

Crowding Out *Poa*

Interseeding these two bentgrass varieties proves an effective tool in the battle against annual bluegrass

By Christian M. Baldwin and Doug Brede

Golf course superintendents are all too familiar with *Poa annua* and the increased management inputs associated with managing *Poa annua* compared to creeping bentgrass. Therefore, interseeding creeping bentgrass into *Poa annua* is a goal superintendents have tried to achieve for years, often ending in frustration.

As recent research suggests, interseeding is not as simple as throwing out any bentgrass cultivar seed, topdressing and expecting bentgrass to overrun *Poa annua*. Traditionally, a fall or spring date is preferred when seeding bentgrass. However, when interseeding bentgrass into an area with a high *Poa annua* seed bank, Jim Murphy and associates at Rutgers University (Murphy et al., 2005) noted a June seeding resulted in greater bentgrass coverage and less *Poa annua* compared to a September or October seeding. The researchers also noted using an improved cultivar, L-93, increased bentgrass coverage compared to an older variety, Penncross.

Similarly, at Rutgers University, Murphy and colleagues (Henry et al., 2005) noted interseeding L-93 into a 100-percent *Poa annua* stand at the end of June provided about 70 percent coverage, while interseeding in mid-August resulted in about 15 percent coverage two years after seeding. Mid-summer seeding is an effective strategy as *Poa annua*, a winter annual, is least competitive because seed germination rate slows and nearly stops as soil temperatures approach 77 degrees Fahrenheit. However, bentgrass seedlings can germinate and grow through the warm summer months. Therefore, two key factors for successful interseeding include: (1) early- to mid-summer seeding and (2) using improved cultivars.

Research objectives

In a previous *Turfgrass Trends* article (Brede, 2006), it was reported that three months following interseeding in Post Falls, Idaho, with either T-1 or Alpha creeping bentgrass into a 100 percent *Poa annua* green, about one-third of the putting green was converted to bentgrass. (Jacklin Seed by Simplot released T-1 and Alpha creeping bentgrass in 2004.)

The breeding objective of these cultivars was to effectively compete with *Poa annua*, giving superintendents the upper hand when trying to convert *Poa annua*-based playing surfaces to creeping bentgrass (Brede, 2007).

To put these cultivars to the test, several interseeding trials were initiated in real-world environments on golf courses across the country in 2007. Specific objectives included evaluating: (1) best establishment techniques when interseeding T-1 or Alpha creeping bentgrass into a predominant *Poa annua* putting green and (2) best seeding rates when interseeding T-1 or Alpha creeping bentgrass into fairways.

Site descriptions

Establishment technique studies were conducted on practice putting greens. Sites included Downriver Golf Course and Esmeralda Golf Course (daily-fee courses) in Spokane, Wash. T-1 and Alpha were seeded in mid-July 2007 at a rate of 2 pounds per 1,000 square feet at both sites. Treatments included spiking, aerifying, vertical mowing, no surface disruption and an unseeded control.

Seeding rate studies were conducted on fairways. Sites included Bunker Hills Golf Course in Coon Rapids, Minn., (daily-fee) and Green Valley Country Club in Lafayette Hills, Pa. (private). Seeding rates at both sites were 0, 1, 2 or 4 pounds per 1,000 feet. At Bunker Hills and Green Valley, T-1 and Alpha were seeded on June 8 and Aug. 2, 2007. Plots were seeded using a TriWave 60-inch overseeder (Turfco Manufacturing Co., Minneapolis). For both studies, percent bentgrass establishment was evaluated.

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*The Downriver Golf Course practice putting green was interseeded with T-1 and Alpha creeping bentgrass. Note the amount of dark green bentgrass compared to the lighter green *Poa annua* more than a year later.*

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Establishment technique studies

Three months after interseeding at Esmeralda Golf Course, no trends emerged indicating one establishment technique was more beneficial than another. In fact, control plots (not seeded) had as much, if not more, bentgrass coverage than treated plots. The bentgrass seed likely migrated into control plots following mowing events, cultivation practices and/or golfer traffic.

One year following interseeding, no differences indicated one establishment method was superior to another (data not shown). By the beginning of August 2008, only 37 percent *Poa annua* (63 percent bentgrass) remained in plots when averaged across all treatments. Similar trends were noted at Downriver Golf Course as all establishment treatments yielded similar percent T-1 or Alpha coverage (data not shown).

Establishment method may be most influential four to eight weeks after interseeding. However, meaningful differences were not detected after this time period. Results suggest minimal surface disruption is required for successful interseeding of T-1 or Alpha, which means less play disruption.

Seeding rate studies

Increasing seeding rates at both sites (Minnesota and Pennsylvania) increased percent T-1 and Alpha bentgrass coverage. Specifically, one-year after interseeding Alpha at 4 pounds per 1,000 square feet, 48 percent bentgrass was noted in plots compared to only 27 percent when seeded at 1 pound per 1,000 square feet at Bunker Hills Golf Course in Minnesota.

Therefore, results suggest best seeding rate when interseeding into a fairway ranges from 2 to 4 pounds per 1,000 square feet. Superintendents may be reluctant to seed at higher rates thinking too much seed will lead to weak seedlings competing with each other. But higher seeding rates appear to compensate for increased seedling mortality that may occur when interseeding.



Conclusion

Overall, these studies, conducted in various climatic conditions on golf courses around the country, confirmed the competitive ability of both T-1 and Alpha as an effective tool to combat *Poa annua*.

About 12 to 14 months after interseeding, averaged across treatments and sites, there was about 68 percent creeping bentgrass in the putting green trials and 41 percent creeping bentgrass in the fairway trials. Also, it's worth noting plots were interseeded in 2007 and no other interseeding events occurred in 2008.

Meanwhile, a tailored fertility or plant growth regulator program was not implemented to favor bentgrass over *Poa annua*. Therefore, these studies mimicked a worst-case scenario where minimal inputs and interruptions in play were required for successful conversion from *Poa annua* to T-1 or Alpha creeping bentgrass. Future studies will evaluate various PGR/fertility rates and timings to further promote T-1 and Alpha establishment into *Poa annua*.

Christian M. Baldwin, Ph.D., is a turfgrass scientist and Doug Brede, Ph.D., is research director for Jacklin Seed of the J. R. Simplot Co. in Post Falls, Idaho.

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With fall quickly approaching, it's time for overseeding. Timing is crucial, so once daytime temperatures begin to fall, be ready to put your seed down. Removal of excess thatch is instrumental in ensuring new seeds germinate successfully. For more information on overseeding, or to discuss the best varieties of cool-season seed for your specific needs, contact your local John Deere Golf sales representative.

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