

2012 Guardrail Trial in Paintsville

Introduction

For highway safety, guardrails need to be kept clear of visual obstructions. Usually that means maintaining a vegetation free zone underneath them. Applications of broad spectrum residual herbicides have become the mainstay for bareground maintenance operations in combination with a broad spectrum post-emergent herbicide like glyphosate. Ideally, the pre-emergent herbicides will last season long and not move off site, through leaching or erosion (movement of soil particles with adsorbed herbicide). A number of new products (Perspective, Viewpoint, Esplanade) have recently been introduced to this market. Evaluating the efficacy of these products and product combinations in comparison with older products is an ongoing effort.

Materials and Methods

The trial was established under and beside guardrail on KY 1107 along Levisa Fork near Paintsville, KY with 13 treatments and 3 replications arranged in a randomized complete block design. On April 25, 2012, treatments were applied at 25 gallons/acre with a spray swath on either side of the guardrail for a plot width of 6.5 ft and length of 12 ft (two areas between guardrail posts per plot). All herbicide treatments, except Trt. 1 (Roundup ProMax by itself), included Activator 90 at 0.25% v/v (Table 1). Roundup ProMax (glyphosate) has no residual activity so the other herbicides in the combinations were included to provide residual and pre-emergent control. The weeds present at application included perennial grasses (tall fescue), buckhorn plantain, and flowering Philadelphia fleabane. Visual % bareground ratings were taken 40 (6/4/2012), 85 (7/19/2012), and 160 (10/2/2013) days after treatment (DAT). Weeds present 160 DAT included large crabgrass, foxtails, buckhorn plantain, fleabane, and spurge. Data were analyzed using ARM software and treatment means were compared using Fisher's LSD at $p = 0.05$.

Results and Discussion

All treatments had more bareground than the control 40 DAT (Table 1) while the Roundup ProMax treatment by itself (Trt. 1) was the same as the control 85 and 160 DAT. The treatment with only Oust XP (sulfometuron) as the residual (Trt. 4) was one of the least efficacious 160 DAT. This is the herbicide that has been used for many years at this location. Treatments with older, high use rate herbicides (Trt. 2 with Sahara (diuron + imazapyr); Trt. 3 with Hyvar (bromacil); Trt. 6 with Pendulum (pendimethalin); Trt. 9 with Endurance (prodiamine)) were among the best treatments 85 and 160 DAT. Treatments 6 and 9 were combinations with newer, low use rate herbicides (Milestone (aminopyralid) and Perspective (aminocyclopyrachlor + chlorsulfuron)). The other top treatments 160 DAT were low use rate herbicides by themselves or as combinations. They were Trt. 5 with Payload (flumioxazin); Trt. 8 with Perspective (aminocyclopyrachlor + chlorsulfuron) and Esplanade (indaziflam), and Trt. 12 with Esplanade (indaziflam) and Oust (sulfometuron).

Non-Crop and Invasive Vegetation Management Weed Science
2012 Annual Research Report

Table 1: Treatments and Results from 2012 Paintsville Guardrail Trial

Trt. No.	Product Name	Rate	Rate Unit	% Bareground		
				40 DAT	85 DAT	160 DAT
1	Roundup ProMax	1.3	QT/A	92 <i>b</i>	47 <i>d</i>	57 <i>ef</i>
2	Roundup ProMax Sahara	1.3 10	QT/A LB/A	99 <i>a</i>	96 <i>a</i>	81 <i>abc</i>
3	Roundup ProMax Hyvar	1.3 10	QT/A LB/A	98 <i>a</i>	97 <i>a</i>	90 <i>ab</i>
4	Roundup ProMax Oust XP	1.3 3	QT/A OZ/A	97 <i>ab</i>	81 <i>c</i>	68 <i>de</i>
5	Roundup ProMax Payload	1.3 12	QT/A OZ/A	98 <i>ab</i>	95 <i>a</i>	83 <i>abc</i>
6	Roundup ProMax Pendulum AquaCap Milestone VM	1.3 4 7	QT/A QT/A FL OZ/A	97 <i>ab</i>	95 <i>a</i>	86 <i>ab</i>
7	Roundup ProMax Journey Milestone VM	1 1 7	QT/A QT/A FL OZ/A	96 <i>ab</i>	85 <i>bc</i>	78 <i>bcd</i>
8	Roundup ProMax Perspective Esplanade	1.3 9 3.5	QT/A OZ/A FL OZ/A	97 <i>ab</i>	96 <i>a</i>	92 <i>a</i>
9	Roundup ProMax Perspective Endurance	1.3 9 2.3	QT/A OZ/A LB/A	97 <i>ab</i>	96 <i>a</i>	90 <i>a</i>
10	Roundup ProMax Viewpoint	1.3 18	QT/A OZ/A	97 <i>ab</i>	92 <i>ab</i>	78 <i>bcd</i>
11	Roundup ProMax Arsenal	1.3 4	QT/A PT/A	98 <i>ab</i>	83 <i>bc</i>	72 <i>cd</i>
12	Roundup ProMax Esplanade Oust XP	1.3 3.5 3	QT/A FL OZ/A OZ/A	96 <i>ab</i>	93 <i>ab</i>	85 <i>ab</i>
13	Nontreated Check			53 <i>c</i>	47 <i>d</i>	45 <i>f</i>

Means within a column followed by the same letter are not different according to Fisher's Protected LSD at $P < 0.05$. All herbicide treatments (except trt. #1) contained the adjuvant, Activator 90 at 0.25% v/v.