2019 Fescue Damage by Johnsongrass Control Options

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 and how they affect tall fescue.

Materials and Methods

A field trial was established August 6, 2019 at the University of Kentucky Spindletop Research Farm near Lexington, KY on a tall fescue field when plants were approximately 10 inches tall. The trial consisted of 18 treatments with 3 replications each arranged in a randomized complete block design with 3.5 ft by 10 ft plots and 1.5 ft wide unsprayed buffers between each plot. Applications were made using 30 gallons per acre carrier volume. Tall fescue color was assessed by comparison to the running check strips. The color ratings were based on a scale ranging from 0 (dead) to 9 (full green). The color of the check strips was set at 8 on the scale. Plots were assessed 30 days after treatment (DAT) (9/5/2019), and 84 DAT (10/29/2019). 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 control 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

Some treatments indicated good safety on tall fescue with color ratings that were not different from the nontreated check, while others exhibited recovery of color by the end of the season following an initial display of discoloration (Table 2). Regrowth of tall fescue may have been reduced by the drought conditions in September. The Bluegrass Region CD3 had 0.19" which was 2.93" less than the long-term average. Treatments with color ratings unchanged from the control 30 DAT included both rates of Fusion (Treatments 1 and 2), both rates of Acclaim Extra (Treatments 5 and 6), the high rate of Outrider (Treatment 9), and MSMA by itself (Treatment 10) plus MSMA in combination with Outrider (Treatment 11). Treatments where color recovered by 84 DAT included the low rate of Fusilade II (Treatment 3), the combination of Acclaim Extra + Fusilade II (Treatment 7), and the low rate of Outrider (Treatment 8). Fescue color in plots treated with the the high rate of Fusilade II (Treatment 4), Clearcast (Treatment 12), all Plateau treatments (Treatments 13, 14, and 15), Roundup (Treatment 16), or Journey (Treatment 17) did not recover before the end of the season. These treatments would not be recommended if it is desirable to preserve existing tall fescue in the application area. Additional ratings of tall fescue density will be taken in spring 2020.

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	7	FL OZ/A	fluazifop + fenoxaprop	1.75 oz + 0.49 oz
	Activator 90	0.25	% V/V		
2	Fusion	9	FL OZ/A	fluazifop + fenoxaprop	2.25 oz + 0.63 oz
	Activator 90	0.25	% V/V		
3	Fusilade II	16	FL OZ/A	fluazifop	4 oz
	Activator 90	0.25	% V/V		
4	Fusilade II	24	FL OZ/A	fluazifop	6 oz
	Activator 90	0.25	% V/V		
5	Acclaim Extra	20	FL OZ/A	fenoxaprop	1.4 oz
	Activator 90	0.25	% V/V		
6	Acclaim Extra	39	FL OZ/A	fenoxaprop	2.78 oz
	Activator 90	0.25	% V/V		
7	Acclaim Extra	7	FL OZ/A	fenoxaprop	0.5 oz
	Fusilade II	14	FL OZ/A	fluazifop	3.5 oz
	COC	1	% V/V		
8	Outrider	0.75	OZ/A	sulfosulfuron	0.563 oz
	Activator 90	0.25	% V/V		
9	Outrider	1	OZ/A	sulfosulfuron	0.75 oz
	Activator 90	0.25	% V/V		
10	MSMA	32	FL OZ/A	monosodium acid methanearsonate	24 oz
11	Outrider	0.75	OZ/A	sulfosulfuron	0.563 oz
	MSMA	32	FL OZ/A	monosodium acid methanearsonate	24 oz
12	Clearcast	32	FL OZ/A	imazamox	4 oz ae
	MSO	1	% V/V		
13	Plateau	8	FL OZ/A	imazapic	2 oz ae
	MSO	1	% V/V		
14	Detail	1	FL OZ/A	saflufenacil	0.36 oz
	Plateau	8	FL OZ/A	imazapic	2 oz ae
	MSO	1	% V/V		
15	Method	6	FL OZ/A	aminocyclopyrachlor	1.5 oz ae
	Detail	1	FL OZ/A	saflufenacil	0.36 oz
	Plateau	3	FL OZ/A	imazapic	0.75 oz ae
	MSO	1	% V/V		
16	Roundup ProMax	22	FL OZ/A	glyphosate	12.4 oz ae
17	Journey	21.3	FL OZ/A	imazapic + glyphosate	2 oz ae + 4 oz ae
	MSO	1	% V/V		
18	Nontreated Check				

Table 2. Herbicide Treatments and Tall Fescue Color Ratings 30, and 84 Days After Treatment (DAT)2

Trt. No.	Product Name	Rate	Rate Unit	30 DAT	84 DAT
1	Fusion	7	FL OZ/A	8.0 a	7.8 ab
	Activator 90	0.25	% V/V		
2	Fusion	9	FL OZ/A	7.0 abc	8.0 a
	Activator 90	0.25	% V/V		
3	Fusilade II	16	FL OZ/A	6.3 cd	7.3 abc
	Activator 90	0.25	% V/V		
4	Fusilade II	24	FL OZ/A	5.0 e	7.0 c
	Activator 90	0.25	% V/V		
5	Acclaim Extra	20	FL OZ/A	7.0 abc	7.8 ab
	Activator 90	0.25	% V/V		
6	Acclaim Extra	39	FL OZ/A	7.7 ab	8.0 a
	Activator 90	0.25	% V/V		
7	Acclaim Extra	7	FL OZ/A	6.7 bcd	7.7 abc
	Fusilade II	14	FL OZ/A		
	COC	1	% V/V		
8	Outrider	0.75	OZ/A	6.7 bcd	7.3 abc
	Activator 90	0.25	% V/V		
9	Outrider	1	OZ/A	7.0 abc	7.2 bc
	Activator 90	0.25	% V/V		
10	MSMA	32	FL OZ/A	8.0 a	7.7 abc
11	Outrider	0.75	OZ/A	7.7 ab	7.5 abc
	MSMA	32	FL OZ/A		
12	Clearcast	32	FL OZ/A	2.3 g	1.8 h
	MSO	1	% V/V		
13	Plateau	8	FL OZ/A	2.7 fg	4.0 ef
	MSO	1	% V/V		
14	Detail	1	FL OZ/A	3.7 f	4.7 e
	Plateau	8	FL OZ/A		
	MSO	1	% V/V		
15	Method	6	FL OZ/A	5.7 de	6.2 d
	Detail	1	FL OZ/A		
	Plateau	3	FL OZ/A		
	MSO	1	% V/V		
16	Roundup ProMax	22	FL OZ/A	3.7 f	3.7 f
17	Journey	21.3	FL OZ/A	3.0 fg	2.7 g
	MSO	1	% V/V		
18	Nontreated Check			8.0 a	8.0 a

[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 6, 2019. Tall fescue color ratings based on a scale from 0 (dead) to 9 (full green)