

Crabgrass Control with Commercially Available and Experimental Products

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Background/Objective:

Evaluate various formulations of preemergence herbicides for crabgrass control.

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 (%):	6.0
Turfgrass Species:	Kentucky bluegrass
Turf Condition:	Fair
Turf Management: Mowing Height cm (in):	6.25 (2.5)
Fertilization:	None
Irrigation:	To prevent moisture stress
Testing on Site Previous Year:	None
Target Pest:	<i>Digitaria</i> sp. (crabgrass)
Growth Stage:	Pre germination

Application Information

Application Date:	16 April	13 June
Application Time:	8:00 am	8:00 am
Air Temperature C⁰(F⁰):	24.4 (76)	28.6 (83)
Relative Humidity(%):	34	66
Wind Speed m s⁻¹ (mph):	3.6 (8)	Calm
Soil Temperature(7.6 cm depth) C⁰(F⁰):	10.5 (51)	21.1 (70)
Soil Moisture:	Dry	Wet
Spray Volume L ha⁻¹ (gal 1000 ft⁻²):	814 (2)	
Spray Pressure:	30psi	
Spray Nozzle:	8001.5	
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 phytotoxicity from any of the herbicide treatments (Table 1). Crabgrass development was late in 2003 because of a relatively cool and wet summer. Thus there was no difference in crabgrass cover among the treatments by July 31 (Table 1). However, August turned hot and dry and crabgrass developed rapidly late in the year. The treatments broke into roughly three groups in terms of crabgrass cover on 22 Aug. The top performing group included single applications of L-0441, L-0442, and L-0445, and sequential applications of Pendulum 3.3EC and 3.8CS. The middle group included L-0444, L-0447 and a single application of Pendulum 3.8CS at 3.0 lb ai/A, but the control of these products did not differ significantly from that of the best performing products. The poorest performing group that did not decrease cover significantly compared to the check included a single application of Pendulum 3.3EC at 3.0 lb ai/A and Dimension 1EC at 0.5 lb ai/A. The sequential applications of Pendulum outperformed single applications, especially with the 3.3EC formulation.

Table 1. Phytotoxicity and % crabgrass cover in Kentucky bluegrass after treatment with preemergence herbicides.

Treatment	Rate of application	Phytotoxicity ^a			% Crabgrass cover ^b	
		18 April	23 April	30 May	31 July	22 Aug
	lbs a.i./A					
L-0441 0.43G	0.65	9	9	9	0.7	3.7
L-0442 0.43G	0.65	9	9	9	1.3	4.0
L-0444 65WP	0.65	9	9	9	2.3	8.3
L-0445 65WP	0.65	9	9	9	0.0	3.0
L-0447 4FL	0.65	9	9	9	3.7	10.0
Pendulum 3.3EC	3.0	9	9	9	9.0	20.0
Pendulum 3.3EC	1.5	9	9	9	2.7	5.0
Pendulum 3.3EC ^c	1.5					
Pendulum 3.8CS	3.0	9	9	9	3.0	10.0
Pendulum 3.8CS	1.5	9	9	9	1.0	3.7
Pendulum 3.8CS ^c	1.5					
Dimension 1EC	0.5	9	9	9	5.7	16.7
Check		9	9	9	8.3	25.0
LSD (0.05)		NS	NS	NS	NS	9.3

^a Phytotoxicity was rated on a scale of 1 to 9 where 1 = completely brown, 7 = acceptable damage, and 9 = no phytotoxicity.

^b Percent of the plot area covered by crabgrass.

^c Split application with second application made on 13 June.