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Fairway Conversion to Low-Mow Kentucky Bluegrass Using Annual Bluegrass Herbicides Combined With Turf Seeding Time and Rate

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www.iowaturfgrass.org/research/gcsaafairwayfall07report.pdf

Background

This project is cooperatively funded by the Iowa Golf Course Superintendents Association and the Golf Course Superintendents Association of America. Fairways make up the largest high quality turf area on the golf course. The Superintendent and General Manager need proven strategies and reasonable expectations for success before they are willing to take the risk of converting to improved grasses. Low-mow Kentucky bluegrass varieties have already proven themselves in many trials related to stress performance and playability; their performance as a mature stand of grass is not in question. Instead, the uncertainty involves the ability to make a successful conversion without having the fairway overrun with annual bluegrass.

Objectives

1) To determine specific herbicide and seeding strategies that can be used to successfully convert existing cool season grass fairways to improved low-mow Kentucky bluegrass varieties with minimal annual bluegrass infestation. 2) To determine the most cost effective strategy for converting existing cool season fairways to the new generation of improved low-mow Kentucky bluegrass varieties.

Methods

A detailed accounting of the methods and treatments can be found at <http://www.iowaturfgrass.org/research/gcsaafairwayfall07report.pdf>. The study was conducted at three golf course locations: Twin Pines Golf Course – Cory Shipment, Traer Country Club, Mike Evertsen, and Homewood Golf Course – Kevin James/Nick Kray. There were 3 seeding dates (June, August, September), 2 seeding rates (2.5 and 5.0 lbs/1000sqft), and 3 herbicide treatments (Pendulum at 1.5 lb ai/A applied on 15 October, 15 November, and 15 April, Mesotrione at 0.17 lb ai/A applied on 10, 20, and 30 October, and a non treated control). The percent of the fairway area covered by Kentucky bluegrass, annual bluegrass, other weeds, and bare soil will be visually evaluated.

Results

Seeding dates and rates– The June and August seeding dates have completely filled with turf, but the mixture is dominated with approximately 80% annual bluegrass and 20% Kentucky bluegrass. Increasing Kentucky bluegrass seeding rate from 2.5 to 5.0 lbs/1000 sqft did not seem to increase the amount of Kentucky bluegrass in the stand of grass. The plots were verticut in 4 different directions followed by drop seeding and hand raking. It appears that all of the seed developed in the vertical groves that were made during the final pass with the vertical mower. Since the seed is developing in a smaller area, fixed by the space of the vertical groves, there may have been no advantage to adding more seed into this already maximized space. Likewise, seeding in June or August did not seem to limit the ability of annual bluegrass to dominate the stand of grass. At this point the September seeding appeared to favor Kentucky bluegrass with approximately 40% annual bluegrass cover, 40% Kentucky bluegrass cover, and 20% bare soil.

Herbicide treatments – The most promising observation has been with applications of Tenacity. After the first application of Tenacity in early October the annual bluegrass begins to yellow. After the second application of Tenacity the annual bluegrass turns white. After the third application of Tenacity the annual bluegrass turns brown and has begun to shrivel. If the annual bluegrass continues to decline then it appears that the September seeding of Kentucky bluegrass may dominate the stand by the summer of 2008. There has been no phyto-toxicity observed on Kentucky bluegrass from either Tenacity or Pendulum in this trial. Pendulum has resulted in a weakened appearance of annual bluegrass but no visual loss in annual bluegrass cover. We anticipate better separation of treatments in May 2008 when annual bluegrass visibility peaks during seedhead production.

Table 1. Annual bluegrass and Kentucky bluegrass injury on 11-9-07. Average of three locations Twin Pines, Traer, and Homewood Golf Courses.

	AB Phyto	KB Phyto
Tenacity	2	9
Pendulum	8	9
Control	9	9
Phytotoxicity 1-10, 10= no injury, 1= severe injury, 6= lowest acceptable quality		

Table 2. Percent Cover on 11-9-07. Average of three locations Twin Pines, Traer, and Homewood Golf Courses.

	AB%	KB%	Bare Soil%
Tenacity	36	43	19
Pendulum	57	29	15
Control	68	27	6