky. But I have faith. And that faith is powered by the fact that many, many people are praying for Glo and thinking positive healing thoughts for her. I'd appreciate it if you'd join us.

I'd also appreciate it if you'd consider doing something more to help. Jason, Gloria and their children are already facing enough without having to worry about stupid medical bills. Just pitch in and help with any gift big or small. If everyone reading this just gives \$10, we can help the VanBuskirk family focus 100% on the important business of healing. Please help... it's the right thing to do.

(You can help support Jason & Glo by going here and making any donation you can: <http://www.gofundme.com/Medical-Bills-for-Gloria>) GCI



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