TURFGRASS RESEARCH
2015

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Evaluation of Overseeding and Colorants on 'Chisholm' Zoysiagrass during Winter Dormancy

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Summary. Annual ryegrass overseeding into lawn-height zoysiagrass provided acceptable turf color for only four weeks. The colorant Green Lawnger provided a darker green and considerably longer duration of acceptable color as compared to the colorant Match Play (bermudagrass), which was lighter green on zoysiagrass. A single colorant application resulted in acceptable turf color for 7 to 24 weeks; a sequential midwinter application provided acceptable color until spring greenup.

Rationale. Homeowners may want to extend green color from late autumn through early spring while benefitting from the reduced water and maintenance requirements afforded by zoysiagrass. This study was a preliminary turfgrass colorant test implemented at Kansas State University, Manhattan, Kansas, September 2012 to May 2013. It was conducted to determine if turfgrass colorants or overseeding could be used to enhance the color of lawn-height 'Chisholm' zoysiagrass between October and May in the transition zone, where a longer winter dormancy period occurs compared to the Southern United States.

Objectives. To determine if turfgrass colorants or overseeding could be used to enhance the color of lawn-height 'Chisholm' zoysiagrass between October and May in the transition zone.

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Study Description. Field studies were conducted at the Rocky Ford Turfgrass Research Center in Manhattan, Kansas, and John C. Pair Horticultural Center in Haysville, Kansas, from September 2012 to May 2013 on 'Chisholm' zoysiagrass maintained at lawn height (2.5-in.). The seven treatments were untreated zoysiagrass (control), tall fescue (C3 control), annual ryegrass overseeding in September (Manhattan) or October (Haysville), and colorants Green Lawnger and Match Play (bermudagrass) applied once in October at 262 gallons/acre, or at the same rate in October and January (Manhattan) or February (Haysville), 14 weeks after the initial application. Turf color was visually rated weekly, turf quality monthly, and spring soil temperatures were monitored weekly starting in March. Data were subjected to analysis of variance, and Fisher's protected LSD ($P \leq 0.05$) was used to detect differences.

Results. Results from the two locations were similar. Data from Rocky Ford are presented in Table 1. Overseeding with annual ryegrass on September 28 only provided acceptable color for up to 4 weeks (November 15). A single colorant application on October 20 provided acceptable color for up to 24 weeks (April 4) with Green Lawnger and 9 weeks (December 20) with Match Play (bermudagrass). Supplementing the autumn application with a sequential application on January 23 resulted in acceptable turf color throughout the remainder of winter dormancy for both colorant products. Green Lawnger provided a darker green turf color than Match Play (bermudagrass) (Fig. 1). However, both colorant products provided superior turf color to tall fescue for 16 weeks (December 13 to April 4) and superior color to untreated zoysiagrass during the entire study period. No differences occurred in spring soil temperatures between colorant-treated zoysiagrass and untreated turf in this experiment. This turf colorant study led to experimental questions about differences among colorant products as well as the influence of lower application volumes on turf color and duration of acceptable color, which were examined in colorant experiments conducted in 2013 and 2014.

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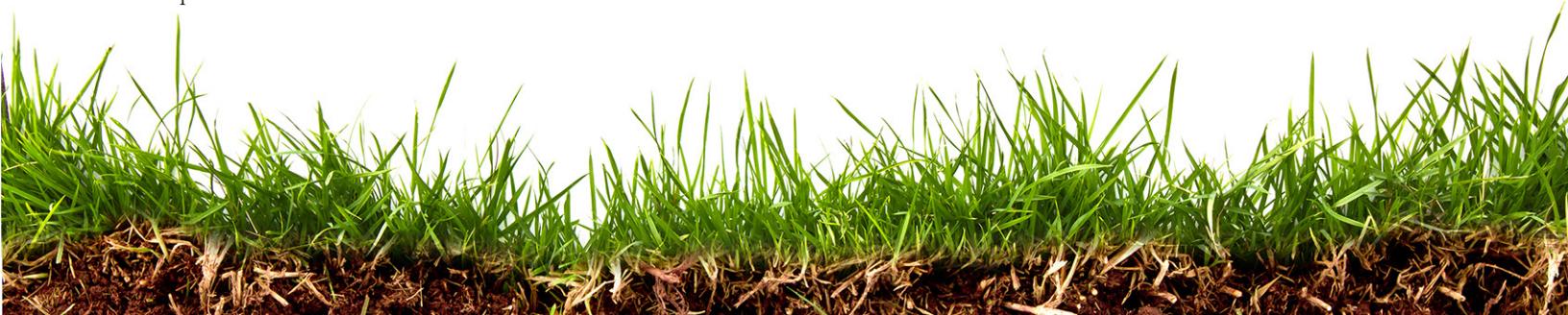

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Table 1. Effect of annual ryegrass overseeding and colorants on turf color of dormant 'Chisholm' zoysiagrass at the Rocky Ford Turfgrass Research Center, Manhattan, Kansas, in 2012–2013.

		Turf color[†]						
		Sept 28	Oct 20	Dec 20	Jan 25	Mar 7	Apr 4	May 18
Treatment	Application date[‡]	-3 WAT[§]	0 WAT	9 WAT	14 WAT	20 WAT	24 WAT	30 WAT
Green Lawnger colorant								
	Oct. 20	5.3 b[¶]	9.0 a	7.3 a	6.3 b	6.0 b	6.0 b	5.5 b
	Oct. 20 + Jan. 23	5.0 b	9.0 a	7.3 a	8.8 a	7.8 a	7.0 a	6 b
Bermudagrass colorant								
	Oct. 20	5.3 b	7.0 b	6.0 b	5 c	4.3 c	4.0 d	5.3 b
	Oct. 20 + Jan. 23	5.5 b	7.0 b	5.3 c	8.3 a	7.5 a	6.8 a	6 b
Annual ryegrass overseeding								
	Sept. 28	5.0 b	5.8 c	2.0 d	1.0 e	1.0 e	1.5 e	4 c
Tall fescue		8.8 a	8.8 a	6.5 b	3.3 d	2.0 d	5.3 c	9 a
Untreated		5.3 b	2.3 d	1.0 e	1.0 e	1.0 e	1.0 f	3.5 c

[†] Turf color was rated on a 1 to 9 scale: 1 = straw brown; 6 = acceptable green color (light green); and 9 = dark green.

[‡] Annual ryegrass overseeding was performed 3 weeks before first colorant application on September 28, 2012. Colorants were applied at a dilution of 1:6 (colorant:water) using a three-nozzle, CO_2-pressurized sprayer with 8004VS nozzles at 131 gallons/acre of spray solution in two perpendicular directions for total rate of 262 gallons/acre. The first colorant application was October 20, 2012, and 14 weeks after the initial application a sequential midwinter application on the required treatments was done January 23, 2013.

[§] Weeks After Treatment (weeks after 1st colorant application).

[¶] Means in a column followed by the same letter are not significantly different, according Fisher's protected least significant difference test ($P < 0.05$).

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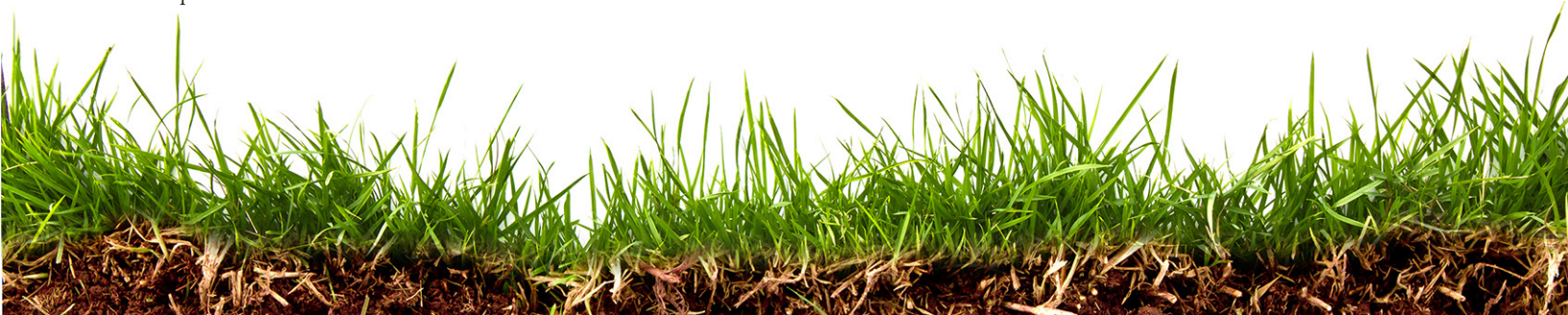

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Figure 1. Study area immediately after the second colorant application treatments on 'Chisholm' zoysiagrass at the John C. Pair Research Center in Haysville, Kansas, on February 5 2013 (14 WAT). A) tall fescue; B) annual ryegrass overseed on October 11 2012; C) untreated; D) Match Play (bermudagrass) colorant applied once on October 31 2012; E) Green Lawnger colorant applied once on October 31 2012; F) Green Lawnger applied on October 31, 2012, and February 5, 2013; G) bermudagrass colorant applied on October 31, 2012, and February 5, 2013.

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