

And the Survey Says . . .

Converting to creeping bentgrass fairways should be based on sound economics and environmental consciousness.

by PAUL VERMEULEN

DURING THE LATE 1990s, gray leaf spot quickly spread from Baltimore to Omaha, leaving a path of destruction unequalled in the turfgrass industry. This tragedy of almost biblical proportion has prompted golf courses in the upper transition zone, where perennial ryegrass replaced Kentucky bluegrass in the 1980s, to seriously consider yet another change in fairway turf.

The mindset towards change is not so much a matter of avoiding future catastrophes, but rather a means of reducing annual spending on pesticides. Since the discovery of gray leaf spot, turfgrass pathologists have had the opportunity to screen registered fungicides and determine those that offer the highest level of control. To date, these research efforts have shown that azoxystrobin, thiophanate-methyl, and trifloxystrobin provide good to excellent control. Furthermore, chlorothalonil and propiconazole provide fair to good control when applied singularly and good to excellent control when tank mixed.

Given all the good news regarding gray leaf spot control, why is it that superintendents are still mulling over change? The answer for Scott Werner, CGCS, of Lincolnshire Fields Country Club in Champaign, Illinois, is tied to sound economics and environmental consciousness. Before perennial ryegrass showed its vulnerability to gray leaf spot, Scott's primary concerns were controlling pythium, brown patch, and dollar spot. These three diseases, while troublesome in their own rights, are fairly predictable and can be controlled with timely fungicide applications. Furthermore, the costs of the products typically used for their control are moderately priced, considering efficacy and treatment intervals.

Since 1998, when gray leaf spot first struck Lincolnshire Fields Country Club, a preventive fungicide program has been required, beginning in July and continuing through October. This rigorous program has been necessary because of the lack of a gray leaf spot prediction model and the inability to achieve an acceptable level of control



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with a curative program. The bottom line for Scott and other superintendents in the Mid-Continent Region battling against gray leaf spot has been a substantial increase in their fungicide budgets.

From an environmental perspective, the added demands of controlling gray leaf spot leave superintendents questioning their voluntary commitment to reducing pesticide usage. However, not meeting the high expectations for turf quality on courses with perennial ryegrass fairways will create unwanted openings on the starter's reservation sheet and job insecurity.

If perennial ryegrass is no longer the best choice for fairway turf because of the need to make frequent fungicide applications, then what is the clear alternative? In the upper transition zone, where winters are too long and cold for warm-season grasses, the list of alternatives is narrowed to Kentucky bluegrass and creeping bentgrass.

Sentimentally, Kentucky bluegrass is the hands-down favorite among golfers because of its dark green, luxurious appearance. Problems can arise quickly, however, when the demand for mowing heights of less than $\frac{3}{4}$ " induce summer patch and, yes, the invasion of

good ol' *Poa annua*. These two problems are what originally inspired many golf courses to convert to perennial ryegrass in the first place. And, until new cultivars prove their advertised superiority in the realm of low mowing, it is unlikely many superintendents will take the risk of revisiting the past.

By process of elimination, that leaves creeping bentgrass as the sole alternative for courses such as Lincolnshire Fields Country Club. To some, this may seem like a consolation of sorts, but it really is not. Creeping bentgrass is actually a good choice for fairway turf. Its list of attributes includes reasonably good disease tolerance, good heat tolerance, excellent recuperative potential, and excellent playability when mowed between $\frac{7}{16}$ " and $\frac{5}{8}$ ".

The true litmus test, however, is whether or not creeping bentgrass makes good economic and environmental sense when compared to perennial ryegrass. To answer this question, a survey was conducted among 18 courses throughout central Illinois and eastern Iowa. Nine of the courses maintain creeping bentgrass as the dominant species on the fairways, while the other nine maintain perennial ryegrass. The courses had a wide range



Fumigation with Basamid may be the best choice for controlling *Poa annua* during a fairway conversion project. The line of *Poa annua* invasion indicates where the operator missed a narrow strip when applying the product with a drop spreader.

of backgrounds, including public to private, newly established to well established, low to high traffic volumes, moderate to high maintenance standards, and poor to good air circulation and drainage characteristics.

The results of the survey are presented in Table 1 and reveal at least three sobering points that deserve discussion. First, not every course with perennial ryegrass fairways should expect to reduce pesticide usage by converting to creeping bentgrass. As demonstrated in the survey, some perennial ryegrass courses maintain excellent playing conditions for about the same pesticide budget as creeping bentgrass courses. It is important to note, however, that each of these courses has resisted the temptation to overplant trees on both sides of the fairways and is not located where extreme humidity and poor drainage tend to increase disease activity.

Second, and most important if conversion is being contemplated, converting from perennial ryegrass to creeping bentgrass can actually increase pesticide usage. Wait a minute! How can this be, given the stated superiority of creeping bentgrass and the susceptibility of perennial ryegrass to several diseases, including gray leaf spot?

The answer lies in the fact that converting to creeping bentgrass, as done years ago by two of the leading fungicide users in the survey, can bring *Poa annua* into the equation. In other words, the survey showed that creeping bentgrass is king of the hill on highly manicured courses only if it is practically *Poa annua* free. This being the case, courses wanting to convert to

creeping bentgrass fairways because they have reached their spending limits on perennial ryegrass, should have an effective *Poa annua* control strategy in place. If not, they could wind up with equally high expenses.

The two control strategies that have worked best in the Mid-Continent Region are 1) to embark on an aggres-

sive herbicide/growth regulator program immediately after the fairways have been treated with RoundUp® and reseeded, and 2) to fumigate the fairways before reseeding. Of these two strategies, fumigation, where possible, would be the preferred choice because it addresses the seed bank of *Poa annua*. By eliminating most of the *Poa annua* seed in the soil, the new turf can establish without competition, and the need for follow-up herbicide/growth regulator applications will be minimized.

The success of fumigation has long been demonstrated on courses that have renovated greens, but rarely has it been performed on fairways. The reason is that the product, methyl bromide, is very difficult to use on a large scale because it requires a plastic cover after it has been injected.

To fumigate the fairways at Geneva Golf Club in Geneva, Illinois, before establishing them with Kentucky bluegrass, Ed Braunsky, CGCS, used a granular product, Basamid (dazomet), that does not require a plastic cover. (Author's note: The choice of Kentucky bluegrass was based on the golfers' preference to play on a tall surface. The

Course	Total Spent on Pesticides Per Fairway Acre	Total Spent on Fungicides Per Fairway Acre	Reported <i>Poa annua</i> Percentage	Level of Turf Quality by Golfers
Creeping Bentgrass Fairways				
No. 1	\$ 500	\$ 300	30	Moderate
No. 2	\$ 668	\$ 450	5	Moderate
No. 3	\$1,697	\$1,108	0	High
No. 4	\$2,480	\$1,400	1	High
No. 5	\$2,800	\$1,142	1	High
No. 6	\$2,825	\$1,500	10	High
No. 7	\$3,352	\$2,030	35	High
No. 8	\$3,461	\$2,500	30	High
No. 9	\$3,574	\$2,833	30	High
Average	\$2,373	\$1,474		
Perennial Ryegrass Fairways				
No. 10	\$1,208	\$ 833	35	Moderate
No. 11	\$2,266	\$1,433	50	High
No. 12	\$2,352	\$1,666	10	High
No. 13	\$2,640	\$2,007	10	High
No. 14	\$3,160	\$2,400	35	High
No. 15	\$3,200	\$1,600	25	High
No. 16	\$3,382	\$2,285	40	High
No. 17	\$3,500	\$2,333	40	High
No. 18	\$3,768	\$2,411	5	High
Average	\$2,831	\$1,885		



Careful planning before renovation projects are initiated helps reduce long-term problems. Fumigating fairways during a renovation project can help eliminate the existing *Poa annua* seed bank that acts as a source of contamination once the new turf is established.

Basamid label is available for reference on the web at www.topprospecialties.com.) This product has recently received renewed interest as a replacement for methyl bromide because of its effectiveness when either tilled into the soil or surface applied with a drop spreader under specific application parameters.

The cost of fumigating fairways has been raised as a possible deterrent; however, the survey showed that the payback in fungicide savings alone when converting fairways could be as short as two years. Take, for example, a course with perennial ryegrass fairways that currently is spending \$2,300 per acre annually on fungicides. If it was converted to creeping bentgrass with fumigation and in the process the *Poa annua* population was reduced to 3%, then the cost of controlling fungal pathogens could decrease to between \$1,100 and \$1,400 per acre annually.

Third, creeping bentgrass fairways, even when they are contaminated with 30% *Poa annua*, can be maintained at a lower cost than perennial ryegrass. What? I just discussed the importance of *Poa annua* control and now I'm contradicting myself. Not really, because here I am referring specifically to

situations where it is *not* essential to maintain flawless turf conditions.

In the survey there are three courses that for economic reasons allow the quality of the fairways to decline for short periods without causing complete dissatisfaction or staff turnover. Under these circumstances, perennial ryegrass can no longer prevail as the turf of choice because gray leaf spot has the potential to kill off more than 90% of the stand and wreak havoc on any attempt to reseed during the following fall season. When gray leaf spot attacks, protecting perennial ryegrass from devastation would necessitate two or more expensive fungicide treatments to prevent playing on bare soil. Creeping bentgrass, even when contaminated with *Poa annua*, can recover from disease infections over a period of several weeks.

In closing, deciding when and how to convert perennial ryegrass fairways to creeping bentgrass should be based on sound agronomy and reliable information from as many sources as possible. In presenting the information contained in this article, I would like to thank the superintendents who cooperated in the survey. Without their assistance, formulating renovation pro-

posals based on relevant information would be impossible.

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PAUL VERMEULEN is the Director of the Green Section's Mid-Continent Region. He is responsible for the administration of Green Section programs in ten states and focuses his Turf Advisory Service visits in Arkansas, Illinois, Iowa, Kansas, Missouri, and Nebraska.