

Annual Grass Control with Experimental and Commercially Available Products

Zac Reicher and Dan Weisenberger

Background/Objective:

Evaluate various formulations of preemergence herbicides for crabgrass control in Indiana.

Site Information

Location:	W.H. Daniel Research and Diagnostic Center
Soil Type:	Starks-Fincastle silt loam
Soil pH:	7.2
Soil Organic Matter (%):	6.0
Turfgrass Species:	Kentucky bluegrass blend
Turf Condition:	Poor
Turf Management:	
Mowing Height cm (in):	2.5 (1)
Fertilization:	None
Irrigation:	To prevent moisture stress
Testing on Site Previous Year:	None
Target Pest:	Crabgrass (<i>Digitaria spp.</i>)
Growth Stage:	prior to germination

Application Information

Application Date:	22 April	18 June
Application Time:	9:00am	8:30am
Air Temperature C⁰(F⁰):	10 (50)	23.2 (74)
Relative Humidity(%):	64	64
Wind Speed m s⁻¹ (mph):	4.0 (9)	0 – 0.4 (0 - 1)
Soil Temperature(7.6 cm depth) C⁰(F⁰):	10.6 (51)	23.9 (75)
Soil Moisture:	moist	moist
Spray Volume L ha⁻¹ (gal 1000 ft⁻²):	814 (2)	
Spray Pressure:	35psi	
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:

Crabgrass pressure was high on this Kentucky bluegrass strand due to the low mowing height (1”), and the untreated check was rated at 65% crabgrass cover by the end of the study. Therefore, this test may not be reflective of what may occur in home lawns mowed at 3 inches or higher. Following are highlights of the study:

- No phytotoxicity was seen from any treatment during the study (Table 1).
- All treatments except corn gluten meal reduced crabgrass significantly.
- MANA-PRO 65WDG at 1.0 and 1.5 lbs/A, Barricade 65WDG at 1.0 and 1.5 lbs/A, and Dimension Ultra at 0.25 + 0.25 lbs ai/A resulted in the lowest crabgrass cover by 26 August..
- There were no significant differences in crabgrass cover between MANA-PRO 65WDG and Barricade 65WDG at any time in the study.
- Neither formulation of Pendulum performed as expected, but there was no difference in cover between these formulations at any time during the study.
- By the last recording date, the performance of the following treatments was statistically equivalent: Barricade 65WDG at 1.0 and 1.5 lbs/A; MANA-PRO 65WDG at 0.5, 1.0, and 1.5 lbs/A; all Dimension treatments; Pendulum 3.8CS at 2.0+1.5 lbs ai/A and Pendimethalin 60WDG.

Table 1. Phytotoxicity to Kentucky bluegrass and cover of crabgrass after treatment with preemergence herbicides

Treatment	Rate of application	phytotoxicity ^a			cover ^b		
		26 April	30 April	7 May	23 June	6 Aug	26 Aug
	lb a.i./A	-----%-----					
Pendulum 3.3EC	2.0	9	9	9	3.0	23.3	26.7
Pendulum 3.3EC ^c	1.5						
Pendulum 3.3EC	1.5	9	9	9	6.3	25.0	38.3
Pendulum 3.3EC ^c	1.5						
Pendulum 3.8CS	2.0	9	9	9	1.0	16.7	21.7
Pendulum 3.8CS ^c	1.5						
Pendulum 3.8CS	1.5	9	9	9	2.3	28.3	36.7
Pendulum 3.8CS ^c	1.5						
MANA-PRO 65WDG	0.5 ^d	9	9	9	0.3	14.3	17.7
MANA-PRO 65WDG	1.0 ^d	9	9	9	0.0	3.7	6.7
MANA-PRO 65WDG	1.5 ^d	9	9	9	0.0	5.0	5.0
Barricade 65WDG	0.5 ^d	9	9	9	2.0	31.7	30.0
Barricade 65WDG	1.0 ^d	9	9	9	0.0	1.7	2.7
Barricade 65WDG	1.5 ^d	9	9	9	0.0	1.0	1.7
Dimension Ultra WSP	0.25	9	9	9	0.0	5.3	5.0
Dimension Ultra WSP ^c	0.25						
Dimension Ultra WSP	0.5	9	9	9	0.0	16.7	13.3
Dimension 1EC	0.5	9	9	9	0.3	20.0	21.7
Pendimethalin 60WDG	3	9	9	9	0.7	21.7	25.0
Corn Gluten Meal	20 ^e	9	9	9	11.7	61.7	63.3
Check		9	9	9	11.7	60.0	65.0
LSD (0.05)		NS	NS	NS	4.3	17.2	21.8

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

^b Percent of the plot area covered by crabgrass.

^c Initial application was 22 April and the split application 18 June.

^d Rate of application was pound of product/A.

^e Rate of application was pound of product/1000 ft².