

# Fall Applications of Sulfonylurea Herbicides for *Poa annua* Control and Turfgrass Safety

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## Abstract

*Certainty, Monument, and TranXit gave variable Poa control in the spring at 6 to 8 months after applications that were made prior to fall overseeding. There was not consistent Poa control with respect to timing of applications from one month to two weeks before overseeding. Most Poa control in February or April was marginally acceptable at 85% control or less. Common bermudagrass treated with the sulfonylurea herbicides was affected with observable reduced quality. The ryegrass density at 10 days after first water appeared to be less for all treatments compared to the untreated check. At one month after overseeding, all plots had ryegrass well-established and quality ratings were comparable to the untreated check for all treatments.*

## Introduction

Annual bluegrass (*Poa annua*) occurs as a winter weed in most crop, landscape, and turfgrass situations in the desert region of Arizona. In turfgrass, it emerges during the fall season when temperatures drop and conditions become favorable for growing cool-season grasses. It will compete with the winter overseeded turf or become unsightly in non-overseeded dormant bermudagrass. In the late winter and through the early spring, it will flower and seed to create an unappealing surface. Preemergence herbicides are commonly applied before *Poa* gets established in the fall season. However, preemergence herbicides must be applied in advance of overseeding to minimize the potential injury to emerging cool-season grass seedlings. Typically, the dintroaniline herbicides are applied at least 4 weeks prior to overseeding. The introduction of the sulfonylurea herbicides for spring transition and weed control with demonstrated postemergence efficacy against *Poa* has prompted investigations for a preemergence *Poa* control program. This experiment evaluates the efficacy of sulfonylurea herbicides for preemergence *Poa* control and turfgrass safety.

## Materials and Methods

A small plot experiment was conducted on a fairway at a Leisure World golf course in Mesa, AZ. Four herbicide treatments were Monument\* (trifloxysulfuron) at 0.015 and 0.026 lb a.i./A, Certainty\* (sulfosulfuron) at 0.094 lb a.i./A, and TranXit\* (rimsulfuron) at 0.031 lb a.i./A. The four treatments were planned to be applied at four timings of application at 28, 21, 14, and 10 days before overseeding. Actual applications were made on 31 August 2005 [31 days before first water (DBW)], 08, 14, and 19 September (23, 17, and 12 DBW). Overseeding of perennial ryegrass cv. Prelude was done on 30 September and the first water was applied on 01 October. Herbicides were applied using a backpack CO<sub>2</sub> sprayer equipped with a hand-held boom with three 8002 flat fan nozzles spaced 20-inches apart. The sprays were applied in 35 gpa water pressurized to 30 psi. All sprays included the non-ionic surfactant Latron CS-7 at 0.25% v/v. On 31 August, weather conditions were clear skies with a slight breeze at less than 5 mph, air temperature at 80°F, and soil temperature at 2-in depth 70°F. On 08 September, it was cloudy with no wind, air temperature at 78°F and soil temperature at 72°F. On 14 and 19 September, both days were clear with

no winds, air temperature at 68°F and 65°F and soil temperatures at 62 and 60°F, respectively. On the day before overseeding, the common bermudagrass turf was mowed and scalped per typical practices at the golf course. The experimental design was a randomized complete block design with four replicates with each treatment plot measuring 5 ft by 10 ft. Visual observations were made at various intervals to evaluate herbicide phytotoxicity on bermudagrass and ryegrass and *Poa annua* control efficacy.

## Results and Discussion

Certainty, Monument, and TranXit gave variable *Poa* control in the spring at 6 to 8 months after applications that were made prior to fall overseeding. There was not consistent *Poa* control with respect to timing of applications from one month to two weeks before overseeding. Most *Poa* control that was observed in February or April was marginally acceptable at 85% control or less (Table 1). Monument at either 0.015 or 0.026 lb a.i./A and TranXit demonstrated improved *Poa* control from February to April. *Poa* control in April was marginally acceptable at about 85% for most Monument and TranXit treatments. *Poa* control in February was less than acceptable for most Monument and TranXit treatments applied at any timing in the fall. Monument at 0.015 or 0.026 lb a.i./A did not demonstrate a rate response with improved *Poa* control at the higher rate. The four timings of application of herbicides before overseeding did not appear to affect *Poa* control that was observed.

The *Poa* population throughout the test site was variable due to localized dry spots and an area through the middle of the site that had an extraordinarily heavy *Poa* infestation that made some treatments appear to not provide any degree of control.

For applications at 31 DBW, Certainty caused observable bermudagrass turf chlorosis and very slight growth reduction compared to the untreated check (Table 2). Turf quality was reduced at 8 days after treatment (DAT). Monument at 0.026 lb a.i./A and TranXit caused very slight reduction in turf quality with visible chlorosis compared to the untreated check. The visible chlorosis for these treatments continued to be observed at 19 DAT. Monument at 0.015 lb a.i./A did not affect the bermudagrass at this timing of application. All treatments applied at 23 and 17 DBW caused bermudagrass quality reduction when evaluated at 5-6 DAT.

At 10 days after first water following overseeding, the ryegrass density appeared to be less for all treatments compared to the untreated check. The observed differences were not statistically different from the untreated check except for Certainty applied at 17 DBW where ryegrass exhibited the lowest density rating of 1.8 versus 6.0 for the untreated check. At 2 weeks after first water on 14 October, Certainty and Monument treated plots exhibited decreased ryegrass quality than the untreated check. TranXit applied at 31 DBW had the least effect on ryegrass quality that was comparable to the untreated check. On 31 October, all plots had ryegrass well-established and quality ratings were comparable to the untreated check for all treatments.

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\*Product names mentioned are registered trademarks. Any products, services, or organizations that are mentioned, shown, or indirectly implied in this publication do not imply endorsement by The University of Arizona.

Table 1. Sulfonylurea herbicides for *Poa annua* control

Treatment	Rate	Timing*	<i>Poa</i> Control	
			21-Feb	20-Apr
	lb a.i./A		----- %-----	
Untreated check			0	0
Certainty	0.094	31 DBW	63	80
Certainty	0.094	23 DBW	75	90
Certainty	0.094	17 DBW	50	85
Certainty	0.094	12 DBW	85	78
Monument	0.015	31 DBW	87	91
Monument	0.026	31 DBW	60	78
Monument	0.015	23 DBW	75	85
Monument	0.026	23 DBW	70	95
Monument	0.015	17 DBW	60	82
Monument	0.026	17 DBW	70	85
Monument	0.015	12 DBW	73	85
Monument	0.026	12 DBW	75	86
TranXit	0.031	31 DBW	85	88
TranXit	0.031	23 DBW	50	75
TranXit	0.031	17 DBW	80	80
TranXit	0.031	12 DBW	82	88
LSD (p=0.05)			18.5	14.5

\*Timing of herbicide applications in fall 2005 at days before first water (DBW) after overseeding  
 31 DBW – 31 August; 23 DBW – 08 September; 17 DBW – 14 September; 12 DBW – 19 September

Table 2. Effects of sulfonyleurea herbicides on turfgrass quality

Treatment	Rate	Timing	<u>Bermudagrass</u>				<u>Ryegrass</u>		
			<u>injury</u> 8-Sep	8-Sep	<u>quality</u> 14-Sep	19-Sep	<u>density</u> 11-Oct	<u>quality</u> 14-Oct	31-Oct
	lb a.i./A		%						
Untreated check			0.0	9.0	9.0	9.0	6.0	6.5	6.5
Certainty	0.094	31 DBW	4.0	7.0	7.5	7.8	3.5	5.0	6.8
Certainty	0.094	23 DBW			6.5	7.0	2.5	3.5	6.8
Certainty	0.094	17 DBW				7.0	1.8	2.8	7.0
Certainty	0.094	12 DBW					3.8	4.8	6.8
Monument	0.015	31 DBW	0.0	9.0	8.8	9.0	3.0	4.5	6.8
Monument	0.026	31 DBW	0.0	8.5	8.5	8.5	4.3	5.8	6.5
Monument	0.015	23 DBW			7.8	8.0	4.0	5.3	6.5
Monument	0.026	23 DBW			7.8	8.0	4.3	5.3	6.5
Monument	0.015	17 DBW				8.0	2.8	3.8	6.0
Monument	0.026	17 DBW				7.5	2.8	4.0	6.8
Monument	0.015	12 DBW					3.8	4.8	6.3
Monument	0.026	12 DBW					3.0	4.8	7.0
TranXit	0.031	31 DBW	0.0	8.0	8.0	8.0	5.3	6.5	6.8
TranXit	0.031	23 DBW			6.5	8.0	3.8	4.3	6.8
TranXit	0.031	17 DBW				7.0	3.3	5.3	6.3
TranXit	0.031	12 DBW					3.5	4.3	6.3
LSD (p=0.05)			1.72	0.63	0.83	0.51	2.18	2.76	0.65

\*Timing of herbicide applications in fall 2005 at days before first water (DBW) after overseeding.

31 DBW – 31 August; 23 DBW – 08 September; 17 DBW – 14 September; 12 DBW – 19 September

Quality and density ratings 1 to 9 scale; 1 = poor and 9 = best