

Tolerance of Seedling Bentgrass to Quicksilver

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Background/Objective:

Evaluate the tolerance of newly seeded Creeping Bent Grass to applications of Quicksilver alone and in combination with other pre- and postemergence herbicides used in turf.

Site Information

Location:	W.H. Daniel Research and Diagnostic Center
Soil Type:	Starks-Fincastle silt loam
Soil pH:	7.2
Soil Organic Matter (%):	NA
Turfgrass Species:	'Pennncross' creeping bentgrass
Turf Condition:	Good
Turf Management:	
Mowing Height cm (in):	1.25 (0.5)
Fertilization:	1 lb N/M
Irrigation:	To prevent moisture stress
Testing on Site Previous Year:	None
Target Pest:	NA
Growth Stage:	Seedling

Application Information

Application Date:	7 Sep	14 Sep	29 Sep
Application Time:	7:00am	8:00am	8:00am
Air Temperature C⁰(F⁰):	15 (59)	20.8 (69)	12.7 (55)
Relative Humidity(%):	86	83	80
Wind Speed m s⁻¹ (mph):	1.8 (4)	Calm	1.8 (4)
Soil Temperature(7.6 cm depth) C⁰(F⁰):	18.3 (65)	21.1 (70)	15 (59)
Soil Moisture:	Wet	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:

- Only Quicksilver + Drive applied at 8 days after emergence (DAE) caused phytotoxicity on the creeping bentgrass seedlings and this lasted less than a week (Table 1), Since Quicksilver alone applied on the same date did not cause any phytotoxicity, this burn was likely due to Drive and this is typical of our earlier results.
- Only Quicksilver + Drive applied at 8 DAE reduced creeping bentgrass cover on 23 Sep, but this damage was not evident by 17 Oct (Table 2).
- Quicksilver is safe to use on 'Pennncross' creeping bentgrass as early as 8 DAE.

Table 1. Phytotoxicity^a on ‘Penncross’ creeping bentgrass caused by herbicides applied shortly after emergence.

Treatment	Rate of application	Application timing ^b	10 Sept	14 Sept	17 Sept	23 Sept	30 Sept	17 Oct
	lb a.i./A							
Quicksilver	0.031	8 DAE	9.0	9.0	9.0	9.0	9.0	9.0
Quicksilver + Drive	0.031 0.75	8 DAE	9.0	6.3	6.3	9.0	9.0	9.0
Quicksilver	0.031	15 DAE	9.0	9.0	9.0	9.0	9.0	9.0
Quicksilver + Drive	0.031 0.75	15 DAE	9.0	9.0	9.0	9.0	9.0	9.0
Quicksilver	0.031	30 DAE	9.0	9.0	9.0	9.0	9.0	9.0
Quicksilver + Drive	0.031 0.75	30 DAE	9.0	9.0	9.0	9.0	9.0	9.0
Check			9.0	9.0	9.0	9.0	9.0	9.0
LSD (0.05)			NS	0.4	0.4	NS	NS	NS

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

^b Application timing is days after emergence, which was judged to occur on August 30. Applications were made on 7 Sep, 14 Sep, and 29 Sep.

Table 2. Percent cover^a of ‘Penncross’ creeping effected by herbicides applied shortly after emergence.

Treatment	Rate of application	Application timing ^b	23 Sept	17 Oct
	lb a.i./A		-----%	-----
Quicksilver	0.031	8 DAE	98.3	98.0
Quicksilver + Drive	0.031 0.75	8 DAE	90.0	97.3
Quicksilver	0.031	15 DAE	98.0	98.7
Quicksilver + Drive	0.031 0.75	15 DAE	99.0	98.0
Quicksilver	0.031	30 DAE	97.7	98.0
Quicksilver + Drive	0.031 0.75	30 DAE	98.0	98.0
Check			98.3	98.3
LSD (0.05)			3.7	NS

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

^b Application timing is days after emergence, which was judged to occur on August 30. Applications were made on 7 Sep, 14 Sep, and 29 Sep.