

Roundup Ready Creeping Bentgrass (RRCB) Control Alternatives

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Background/Objective: It is important to demonstrate that there are herbicidal control alternatives to Roundup for the control of Roundup Ready Creeping Bentgrass. Since said herbicide activity can be demonstrated on conventional bentgrass, presence of RRCB is not required. Several alternative herbicides were explored in both single and sequential applications for the potential of controlling creeping bentgrass.

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 (%):		
Turfgrass Species:	Providence creeping bentgrass	
Turf Condition:	Fair	
Turf Management: Mowing Height cm (in):	1.27 (0.5)	
Fertilization:	None	
Irrigation:	To prevent moisture stress	
Testing on Site Previous Year:	Safety of Dithiopyr on seedling bentgrass	
Target Pest:	Providence creeping bentgrass	
Growth Stage:	Seeded fall 2000	

Application Information

Application Date:	28 June	9 Aug
Application Time:	8:30 AM	8:30 AM
Air Temperature C⁰(F⁰):	24.6 (76)	31.9 (89)
Relative Humidity(%):	53	69
Wind Speed m s⁻¹ (mph):	Calm	Calm
Soil Temperature(7.6 cm depth) C⁰(F⁰):	23.3 (74)	27.2 (81)
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

Single and sequential applications of Vantage provided highest control of creeping bentgrass, similar to that from Roundup Pro. Two applications of Select (same active ingredient as Envoy) provided some short term control, but the bentgrass recovered by 19 Oct. Two applications of Fusilade also provide some short-term control but bentgrass also recovered by Oct. 19. It appears that Vantage could be viable for controlling escaped Roundup resistant bentgrass, but more than two applications of Select (Envoy) or Fusilade will be needed for maximum control.

Table 1. Control of creeping bentgrass by non-selective herbicides.

Treatment	Rate of application	Control 13 July	9 Aug	Bentgrass cover		
				23 Aug	26 Sept	19 Oct
	lbs ai/A			%		
Check	---	9.0 ^e	91.7 ^f	91.7	83.3	86.7
Roundup Pro 3L	1.5 ^c	1.0	0.3	0.7	1.7	2.3
Fusilade II 2L	0.25 ^c	2.7	80.0	83.3	81.7	88.3
COC ^a	1.0 ^d					
Fusilade II 2L	0.375	3.0	56.7	73.3	88.3	91.7
COC ^a	1.0 ^d					
Fusilade II 2L	0.375	3.3	63.3	1.0	11.7	15.0
COC ^a	1.0 ^d					
+ Fusilade II 2L ^b	0.375					
COC ^a	1.0 ^d					
Select 2L	0.188	4.0	83.3	88.3	83.3	86.7
COC ^a	1.0 ^d					
Select 2L	0.25	3.0	81.7	86.7	83.3	88.3
COC ^a	1.0 ^d					
Select 2L	0.25	3.0	80.0	0.7	5.7	15.0
COC ^a	1.0 ^d					
+ Select 2L ^b	0.25					
COC ^a	1.0 ^d					
Vantage 1L	0.375	1.0	1.0	1.0	3.0	4.0
COC ^a	1.0 ^d					
Vantage 1L	0.375	1.0	0.3	0.0	0.3	2.0
COC ^a	1.0 ^d					
+ Vantage 1L ^b	0.375					
COC ^a	1.0 ^d					
Accent 75WDG	0.0625	5.0	65.0	85.0	86.7	86.7
NIS ^a	0.5 ^d					
Accent 75WDG	0.0625	4.3	53.3	60.0	88.3	90.0
NIS	0.5 ^d					
28-0-0 ^a	2-4					
Beacon 75WDG	0.036	9.0	95.0	95.0	81.7	85.0
NIS ^a	0.5 ^d					
Beacon 75WDG	0.018	6.3	91.7	93.3	83.3	86.7
Accent 75WDG	0.031					
NIS ^a	0.5 ^d					
LSD (0.05)		1.1	23.6	20.9	4.7	9.6

^a Indicates products applied as a tank mix.

^b Indicates a split application with the initial application on 28 June and the second application 6 weeks later on 9 Aug.

^c Application rate was pounds acid equivalent per acre.

^d Application rate was percent volume per volume.

^e Control was rated on a scale of 1 to 9, where 1 = completely brown and 9 = no control.

^f Percent of the plot area covered by bentgrass.