

XV. EVALUATION OF SEED TREATMENTS FOR CONTROL OF EARLY-SEASON DISEASES OF PEANUT (Duke farm)

- A. PURPOSE: To compare the efficacy of experimental fungicides to reference standard seed treatments for control of early season diseases of peanut.
- 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: Dust treatments were applied to seed with a Gustafson lab treater. Seed were planted 2 in. deep and spaced 4 in. apart with a KMC planter.
- D. TREATMENT AND RATE (Main plots): S=seed treatment
1. Untreated check
 2. Vitavax PC 4 oz/cwt (S)
 3. L1292-A 4 oz/cwt (S)
 4. L1294 4 oz/cwt (S)
 5. L1492-A 4 oz/cwt (S)
 6. L1493-A 4 oz/cwt (S)
 7. L1494-A 4 oz/cwt (S)
 8. Dynasty PD 4 oz/cwt (S)
- E. SEED TYPE (Sub plots): normal and speckled seed of Gregory
1. Normal seed
 2. Speckled seed (infested with *Cylindrocladium parasiticum*)
- F. ADDITIONAL INFORMATION:
1. Location: Duke Farm, Longstreet Lane, Suffolk
 2. Crop history: corn 2004; peanut 2003, corn 2002
 3. Planting date and cultivar: 28 April, Gregory
 4. Soil fertility report:

pH.....	6.3
Ca	436 ppm
Mg	61 ppm
P	28 ppm
K.....	87 ppm
Zn	0.8 ppm
Mn	3.1 ppm
Soil type	Suffolk loamy sand
 5. Herbicide:

Pre-plant - Prowl 1 pt/A (31 Mar)
Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (7 Apr)
Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (13 May)
 6. Cylindrocladium black rot control: Sectagon 7.5 gal/A (5 Apr)
 7. Insecticide: Temik 15G 7 lb/A in furrow (28 Apr)

Orthene 97S 6 oz/A (27 May)
Lorsban 15G 13 lb/A (28 Jun)

8. Acaricide: Danitol 6 fl oz/A (22 Aug)
9. Leaf spot control: Bravo WS 1.5 pt (18 Jul, 2 Aug), Headline 9 fl oz/A (22 Aug)
10. Additional crop management:
 - a. Liquid boron 1 qt/A (31 Mar)
 - b. Liquid Mn 1 qt/A (20 Jun, 2 Aug)
 - c. Landplaster: Peanut Maker 1500 lb/A (23 Jun)
 - d. Cultivation: 28 Jun
11. Harvest date: 4 Oct 2005

Table 49. Percent recovery of *Cylindrocladium parasiticum* and *Rhizoctonia solani* in seed assays after application of seed treatment.

Seed type, treatment and rate/cwt seed*	<i>C. parasiticum</i> (% +)		<i>R. solani</i> (% +)	
	Normal seed	Speckled seed	Normal seed	Speckled seed
Untreated check	2	38	30	0
Vitavax PC 4 oz/cwt (S)	0	16	0	20
L1292-A 4 oz/cwt (S)	0	28	0	0
L1294 4 oz/cwt (S).....	0	0	0	6
L1492-A 4 oz/cwt (S)	0	18	2	6
L1493-A 4 oz/cwt (S)	0	2	2	0
L1494-A 4 oz/cwt (S)	0	8	0	2
Dynasty PD 4 oz/cwt (S).....	0	12	4	2

* Fifty seed from each treatment and type were assayed on a selective medium on 15 May 2005. Pre-treatment assay of seed resulted in 58% recovery of *C. parasiticum* in speckled seed (31 Mar) and 0% recovery in normal seed (11 Apr).

Table 50. Effect of seed type and treatment on emergence of peanuts.

Seed type, treatment and rate/cwt seed	Plants/ft* (May 26)		Diseased seedlings** (Jun 15)	
	Normal seed	Speckled seed	Normal seed	Speckled seed
Untreated check	0.7 c	0.7	13.5 a	30.0 ab
Vitavax PC 4 oz/cwt (S)	1.0 bc	1.0	6.0 b	34.8 ab
L1292-A 4 oz/cwt (S)	1.1 ab	1.0	2.3 b	23.0 b
L1294 4 oz/cwt (S).....	1.0 bc	1.0	2.8 b	2.3 c
L1492-A 4 oz/cwt (S)	1.1 ab	1.1	3.5 b	27.8 ab
L1493-A 4 oz/cwt (S)	1.1 ab	0.9	4.3 b	36.8 a
L1494-A 4 oz/cwt (S)	1.4 a	1.1	3.3 b	23.5 b
Dynasty PD 4 oz/cwt (S).....	0.9 bc	1.1	7.0 b	10.0 c
LSD	0.4	n.s.	4.9	11.8
Treatment mean				
Untreated check	0.8		21.7	
Vitavax PC 4 oz/cwt (S)	1.2		20.4	
L1292-A 4 oz/cwt (S)	1.2		12.6	
L1294 4 oz/cwt (S).....	1.1		2.5	
L1492-A 4 oz/cwt (S)	1.3		15.6	
L1493-A 4 oz/cwt (S)	1.2		20.5	
L1494-A 4 oz/cwt (S)	1.4		13.4	
Dynasty PD 4 oz/cwt (S).....	1.1		8.5	
LSD	n.s.		--	
Seed-type mean				
Normal seed	1.2		5.3	
Speckled seed.....	1.1		23.5	
LSD	n.s.		--	
Split-plot analysis				
Treatment .....	.1835		.0001	
Seed type.....	.3807		.0001	
Treatment by seed type .....	.6981		.0001	

* Determined from counts of two, 30-ft rows per plot. Note: no stand count was recorded at 14 DAP because seedlings had not emerged.

** Total number of dead and dying seedlings per plot.

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; "--" denotes LSD not valid because of significant treatment by seed type interaction.

Table 51. Effect of selected treatments on incidence of *Cylindrocladium parasiticum*, *Rhizoctonia solani* and *Sclerotium rolfsii* in taproots of peanuts.

Seed type, treatment and rate/cwt seed	Biopsy test (% +)*					
	<i>C. parasiticum</i>		<i>R. solani</i>		<i>S. rolfsii</i>	
	Normal seed	Speckled seed	Normal seed	Speckled seed	Normal seed	Speckled seed
Vitavax PC 4 oz/cwt (S)....	12.0	68.0	9.0	0.0	1.0	6.0
Dynasty PD 4 oz/cwt (S)...	2.0	47.0	3.0	0.0	1.0	19.0
LSD	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
<i>Treatment mean</i>						
Vitavax PC 4 oz/cwt (S)....	40.0		4.5		3.5	
Dynasty PD 4 oz/cwt (S)...	24.5		1.5		10.0	
LSD	n.s.		n.s.		n.s.	
<i>Seed-type mean</i>						
Normal seed.....	7.0 b		6.0 a		1.0	
Speckled seed	57.5 a		0.0 b		12.5	
LSD	14.0		5.9		n.s.	
<i>Split-plot analysis</i>						
Treatment.....	.1134		.4058		.5808	
Seed type .....	.0001		.0475		.2276	
Treatment by seed type.....	.3748		.2605		.4763	

* 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 (P=0.05). "n.s." =not significant.

Table 52. Incidence of *Cylindrocladium* black rot and yield of peanuts.

Seed type, treatment and rate/cwt seed	CBR* (Sep 26)		Yield** (lb/A)	
	Normal	Speckled	Normal	Speckled
Untreated check	13.3	17.0	2667	1773 d
Vitavax PC 4 oz/cwt (S)	16.3	27.0	2726	1979 cd
L1292-A 4 oz/cwt (S)	8.8	20.5	2990	2594 ab
L1294 4 oz/cwt (S).....	13.8	14.8	2667	2653 a
L1492-A 4 oz/cwt (S)	21.3	28.5	2462	2023 b-d
L1493-A 4 oz/cwt (S)	14.5	28.5	2697	1993 cd
L1494-A 4 oz/cwt (S)	11.8	27.0	2492	2316 a-d
Dynasty PD 4 oz/cwt (S).....	6.5	22.3	3092	2389 a-c
LSD	n.s.	n.s.	n.s.	598
Treatment mean				
Untreated check	15.1		2220	
Vitavax PC 4 oz/cwt (S)	21.6		2352	
L1292-A 4 oz/cwt (S)	14.6		2792	
L1294 4 oz/cwt (S).....	14.3		2660	
L1492-A 4 oz/cwt (S)	24.9		2242	
L1493-A 4 oz/cwt (S)	21.5		2345	
L1494-A 4 oz/cwt (S)	19.4		2404	
Dynasty PD 4 oz/cwt (S).....	14.4		2741	
LSD	--		n.s.	
Seed-type mean				
Normal seed	13.3		2724 a	
Speckled seed.....	23.2		2215 b	
LSD	--		162	
Split-plot analysis				
Treatment .....	.6400		.3439	
Seed type.....	.0001		.0001	
Treatment by seed type .....	.0006		.1158	

* Number of symptomatic plants per plot.

** Yields are weight of peanuts with 7% moisture. Peanuts were dug on 28 Sep and harvested on 4 Oct 2005.

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.