



Timing, temperature are the keys to winning this war of attrition against *Poa*.

# • The invas

By David McPherson

**T**hink of *Poa annua* as that annoying uncle who comes to visit unexpectedly once per year: you know he's coming. You can prepare for his arrival with distractions to hopefully minimize his stay. He's familiar, yet he's still hard to figure out.

Fighting *Poa annua* (commonly referred to as annual bluegrass) on putting greens – where it's perennially an unwanted guest – is a battle many superintendents face each spring. *Poa* adapts faster in cool-season climates. Once this turf variety invades a club's greens, it is difficult to get rid of. For the best success, superintendents can attack this unwanted intruder in the early spring before it germinates by spraying its seedheads with Plant Growth Regulators (PGRs). This inhibits, and limits, *Poa's* production before it reaches the surface and spreads.

Sean McCue can relate to this perennial pest. The superintendent at the Country Club

at Castle Pines in Colorado for the past 16 years says trying to prevent *Poa annua* from further encroaching into his putting surfaces is one of his biggest maintenance challenges. Castle Pines' greens are made up of a 25-year-old Penncross bentgrass variety, which at 70 percent, is the dominate strain of turf; *Poa* makes up the remaining 30 percent.

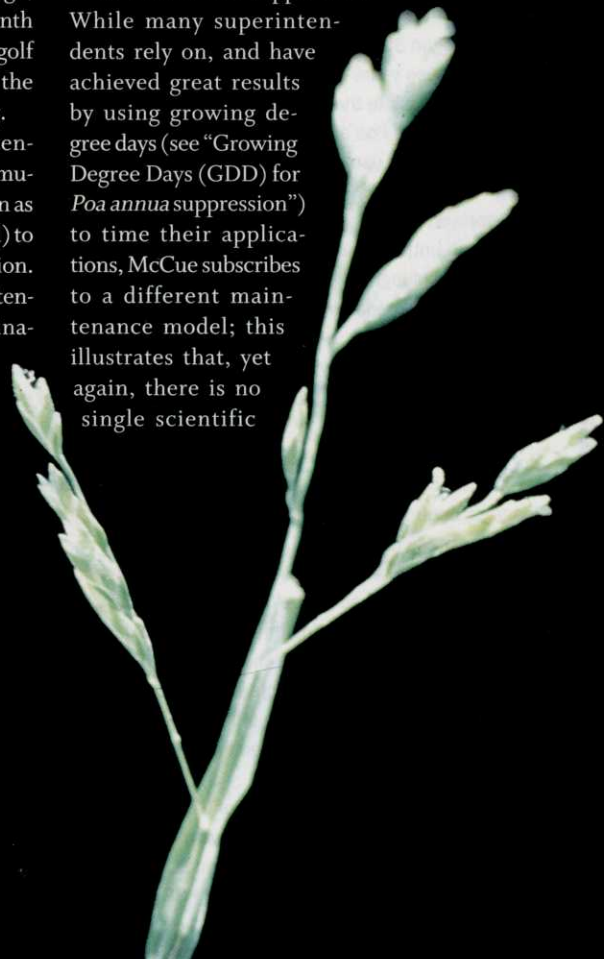
Castle Pines' members, who are privileged to play this Jack Nicklaus design near Denver, are very active. According to McCue, they play, on average, 26,000 rounds in an eight-month season. And, like all private golf club members, they expect the highest level of conditioning.

Over the years, superintendents have used different formulations of Embark (now known as Embark Turf and Ornamental) to inhibit *Poa* seedhead production. More recently, many superintendents have used the combination of Primo MAXX and Proxy with good results. For McCue, a combina-

tion of PGRs is the best way to keep *Poa* at bay and to improve the overall playability of greens. Throughout his career, the superintendent has relied on a variety of products.

"These products have ranged from pre- and post-emergent herbicides and an extensive use of PGRs such as TGR, Primo, Embark, Cutless and Proxy, all with varying degrees of success," McCue says.

Regardless of the product he uses, McCue says proper timing of the applications is the key to successful *Poa* suppression. While many superintendents rely on, and have achieved great results by using growing degree days (see "Growing Degree Days (GDD) for *Poa annua* suppression") to time their applications, McCue subscribes to a different maintenance model; this illustrates that, yet again, there is no single scientific



sion





## Growing Degree Days (GDD) for *Poa annua* suppression

**A**ron Hathaway worked as an assistant with Ron Calhoun at Michigan State University for more than a dozen years. For four of those years (2003-2006), Hathaway was involved in a project to calculate the best temperatures to apply particular PGRs to suppress *Poa annua* on putting greens. Calhoun came up with the idea to use GDD for seedhead suppression PGR timing.

"I sprayed Embark and Primo/Proxy twice per week from early March until the major seedhead flush was finished in June on an annual bluegrass fairway," Hathaway explains. "We then fit the best GDD model to each of the best timings for each of the four years. This way, a best timing for seedhead suppression and fastest injury recovery was not based on a calendar date, but was based on the weather in any given area during any given year."

Today, while Hathaway no longer works directly with Calhoun, he continues to do extensive research on annual bluegrass control in creeping bentgrass fairways and greens with PGRs at Michigan State University.

"We know PGRs such as Primo/Proxy, Trimmit, and Cutless are metabolized by the turf plants more quickly when temperatures increase during the summer," he comments. "Therefore, we recommend increasing rates or lowering rates as temperatures increase or decrease, respectively. We would like to be able to track GDDs in relationship with our PGR applications, whether they are used for green speed regulation or *Poa* suppression."

"We could then use the science of GDDs to improve the efficacy of our PGR treatments and save money by regulating the rates at which we apply them," he adds. "This becomes especially necessary as we recommend PGR programs throughout the growing season in which we are applying PGRs every 14 days. Already, many superintendents are applying Primo/Proxy on a very regular basis."

solution in the battle against unwanted turf species.

"Phenological indicators work best for me," McCue explains. "Our weather patterns in Colorado in the spring are unpredictable and unstable with huge temperature swings from day to day. That's why I find growing degree days extremely inaccurate. If I were to follow this philosophy, I would miss my application window by a month or more. For me, the key is Forsythia bloom. I have found the timing of this has always been right on the money for our applications."

A little further east, Eddie Roach, superintendent at the Jimmie Austin University of Oklahoma Golf Club, finds GDD a useful tool. At this semi-private course, he uses GDD to determine when to apply PGRs to suppress *Poa*'s seedhead development on his Pennncross greens. In the past, while he's used Primo, his preferred inputs are Trimmit and Legacy.

"The PGR program we use is pretty good," he says. "*Poa* still pops up, but we also control it well by using general maintenance practices such as aggressive verticutting and top dressing, and core aeration to promote a good growing environment for the bentgrass."

Embark Turf and Ornamental is one of the most common PGRs to combat *Poa annua* on putting greens. Gary Custis, certified professional agronomist and manager of field research and technical services at PBI Gordon, explains that the product prevents the seedhead from forming – stopping it right in the crown area of the plant. Like all PGRs, getting the timing right is critical. Most superintendents will do two applications, depending on the seed head development. "Once you miss it, you've missed it," he says.

No matter what PGR combination you use, or when you spray them, when it comes to battling *Poa* on greens, superintendents must prepare for a never-ending fight. Even the academics admit that what makes keeping *Poa* at bay so challenging is its aggressiveness. And, once it presents itself, it is much harder to get rid of.

"It's one that, in all likelihood, will not be won," says McCue. "You will need to do all that you can from an economical and physical standpoint to keep the *Poa* under control. This can be accomplished by sound agronomic practices that do not favor tipping the scale in the direction of the *Poa*. These include proper fertility, irrigation practices, timing of aerification, mowing heights and the use of PGRs and herbicides as an overall management strategy."

"The superintendent's best friend against *Poa annua* invasion is to follow the Turf 101 principle of MTDT – Maintain Thick Dense Turf. This gives you the best chance of winning the war," he says. **GCI**

*David McPherson is a Toronto-based freelance writer and frequent GCI contributor.*

## Web resources

For more information on Michigan State University's research, see [gdctracker.net](http://gdctracker.net).

<http://turf.unl.edu/ResearchReports/GreensPoacontrolNov2011.pdf>

The USGA is partially funding a three-year research study at the University of Nebraska that is currently being done cooperatively with Purdue University and Michigan State University; the study is trying to find new and effective ways to control annual bluegrass on putting greens. This is a three-year study that will conclude after the spring observation in 2013.

