

Overseeding Creeping Bentgrass Before or After Application of Certainty: 2007

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Background/Objective:

Certainty has shown tremendous promise for control of *Poa trivialis* in creeping bentgrass. However, if *Poa trivialis* is effectively controlled, seeding creeping bentgrass may be necessary to fill in the bare areas. Understanding limitations in seeding before or after application of Certainty is required to maximize seeding success.

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:	'Penncross' creeping bentgrass
Turf Condition:	Good
Turf Management:	
Mowing Height cm (in):	1.25 (0.5)
Fertilization:	NA
Irrigation:	To prevent moisture stress
Testing on Site Previous Year:	None
Target Pest:	NA
Growth Stage:	Various

Application Information

Application Date:	2 Aug	9 Aug	16 Aug	22 Aug
Application Time:	9:00am	9:00am	8:30 am	4:30pm
Air Temperature C⁰(F⁰):	27 (81)	27 (81)	22 (71)	33 (92)
Relative Humidity(%):	83	86	94	90
Wind Speed m s⁻¹ (mph):	1.8 (4)	1.8 (4)	0.4 (1)	4 (10)
Soil Temperature(7.6 cm depth) C⁰(F⁰):	24 (77)	27 (81)	23 (74)	28 (82)
Soil Moisture:	moist	moist	moist	dry
Application Date:	29 Aug	5 Sept	12 Sept	19 Sept
Application Time:	3:00 pm	2:00 pm	1:00pm	2:00pm
Air Temperature C⁰(F⁰):	36 (96)	33 (92)	18 (65)	30 (87)
Relative Humidity(%):	74	24	50	51
Wind Speed m s⁻¹ (mph):	0.8 (2)	2.2 (5)	1.8 (4)	2.6 (6)
Soil Temperature(7.6 cm depth) C⁰(F⁰):	33 (92)	30 (86)	24 (75)	26 (79)
Soil Moisture:	dry	dry	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:

- This study was designed as a 3 X 8 factorial, but it has not been fully analyzed as a factorial since this is still preliminary data.
- Certainty applied 2, 3 and 4 WAE caused visible phytotoxicity, but this lasted for three weeks or less (Table 1).
- Certainty at 0.25 lbs ai/A was the safest application and only applications at 0 WBS, 1, 2, or 3 WAE reduced creeping bentgrass cover measured on 28 Oct (Table 2).
- Certainty at 0.5 lbs ai/A reduced creeping bentgrass cover measured on 28 Oct when applied 1 WBS through 3 WAE (Table 2).
- Certainty at 1.0 lbs ai/A reduced creeping bentgrass cover measured on 28 Oct regardless of the application date (Table 2).

Table 1. Phytotoxicity^a to ‘Penncross’ creeping bentgrass seedlings after application of Certainty before or after seeding.

Treatment ^b	Rate of application	Application timing ^c	14 Sept	23 Sept	30 Sept	7 Oct	17 Oct	22 Oct	28 Oct
	lb a.i./A								
Certainty	0.25	3 WBS	8.3	8.3	8.3	9.0	9.0	9.0	9.0
Certainty	0.5	3 WBS	8.3	8.3	7.7	9.0	9.0	9.0	9.0
Certainty	1	3 WBS	7.7	7.7	8.0	9.0	9.0	9.0	9.0
Certainty	0.25	2 WBS	8.7	8.7	9.0	9.0	9.0	9.0	9.0
Certainty	0.5	2 WBS	7.7	8.3	8.3	9.0	9.0	9.0	9.0
Certainty	1	2 WBS	7.7	8.3	8.3	9.0	9.0	9.0	9.0
Certainty	0.25	1 WBS	7.3	8.3	9.0	9.0	9.0	9.0	9.0
Certainty	0.5	1 WBS	4.7	8.7	9.0	9.0	9.0	9.0	9.0
Certainty	1	1 WBS	6.3	8.0	8.7	9.0	9.0	9.0	9.0
Certainty	0.25	0 WBS	4.7	8.0	9.0	9.0	9.0	9.0	9.0
Certainty	0.5	0 WBS	6.7	9.0	9.0	9.0	9.0	9.0	9.0
Certainty	1	0 WBS	1.7	6.0	8.7	9.0	9.0	9.0	9.0
Certainty	0.25	1 WAE	0.0	2.3	9.0	9.0	9.0	9.0	9.0
Certainty	0.5	1 WAE	0.0	0.0	9.0	9.0	9.0	9.0	9.0
Certainty	1	1 WAE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Certainty	0.25	2 WAE	7.0	8.7	8.7	9.0	9.0	9.0	9.0
Certainty	0.5	2 WAE	5.3	6.0	5.7	9.0	9.0	9.0	9.0
Certainty	1	2 WAE	4.3	2.3	2	8.3	9.0	9.0	9.0
Certainty	0.25	3 WAE	9.0	8.3	6.7	8.0	9.0	9.0	9.0
Certainty	0.5	3 WAE	9.0	6.7	4.3	5.0	9.0	9.0	9.0
Certainty	1	3 WAE	9.0	5.7	3.7	3.0	9.0	9.0	9.0
Certainty	0.25	4 WAE	9.0	9.0	7.3	9.0	9.0	9.0	9.0
Certainty	0.5	4 WAE	8.7	8.7	7.7	7.7	9.0	9.0	9.0
Certainty	1	4 WAE	8.7	9.0	5.3	4.3	9.0	9.0	9.0
Check			9.0	9.0	8.7	9.0	9.0	9.0	9.0

^a Phytotoxicity was rated on a scale of 0 to 9 where 0 = bare ground, 1 = completely dead turf and 7 = acceptable damage, and 9 = no phytotoxicity.

^b All treatments included MON 0818 at 0.25% v/v.

^c Weeks before seeding (WBS) and weeks after emergence (WAE) of creeping bentgrass.

Table 2. Percent cover^a of ‘Penncross’ creeping bentgrass seedlings after application of Certainty before or after seeding.

Treatment ^b	Rate of application	Application timing ^c	14 Sept	23 Sept	30 Sept	7 Oct	17 Oct	22 Oct	28 Oct
	lb a.i./A		-----%-----						
Certainty	0.25	3 WBS	58.3	70.0	78.3	90.0	94.3	96.0	98.0
Certainty	0.5	3 WBS	66.7	78.3	83.3	95.0	97.0	98.7	99.0
Certainty	1	3 WBS	28.7	40.7	46.7	56.7	63.3	80.3	84.3
Certainty	0.25	2 WBS	85.0	88.3	91.7	97.7	99.3	100.0	100.0
Certainty	0.5	2 WBS	60.0	68.3	80.0	88.3	92.0	96.3	97.7
Certainty	1	2 WBS	21.7	36.7	56.7	75.0	75.0	85.0	91.7
Certainty	0.25	1 WBS	11.7	25.0	55.0	66.7	75.0	83.3	90.7
Certainty	0.5	1 WBS	5.0	8.7	23.3	36.7	45.0	66.7	78.3
Certainty	1	1 WBS	2.3	4.0	11.7	28.3	26.7	43.3	53.3
Certainty	0.25	0 WBS	4.3	14.0	23.3	48.3	60.0	68.3	78.3
Certainty	0.5	0 WBS	5.0	13.3	21.7	40.0	53.3	65.0	75.0
Certainty	1	0 WBS	2.0	5.3	10.3	18.3	25.0	35.0	41.7
Certainty	0.25	1 WAE	0.3	1.0	2.7	8.7	18.7	28.3	33.3
Certainty	0.5	1 WAE	0.0	0.0	0.3	0.7	0.3	2.3	6.3
Certainty	1	1 WAE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Certainty	0.25	2 WAE	70.0	58.3	71.7	83.3	88.3	91.7	93.7
Certainty	0.5	2 WAE	38.3	28.3	28.3	35.0	38.3	50.0	58.3
Certainty	1	2 WAE	48.3	15.0	5.3	4.0	5.7	8.0	10.0
Certainty	0.25	3 WAE	94.7	88.3	83.3	89.7	93.3	94.7	96.7
Certainty	0.5	3 WAE	83.3	81.7	68.3	65.0	63.3	78.3	88.3
Certainty	1	3 WAE	90.0	88.3	71.7	31.7	22.3	33.3	41.7
Certainty	0.25	4 WAE	86.7	93.3	87.0	90.7	94.7	98.0	99.0
Certainty	0.5	4 WAE	73.0	79.7	74.0	80.0	85.0	95.0	97.7
Certainty	1	4 WAE	84.0	91.3	80.0	73.3	61.7	73.7	82.7
Check			91.7	95.7	96.0	100.0	100.0	100.0	100.0

^a Percent of the plot area covered by bentgrass.

^b All treatments included MON 0818 at 0.25% v/v.

^c Weeks before seeding (WBS) and weeks after emergence (WAE) of creeping bentgrass.