

Mesotrione for selective removal of Creeping Bentgrass from Kentucky bluegrass

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Background/Objective: In previous studies, mesotrione has demonstrated potential selectivity to remove creeping bentgrass from Kentucky bluegrass. Our objective of this study was to determine the optimum rate and number of applications required for control when applied at two week intervals. A second objective was to evaluate these same rates and application timings for safety to Kentucky bluegrass.

Site Information

Location:	William H. Daniel Research and Diagnostic Center
Turfgrass Species:	Bentgrass contamination in a Kentucky bluegrass blend
Turf Condition:	fair
Turf Management:	Mowing Height in: 2.5
	Fertilization: 1 lb N/M/YR
	Irrigation: To prevent moisture stress
Target Pest:	Creeping bentgrass (<i>Agrostis palustris</i>)
Growth Stage:	mature

Application Information

Application Dates: in 2005	24 May	9 June	23 June	7 July
Spray Volume gal 1000 ft⁻²:	2			
Spray Equipment:	CO ₂ backpack			
Experimental Design:	Randomized complete block			
Replications:	3			
Plot Size ft:	5 X 10			

Results:

The site for this study was a Kentucky bluegrass stand contaminated with creeping bentgrass, likely Pennlinks, Penneagle, and/or L93. Unfortunately, this area went under drought stress in the course of the study and thus we saw very little control from mesotrione regardless of rate or timing. Our other studies suggest that mesotrione is most active when turf is well-watered and three applications at intervals of one to two weeks. Since golf course roughs are the area most contaminated with creeping bentgrass, this approach will likely have to be done in the spring or fall on unirrigated roughs. This study is being repeated in Fall of 2005 and results will be available in 2006.

Table 1. Percent cover^a of creeping bentgrass after applications of mesotrione.

Treatment ^{b c}	Rate of application	10 June	23 June	8 July	22 July
	lb ai/A				
Mesotrione	0.125	20.0	11.7	16.7	20.0
Mesotrione	0.125				
Mesotrione	0.187	15.0	8.7	18.3	20.0
Mesotrione	0.187				
Mesotrione	0.125	21.7	16.7	15.0	18.3
Mesotrione	0.125				
Mesotrione	0.125				
Mesotrione	0.187	26.7	15.0	16.7	18.3
Mesotrione	0.187				
Mesotrione	0.125				
Mesotrione	0.125	23.3	9.3	20.0	12.7
Mesotrione	0.125				
Mesotrione	0.125				
Mesotrione	0.125				
Check		28.3	28.3	26.7	25.0
LSD (0.05)		NS	NS	NS	NS

^a Percent of the plot area covered by creeping bentgrass.

^b All treatment applications included non ionic surfactant at .25% v/v.

^c Repeat applications were at two week intervals, 2 week on June 9, 4 week on June 23, and 6 week on July 7.

Table 2. Phytotoxicity^a to Kentucky bluegrass after applications of mesotrione.

Treatment ^{bc}	Rate of application	1 June	10 June
	lb ai/A		
Mesotrione	0.125	9	9
Mesotrione	0.125		
Mesotrione	0.187	9	9
Mesotrione	0.187		
Mesotrione	0.125	9	9
Mesotrione	0.125		
Mesotrione	0.125		
Mesotrione	0.187	9	9
Mesotrione	0.187		
Mesotrione	0.125		
Mesotrione	0.125	9	9
Mesotrione	0.125		
Mesotrione	0.125		
Mesotrione	0.125		
Check		9	9
LSD (0.05)		NS	NS

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

^b All treatment applications included non ionic surfactant at 0.25% v/v.

^c Repeat applications were at two week intervals, 2 week on June 9, 4 week on June 23, and 6 week on July 7.