Alternatives to Glyphosate for Spot Treating Weeds

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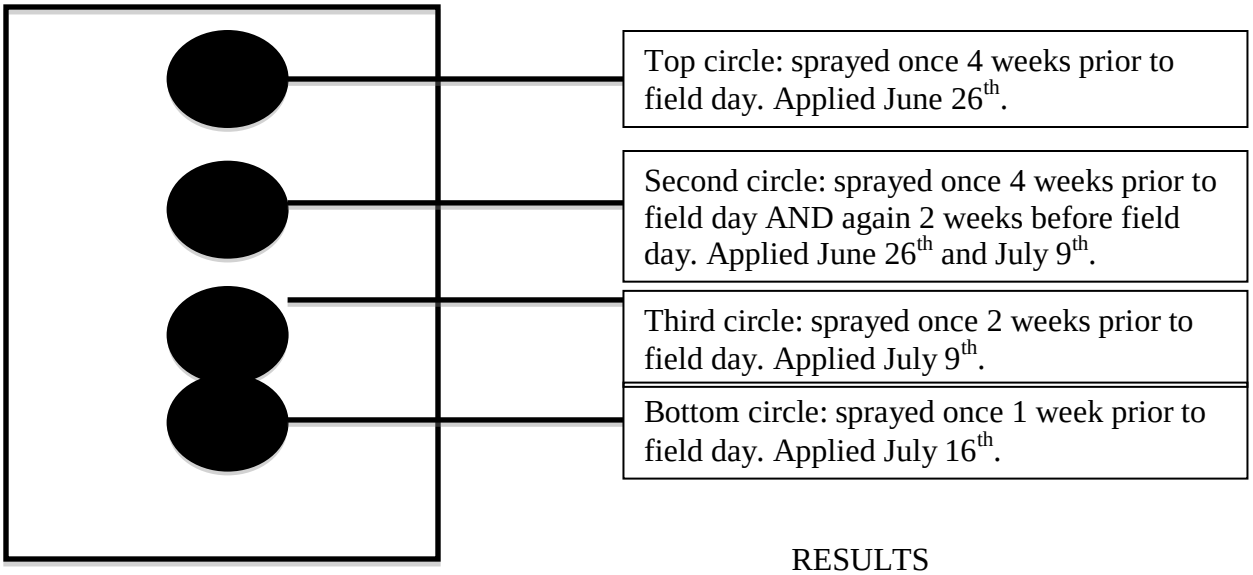
INTRODUCTION

Glyphosate is the primary active ingredient in Roundup and is the most commonly used non-selective herbicide. Glyphosate is routinely used in by turfgrass managers to control weeds in ornamental beds, bunkers, paved surfaces, and elsewhere. Even though the Environmental Protection Agency recently reiterated it's stance that glyphosate does not cause cancer, legal cases surrounding the use of glyphosate have skyrocketed in recent months and has left many turfgrass managers and municipalities exploring the use of other herbicides for effective and safe non-selective weed control. The objective of this demonstration was to demonstrate the efficacy of several 'alternative' to glyphosate.

MATERIALS AND METHODS

Seven treatments, including glyphosate, were used in this demonstration. The product name, active ingredient(s), rate, and cost per gallon are included in Table 1. All treatments were applied using either a handheld spray bottle or a self-propelled backpack sprayer. Each treatment was applied to a circular area approximately 1-2 feet in diameter to simulate spot treatment of weeds. The treatment area consisted of a mix of turfgrass, grassy weeds, and broadleaf weeds. Each treatment was applied to 4 different areas at 4 different timings within each plot, illustrated in the figure below. Products were applied according to label instructions. The speed, efficacy, and duration of control was rated using a 0-3 scale where 0 = no change in plant appearance, 1 = mild change on plant appearance, 2 = significant effect on plant appearance, and 3 = totally dead. Ratings were conducted 1, 4, 7, and 14 days after each application.



RESULTS

At the time of publication the 4-, 2-, and 1-week prior to field day applications had been made and the results to date can be observed in Table 2. All treatments provided effective initial knockdown of weeds in the treated circles. Homeplate, Axxe, and WeedPharm provided the fastest knockdown of weeds with the plants highly impacted within 24 hours. This is not surprising given they are contact 'burn down' herbicides. The flame treatment also provided a fast knockdown of the treated area. The treatments containing glyphosate and glufosinate were also highly effective but took 2 to 3 days until visual impairment of the plants was observed. Plots treated with Homeplate, Axxe, and WeedPharm did recover significantly by 14 days after the application so 2 or even 3 follow up applications will be required for complete weed control using these products.

Table 1. Treatment list, active ingredient(s), rate, OMRI certification, cost per gallon

Trt #	Treatment	Active Ingredient	Manufacturer	Rate/ Concentration	Organic Certified (OMRI)	Cost per gallon (USD)
1	Ranger Pro	Glyphosate	Monsanto/Bayer	3 fl oz/gallon	No	$16.00
2	Cheetah	Glufosinate	NuFarm	3 fl oz/gallon	No	$175.00
3	Homeplate	Caprylic Acid + Capric Acid	Certis	8 fl oz/gallon	Yes	$89.00
4	Axxe	Ammoniated pelargonic salts	BioSafe Systems	16 fl oz/gallon	Yes	$46.00
5	WeedPharm	Acetic Acid	Pharm Solutions	20% acetic acid	Yes	$47.00
6	APSA 80 + Prosecutor	Adjuvant + glyphosate	Nutriplant	1.5 fl oz/gallon	No	$56.00 (Adj) 16.00 (Gly)
7	Mechanical	Fire	Bernz O Matic	Until charred	No	$4 per canister

Table 2. Impact on weed appearance 1, 4, 7, and 14 days following herbicide application

Trt #	Treatment	Days after first application on June 26th				Days after second application on July 9th			
		1	4	7	14	1	4	7	14
1	Prosecutor	0	2	3	3	0	1	3	3
2	Cheetah	0	2	3	3	0	1	3	3
3	Homeplate	3	3	3	1	2	3	3	2
4	Axxe	3	3	2	1	3	3	3	2
5	WeedPharm	3	3	3	3	3	3	3	2
6	APSA 80 + glyhphosate	0	2	3	3	0	1	3	3
7	Mechanical	3	3	3	2	3	3	3	1