

Efficacy of Flazasulfuron for Bermudagrass Spring Transitioning

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Introduction

This study was conducted on a mature stand of 'Tifway' bermudagrass (*C. dactylon* x *C. transvaalensis*) at Egwani Farms Golf Course (Rockford, TN) overseeded with a 'Champion GQ' perennial ryegrass (*Lolium perenne* L.) blend (Seed Research of Oregon, Corvallis, OR). The objective of the study was to evaluate the efficacy of flazasulfuron for transitioning the bermudagrass out of overseeding during the spring of the year.

Methods and Materials

The test site was maintained similar to that of a golf course fairway with respect to irrigation, fertilization and mowing.

This study was arranged in a randomized complete block design with three replications. Treatments were initially applied on 13 April 2009 to plots (10' x 5') using a CO₂ powered boom sprayer calibrated to deliver 30 gpa using four, flat-fan, 8002 nozzles at 18 psi, configured to provide a 5-ft spray swath. Bermudagrass green-up had reached approximately 50% when treatments were initially applied. Urea was applied as a granular, separate from the spray solution, using a shaker jar immediately prior to treatment.

Perennial ryegrass control was rated visually on a 0 (no control) -100% (complete plant death) scale at 7, 14, 21, 28, 35, and 43 days after initial treatment (DAIT). Annual bluegrass (*Poa annua* var. *annua*) control was also rated using the same 0-100% scale at 7, 14, 21, 28, 35, and 43 DAIT. Bermudagrass cover and quality was rated visually at 14, 21, 28, 35, and 43 DAIT.

Results and Discussion

Applications of urea at rates of 0.56, 1.09, and 1.63 lb N per 1000 ft² improved perennial ryegrass control from 7-28 DAIT for all flazasulfuron treatments. For example, treatment with flazasulfuron at 0.25 oz/A following urea fertilization (at all N rates) provided the same level of perennial ryegrass control as an application of flazasulfuron alone at 1.5 oz/A (Table 1). A similar response was observed in annual bluegrass control for flazasulfuron at 0.25 oz/A following urea fertilization at either 1.09 or 1.63 lb N (Table 2). All treatments, regardless of fertilization regime, provided greater than 98.8% control of perennial ryegrass by the conclusion of this study (Table 1). Annual bluegrass control at the conclusion of this study was greater 95% for 11 out of the 14 treatments evaluated; however, only one of the three flazasulfuron rates (1.5 oz/A) provided greater than 95% control of annual bluegrass when applied without urea fertilization.

No significant differences in bermudagrass cover or quality were observed in this study (data not shown).

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Table 1. Perennial ryegrass control following applications of flazasulfuron and urea in 2009

Treatment	Rate (per A)	Perennial Ryegrass Control					
		7DAIT	14DAIT	21DAIT	28DAIT	35DAIT	43DAIT
1. UNTREATED CHECK		0.0 c [†]	0.0 d	0.0 e	0.0 c	0.0 d	0.0 c
2. SL-160	0.25 oz wt.	3.8 bc	65.0 c	81.3 d	87.5 b	82.5 c	98.8 b
	NIS						
	0.25 % v/v						
3. SL-160	0.50 oz wt.	3.8 bc	66.3 c	82.5 d	88.8 b	93.8 b	100.0 a
	NIS						
	0.25 % v/v						
4. SL-160	1.0 oz wt.	8.8 ab	67.5 bc	83.8 d	97.5 a	97.5 a	100.0 a
	NIS						
	0.25 % v/v						
5. SL-160	1.5 oz wt.	8.8 ab	75.0 abc	85.0 cd	97.5 a	100.0 a	100.0 a
	NIS						
	0.25 % v/v						
6. SL-160	0.25 oz wt.	11.3 a	73.8 abc	85.0 cd	96.3 a	100.0 a	100.0 a
	NIS						
	0.25 % v/v						
	UREA (46-0-0) [‡]	0.56 lb. N/1000 ft ²					
7. SL-160	0.25 oz wt.	12.5 a	78.8 ab	86.3 bcd	96.3 a	100.0 a	100.0 a
	NIS						
	0.25 % v/v						
	UREA (46-0-0) [‡]	1.09 lb. N/1000 ft ²					
8. SL-160	0.25 oz wt.	8.8 ab	80.0 a	92.5 a	100.0 a	100.0 a	100.0 a
	NIS						
	0.25 % v/v						
	UREA (46-0-0) [‡]	1.63 lb. N/1000 ft ²					
9. SL-160	0.50 oz wt.	11.3 a	72.5 abc	86.3 bcd	98.8 a	100.0 a	100.0 a
	NIS						
	0.25 % v/v						
	UREA (46-0-0) [‡]	0.56 lb. N/1000 ft ²					
10. SL-160	0.50 oz wt.	11.3 a	75.0 abc	92.5 a	97.5 a	100.0 a	100.0 a
	NIS						
	0.25 % v/v						
	UREA (46-0-0) [‡]	1.09 lb. N/1000 ft ²					
11. SL-160	0.50 oz wt.	13.8 a	80.0 a	95.0 a	98.8 a	100.0 a	100.0 a
	NIS						
	0.25 % v/v						
	UREA (46-0-0) [‡]	1.63 lb. N/1000 ft ²					
12. SL-160	1.00 oz wt.	13.8 a	80.0 a	90.0 abc	100.0 a	100.0 a	100.0 a
	NIS						
	0.25 % v/v						
	UREA (46-0-0) [‡]	0.56 lb. N/1000 ft ²					
13. SL-160	1.00 oz wt.	15.0 a	78.8 a	91.3 ab	98.8 ab	100.0 a	100.0 a
	NIS						
	0.25 % v/v						
	UREA (46-0-0) [‡]	1.09 lb. N/1000 ft ²					
14. SL-160	1.00 oz wt.	11.3 a	83.8 a	93.8 a	98.8 ab	100.0 a	100.0 a
	NIS						
	0.25 % v/v						
	UREA (46-0-0) [‡]	1.63 lb. N/1000 ft ²					

[†] Means followed by same letter do not significantly differ (P=.05 Duncan's New MRT); [‡] Urea applied as a granular material

Table 2. Annual bluegrass control following applications of flazasulfuron and urea in 2009.

Treatment	Rate (per A)	Annual Bluegrass Control					
		7DAIT	14DAIT	21DAIT	28DAIT	35DAIT	43DAIT
1. UNTREATED CHECK		0.0 d [†]	0.0 e	0.0 f	0.0 e	0.0 f	0.0 d
2. SL-160	0.25 oz wt.	20.0 abc	20.0 de	30.0 e	15.0 de	40.0 e	67.5 c
	NIS						
	0.25 % v/v						
3. SL-160	0.50 oz wt.	16.3 c	37.5 cd	37.5 de	27.5 d	45.0 e	68.8 c
	NIS						
	0.25 % v/v						
4. SL-160	1.0 oz wt.	17.5 bc	42.5 bcd	50.0 d	75.0 c	65.0 d	89.3 b
	NIS						
	0.25 % v/v						
5. SL-160	1.5 oz wt.	25.0 abc	57.5 abc	63.8 c	91.3 abc	87.5 c	95.5 ab
	NIS						
	0.25 % v/v						
6. SL-160	0.25 oz wt.	16.3 c	47.5 abc	50.0 d	80.0 bc	90.0 bc	91.3 ab
	NIS						
	0.25 % v/v						
	UREA (46-0-0) [‡]	0.56 lb. N/1000 ft ²					
7. SL-160	0.25 oz wt.	20.0 abc	61.3 abc	82.5 ab	88.8 abc	93.8 abc	92.5 ab
	NIS						
	0.25 % v/v						
	UREA (46-0-0) [‡]	1.09 lb. N/1000 ft ²					
8. SL-160	0.25 oz wt.	26.3 abc	60.0 abc	88.8 ab	87.5 abc	96.8 ab	91.3 ab
	NIS						
	0.25 % v/v						
	UREA (46-0-0) [‡]	1.63 lb. N/1000 ft ²					
9. SL-160	0.50 oz wt.	18.8 bc	60.0 abc	76.3 bc	97.5 ab	98.8 a	95.0 ab
	NIS						
	0.25 % v/v						
	UREA (46-0-0) [‡]	0.56 lb. N/1000 ft ²					
10. SL-160	0.50 oz wt.	27.5 ab	48.8 abc	83.8 ab	96.3 ab	92.5 abc	94.3 ab
	NIS						
	0.25 % v/v						
	UREA (46-0-0) [‡]	1.09 lb. N/1000 ft ²					
11. SL-160	0.50 oz wt.	26.3 abc	68.8 a	86.3 ab	91.3 abc	96.3 ab	97.5 ab
	NIS						
	0.25 % v/v						
	UREA (46-0-0) [‡]	1.63 lb. N/1000 ft ²					
12. SL-160	1.00 oz wt.	27.5 ab	67.5 a	92.5 a	100.0 a	100.0 a	99.3 a
	NIS						
	0.25 % v/v						
	UREA (46-0-0) [‡]	0.56 lb. N/1000 ft ²					
13. SL-160	1.00 oz wt.	30.0 a	60.0 abc	83.8 ab	98.8 ab	100.0 a	98.0 ab
	NIS						
	0.25 % v/v						
	UREA (46-0-0) [‡]	1.09 lb. N/1000 ft ²					
14. SL-160	1.00 oz wt.	11.3 a	68.8 a	91.3 a	98.8 ab	100.0 a	100.0 a
	NIS						
	0.25 % v/v						
	UREA (46-0-0) [‡]	1.63 lb. N/1000 ft ²					

[†] Means followed by same letter do not significantly differ (P=.05 Duncan's New MRT); [‡] Urea applied as a granular material