Turfgrass Research 2017

K-State Turfgrass Research

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Effect of Dormant 'MidIron' Bermudagrass Colorant Applications on Clothing Blemishing

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Summary. Minimal research exists on potential clothing blemishing when athletes contact turfgrass applied with colorants. Field trials were initiated February 16, 2017, and conducted to test the effect of turfgrass colorant applications on clothing blemishing if an athlete is to come in contact with the playing surface. Turfgrass colorants will adhere to turfgrass leaf blades and do not blemish clothing. However, tested turfgrass pigments did result in significant blemishing of clothing.

Rationale. Bermudagrass (*Cynodon dactylon*) is a warm-season turfgrass used on athletic fields in the Midwest. Although a desirable turfgrass species for athletic fields, it fails to maintain acceptable green color during winter. Turfgrass colorants have been used to maintain acceptable green turf color through dormancy periods. Athletes of all ages play on sports fields where colorants have been applied. Extensive research has explored turfgrass colorants on turfgrass quality, but minimal research exists on potential clothing blemishing when athletes contact turfgrass applied with colorants.

Objective. The objective of this research was to determine if turfgrass pigments and paints blemish athletic clothing after the recommended dry time.

Study Description. Field research trials were initiated February 16, 2017, at Rocky Ford Turfgrass Research Center in Manhattan, KS, on dormant 'MidIron' bermudagrass maintained at 1.5 inches. Environmental conditions were 65°F air temperature, 40°F soil temperature (4-in. depth), 39.1% relative humidity, and 3.1 MPH wind speed. Treatments were applied to 5 × 5 feet plots arranged in a randomized complete block design with four replications. Treatments consisted of three paints (Wintergreen Plus, Green Lawnger, and Endurant Premium), one pigment (Envy), and a non-treated control for comparison. All colorant treatments were applied at

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1:6 (v:v) dilution in 132 gallons per acre spray volume. After recommended drying time (4 hours), a white cotton t-shirt was pulled 5 feet across the plot, weighted down with 25 lb. Digital image analysis was used to determine percent blemishing of t-shirt area. Data were subjected to analysis of variance (ANOVA) in SAS 9.4 (SAS Institute Inc., Cary, NC) and means were separated according to Fisher's protected least significant difference (LSD) level at 0.05.

Results. Envy (turfgrass pigment) resulted in the highest blemished clothing percentage (60%). All other treatments were no different than the non-treated (Figure 2). Results demonstrate that the tested turfgrass paints safely adhere to the turfgrass canopy and do not blemish athletic clothing.

Figure 1. Dormant colorant field trial plots located at Rocky Ford Turfgrass Research Center in Manhattan, KS.

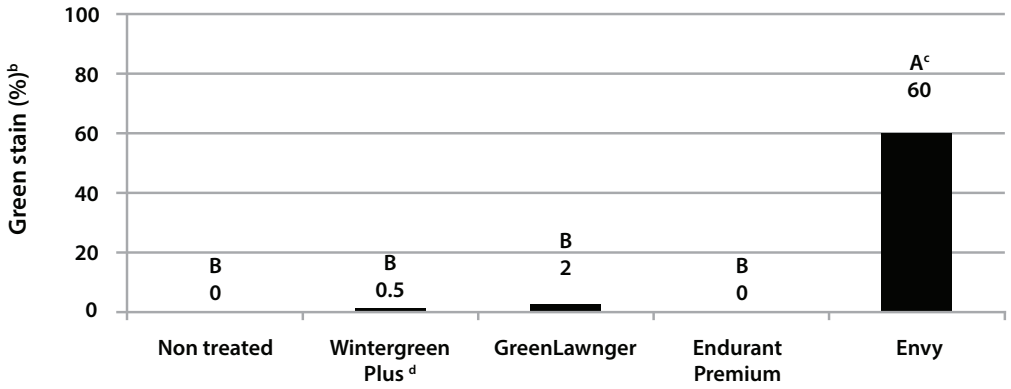

Figure 2. Percent blemished clothing influenced by residual turfgrass colorant applications on dormant 'MidIron' bermudagrass (*Cynodon dactylon*).[a]

[a] Trial was initiated Rocky Ford Turfgrass Research Center in Manhattan, KS on February 16, 2017.

[b] Percent of clothing blemished by treatments 4 hours after application.

[c] Means followed by the same letter are not significantly different according to Fisher's Protected LSD at $\alpha = 0.05$.

[d] All colorants were applied at 1:6% v/v (colorant:water) in 132 gallons per acre spray volume.

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