

2019 Selective Broadleaf Control Trials near Richmond

Introduction

One of the objectives of roadside vegetation management is the selective control of broadleaf weeds, without damaging desirable grasses, such as tall fescue. Other objectives include brush control and grass growth regulation. A number of herbicides are currently available for use by roadside managers. Therefore, individual herbicides and product combinations were evaluated for control of various weed species.

Materials and Methods

A field trial was established June 14, 2019 on an area mowed periodically, following the first mowing of the season, along I-75 near Richmond, KY. The trial had 15 treatments with 3 replications arranged in a randomized complete block design with 7 ft by 20 ft plots.

Applications were made using a carrier volume of 25 gallons per acre. The area consisted of a mix of broadleaf weeds and some desirable grasses. Tall fescue was 9 inches tall and the undesirable johnsongrass was 22 inches tall at time of application. Most plots contained red clover (18 inches tall); as well as, flowering buckhorn plantain (19 inch tall seedheads). Other legumes included white clover (8 inches tall) and black medic (8 inches tall).

Herbicide treatments and active ingredients are listed in Table 1. Many treatments were applied at the maximum annual rate which included Milestone (Treatment 1) and Opensight (Treatment 2). Perspective (Treatment 3) and Streamline (Treatment 4) were both applied at the maximum selective rate although both can be applied at higher rates for bareground. However, even the selective rate can result in turf yellowing and reduced growth. In some cases the reduced growth may be desirable. Method (Treatments 6, 7, and 8) is a new product with only the aminocyclopyrachlor component of Perspective and Streamline. Method at 7.2 fl oz per acre has the equivalent amount of aminocyclopyrachlor (1.8 oz ai/A) which is present in 4.5 oz per acre of either Perspective or Streamline. The labeling for Method indicates good plantain and brush control when applied from 10 to 18 fl oz per acre. Combinations of Milestone or Method + Plateau (Treatments 12 and 13) may provide grass growth reduction, as well as weed control. A higher rate of Method + Plateau (Treatment 14) was been recommended for grass growth regulation plus brush control behind guardrails. The FreeLexx + Escort combination (Treatment 11) is designed for greater woody vegetation control.

Plots were assessed 48 days after treatment (DAT) (8/1/2019), 83 DAT (9/5/2019), and 131 DAT (10/23/2019). Data were analyzed using ARM research management software (GDM Solutions, Inc.) and treatment means were compared using Fisher's LSD at $p = 0.05$.

Results and Discussion

Most red clover plants were brown, including those in the control plots by the first evaluation period 48 DAT. Growth of all plants was less than in nearby areas likely due to poorer soil; and

regrowth of plants like plantain was limited by the thin soil, as well as, the drought. The Bluegrass Region CD3 had 0.19” which was 2.93” less than the long-term average in September.

The predominant broadleaf weed 48 DAT was buckhorn plantain and most treatments provided 45 to 87% control (Table 2). However, Milestone (Treatment 1), Perspective (Treatment 3), and Milestone + Plateau (Treatment 12) had ratings similar to the untreated control. Overall broadleaf weed control ranged from 40 to 92% for all herbicide treatments which was better than for the untreated control. The greatest grass damage observed (13 to 17%) was with Method + Plateau treatments (Treatments 13 and 14).

At 83 DAT broadleaf plantain seedheads were largely brown and new rosette leaf growth was observed which resulted in somewhat lower control ratings for many treatments (Table 2). Milestone (Treatment 1), Milestone + Plateau (Treatment 12), and the low rate of Method + Plateau (Treatment 13) had ratings the same as the untreated control. Most treatments had visual ratings different from the control for overall broadleaf weed control (40 to 80%).

By the last assessment date of the season 131 DAT the dead/damaged plants were not evident but plantain regrowth was visible after receiving adequate rain. The amount of plantain cover (%) was assessed and it should be noted that the initial cover was not uniform. The only treatments with less plantain cover than the untreated control were Streamline (Treatment 4), Freelex + Vastlan (Treatment 10), and Freelex + Escort (Treatment 11). Additional assessments will be taken in spring 2020.

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Table 1. Herbicide Treatments, Active Ingredients and Application Rates.

Trt. No.	Product Name	Rate	Rate Unit	Active Ingredient(s)	ai Rate (per acre)
1	Milestone VM	7	FL OZ/A	aminopyralid	1.8 OZ AE/A
2	Opensight	3.3	OZ/A	aminopyralid + metsulfuron	1.7 OZ AE + 0.3 OZ/A
3	Perspective	4.5	OZ/A	aminocyclopyrachlor + chlorsulfuron	1.8 OZ + 0.7 OZ/A
4	Streamline	4.5	OZ/A	aminocyclopyrachlor + metsulfuron	1.8 OZ + 0.6 OZ/A
5	Pyresta	24	FL OZ/A	2,4-D + pyraflufen-ethyl	0.66 LB AE + 0.05 OZ/A
	Proclipse	2	LB/A	prodiamine	1.3 LB/A
6	Method	4	FL OZ/A	aminocyclopyrachlor	1 OZ AE/A
7	Method	6	FL OZ/A	aminocyclopyrachlor	1.5 OZ AE/A
8	Method	12	FL OZ/A	aminocyclopyrachlor	3 OZ AE/A
9	Overdrive	5	OZ/A	diflufenzopyr + dicamba	1 OZ AE + 2.5 OZ AE/A
	Vastlan	16	FL OZ/A	triclopyr	8 OZ AE/A
10	Freelexx	48	FL OZ/A	2,4-D	22.8 OZ AE/A
	Vastlan	32	FL OZ/A	triclopyr	16 OZ AE/A
11	Freelexx	32	FL OZ/A	2,4-D	15.2 OZ AE/A
	Escort	1	OZ/A	metsulfuron	0.6 OZ/A
12	Milestone VM	6	FL OZ/A	aminopyralid	3 OZ AE/A
	Plateau	3	FL OZ/A	imazapic	0.75 OZ AE/A
13	Method	6	FL OZ/A	aminocyclopyrachlor	1.5 OZ AE/A
	Plateau	3	FL OZ/A	imazapic	0.75 OZ AE/A
14	Method	12	FL OZ/A	aminocyclopyrachlor	3 OZ AE/A
	Plateau	3	FL OZ/A	imazapic	0.75 OZ AE/A
15	Nontreated Check				

All herbicide treatments contained the adjuvant, Activator 90 at 0.25% v/v.

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Table 2. Herbicide Treatments, Application Rates, and Assessment Data.

Trt. No.	Product Name	Rate	Rate Unit	Broadleaf Control (%)	Buckhorn Plantain Control (%)	Grass Damage (%)	Broadleaf Control (%)	Buckhorn Plantain Control (%)	Buckhorn Plantain Cover (%)
				48 DAT (August 1, 2019)			83 DAT (Sept 23, 2019)		131 DAT (Oct 23, 2019)
1	Milestone VM	7	FL OZ/A	47 c	38 bcd	0 b	40 bcd	33 bcde	10 a
2	Opensight	3.3	OZ/A	67 abc	55 abc	3 b	48 abcd	47 abcd	5 abcd
3	Perspective	4.5	OZ/A	60 bc	37 bcd	0 b	52 abcd	48 abcd	5 abcd
4	Streamline	4.5	OZ/A	80 ab	70 ab	3 b	60 abc	58 abc	1 d
5	Pyresta	24	FL OZ/A	78 ab	87 a	0 b	78 a	87 a	8 ab
	Proclipse	2	LB/A						
6	Method	4	FL OZ/A	67 abc	67 ab	0 b	73 ab	50 abcd	6 abcd
7	Method	6	FL OZ/A	75 ab	65 abc	2 b	57 abcd	63 ab	3 bcd
8	Method	12	FL OZ/A	67 abc	70 ab	2 b	80 a	70 ab	2 cd
9	Overdrive	5	OZ/A	67 abc	72 ab	0 b	63 abc	50 abcd	5 abcd
	Vastlan	16	FL OZ/A						
10	Freelexx	48	FL OZ/A	92 a	85 a	0 b	67 abc	53 abcd	2 d
	Vastlan	32	FL OZ/A						
11	Freelexx	32	FL OZ/A	85 ab	78 ab	0 b	67 abc	58 abc	1 d
	Escort	1	OZ/A						
12	Milestone VM	6	FL OZ/A	40 c	23 cd	3 b	33 cde	18 cde	7 abcd
	Plateau	3	FL OZ/A						
13	Method	6	FL OZ/A	60 bc	45 abc	17 a	23 de	13 de	8 ab
	Plateau	3	FL OZ/A						
14	Method	12	FL OZ/A	67 abc	67 ab	13 a	50 abcd	47 abcd	3 bcd
	Plateau	3	FL OZ/A						
15	Nontreated Check			0 d	0 d	0 d	0 e	0 e	7 abc

¹ Means within a column followed by the same letter are not different according to Fisher's LSD at $P < 0.05$.

² Treatments applied June 14, 2019.