Poster No. 26414

Perennial ryegrass overseeding rates affect fairway coverage of dormant bermudagrass

Matteo Serena, Bernd Leinauer and Elena Sevostianova, Extension Plant Science, New Mexico State University

Introduction

Winter overseeding is the practice of seeding cool-season into warm- season grass species in the fall with the intent to provide a green turf surface during the winter period. During spring, when temperatures slowly increase, the cool-season grasses will gradually fade out, and the warm season will start to regrow and eventually dominate the plant stand. One of the most common cool-season grass specie used for overseeding is perennial ryegrass (*Lolium perenne* L.). Generally the recommended seeding rates for winter overseeding are between 60 and 80 g m^{-2} (Beard, 1973) but authors have also reported rates as low as 10 g m^{-2} (Zhang et al., 2007) or as high as 240 g m^{-2} (Beard, 1973). With such a wide range of published seeding rates field studies are needed to determine reasonable and workable rates that are useful for golf course superintendent or athletic field managers.

Hypothesis or Objectives

To evaluate the effect of differing perennial ryegrass overseeding rates on percent green cover, turfgrass quality and Dark Green Color Index (DGCI) during fall, winter and spring following overseeding

Materials and Methods

•Site: Bermudagrass fairway (unknown variety) at New Mexico State University's (NMSU) golf course.

•Seed bed preparation: scalping and verticutting (two directions)

Figure 1. Overview on September 23rd 2016

Figure 2. Overview on October 20th 2016

Figure 3. Overview on December 16th 2016

Figure 4. Overview on March 22nd 2016

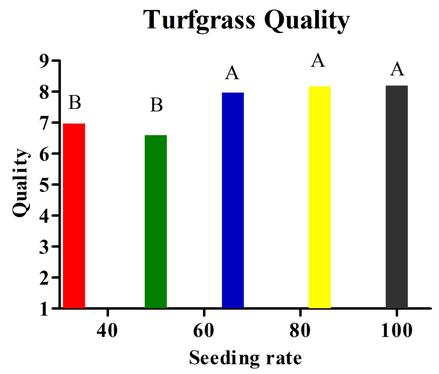

Figure 5. Turfgrass quality rating differences (1= worst; 9= best) as affected by 5 seeding rates (33-50-66-84-100 g m^{-2}). Each data point represents an average of 5 months and 3 replications. Bars followed by the same letter (Fisher's protected LSD at α = 0.05) are not significantly different from one another.

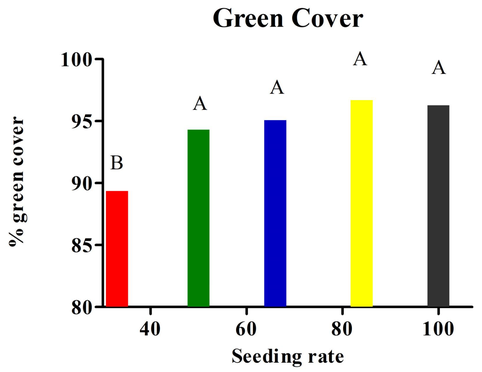

Figure 6. Percentage of green cover(0 to 100%) as affected by 5 seeding rates (33-50-66-84-100 g m^{-2}). Each data point represents an average of 5 months and 3 replications. Bars followed by the same letter (Fisher's protected LSD at α = 0.05) are not significantly different from one another.

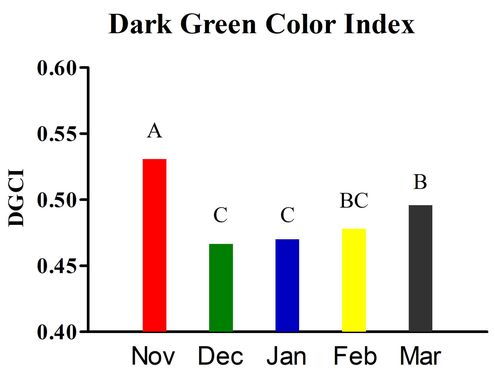

Figure 7. Dark Green Color Index (DGCI) (0 to 0.60) during 5 months (November to March). Each data point represents an average of 5 seeding rates (33-50-66-84-100 g m^{-2}) and 3 replications. Bars followed by the same letter (Fisher's protected LSD at α = 0.05) are not significantly different from one another.

Materials and Methods

•Seeding: September 23, 2016, Champion GQ, a blend of perennial ryegrasses containing the varieties Sideways (42%), Zoom (32%), and SR 4600 (26%)

•Rates: 33, 50, 66, 84, and 100 g m^{-2}, immediately followed by raking and spiking

•Fertilization: 5g m-2 N in October and November (potassium nitrate).

•Irrigation: 100% of ETos.

•Mowing height:as needed at 1.25 cm height

•Data: Turfgrass quality and percent cover every 2 weeks from October to March

Data and Results

•Statistical analysis indicated a significant effect of seeding rates and sampling month on percentage of green cover and turfgrass quality

•Plots seeded at rates of 66-84 and 100 g m^{-2} exhibited highest turf quality (Figure 5).

•Lower seeding rates (33 and 50 g m^{-2}) resulted in lower but still acceptable quality of 6.9 and 6.6, respectively (Figure 5).

•Seeding rate of 33 gm^{-2} resulted in an average coverage of 89%, which was the lowest value among all treatments (Figure 6).

•Seeding rate did not have a significant effect on Dark Green Color Index (DGCI)

•Sampling month had effect on DGCI (Figure 7).

Conclusions

•Turfgrass quality was greater than the minimum acceptable level for all the seeding rates.

•Seeding rates higher than 50 g m^2 had highest green coverage and reached 94% or greater.

•For best results in terms of quality and coverage a minimum seeding rate of 66 g m^2 should be used