



# Evaluation of **GREEN TURF COLORANTS** on Putting Greens

Kyle Briscoe, Grady Miller, and Scott Brinton  
Crop Science Dept., NC State University

**Turf** managers in the southeastern United States have traditionally overseeded dormant bermudagrass putting greens to maintain golfer acceptance during the winter months. The spring transition from overseeded grasses to bermudagrass is often problematic due to drought resistant cool-season grass varieties and extended cool and wet conditions in late spring. Applying a colorant to dormant bermudagrass putting greens provides an alternative to overseeding, while still providing an attractive, playable putting surface.





The main benefit associated with colorants rather than overseeding is affordability. In 2009, the average cost of colorant on golf greens per season was \$700 to \$2000 per acre for two applications, depending on the colorant brand. When compared to overseeding establishment costs of \$2,500 to \$5,000 per acre (not including post-seeding costs), colorant becomes a much less expensive alternative. A study was needed to gather more information on colorants currently available for use.

The study was conducted on two putting greens at the Lake Wheeler Field Laboratory located in Raleigh, NC, from fall 2008 through spring 2009, one consisting of 'Miniverde'

bermudagrass and the other of 'Diamond' zoysiagrass. Colorant brands that were used included:

- Green Lawngr (Becker Underwood)
- LESCO Green (John Deere Landscapes)
- Mtp Turfgreen (Missouri Turf Colorant,)
- Titan Green Turf (Burnett Athletics)
- Turf in a Bottle (US Specialty Coatings)
- Regreen (Precision Laboratories)
- Wintergreen Plus (Precision Laboratories)
- Ryegrass (Pioneer Athletics)

- Ultradwarf Super (Pioneer Athletics)
- Ultradwarf Plus (Pioneer Athletics)
- Bermudagrass (Pioneer Athletics)
- Bermuda Green (J.C. Whitlam Manufacturing)

Colorant treatments were initially applied to completely dormant bermudagrass and semi-dormant zoysiagrass on Nov. 11, 2008, using a boom sprayer calibrated at 40 gallons per acre (gpa). Each plot was sprayed in two directions to provide uniform coverage, resulting in application rates of 80 gpa for each colorant. Regreen was also applied at 40 gpa to achieve a rate near its label range. Three of the colorants, Green Lawngr, Turf in a Bottle and Ultradwarf Super were also applied at 160 gpa to examine if colorant longevity was increased by doubling the application rate. These colorants were selected because they were judged to have the most natural color when applied at 80 gpa.

The results indicate that applying turf colorant at both an 80 gpa and 160 gpa rate enhances the appearance of both grasses. Applied to bermudagrass, colorant increased turf color from 38 to 67 percent relative to the control 0 days after treatment (DAT). Zoysiagrass turf color increased from 27 to 56 percent relative to the control 0 DAT.

However, at 56 DAT the colorants Ryegrass, Ultradwarf Plus, Bermudagrass and Bermuda Green failed to provide acceptable colorant color when applied to dormant bermudagrass. Only Turf in a Bottle had acceptable color 56 DAT on bermudagrass. All the colorants except Ryegrass, Bermudagrass and Bermuda Green had acceptable color 56 DAT when applied to the semi-dormant zoysiagrass. The researchers feel that the colorants performed better when applied to zoysiagrass due to the greater background color at the time of initial application.

Table 1. The progression of colorant color using Pantone® Color chips following colorant treatment.

TREATMENT/RATE	BERMUDAGRASS		ZOYSIAGRASS	
	DAY 0	DAY 56	DAY 0	DAY 56
Green Lawnger 80 gpa	PMS 354	PMS 358	PMS 355	PMS 354
LESCO Green 80 gpa	PMS 347	PMS 351	PMS 355	PMS 354
Mtp Turfgreen 80 gpa	PMS 7481	PMS 7464	PMS 355	PMS 325
Titan Green Turf 80 gpa	PMS 7482	PMS 636	PMS 347	PMS 346
Turf in a Bottle 80 gpa	PMS 346	PMS 344	PMS 353	PMS 344
Regreen 80 gpa	PMS 347	PMS 311	PMS 7482	PMS 325
Wintergreen Plus 80 gpa	PMS 340	PMS 344	PMS 3405	PMS 3395
Ryegrass 80 gpa	PMS 374	PMS 372	PMS 367	PMS 374
Ultradwarf Super 80 gpa	PMS 363	PMS 577	PMS 356	PMS 355
Ultradwarf Plus 80 gpa	PMS 362	PMS 577	PMS 348	PMS 362
Bermudagrass 80 gpa	PMS 7481	PMS 344	PMS 7482	PMS 345
Bermuda Green 80 gpa	PMS 340	PMS 290	PMS 3415	PMS 3262
Green Lawnger 160 gpa	PMS 355	PMS 360	PMS 356	PMS 355
Turf in a Bottle 160 gpa	PMS 354	PMS 358	PMS 354	PMS 339
Ultradwarf Super 160 gpa	PMS 364	PMS 362	PMS 349	PMS 7483
Regreen 40 gpa	PMS 3405	PMS 291	PMS 7481	PMS 3252

Some of the colorant-treated turf took a bluish tint over time. Table 1 indicates the initial Pantone color for each of the colorants and the resulting color measured at 56 DAT, illustrating how the individual products change over time. Regardless of application volume or turfgrass species, Regreen had the greatest propensity to turn a bluish tint, which would be unacceptable in a golf course situation. Titan Green Turf at the 80 gpa rate turned bluish on the bermudagrass but not on the zoysiagrass. Furthermore, Bermuda Green turned a bluish gray to blue on both grasses.

Applying the colorants at 160 gpa provided turf color increases of 1 to 44 percent (bermudagrass) and 11 to 15 percent (zoysiagrass) relative to 80 gpa treatments. Applying colorants at rates above 80 gpa resulted in increased color longevity over the winter season.

No one turf colorant was clearly superior on both grasses in terms of natural green color at the time of application and 56 DAT. Doubling the application rate to 160 gpa increased both color and longevity of Green Lawnger, Turf in a Bottle and Ultradwarf Super over the winter season. Applying Regreen at 40 gpa did not provide acceptable color over the winter season, and tracking became a problem when Regreen was applied at 80 gpa.

Turf in a Bottle and Wintergreen Plus had the best combination of natural green color and longevity on bermudagrass, and Wintergreen Plus and Ultradwarf Super had the best combination on zoysiagrass. This research indicates that some turf colorant products can provide an attractive green putting surface at a reduced cost compared to overseeding. 🌱