Postemergence Ground Ivy Control with Herbicide Combinations

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TURFGRASS SCIENCE

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SUMMARY: Ground ivy (*Glechoma hederacea*) and dandelion (*Taraxacum officinale*) are common perennial broadleaves that are problematic weeds in turf. Fertilizing turf with nitrogen is known to reduce ground ivy and dandelion coverage compared to non-fertilized turf. Despite a beneficial reduction in broadleaf weeds from fertilization, herbicides are needed for effective control. The objective of this experiment was to evaluate Quali-Pro herbicide combinations and compare to other post emergence herbicides in cool-season situations for efficacy of broadleaf weeds. Quali-Pro 2-D (clopyralid + triclopyr) at 2 pt/A, 2,4-D + triclopyr + quinclorac, and Triplet SF (2,4-D + mecoprop + dicamba) provided the best control. Quali-Pro 3-D (2,4-D + mecoprop + dicamba) at 4 pt/A and Triplet SF were statistically similar on each rating date. There was a substantial benefit in ground ivy control when increasing the label rate of 2-D from 1 to 2 pt/A. All herbicide treatments with the exception of Quali-Pro 2-D at 1 pt/A effectively reduced dandelion populations compared to the untreated check. Quali-Pro 3-D at 4 pt/A and Triplet SF were statistically similar on each rating date.

Ground ivy (*Glechoma hederacea*) and dandelion (*Taraxacum officinale*) are common perennial broadleaves that are problematic weeds in turf. Fertilizing turf with nitrogen is known to reduce ground ivy and dandelion coverage compared to non-fertilized turf (Johnson and Bowyer, 1982; Kohler et al., 2004). Despite a beneficial reduction in broadleaf weeds from fertilization, herbicides are needed for effective control. The objective of this experiment was to evaluate the efficacy post-patent Quali-Pro herbicide combinations and compare to these herbicides to other post emergence herbicides for efficacy of broadleaf weeds.

Materials and Methods

The experiment was conducted at the W.H. Daniel Turfgrass Research and Diagnostic Center in West Lafayette, IN. The area was an established Kentucky bluegrass blend with a history of ground ivy and dandelion pressure. Experimental design was a randomized complete block with three replications and an individual plot size of 25 ft^2. Plots were mown at 2 inches as needed. Plots were treated with herbicides on 3 June. Herbicides were applied in 40 gallons/acre water with a CO_2-pressurized sprayer at 30 psi. Ground ivy and dandelion were visually rated for percent cover. Injury to Kentucky bluegrass was rated on a scale of 9 to 1 with 9 = to no injury, 7 = acceptable injury, and 1 = completely brown turf. All data were analyzed using SAS (SAS Institute, Inc). Means separated using Fisher's protected least significant difference when F tests were significant at α=0.05.

Additional index words:

2,4-D; 2-D; 3-D; clopyralid; dicamba; MCPP (mecoprop); Quali-Pro; quinclorac, triclopyr; Triplet SF.

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Results and Discussion

When rated on 8 July, 5 weeks after application, Quali-Pro 2-D (clopyralid + triclopyr) at 2 pt/A, 2,4-D + triclopyr + quinclorac, and Triplet SF (2,4-D + mecoprop + dicamba) provided the best control (Table 1). Quali-Pro 3-D (2,4-D + mecoprop + dicamba) at 4 pt/A and Triplet SF were statistically similar on each rating date (Table 1). There was a substantial benefit in ground ivy control when increasing the label rate of 2-D from 1 to 2 pt/A (Table 1). Generally, fluroxypyr and triclopyr are the most effective ingredients for ground

ivy control. 2,4-D can be effective at higher rates but it is not typically as effective at rates applied with most herbicides mixtures. Additionally combinations of triclopyr and 2,4-D are generally effective for ground ivy control as seen with the 2,4-D + triclopyr + quinclorac treatment. Dicamba, clopyralid, and MCPP are not generally effective on ground ivy. 2-D contains triclopyr which is effective at controlling ground ivy. Although 2-D cannot be used on residential turf, it can be used effectively to control ground ivy on other turf sites.

Quinclorac (Drive XLR8, Drive 75DF, Eject 75DF, Quinclorac 75DF, QuinPro Herbicide) has been shown to be effective on some ground ivy populations in some Midwestern states, but has not provided adequate control in Purdue University testing with the biotype located at the Daniel Turfgrass Research Center. Ground ivy populations vary in their tolerance to herbicides, thus it would be wise to consider alternating herbicides or using tank-mixes when treating ground ivy.

Dandelion was a secondary weed in these plots. All herbicide treatments with the exception of Quali-Pro 2-D at 1 pt/A effectively reduced dandelion populations compared to the untreated check (Table 2). Quali-Pro 3-D at 4 pt/A and Triplet SF were statistically similar on each rating date (Table 2). Quinclorac and 2,4-D are generally more effective at dandelion control than triclopyr and clopyralid.

References

Johnson, B.J., and T.H. Bowyer,. 1982. Management of herbicide and fertility levels on weeds and Kentucky bluegrass turf. Agron. J. 74:845-850.

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Table 1. Herbicide effects on ground ivy coverage.

		Ground ivy coverage			
Herbicide	rate	9 June	22 June	28 June	8 July
				%	
Untreated	--	77	88 a [a]	93 a	87 a
Quali-Pro 2-D	1 pt/A	70	47 b	47 b	63 b
Quali-Pro 2-D	2 pt/A	72	27 cd	13 de	20 de
Quali-Pro 3-D	3pt/A	70	30 c	33 bc	45 bc
Quali-Pro 3-D	4 pt/A	60	27 cd	22 cd	30 cd
2, 4-D amine +triclopyr 3A +Quali-Pro quinclorac	2.74 pt/A 0.88 pt/A 2.13 oz/A	70	18 cd	5 e	8 e
2, 4-D amine +dicamba +Quali-Pro quinclorac	2.74 pt/A 0.25 pt/A 2.13 oz/A	67	20 cd	23 cd	28 cd
Triplet SF	4 pt/A	57	15 d	15 de	25 de
P-value		NS	<0.0001	<0.0001	<0.0001

[a] Within columns, means followed by the same letter are similar.

Table 2. Herbicide effects on dandelion coverage.

Herbicide	rate	Dandelion coverage	
		9 June	8 July
		%	
Untreated	--	7	6 a [a]
Quali-Pro 2-D	1 pt/A	7	3 ab
Quali-Pro 2-D	2 pt/A	8	1 bc
Quali-Pro 3-D	3pt/A	8	1 bc
Quali-Pro 3-D	4 pt/A	10	1 bc
2, 4-D amine	2.74 pt/A	7	2 bc
+triclopyr 3A	0.88 pt/A		
+Quali-Pro quinclorac	2.13 oz/A		
2, 4-D amine	2.74 pt/A	8	1 bc
+dicamba	0.25 pt/A		
+Quali-Pro quinclorac	2.13 oz/A		
Triplet SF	4 pt/A	8	0 c
P-value		NS	0.0120

[a] Within columns, means followed by the same letter are similar.