

Tolerance of Established Blue Wildrye to Herbicides

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Introduction

Blue wildrye (*Elymus glaucus*), a perennial grass native to the West Coast, is grown on a small acreage in Oregon for seed production. Currently dimethenamid-p (Outlook[®]) is the only herbicide that is registered for the control of weedy grasses in established blue wildrye. Two trials were conducted to evaluate the tolerance of established blue wildrye to other herbicides that are being used for the control of weedy grasses in grass seed production in the Willamette Valley.

Methods

The 2006-2007 study at the OSU Hyslop Research Farm was comprised of 6.5 ft by 30 ft plots, while the 2007-2008 study at the OSU Schmidt Research Farm consisted of 8 ft by 25 ft plots. Both trials were a collaborative effort with the USDA NRCS Plant Materials Center. The experimental design of both trials was a randomized complete block with four replications. Herbicide treatments were applied in water at 20 gallons per acre at 20 psi. Herbicides included were flufenacet-metribuzin (Axiom), pendimethalin (Prowl H2O), oxyfluorfen (Goal), and metribuzin (Sencor). Oxyfluorfen was omitted from the 2007-2008 trials and flufenacet (Define) was substituted for flufenacet-metribuzin. Four rates of dimethenamid-p were included in the 2007-2008 study.

The soil at Hyslop Farm was a Woodburn silt loam with a pH of 5.7 and an organic matter content of 2.9%. The Schmidt Farm soil was a Willamette silt loam with a pH of 5.2 and an organic matter content of 3.9%. The Schmidt site has a moderate infestation of annual bluegrass (*Poa annua*). The blue wildrye stands at both sites had been established by the USDA Plant Material Center for seed increase and were in their third year of production. Visual evaluations of crop injury and annual bluegrass control were conducted periodically after herbicide application. The crop was swathed and threshed in July.

Results

The final visual ratings are included in Tables 1 and 2. Oxyfluorfen caused significant crop stunting at the higher rate of application (Table 1), but seed yield was comparable to that from the untreated check. Visible injury caused by the other herbicide treatments in the Hyslop study was very minor and all seed yields were equal to or greater than those from the check. None of the herbicide treatments in the 2007-2008 study caused significant injury symptoms and there were no statistical differences among the seed

yield means (Table 2). Pendimethalin provided less control than the other herbicides on the annual bluegrass in this trial.

Dimethenamid-p may be applied to blue wildrye under conditions and at rates specified on the Outlook label. None of the other herbicides in these two studies are currently registered for use in blue wildrye grown for seed.

Table 1. Visible injury and seed yield of established blue wildrye following herbicide applications at Hyslop Farm, 2006-2007.

Treatment ¹	Rate (lb a.i./a)	Blue wildrye	
		injury ² (%)	seed yield (lb/a)
Flufenacet-metribuzin	0.42	0	91
Flufenacet-metribuzin	0.85	0	126
Pendimethalin	3	5	114
Pendimethalin	6	0	104
Oxyfluorfen	0.19	2	103
Oxyfluorfen	0.38	35	93
Metribuzin	1	5	122
Check	0	0	91
LSD (0.10)		--	21.4

¹Applied November 8, 2006

²Evaluated March 7, 2007

Table 2. Annual bluegrass control and established blue wild-rye injury and seed yield following herbicide applications at Schmidt Farm, 2007-2008.

Treatment ¹	Rate	Annual	Blue	
		bluegrass control ²	injury ²	wildrye seed yield
	(lb a.i./a)	------(%)-----		(lb/a)
Dimethenamid-p	0.66	91	0	278
Dimethenamid-p	0.84	99	0	281
Dimethenamid-p	0.98	96	0	330
Dimethenamid-p	1.96	99	2	267
Dimethenamid-p + pendimethalin	0.66 + 3	99	2	336
Pendimethalin	3	58	0	322
Pendimethalin	6	89	2	329
Flufenacet	0.27	95	5	342
Flufenacet	0.54	95	0	283
Metribuzin	0.38	96	0	346
Metribuzin	0.75	98	1	279
Check	0	0	0	290
LSD (0.10)		--	--	NS

¹Applied October 3, 2007

²Evaluated April 17, 2008