

TURFGRASS TRENDS

INTERSEEDING

Four Tips to Interseed Bentgrass into *Poa annua*

Generous, midsummer plantings can bolster germination

By Doug Brede, Ph.D.

Establishing creeping bentgrass into an existing stand of annual bluegrass (*Poa annua*) while the turf is in play has been an elusive goal of many golf course superintendents. Years ago I learned the hard way just how challenging it can be.

After graduating from Penn State University, I was working as an assistant superintendent for a country club near Pittsburgh. One early fall day, my boss suggested that we improve our bentgrass-with-annual bluegrass fairways by cutting in some Penncross seed to increase the bent population. At that time the fairways were about 30 percent to 40 percent annual bluegrass with the rest a mix of colonial and creeper.

The crew and I spent a week verticutting all 27 fairways and dropping Penncross seed into the open slits. Lo and behold after two weeks, we noticed slivers of grass emerging in beautiful corn rows. Another week brought even more seedlings until we had a stand, of which we were really proud after four weeks.

But perhaps a bit too proud. My boss rescheduled the next meeting of the local superintendents group at our course to show off my handiwork. By this time the individual seedlings were starting to tiller out. When the superintendents took out their hand lenses to get a closer look at our new seedlings, they found that (horrors!) almost every new seedling was *Poa annua*.

That vivid experience planted the question in my brain: What happened to the bentgrass? After earning my doctorate, I decided it was time to learn why my interseeding failed and see what could be done to make bentgrass interseeding a success.

What doesn't work

My years of golf course work and research have taught me something: To paraphrase Thomas Edison — I've discovered a thousand ways to unsuccessfully interseed a green. Many tools that you would swear would help, actually do no good.

Take plant growth regulators (PGRs) for example. Most PGRs inhibit gibberellin, the hormone in plants that causes blades to elongate. PRIMO has a side benefit that plant energy normally used to elongate leaves is channeled instead to grow lateral shoots. That's why superintendents like it: It thickens up the turf while reducing mowing.

Unfortunately, a denser turf makes a more formidable competitor against emerging seedlings. Thus the net effect of most PGRs on interseeding is, at best, a wash. (Trimmit is the exception to the rule, as it acts as a mild herbicide against *Poa annua*.)

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Four steps to success

1) **The right time of year.** Early autumn is generally regarded as the ideal time to establish cool-season grasses. But it is entirely the wrong time to interseed into *Poa*. Autumn is when *Poa annua* germinates. During that time it can outrun most any other grass, just as it did in my failed interseeding attempt.

Research I did for my doctoral thesis helped suggest *Poa annua*'s Achilles' heal: *Poa*'s growth nearly stops when day lengths are at their max, during June and July. At this time, *Poa* is relegating its energies away from shoot growth and toward flowering, opening up a prime window for interseeding. Warm soil temperatures are another contributor.

James Beard (Beard, 1978) found good *Poa annua* germination at temperatures of 40, 50, 60 or 70 degrees Fahrenheit, but he found a substantial drop in germination at 80 and 90 F. Bentgrass has no trouble germinating in warm temperatures.

Jim Murphy and his colleagues (Henry, et al., 2002) put theory into practice in a series of monthly interseedings on a New Jersey *Poa* green. Spring and fall plantings were of limited success (less than 10 percent bentgrass), while midsummer sowing, coupled with a good variety, resulted in 40-percent coverage with bentgrass.

2) **The right seeding rate.** The standard bentgrass seeding rate for bare soil is 1 pound per 1,000 square feet. Most folks in the past have used one-half pound to interseed. A study at Virginia Tech using Southshore bentgrass interseeded into Penncross/*Poa annua* turf showed that "higher rates of seed, 2 pounds per 1,000 square feet or more, were desirable to increase numbers of plants in the turf" (Bigelow and Chalmers, 1995).

Higher seeding rates compensate for seedling mortality rates, which can reach 90 percent.

3) **Plant seed into soil.** The old axiom of "sowing seed into soil" holds true for interseeding. To be successful, you've got to get seed into intimate contact with the soil so it can germinate. Seed does no good if it is sitting in the leaf canopy, buried under an inch of sand in a core hole or collected in

the mower buckets. Grooming, vertical mowing, aerification and topdressing all can be used to plant the seed successfully. Some manufacturers now have machines that slit, interseed and firm in one pass — with no disruption in play.

4) **Use a variety that outcompetes *Poa*.** Penncross and many of the older-generation bent varieties were not competitive enough to keep up with *Poa*. I wanted to change all that, so I used a series of unique polka-dot spots of bent, sprigged on a grid system into a *Poa* green. Only bent strains that fought the *Poa* and won were selected in the development of two new bent varieties, T-1 and Alpha.

To test these new *Poa*-aggressive varieties, I established a trial on a 2-acre *Poa annua* test green (mowing height 0.156 inch) in Post Falls, Idaho. Seed was applied to plots in May 2005 during a routine topdressing operation. No vertical mowing or aerification was used to simulate a worst-case scenario for the seedlings to establish, so we used topdressing alone.

I expected positive results because I already knew Alpha and T-1 had incredible competitive power versus *Poa*. But I was surprised at how quickly they overran the *Poa*. Three months after the trial was seeded, more than one third of the *Poa annua* surface had turned to bentgrass. By summer 2006, many plots had greater than 80 percent bentgrass.

Like Bigelow and Chalmers, I found that higher seeding rates (2 to 4 pounds per 1,000 square feet) aided establishment. Bentgrass area essentially doubled with each doubling of the seeding rate. Many superintendents are reluctant to try higher rates, believing too much seed would lead to weak seedlings that unduly competed with each other. However, this thought was not supported by the data.

Our newest research is centered on identifying which cultural technique (coring, etc.) offers the fastest conversion to bent. Stay tuned for those results in a future edition of *TurfGrass Trends*.

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REFERENCES

Beard, J.B. 1978. Annual bluegrass (*Poa annua* L.): Description, Adaptation, Culture and Control. 32 p. East Lansing, MI: Michigan State University, Agricultural Experiment Station.

Bigelow, C.A., and D.R. Chalmers. 1995. Interseeding establishment of creeping bentgrass (*Agrostis stolonifera* var. *palustris* 'Southshore' (Huds.) Faw.) into an annual bluegrass (*Poa annua* L.) turfgrass system. p. 1-5. In Virginia Tech Turfgrass and Horticulture Field Days and Virginia Turf and Landscape Conference and Trade Show Proceedings. [Virginia]: Virginia Polytechnic Institute and State University and Virginia Turfgrass Council.

Henry, G.M., S.E. Hart, and J.A. Murphy. 2002. Overseeding bentgrass species into existing stands of *Poa annua*. Proceedings of the 56th Annual Meeting of the Northeastern Weed Science Society. Vol. 56, p. 113.



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QUICK TIP

Before long, it will be time to think about cleaning up weeds on dormant bermudagrass turf. Don't forget about an old standby for taking care of tough weeds — Sencor® herbicide. This product offers highly effective, broad-spectrum weed control on both dormant and actively growing bermudagrass turf. In addition, Sencor can be tank mixed with MSMA to control crabgrass, nutsedge, barnyardgrass, common yellow wood-sorrel, sandbur and dallisgrass.