

Analyzing a nemesis

IMITATING *POA ANNUA*'S STRENGTHS COULD BE USED AS A MANAGEMENT PRACTICE TO ENSURE PURE BENTGRASS GREENS

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In the world of sports, many teams analyze the strength of the opponent and make adjustments to eliminate or minimize that strength. In turfgrass management programs, superintendents also use that philosophy. For example, we look at diseases and try to minimize the effects by taking away a component (moisture, nitrogen, etc.) that makes a particular disease thrive. What happens when we analyze a foe whose primary strength is difficult to eliminate or minimize? In this case, maybe we should start thinking outside the box and imitate the foe.

Let's look at one of the main nemesis in turfgrass management: *Poa annua*. If a club's man-



If seeding bentgrass greens to fight *Poa annua* infiltration, a good portion of sand should fill holes after aerification and before seeding.

Photo: Kevin Ross

agement philosophy dictates they don't want to promote *Poa annua* as their major species, then how can *Poa*'s strengths be used to keep it at bay? Most superintendents, and those in the academia world, agree that *Poa*'s amazing ability to produce seed – even at extremely low heights of cut – is what makes this plant what it is.

Imitating strengths

Bentgrass doesn't possess the ability to produce seed at the desired heights of cut used in golf course management. But what if bentgrass had the ability to seed? Would this ability make it more competitive against *Poa annua*? It seems logical. Then again, the seedhead formation of *Poa* also is a considerable drawback when it comes to consistent, uniform-quality putting surfaces. It makes sense then, not to breed bentgrass to have the ability to seed at low heights of cut.

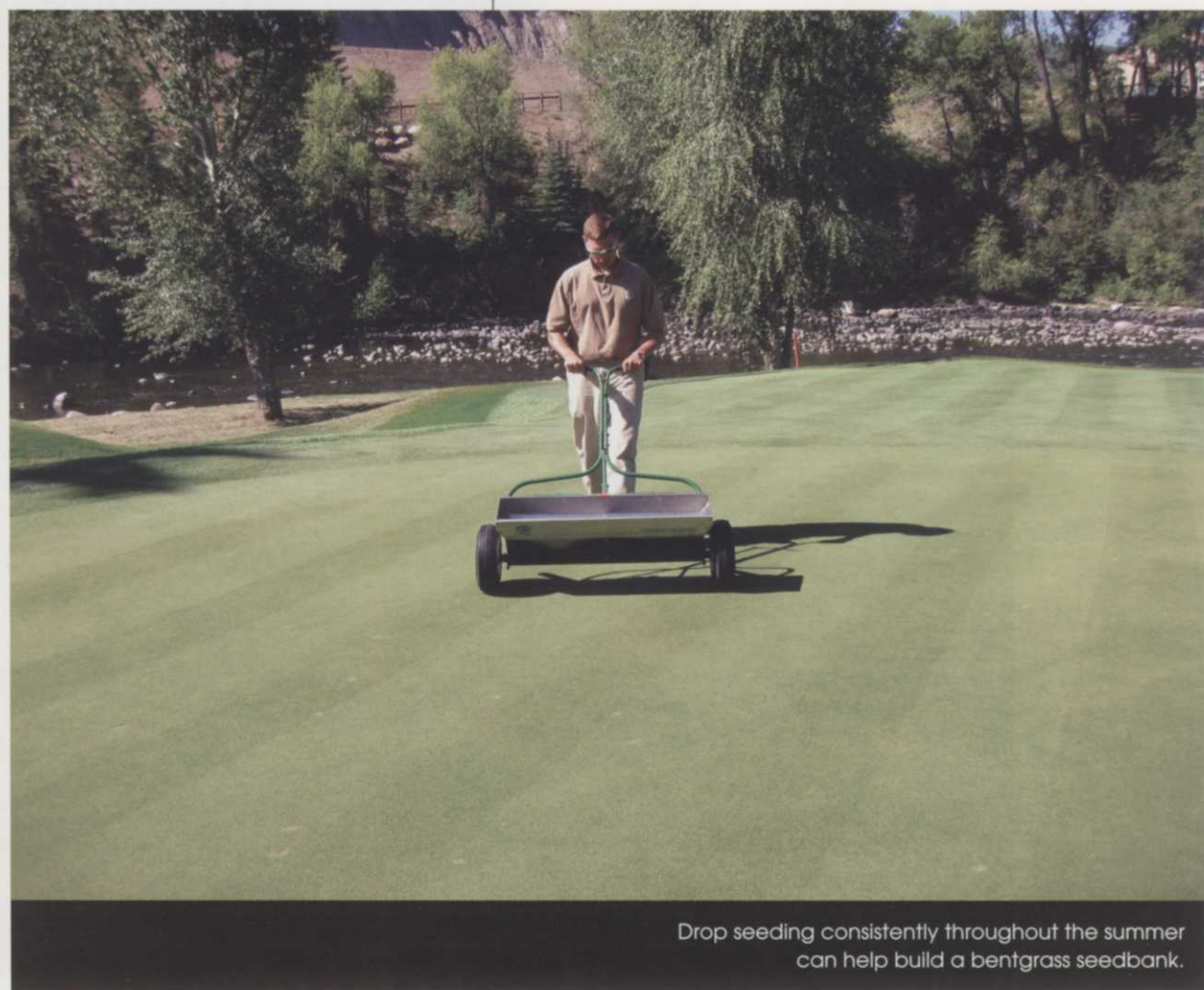
So, what if golf course managers physically imitated *Poa annua*'s strengths by seeding greens with bentgrass more often? Let's face it, the majority of golf course management programs seed only when aerification or some other cultural practice takes place. In some areas of the country, *Poa annua* seems to seed continually throughout the entire growing season.

So, as a management practice, why don't superintendents imitate *Poa annua* and seed bentgrass more consistently throughout the season? There are some who argue it would be a waste of time and money. The primary argument is that a seedbed needs to be created for good germination to occur. There's certainly some credence to this, but *Poa annua* has been doing fine for some 100 plus years on golf courses with no creation of any special seedbed. Others would argue that the seed wouldn't remain viable in the soil very long.

On the contrary, according to Joseph Duich, a retired turfgrass professor from Penn State University, bentgrass easily can remain viable in the soil for as long as 10 to 15 years.

Turfgrass managers also can imitate the ability of *Poa annua* to build a natural seedbank in the soil throughout time by creating a seedbank for bentgrass. Without question, the ability to seed and create its own seedbank is the biggest strength *Poa annua* has. By imitating this strength, bentgrass can be seeded more frequently, and a seedbank can be built.

This also can be considered a more proactive approach in turfgrass management practices. If you analyze the normal thought process of seeding greens – excluding aerification



Drop seeding consistently throughout the summer can help build a bentgrass seedbank.

and cultural practices – it's always a situation in which there's some weakened turf because of a problem. This could be caused by disease, traffic, weather, etc. When there's a void created in the turfgrass canopy by such problems, or a ballmark for example, *Poa annua* always has the upper hand because of its existing seedbank. So if superintendents also developed a bentgrass seedbank that would compete against *Poa annua*'s, then maybe the invasion would be reduced.

Implementing seeding

How can this program be initiated? First and foremost, a club's budget must be considered. Seeding more often equates directly to more money spent. Most courses that fight the *Poa annua* battle would certainly pay, within reason, for whatever helps. Some extra seed might be a wise investment.

Then a couple questions need to be asked. How many times a year should a club seed? What should the seeding rate be?

These questions have no definitive answers, but there are some thoughts. Let's take topdressing for example. Many clubs are on a once-every-two-to-three-weeks program. This could be the perfect time to incorporate a seeding program. Just incorporating a seeding operation with each topdressing would be a great option. Whether it's once or twice a month, it's a great way to start incorporating this program into the management scheme.

One item of caution should be noted. Seed tracking from golfer and mechanical traffic can be an issue. Taking extra precautions during the topdressing operation can minimize this issue. Many superintendents are reporting that when the surface is dry, tracking isn't

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Photo: Kevin Ross

Summer seeding should be performed after mowing and before topdressing.

a problem. A drench-type irrigation in the evening also would help drive the seed deep into the canopy and seed tracking shouldn't be an issue after the first day.

The next things to consider – how much to seed and can too much be seeded? A seeding rate of as low as 0.25#/M will equate to

14 seeds per square inch based on an 8 million seed count per pound. Using a 100,000-square-foot green-surface average for an 18-hole golf course, 25 pounds is used per seeding. Depending on the cultivar, this equates to about \$125 to \$225 per seeding. A bi-weekly program for a six-month season would cost \$1,500 to \$2,700 per year, again depending upon the cultivar used.

Is there a possibility of seeding too much? No, according to the little research available. Turfgrass species seem to have an equilibrium for mature, stable shoot density. Basically, it becomes survival of the fittest.

One of the more critical times for seeding might be during late fall, as part of a dormant seeding program for winter preparation. It has been proven that late fall-seeded areas are ready to germinate in the spring, about four to six weeks ahead of any spring-seeded area. This happens primarily by the seed going through a priming process during this period. Then, before actual germination takes place, it goes into a frozen state throughout the winter. This is a tool to give bentgrass the jump over slower *Poa annua* in the spring and also a preventative measure for any winter damage that has occurred.

No interseeding

Imitating *Poa annua* shouldn't be considered an interseeding-type method. As shown recently by Karl Danneberger of The Ohio State University, the best way to get germination from an interseeding is with the creation of some sort of void with spiking, aerification, etc.

This said, it makes sense that if the seed is already present and a void occurs, successful bentgrass germination from this type of seeding program certainly can occur. It would be difficult to quantify how much seed is germinating without solid research. However, superintendents using the program with relatively new greens are reporting it might be helping with *Poa annua* invasion, and certainly with ballmark damage.

Will imitating the strength of our toughest foe be the trick needed to insure pure bentgrass green surfaces? Probably not, but it's another tool in the arsenal for the battle against *Poa annua*. GCN

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Photo: Kevin Ross

Poa annua has the ability to produce seed even at extremely low heights of cut.