

## BENTGRASS BLENDS FOR PUTTING GREEN TURF

D. J. Wehner and J. E. Haley

### INTRODUCTION

There are advantages and disadvantages associated with using vegetatively propagated bentgrass selections for putting green turf. The main advantage is that the putting green will be very uniform since every plant is genetically identical to every other plant. The main disadvantage is that any factor which affects the given cultivar can affect the entire green. Disease outbreaks have the potential of being more severe on vegetatively propagated areas because the susceptibility of all plants is basically the same. Seeded bentgrass cultivars offer an advantage over vegetative strains in that they are genetically more diverse. A seeded variety may be composed of several different individuals which possess agronomically similar characteristics.

Blending two or more bentgrass varieties to gain genetic diversity is a sound principle in theory. Problems may arise however because the two varieties may not have similar enough growth rates or morphological characteristics. Past attempts to blend vegetatively propagated bentgrass varieties have not always been successful. Swirling or excessive grain has sometimes occurred on these areas. After seeing severely damaged Toronto greens it was felt that an evaluation of blends of seeded bentgrass cultivars would be worthwhile. This would be an attempt to produce a quality putting surface and at the same time increase the genetic diversity of the stand.

### MATERIAL AND METHODS

All possible two-way blends of the cultivars Penncross, Penneagle, Seaside, and Emerald were established at the Ornamental Horticulture Research Center in Urbana on 21 August 1981. Each blend and the four individual components were established in 6 ft by 10 ft plots with three replications. The turf is maintained at a 0.25 inch height of cut and is irrigated as necessary to prevent wilt. During the 1989 growing season the turf was fertilized with 3.0 lbs N/1000 sq ft and was on a preventative fungicide program.

### RESULTS

There was no difference in rate of establishment among the components and blends. In 1982 and 1983 turfgrass quality was highest in plots containing Penneagle, alone or in a blend. In 1983 Seaside and Emerald had a higher incidence of dollar spot prior to fungicide application and had poorer color throughout the season. In 1984, the same trends were apparent.

During 1985 the best quality was observed with Penneagle and all blends containing Penneagle. Throughout the season the cultivars Seaside, Emerald and the Seaside/Emerald blend had the lowest quality of all cultivars and blends teated. Poor quality of all creeping bentgrass cultivars was **observed in May prior to** spring fertilization.

During the 1986 growing season Penneagle and all blends containing Penneagle continued to have the highest quality ratings. Test plots of Emerald, Seaside and the Emerald/Seaside blend showed further deterioration especially in late August.

Bentgrass quality was fair to good during the 1987 growing season. As in previous years the best quality was observed with Penneagle and blends containing

Penneagle. Annual bluegrass infestation was highest in plots of Emerald, Seaside and the Emerald/Seaside blend.

Although there was little winter injury, early 1988 bentgrass quality was only fair. Quality improved only slightly by mid-May. The best mid-summer quality was observed with Penneagle, Pennncross and the Penneagle/Seaside and Penneagle/Pennncross blends. Over all rating dates, plots of Emerald or Seaside blended with Penneagle were of better quality than those where Emerald and Seaside were planted alone.

The results from the 1989 growing season paralleled those from earlier years. Penneagle, followed by blends containing Penneagle, received the highest quality ratings of all the entries (Table 1). Plots of Pennncross and blends with Pennncross received slightly lower quality ratings than Penneagle.

During the course of this study, we have not observed any segregation of the cultivars. Segregation would result in patches of one cultivar developing within the plot. The segregation of grasses in a putting green would disrupt the playability of the green.

This study is being discontinued in 1990. It will be replaced by a national bentgrass cultivar evaluation.

Table 1. The evaluation of creeping bentgrass cultivars and blends mowed at 0.25 inch height of cut during the 1989 growing season.<sup>1</sup>

| Cultivar/Blend      | Quality <sup>2</sup> |       |      | All Dates <sup>3</sup> |
|---------------------|----------------------|-------|------|------------------------|
|                     | 5/16                 | 8/01  | 9/22 |                        |
| Penneagle           | 5.0                  | 7.7a  | 6.0  | 6.2a                   |
| Penneagle/Emerald   | 4.7                  | 7.0ab | 6.0  | 5.9a                   |
| Penneagle/Seaside   | 4.3                  | 6.3bc | 6.0  | 5.6ab                  |
| Penneagle/Penncross | 4.7                  | 7.3ab | 6.7  | 6.2a                   |
| Penncross           | 4.0                  | 7.0ab | 6.0  | 5.7a                   |
| Penncross/Emerald   | 4.3                  | 7.3ab | 5.7  | 5.8a                   |
| Penncross/Seaside   | 4.0                  | 7.0ab | 5.7  | 5.6ab                  |
| Emerald             | 3.3                  | 5.7c  | 5.0  | 4.7c                   |
| Seaside             | 3.7                  | 5.7c  | 5.3  | 4.9bc                  |
| Emerald/Seaside     | 3.7                  | 5.3c  | 5.3  | 4.8c                   |
| LSD <sub>0.05</sub> | NS                   | 1.1   | NS   | 0.7                    |

<sup>1</sup>All values represent the mean of 3 replications. Means in the same column with the same letter are not significantly different at the 0.05 level as determined by Fisher's Least Significant Difference test.

<sup>2</sup>Quality evaluations are made on a 1-9 scale where 9 = excellent turfgrass quality and 1 = very poor turfgrass quality.

<sup>3</sup>Values represent the mean of 9 scores obtained from 3 replications and 3 evaluation dates.