

2008 Spring Seeding Study

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Objectives

The objectives of this study were to determine if mesotrione (Tenacity) is safe to apply at the time of spring seeding, to determine if mesotrione is safe to apply after the first mowing, and to evaluate weed control in.

Materials

This study was conducted at the Iowa State University Horticulture Research Station at Ames, IA, on a freshly prepared seed bed. The soil is a disturbed Nicollet clay-loam soil, with a pH of 7.1, 3.6% organic matter, 120 ppm K, and 18 ppm P. Plots were arranged in a split-plot randomized complete block design with four replications.

Main plots were the individual treatments (Table 1), and subplots were perennial ryegrass and Kentucky bluegrass. 'Catalina II' perennial ryegrass was seeded at a rate of four pounds pure live seed (PLS)/1000ft², and 'Unique' Kentucky bluegrass was seeded at a rate of one pound PLS/1000ft². Plots were seeded on 19 May 2008.

Initial treatments were applied 19 May, and the entire study was mown and the second application was made 3 July. Treatments were applied using a CO² backpack sprayer at 40 psi, and at a spray volume equivalent to three gallons/1000ft².

Results

All of the seeded ryegrass plots that received herbicide treatments had higher percentage ryegrass cover than the untreated control at the end of the season (Table 2). At the last rating date, plots treated with the highest rates of mesotrione, both the single application and repeat application (treatments 4 & 7), had a higher percentage cover of ryegrass than plots treated with siduron. All other plots receiving herbicide treatments were no different than each other at that time.

All of the seeded bluegrass plots that received herbicide treatments had higher percentage bluegrass cover than the untreated control at the end of the season (Table 3). At the last rating date, plots treated with the lowest rate of mesotrione as a single preemergence application (treatment 2 – 175 gai/ha) had less bluegrass cover than all other herbicide treatments, with the exception of the second-lowest rate of mesotrione (treatment 3 – 210 gai/ha). All other herbicide-treated plots were no different than each other.

Following the second application of mesotrione, after the first mowing, there was some slight phytotoxicity to the perennial ryegrass (Table 4).

The first three weed rating dates (2, 14, and 20 June) indicate that all plots receiving herbicide treatments had less weed populations than the untreated controls (Table 5). The first three weed

ratings took into account all weeds in the plots. The last rating date for weed populations indicate no difference in purslane cover for plots receiving treatments. All herbicide treated plots had more purslane cover than the control, most likely due to the high population of crabgrass in the untreated control. All plots receiving herbicide treatments had less crabgrass populations than the untreated controls at the end of the season. Barnyardgrass counts revealed no difference among main plots.

Table 1. Treatment list and application timing for spring seeding study.

Treatment	Product	Form. Conc.	Form. Conc. Unit	Product/AI Rate	Product /AI Rate Unit	Application Date
1	Control					
2	Mesotrione	480	GA/L	175	GA/HA	5/19
	NIS			0.25	%V/V	
3	Mesotrione	480	GA/L	210	GA/HA	5/19
	NIS			0.25	%V/V	
4	Mesotrione	480	GA/L	280	GA/HA	5/19
	NIS			0.25	%V/V	
5	Siduron			6700	GA/HA	5/19
6	Mesotrione	480	GA/L	175	GA/HA	5/19
	NIS			0.25	%V/V	
	Mesotrione	480	GA/L	175	GA/HA	7/3
	NIS			0.25	%V/V	
7	Mesotrione	480	GA/L	210	GA/HA	5/19
	NIS			0.25	%V/V	
	Mesotrione	480		210	GA/HA	7/3
	NIS			0.25	%V/V	

Table 2. Percentage cover of perennial ryegrass for spring seeding study.

Treatment	2-Jun	14-Jun	20-Jun	3-Jul	19-Jul	10-Oct
1	28.8	51.3	58.8	81.3	76.3	66.3
2	28.8	45.0	58.8	82.5	87.5	91.3
3	30.0	46.3	57.5	80.0	87.5	91.3
4	28.8	50.0	65.0	91.3	88.8	93.8
5	20.0	37.5	51.3	77.5	86.3	87.5
6	30.0	43.8	55.0	78.8	88.8	90.0
7	28.8	41.3	53.8	78.8	87.5	92.5
LSD	4.5	11.0	14.7	NS	7.2	4.9

Table 3. Percentage cover of Kentucky bluegrass for spring seeding study.

Treatment	2-Jun	14-Jun	20-Jun	3-Jul	19-Jul	10-Oct
1	2.5	3.3	4.0	2.0	1.0	6.3
2	4.3	5.0	11.3	33.8	50.0	60.0
3	5.3	8.8	12.5	43.8	60.0	68.8
4	5.8	8.8	12.5	42.5	62.5	75.0
5	5.3	8.0	16.3	48.8	63.8	73.8
6	5.0	8.0	13.0	42.5	62.5	73.8
7	5.0	5.8	10.0	36.3	56.3	73.8
LSD	1.3	4.1	7.7	15.4	12.3	10.4

Table 4. Phytotoxicity ratings following second application (9 = no damage; 1 = worst damage; 6 = minimum acceptable).

Treatment	19-Jul
1	9.0
2	9.0
3	9.0
4	9.0
5	9.0
6	8.0
7	8.0
LSD	0.0

Table 5. Weed data for spring seeding study.

Treatment	Percentage cover of weeds [¶]			Purslane [§]		Crabgrass [§]		Barnyard grass [‡]	
	2-Jun	14-Jun	20-Jun	3-Jul	19-Jul	3-Jul	19-Jul	3-Jul	19-Jul
1	0.0	16.3	32.5	6.3	3.0	47.5	62.5	2.5	6.3
2	0.0	0.0	3.3	16.3	26.3	3.3	6.3	3.8	8.3
3	0.0	0.3	3.0	18.8	18.8	1.3	4.5	5.5	17.0
4	0.0	0.0	1.8	8.8	18.8	1.0	3.3	1.5	4.0
5	0.0	0.0	1.3	8.8	25.0	1.0	7.3	0.8	3.8
6	0.0	0.0	2.8	17.5	25.0	2.5	3.3	3.0	4.3
7	0.0	0.0	2.0	18.8	23.8	2.8	4.0	2.3	3.3
LSD	0.0	5.8	6.9	6.0	8.4	2.2	6.4	NS	NS

[¶]Percentage cover of all weeds in plot; untreated controls contained mostly crabgrass – treated plots contained mostly purslane

[§]Ratings are percentage cover

[‡]Ratings are counts of plants in plot