

Prodiamine Tank-mix Study
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Background/Objective:

1. Determine efficacy of MANA-PRO 65WDG and various tank-mix partners on crabgrass.
2. Determine phytotoxicity potential of MANA-PRO and tank-mix partners on turf.

Site Information

Location:	William H. Daniel Research and Diagnostic Center
Soil Type:	Starks-Fincastle silt loam
Soil pH:	7.2
Soil Organic Matter (%):	
Turfgrass Species:	Kentucky bluegrass blend
Turf Condition:	Fair
Turf Management:	
Mowing Height cm (in):	6.4 (2.5)
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
Application Time:	9:00am
Air Temperature C⁰(F⁰):	10 (50)
Relative Humidity(%):	64
Wind Speed m s⁻¹ (mph):	4 (9)
Soil Temperature(7.6 cm depth) C⁰(F⁰):	10.6 (51)
Soil Moisture:	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

- None of the treatments caused any phytotoxicity on the Kentucky bluegrass during the study (Table 1).
- Though this was a very difficult test of crabgrass control, many of the treatments provided less than 5% cover of crabgrass by the end of the study (Table 2).
- The best performing treatments were Mana-Pro at 1.0 lb ai/A, Mana-Pro + Pendimethalin at 0.5+1.0 lb ai/A, Mana-Pro + Pendimethalin at 0.5+1.5 lb ai/A, and Mana-Pro + Pendimethalin at 0.5+2.0 lb ai/A.
- Inter Plus II increased crabgrass cover compared to the check, probably through thinning of the Kentucky bluegrass.

Table 1. Phytotoxicity^a on Kentucky bluegrass caused by tank-mixes of preemergence herbicides.

Treatment	Rate of application	26 April	30 April	7 May	14 May	20 May
	lb a.i./A					
Mana-Pro 65WDG	0.33	9	9	9	9	9
Mana-Pro 65WDG	0.5	9	9	9	9	9
Mana-Pro 65WDG	1.0	9	9	9	9	9
Pendimethalin 60WDG	1.0	9	9	9	9	9
Pendimethalin 60WDG	1.5	9	9	9	9	9
Pendimethalin 60WDG	2.0	9	9	9	9	9
Mana-Pro 65WDG	0.33	9	9	9	9	9
+ Pendimethalin 60WDG	1.0					
Mana-Pro 65WDG	0.33	9	9	9	9	9
+ Pendimethalin 60WDG	1.5					
Mana-Pro 65WDG	0.33	9	9	9	9	9
+ Pendimethalin 60WDG	2.0					
Mana-Pro 65WDG	0.5	9	9	9	9	9
+ Pendimethalin 60WDG	1.0					
Mana-Pro 65WDG	0.5	9	9	9	9	9
+ Pendimethalin 60WDG	1.5					
Mana-Pro 65WDG	0.5	9	9	9	9	9
+ Pendimethalin 60WDG	2.0					
Inter Plus II 7.8L	1.0	9	9	9	9	9
Inter Plus II 7.8L	2.0	9	9	9	9	9
Mana-Pro 65WDG	0.33	9	9	9	9	9
+ Inter Plus II 7.8L	1.0					
Mana-Pro 65WDG	0.33	9	9	9	9	9
+ Inter Plus II 7.8L	2.0					
Mana-Pro 65WDG	0.5	9	9	9	9	9
+ Inter Plus II 7.8L	1.0					
Mana-Pro 65WDG	0.5	9	9	9	9	9
+ Inter Plus II 7.8L	2.0					
Trifluralin 60WDG	1.0	9	9	9	9	9
Trifluralin	2.0	9	9	9	9	9
Mana-Pro 65WDG	0.33	9	9	9	9	9
+ Trifluralin	1.0					
Mana-Pro 65WDG	0.33	9	9	9	9	9
+ Trifluralin	2.0					
Mana-Pro 65WDG	0.5	9	9	9	9	9
+ Trifluralin	1.0					
Mana-Pro 65WDG	0.5	9	9	9	9	9
+ Trifluralin	2.0					
Check		9	9	9	9	9
LSD (0.05)		NS	NS	NS	NS	NS

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

Table 2. Percent crabgrass cover^a in a Kentucky bluegrass stand after application of tank-mixes of preemergence herbicides.

Treatment	Rate of application	23 June	6 Aug	26 Aug
	lb a.i./A	-----% -----		
Mana-Pro 65WDG	0.33	0.0	21.7	23.3
Mana-Pro 65WDG	0.5	0.0	6.3	11.0
Mana-Pro 65WDG	1.0	0.0	2.7	3.3
Pendimethalin 60WDG	1.0	1.0	20.0	18.3
Pendimethalin 60WDG	1.5	0.3	21.7	16.7
Pendimethalin 60WDG	2.0	0.0	15.0	15.0
Mana-Pro 65WDG	0.33	0.7	13.3	16.7
+ Pendimethalin 60WDG	1.0			
Mana-Pro 65WDG	0.33	0.0	11.7	10.0
+ Pendimethalin 60WDG	1.5			
Mana-Pro 65WDG	0.33	0.3	7.0	6.7
+ Pendimethalin 60WDG	2.0			
Mana-Pro 65WDG	0.5	0.0	4.0	3.0
+ Pendimethalin 60WDG	1.0			
Mana-Pro 65WDG	0.5	0.0	2.3	2.3
+ Pendimethalin 60WDG	1.5			
Mana-Pro 65WDG	0.5	0.0	3.0	3.0
+ Pendimethalin 60WDG	2.0			
Inter Plus II 7.8L	1.0	6.0	46.7	48.3
Inter Plus II 7.8L	2.0	6.7	45.0	40.0
Mana-Pro 65WDG	0.33	0.7	15.0	10.0
+ Inter Plus II 7.8L	1.0			
Mana-Pro 65WDG	0.33	2.3	36.7	26.7
+ Inter Plus II 7.8L	2.0			
Mana-Pro 65WDG	0.5	0.3	13.3	10.0
+ Inter Plus II 7.8L	1.0			
Mana-Pro 65WDG	0.5	0.3	15.0	13.3
+ Inter Plus II 7.8L	2.0			
Trifluralin 60WDG	1.0	3.7	35.0	30.0
Trifluralin	2.0	1.3	23.3	21.7
Mana-Pro 65WDG	0.33	0.0	10.0	10.0
+ Trifluralin	1.0			
Mana-Pro 65WDG	0.33	0.0	10.0	6.7
+ Trifluralin	2.0			
Mana-Pro 65WDG	0.5	0.0	4.3	6.0
+ Trifluralin	1.0			
Mana-Pro 65WDG	0.5	0.0	10.0	6.7
+ Trifluralin	2.0			
Check		6.7	33.3	26.7
LSD (0.05)		2.1	13.5	15.1

^a Percent of the plot area covered by crabgrass.