

Sidewalk Crack Vegetation Control Trial

Introduction

One of the maintenance tasks at locations such as highway rest areas is to keep sidewalk and parking lot expansion joints aesthetically pleasing and clear of vegetation. One can use glyphosate repeatedly during the season but including a residual herbicide should increase the period of control and reduce labor costs. However, because these are public areas, with greater opportunity for direct exposure, one may not be able to use some herbicides used for bareground control along roadsides. There are a number of pre-mixed products on the market such as Roundup Extended Control plus Weed Preventer, DuraZone, and Ground Clear (Table 1). This trial compares the efficacy of some of these products with mixtures of herbicides used for right-of-way applications.

Materials and Methods

The trial was established June 3, 2012 with 9 treatments and 3 replications arranged in a randomized complete block design, along I-71 near Carrollton on an abandoned parking lot. Plots were 25 ft long expansion joints in the pavement and the spray width was 0.5 ft at 150 gallons /acre. The canopy was 5 to 8 inches tall and the grasses already had mature seedheads while the green vegetation consisted of ragweed, black medic, and spurge. The proportion of the “crack” without green vegetation (% bareground) was assessed 50 (7/23/2012), 143 (10/24/2012), and 429 (8/6/2013) days after treatment (DAT). Unfortunately, part of the trial was covered up by piles of ground up asphalt at the last assessment.

Since some of the applied herbicide may be washed off the sidewalk to adjacent desirable turf areas, a turf damage stripe plot trial was established the same day with 6 treatments and 3 replications. Plots were 0.5 ft x 10 ft and treatments were applied at 75 gallons/acre. The tall fescue canopy was at 11 to 12 inches and seedheads had already emerged. Turf damage (0 = dead to 9 = fully green; with unsprayed strips set at 8.0) was assessed on the same dates as above. Data were analyzed using ARM software and treatment means were compared using Fisher’s LSD at $p = 0.05$.

Table 1 presents information on three commercial products for vegetation control. Roundup Extended Control and DuraZone both include diquat to provide rapid visual symptoms on green vegetation. These treatments are included in the trial along with combinations that result in the same active ingredient application rates except that diquat was not included (Trt. 2 and 3; Trt. 4 and 5) (Table 2). Trt. 6 (Table 2) applies the same active ingredients as Ground Clear in Table 1. Treatments 7 and 8 are combinations used for bareground control. Table 3 lists the treatments for the turf damage trial as some of the residual herbicides may wash off the site of application onto adjacent turf.

Results

All treatments provided control 50 and 143 DAT (Table 2). By 143 DAT, three treatments had greater control than glyphosate by itself (Trt. 1). These were the treatments including Esplanade (indaziflam)

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(Trt. 5), Arsenal (imazapyr) (Trt. 6), and Karmex (diuron) (Trt. 7). When assessed 429 DAT, the treatment with Oust (sulfometuron) (Trt. 8) was the only one with less vegetation than untreated.

All the treatments damaged the turf 50 DAT except for Esplanade (Table 3). This treatment did not show turf damage at any assessment and this is probably because it has no post-emergence activity. The most severe damage 50 DAT was with the Arsenal and Karmex treatments. The Arsenal plots had dead turf 50 DAT and minimal regrowth 429 DAT. The choice of product or mixture should consider the efficacy, cost, risk of off-site damage, and any label restrictions on site of application.

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Table 1: Information on Commercial Products for Vegetation Control

Roundup Extended Control plus Weed Preventer (concentrate)

Control up to 4 months, may enter area after dried

32 fl oz container can treat 1600 sq. ft. (use 6 fl oz per gallon water)

Application equivalent to 145 gallons/acre

Active Ingredient	Rate per acre	Notes
glyphosate	9 lb ae	
diquat dibromide	7.1 oz	15 oz/ac max.
imazapic	3 oz ae	equivalent to max. annual application of Plateau

DuraZone (from Bayer Advanced)

Control up to 6 months, may enter area after dried

24 fl oz container can treat 1500 sq. ft. (use 8 fl oz per gallon water)

Application equivalent to 93 gallons/acre

Active Ingredient	Rate per acre	Notes
glyphosate	8 lb ae	
diquat dibromide	7.4 oz	15 oz/ac max.
indaziflam	0.75 oz	1.5 oz/ac max. single application (Esplanade is non-crop product)

Ground Clear (from Ortho)

Control up to 1 year

32 fl oz container can treat 75 sq. ft. (add qt. to 1 gallon water and treat)

Application equivalent to 726 gallons/acre

Active Ingredient	Rate per acre	Notes
glyphosate	44 lb ae	
imazapyr	11.7 oz ae	equivalent to 3 pt/ac Habitat

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Table 3: Treatments and Results for Turf Damage Stripe Plot Trial

Trt. No.	Product Name	Rate	Rate Unit	Grass Color (0-9)		
				50 DAT	143 DAT	429 DAT
1	Plateau Activator90	12 0.25	FL OZ/A %V/V	6.0 <i>bc</i>	7.3 <i>ab</i>	7.0 <i>ab</i>
2	Esplanade Activator90	3.6 0.25	FL OZ/A %V/V	7.0 <i>ab</i>	8.0 <i>a</i>	8.0 <i>a</i>
3	Arsenal Activator90	3 0.25	PT/A %V/V	1.3 <i>d</i>	0.0 <i>d</i>	0.7 <i>c</i>
4	Karmex DF Activator90	10 0.25	LB/A %V/V	1.0 <i>d</i>	5.3 <i>c</i>	6.7 <i>b</i>
5	Oust XP Activator90	3 0.25	OZ/A %V/V	5.3 <i>c</i>	7.0 <i>b</i>	7.0 <i>ab</i>
6	Nontreated Check			8.0 <i>a</i>	8.0 <i>a</i>	8.0 <i>a</i>

Means within column followed by the same letter are not different according to Fisher's Protected LSD at P < 0.05.