

Control of Crabgrass with Preemergence Herbicides

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Background/Objective: To evaluate crabgrass control using commercially available and experimental preemergence herbicides.

Site Information

Location:	William H. Daniel Research and Diagnostic Center, W. Lafayette, IN.	
Soil Type:	Starks-Fincastle silt loam	
Soil pH:	7.2	
Soil Organic Matter (%):	Not available	
Turfgrass Species:	Kentucky bluegrass	
Turf Condition:	Good	
Turf Management: Mowing Height cm (in):	6.35 (2.5)	
Fertilization:	None	
Irrigation:	To prevent moisture stress	
Testing on Site Previous Year:	None	
Target Pest:	<i>Digitaria</i> spp. (crabgrass)	
Growth Stage:	Pregermination	

Application Information

Application Date:	25 Apr	7 June
Application Time:	9:00 AM	9:00 AM
Air Temperature C⁰(F⁰):	13.3 (56)	19.8 (68)
Relative Humidity(%):	42	70
Wind Speed m s⁻¹ (mph):	Calm	Calm
Soil Temperature(7.6 cm depth) C⁰(F⁰):	10 (50)	18.3 (65)
Soil Moisture:	Moist	Wet
Spray Volume L ha⁻¹ (gal 1000 ft⁻²):	1628 (4)	
Spray Pressure:	35psi	
Spray Nozzle:	8003	
Spray Equipment:	CO ₂ backpack	
Irrigation After Application:	None	
Experimental Design:	Randomized complete block	
Replications:	3	
Plot Size m (ft):	1.5 X 1.5 (5 X 5)	

Results

There was no apparent phytotoxicity from any of the treatments. All of the treatments reduced crabgrass by 9 July with the exception of Pendulum 3.3EC and 3.8CS at 2.0 lbs ai/A. By the end of the study, only three treatments produced less than 10% cover of crabgrass, which would be considered an accomplishment in a summer like this one. These treatments included Pendulum 8.3 CS 1.5+1.5 lbs ai/A and XF-00090 0.164G at both 0.18 and 0.25 lbs ai/A. Comparing among Pendulum treatments, the sequential applications of both products produced far better crabgrass control than the single application, but there was no difference among the formulations of Pendulum. The currently labeled formulations of Dimension provided improved control compared to the experimental formulations with the exception of the XF-00090 0.164 G formulation, which provided the best control of all products.

Table 1. Percent crabgrass control from experimental and commercially available formulations of Pendulum and Dimension.

Treatment	Rate of application	9 July	7 Aug	3 Sept
	(lbs ai/A)			
Check	---	5.3 ^a	43.3	53.3
Pendulum 3.3EC	1.5	0.7	8.3	11.7
Pendulum 3.3EC ^b	1.5			
Pendulum 3.3EC	2.0	4.0	26.7	46.7
Pendulum 3.8CS	1.5	0.7	8.3	9.3
Pendulum 3.8CS ^b	1.5			
Pendulum 3.8CS	2.0	4.0	28.3	43.3
Dimension 1EC+	0.18	1.7	11.7	18.3
fertilizer blank	21.0 ^c			
Dimension 1EC+	0.25	0.7	6.7	15.0
fertilizer blank	21.0 ^c			
Dimension 40WP+	0.18	1.0	12.7	11.7
fertilizer blank	21.0 ^c			
Dimension 40WP+	0.25	1.0	6.7	16.7
fertilizer blank	21.0 ^c			
XF-00090 0.164G	0.18	0.0	4.0	5.0
XF-00090 0.164G	0.25	1.0	5.3	7.3
XF-00272 2.5SC+	0.18	1.3	15.0	25.0
fertilizer blank	21.0 ^c			
XF-00272 2.5SC+	0.25	0.3	13.3	20.0
fertilizer blank	21.0 ^c			
XF-01005 2SC+	0.18	1.7	18.3	25.0
fertilizer blank	21.0 ^c			
XF-01005 2SC+	0.25	1.3	13.3	20.0
fertilizer blank	21.0 ^c			
Dimension 1EC	0.5	0.7	16.7	25.0
LSD (0.05)		1.6	10.3	17.2

^a Percent of plot area covered by crabgrass.

^b Denotes split application with the second application on 7 June.

^c Rate of application was grams/meter².