



Evaluation of Selected Seed Applied Fungicides for the Management of Black Root Rot of Cotton

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Summary:

Cotton seedling diseases can cause significant stand reductions, to the point of requiring replanting. The fungal pathogen *Thielaviopsis basicola* is a common disease causing organism in South Plains cotton and peanut fields. Black root rot of cotton is one of the diseases caused by this pathogen. Seedling disease losses can be a costly issue for cotton producers and may require replanting when stand loss is significant. This test was a small plot evaluation of currently available and experimental seed applied fungicides for the management of black root rot in cotton. Differences among treatments (plants per foot of row) were noted at 14 days after planting (Table 1); however at 28 days after planting there were no significant differences in the number plants per foot of row. The treatments which included Nuflow M had significantly less root necrosis than did the experimental treatments without Nuflow M (Table 1).

Objective:

The objective of this applied research was to evaluate seed treatment options for the management of black root rot of cotton seedlings caused by the fungal pathogen *Thielaviopsis basicola*.

Materials and Methods:

Plots were planted May 6, 2011 in a commercial cotton production field. Plots were four rows by 35 feet in length, on 40 inch centers. The seeding rate was four seed per foot of row utilizing a cone type research planter. The experimental design was a randomized complete block design. All treatments were applied to Phytogen 367WRF cotton seed from the same lot number to insure seed quality across all treatments. This field has an Amarillo loamy fine sand soil type; irrigation was provided by a center pivot using a low elevation spray application.

Stand counts were conducted 14 and 28 days after planting; roots were examined for necrosis and hypocotyl damage at approximately 25 days after planting. The plots were treated for thrips utilizing foliar applications of acephate in order to reduce potential impacts on yield due to thrips. Plots were harvested with a two row stripper and weight to determine yield.

Results and Discussion:

Stand counts made at 14 days after planting showed significant differences with treatments 5,7 and 8 being higher than treatments 1, 2 and 6 (Table 1.). These higher treatments all included the Nuflow M fungicide treatment. Root health was evaluated by comparing the percentage of necrosis in roots. The

untreated control was not significantly different from treatments 2 and 3. Treatment 6, which was a high rate of Nuflow M, had the least amount of root necrosis. The experimental fungicide was not a key component to black root rot control in this test. The fungicide Nuflow M was associated with a reduction in black root rot of cotton at this location.

Table 1. Effect of seed treatments on black root rot in cotton near Plains, TX.

Trt	Chemical	Plants/ft. of row at		% Root Necrosis
		14 DAP	28 DAP	
1	None	1.56 c	1.52	73.8 a
2	Exp.	1.64 c	1.36	62.3 ab
3	Exp.	1.97 ab	1.79	61.3 ab
4	Exp. + Nuflow M (73)	1.90 ab	1.98	32.8 de
5	Exp. + Nuflow M (73)	1.98 a	1.73	43.0 cd
6	Nuflow M (260)	1.73 c	1.79	17.5 e
7	Dynasty+Maxim+Apron	2.03 a	1.66	57.0 bc
8	Dynasty+Maxim+Apron+Nuflow M (73)	2.08 a	1.96	36.2 d
LSD (0.05)		0.25	NS	15.5

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