

Postemergent Turf Herbicide Evaluation

RFR-A1914

Ben Pease, Ph.D. candidate/research associate
Adam Thoms, assistant professor
Department of Horticulture

Introduction

Turfgrass managers have many options for broadleaf and grassy weed control, although there is a category of turfgrass weeds deemed as “hard-to-control” including ground ivy (*Glechoma hederacea*). Effective chemical control of this group is limited and cultural controls have minimal effect due to the ability of weeds to persist in growing conditions unfavorable toward turfgrass. It often is difficult for the turf manager to suppress both hard-to-control and common turfgrass weeds (dandelion, *Taraxacum officinale*; white clover, *Trifolium repens*) with the same product.

The objective of this trial was to evaluate the efficacy of different postemergent herbicides on wild violet and other common lawn weeds compared with a non-treated control. A second objective was to evaluate turfgrass injury (chlorosis), if present, as the trial progressed.

Materials and Methods

This trial was conducted at the Iowa State University Horticulture Research Station, Ames, Iowa, on a mature stand of Kentucky bluegrass (*Poa pratensis*) with adequate and uniform weed pressure. Turf was not cut for the duration of the trial and no fertility was applied during the study. Irrigation was applied as necessary to facilitate optimal growing conditions. Treatments, rates, and timings for this trial are presented in Table 1. Experimental units were 5 ft x 5 ft. Treatments were applied using a CO₂-pressurized backpack sprayer with TeeJet 8004XR nozzles

calibrated to apply two gallons water carrier/1,000 ft². Treatments were applied September 3 and arranged in a randomized complete block design with three replications. Weed control was visually evaluated 3, 14, and 28 days after application. Visual turfgrass quality was rated as necessary (data not presented). Dandelion and white clover were evaluated in all three replications while ground ivy was only evaluated in one replication because it had to be transplanted into the trial area using a sod cutter. Data were analyzed in SAS at 0.05 level of probability and means were separated with Fisher’s Least Significant Difference.

Results and Discussion

Differences in control of white clover existed at 14 and 28 DAT (Table 2). Seven days after treatment (DAT), Sure Power and Chaser Turf had lower percent clover cover than Surge, T Zone, Defendor, and the untreated control. All treatments except Surge had lower percent clover cover than the untreated control. By 28 DAT, all treatments except Surge had lower percent clover cover than the untreated control.

Differences in control of dandelion existed on all rating dates (Table 3). At three DAT, all treatments were similar to the untreated control although Sure Power had the lower percent dandelion cover than all treatments except T Zone. At 14 DAT, most treatments were still similar to the untreated control. Sure Power had the lowest dandelion percent cover, and Relzar and Defendor had the highest dandelion percent cover. By 28 DAT, all treatments except Surge had lower dandelion percent cover than the untreated control.

Ground ivy percent cover began the trial at

60 percent or higher in all ground ivy plots. Sure Power and GameOn reduced ground ivy percent cover to less than 10 percent by 14 DAT (Figure 1). At 28 DAT, Vessel, Q4, and Chaser Turf joined Sure Power and GameOn at near zero percent ground ivy cover. Surge and T Zone had acceptable control, ending below 15 percent ground ivy cover.

Acknowledgements

The authors would like to thank Corteva, NuFarm, and PBI Gordon for donation of test products and/or financial funding for this project. Undergraduate student worker Spencer Sherrick assisted with plot maintenance and treatment application.

Table 1. Treatment descriptions for postemergent turf herbicide evaluation trial at the ISU Horticulture Research Station.

Treatment number	Product	Active ingredient(s)	Rate (fl oz/A)
1	Untreated Control	---	---
2	Sure Power	2,4-D, triclopyr, fluroxypyr, flumioxazin	48.0
3	Defendor	Florasulam	4.0
4	GameOn	2,4-D, fluroxypyr, halauxifen-methyl	0
5	Relzar	arylex, florasulam	0.72
6	Vessel	2,4-D, mecoprop, dicamba	64.0
7	Chaser Turf	2,4-D, triclopyr	32.0
8	T Zone	triclopyr, sulfentrazone, 2,4-d, dicamba	64.0
9	Q4 Plus	quinclorac, sulfentrazone, 2,4-D, dicamba	128.0
10	Surge	2,4-D, mecoprop, dicamba, sulfentrazone	64.0

¹All treatments were applied September 3, 2019.

Table 2. Percent white clover cover for postemergent turf herbicide evaluation trial at the ISU Horticulture Research Station.

Treatment Number	Treatment	3 DAT ¹	14 DAT	28 DAT	Overall mean
1	Untreated Control	30.0 ²	30.0	14.0	26.0
2	Sure Power	23.3	3.3	1.3	14.5
3	Defendor	30.0	11.7	1.7	18.3
4	GameOn	13.3	5.0	0.0	8.8
5	Relzar	16.7	8.3	0.0	10.4
6	Vessel	20.0	6.7	0.0	12.1
7	Chaser Turf	15.0	3.3	2.9	10.0
8	T Zone	31.7	18.3	1.2	21.8
9	Q4 Plus	23.3	8.3	0.0	14.6
10	Surge	33.3	31.7	11.5	25.8
	LSD (0.05) ³	ns ⁴	7.6	9.7	10.9

¹DAT = days after treatment.

²Percent cover was rated on a 0-100 scale.

³Means were separated using Fisher's LSD.

⁴ns = not significant at $P \leq 0.05$.

Table 3. Percent dandelion cover for postemergent turf herbicide evaluation trial, ISU Horticulture Research Station.

Treatment number	Treatment	3 DAT ¹	14 DAT	28 DAT	Overall mean
1	Untreated Control	16.7	25.0	20.0	19.6
2	Sure Power	8.3	1.7	1.7	7.9
3	Defendor	26.7	26.7	8.0	22.4
4	GameOn	21.7	6.7	2.7	15.7
5	Relzar	26.7	26.7	3.0	22.0
6	Vessel	23.3	20.0	2.7	19.4
7	Chaser Turf	25.0	13.3	0.3	17.6
8	T Zone	16.7	16.7	4.7	15.3
9	Q4 Plus	20.0	11.7	0.0	14.6
10	Surge	26.7	21.7	16.7	22.5
LSD (0.05) ³		10.6	12.1	11.8	7.6

¹DAT = days after treatment.

²Percent cover was rated on a 0-100 scale.

³Means were separated using Fisher's LSD.

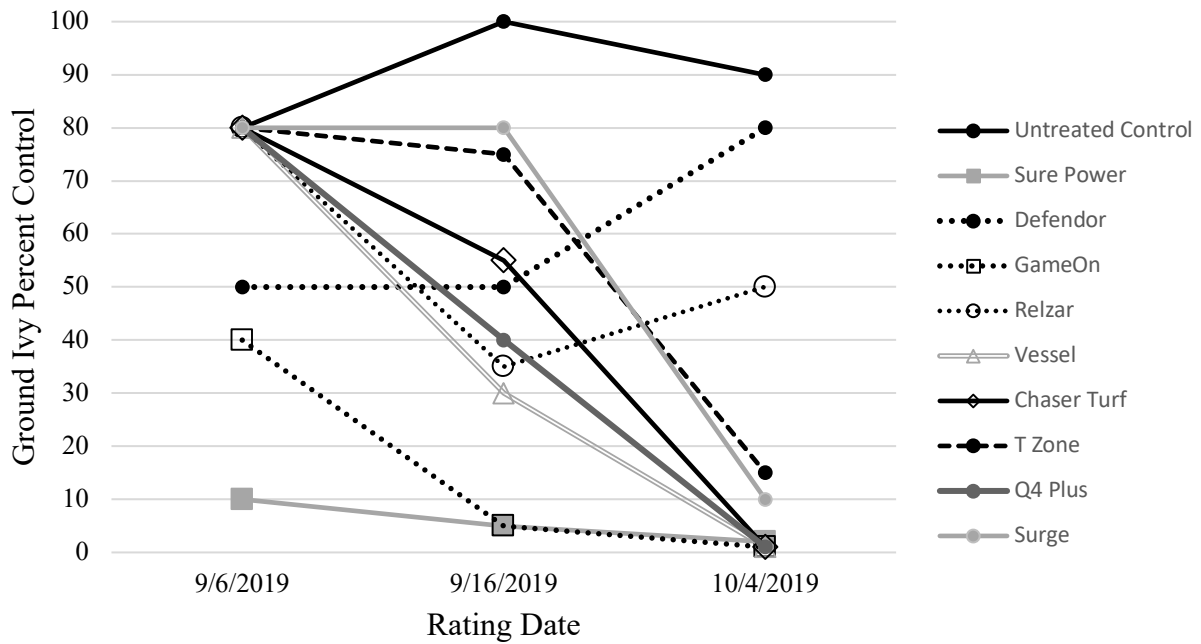


Figure 1. Percent ground ivy cover by treatment and date for postemergent turf herbicide evaluation trial, ISU Horticulture Research Station.