

2019 Johnsongrass Control Trial in Georgetown

Introduction

Johnsongrass (*Sorghum halepense*) is a perennial warm-season grass, listed as a noxious weed in Kentucky, that is a common problem on right-of-ways. There are a number of herbicides labeled and available to control johnsongrass on right-of-ways. However, some of these are nonselective or are selective for johnsongrass but can still damage desirable cool-season turf, such as tall fescue. One of the safer johnsongrass control herbicides to use on tall fescue is Fusion but a label change in 2012 made it unavailable for use on right-of-way sites. A range of herbicide options for johnsongrass control/suppression continued to be evaluated.

Materials and Methods

A field study was established on an area next to the Toyota plant near Georgetown, KY with a sizable stand of johnsongrass on August 5, 2019. The trial consisted of 18 treatments with 3 replications arranged in a randomized complete block design with 7 ft by 15 ft plots. Blank (unused) plots were included in each block due to variable distribution (very sparse areas) of johnsongrass plants. Applications were made using a carrier volume of 30 gallons /acre. The johnsongrass growth was 45 inches tall with 25% flowering plants at time of application. Johnsongrass control was assessed 30 days after treatment (DAT) (9/4/2019) and 77 DAT (10/21/2019). Data were analyzed using ARM research management software (GDM Solutions, Inc.) and treatment means were compared using Fisher's LSD at $p = 0.05$.

Table 1 lists the treatments, active ingredients and application rates. The previous 2011 Fusion label indicated rates for selective control of johnsongrass were 7 to 9 fl oz/A (Treatments 1 and 2). The labeled Fusilade II rates are 16 to 24 fl oz/A (Treatments 3 and 4). The Acclaim Extra label indicates 20 fl oz/A per acre to control seedling johnsongrass 12 to 24 inches tall (Treatment 5); 39 fl oz/A to control rhizome johnsongrass 24 to 60 inches tall (Treatment 6); and a combination of Acclaim Extra plus Fusilade II (7 to 14 fl oz/A), for improved turfgrass tolerance and to target rhizome johnsongrass 10 to 25 inches tall (Treatment 7). The Outrider label rates for selective johnsongrass control in tall fescue turf are 0.75 to 1 oz/A (Treatments 8 and 9). MSMA was applied alone (Treatment 10) and in combination with Outrider at 0.75 oz/A (Treatment 11). Clearcast (Treatment 12) has an aquatic label and may be used close to waterways. The high rate of Plateau (Treatment 13) can potentially damage tall fescue. Detail + Plateau was suggested as a combination (Treatment 14) for enhanced control of johnsongrass. The combination of Method + Detail + Plateau (Treatment 15) was designed to suppress johnsongrass growth, in areas such as behind guardrails. Roundup ProMax (Treatment 16) and Journey (Treatment 17) are non-selective herbicides.

Results and Discussion

At the first evaluation period 30 DAT limited control was observed for most treatments, less than observed in some previous trials. It should be noted that the johnsongrass plants were larger than the guidelines indicated on the label for obtaining control for some treatments. The most effective group of treatments had 53 to 75% control (Table 2). They included both rates of Fusion (Treatments 1 and 2), both Fusilade II rates (Treatments 3 and 4), both Acclaim Extra rates (Treatment 5 and 6), the Acclaim Extra + Fusilade II combination (Treatment 7), and both treatments with MSMA (Treatments 10 and 11).

In some years regrowth of johnsongrass plants after treatment will occur, but none was observed in this trial. This may be the result of little rainfall received during the month of September. The Bluegrass Region CD3 had 0.19" which was 2.93" less than the long term average. At the end of the season (77 DAT) more of the treatments were in the top grouping (63 to 85% control). They included both rates of Fusion (Treatments 1 and 2), the low rate of Fusilade II (Treatment 3), the high rate of Acclaim Extra (Treatment 6), the Acclaim Extra + Fusilade II combination (Treatment 7), both Outrider rates (Treatments 8 and 9), MSMA (Treatment 10), Clearcast (Treatment 12), both Plateau treatments (Treatments 13 and 14), Roundup (Treatment 16), and Journey (Treatment 17).

The Method + Detail + Plateau combination (Treatment 15) did not provide a high level of control, but did reduce the growth of johnsongrass which might have some utility in controlling growth in areas such as behind guardrails early in the season. The treatments showing aboveground control more quickly may not necessarily be the ones with the best long-term control. Future evaluations 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	Fusion Activator 90	7 0.25	FL OZ/A % V/V	fluazifop + fenoxaprop	1.75 oz + 0.49 oz
2	Fusion Activator 90	9 0.25	FL OZ/A % V/V	fluazifop + fenoxaprop	2.25 oz + 0.63 oz
3	Fusilade II Activator 90	16 0.25	FL OZ/A % V/V	fluazifop	4 oz
4	Fusilade II Activator 90	24 0.25	FL OZ/A % V/V	fluazifop	6 oz
5	Acclaim Extra Activator 90	20 0.25	FL OZ/A % V/V	fenoxaprop	1.4 oz
6	Acclaim Extra Activator 90	39 0.25	FL OZ/A % V/V	fenoxaprop	2.78 oz
7	Acclaim Extra Fusilade II COC	7 14 1	FL OZ/A FL OZ/A % V/V	fenoxaprop fluazifop	0.5 oz 3.5 oz
8	Outrider Activator 90	0.75 0.25	OZ/A % V/V	sulfosulfuron	0.563 oz
9	Outrider Activator 90	1 0.25	OZ/A % V/V	sulfosulfuron	0.75 oz
10	MSMA	32	FL OZ/A	monosodium acid methanearsonate	24 oz
11	Outrider MSMA	0.75 32	OZ/A FL OZ/A	sulfosulfuron monosodium acid methanearsonate	0.563 oz 24 oz
12	Clearcast MSO	32 1	FL OZ/A % V/V	imazamox	4 oz ae
13	Plateau MSO	8 1	FL OZ/A % V/V	imazapic	2 oz ae
14	Detail Plateau MSO	1 8 1	FL OZ/A FL OZ/A % V/V	saflufenacil imazapic	0.36 oz 2 oz ae
15	Method Detail Plateau MSO	6 1 3 1	FL OZ/A FL OZ/A FL OZ/A % V/V	aminocyclopyrachlor saflufenacil imazapic	1.5 oz ae 0.36 oz 0.75 oz ae
16	Roundup ProMax	22	FL OZ/A	glyphosate	12.4 oz ae
17	Journey MSO	21.3 1	FL OZ/A % V/V	imazapic + glyphosate	2 oz ae + 4 oz ae
18	Nontreated Check				

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Table 2. Herbicide Treatments and Visual Control 30, and 77 Days After Treatment (DAT)²

Trt. No.	Product Name	Rate	Rate Unit	30 DAT (Sept 4, 2019)	77 DAT (Oct 21, 2019)
1	Fusion	7	FL OZ/A	57 abcde	68 abcd
	Activator 90	0.25	% V/V		
2	Fusion	9	FL OZ/A	65 abc	75 abc
	Activator 90	0.25	% V/V		
3	Fusilade II	16	FL OZ/A	58 abcde	63 abcd
	Activator 90	0.25	% V/V		
4	Fusilade II	24	FL OZ/A	57 abcde	62 bcd
	Activator 90	0.25	% V/V		
5	Acclaim Extra	20	FL OZ/A	73 a	57 cd
	Activator 90	0.25	% V/V		
6	Acclaim Extra	39	FL OZ/A	72 ab	78 abc
	Activator 90	0.25	% V/V		
7	Acclaim Extra	7	FL OZ/A	75 a	75 abc
	Fusilade II	14	FL OZ/A		
	COC	1	% V/V		
8	Outrider	0.75	OZ/A	22 hi	75 abc
	Activator 90	0.25	% V/V		
9	Outrider	1	OZ/A	48 bcdefg	77 abc
	Activator 90	0.25	% V/V		
10	MSMA	32	FL OZ/A	53 abcdef	80 abc
11	Outrider	0.75	OZ/A	63 abcd	45 d
	MSMA	32	FL OZ/A		
12	Clearcast	32	FL OZ/A	30 fgh	85 ab
	MSO	1	% V/V		
13	Plateau	8	FL OZ/A	38 efgh	85 ab
	MSO	1	% V/V		
14	Detail	1	FL OZ/A	25 gh	65 abcd
	Plateau	8	FL OZ/A		
	MSO	1	% V/V		
15	Method	6	FL OZ/A	42 cdefgh	55 cd
	Detail	1	FL OZ/A		
	Plateau	3	FL OZ/A		
	MSO	1	% V/V		
16	Roundup ProMax	22	FL OZ/A	40 defgh	80 abc
17	Journey	21.3	FL OZ/A	47 cdefg	88 a
	MSO	1	% V/V		
18	Nontreated Check			0 i	0 e

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 August 5, 2019.