

XIV. EVALUATION OF SEED TREATMENTS FOR CONTROL OF EARLY SEASON DISEASES OF PEANUT (TAREC Research farm)

A. PURPOSE: To compare the efficacy of seed and in-furrow treatments.

B. EXPERIMENTAL DESIGN:

1. Split-plot design with four randomized complete blocks separated by 15-ft alleyways
2. Two, 30-ft rows per plot with 36-in. row spacing
3. Seeding rate of three seed/ft of row

C. APPLICATION OF TREATMENTS: Treatments were applied to seed with a Gustafson lab treater. Liquid treatment was 12 fl oz/cwt in water. In-furrow treatments were applied in a volume of 5 gal/A in water by a microtube to the seed furrow.

D. TREATMENT AND RATE (Main plots): S=seed treatment; F=in-furrow treatment

1. Untreated check
2. Dynasty PD 5.6DS 4 oz/cwt (S)
3. Dynasty PD 4 oz/cwt (S)+ Abound 2.08SC 3 fl oz/A (F)
4. Dynasty PD 4 oz/cwt (S) + Abound 2.08SC 6 fl oz/A (F)
5. Vitavax PC 4 oz/cwt (S)
6. Vitavax PC 4 oz/cwt (S) + Abound 2.08SC 6 fl oz/A (F)

E. SEED TYPE (Sub plots): Normal and speckled seed of Gregory. *Cylindrocladium parasiticum* was found in 58% of speckled seed and 0% of normal seed in April 2005

1. Normal seed
2. Speckled seed

F. ADDITIONAL INFORMATION:

1. Location: TAREC Research Farm, Hare Rd., Suffolk
2. Crop history: Corn 2004; Peanut 2003, Corn 2002
3. Planting date and cultivar: 2 May 2005, Gregory
4. Soil fertility report:

pH.....	6.9	K	28 ppm
Ca	301 ppm	Zn.....	0.4 ppm
Mg.....	67 ppm	Mn.....	2.3 ppm
P	29 ppm	Soil type.....	Kenansville loamy sand
5. Herbicide:
 - Pre-plant - Prowl 1 pt/A (31 Mar)
 - Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (19 Apr)
 - Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (13 May)
6. Soil fumigation: Sectagon 42% 7.5 gal/A (18 Apr)
7. Insecticide: Orthene 97S 6 oz/A (1 Jun, 14 Jun)
 - Lorsban 15G 13 lb/A (27 Jun)
8. Acaricide: Danitol 6 fl oz/A (11 Aug, 22 Aug)
9. Leaf spot control: Bravo WS 1.5 pt (18 Jul, 2 Aug, 22 Sep), Headline 9 fl oz/A (22 Aug)
10. Additional crop management:
 - a. Liquid boron 1 qt/A (31 Mar)
 - b. Landplaster: Peanut Maker 1500 lb/A (23 Jun)
 - c. Liquid Mn 1 qt/A (18 Jul, 2 Aug)
 - d. Irrigation: ca. 1 in. (24 Jun, 1 Sep, 6 Sep)
 - e. Cultivation: 27 Jun
11. Harvest date: 5 Oct 2005

Table 45. Effect of seed type, seed treatment and in-furrow fungicide on emergence and seedling disease.

Treatment and rate ¹	Plants/ft ²				Diseased seedlings ³ (Jun 13)	
	May 16		May 31		Normal	Speckled
Untreated check	0.004 bc	0.011	2.06 ab	1.35 d	5.8 a	43.8 a
Dynasty PD 5.6DS 4 oz/cwt (S) ..	0.004 bc	0.004	2.14 a	1.90 bc	0.0 b	2.0 c
Dynasty PD 4 oz/cwt + Abound 2.08SC 3 fl oz/A (F) ..	0.000 c	0.011	2.24 a	2.16 a	0.5 b	1.5 c
Dynasty PD 4 oz/cwt (S) + Abound 2.08SC 6 fl oz/A (F) ..	0.021 a	0.011	2.12 a	2.17 a	0.8 b	0.5 c
Vitavax PC 4 oz/cwt (S)	0.014 ab	0.014	1.84 b	1.83 c	1.0 b	16.8 b
Vitavax PC 4 oz/cwt (S) + Abound 2.08SC 6 fl oz/A (F) ..	0.021 a	0.004	1.84 b	2.07 ab	0.8 b	3.3 c
LSD	0.01	n.s.	0.23	0.21	2.9	8.4
<i>Treatment mean</i>						
Untreated check		0.007		1.71		24.8
Dynasty PD 5.6DS 4 oz/cwt (S) ..		0.004		2.02		1.0
Dynasty PD 4 oz/cwt + Abound 2.08SC 3 fl oz/A (F) ...		0.005		2.20		1.0
Dynasty PD 4 oz/cwt (S) + Abound 2.08SC 6 fl oz/A (F) ...		0.016		2.15		0.6
Vitavax PC 4 oz/cwt (S)		0.014		1.83		8.9
Vitavax PC 4 oz/cwt (S) + Abound 2.08SC 6 fl oz/A (F) ...		0.013		1.95		2.0
LSD		n.s.		--		--
<i>Seed-type mean</i>						
Normal seed		0.011		2.04		1.5
Speckled seed		0.009		1.91		11.3
LSD		n.s.		--		--
<i>Split-plot analysis</i>						
Treatment0894		.0001		.0001
Seed type6367		.0064		.0001
Treatment x seed type2712		.0001		.0001

¹ S=seed treatment, F=in furrow.

² Determined from counts of two, 30-ft rows per plot. Note: no plants had emerged on 10 May (7 DAP).

³ Total number of dead and dying seedlings per plot. Note: a random sample of 12 dying seedlings was assayed for *Cylindrocladium parasiticum* on Jun 13 and all seedlings tested positive for the fungus.

Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05) "n.s." =not significant; "--" denotes LSD not valid because of significant treatment by seed type interaction.

Table 46. Effect of seed type, seed treatment and in-furrow fungicide on incidence of *Cylindrocladium* black rot.

Treatment and rate*	CBR**			
	Aug 29		Sep 26	
	Normal seed	Speckled seed	Normal seed	Speckled seed
Untreated check	3.5	0.8 b	14.5	10.0
Dynasty PD 5.6DS 4 oz/cwt (S) .	1.8	4.0 ab	14.5	21.8
Dynasty PD 4 oz/cwt + Abound 2.08SC 3 fl oz/A (F) ..	4.3	3.0 ab	18.5	29.3
Dynasty PD 4 oz/cwt (S) + Abound 2.08SC 6 fl oz/A (F) ..	3.3	6.0 a	18.3	32.8
Vitavax PC 4 oz/cwt (S)	3.3	5.0 a	11.0	24.0
Vitavax PC 4 oz/cwt (S) + Abound 2.08SC 6 fl oz/A (F) ..	3.0	6.5 a	11.0	24.3
LSD	n.s.	3.6	n.s.	n.s.
<i>Treatment mean</i>				
Untreated check		2.1		12.3
Dynasty PD 5.6DS 4 oz/cwt (S) ..		2.9		18.1
Dynasty PD 4 oz/cwt + Abound 2.08SC 3 fl oz/A (F) ...		3.6		23.9
Dynasty PD 4 oz/cwt (S) + Abound 2.08SC 6 fl oz/A (F) ...		4.6		25.5
Vitavax PC 4 oz/cwt (S)		4.1		17.5
Vitavax PC 4 oz/cwt (S) + Abound 2.08SC 6 fl oz/A (F) ...		4.8		17.6
LSD		--		n.s.
<i>Seed-type mean</i>				
Normal seed.....		3.2		14.6 b
Speckled seed		4.2		23.7 a
LSD		--		4.4
<i>Split-plot analysis</i>				
Treatment.....		.5877		.2318
Seed type0745		.0004
Treatment x seed type.....		.0255		.1367

* S=seed treatment, F=in furrow.

** Number of symptomatic plants per plot.

Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05). "n.s." =not significant; "--" denotes LSD not valid because of significant treatment by seed type interaction.

Table 47. Effect of seed type and seed treatment on percent of taproots infected with *Cylindrocladium parasiticum* and *Rhizoctonia solani*.

Treatment and rate*	Biopsy test (% +)**			
	<i>C. parasiticum</i>		<i>R. solani</i>	
	Normal	Speckled	Normal	Speckled
Dynasty PD 5.6DS 4 oz/cwt (S)	24.0	33.0	13.0	6.0
Vitavax PC 4 oz/cwt (S)	20.0	56.0	8.0	2.0
LSD	n.s.	n.s.	n.s.	n.s.
<i>Treatment mean</i>				
Dynasty PD 5.6DS 4 oz/cwt (S).....		28.5		9.5
Vitavax PC 4 oz/cwt (S).....		38.0		5.0
LSD.....		n.s.		n.s.
<i>Seed-type mean</i>				
Normal seed.....		22.0 b		10.5 a
Speckled seed		44.0 a		4.0 b
LSD.....		17.1		5.6
<i>Split-plot analysis</i>				
Treatment.....		.4298		.0780
Seed type0182		.0297
Treatment x seed type.....		.1018		.8345

* S=seed treatment.

** Data are percent recovery of each fungus from 25 taproots selected at random from each plot. Taproots were assayed with a selective medium on 28 Sep.

Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD test. (P=0.05) "n.s." =not significant.

Table 48. Effect of seed type, seed treatment and in-furrow fungicide on yield of peanuts.

Treatment and rate*	Yield** (lb/A)	
	Normal	Speckled
Untreated check	2853	1770 c
Dynasty PD 5.6DS 4 oz/cwt (S)	2531	2194 ab
Dynasty PD 4 oz/cwt + Abound 2.08SC 3 fl oz/A (F)	2370	2399 a
Dynasty PD 4 oz/cwt (S) + Abound 2.08SC 6 fl oz/A (F)	2326	2063 a-c
Vitavax PC 4 oz/cwt (S)	2531	1887 bc
Vitavax PC 4 oz/cwt (S) + Abound 2.08SC 6 fl oz/A (F)	2633	2355 a
LSD	n.s.	377
<i>Treatment mean</i>		
Untreated check		2311
Dynasty PD 5.6DS 4 oz/cwt (S).....		2363
Dynasty PD 4 oz/cwt + Abound 2.08SC 3 fl oz/A (F).....		2385
Dynasty PD 4 oz/cwt (S) + Abound 2.08SC 6 fl oz/A (F).....		2194
Vitavax PC 4 oz/cwt (S).....		2209
Vitavax PC 4 oz/cwt (S) + Abound 2.08SC 6 fl oz/A (F).....		2494
LSD		n.s.
<i>Seed-type mean</i>		
Normal seed.....		2541 a
Speckled seed		2111 b
LSD		218
<i>Split-plot analysis</i>		
Treatment.....		.5721
Seed type0006
Treatment x seed type.....		.0883

* S=seed treatment, F=in furrow

**Yields are weight of peanuts with 7% moisture. Peanuts were dug on 28 Sep and harvested on 5 Oct.

Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05). "n.s." =not significant.