

2017 Johnsongrass Control Trial in Rowan County (including 2018 Assessment)

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. This trial is a continuation of the evaluation of a range of johnsongrass control/suppression options.

Materials and Methods

The site was mowed July 25, 2017 and the late season regrowth was treated August 30, 2017 along an entrance ramp near I64 in Rowan County KY. The trial had 20 treatments with 3 replications arranged in a randomized complete block design with 7 ft by 20 ft plots. Application was at 30 gallons /acre. The johnsongrass was 36 to 58 inches tall with an overall average canopy height of 48 inches and about 5% of plants had emerged seedheads. Johnsongrass control was assessed 23 (9/22/2017), 53 (10/22/2017), and 302 (6/28/2018) days after treatment (DAT). Data were analyzed using ARM software and treatment means were compared using Fisher's LSD at $p = 0.05$.

Table 1 lists the treatments, active ingredients and application rates. The 2011 Fusion label rates for selective control of johnsongrass were 7 to 9 oz/A (Treatments 1 and 2). The rates on the label for Envoy are 16 and 32 fl oz/A (Treatments 3 and 4). Previous trials had used 13, 15, and 17 fl oz/A to find the best selective rate with less fescue damage. The labeled Fusilade II rates are 16 to 24 oz/A (Treatments 5 and 6). The Acclaim Extra label lists 20 oz/A per acre to control seedling johnsongrass 12 – 24 inches tall (Treatment 7); 39 oz/A to control rhizome johnsongrass 24 to 60 inches tall (Trt. 8); and a combination of Acclaim Extra plus Fusilade (0.5 plus 3.5 oz/A), for improved turfgrass tolerance and to control rhizome johnsongrass 10 to 25 inches tall (Treatment 9). The Outrider label rates for selective johnsongrass control in tall fescue turf are 0.75 to 1 oz/A (Treatments 10 and 11). Treatment 12 is MSMA applied alone and Treatment 13 is MSMA applied in combination with Outrider at 0.75 oz/A. Clearcast (Treatment 14) has an aquatic label and may be used close to waterways. The high rate of Plateau used in Treatment 15 will severely damage tall fescue. Poast Plus is a herbicide option we have not tested recently and has control of rhizome johnsongrass up to 25 inches tall on the label for this region of the U.S. (Treatments 16 and 17). Roundup (Treatment 18) and Journey (Treatment 19) are non-selective.

Results and Discussion

The regrowth of the johnsongrass at this site was vigorous and the plants were quite large at time of application. All the treatments controlled johnsongrass to some extent 23 and 53 days after

treatment (DAT) (Table 2). The most effective treatments had 68 to 78% control 23 DAT. They were both rates of Envoy (Treatments 3 and 4), both rates of Fusilade II (Treatments 5 and 6), both rates of Acclaim Extra (Treatments 7 and 8), the combination of Acclaim + Fusilade (Treatment 9), both rates of Poast (Treatments 16 and 17), and Roundup ProMax (Treatment 18).

At 53 DAT the top group of treatments had 83 to 93% control with many of the same treatments as at 23 DAT. At the second rating they were the high rate of Fusion (Treatment 2), both rates of Envoy (Treatments 3 and 4), both rates of Fusilade II (Treatments 5 and 6), the high rate of Acclaim Extra (Treatment 8), the combination of Acclaim + Fusilade (Treatment 9), Roundup ProMax (Treatment 18), and Journey (Treatment 19).

Next spring at 302 DAT the top group of treatments had 69 to 93% control and many of these were not in the top in the 2017 ratings. At this spring rating they were both rates of Envoy (Treatments 3 and 4), the high rate of Fusilade II (Treatment 6), both rates of Outrider (Treatments 10 and 11), both MSMA by itself and in combination with Outrider (Treatments 12 and 13), Clearcast (Treatment 14), Plateau (Treatment 15), Roundup ProMax (Treatment 18), and Journey (Treatment 19).

The treatments showing aboveground control more quickly may not necessarily be the ones with the best long term control. Outrider performed well in our trials but is slower to show foliar control.

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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	Envoy COC	16 1	FL OZ/A % V/V	clethodim	1.9 oz
4	Envoy COC	32 1	FL OZ/A % V/V	clethodim	3.9 oz
5	Fusilade II Activator 90	16 0.25	FL OZ/A % V/V	fluazifop	4 oz
6	Fusilade II Activator 90	24 0.25	FL OZ/A % V/V	fluazifop	6 oz
7	Acclaim Extra Activator 90	20 0.25	FL OZ/A % V/V	fenoxaprop	1.4 oz
8	Acclaim Extra Activator 90	39 0.25	FL OZ/A % V/V	fenoxaprop	2.78 oz
9	Acclaim Extra Fusilade II COC	7 14 1	FL OZ/A FL OZ/A % V/V	fenoxaprop fluazifop	0.5 oz 3.5 oz
10	Outrider Activator 90	0.75 0.25	OZ/A % V/V	sulfosulfuron	0.563 oz
11	Outrider Activator 90	1 0.25	OZ/A % V/V	sulfosulfuron	0.75 oz
12	MSMA	32	FL OZ/A	monosodium acid methanearsonate	24 oz
13	Outrider MSMA	0.75 32	OZ/A FL OZ/A	sulfosulfuron monosodium acid methanearsonate	0.563 oz 24 oz
14	Clearcast MSO	32 1	FL OZ/A % V/V	imazamox	4 oz ae
15	Plateau MSO	8 1	FL OZ/A % V/V	imazapic	2 oz ae
16	Poast Plus MSO	2.25 1	PT/A % V/V	sethoxydim	4.5 oz
17	Poast Plus MSO	3.75 1	PT/A % V/V	sethoxydim	7.5 oz
18	Roundup ProMax	22	FL OZ/A	glyphosate	12.4 oz ae
19	Journey MSO	21.3 1	FL OZ/A % V/V	imazapic + glyphosate	2 oz ae + 4 oz ae
20	Nontreated Check				

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Table 2. Herbicide Treatments and % Control 23, 53, and 302 Days After Treatment (DAT)

Trt. No.	Product Name	Rate	Rate Unit	23 DAT	53 DAT	302 DAT
1	Fusion Activator 90	7 0.25	FL OZ/A % V/V	40 efg ¹	75 cde	55 cde
2	Fusion Activator 90	9 0.25	FL OZ/A % V/V	60 bcde	88 ab	60 bcde
3	Envoy COC	16 1	FL OZ/A % V/V	70 abcd	87 abc	77 abc
4	Envoy COC	32 1	FL OZ/A % V/V	77 ab	88 ab	83 ab
5	Fusilade II Activator 90	16 0.25	FL OZ/A % V/V	72 abc	87 abc	60 bcde
6	Fusilade II Activator 90	24 0.25	FL OZ/A % V/V	75 ab	88 ab	69 abcde
7	Acclaim Extra Activator 90	20 0.25	FL OZ/A % V/V	85 a	73 de	47 ef
8	Acclaim Extra Activator 90	39 0.25	FL OZ/A % V/V	68 abcd	85 abcd	52 de
9	Acclaim Extra Fusilade II COC	7 14 1	FL OZ/A FL OZ/A % V/V	78 ab	93 a	45 ef
10	Outrider Activator 90	0.75 0.25	OZ/A % V/V	23 gh	72 e	78 abc
11	Outrider Activator 90	1 0.25	OZ/A % V/V	32 fg	78 bcde	80 ab
12	MSMA	32	FL OZ/A	43 efg	77 bcde	83 ab
13	Outrider MSMA	0.75 32	OZ/A FL OZ/A	50 cdef	80 bcde	87 a
14	Clearcast MSO	32 1	FL OZ/A % V/V	27 fg	72 e	75 abcd
15	Plateau MSO	8 1	FL OZ/A % V/V	33 fg	80 bcde	91 a
16	Poast Plus MSO	2.25 1	PT/A % V/V	72 abc	52 f	23 fg
17	Poast Plus MSO	3.75 1	PT/A % V/V	75 ab	75 cde	27 f
18	Roundup ProMax	22	FL OZ/A	75 ab	87 abc	92 a
19	Journey MSO	21.3 1	FL OZ/A % V/V	47 defg	83 abcde	93 a
20	Nontreated Check			0 h	0 g	0 g

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