

**CROP SAFETY OF ALION (INDAZIFLAM) HERBICIDE
IN ESTABLISHED KENTUCKY BLUEGRASS,
GRANDE RONDE VALLEY OF NORTHEASTERN OREGON**

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Introduction

A study was conducted in the Grande Ronde Valley of northeastern Oregon to evaluate Alion (indaziflam), a group 29 mode of action herbicide, for crop safety and preemergent grass weed control efficacy in established Kentucky bluegrass. Alion is not registered for use in grasses grown for seed and previously had not been evaluated for potential fit in Kentucky bluegrass seed production.

Materials and Methods

The experiment was located in an established commercial field of ‘Endurance’ Kentucky bluegrass (KBG) in the Grande Ronde Valley of northeastern Oregon. The field was seeded during the spring of 2014, and a second seed crop was harvested in 2016. Alion was applied at 1.0, 1.5, and 2.0 oz/acre at each of three application timings. Preemergent herbicide treatments (PRE) were applied on September 15, 2015. Early postemergent herbicide treatments (EPOST) were applied on October 12, 2015. Late postemergent herbicide treatments (LPOST) were applied February 25, 2016. Pendimethalin (Prowl H2O) was applied at 5 pt/acre PRE in the fall ahead of the winter LPOST applications. Oxyfluorfen (Goal 2XL) was tank-mixed with EPOST Alion treatments to provide burndown activity at time of application.

Conditions at the time of application are summarized in Table 1. All treatments were applied with a

hand-held CO₂ sprayer delivering 22 gpa at 30 psi. To minimize drift potential, TeeJet air induction extended range (AIXR) 11002 nozzle tips were used for all applications. Plots were 8 feet x 25 feet and were arranged in a randomized complete block design with four replications. The soil type at the site was an Imbler fine sandy loam (72% sand, 22.8% silt, 5.2% clay, 2.73% OM, 5.1 pH, and CEC of 16.0 meq/100g). Seed yield was not quantified in this study due to crop destruct requirements.

Results and Discussion

Weed control evaluations were not possible due to the lack of weed pressure. KBG did not exhibit any injury 30 days after preemergent treatments were applied (Table 2). In mid-November, slight crop injury (1–2%) was observed in PRE (Alion at 1.0 and 2.0 oz/acre) and EPOST (Alion tank-mixed with Goal 2XL) treatments. Crop injury observations made in early spring indicated slightly more noticeable injury (1–5%) in all treatments, but injury was still well below a commercially acceptable level. Overall, Kentucky bluegrass injury observed in this study indicates that Alion applied PRE, EPOST, and LPOST can cause noticeable but acceptable levels of injury. Visual observations indicated crop injury symptoms dissipated from mid-April until the study was terminated.

Volunteer KBG control in mid-November was good to excellent at the 1.5 to 2.0 oz/acre rates of Alion applied

Table 1. Conditions at time of herbicide applications.

	----- Application timing -----		
	September 15, 2015 (preemergent)	October 12, 2015 (early postemergent)	February 25, 2016 (late postemergent)
KBG growth stage	3–5 inches regrowth	4–6 inches regrowth	4–6 inches regrowth
Volunteer KBG growth stage	1 inch, one leaf	1 inch, one leaf	1 inch, one to two leaves, 0 tillers
Air temperature (°F)	60	54	54
Relative humidity (%)	45	67	56
Cloud cover (%)	100	Clear	Sunny
Wind velocity (mph)	Calm	Calm	4–7 mph from S-SW
Soil temp at surface (°F)	61	55	61
Soil temp at 1-inch depth (°F)	60	52	52
Soil temp at 2-inch depth (°F)	60	54	43
Soil temp at 4-inch depth (°F)	60	58	38

PRE and EPOST. The low 1.0 oz/acre Alion rate was not as effective at later application timings.

Note: Indaziflam is not registered for use in grasses grown for seed and is being evaluated on an experimental basis only. Mention of products used in this trial should not be considered a recommendation for

commercial use. More research is needed to determine how indaziflam may fit into the Kentucky bluegrass seed production system.

Acknowledgments

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Table 2. Efficacy and crop safety of Alion (indaziflam) herbicide in established Kentucky bluegrass, Grande Ronde Valley of northeastern Oregon, 2016.

Treatment ²	Application rate (per acre)	Application timing	Crop injury		Volunteer KBG control ¹	Crop injury
			Oct. 14, 2015	Nov. 12, 2015		April 9, 2016
			----- % -----			
Check	—	—	0	0	0 b	0
Alion	1 oz	PRE	0	2	86 a	2
Alion	1.5 oz	PRE	0	0	86 a	3
Alion	2 oz	PRE	0	2	92 a	5
Alion + Goal 2XL	1 oz	EPOST	0	1	67 a	2
Alion + Goal 2XL	1.5 oz	EPOST	0	2	75 a	3
Alion + Goal 2XL	2 oz	EPOST	0	1	77 a	3
Alion	1 oz	LPOST ³	0	1	66 a	2
Alion	1.5 oz	LPOST ³	0	0	74 a	1
Alion	2 oz	LPOST ³	0	1	75 a	1
LSD (<i>P</i> = 0.05)			NS	NS	34	NS

¹Means with the same letter are not statistically different.

²Alion = indaziflam; Goal = oxyfluorfen

³Prowl H2O applied PRE to plots on September 15, 2015.