

Efficacy of Various Sulfonylurea Herbicides for Transitioning Out of Overseeding

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Introduction

This study was conducted on a mature stand of 'Tifway' hybrid bermudagrass (*C. dactylon* x *C. transvaalensis*) at the East Tennessee Research and Education Center (Knoxville, TN) overseeded with five perennial ryegrass (*Lolium perenne* L.) cultivars and one intermediate ryegrass (*Lolium hybridum*) cultivar. The objective of this project was to evaluate the efficacy of various sulfonylurea herbicides for transitioning out of ryegrass 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. All ryegrass genotypes were overseeded on 2 October 2008 at a rate of 450 lbs per acre. Treatments were arranged in a randomized complete block design with three replications on each ryegrass genotype. Data collected on each ryegrass genotype were analyzed using separate ANOVAs. Herbicide treatments were applied on 28 April 2009 to plots (5' 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. Soil temperature (0.5 inch depth) at the time of application averaged 68°F.

Ryegrass control was rated visually utilizing a 0 (no control) to 100 % (complete kill) scale at 7, 14, and 21 days after initial treatment (DAIT). Quantitative assessments of ryegrass injury and turf color were made by assessing NDVI with a TCM-500 turf color meter (Spectrum Technologies, E. Plainfield IL). Three sub-samples were used to calculate relative chlorophyll index means for each treatment on each rating date.

Results and Discussion

For each ryegrass genotype evaluated, all treatments provided greater than 93% control at 21 DAIT. No significant differences in NDVI were detected on any rating date (data not shown).

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Table 1. Control of 'SR4600' perennial ryegrass following herbicide treatments in 2009.

Treatment	Rate	Perennial Ryegrass Control		
		7 DAIT	14 DAIT	21 DAIT
	-per A-	-----%		
1. <u>UNTREATED CHECK</u>		0.0 a [†]	0.0 c	0.0 b
2. <u>MONUMENT</u>	0.56 oz	1.7 a	90.0 a	96.7 a
<u>ACTIVATOR-90</u>	0.25% v/v			
3. <u>REVOLVER</u>	17.4 fl. oz	3.3 a	91.7 a	100.0 a
4. <u>CERTAINTY</u>	2.0 oz	0.0 a	96.7 a	100.0 a
<u>ACTIVATOR-90</u>	0.25% v/v			
5. <u>TRANXIT</u>	2.0 oz	0.0 a	70.0 b	93.3 a
<u>ACTIVATOR-90</u>	0.25% v/v			
6. <u>FLAZASULFURON</u>	1.0 oz	1.7 a	93.3 a	96.7 a
<u>ACTIVATOR-90</u>	0.25% v/v			

[†] Means followed by same letter do not significantly differ (P=.05 Duncan's New MRT)

Table 2. Control of 'Penquin 2' perennial ryegrass following herbicide treatments in 2009.

Treatment	Rate	Perennial Ryegrass Control		
		7 DAIT	14 DAIT	21 DAIT
	-per A-	-----%		
1. <u>UNTREATED CHECK</u>		0.0 b [†]	0.0 b	0.0 b
2. <u>MONUMENT</u>	0.56 oz	1.7 ab	76.7 a	93.3 a
<u>ACTIVATOR-90</u>	0.25% v/v			
3. <u>REVOLVER</u>	17.4 fl. oz	3.3 ab	78.3 a	96.7 a
4. <u>CERTAINTY</u>	2.0 oz	0.0 b	76.7 a	96.7 a
<u>ACTIVATOR-90</u>	0.25% v/v			
5. <u>TRANXIT</u>	2.0 oz	3.3 ab	80.0 a	100.0 a
<u>ACTIVATOR-90</u>	0.25% v/v			
6. <u>FLAZASULFURON</u>	1.0 oz	5.0 a	91.7 a	100.0 a
<u>ACTIVATOR-90</u>	0.25% v/v			

[†] Means followed by same letter do not significantly differ (P=.05 Duncan's New MRT)

Table 3. Control of 'Hawkeye 2' perennial ryegrass following herbicide treatments in 2009.

Treatment	Rate	Perennial Ryegrass Control		
		7 DAIT	14 DAIT	21 DAIT
	-per A-	-----%		
1. <u>UNTREATED CHECK</u>		0.0 a [†]	0.0 d	0.0 b
2. <u>MONUMENT</u>	0.56 oz	1.7 a	91.7 ab	93.3 a
<u>ACTIVATOR-90</u>	0.25% v/v			
3. <u>REVOLVER</u>	17.4 fl. oz	1.7 a	91.7 ab	96.7 a
4. <u>CERTAINTY</u>	2.0 oz	1.7 a	73.3 a	95.0 a
<u>ACTIVATOR-90</u>	0.25% v/v			
5. <u>TRANXIT</u>	2.0 oz	1.7 a	83.3 bc	98.3 a
<u>ACTIVATOR-90</u>	0.25% v/v			
6. <u>FLAZASULFURON</u>	1.0 oz	1.7 a	96.7 a	100.0 a
<u>ACTIVATOR-90</u>	0.25% v/v			

[†] Means followed by same letter do not significantly differ (P=.05 Duncan's New MRT)

Table 4. Control of ‘Zoom’ perennial ryegrass following herbicide treatments in 2009.

Treatment	Rate -per A-	Perennial Ryegrass Control		
		7 DAIT	14 DAIT	21 DAIT
		-----%-----		
1. UNTREATED CHECK		0.0 a [†]	0.0 b	0.0 b
2. MONUMENT ACTIVATOR-90	0.56 oz 0.25% v/v	3.3 a	83.3 a	96.7 a
3. REVOLVER	17.4 fl. oz	1.7 a	83.3 a	93.3 a
4. CERTAINTY ACTIVATOR-90	2.0 oz 0.25% v/v	1.7 a	86.7 a	93.3 a
5. TRANXIT ACTIVATOR-90	2.0 oz 0.25% v/v	5.0 a	90.0 a	96.7 a
6. FLAZASULFURON ACTIVATOR-90	1.0 oz 0.25% v/v	5.0 a	88.3 a	100.0 a

[†] Means followed by same letter do not significantly differ (P=.05 Duncan's New MRT)

Table 5. Control of ‘SR4420’ perennial ryegrass following herbicide treatments in 2009.

Treatment	Rate -per A-	Perennial Ryegrass Control		
		7 DAIT	14 DAIT	21 DAIT
		-----%-----		
1. UNTREATED CHECK		0.0 a [†]	0.0 b	0.0 b
2. MONUMENT ACTIVATOR-90	0.56 oz 0.25% v/v	3.3 a	90.0 a	96.7 a
3. REVOLVER	17.4 fl. oz	3.3 a	83.3 a	96.7 a
4. CERTAINTY ACTIVATOR-90	2.0 oz 0.25% v/v	1.7 a	86.7 a	93.3 a
5. TRANXIT ACTIVATOR-90	2.0 oz 0.25% v/v	1.7 a	80.0 a	93.3 a
6. FLAZASULFURON ACTIVATOR-90	1.0 oz 0.25% v/v	1.7 a	83.3 a	93.3 a

[†] Means followed by same letter do not significantly differ (P=.05 Duncan's New MRT)

Table 6. Control of ‘Transcend’ intermediate ryegrass following herbicide treatments in 2009.

Treatment	Rate -per A-	Intermediate Ryegrass Control		
		7 DAIT	14 DAIT	21 DAIT
		-----%-----		
1. UNTREATED CHECK		0.0 a [†]	0.0 b	0.0 b
2. MONUMENT ACTIVATOR-90	0.56 oz 0.25% v/v	1.7 a	86.7 a	100.0 a
3. REVOLVER	17.4 fl. oz	1.7 a	90.0 a	100.0 a
4. CERTAINTY ACTIVATOR-90	2.0 oz 0.25% v/v	0.0 a	90.0 a	100.0 a
5. TRANXIT ACTIVATOR-90	2.0 oz 0.25% v/v	3.3 a	86.7 a	100.0 a
6. FLAZASULFURON ACTIVATOR-90	1.0 oz 0.25% v/v	3.3 a	90.0 a	100.0 a

[†] Means followed by same letter do not significantly differ (P=.05 Duncan's New MRT)