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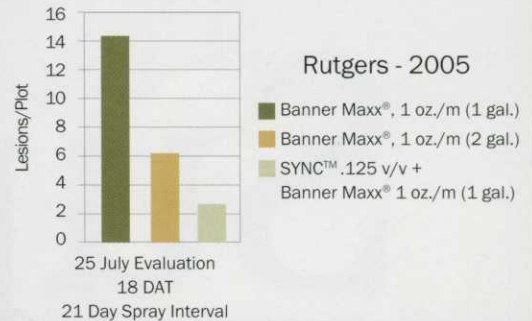
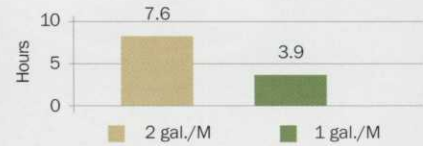
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- Poor water infiltration into ultra-dwarf bermudagrass or low cut bentgrass varieties
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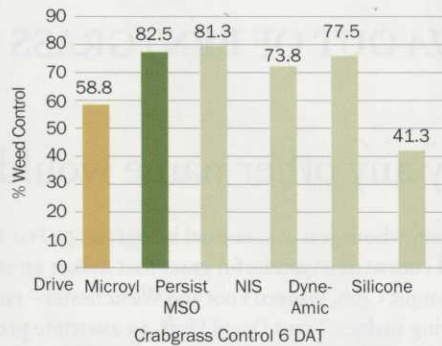


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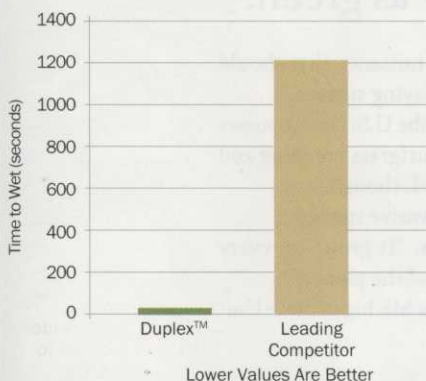
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The Supreme Weed

BY T.R. MASSEY

KEEPING *POA ANNUA* OUT OF BENTGRASS REMAINS A CHALLENGE

A weed by any other name would grow as green.

Depending on whom you ask, annual bluegrass, or *Poa annua*, is a nuisance that should be ferreted out of a golf course or a wonderful grass that makes an attractive playing surface.

"At Oakmont, the Olympic Club, Winged Foot and Westchester – two thirds of the U.S. Open courses – it's managed as a playing surface," says David Huff, an associate professor of turfgrass breeding and genetics at Penn State University who conducts research about *Poa*. "It's a weed, though."

Although it can provide a nice playing surface, *Poa annua* is a remarkably invasive species.

"This organism is just fascinating from a biological perspective," Huff says. "It grows on every continent, including Antarctica. Here's an organism that has covered the face of the planet."

Ron Calhoun, an environmental turfgrass specialist for crop and soil sciences at Michigan State Uni-

versity, says *Poa* is amazing because it changes to thrive in conditions where it's growing.

"What's cool about it is it's 95-percent inbred," Calhoun says. "If you have a plant that can survive under a certain set of circumstances, that plant is going to produce seed that will also survive in that situation. You develop your own personal *Poa* population that's ideally suited to subenvironments on the golf course. It can produce seed at any mowing height and can be viable quickly. Most seed takes two weeks. There's some evidence that *Poa* takes only a day or two. It's unique among grasses."

But so far, no one has come up with a marketable seed for *Poa*.

"If you're a new course, what do you do?" Calhoun says. "You can't buy *Poa* seed. You have to buy aggressive bentgrass seed. You spend thousands, and if you are vigilant from day one, you can try to keep it out. If you try to restore 10 to 40 percent, you can't do it."

KEEPIN' IT REAL

John Zimmers, golf course superintendent at Oakmont Country Club (home of the 2007 U.S. Open near Pittsburgh), has been tending the club's 100-year-old *Poa* greens for the past eight years.

"You try to manage what you have," he says. "We manage our *Poa*, and we've learned what we need to do and keep it healthy, syringing it with lots of aeration and topdressing and drainage. Ours doesn't do as well in damp conditions because perennials do better in the dry conditions. Our greens hold up well under dry conditions."

Oakmont's turf is a perennial *Poa* that's a much higher quality than other types found throughout the world, and it doesn't seed much, Zimmers says.

"It's slow to grow and recover and slow to move laterally after aeration," he says. "However, you can cut it shorter than any other grass I've seen. It's the most unique *Poa* I've seen. I can cut below $\frac{3}{32}$."

OUT OF HERE

Ray Viera, superintendent at Hamilton Farm Golf Club in Gladstone, N.J., believes *Poa* is a disaster waiting to happen.

"As you lower mowing heights and turn up the heat, it's a collision course," he says. "It's not an ideal grass for high-profile places anymore.

When people want fast greens, you're bound to fail. It's torture."

With a grow-in, it certainly takes an enormous amount of planning in preconstruction to keep *Poa* away, Viera says.

"You have to anticipate when you plant," he says. "The quicker you deal with it, the less chance a stand establishes. Quick coverage is key. It's not chemicals. You can't 'preout' *Poa annua* on soil where you need to germinate grass. You have to have good watering practices and understand *Poa annua* is in that ground before you start. You have to keep it clean from the beginning. Then you have to cut it out, then keep it managed with chemicals."

At Hamilton Farm, Vierra has only a small population of *Poa*.

"We're on top of it," he says. "We use Cutless, which is toxic to *Poa annua*. It's great for bentgrass regulation. We've been using it, and the *Poa* stays out."

About one-third of Vierra's pesticide budget is allocated to growth regulators, which are used to control *Poa*, among other things, so it's hard to quantify by dollar amount.

If you spend a lot of money on a new construction or renovation project and plant any number of bentgrass varieties, *Poa* isn't a welcome visitor. Take the course at the exclusive Double Eagle Club in Galena, Ohio. It's a Tom Weiskopf/Jay Morrish design that's maintained in as near perfect condition as it can be daily. Fewer than 10,000 rounds are played there annually.

"We're 99.5 percent *Poa* free on the greens, which is remarkable for 16-year-old greens," says superintendent Todd Voss.

One of Voss' first defensive screens is having every person's golf shoes changed and cleaned.

"It helps us control what spikes our people are wearing, and it has an added benefit of keeping people from bringing in *Poa* on their shoes," he says.

When Double Eagle was built, it was a virgin field with mature woods, so there was little *Poa* on site.

"Our first *Poa annua* came in through bluegrass sod," he says. "The sod source is more important than anything else."

Voss warns others to be extremely vigilant when screening sod and seed sources and suggests starting programs that keeping *Poa* off a property.



At Towson Golf & Country Club, Velocity is the cornerstone of Quent Baria's *Poa* control program. Photo: Heather Wood

"For the first 15 years, we mechanically removed it with forks and knives – we basically cut it out," he says. "Most courses don't have the time or labor to make it as big a priority, but for us, it was. It's aggressive. If you see one spot one year, then it's 20 spots next year. It's meant to survive. It reproduces quickly. It's an amazing plant."

Voss also experiments with different chemicals to retard *Poa* growth.

"Statistically, they work, and if you're trying to go from 60 percent to 20, it can work," he says. "If you're trying to go from 3 percent to none, it doesn't work."

Even though Voss is determined to keep *Poa* at bay, he doesn't condemn the plant.

"What is wrong with *Poa*?" he asks. "It can be a fabulous grass. The problem with *Poa* is

the transition. You go through years of being new or renovated, and you start getting *Poa*. Then when you have about 30 percent *Poa*, you get those bumpy conditions that no one likes. Then once you get to 60 to 90 percent, those complaints stop. It's the transition time – that's the problem."

Quent Baria, superintendent at Towson Golf & Country Club in Phoenix, Md., is a believer in Velocity herbicide for *Poa* control.

"It's the cornerstone of my program," he says. "It's so effective. Three years into the marketplace, I'm surprised it hasn't had more press. It's extremely selective and effective."

But there's an educational process the membership or clientele must endure when using the product, Baria says.

"You'll be looking at some voids in your turf," he says. "But that's a good thing. You have to rely entirely on the creeping nature of the bentgrass to take over where the voids are and you have to be patient."

If the voided areas are too big, the *Poa* will come right back, Baria says.

"If you don't use a preemergent the whole time, you'll just get the *Poa* back," he says. "You didn't acquire it in a year or two, and you probably shouldn't try to get rid of it in a year or two. I have significantly cleaned it up. I've demonstrated I can win the battle in the short term."



At The Country Club at Castle Pines in Colorado, Sean McCue uses Bensumec and either Velocity or TGR to control *Poa*. Photo: The Country Club at Castle Pines

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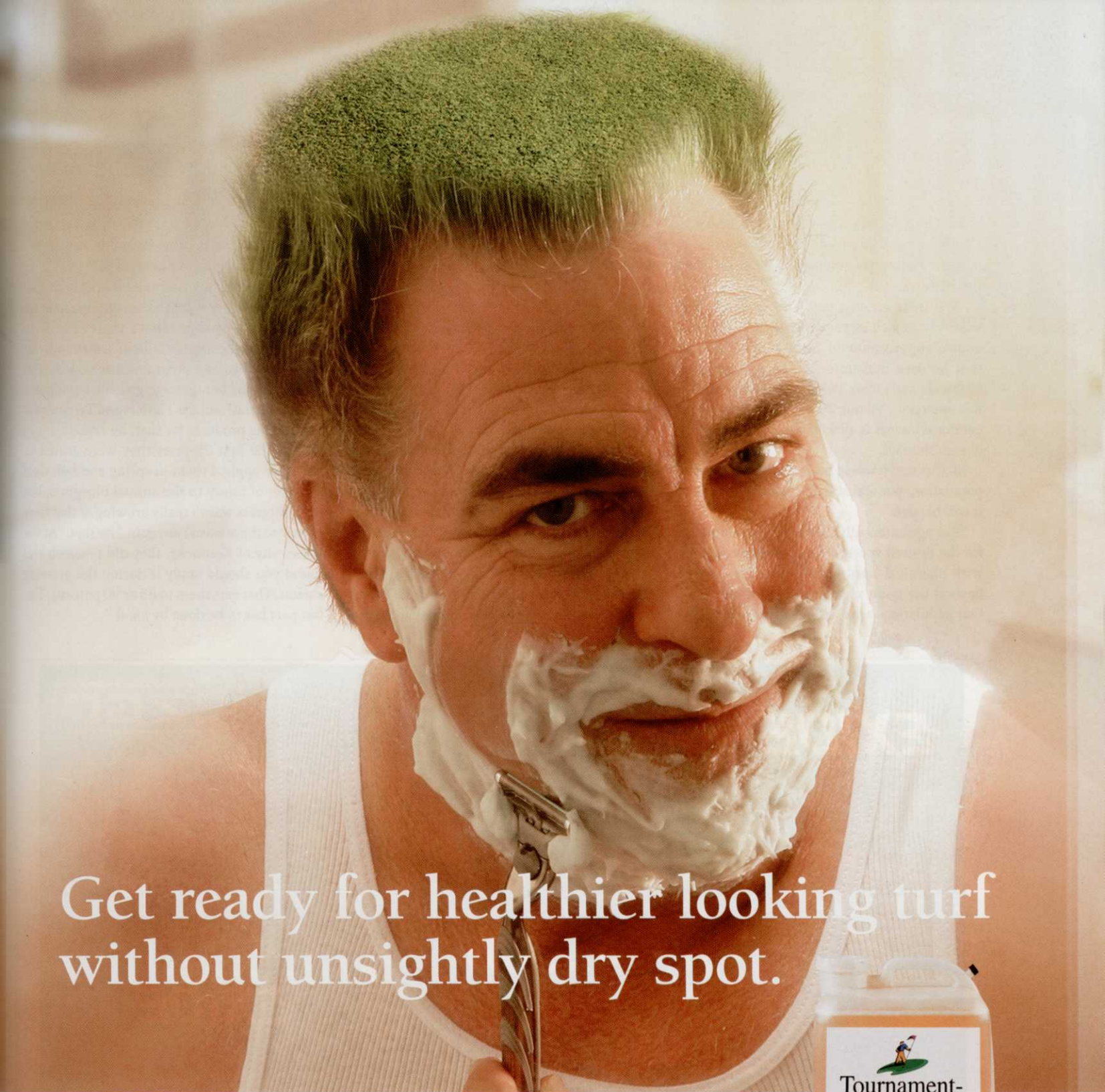
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At The Country Club at Castle Pines in Colorado, the 22-year-old course has 10 to 25 percent *Poa* on its greens and 30 percent on the fairways.

"We treat greens, tees and fairways preventively as well as postemergently," says golf course superintendent Sean McCue, adding that he uses Bensumec as the preemergent herbicide and either Velocity or TGR after *Poa* has emerged. "About 20 to 25 percent of my chemical budget is allocated to controlling *Poa annua*," he says.

McCue says it would be nice to reduce the *Poa* population, but realistically, he doesn't believe it will happen.

"But agronomically, if we provide nutrition for the desired species, we can reduce the *Poa* with chemical treatments," he says. "We're beyond the point of physically cutting it out. Our populations are too large for that to have a

positive impact on things."

ADVICE

Calhoun asks those superintendents who are thinking of ridding their golf courses of *Poa*: Have you made a sober assessment of your *Poa* population?

"When it dies, it's so ugly," he says. "If you have *Poa*, you have to look at it as a renovation. Some products can give us some control, but it's hard to take grass out of grass."


There are postemergent products on the market, including Velocity, but superintendents must be careful with it, Calhoun says.

"Are you going to put that down a week before your member-member?" he says. "It selectively takes out annual bluegrass, but the rub is that it takes several applications. So you have to watch the *Poa* die. It turns the color of a manila folder, and it's not subtle. If you have more than 20 per-


cent *Poa*, you're looking at Velocity as a selective renovation. It's like using Roundup, except you get to keep part of your bentgrass."

Often, when superintendents approach Calhoun, they either want to manage *Poa*, manage bentgrass or manage what's there. For 5- to 8-year-old golf courses, Calhoun usually advises aggressive regulator programs that slow the *Poa* more than the bentgrass to give the bentgrass a competitive advantage. Cutless and Trimmit are the two big products for that, he says.


"For the first 25 years they were available, when we applied them in spring and fall, we'd see a lot of injury to the annual bluegrass, but the bentgrass wasn't really growing at that time of year so there wasn't any gain," he says. "At the University of Kentucky, they did research and found you should apply it during the growing season. That gets them to 85 or 90 percent. The last part has to be done by hand."



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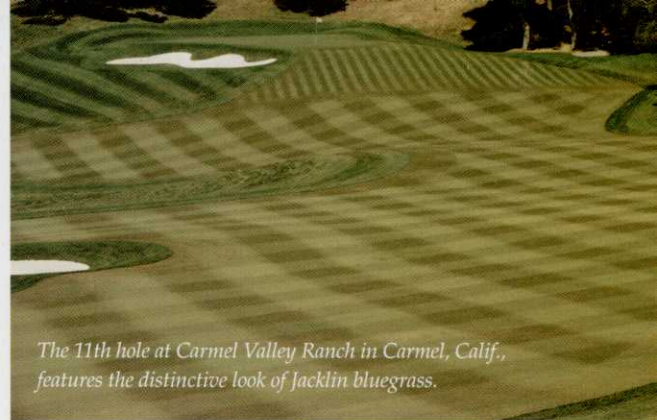
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The 11th hole at Carmel Valley Ranch in Carmel, Calif., features the distinctive look of Jacklin bluegrass.

When you hear the name Jacklin Seed, what's the first thing that comes to mind? If it's bluegrass, you're not alone. Jacklin has an impressive history of bluegrass production, from its beginnings more than 70 years ago to its recent decade-long dominance of the National Turfgrass Evaluation Program (NTEP) bluegrass trials.

Jacklin's **Award** bluegrass is the variety that started the fairway bluegrass phenomenon. In national testing, **Award** scored number one at mowing heights below one inch. Its intense, dark-green color and resistance to leaf spot and summer disease, coupled with its low mowing height, make it one of the best choices for any fairway.



T1 bentgrass, shown here on the 9th green at Carmel Valley Ranch, ranks number one in NTEP for its rich genetic color.

Superintendents praise Jacklin's top-performing **NuGlade** bluegrass. **NuGlade** provides even more shade tolerance than Jacklin's original **Glade** variety, and is known around the world for its lasting fairway performance and dark-green color. **NuGlade** provides superior performance at low mowing heights, down to one-half inch.

Jacklin also boasts the number one darkest Kentucky bluegrass in existence, according to national test results. **Total Eclipse** is a fairway bluegrass with outstanding resistance to leaf

spot, necrotic ring spot, stripe smut and brown patch. The aggressive ground coverage and wear tolerance of **Total Eclipse** means thick, dense grass in all seasons.

Yes, when you think Jacklin, you often think bluegrass. However, savvy superintendents and turf professionals are aware that Jacklin does more than just blues, offering more than 98 varieties of seed, including fescue, zoysia and bentgrass.

Bent On Quality

Jacklin's bentgrass varieties are garnering as much praise as the award-winning blues, and for good reason: superintendents love their superior color, strength and disease resistance.

Take Jacklin's **T1**, for example. This creeping bentgrass ranks number one in NTEP trials for its rich, dark-green genetic color. **T1** was bred to successfully compete against *Poa annua*, and its aggressive nature and ground coverage make it perfect for use on greens, tees and fairways.

The **L-93** variety is another outstanding Jacklin bentgrass. The stress-resistant **L-93**, with its upright, fine-blade leaves, is a great fit for high-traffic areas. This variety offers superior dollar spot resistance, and ranked number one in tee and fairway performance categories at two consecutive national trials.

Alpha – also known as "Pinehurst" – is an aggressive bent with unmatched ground coverage and density. Its interseeding strength, brown patch resistance and gains against *Poa annua* give courses a true championship appearance.

For the deepest root system compared to other creeping bentgrass varieties, Jacklin's

Putter is the top choice. **Putter** was rated the number one variety for overall quality in the final year of the 1989 – 1993 NTEP fairway trials, and its quality shows in its superior spring greenup and winter color retention, improved disease resistance and adaptable mowing height.

These are just a few of the many varieties of Jacklin bentgrass that are winning national awards and recognition as the best fit for any course's tees, greens and fairways.

A History Of Excellence

Jacklin Seed by Simplot is one of the largest grass seed research, production and marketing organizations in the world. Its varieties are world-renowned, used by customers in 53 countries.

From dominating NTEP trials with its well-bred standards to achieving the highest possible marks with its aggressive development of experimental seed, Jacklin is known for pushing the envelope of innovation while maintaining and improving its core varieties.

Jacklin's experience and expertise in producing high-quality seed is a great source of pride, and it shows in the company's strong commitment to providing the best service while being a true storehouse of knowledge and advice for its customers.

Whether it's for golf, sports turf, or lawn and landscape applications, Jacklin has a variety to cover any need, in nearly any growing condition.

For more information on Jacklin Seed by Simplot and its varieties, please call 800-688-SEED (7333), or visit www.jacklin.com.

JACKLIN
S E E D

But before a superintendent makes a decision, he must know what kind of *Poa* he's dealing with.

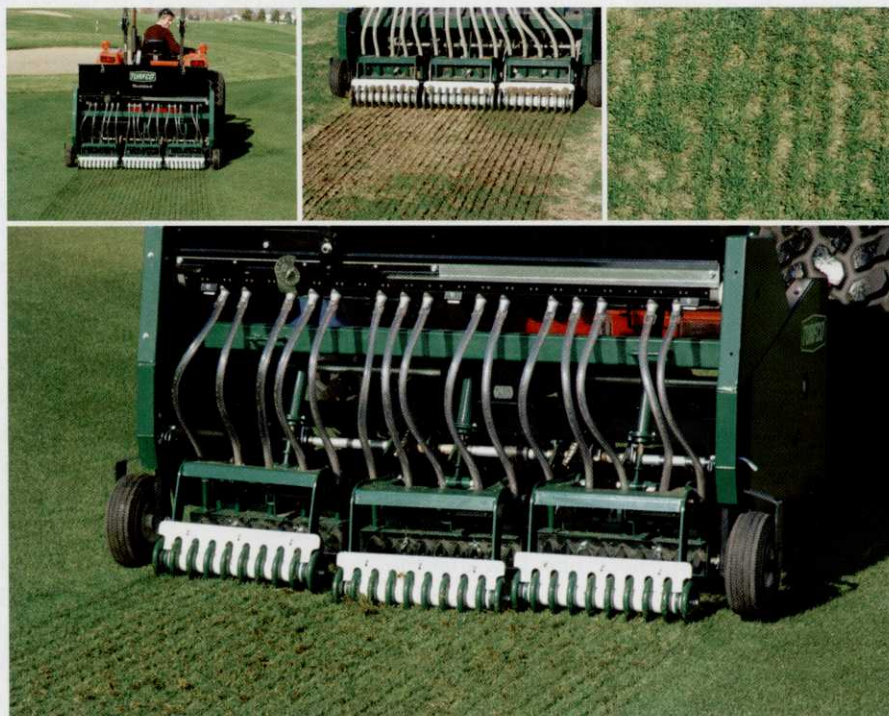
"Not all *Poa* is the same," Huff says. "It's a world apart. It's a different grass altogether. I

don't know how pervasive that knowledge is."

"You're not talking about a single plant," Calhoun says. "Because it can adapt, it changes over time and by site. Because it's inbred, it can produce another *Poa* plant that's also ideally

sued. It thrives in its situation. That's why it's the supreme weed." GCI

T.R. Massey is a freelance writer based in Columbus, Ohio. He can be reached at trm@columbus.rr.com.



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In search of a silver bullet

David Huff, an associate professor of turfgrass breeding and genetics at Penn State University, is in search of a silver bullet for *Poa annua*.

"No one has pulled back the curtain on it yet," he says. "We can't kill it, and we've had difficulties eradicating it. We've been on it now about 12 years."

Poa annua, or annual bluegrass, is an invasive species listed on a noxious weed list in 13 or 14 states, Huff says. When it enters a golf course, it evolves rapidly.

"It adapts exactly to the level of management you're giving it," he says. "It takes several decades for it to get there, but once it's there, it can propagate true types. It has this amazing ability to adapt to about anything that you throw at it."


Despite a lot of research, Huff hasn't figured out how to keep *Poa* at bay.

"Other than taking a knife and never letting it get established," he says. "Work it into your management scheme and your budget. You have to send guys out with buckets and tools to cut the plant out. Go to the nursery, get some bent samples and replace the *Poa* with it."

Huff's research is working toward producing a seed from the desirable types of *Poa*. "Eventually, we'll have the seed," he says. "The high quality types, the ones better than the best bentgrasses is like nothing else. There's a negative relationship with seed production. The highest quality is mostly perennial and doesn't produce many seeds. We have some types that produce no seed – there's only vegetative growth. The other end of the spectrum are ones that produce seed. When you put any stress on it, they shut down and go to seed production."

The problem, or wonder, of the plant is its genetic instability.

"They're so unstable they can adapt rapidly," Huff says. "That's what gets them in there." GCI



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Article and photos by David Wolff

PGRs:

the superintendent's multitool

New uses for growth regulators seem to emerge daily



At Sun City Carolina Lakes, superintendent Aaron Nolan says he has improved turf consistency 20 percent through plant growth regulator use.

Rick Tegtmeier has declared war on *Poa annua*. One of his weapons – the plant growth regulator Trimmit. The director of grounds at the 36-hole Des Moines Golf & Country Club in Iowa uses the chemical on his A-4 bentgrass greens.

“Trimmit helps the bentgrass by holding the *Poa annua* in check and even taking it out,” he says. “We have a dense, compact, upright surface that’s still smooth in the evening after a day’s growth.”

Tegtmeier also uses growth regulators in the fairways. For the first two applications in the spring, he uses a combination of Primo and Proxy to control *Poa annua* seedheads. Beginning in mid-June, he switches to Trimmit to slow the growth of *Poa annua* while the bentgrass is actively growing.

“On greens, we apply Trimmit from spring until the first frost,” he says. “It’s a light application every two weeks. There’s another application just after aeration to help control any *Poa annua* that might have germinated.”

Plant growth regulators have been a veritable multitool for golf course superintendents for many years. Growth-inhibiting PGRs generally are used to control growth of warm- and cool-

season grasses and for seed head suppression, primarily with *Poa annua*.

But, more recently, this type of PGR has been used to manage turf stress, especially under drought and shade conditions. Superintendents also use these products to enhance overall turf quality, promote a smooth and uniform playing surface and improve stress tolerance in intensely maintained areas.

CREATIVE USES

While growth reduction generally is the goal of plant growth regulators, a number of other creative uses have been developed, says Nick Christians, Ph.D., a professor in the horticulture department at Iowa State University.

“*Poa annua* control remains a serious problem for golf course superintendents around the world,” he says. “One of the creative uses of PGRs has been to use them as part of a carefully structured integrated program to reduce *Poa annua* in golf turf. Giberallic acid-inhibiting (Type II) material doesn’t kill the *Poa*, but slows its growth more than bentgrass. Over time, this results in an advantage to the bentgrass. Success depends on the skill of superintendents in adapting the program to their particular situation.”