Table 1. Comparison of rainfall, peanut heat units and cotton degree-days (DD_{60}) over the period from 1995 to 2004.

	Rainfall (in.)										
Month	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Normal*
May	4.92	4.00	2.54	2.78	1.04	5.52	4.19	3.98	7.14	4.77	3.82
Jun	5.20	4.50	0.69	2.80	2.72	6.09	8.78	1.66	4.10	5.10	4.27
Jul	2.95	9.12	10.74	5.07	5.39	4.33	3.04	5.53	4.98	12.53	5.91
Aug	3.03	4.73	1.24	5.29	9.33	7.13	4.07	2.22	3.50	11.00	5.77
Sep	2.96	7.98	1.99	5.97	23.47	4.17	1.64	2.96	11.81	5.15	4.48
Oct	4.78	5.10	2.89	3.03	7.76	0.03	1.00	4.89	4.40	4.52	3.43
Total	23.83	35.43	20.09	24.94	49.71	27.27	22.72	21.24	35.93	43.07	27.68

*Normal is the 72-yr mean of records maintained at the Tidewater AREC, Suffolk.

	Peanut Heat Units										
Month	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Avg.
May	339	340	279	373	347	425	351	365	313	508	364
Jun	524	569	510	581	503	583	589	627	537	544	557
Jul	731	624	636	680	722	592	605	731	667	647	664
Aug	665	545	575	630	652	564	689	681	660	548	621
Sep	374	422	416	507	399	396	403	488	446	429	428
Oct	272	189	202	203	187	210	240	242	184	168	210
Total	2905	2689	2618	2974	2810	2770	2877	3134	2807	2844	2843

	Cotton Degree Days (DD_{60})										
Month	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Avg.
May	257	246	195	274	254	318	255	271	216	395	268
Jun	419	459	319	442	359	466	472	513	421	426	430
Jul	537	502	462	544	546	451	484	615	543	523	521
Aug	462	423	435	509	479	442	568	564	536	427	485
Sep	286	320	309	398	295	311	304	373	334	320	325
Oct	200	118	139	136	123	144	172	162	116	100	141
Total	2162	2068	1858	2303	2056	2132	2255	2498	2166	2191	2169

Table 2. General crop production summary.

Crop	Statistics of record year for yield			2004 projection*	
	Year	Acreage	Yield/A	Acreage	Yield/A
Peanut.....	1991	96,000	3,200 lb	32,000	3,200 lb
Soybean.....	2000	480,000	38.5 bu	520,000	37 bu
Corn.....	2000	330,000	146 bu	340,000	147 bu
Cotton.....	1994	41,700	944 lb	81,000	889 lb
Wheat	1997	260,000	67 bu	180,000	55 bu

* Based on crop production estimates in November 2004 by the Virginia Agricultural Statistics Service at http://www.nass.usda.gov/va.

Table 3. Estimated loss in yield as a result of peanut diseases in 2003.

Disease	Causal organism	Percent loss
Early leaf spot	*Cercospora arachidicola*	3.0
Late leaf spot	*Cercosporidium personatum*	0.1
Pepper spot & leaf scorch	*Leptosphaerulina crassiasca*	Trace
Web blotch	*Phoma arachidicola*	1.0
Botrytis blight	*Botrytis* sp.	Trace
Peanut rust	*Puccinia arachidis*	ND
Sclerotinia blight	*Sclerotinia minor*	1.0
Sclerotinia blight	*Sclerotinia sclerotiorum*	ND
Southern stem rot	*Sclerotium rolfsii*	1.0
Stem, root, & pod rot	*Rhizoctonia* spp.	0.5
Botrytis blight	*Botrytis* sp.	Trace
Pythium pod rot	*Pythium* spp.	Trace
Tomato spotted wilt virus	*Tospovirus*	1.0
Cylindrocladium black rot (CBR)	*Cylindrocladium parasiticum*	6.0
Nematode damage	Root knot, sting, ring, etc.	3.0
Total		16.6**

* Not detected.

** The value of loss estimate equals 4.9 million dollars in farm income based on an estimated total production of 51,200 tons and a mean value of $480 per ton in Virginia.

Table 4. Estimated loss in yield as a result of soybean diseases in 2003.

Disease	Causal agent(s)	Percent loss
Seedling diseases	---various---	0.5
Downy mildew	*Peronospora manshurica*	Trace
Frogeye leaf spot	*Cercospora sojina*	2.0
Phytophthora root & stem rot	*Phytophthora megasperma* f. sp. *glycinea*	0
Anthracnose	*Colletotrichum truncatum*	1.0
Pod & stem blight	*Diaporthe phaseolorum* var. *sojae*	0.5
Stem canker	*Diaporthe phaseolorum* var. *caulivora*	ND*
Sclerotinia stem rot	*Sclerotinia sclerotiorum* and *S. minor*	Trace
Southern blight	*Sclerotium rolfsii*	0.2
Root & lower stem rot	*Rhizoctonia* spp.	0.2
Purple seed stain	*Cercospora kikuchii*	0.1
Brown spot	*Septoria glycines*	0.1
Red crown rot	*Cylindrocladium parasiticum*	0.5
Brown stem rot	*Phialophora gregata*	0.1
Charcoal rot	*Macrophomina phaseolina*	0.1
Viruses	SMV, PMV, BPMV, etc.	Trace
Bacterial pustule	*Xanthomonas phaseoli*	Trace
Bacterial blight	*Pseudomonas glycinea*	Trace
Soybean cyst nematode	*Heterodera glycines*	2.5
Other nematodes (root knot, lance, etc.)	various	1.0
Total loss (%)		8.7**

* Not detected.

** The value of loss estimate equals 11 million dollars in farm income based on a total production of 19.24 million bushels at an estimated value of $6.00 per bushel.

I. FUNGICIDES FOR DISEASE MANAGEMENT IN WHEAT (TAREC Res. Farm, Hare Rd.)

A. PURPOSE: To compare the efficacy of fungicides and timing of foliar applications for disease management

B. EXPERIMENTAL DESIGN:
1. Four randomized complete blocks
2. Twenty, 30-ft rows/plot
3. Fifteen-ft alleyways between plots
4. Yield and disease ratings determined from the center, 8 rows of each plot

C. APPLICATION OF TREATMENTS: Treatments were applied at specific growth stages (GS 32 = 26 Mar; GS 45 = 22 Apr, GS 50 = 26 Apr) in a foliar spray with 8004VS nozzles spaced 18 in. apart delivering 25 gal/A of spray volume. Applications at GS 32 were tank-mixed with liquid nitrogen during spring fertilization of all plots.

D. TREATMENT AND RATE/A:
1. Tilt 3.6EC 4 fl oz (GS 32)
2. Quilt 10.5 fl oz (GS 32)
3. Stratego 10 fl oz (GS 32)
4. Headline 250EC 6 fl oz (GS 32)
5. Tilt 3.6EC 2 fl oz (GS 32); Quadris 6 fl oz + Coverall 2.4 fl oz (GS 45)
6. Stratego 250EC 5 fl oz (GS 32, GS 50)
7. Stratego 250EC 5 fl oz (GS 32); Topsin 70W 1 lb (GS 50)
8. Headline 250EC 3 fl oz (GS 32, GS 50)
9. Headline 250EC 3 fl oz (GS 32); Topsin 70W 1 lb (GS 50)
10. Quadris 2.08SC 6 fl oz + Coverall 2.4 fl oz (GS 45)
11. Quilt 10.5 fl oz (GS 45)
12. Stratego 10 fl oz (GS 45)
13. Headline 250EC 6 fl oz + Coverall 2.4 fl oz (GS 45)
14. Untreated check

E. ADDITIONAL INFORMATION:
1. Location: TAREC Research farm, Hare Road, Suffolk
2. Crop history: peanut 2003; wheat/soybean 2002, peanut 2001
3. Land preparation: disk and field cultivate
4. Planting date and cultivar: 5 November 2003, USG 3209
5. Soil fertility report: (Dec 2003)

pH.....	6.9 (5.5 in Oct 2003 prior to liming)
Ca	313 ppm
Mg	77 ppm
P	35 ppm
K.....	64 ppm
Zn	1.4ppm
Mn	2.0 ppm
Soil type	Kenansville loamy sand

6. Fertilizer: 8-16-32 400 lb/A (4 Nov 2003)
   Lime 2000 lb/A (4 Nov 2003)
   Liquid nitrogen (32%) 60 lb/A (23 Feb); 40 lb/A (26 Mar)
7. Herbicide: Harmony Extra 0.66 oz/A (23 Feb)
8. Insecticide: Warrior T 2 fl oz/A (27 Feb)
9. Harvest date: 15 Jun 2004

Table 5. Effect of fungicide treatments on severity of foliar and glume disease in wheat.

Treatment, rate/A and application timing*	% leaf blotch/tan spot** All leaves (Apr 22)	Lower leaves (May 16)	Upper leaves (May 16)	% glume blotch (May 16)
Tilt 3.6EC 4 fl oz (GS 32)	2.8 cd	35.0 a	11.3 a	2.0 a
Quilt 10.5 fl oz (GS 32)	2.8 cd	17.5 cd	6.5 bc	0.5 a
Stratego 10 fl oz (GS 32)	1.8 d	31.3 a	9.0 ab	1.3 a
Headline 250EC 6 fl oz (GS 32)	2.3 cd	23.3 bc	6.3 bc	1.0 a
Tilt 3.6EC 2 fl oz (GS 32) Quadris 6 fl oz + Coverall 2.4 fl oz (GS 45)	3.3 c	28.8 ab	11.0 a	1.0 a
Stratego 250EC 5 fl oz (GS 32, GS 50)	2.8 cd	29.5 ab	7.0 b	0.5 a
Stratego 250EC 5 fl oz (GS 32) Topsin 70W 1 lb (GS 50)	2.5 cd	32.5 a	12.0 a	1.0 a
Headline 250EC 3 fl oz (GS 32, GS 50)	2.8 cd	5.5 e	0.6 d	0.0 a
Headline 250EC 3 fl oz (GS 32) Topsin 70W 1 lb (GS 50)	2.5 cd	12.0 de	3.5 cd	0.3 a
Quadris 2.08SC 6 fl oz + Coverall 2.4 fl oz (GS 45)	6.0 ab	35.0 a	11.8 a	1.8 a
Quilt 10.5 fl oz (GS 45)	6.3 a	17.8 cd	1.8 d	0.3 a
Stratego 10 fl oz (GS 45)	6.0 ab	13.3 de	2.0 d	1.0 a
Headline 250EC 6 fl oz + Coverall 2.4 fl oz (GS 45)	5.0 b	8.8 e	1.3 d	0.3 a
Untreated check	7.0 a	30.0 ab	12.0 a	1.6 a

* Treatments were tank-mixed with 32% nitrogen solution (N=40 lb/A) at GS 32. All other treatments received the same rate of nitrogen solution at GS 32. GS 32 = 26 Mar; GS 45 = 22 Apr, GS 50 = 26 Apr.

** Data represent percent of leaf area with disease symptoms. Leaf blotch = *Stagonospora nodorum*; Tan spot = *Pyrenophora tritici-repentis*.
Means followed by the same letter(s) are not significantly different at P=0.05 according Waller-Duncan k-ratio t test. Arcsine transformation of percentage data was made in analysis to determine statistical significance.

Table 6. Incidence of powdery mildew in wheat.

Treatment, rate/A and application schedule*	% mildew** All leaves (Apr 22)		Upper leaves (May 16)	
Tilt 3.6EC 4 fl oz (GS 32)	0.3	ef	2.3	a-d
Quilt 10.5 fl oz (GS 32)	1.0	c-f	1.8	b-e
Stratego 10 fl oz (GS 32)	0.8	d-f	1.5	c-e
Headline 250EC 6 fl oz (GS 32)	0.6	c-f	4.0	a
Tilt 3.6EC 2 fl oz (GS 32) Quadris 6 fl oz + Coverall 2.4 fl oz (GS 45)	1.3	c-f	2.3	a-d
Stratego 250EC 5 fl oz (GS 32, GS 50)	0.0	f	1.0	de
Stratego 250EC 5 fl oz (GS 32) Topsin 70W 1 lb (GS 50)	0.5	d-f	1.3	c-e
Headline 250EC 3 fl oz (GS 32, GS 50)	2.0	bc	1.0	de
Headline 250EC 3 fl oz (GS 32) Topsin 70W 1 lb (GS 50)	1.5	c-e	1.0	de
Quadris 2.08SC 6 fl oz + Coverall 2.4 fl oz (GS 45)	3.0	ab	3.3	a-c
Quilt 10.5 fl oz (GS 45)	1.3	c-f	0.6	de
Stratego 10 fl oz (GS 45)	1.8	b-d	0.0	e
Headline 250EC 6 fl oz + Coverall 2.4 fl oz (GS 45)	1.3	c-f	1.0	de
Untreated check	3.5	a	3.8	ab

* Treatments were tank-mixed with 32% nitrogen solution (N=40 lb/A) at GS 32. All other treatments received the same rate of nitrogen solution at GS 32. GS 32 = 26 Mar; GS 45 = 22 Apr, GS 50 = 26 Apr.

** Data represent percent of leaf area with disease symptoms.
Means followed by the same letter(s) are not significantly different at P=0.05 according to Waller-Duncan k-ratio t test.
Arcsine transformation of percentage data was made in analysis to determine statistical significance.

Table 7. Effect of fungicide treatments on yield and test weight of wheat.

Treatment, rate/A and application schedule*	Yield** (bu/A)	Test weight (lb/bu)
Tilt 3.6EC 4 fl oz (GS 32)	70.9 ab	52.2 a
Quilt 10.5 fl oz (GS 32)	77.1 ab	52.3 a
Stratego 10 fl oz (GS 32)	71.1 ab	52.1 a
Headline 250EC 6 fl oz (GS 32)	76.6 ab	52.3 a
Tilt 3.6EC 2 fl oz (GS 32) Quadris 6 fl oz + Coverall 2.4 fl oz (GS 45)	73.0 ab	52.5 a
Stratego 250EC 5 fl oz (GS 32, GS 50)	73.7 ab	52.0 a
Stratego 250EC 5 fl oz (GS 32) Topsin 70W 1 lb (GS 50)	70.1 ab	51.9 a
Headline 250EC 3 fl oz (GS 32, GS 50)	76.8 ab	54.2 a
Headline 250EC 3 fl oz (GS 32) Topsin 70W 1 lb (GS 50)	79.6 a	52.7 a
Quadris 2.08SC 6 fl oz + Coverall 2.4 fl oz (GS 45)	70.4 ab	53.0 a
Quilt 10.5 fl oz (GS 45)	73.1 ab	53.5 a
Stratego 10 fl oz (GS 45)	69.9 ab	54.1 a
Headline 250EC 6 fl oz + Coverall 2.4 fl oz (GS 45)	73.3 ab	53.6 a
Untreated check	68.7 b	52.9 a

* Treatments were tank-mixed with 32% nitrogen solution (N=40 lb/A) at GS 32. All other treatments received the same rate of nitrogen solution at GS 32. GS 32 = 26 Mar; GS 45 = 22 Apr, GS 50 = 26 Apr.

** Yields are weight of wheat with 13.5% moisture. One bushel equals 60 lbs. Wheat was harvested on 15 Jun 2004. Means followed by the same letter(s) are not significantly different at P=0.05 according to Waller-Duncan k-ratio t test.

II. THE EFFECT OF PLANTING DATE, WEATHER CONDITIONS AND IN-FURROW FUNGICIDE ON EMERGENCE AND GROWTH OF COTTON (TAREC, Holland Road)

A. PURPOSE: To determine the effect of planting date on seedling disease and the response of cotton to in-furrow fungicide in Virginia

B. EXPERIMENTAL DESIGN:
1. Split-plot design with planting date in main plots and in-furrow fungicide in subplots
2. Subplots of two, 30-ft rows
3. Fifteen-ft alleyways between blocks
4. Seven replications in randomized complete block design

C. VARIETY, GERMINATION RATE AND PLANTING DATE (MAINPLOTS): DP449BGRR Lot 2B4-A-3005-21A; warm germ 91%, cool germ 79%. Seed were planted at a rate of 3.5 seed/ft and 0.5 to 0.75 in. depth.
1. Apr 7
2. April 16
3. Apr 21
4. Apr 28
5. May 6
6. May 12
7. May 19

D. TREATMENT AND RATE/1000 ft of row
1. Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz/1000 ft of row
2. Untreated check

E. ADDITIONAL INFORMATION:
1. Location: Tidewater Research Center, 6321 Holland Rd., Suffolk
2. Crop history: peanut 2003; corn 2002, peanut 2001
3. Land preparation: Strip-tillage in wheat cover crop
4. Soil fertility report (Dec 2003):

pH.....	6.0
Ca	508 ppm
Mg	33 ppm
P	31 ppm
K.....	87 ppm
Zn	0.8 ppm
Mn	2.1 ppm
Soil type	Nansemond fine sandy loam

5. Herbicide: Prowl 1 pt + Cotoran 1 qt/A (16 Apr)
Roundup Ultra Max 22 fl oz/A (27 Apr, 13 May)
Cotton Pro 1 pt + Roundup Ultra Max 22 fl oz/A, direct/hooded spray (18 Jun)
6. Insecticide: Temik 15G 5 lb/A (at planting)
Orthene 97S 6 oz/A (13 May, 1 Jun)
Baythroid 4 fl oz/A (10 Aug)
7. Growth regulator: Pentia 4 fl oz/A (Plant dates 1, 2 & 3-14 Jun, 8 Jul; Plant dates 4 & 5- 24 Jun, 8 Jul; Plant dates 6 & 7-8 Jul)
8. Defoliant/Boll opener: Finish 1 qt + Prep 8 fl oz + Dropp 0.1 lb/A (8 Oct)
Aim 1 fl oz + Prep 22 fl oz/A (23 Oct)

9. Fertilization: 9-15-36 330 lb/A (24 Mar)
   Liquid N (32%) 30 lb/A (17 Jun, 1 Jul)
10. Harvest date: 8 Nov 2004

Table 8. Rainfall and soil temperature after planting cotton.

	Days after planting								
Planting date	0	1	2	3	4	5	6	7	
Rainfall (in.)									Total
Apr 7	0.00	0.00	0.00	0.03	0.33	0.38	0.99	0.43	2.16
Apr 16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09
Apr 21	0.00	0.00	0.09	0.00	0.00	0.69	0.05	0.00	0.83
Apr 28	0.00	0.00	0.00	0.14	0.86	0.39	0.00	0.99	2.38
May 6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
May 12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06	1.06
May 19	1.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.07
Soil temperature (F)									Mean
Apr 7	54.5	56.7	57.6	56.8	56.7	53.8	58.3	56.9	56.4
Apr 16	56.5	58.9	62.7	64.4	66.5	67.0	67.4	68.2	64.0
Apr 21	67.0	67.4	68.2	67.9	64.1	66.4	65.4	62.3	66.1
Apr 28	62.3	63.2	64.7	66.0	67.9	64.9	61.6	62.0	64.1
May 6	64.8	68.4	68.9	69.4	71.6	71.6	72.0	72.7	69.9
May 12	72.0	72.7	73.3	74.0	74.5	74.3	75.2	75.4	73.9
May 19	75.4	73.2	76.2	79.1	79.3	79.2	80.3	80.5	77.9

* Rainfall data from NOAA weather station at TAREC. Soil temperature was measured at 4-in. depth under managed turf at TAREC Research farm.

Table 9. Accumulated degree days (DD_{60}) and rainfall from planting through harvest (Nov 8).

Planting date	DD_{60}	Rainfall (in.)
Apr 7	2359	46.75
Apr 16	2340	44.59
Apr 21	2293	44.59
Apr 28	2231	43.81
May 6	2175	42.37
May 12	2127	41.38
May 19	2023	41.38

* Cotton degree day data from Peanut/Cotton InfoNet (www.ipm.vt.edu/InfoNet) weather station at TAREC Research farm; rainfall data from NOAA weather station at TAREC.

Table 10. Effect of planting date on emergence of cotton.

Plant date, Treatment and rate/1000 ft of row	Plants/ft* 2 wk AP	4 wk AP
Apr 7		
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz.....	1.91	1.99
Untreated check	1.83	1.90
April 16		
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz.....	2.37	2.48
Untreated check	2.25	2.44
Apr 21		
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz.....	2.56	2.67
Untreated check	2.60	2.70
Apr 28		
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz.....	2.42	2.38
Untreated check	2.30	2.28
May 6		
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz.....	2.24	2.25
Untreated check	2.11	2.07
May 12		
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz.....	2.38	2.36
Untreated check	2.40	2.41
May 19		
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz.....	2.47	2.41
Untreated check	2.62	2.54
Plant date mean		
Apr 7	1.87 d	1.94 e
Apr 16	2.31 bc	2.46 bc
Apr 21	2.58 a	2.68 a
Apr 28	2.36 b	2.33 c
May 6	2.18 c	2.16 d
May 12	2.39 b	2.39 bc
May 19	2.55 a	2.48 b
LSD.....	**0.15**	**0.15**
Treatment mean		
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz.....	2.34	2.36
Untreated check	2.30	2.33
Split plot analysis		
Plant date.....	.0001	.0001
Treatment	.4212	.4701
Plant date x treatment.....	.4861	.4272

* Determined from counts of two, 30-ft rows per plot (AP=after planting).
Means followed by the same letter(s) and within the same grouping are not significantly different (LSD, P=0.05).

Table 11. Effect of planting date on growth of cotton.

Plant date, treatment and rate/1000 ft of row	Plant height (in.)[1] Jun 4	Jun 21	Jul 6	Aug 5
Apr 7				
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	11.9	21.8	28.4	40.0
Untreated check	12.1	22.2	28.5	39.3
April 16				
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	12.4	22.5	28.2	39.7
Untreated check	12.5	22.5	29.0	40.1
Apr 21				
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	11.1	21.1	27.3	37.4
Untreated check	11.4	20.8	28.0	37.9
Apr 28				
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	9.3	22.0	31.5	41.7
Untreated check	9.3	22.2	31.9	42.6
May 6				
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	7.4	18.1	29.7	41.8
Untreated check	7.1	18.6	30.3	42.8
May 12				
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	5.5	15.3	29.6*	43.2*
Untreated check	5.7	15.5	28.5	41.3
May 19				
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	3.3	10.1*	23.7*	41.9
Untreated check	3.3	11.5	24.7	41.2
Plant date mean				
Apr 7	12.0 b	22.0 a	28.5 c	39.6 b
Apr 16	12.4 a	22.5 a	28.6 c	39.9 b
Apr 21	11.3 c	21.0 b	27.6 d	37.6 c
Apr 28	9.3 d	22.1 a	31.7 a	42.1 a
May 6	7.3 e	18.3 c	30.0 b	42.3 a
May 12	5.6 f	15.4 d	29.1 c	42.3 a
May 19	3.3 g	10.8 e	24.2 e	41.6 a
LSD	**0.32**	**0.58**	**0.67**	**0.94**
Treatment mean				
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	8.7 a	18.7 b	28.4 a	40.8 a
Untreated check	8.8 a	19.0 a	28.7 a	40.7 a
Split plot analysis				
Plant date	.0001	.0001	.0001	.0004
Treatment	.0649	.0384	.0605	.8328
Plant date x treatment	.9200	.1255	.0631	.0217

[1] Data are the mean of measurements from six plants per plot.
Means followed by the same letter(s) and within the same grouping are not significantly different. An asterisk (*) indicates significant difference from untreated check. (LSD, P=0.05).

Table 12. Effect of planting date on node counts of cotton.

Plant date, treatment and rate/1000 ft of row	Number of nodes[1] Jun 4	Jun 21	Jul 6	Aug 5
Apr 7				
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	9.4	11.9	13.7	17.4
Untreated check	9.2	11.9	14.0	17.1
April 16				
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	8.9	11.5	13.5	16.9
Untreated check	9.0	11.7	13.8	17.2
Apr 21				
Quadris 2.08F 0.6 fl oz				
+ Ridomil Gold 0.12 fl oz	8.5	10.8	12.8	15.9
Untreated check	8.7	10.9	13.3	15.6
Apr 28				
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	7.8	11.3	13.7	16.7
Untreated check	7.8	11.1	13.8	17.2
May 6				
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	6.0	10.4	13.1	16.5
Untreated check	6.3	10.7	13.0	16.8
May 12				
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	3.7	9.6*	12.2	15.5
Untreated check	3.7	9.0	12.5	14.9
May 19				
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	0.0	6.9	10.6	14.9
Untreated check	0.0	7.0	10.5	14.9
Plant date mean				
Apr 7	9.3 a	11.9 a	13.9 a	17.3 a
Apr 16	9.0 b	11.6 b	13.6 a	17.1 ab
Apr 21	8.6 c	10.8 d	13.1 b	15.8 c
Apr 28	7.8 d	11.2 c	13.7 a	16.9 ab
May 6	6.1 e	10.5 e	13.0 b	16.7 b
May 12	3.7 f	9.3 f	12.4 c	15.2 d
May 19	0.0 g	6.9 g	10.5 d	14.9 d
LSD	**0.26**	**0.32**	**0.35**	**0.54**
Treatment mean				
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	6.3 a	10.3 a	12.8 a	16.3 a
Untreated check	6.4 a	10.3 a	13.0 a	16.2 a
Split plot analysis				
Plant date	.0001	.0001	.0001	.0001
Treatment	.2937	.1606	.0526	.7534
Plant date x treatment	.5119	.1302	.6544	.3451

[1] Determined from six plants per plot (4Jun, 21 Jun, 6 Jul) and four plants per plot (5 Aug).
Means followed by the same letter(s) and within the same grouping are not significantly different. An asterisk (*) indicates significant difference from untreated check. (LSD, P=0.05).

Table 13. Effect of planting date on flower counts in cotton.

Plant date, Treatment and rate/1000 ft of row	Number of flowers[1]				
	Jun 24	Jul 2	Jul 9	Jul 16	Jul 28
Apr 7					
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	6.0	77.3	245.4	196.4	113.9
Untreated check	9.3	77.3	232.9	187.6	113.1
April 16					
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	0.6*	78.9	239.4	205.4	126.7
Untreated check	2.4	81.6	232.1	213.3	128.6
Apr 21					
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	0.0	49.0	214.4	210.4	124.1
Untreated check	0.0	68.7	233.4	214.7	117.0
Apr 28					
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	0.0	3.3*	133.7	179.3	128.7
Untreated check	0.0	8.6	134.1	167.3	121.6
May 6					
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	0.0	0.0	20.1	77.0	99.0
Untreated check	0.0	0.0	23.1	96.4	110.3
May 12					
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	0.0	0.0	0.0	32.0	82.7
Untreated check	0.0	0.0	0.0	30.9	88.7
May 19					
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	0.0	0.0	0.0	0.0	40.7
Untreated check	0.0	0.0	0.0	0.0	46.9
Plant date mean					
Apr 7	7.6 a	77.3 a	239.1 a	192.0 b	113.5 bc
Apr 16	1.5 b	80.2 a	235.8 a	209.4 a	127.6 a
Apr 21	0.0 b	58.9 b	223.9 a	212.6 a	120.6 ab
Apr 28	0.0 b	5.9 c	133.9 b	173.3 c	125.1 a
May 6	0.0 b	0.0 c	21.6 c	86.7 d	104.6 c
May 12	0.0 b	0.0 c	0.0 d	31.4 e	85.7 d
May 19	0.0 b	0.0 c	0.0 d	0.0 f	43.8 e
LSD	**1.58**	**8.86**	**18.63**	**16.96**	**10.73**
Treatment mean					
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	0.9	29.8	121.9	128.7	102.3
Untreated check	1.7	33.7	122.2	130.0	103.7
Split plot analysis					
Plant date	.0001	.0001	.0001	.0001	.0001
Treatment	.0872	.0990	.9410	.7623	.6080
Plant date x treatment	.2314	.2537	.7538	.5838	.5319

[1] Counts are total number of flowers per plot.
Means followed by the same letter(s) and within the same grouping are not significantly different. An asterisk (*) indicates significant difference from untreated check (LSD, P=0.05).

Table 14. Effect of planting date on boll counts and yield of cotton.

Plant date, treatment and rate/1000 ft of row	Total no. of bolls[1] (Aug 5)	Open bolls[2] Aug 30	Open bolls[2] Sep 13	Yield[3] (lb/A) lb/A	Yield[3] (lb/A) bales/A
Apr 7					
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	7.7	2.1	6.6	3381 a	3.0 a
Untreated check	7.3	2.2	6.3	3350 a	3.0 a
April 16					
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	6.5	1.8	5.0*	3248 a	2.8 a
Untreated check	7.9	1.8	3.9	3258 a	2.8 a
Apr 21					
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	7.1	1.4	4.6	3509 a	3.1 a
Untreated check	6.3	1.5	4.8	3502 a	3.1 a
Apr 28					
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	5.4	0.3	3.7	3160 a	2.8 a
Untreated check	6.1	0.4	3.3	3679 a	3.2 a
May 6					
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	4.4	0.0	2.3	3315 a	3.0 a
Untreated check	4.8	0.0	2.0	3324 a	3.0 a
May 12					
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	3.0	0.0	1.2	2854 a	2.5 a
Untreated check	2.8	0.0	1.3	3053 a	2.7 a
May 19					
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	0.7	0.0	0.0	2387 a	2.1 a
Untreated check	1.5	0.0	0.0	2685 a	2.3 a
Plant date mean					
Apr 7	7.5 a	2.1 a	6.5 a	3366 a	3.0 a
Apr 16	7.2 a	1.8 b	4.4 b	3253 ab	2.8 ab
Apr 21	6.7 a	1.4 c	4.7 b	3506 a	3.1 a
Apr 28	5.8 b	0.3 d	3.5 c	3420 a	3.0 a
May 6	4.6 c	0.0 e	2.2 d	3320 a	3.0 a
May 12	2.9 d	0.0 e	1.2 e	2953 b	2.6 b
May 19	1.1 e	0.0 e	0.0 f	2536 c	2.2 c
LSD	**0.94**	**0.18**	**0.60**	**338**	**0.30**
Treatment mean					
Quadris 2.08F 0.6 fl oz + Ridomil Gold 0.12 fl oz	5.0 a	0.8 a	3.4 a	3122 a	2.7 a
Untreated check	5.2 a	0.8 a	3.1 a	3264 a	2.9 a
Split plot analysis					
Plant date	.0001	.0001	.0001	.0001	.0001
Treatment	.3062	.3471	.0909	.1190	.1213
Plant date x treatment	.2486	.9358	.4534	.6016	.6064

[1] Counts include medium to full bolls per plant and four plants per plot.
[2] Open boll counts are from four plants per plot.
[3] Weight (lb/A) includes lint + seed; bales/A are weight of lint only. Lint was calculated from a gin sample from each plant date and was 480 lb/bale. Plots were harvested on 8 Nov 2004.
Means followed by the same letter(s) and within the same grouping are not significantly different. An asterisk (*) indicates significant difference from untreated check (LSD, P=0.05).

III. NATIONAL COTTON SEED TREATMENT TEST – VIRGINIA LOCATION (TAREC Research Farm, Hare Road)

A. PURPOSE: To compare the efficacy of seed treatment fungicides for control of pre-and post-emergence damping-off diseases of cotton

B. EXPERIMENTAL DESIGN:
1. Two, 30-ft rows per plot
2. Fifteen-ft alleyways between blocks
3. Four replications in randomized complete block design

C. APPLICATION OF TREATMENTS: Seed treatments were applied at the University of Arkansas under the direction of Dr. Craig Rothrock who is program coordinator for National Cottonseed Treatment Trials.

D. TREATMENT AND RATE/CWT SEED:
1. Baytan 30 0.5 oz + Argent 30 1.5 oz + Allegiance LS 1.2 oz
2. L1226 0.64 oz + L0030 1.5 oz + Allegiance LS 1.2 oz
3. RTU Baytan Thiram 3.0 oz + Allegiance FL 0.75 oz
4. L1226 0.64 oz + L0020 1.0 oz + L0037 0.32 oz
5. L0020 0.75 oz + L0288 0.2 oz + L0189 3.0 oz
6. Apron XL-TL 1.0 oz + WECO 0257 0.65 oz
7. Apron XL-TL 1.0 oz + WECO 0257 0.65 + NuCoat 7.5 oz
8. Apron XL-TL 1.0 oz + WECO 0257 0.65 oz + Nu-Flow M 2.5 oz
9. Apron XL-TL 1.0 oz + WECO 0257 0.65 oz + Nu-Flow M 2.5 oz + NuCoat 7.5 oz
10. Dynasty 3.10 oz
11. Dynasty 3.9 oz
12. Dynasty 3.1 oz + Systhane 40 WP 0.84 oz
13. HM0403 0.142 oz + Apron XL-TL 1.0 oz
14. HM0403 0.142 oz + HM0404 4.0 oz + Apron XL-TL 1.0 oz
15. Vitavax-PCNB 6.0 oz + Allegiance 0.75 oz
16. RTU-PCNB 14.5 oz
17. Allegiance 1.5 oz
18. Untreated check

E. ADDITIONAL INFORMATION:
1. Location: Tidewater Res. Farm, Hare Rd., Suffolk
2. Crop history: peanut 2003; cotton 2002; peanut 2001
3. Land preparation: Strip-tillage in wheat cover crop
4. Planting date and variety: 22 Apr; DP 451BRR
5. Soil fertility report (Dec 2003):

pH.....	5.9
Ca	209 ppm
Mg	19 ppm
P	29 ppm
K.....	34 ppm
Zn	1.6 ppm
Mn	1.7 ppm
Soil type	Kenansville loamy sand

6. Herbicide:
   Pre-plant – Cotoran 1 qt + Prowl 1 pt/A (21 Apr)
   Pre-emergence – Roundup Ultra Max 22 fl oz/A (27 Apr)
   Post-emergence – Roundup Ultra Max 22 fl oz (13 May, 1 Jun)
   Cotton Pro 1 pt
   + Roundup Ultra Max 22 fl oz/A, directed (18 Jun)
7. Insecticide: Temik 15G 5 lb/A in furrow (22 Apr)
   Orthene 97S 6 oz/A (13 May, 1 Jun)
   Baythroid 4 fl oz/A (9 Aug)
8. Growth regulator: Pentia 10 fl oz/A (29 Jun, 13 Jul); 12 fl oz/A (9 Aug)
9. Defoliant/Boll opener: Finish 1 qt + Prep 8 fl oz + Dropp 0.1 lb/A (1 Oct)
10. Fertilization: 9-15-36, 330 lb/A (24 Mar)
    Nitrogen (32%) 30 lb/A (17 Jun, 2 Jul)
    Liquid boron 1 qt/A (17 Jun)
11. Harvest date: 3 Nov 2004

Table 15. Effect of seed treatments on emergence and yield of cotton.

Treatment and rate/cwt seed	Plants/ft* (May 20)	Yield**	
		lb/A	bales/A
Baytan 30 0.5 oz + Argent 30 1.5 oz + Allegiance LS 1.2 oz	1.69 b-d	2968 a	2.5 a
L1226 0.64 oz + L0030 1.5 oz + Allegiance LS 1.2 oz	1.72 a-d	2856 a	2.4 a
RTU Baytan Thiram 3.0 oz + Allegiance FL 0.75 oz	1.69 b-d	2629 a	2.2 a
L1226 0.64 oz + L0020 1.0 oz + L0037 0.32 oz	1.81 a-c	2692 a	2.2 a
L0020 0.75 oz + L0288 0.2 oz + L0189 3.0 oz	1.65 cd	2880 a	2.4 a
Apron XL-TL 1.0 oz + WECO 0257 0.65 oz	1.94 a	3028 a	2.5 a
Apron XL-TL 1.0 oz WECO 0257 0.65 + NuCoat 7.5 oz	1.65 cd	3067 a	2.6 a
Apron XL-TL 1.0 oz WECO 0257 0.65 oz + Nu-Flow M 2.5 oz	1.63 cd	3204 a	2.7 a
Apron XL-TL 1.0 oz + WECO 0257 0.65 oz + Nu-Flow M 2.5 oz + NuCoat 7.5 oz	1.51 d	2955 a	2.5 a
Dynasty 3.10 oz	1.92 ab	2937 a	2.5 a
Dynasty 3.9 oz	1.87 a-c	2838 a	2.4 a
Dynasty 3.1 oz + Systhane 40 WP 0.84 oz	1.86 a-c	3061 a	2.6 a
HM0403 0.142 oz + Apron XL-TL 1.0 oz	1.75 a-d	2816 a	2.4 a
HM0403 0.142 oz + HM0404 4.0 oz + Apron XL-TL 1.0 oz	1.76 a-d	3128 a	2.6 a
Vitavax-PCNB 6.0 oz + Allegiance 0.75 oz	1.78 a-c	2998 a	2.5 a
RTU-PCNB 14.5 oz	1.78 a-c	3007 a	2.5 a
Allegiance 1.5 oz	1.82 a-c	2928 a	2.4 a
Untreated check	1.76 a-c	2792 a	2.4 a

* Determined from counts of two, 30-ft rows per plot.

** Weight (lb/A) includes lint + seed; bales/A are weight of lint only. Lint was 40.1% of total weight and 480 lb/bale. Plots were harvested on 3 Nov 2004.
Means followed by the same letter(s) are not significantly different at P=0.05 according to Waller-Duncan k-ratio t test.

IV. SYNGENTA COTTON SEED TREATMENT AND IN-FURROW FUNGICIDE TRIAL (TAREC Research farm, Hare Road)

A. PURPOSE: To compare seed treatments and in-furrow fungicides for control of pre-and post-emergence damping-off diseases of cotton

B. EXPERIMENTAL DESIGN:
1. Split-plot design with seed and in-furrow treatments in main plots
2. Subplots of two rows w/ and w/o in-furrow inoculum
3. Two, 30-ft rows per plot
4. Fifteen-ft alleyways between blocks
5. Four replications in randomized complete block design

C. APPLICATION OF TREATMENTS: Seed treatments (grams a.i./100 kg) were applied by Syngenta Crop Protection. Overcoats were applied following the initial treatment. Liquid, in-furrow treatments were applied to the seed furrow through microtubes that delivered a volume of 46.8 liters/ha in rows spaced 0.9 m apart. Granular in-furrow fungicides were delivered from a Noble box with delivery tubes directed into the seed furrow with seed.

D. TREATMENTS AND RATE (g a.i./100 kg seed unless specified otherwise)
1. Untreated check
2. Dynasty CST 125FS 32 g
3. Dynasty CST 125FS 32 g + Systhane 40 WSP 21 g
4. Allegiance FL 15 g + RTU-Baytan-Thiram 1.76 FS 41 g
5. Ascend 30 2.64EC 19 g + Allegiance FL 15 g + Baytan 30 10 g
6. Allegiance FL 15 g + RTU-Baytan-Thiram 1.76 FS 41 g + Delta-Coat AD 3.24FS 300 g (overcoat)
7. Allegiance FL 15 g + RTU-Baytan-Thiram 1.76 FS 41 g + Protégé FL 1.9LS 9 g + Allegiance FL 15 g (overcoat)
8. Allegiance FL 15 g + RTU Baytan Thiram 1.76 FS 41 g + A13012 32 g (overcoat)
9. Allegiance FL 15 g + RTU Baytan Thiram 1.76 FS 41 g + A13012 32 g + Systhane 40 WSP 21 g (overcoat)
10. Allegiance FL 15 g + RTU Baytan Thiram 1.76 FS 41 g (seed trt.) A13836 3.08 ml/100 m of row (in furrow)
11. Allegiance FL 15 g + RTU Baytan Thiram 1.76 FS 41 g (seed trt.) Terraclor Super-X 18.8G 6 lb/A (in furrow)
12. Allegiance FL 15 g + RTU Baytan Thiram 1.76 FS 41 g (seed trt.) Quadris 2.08SC 0.6 fl oz/A + Ridomil Gold 4EC 0.12 fl oz/A (in furrow)

E. INOCULANT (Subplots): Dr. Steve Rideout of Syngenta produced inoculum of *Rhizoctonia solani* on millet seed. Inoculated plots received 0.5 ml of inoculum/ft of row in the seed furrow at planting.
1. Non-inoculated check
2. Inoculated

F. ADDITIONAL INFORMATION:
1. Location: Tidewater Res. Farm, Hare Rd., Suffolk
2. Crop history: peanut 2003; cotton 2002; peanut 2001
3. Land preparation: Strip-tillage in wheat cover crop
4. Planting date and variety: 23 Apr, DP 555BR

5. Soil fertility report (Dec 2003):
   pH..... 5.9
   Ca ..... 209 ppm
   Mg ..... 19 ppm
   P ..... 29 ppm
   K..... 34 ppm
   Zn ..... 1.6 ppm
   Mn ..... 1.7 ppm
   Soil type ..... Kenansville loamy sand
6. Herbicide:
   Pre-plant – Cotoran 1 qt + Prowl 1 pt/A (21 Apr)
   Pre-emergence – Roundup Ultra Max 22 fl oz/A (27 Apr)
   Post-emergence – Roundup Ultra Max 22 fl oz (13 May, 1 Jun)
   Cotton Pro 1 pt + Roundup Ultra Max 22 fl oz/A, directed (18 Jun)
7. Insecticide: Temik 15G 5 lb/A in furrow (23 Apr)
   Orthene 97S 6 oz/A (13 May, 1 Jun)
   Baythroid 4 fl oz/A (9 Aug)
8. Growth regulator: Pentia 10 fl oz/A (29 Jun, 13 Jul); 12 fl oz/A (9 Aug)
9. Defoliant/Boll opener: Finish 1 qt + Prep 8 fl oz + Dropp 0.1 lb/A (1 Oct)
10. Fertilization: 9-15-36, 330 lb/A (24 Mar)
    Nitrogen (32%) 30 lb/A (17 Jun, 2 Jul)
    Liquid boron 1 qt/A (17 Jun)
11. Harvest date: 3 Nov 2004

Table 16. Effect of seed treatment and inoculant on emergence of cotton.

Treatment and rate (g a.i./100 kg seed unless specified otherwise)*	Plants/ft of row**			
	Non-inoculated		Inoculated	
	May 7	May 21	May 7	May 21
Untreated check	1.86 c	1.90 b	0.00 g	0.00 e
Dynasty CST 125FS 32 g (S)	2.71 a	2.74 a	0.23 f	0.08 de
Dynasty CST 125FS 32 g + Systhane 40 WSP 21 g (S)	2.39 ab	2.61 a	0.53 d	0.25 cd
Allegiance FL 15 g + RTU-Baytan-Thiram 1.76 FS 41 g (S)	2.70 a	2.55 a	0.40 d-f	0.12 de
Ascend 30 2.64EC 19 g + Allegiance FL 15 g + Baytan 30 10 g (S)	2.46 ab	2.59 a	0.29 ef	0.10 de
Allegiance FL 15 g + RTU-Baytan-Thiram 1.76 FS 41 g (S) + Delta-Coat AD 3.24FS 300 g (O)	2.27 a-c	2.38 ab	0.95 c	0.38 c
Allegiance FL 15 g + RTU-Baytan-Thiram 1.76 FS 41 g (S) + Protégé FL 1.9LS 9 g + Allegiance FL 15 g (O)	2.34 ab	2.44 ab	0.46 de	0.09 de
Allegiance FL 15 g + RTU Baytan Thiram 1.76 FS 41 g (S) + A13012 32 g (O)	2.62 ab	2.57 a	0.39 d-f	0.10 de
Allegiance FL 15 g + RTU Baytan Thiram 1.76 FS 41 g (S) + A13012 32 g + Systhane 40 WSP 21 g (O)	2.38 ab	2.50 a	0.81 c	0.32 c
Allegiance FL 15 g + RTU Baytan Thiram 1.76 FS 41 g (S) A13836 3.08 ml/100 m of row (F)	2.24 bc	2.56 a	1.82 a	1.63 a
Allegiance FL 15 g + RTU Baytan Thiram 1.76 FS 41 g (S) Terraclor Super-X 18.8G 6 lb/A (F)	2.45 ab	2.53 ab	0.43 d-f	0.23 cd
Allegiance FL 15 g + RTU Baytan Thiram 1.76 FS 41 g (S) Quadris 2.08SC 0.6 fl oz/A + Ridomil Gold 4EC 0.12 fl oz/A (F)	2.52 ab	2.66 a	1.47 b	1.25 b

* O=overcoat, S=seed treatment, F=in-furrow.

** Determined from counts of two, 30-ft rows per plot.
Means followed by the same letter(s) are not significantly different at P=0.05 according to Waller-Duncan k-ratio t test.
Split-plot analysis indicated statistical significance for treatment, inoculant, and a significant treatment by inoculant interaction.

Table 17. Effect of seed treatment and inoculant on growth of cotton.

Treatment and rate (g a.i./100 kg seed unless specified otherwise)*	Plant height (in.)** (Jul 12)	
	Non-inoculated	Inoculated
Untreated check	33.4 a-c	34.0 a
Dynasty CST 125FS 32 g (S)	34.7 ab	30.4 a-d
Dynasty CST 125FS 32 g + Systhane 40 WSP 21 g (S)	32.4 bc	31.0 a-d
Allegiance FL 15 g + RTU-Baytan-Thiram 1.76 FS 41 g (S)	31.6 c	29.4 b-d
Ascend 30 2.64EC 19 g + Allegiance FL 15 g + Baytan 30 10 g (S)	33.3 a-c	32.0 a-c
Allegiance FL 15 g + RTU-Baytan-Thiram 1.76 FS 41 g (S) + Delta-Coat AD 3.24FS 300 g (O)	32.7 bc	28.9 cd
Allegiance FL 15 g + RTU-Baytan-Thiram 1.76 FS 41 g (S) + Protégé FL 1.9LS 9 g + Allegiance FL 15 g (O)	33.8 a-c	27.6 d
Allegiance FL 15 g + RTU Baytan Thiram 1.76 FS 41 g (S) + A13012 32 g (O)	34.1 a-c	31.3 a-d
Allegiance FL 15 g + RTU Baytan Thiram 1.76 FS 41 g (S) + A13012 32 g + Systhane 40 WSP 21 g (O)	33.5 a-c	30.5 a-d
Allegiance FL 15 g + RTU Baytan Thiram 1.76 FS 41 g (S) A13836 3.08 ml/100 m of row (F)	32.8 bc	33.0 ab
Allegiance FL 15 g + RTU Baytan Thiram 1.76 FS 41 g (S) Terraclor Super-X 18.8G 6 lb/A (F)	35.6 a	32.3 a-c
Allegiance FL 15 g + RTU Baytan Thiram 1.76 FS 41 g (S) Quadris 2.08SC 0.6 fl oz/A + Ridomil Gold 4EC 0.12 fl oz/A (F)	32.4 bc	30.4 a-d

* O=overcoat, S=seed treatment, F=in-furrow.

** Data are measurements of six plants per plot.
Means followed by the same letter(s) are not significantly different at P=0.05 according to Waller-Duncan k-ratio t test.
Split-plot analysis indicated statistical significance for inoculant and a significant seed treatment by inoculant interaction.

Table 18. Effect of seed treatment and inoculant on yield of cotton.

Treatment and rate (g a.i./100 kg seed unless specified otherwise)*	Yield**			
	Non-inoculated		Inoculated	
	lb/A	bales/A	lb/A	bales/A
Untreated check	3491 a-c	3.31 a-c	76 e	0.07 e
Dynasty CST 125FS 32 g (S)	3600 a-c	3.41 a-c	623 c-e	0.59 c-e
Dynasty CST 125FS 32 g + Systhane 40 WSP 21 g (S)	3579 a-c	3.39 a-c	980 b-d	0.93 b-d
Allegiance FL 15 g + RTU-Baytan-Thiram 1.76 FS 41 g (S)	3458 a-c	3.28 a-c	451 de	0.43 de
Ascend 30 2.64EC 19 g + Allegiance FL 15 g + Baytan 30 10 g (S)	3243 b-d	3.07 b-d	672 cd	0.64 cd
Allegiance FL 15 g + RTU-Baytan-Thiram 1.76 FS 41 g (S) + Delta-Coat AD 3.24FS 300 g (O)	3107 cd	2.94 cd	1207 bc	1.14 bc
Allegiance FL 15 g + RTU-Baytan-Thiram 1.76 FS 41 g (S) + Protégé FL 1.9LS 9 g + Allegiance FL 15 g (O)	3839 ab	3.64 ab	399 de	0.38 de
Allegiance FL 15 g + RTU Baytan Thiram 1.76 FS 41 g (S) + A13012 32 g (O)	3778 ab	3.58 ab	408 de	0.39 de
Allegiance FL 15 g + RTU Baytan Thiram 1.76 FS 41 g (S) + A13012 32 g + Systhane 40 WSP 21 g (O)	3582 a-c	3.40 a-c	1440 b	1.36 b
Allegiance FL 15 g + RTU Baytan Thiram 1.76 FS 41 g (S) A13836 3.08 ml/100 m of row (F)	2756 d	2.61 d	2883 a	2.73 a
Allegiance FL 15 g + RTU Baytan Thiram 1.76 FS 41 g (S) Terraclor Super-X 18.8G 6 lb/A (F)	3963 a	3.76 a	847 b-d	0.80 b-d
Allegiance FL 15 g + RTU Baytan Thiram 1.76 FS 41 g (S) Quadris 2.08SC 0.6 fl oz/A + Ridomil Gold 4EC 0.12 fl oz/A (F)	3400 a-d	3.22 a-d	2305 a	2.19 a

* O=overcoat, S=seed treatment, F=in-furrow.

** Weight (lb/A) includes lint + seed; bales/A are weight of lint only. Lint was 45.5% of total weight and 480 lb/bale. Plots were harvested on 3 Nov 2004.
Means followed by the same letter(s) are not significantly different at P=0.05 according to Waller-Duncan k-ratio t test. Split-plot analysis indicated statistical significance for treatment, inoculant and a significant seed treatment by inoculant interaction.

V. RESPONSE OF COTTON TO IN-FURROW FUNGICIDE TREATMENTS (TAREC Research Farm, Hare Road)

A. PURPOSE: To assess the benefits of in-furrow fungicides for control of seedling diseases

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks
2. Split-plot design with in-furrow treatments in main plots
3. Subplots of two rows w/ and w/o in-furrow inoculum
4. Two, 30-ft rows per plot with 36 in. row spacing
5. Fifteen-ft alleyways between blocks

C. APPLICATION OF TREATMENTS: Liquid in-furrow fungicides (F) were mixed in water and applied at a volume of 5 gal/A through a microtube to the seed furrow at planting. Granular in-furrow fungicides were delivered by a Noble-box applicator to the seed furrow.

D. TREATMENT AND RATE/1000 ft of row):
1. Untreated check
2. Ridomil Gold PCGR 9.8 oz (in furrow)
3. Rovral CF 0.5 fl oz + Reason 0.5 fl oz (in furrow)
4. Rovral CF 0.5 fl oz + Ridomil Gold 0.15 fl oz (in furrow)
5. Terraclor Super X 18.8G 6.6 oz (in-furrow)
6. Quadris 2.08SC 0.6 fl oz (in-furrow)

E. INOCULUM (Sub-plots): Inoculum was prepared by Dr. Steve Rideout of Syngenta Crop Protection and applied to the open seed furrow at 0.5 ml/ft of row.
1. No inoculum
2. Inoculated (millet seed infested with *Rhizoctonia solani*)

F. ADDITIONAL INFORMATION:
1. Location: Tidewater Res. Farm, Hare Rd., Suffolk
2. Crop history: peanut 2003; cotton 2002; peanut 2001
3. Land preparation: Strip-tillage in wheat cover crop
4. Planting date and variety: 26 Apr 2004; ST 4892 BR (Lot # AM3G 4110; warm germ 90%, cool germ 84%)
5. Soil fertility report (Dec 2003):

pH.....	5.9
Ca	209 ppm
Mg	19 ppm
P	29 ppm
K.....	34 ppm
Zn	1.6 ppm
Mn	1.7 ppm
Soil type	Kenansville loamy sand

6. Herbicide:
Pre-plant – Cotoran 1 qt + Prowl 1 pt/A (21 Apr)
Pre-emergence – Roundup Ultra Max 22 fl oz/A (27 Apr)
Post-emergence – Roundup Ultra Max 22 fl oz (13 May, 1 Jun)
Cotton Pro 1 pt + Roundup Ultra Max 22 fl oz/A, directed (18 Jun)

7. Insecticide: Temik 15G 5 lb/A in furrow (26 Apr)
   Orthene 97S 6 oz/A (13 May, 1 Jun)
   Baythroid 4 fl oz/A (9 Aug)
8. Growth regulator: Pentia 10 fl oz/A (29 Jun, 13 Jul); 12 fl oz/A (9 Aug)
9. Defoliant/Boll opener: Finish 1 qt + Prep 8 fl oz + Dropp 0.1 lb/A (1 Oct)
10. Fertilization: 9-15-36, 330 lb/A (24 Mar)
    Nitrogen (32%) 30 lb/A (17 Jun, 2 Jul)
    Liquid boron 1 qt/A (17 Jun)
11. Harvest date: 3 Nov 2004

Table 19. Effect of in-furrow treatments on emergence of cotton.

Treatment and in-furrow rate/1000 ft of row	Plants/ft of row*			
	Non-inoculated		Inoculated	
	May 10	May 24	May 10	May 24
Untreated check	1.9 a	1.8 a	0.5 d	0.0 c
Ridomil Gold PCGR 9.8 oz	1.8 a	1.7 a	0.1 d	0.1 c
Rovral CF 0.5 fl oz + Reason 0.5 fl oz	1.9 a	1.8 a	0.9 b	0.6 b
Rovral CF 0.5 fl oz + Ridomil Gold 0.15 fl oz	1.6 a	1.6 a	0.7 c	0.4 b
Terraclor Super X 18.8G 6.6 oz	2.0 a	1.9 a	0.1 d	0.1 c
Quadris 2.08SC 0.6 fl oz	1.6 a	1.6 a	1.2 a	1.1 a

* Determined from counts of two, 30-ft rows per plot.
Means followed by the same letter(s) are not significantly different at P=0.05 according to Waller-Duncan k-ratio t test.
Split-plot analysis indicated statistical significance for treatment, inoculant and a significant treatment by inoculant interaction.

Table 20. Effect of in-furrow treatments on growth of cotton.

Treatment and in-furrow rate/1000 ft of row	Plant height (in.)* (Jul 12)	
	Non-inoculated	Inoculated
Untreated check	36.6 a	26.0 c
Ridomil Gold PCGR 9.8 oz	34.2 bc	29.4 b
Rovral CF 0.5 fl oz + Reason 0.5 fl oz	32.8 cd	30.4 b
Rovral CF 0.5 fl oz + Ridomil Gold 0.15 fl oz	32.6 d	29.1 b
Terraclor Super X 18.8G 6.6 oz	36.9 a	29.0 b
Quadris 2.08SC 0.6 fl oz	34.6 b	35.0 a

* Data are measurements of six plants per plot.
Means followed by the same letter(s) are not significantly different at P=0.05 according to Waller-Duncan k-ratio t test.
Split-plot analysis indicated statistical significance for treatment, inoculant and a significant treatment by inoculant interaction.

Table 21. Effect of in-furrow treatments on yield of cotton.

Treatment and in-furrow rate/1000 ft of row	Yield (lb/A)*			
	Non-inoculated		Inoculated	
	lb/A	bales/A	lb/A	bales/A
Untreated check	4398 a	3.9 a	18 c	0.0 c
Ridomil Gold PCGR 9.8 oz	3503 a	3.1 a	384 c	0.3 c
Rovral CF 0.5 fl oz + Reason 0.5 fl oz	3467 a	3.1 a	1652 b	1.5 b
Rovral CF 0.5 fl oz + Ridomil Gold 0.15 fl oz	3388 a	3.0 a	1180 b	1.1 b
Terraclor Super X 18.8G 6.6 oz	4051 a	3.6 a	393 c	0.4 c
Quadris 2.08SC 0.6 fl oz	3273 a	2.9 a	2901 a	2.6 a

* Weight (lb/A) includes lint + seed; bales/A are weight of lint only. Lint was 43.0% of total weight and 480 lb/bale. Plots were harvested on 3 Nov 2004.

Means followed by the same letter(s) are not significantly different at P=0.05 according to Waller-Duncan k-ratio t test. Split-plot analysis indicated statistical significance for treatment, inoculant and a significant treatment by inoculant interaction.

VI. EFFECT OF RATE AND TIMING OF TOPSIN M ON HARDLOCK IN COTTON (TAREC Research Farm, Hare Road)

A. PURPOSE: To develop spray strategies for control of hardlock, and determine the benefit of disease control

B. EXPERIMENTAL DESIGN:
1. Five, randomized complete blocks
2. Four, 30-ft rows per plot with 36 in. row spacing
3. Two, center rows designated for treatments; outside border rows were untreated
4. Ten-ft alleyways between blocks

C. APPLICATION OF TREATMENTS: All treatments were over sprayed with insecticides during the bloom period to control stinkbugs and boll damage by insects in general. Fungicide sprays were applied with a CO_2, backpack sprayer delivering 13.9 gal/A with two, 8002 nozzles/row at 17 psi.

D. TREATMENT AND RATE/A: (1^{st} bloom = 50% of plants have 1 open bloom – Jul 16)
1. Untreated check
2. Topsin M 0.5 lb/A (1^{st} bloom + 2 wks + 2 wks)
3. Topsin M 1 lb/A (1^{st} bloom + 2 wks + 2 wks)
4. Topsin M 0.5 lb/A (1^{st} bloom + 2 wks)
5. Topsin M 1 lb/A (1^{st} bloom + 2 wks)
6. Topsin M 0.5 lb/A (1^{st} bloom)
7. Topsin M 1 lb/A (1^{st} bloom)

E. ADDITIONAL INFORMATION:
1. Location: Tidewater Res. Farm, Hare Rd., Suffolk
2. Crop history: peanut 2003; cotton 2002; peanut, 2001
3. Land preparation: Strip-tillage in wheat cover crop
4. Planting date and variety: 27 Apr 2004, DP 555 BG RR
5. Soil fertility report (Dec 2003):

pH.....	5.9
Ca	209 ppm
Mg	19 ppm
P	29 ppm
K.....	34 ppm
Zn	1.6 ppm
Mn	1.7 ppm
Soil type	Kenansville loamy sand

6. Herbicide:
Pre-plant – Cotoran 1 qt + Prowl 1 pt/A (21 Apr)
Pre-emergence – Roundup Ultra Max 22 fl oz/A (27 Apr)
Post-emergence – Roundup Ultra Max 22 fl oz/A (13 May)
Cotton Pro 1 pt + Roundup Ultra Max 22 fl oz, directed (18 Jun)
7. Insecticide: Temik 15G 5 lb/A in furrow (27 Apr)
Orthene 97S 12 oz/A (13 May, 1 Jun, 29 Jun)
Baythroid 4 fl oz/A (9 Aug)
8. Growth regulator: Pentia 10 oz/A (29 Jun); 6 oz/A (13 Jul); 12 oz/A (9 Aug)
9. Defoliant/Boll opener: Finish 1 qt + Dropp 0.1 lb + Prep 8 oz/A (7 Oct)

10. Fertilization: 9-15-36, 330 lb/A (24 Mar)
    Nitrogen (32%) 30 lb/A (17 Jun, 2 Jul)
    Liquid boron 1 qt/A (17 Jun)
11. Harvest date: 8 Nov 2004

Table 22. Number of flowers at the time of fungicide applications.

Rep	Number of flowers*		
	Jul 16	Aug 10	Aug 18
I	57	99	34
II	24	84	23
III	52	110	35
IV	51	77	28
V	42	76	32

* Total number of flowers per one row of untreated check.

Table 23. Effect of fungicide applications on incidence of hard lock and yield of cotton.

Treatment, rate/A and application date[1]	Total bolls[2]	Total locks[2]	% hard lock[2]	Yield[3]	
				lb/A	bales/A
Untreated check	46 a	207 a	11.3 a	2347 b	2.21 b
Topsin M 0.5 lb/A (7/16, 8/9, 8/18).	60 a	271 a	11.2 a	2894 a	2.72 a
Topsin M 1 lb/A (7/16, 8/9, 8/18)....	61 a	274 a	11.9 a	2493 ab	2.34 ab
Topsin M 0.5 lb/A (7/16, 8/9).....	58 a	262 a	9.6 a	2551 ab	2.40 ab
Topsin M 1 lb/A (7/16, 8/9).....	51 a	231 a	13.2 a	2824 a	2.65 a
Topsin M 0.5 lb/A (7/16).....	54 a	242 a	9.3 a	2524 ab	2.37 ab
Topsin M 1 lb/A (7/16).....	59 a	264 a	11.2 a	2706 ab	2.54 ab
LSD.....	**19**	**87**	**6.6**	**433**	**0.41**

[1] Treatments applied on 9 Aug were scheduled for 31 Jul, but were delayed due to rain.
[2] Counts are plants from 1 meter of each plot (ca. 7 plants) at harvest.
[3] Weight (lb/A) includes lint + seed; bales/A are weight of lint only. Lint was 45.1% of total weight and 480 lb/bale. Plots were harvested on 8 Nov 2004.
Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

VII. EFFECT OF FUNGICIDE SPRAYS ON HARDLOCK IN COTTON (Phillip Edwards Farm, Smithfield, VA)

A. PURPOSE: To compare the efficacy of various fungicides for control of hardlock in cotton

B. EXPERIMENTAL DESIGN:
   1. Five, randomized complete blocks
   2. Two, 30-ft rows per plot with one border row between each pair of treated rows
   3. Row spacing 36 in.
   4. Ten-ft alleyways between blocks

C. APPLICATION OF TREATMENTS: All treatments were over sprayed with insecticides during the bloom period to control stinkbugs and boll damage by insects in general. Fungicide sprays were applied with a CO_2, backpack sprayer delivering 13.9 gal/A with two, 8002 nozzles/row at 17 psi.

D. TREATMENT AND RATE/A: (1^{st} bloom = 50% of plants have 1 open bloom – Jul 8)
   1. Untreated check
   2. Topsin M 0.5 lb (1^{st} bloom + 2 wks + 2 wks)
   3. Topsin M 1 lb (1^{st} bloom + 2wks + 2 wks)
   4. Thiram 75W 3 lb (1^{st} bloom + 2 wks + 2 wks)
   5. Quadris 2.08SC 6 fl oz (1^{st} bloom + 2 wks + 2 wks)
   6. Quilt 10 fl oz (1^{st} bloom + 2 wks + 2 wks)
   7. Folicur 3.6F 4 fl oz + Induce 1.2 fl oz (1^{st} bloom + 2 wks + 2 wks)
   8. Stratego 7 fl oz (1^{st} bloom + 2 wks + 2 wks)
   9. Headline 250EC 3 fl oz (1^{st} bloom + 2 wks + 2 wks)
   10. Headline 250EC 6 fl oz (1^{st} bloom + 2 wks + 2 wks)

E. ADDITIONAL INFORMATION:
   1. Location: Phillip Edwards farm, Smithfield, Va
   2. Crop history: cotton 2001-2003
   3. Land preparation: strip tillage into wheat cover crop
   4. Planting date and variety: 21 Apr 2004, FM 989BR
   5. Soil fertility report (Mar 2004):

pH	6.7
Ca	0.4 ppm
Mg	73 ppm
P	63 ppm
K	171 ppm
Zn	1.8 ppm
Mn	7.4 ppm
Cu	0.4 ppm
Fe	9.2 ppm
B	0.2 ppm
Soil type	Slagle fine sandy loam

   6. Herbicide: Roundup Weather Max 22 fl oz/A (12 May, 24 May)
      Dual Magnum 16 fl oz/A (24 May)
      Cotton Pro 1 qt + MSMA 1.3 qt + Harvade 6.4 fl oz/A, directed spray (20 Jun)

7. Insecticide: Temik 15G 5 lb/A in furrow (21 Apr)
   Orthene 97S 4 oz (12 May)
   Bidrin 4 oz/A (19 Jun, 1 Jul)
   Mustang Max 4 fl oz/A (6 Aug)
8. Growth regulator: Pix 6 fl oz (13 Jun); 12 fl oz/A (27 Jun)
9. Defoliant/Boll opener: Cotton Quick 2 qt + Dropp 1.6 oz + Def 8 oz/A (1 Nov)
10. Fertilization: 30-25-40 100 lb/A (18 Apr)
    Liquid nitrogen 15.5 gal (50 units) + boron 1.5 lb/A (2 Jun)
    Boron 0.25 lb/A (6 Aug)
11. Harvest date: 22 Nov 2004

Table 24. Number of flowers at the time of fungicide applications.

Rep	Number of flowers*		
	Jul 8	Jul 22	Aug 4
I	109	70	44
II	103	71	36
III	87	96	51
IV	56	72	71
V	99	99	50

* Total number of flowers per one row of plot.

Table 25. Effect of fungicide applications on incidence of hard lock and yield of cotton.

Treatment and rate/A[1]	Total bolls[2]	Total locks[2]	% hard lock[2]	Yield[3]	
				lb/A	bales/A
Untreated check	59 bc	235 bc	8.5 a-c	3328 a	2.84 a
Topsin M 0.5 lb	73 a	290 a	9.3 a-c	3570 a	3.05 a
Topsin M 1 lb	59 bc	234 bc	8.4 a-c	3376 a	2.88 a
Thiram 75W 3 lb	68 ab	273 ab	7.6 bc	3279 a	2.80 a
Quadris 2.08SC 6 fl oz	59 bc	234 bc	8.5 a-c	3340 a	2.85 a
Quilt 10 fl oz	59 bc	237 bc	8.0 a-c	3231 a	2.76 a
Folicur 3.6F 4 fl oz + Induce 1.2 fl oz	55 c	219 c	12.6 a	3424 a	2.92 a
Stratego 7 fl oz	60 bc	240 bc	7.4 c	3134 a	2.68 a
Headline 250EC 3 fl oz	59 bc	236 bc	11.7 a-c	3303 a	2.92 a
Headline 250EC 6 fl oz	56 c	224 c	12.0 ab	3376 a	2.68 a
Minimum significant difference	**10**	**40**	**4.6**	**772**	**0.66**

[1] Treatments were applied at first bloom (8 Jul) and thereafter at two-week intervals (22 Jul, 4 Aug).
[2] Counts are plants from 1 meter of each plot (ca. 7 plants) at harvest.
[3] Weight (lb/A) includes lint + seed; bales/A are weight of lint only. Lint was 41% of total weight and 480 lb/bale.
Means followed by the same letter(s) are not significantly different at P=0.05 according to Waller-Duncan k-ratio t test.

VIII. EFFECT OF FUNGICIDE SPRAYS ON HARDLOCK IN COTTON (Tom Hall Farm, Charles City, VA)

A. PURPOSE: To compare the efficacy of various fungicides for control of hardlock in cotton

B. EXPERIMENTAL DESIGN:
1. Five, randomized complete blocks
2. Two, 30-ft rows per plot with one border row between each pair of treated rows
3. Row spacing 36 in.
4. Ten-ft alleyways between blocks

C. APPLICATION OF TREATMENTS: All treatments were over sprayed with insecticides during the bloom period to control stinkbugs and boll damage by insects in general. Fungicide sprays were applied with a CO_2, backpack sprayer delivering 13.9 gal/A with two, 8002 nozzles/row at 17 psi.

D. TREATMENT AND RATE/A:
1. Untreated check
2. Topsin M 0.5 lb (1^{st} bloom + 2 wks + 2 wks)
3. Topsin M 1 lb (1^{st} boom + 2 wks + 2 wks)
4. Thiram 75W 3 lb (1^{st} bloom + 2 wks + 2 wks)
5. Quadris 2.08SC 9 fl oz (1^{st} bloom + 2 wks + 2 wks)
6. Quilt 10 fl oz (1^{st} bloom + 2 wks + 2 wks)
7. Folicur 3.6F 4 fl oz + Induce 1.2 fl oz (1^{st} bloom + 2 wks + 2 wks)
8. Stratego 7 fl oz (1^{st} bloom + 2 wks + 2 wks)
9. Headline 250EC 3 fl oz (1^{st} bloom + 2 wks + 2 wks)
10. Headline 250EC 6 fl oz (1^{st} bloom + 2 wks + 2 wks)

E. ADDITIONAL INFORMATION:
1. Location: Tom Hall farm, Charles City, Va
2. Crop history: cotton 1997-2003
3. Land preparation: disk and bed rows
4. Planting date and variety: 28 Apr 2004, DP 451BR
5. Herbicide:
   Pre-plant - Glyfos 1 qt/A (2 Apr)
   Pre-emergence - Glyfos 1 qt + Dual II Magnum 1 pt/A (30 Apr)
   Post-emergence - Glyfos 1 qt/A (2 Jun)
6. Insecticide: Temik 15G 4 lb/A (28 Apr)
   Orthene 97S 6 oz/A (20 May)
7. Growth regulator: Pix 12 fl oz (20 Jun, 30 Jul, 15 Jul)
8. Defoliant/Boll opener: Finish 1.5 pt + Harvade 4 oz/A (24 Sep)
9. Fertilization: Chicken litter 4000 lb/ A (N 60 lb/A) pre-plant (Mar)
   Liquid boron 1 qt/A (20 Jun, 30 Jul)
   Ammonium sulfate 166 lb/A (20 Jun)
10. Harvest date: 22 Nov 2004

Table 26. Number of flowers at the time of fungicide application.

Rep	Number of flowers*		
	Jul 7	Jul 21	Aug 10
I	72	132	48
II	62	129	60
III	78	76	2
IV	97	70	9
V	88	78	29

* Total number of flowers per one row of plot.

Table 27. Effect of fungicide applications on incidence of hard lock and yield of cotton.

Treatment and rate/A[1]	Total bolls[2]	Total locks[2]	% hard lock[2]	Yield[3]	
				lb/A	bales/A
Untreated check	65 ab	258 ab	14.0 ab	2622 a	2.20 a
Topsin M 0.5 lb	67 ab	269 ab	19.1 ab	2940 a	2.47 a
Topsin M 1 lb	83 ab	331 ab	24.0 a	2859 a	2.40 a
Thiram 75W 3 lb	86 a	342 a	9.6 b	2904 a	2.44 a
Quadris 2.08SC 6 fl oz	72 ab	289 ab	21.9 ab	2602 a	2.18 a
Quilt 10 fl oz	77 ab	308 ab	16.3 ab	2450 a	2.06 a
Folicur 3.6F 4 fl oz + Induce 1.2 fl oz	65 ab	261 ab	16.8 ab	2420 a	2.03 a
Stratego 7 fl oz	67 ab	267 ab	17.4 ab	2807 a	2.36 a
Headline 250EC 3 fl oz	55 b	218 b	17.9 ab	2138 a	1.79 a
Headline 250EC 6 fl oz	78 ab	310 ab	21.3 ab	2602 a	2.18 a
Minimum significant difference	**31**	**123**	**14**	**1038**	**0.87**

[1] Treatments were applied at first bloom (7 Jul) and thereafter at two-week intervals (21 Jul, 10 Aug).
[2] Counts are plants from 1 meter of each plot (ca. 7 plants) at harvest.
[3] Weight (lb/A) includes lint + seed; bales/A are weight of lint only. Lint was 41% of total weight and 480 lb/bale.
Means followed by the same letter(s) are not significantly different at P=0.05 according to Waller-Duncan k-ratio t test.

IX. RESPONSE OF COTTON TO NEMATICIDES AND INSECTICIDES (Kenny Edwards Farm, The Hall Rd., Branchville, VA)

A. PURPOSE: To compare the response of cotton to nematicide treatments (Temik, KC791230, Metam 42%)

B. EXPERIMENTAL DESIGN:
   1. Four, randomized complete blocks
   2. Two, 30-ft rows per plot with 36-in. row spacing
   3. Fifteen ft. alleyways between blocks

C. APPLICATION OF TREATMENTS: Soil fumigant was applied 8 in. deep with a single chisel per row (C) on 19 Apr and rows were bedded after application (24 in.-wide and 4-in. high). Granular in-furrow treatments (F) were applied to the seed furrow at planting. Band treatments (B) were 12-in. wide and applied over rows during cultivation at 6 to 8 weeks after planting. Seed treatments (S) were applied by Gustafson LLC.

D. TREATMENT AND RATE:
   1. Temik 15G 5 lb/A (F)
   2. KC791230 15G 5 lb/A (F)
   3. Temik 15G 5 lb/A (F) + 5 lb/A (B)
   4. KC791230 15G 5 lb/A (F) + 5 lb/A (B)
   5. Temik 15G 7 lb/A (F)
   6. KC791230 15G 7 lb/A (F)
   7. Metam 42% 5 gal/A (C) + Gaucho 480 4 fl oz/cwt (S)
   8. Metam 42% 7.5 gal/A (C) + Gaucho 480 4 fl oz/cwt (S)
   9. Gaucho 480 4 fl oz/cwt (S)
   10. Untreated check

E. ADDITIONAL INFORMATION:
   1. Location: Kenny Edwards Farm, The Hall Rd., Branchville, VA
   2. Crop history: corn 2003, cotton 2002- 2001
   3. Planting date and variety: 5 May 2004, FM 960BR
   4. Herbicide: Cotoran 1 qt + Prowl 1 pt/A (6 May)
      Roundup 22 fl oz/A (18 May, 2 Jun)
      Cotton Pro 1 pt + Roundup 22 fl oz/A, direct & hooded spray (17 Jun)
   5. Insecticide: Orthene 97S 6 oz/a (18 May, 2 Jun)
      Karate Z 2.56 fl oz/A (20 Jul)
   6. Growth regulator: Pix 8 fl oz/A (17 Jun)
   7. Defoliant/Boll opener: Finish 1 qt + Def 8 fl oz/A (7 Oct)
   8. Fertilization: 6-18-36 300 lb/A (Apr)
      17-0-10 350 lb/A (2 Jun)
      Solubor 0.5 lb (2 Jun); 1 lb/A (17 Jun)
      Liquid boron 1 pt/A (20 Jul)
   9. Cultivation: 2 Jun
   10. Harvest date: 28 Oct 2004

Table 28. Nematode populations at planting.

Rep	Nematodes/500 cc soil*				
	Root-knot	Stunt	Spiral	Ring	Stubby root
I	890	170	90	0	40
II	760	300	30	10	50
III	340	190	60	0	60
IV	420	90	60	0	80

* Soil was sampled on 30 Apr.

Table 29. Effect of nematicide treatments on emergence and growth of cotton.

Treatment, rate and application method[1]	Plants/ft[2] (May 26)	Plant height[3] (in.)	
		Jun 30	Aug 10
Temik 15G 5 lb/A (F)	2.18 a	26.2 a	31.4 ab
KC791230 15G 5 lb/A (F)	2.07 a-c	23.6 cd	31.4 ab
Temik 15G 5 lb/A (F) + 5 lb/A (B)	2.13 a	24.3 bc	29.8 bc
KC791230 15G 5 lb/A (F) + 5 lb/A (B)	2.15 a	22.8 d	29.0 c
Temik 15G 7 lb/A (F)	2.10 ab	25.1 ab	30.1 a-c
KC791230 15G 7 lb/A (F)	2.17 a	24.1 b-d	30.6 a-c
Metam 42% 5 gal/A (C) + Gaucho 480 4 fl oz/cwt (S)	1.85 bc	26.3 a	31.5 ab
Metam 42% 7.5 gal/A (C) + Gaucho 480 4 fl oz/cwt (S)	1.82 c	25.9 a	32.1 a
Gaucho 480 4 fl oz/cwt (S)	1.82 c	24.1 b-d	31.7 ab
Untreated check	1.95 a-c	23.3 cd	29.0 c
LSD	**0.25**	**1.35**	**2.07**

[1] F=in furrow, B=band (30 Jun), C=chisel (19 Apr), S=seed treatment.
[2] Determined from counts of two, 30-ft rows per plot.
[3] Data are measurements from six plants per plot (30 Jun) and four plants per plot (10 Aug). Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 30. Effect of nematicide treatments on growth of cotton.

Treatment, rate and application method*	Number of nodes**		No. of bolls** (Aug 10)	Open bolls** (Sep 1)
	Jun 30	Aug 10		
Temik 15G 5 lb/A (F)	12.6 ab	13.8 b-d	7.3 c	4.2 ab
KC791230 15G 5 lb/A (F)	12.8 ab	14.3 a-c	10.9 a	3.1 d
Temik 15G 5 lb/A (F) + 5 lb/A (B)	11.3 c	13.3 cd	7.7 c	3.6 b-d
KC791230 15G 5 lb/A (F) + 5 lb/A (B)	12.2 b	14.1 b-d	10.3 ab	3.9 a-c
Temik 15G 7 lb/A (F)	12.3 b	13.1 d	7.7 c	3.9 a-c
KC791230 15G 7 lb/A (F)	12.2 b	14.1 b-d	10.6 ab	3.4 b-d
Metam 42% 5 gal/A (C) + Gaucho 480 4 fl oz/cwt (S)	12.8 ab	14.0 b-d	8.2 bc	4.4 a
Metam 42% 7.5 gal/A (C) + Gaucho 480 4 fl oz/cwt (S)	12.5 ab	14.8 ab	9.3 a-c	4.1 ab
Gaucho 480 4 fl oz/cwt (S)	13.2 a	15.3 a	10.8 a	3.3 cd
Untreated check	12.5 b	13.4 cd	9.1 a-c	4.5 a
LSD	**0.68**	**1.18**	**2.47**	**0.77**

* F=in furrow, B=band (30 Jun), C=chisel (19 Apr), S=seed treatment.
** Data are measurements from six plants per plot (Jun 30) and four plants per plot (10 Aug, 1 Sep). Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 31. Effect of nematicide treatments on nematode populations.

Treatment, rate and application method*	Nematodes/500 cc soil**	
	Root knot	Stubby root
Temik 15G 5 lb/A (F)	16,118 a-c	178 ab
KC791230 15G 5 lb/A (F)	14,418 a-c	253 a
Temik 15G 5 lb/A (F) + 5 lb/A (B)	17,785 ab	213 ab
KC791230 15G 5 lb/A (F) + 5 lb/A (B)	17,398 ab	213 ab
Temik 15G 7 lb/A (F)	19,753 a	208 b
KC791230 15G 7 lb/A (F)	12,483 a-c	78 b
Metam 42% 5 gal/A (C) + Gaucho 480 4 fl oz/cwt (S)	10,190 c	280 a
Metam 42% 7.5 gal/A (C) + Gaucho 480 4 fl oz/cwt (S)	11,340 bc	128 ab
Gaucho 480 4 fl oz/cwt (S)	13,560 a-c	200 ab
Untreated check	13,718 a-c	303 a
LSD	**7085**	**188**

* F=in furrow, B=band (30 Jun), C=chisel (19 Apr), S=seed treatment.
** Soil was sampled on 30 Jun. Root-knot species was *Meloidogyne incognita*.
Means followed by the same letter(s) are not significantly different (LSD, P=0.05). Square root transformation of population data was made in analysis to determine statistical significance.

Table 32. Effect of nematicide treatments on root galling and yield of cotton.

Treatment, rate and application method[1]	Root galling[2] (0-6)	Yield[3]	
		lb/A	bales/A
Temik 15G 5 lb/A (F)	2.9 a-c	1860 b-d	1.68 b-d
KC791230 15G 5 lb/A (F)	2.5 b-d	2405 ab	2.17 ab
Temik 15G 5 lb/A (F) + 5 lb/A (B)	2.1 d	1830 b-d	1.65 b-d
KC791230 15G 5 lb/A (F) + 5 lb/A (B)	3.6 a	2299 a-c	2.07 a-c
Temik 15G 7 lb/A (F)	3.1 ab	2072 a-d	1.87 a-d
KC791230 15G 7 lb/A (F)	2.8 b-d	2072 a-d	1.87 a-d
Metam 42% 5 gal/A (C) + Gaucho 480 4 fl oz/cwt (S)	2.5 b-d	1664 cd	1.50 d
Metam 42% 7.5 gal/A (C) + Gaucho 480 4 fl oz/cwt (S)	2.2 cd	2284 a-c	2.06 a-c
Gaucho 480 4 fl oz/cwt (S)	3.1 ab	2556 a	2.31 a
Untreated check	3.1 ab	1543 d	1.39 d
LSD	**0.74**	**665**	**0.60**

[1] F=in furrow, B=band (30 Jun), C=chisel (19 Apr), S=seed treatment.
[2] Rating scale: 0=none, 1=1-10%, 2=11-25%, 3=26-50%, 4=51-75%, 5=76-90%, 6=91-100% of root system with galls. Ratings were made on 15 Nov.
[3] Weight (lb/A) includes lint + seed; bales/A are weight of lint only. Lint was 43.3% of total weight and 480 lb/bale. Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

X. RESPONSE OF COTTON TO NEMATICIDES AND INSECTICIDES (Rick Morgan Farm, Deer Forest Rd., Suffolk, VA)

A. PURPOSE: To compare the response of cotton to nematicide treatments (Temik, KC791230, Metam 42%)

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks
2. Two, 30-ft rows per plot with 38-in. row spacing
3. Fifteen ft. alleyways between blocks

C. APPLICATION OF TREATMENTS: Soil fumigant was applied 8 in. deep with a single chisel per row (C) on 20 Apr and rows were bedded after application (24-in. wide and 4-in. high). Granular in-furrow treatments (F) were applied to the seed furrow at planting (30 Apr). Band treatments (B) were 12-in. wide and applied over rows during cultivation at 6 to 8 weeks after planting (1 Jul). Seed treatments (S) were applied by Gustafson LLC.

D. TREATMENT AND RATE:
1. Temik 15G 5 lb/A (F)
2. KC791230 15G 5 lb/A (F)
3. Temik 15G 5 lb/A (F) + 5 lb/A (B)
4. KC791230 15G 5 lb/A (F) + 5 lb/A (B)
5. Temik 15G 7 lb/A (F)
6. KC791230 15G 7 lb/A (F)
7. Metam 42% 5 gal/A (C) + Gaucho 480 4 fl oz/cwt (S)
8. Metam 42% 7.5 gal/A (C) + Gaucho 480 4 fl oz/cwt (S)
9. Gaucho 480 4 fl oz/cwt (S)
10. Untreated check

E. ADDITIONAL INFORMATION:
1. Location: Rick Morgan Farm, Deer Forest Rd., Suffolk
2. Crop history: Cotton, 2003-2001; Peanut, 2000
3. Land preparation: strip tillage into stale beds with cotton stalks from 2003
4. Planting date and variety: 30 April; FM 960BR
5. Herbicide: Cotoran 1 qt + Prowl 1 pt/A (6 May)
Roundup Ultra Max 22 fl oz/A (18 May, 1 Jun)
Cotton Pro 1 pt + Roundup Ultra Max 22 fl oz/A, direct/hooded spray (17 Jun)
Valor 1 lb + Roundup Ultra Max 22 fl oz/A (23 Jun)
6. Insecticide: Orthene 97S 6 oz/A (18 May, 1 Jun)
Baythroid 2 fl oz (15 Jul, 21 Jul)
7. Growth regulator: Pix wick bar 6 oz/A (8 Jul)
Pix 16 fl oz/A (29 Jul)
8. Defoliant/Boll opener: Finish 1 qt + Aim 1 fl oz/A (9 Oct)
9. Fertilization: 6-0-40 200 lb/A (20 Apr)
Liquid nitrogen (32%) 80 lb/A (30 Jun)
Liquid boron 1 qt/A (30 Jun)
10. Harvest date: 10 Nov 2004

Table 33. Nematode populations at planting.

Rep	Nematodes/500 cc soil*			
	Root-knot	Stunt	Ring	Stubby root
I	180	60	20	20
II	220	70	0	40
III	250	120	0	220
IV	60	70	0	130

* Soil was sampled on 29 Apr.

Table 34. Emergence and growth of cotton in plots treated with nematicide.

Treatment, rate and application method[1]	Plants/ft[2] (May 27)	Plant height (in.)[3]	
		Jul 1	Aug 6
Temik 15G 5 lb/A (F)	1.91 a	23.5 a	35.1 c
KC791230 15G 5 lb/A (F)	1.77 a-c	23.8 a	36.3 bc
Temik 15G 5 lb/A (F) + 5 lb/A (B)	1.80 ab	23.7 a	38.9 a
KC791230 15G 5 lb/A (F) + 5 lb/A (B)	1.67 a-c	23.7 a	37.4 ab
Temik 15G 7 lb/A (F)	1.81 ab	23.3 ab	36.9 ab
KC791230 15G 7 lb/A (F)	1.84 ab	23.8 a	37.9 ab
Metam 42% 5 gal/A (C) + Gaucho 480 4 fl oz/cwt (S)	1.64 bc	24.0 a	38.1 ab
Metam 42% 7.5 gal/A (C) + Gaucho 480 4 fl oz/cwt (S)	1.50 c	23.8 a	37.8 ab
Gaucho 480 4 fl oz/cwt (S)	1.75 a-c	23.4 ab	38.6 a
Untreated check	1.75 a-c	22.7 b	36.2 bc
LSD	**0.26**	**0.72**	**2.14**

[1] F=in furrow (30 Apr), B=band,12 in. wide applied over rows during cultivation (1 Jul), S=seed treatment.
[2] Determined from counts of two, 30-ft rows per plot.
[3] Data are measurements of six plants per plot (1 Jul) and four plants per plot (6 Aug). Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 35. Growth of cotton in plots treated with nematicide.

Treatment, rate and application method[1]	Number of nodes[2]		No. of bolls[3]	Open bolls[3]
	Jul 1	Aug 6	(Aug 6)	(Sep 12)
Temik 15G 5 lb/A (F)	12.2 a-c	15.8 de	10.7 a-c	7.9 ab
KC791230 15G 5 lb/A (F)	12.4 a-c	16.6 b-e	10.4 bc	7.8 ab
Temik 15G 5 lb/A (F) + 5 lb/A (B)	11.8 c	17.3 ab	10.1 bc	7.1 b
KC791230 15G 5 lb/A (F) + 5 lb/A (B)	12.7 ab	17.5 ab	11.4 ab	7.0 b
Temik 15G 7 lb/A (F)	11.8 c	16.8 a-d	12.1 ab	7.9 ab
KC791230 15G 7 lb/A (F)	12.9 a	16.1 c-e	10.8 a-c	8.1 a
Metam 42% 5 gal/A (C) + Gaucho 480 4 fl oz/cwt (S)	12.1 bc	17.8 a	13.2 a	7.8 ab
Metam 42% 7.5 gal/A (C) + Gaucho 480 4 fl oz/cwt (S)	12.3 a-c	17.1 a-c	11.3 a-c	8.2 a
Gaucho 480 4 fl oz/cwt (S)	11.8 c	15.7 e	8.6 c	7.8 ab
Untreated check	11.9 c	15.8 de	10.3 bc	8.4 a
LSD	**0.78**	**1.11**	**2.79**	**0.98**

[1] F=in furrow (30 Apr), B=band,12 in. wide applied over rows during cultivation (1 Jul), S=seed treatment.
[2] Determined from counts of two, 30-ft rows per plot.
[3] Data are measurements of six plants per plot (1 Jul) and four plants per plot (6 Aug, 12 Sep).
Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 36. Effect of nematicide treatments on nematode populations.

Treatment, rate and application method**	Nematodes/500 cc soil**	
	Root knot	Stubby root
Temik 15G 5 lb/A (F)	160 a	68 ab
KC791230 15G 5 lb/A (F)	1138 a	35 a-c
Temik 15G 5 lb/A (F) + 5 lb/A (B)	885 a	45 a-c
KC791230 15G 5 lb/A (F) + 5 lb/A (B)	2220 a	25 bc
Temik 15G 7 lb/A (F)	373 a	40 a-c
KC791230 15G 7 lb/A (F)	563 a	40 bc
Metam 42% 5 gal/A (C) + Gaucho 480 4 fl oz/cwt (S)	403 a	70 ab
Metam 42% 7.5 gal/A (C) + Gaucho 480 4 fl oz/cwt (S)	635 a	20 c
Gaucho 480 4 fl oz/cwt (S)	328 a	88 ab
Untreated check	640 a	100 a
LSD	**2126**	**58**

* F=in furrow (30 Apr), B=band, 12 in. wide applied over rows during cultivation (1 Jul), S=seed treatment.
** Soil was sampled on 1 Jul. Root-knot species was identified as *Meloidogyne incognita.*
Means followed by the same letter(s) are not significantly different (LSD, P=0.05). Square root transformation of population data was made in analysis to determine statistical significance.

Table 37. Effect of nematicide treatments on root galling and yield of cotton.

Treatment, rate and application method[1]	Root galling[2] (0-6)	Yield[3] lb/A	Yield[3] bales/A
Temik 15G 5 lb/A (F)	2.6 cd	4153 ab	3.46 ab
KC791230 15G 5 lb/A (F)	2.3 d	4268 ab	3.56 ab
Temik 15G 5 lb/A (F) + 5 lb/A (B)	3.0 bc	4211 ab	3.51 ab
KC791230 15G 5 lb/A (F) + 5 lb/A (B)	2.6 cd	4231 ab	3.52 ab
Temik 15G 7 lb/A (F)	2.6 cd	4322 a	3.60 a
KC791230 15G 7 lb/A (F)	2.7 b-d	4271 ab	3.56 ab
Metam 42% 5 gal/A (C) + Gaucho 480 4 fl oz/cwt (S)	3.9 a	4021 ab	3.35 ab
Metam 42% 7.5 gal/A (C) + Gaucho 480 4 fl oz/cwt (S)	2.8 b-d	3878 ab	3.23 ab
Gaucho 480 4 fl oz/cwt (S)	3.3 ab	4073 ab	3.39 ab
Untreated check	3.9 a	3786 b	3.16 b
LSD	**0.64**	**526**	**0.44**

[1] F=in furrow (30 Apr), B=band, 12 in. wide applied over rows during cultivation (1 Jul), S=seed treatment.

[2] Rating scale: 0=none, 1=10%, 2=11-25%, 3=26-50%, 4=51-75%, 5=76-90%, 6=91-100% of root system with galls. Ratings were made on 12 Nov.

[3] Weight (lb/A) includes lint + seed; bales/A are weight of lint only. Lint was 40.0% of total weight and 480 lb/bale. Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

XI. THE YIELD AND GROWTH RESPONSE OF COTTON VARIETIES TREATED WITH TEMIK 15G FOR CONTROL OF SOUTHERN ROOT KNOT NEMATODE (Rick Morgan Farm, Deer Forest Road, Suffolk, VA)

A. PURPOSE: To compare the susceptibility of commercial varieties of cotton to southern root knot nematode (*Meloidogyne incognita*) and assess their response to treatment with Temik 15G in the seed furrow.

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks
2. Split-plot design with main plots of varieties and subplots with and without Temik 15G
3. Two, 30-ft rows per plot with 38 in. row spacing
4. Fifteen-ft alleyways between blocks

C. VARIETY (Main plots):
1. DP 444 BG/RR
2. DP 449 BG/RR
3. DP 555 BG/RR
4. DP 451 B/RR
5. DP 432 RR
6. DP 434 RR
7. DP 436 RR
8. PM 1199 RR
9. SG 215 BG/RR
10. SG 521 R
11. ST 4892 BR
12. ST 5242 BR
13. ST 5303 R
14. ST 5599 BR
15. ST 4646 R
16. ST 4575 BR
17. FM 989 R

D. TREATMENT AND RATE:
1. Untreated check
2. Temik 15G 5 lb/A (in furrow)

E. ADDITIONAL INFORMATION:
1. Location: Rick Morgan Farm, Deer Forest Rd., Suffolk
2. Crop history: Cotton, 2003-2001; Peanut, 2000
3. Land preparation: strip tillage into stale beds with cotton stalks from 2003
4. Planting date: 29 Apr
5. Herbicide: Cotoran 1 qt + Prowl 1 pt/A (6 May)
   Roundup Ultra Max 22 fl oz/A (18 May, 1 Jun)
   Cotton Pro 1 pt + Roundup Ultra Max 22 fl oz/A, direct/hooded spray (17 Jun)
   Valor 1 lb + Roundup Ultra Max 22 fl oz/A (23 Jun)
6. Insecticide: Orthene 97S 6 oz/A (18 May, 1 Jun)
   Baythroid 2 fl oz (15 Jul, 21 Jul)
7. Growth regulator: Pix wick bar 6 oz/A (8 Jul); Pix 16 fl oz/A (29 Jul)
8. Defoliant/Boll opener: Finish 1 qt + Aim 1 fl oz/A (9 Oct)

9. Fertilization: 6-0-40 (20 Apr)
   Liquid nitrogen (32%) 80 lb/A (30 Jun)
   Liquid boron 1 qt/A (30 Jun)
10. Harvest date: 10 Nov 2004

Table 38. Nematode populations at planting.

Rep	Nematodes/500 cc soil*				
	Root-knot	Stunt	Spiral	Ring	Stubby root
I	170	30	10	0	60
II	140	60	0	0	80
III	20	30	20	10	70
IV	90	130	50	100	100

* Soil was sampled on 29 Apr.

Table 39. Effect of variety selection and treatment on emergence and growth of cotton.

Variety, treatment and rate/A[1]	Plants/ft[2] (May 27)	Plant height (in.)[3] Jul 8	Plant height (in.)[3] Aug 9	No. of nodes (Aug 9)
Variety mean				
DP 444 BG/RR	1.85 b-d	30.53	39.1 c-f	14.66
DP 449 BG/RR	2.27 a	28.13	38.6 e-g	15.81
DP 555 BG/RR	1.98 b	29.35	40.7 b	16.56
DP 451 B/RR	1.70 de	29.11	38.7 d-g	15.56
DP 432 RR	1.83 b-e	29.97	39.3 c-e	16.25
DP 434 RR	1.79 b-e	29.85	38.9 c-g	15.25
DP 436 RR	1.95 bc	29.22	39.2 c-f	15.31
PM 1199 RR	1.70 de	27.67	36.0 i	14.50
SG 215 BG/RR	1.78 b-e	29.18	39.3 c-f	15.50
SG 521 R	1.76 c-e	29.01	38.8 c-g	15.69
ST 4892 BR	1.67 de	29.45	39.9 b-d	16.31
ST 5242 BR	1.45 f	29.33	38.8 c-g	15.25
ST 5303 R	1.75 c-e	30.02	40.1 bc	15.09
ST 5599 BR	1.63 ef	30.90	42.7 a	16.59
ST 4646 R	1.81 b-e	29.30	38.0 f-h	15.56
ST 4575 BR	1.69 de	28.07	37.8 gh	15.75
FM 989 R	1.84 b-d	26.50	36.9 hi	16.44
LSD (P=0.05)	**0.21**	**0.91**	**1.29**	**0.62**
Treatment mean				
Untreated check	1.80 a	29.1	39.4 a	15.8
Temik 15G 5 lb/A (F)	1.78 a	29.2	38.6 a	15.6
LSD (P=0.05)	**0.07**	**0.31**	**0.44**	**0.21**
Split-plot analysis				
Variety	.0001	.0293	.0001	.0009
Treatment	.7350	.7468	.0002	.0735
Variety by treatment	.5834	.0001	.3912	.0119

[1] F=in furrow.
[2] Determined from counts of two, 30-ft rows per plot.
[3] Data represent measurement of six plants per plot (8 Jul) and four plants per plot (9 Aug).
Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 40. Effect of variety selection and treatment on number of bolls/plant.

Variety, treatment and rate/A*	No. of bolls** (Aug 9)	Open bolls** (Sep 3)
Variety mean		
DP 444 BG/RR	12.13 a-d	4.8
DP 449 BG/RR	8.81 g	0.0
DP 555 BG/RR	8.94 fg	1.5
DP 451 B/RR	11.38 b-e	3.8
DP 432 RR	11.75 a-e	2.0
DP 434 RR	11.81 a-d	3.6
DP 436 RR	9.84 e-g	2.9
PM 1199 RR	10.34 d-g	5.4
SG 215 BG/RR	10.94 b-e	3.0
SG 521 R	10.81 b-f	3.0
ST 4892 BR	10.97 b-e	2.3
ST 5242 BR	13.44 a	1.0
ST 5303 R	10.22 d-g	3.4
ST 5599 BR	12.38 a-c	0.0
ST 4646 R	12.66 ab	3.3
ST 4575 BR	11.03 b-e	3.1
FM 989 R	10.69 c-g	0.8
LSD (P=0.05)	**1.91**	**0.96**
Treatment mean		
Untreated check	11.2 a	2.4
Temik 15G 5 lb/A (F)	11.0 a	2.8
LSD (P=0.05)	**0.66**	**0.33**
Split-plot analysis		
Variety	.0194	.0001
Treatment	.5514	.0428
Variety by treatment	.2709	.0357

* F=in furrow.

** Data represent measurement of four plants per plot.
Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 41. Effect of variety selection and treatment on nematode populations.

Variety, treatment and rate/A*	Nematodes/500 cc soil**				
	Root knot	Lesion	Stunt	Spiral	Stubby root
Variety mean					
DP 444 BG/RR	958 b-e	6 ab	70 a	138 cd	141 ab
DP 449 BG/RR	1636 ab	15 ab	68 a	125 cd	114 a-c
DP 555 BG/RR	498 d-g	16 ab	48 a-c	380 ab	101 c
DP 451 B/RR	468 e-g	20 a	40 a-c	135 cd	84 bc
DP 432 RR	1108 bc	16 ab	28 c	61 cd	119 a-c
DP 434 RR	624 c-g	9 ab	46 a-c	79 cd	111 a-c
DP 436 RR	983 b-d	4 b	43 a-c	126 cd	165 a
PM 1199 RR	2246 a	18 ab	49 a-c	405 a	135 a-c
SG 215 BG/RR	714 c-f	16 ab	41 a-c	163 cd	133 a-c
SG 521 R	1521 ab	5 b	49 a-c	115 cd	134 a-c
ST 4892 BR	956 b-e	19 ab	59 a	94 cd	130 a-c
ST 5242 BR	218 g	6 ab	33 bc	118 cd	93 bc
ST 5303 R	854 c-f	8 ab	66 a	28 d	76 a-c
ST 5599 BR	903 b-f	10 ab	66 a	179 cd	135 a-c
ST 4646 R	299 fg	8 ab	54 ab	31 d	126 a-c
ST 4575 BR	766 b-e	19 ab	40 a-c	174 bc	100 a-c
FM 989 R	1421 ab	5 ab	48 a-c	170 cd	88 a-c
LSD (P=0.05)	**758**	**15**	**34**	**195**	**80**
Treatment mean					
Untreated check	1108 a	12 a	60 a	155 a	122 a
Temik 15G 5 lb/A (F)	795 b	11 a	40 b	141 a	111 a
LSD (P=0.05)	**260**	**5**	**12**	**67**	**27**
Split-plot analysis					
Variety	.0058	.6772	.5491	.8781	.7967
Treatment	.0256	.8294	.0029	.7746	.4939
Variety by treatment	.1616	.9923	.8341	.3723	.5434

* F=in furrow.

** Soil was sampled on 13 Jul.
Means followed by the same letter(s) are not significantly different (LSD, P=0.05). Square root transformation of population data was made in analysis to determine statistical significance.

Table 42. Effect of variety selection and treatment on root galling and yield of cotton.

Variety, treatment and rate/A[1]	Root galling[2] (0-6)	Yield[3] lb/A		Yield[3] bales/A	
Variety mean					
DP 444 BG/RR	1.63	3465	d-f	3.07	d-g
DP 449 BG/RR	3.28	4019	a-c	3.39	b-d
DP 555 BG/RR	3.38	4117	ab	3.73	a
DP 451 B/RR	2.28	4169	ab	3.17	d-f
DP 432 RR	3.69	3587	d-f	3.10	d-f
DP 434 RR	1.41	3352	ef	2.90	f-h
DP 436 RR	2.75	3279	e-g	2.46	i
PM 1199 RR	3.47	3227	fg	2.76	g-i
SG 215 BG/RR	1.47	3829	b-d	3.23	de
SG 521 R	2.69	3500	d-f	2.88	f-h
ST 4892 BR	3.00	3197	fg	2.66	hi
ST 5242 BR	1.88	4056	ab	3.34	b-e
ST 5303 R	2.53	3666	c-e	3.02	e-g
ST 5599 BR	1.78	4268	a	3.60	ab
ST 4646 R	2.91	4215	ab	3.56	a-c
ST 4575 BR	3.66	3839	b-d	3.28	c-e
FM 989 R	3.28	2954	g	2.46	i
Treatment mean					
Untreated check	3.20	3594	b	3.02	b
Temik 15G 5 lb/A (F)	2.10	3806	a	3.19	a
Split-plot analysis					
Variety	.0001	.0001		.0001	
Treatment	.0001	.0001		.0001	
Variety by treatment	.0001	.4828		.4545	

[1] F=in furrow.
[2] Rating scale: 0=none, 1=1-10%, 2=11-25%, 3=26-50%, 4=51-75%, 5=76-90%, 6=91-100% of root system with galls. Ratings were made on 11 Nov.
[3] Weight (lb/A) includes lint + seed; bales/A are weight of lint only. Lint was determined in samples from each variety and was 480 lb/bale. Plots were harvested on 10 Nov 2004.
Means followed by the same letter(s) are not significant at P=0.05 according to Ryan-Einot-Gabriel-Welsch multiple range test.

XII. RESPONSE OF COTTON TO SEED AND IN-FURROW TREATMENTS FOR NEMATODE CONTROL (Kenny Edwards Farm, The Hall Rd., Branchville, VA)

A. PURPOSE: To compare seed and in-furrow treatments for control of southern root-knot nematode

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks
2. Two, 30-ft rows per plot with 36 in. row spacing
3. Fifteen-ft alleyways between blocks

C. APPLICATION OF TREATMENTS: Granular in-furrow treatments with Temik 15G were applied to the seed furrow at planting. Seed treatments were applied by Syngenta Crop Protection.

D. TREATMENT AND RATE (seed treatment rates are a.i.; in furrow treatment rates are formulated product):
1. Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Cruiser 5FS 0.34 mg/seed
2. Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.12 mg + Cruiser 5FS 0.34 mg/seed
3. Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.15 mg + Cruiser 5FS 0.34 mg/seed
4. Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Temik 15G 3.5 lb (F)
5. Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Temik 15G 5 lb (F)
6. Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.15 mg + Cruiser 5FS 0.34 mg/seed + Temik 15G 5 lb (F)

E. ADDITIONAL INFORMATION:
1. Location: Kenny Edwards Farm, The Hall Rd., Branchville, VA
2. Crop history: Corn, 2003; Cotton 2002-2000
3. Planting date and variety: 5 May 2004, ST 4892BR
4. Herbicide: Cotoran 1 qt + Prowl 1 pt/A (6 May)
   Roundup 22 fl oz/A (18 May, 2 Jun)
   Cotton Pro 1 pt + Roundup 22 fl oz/A, direct & hooded spray (17 Jun)
5. Insecticide: Orthene 97S 6 oz/a (18 May, 2 Jun)
   Karate Z 2.56 fl oz/A (20 Jul)
6. Growth regulator: Pix 8 fl oz/A (17 Jun)
7. Defoliant/Boll opener: Finish 1 qt + Def 8 fl oz/A (7 Oct)
8. Fertilization: 6-18-36 300 lb/A (Apr)
   17-0-10 350 lb/A (2 Jun)
   Solubor 0.5 lb (2 Jun); 1 lb/A (17 Jun)
   Liquid boron 1 pt/A (20 Jul)
9. Cultivation: 2 Jun
10. Harvest date: 28 Oct 2004

Table 43. Nematode populations at planting.

Rep	Nematodes/500 cc soil*			
	Root-knot	Stunt	Spiral	Stubby root
I	250	40	60	0
II	330	50	200	30
III	20	20	360	110
IV	10	30	40	10

* Soil was sampled on 29 Apr.

Table 44. Emergence and growth of cotton with seed and in-furrow treatments for control of nematodes.

Treatment and rate[1]	Plants/ft[2] (Jun 2)	Plant height (in.)[3]	
		Jun 30	Aug 10
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Cruiser 5FS 0.34 mg/seed.....	2.28 a	34.1 a	43.3 ab
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.12 mg + Cruiser 5FS 0.34 mg/seed	2.31 a	32.8 a	43.1 ab
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.15 mg + Cruiser 5FS 0.34 mg/seed	2.14 a	34.0 a	44.1 a
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Temik 15G 3.5 lb (F).....	2.28 a	33.0 a	41.3 b
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Temik 15G 5 lb (F).....	2.25 a	34.3 a	44.1 a
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.15 mg + Cruiser 5FS 0.34 mg/seed + Temik 15G 5 lb (F)	2.19 a	34.1 a	44.0 a
LSD**.....**	**0.17**	**1.74**	**2.67**

[1] Seed treatment rates are a.i.; in-furrow treatment rates are formulated product.
[2] Determined from counts of two, 30-ft rows per plot.
[3] Data are the mean of measurements of six plants per plot (30 Jun) and four plants per plot (10 Aug). Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 45. Number of nodes and bolls/plant in cotton with seed and in-furrow treatments for control of nematodes.

Treatment and rate*	No. of nodes** (Aug 10)	No. of bolls** (Aug 10)	Open bolls** (Sep 1)
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Cruiser 5FS 0.34 mg/seed	14.9 a	10.6 a	1.9 a
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.12 mg + Cruiser 5FS 0.34 mg/seed	14.9 a	9.1 a	0.0 b
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.15 mg + Cruiser 5FS 0.34 mg/seed	15.4 a	9.5 a	0.0 b
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Temik 15G 3.5 lb (F)	14.6 a	8.7 a	1.9 a
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Temik 15G 5 lb (F)	15.1 a	9.2 a	0.4 b
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.15 mg + Cruiser 5FS 0.34 mg/seed + Temik 15G 5 lb (F)	14.4 a	9.2 a	0.0 b
LSD	**1.27**	**2.05**	**1.21**

* Seed treatment rates are a.i.; in-furrow treatment rates are formulated product.

** Data are the mean of four plants per plot.
Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 46. Nematode populations, root galling and yield of cotton with seed and in-furrow treatments for control of nematodes.

Treatment and rate[1]	Nematodes/ 500 cc soil[2] Root-knot	Stubby root	Root galling[3] (0-6)	Yield[4] lb/A	bales/A
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Cruiser 5FS 0.34 mg/seed	6850 a	283 a	2.8 a	2965 a	2.7 a
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.12 mg + Cruiser 5FS 0.34 mg/seed	6845 a	215 a	3.1 a	2828 a	2.6 a
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.15 mg + Cruiser 5FS 0.34 mg/seed	7348 a	250 a	3.3 a	2874 a	2.7 a
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Temik 15G 3.5 lb (F)	5300 a	178 a	2.6 a	2707 a	2.5 a
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Temik 15G 5 lb (F)	6195 a	180 a	2.6 a	2857 a	2.6 a
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.15 mg + Cruiser 5FS 0.34 mg/seed + Temik 15G 5 lb (F)	7520 a	203 a	3.4 a	3146 a	2.9 a
LSD	**5543**	**149**	**0.88**	**474**	**0.4**

[1] Seed treatment rates are a.i.; in-furrow treatment rates are formulated product.

[2] Soil was sampled on 30 Jun.

[3] Rating scale: 0=none, 1=1-10%, 2=11-25%, 3=26-50%, 4=51-75%, 5=76-90%, 6=91-100% of root system with galls. Ratings were made on 15 Nov.

[4] Weight (lb/A) includes lint + seed; bales/A are weight of lint only. Lint was 44.4% of total weight and 480 lb/bale. Plots were harvested on 28 Oct 2004.

Means followed by the same letter(s) are not significantly different (LSD, P=0.05). Square root transformation of population data was made in analysis to determine statistical significance.

XIII. RESPONSE OF COTTON TO SEED AND IN-FURROW TREATMENTS FOR NEMATODE CONTROL (Rick Morgan Farm, Deer Forest Rd., Suffolk, VA)

A. PURPOSE: To compare seed and in-furrow treatments for control of southern root-knot nematode

B. EXPERIMENTAL DESIGN:
   1. Four, randomized complete blocks
   2. Two, 30-ft rows per plot with 38 in. row spacing
   3. Fifteen-ft alleyways between blocks

C. APPLICATION OF TREATMENTS: Granular in-furrow treatments with Temik 15G were applied to the seed furrow at planting. Seed treatments were applied by Syngenta Crop Protection.

D. TREATMENT AND RATE (seed treatment rates are a.i.; in-furrow treatment rates are formulated product):
   1. Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Cruiser 5FS 0.34 mg/seed
   2. Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.12 mg + Cruiser 5FS 0.34 mg/seed
   3. Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.15 mg + Cruiser 5FS 0.34 mg/seed
   4. Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Temik 15G 3.5 lb (F)
   5. Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Temik 15G 5 lb (F)
   6. Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.15 mg + Cruiser 5FS 0.34 mg/seed + Temik 15G 5 lb (F)

E. ADDITIONAL INFORMATION:
   1. Location: Rick Morgan Farm, Deer Forest Rd., Suffolk
   2. Crop history: Cotton, 2003-2001; Peanut, 2000
   3. Land preparation: strip tillage into stale beds with cotton stalks from 2003
   4. Planting date and cultivar: 29 Apr; ST 4892 BR
   5. Herbicide: Cotoran 1 qt + Prowl 1 qt/A (6 May)
      Roundup Ultra Max 22 fl oz/A (18 May, 1 Jun)
      Cotton Pro 1 pt + Roundup Ultra Max 22 fl oz/A, direct/hooded spray (17 Jun)
      Valor 1 lb + Roundup Ultra Max 22 fl oz/A (23 Jun)
   6. Insecticide: Orthene 97S 6 oz/A (18 May, 1 Jun)
      Baythroid 2 fl oz (15 Jul, 21 Jul)
   7. Growth regulator: Pix wick bar 6 oz/A (8 Jul)
      Pix 16 fl oz/A (20 Apr)
   8. Defoliant/Boll opener: Finish 1 qt + Aim 1 fl oz/A (9 Oct)
   9. Fertilization: 6-0-40 200 lb/A (20 Apr)
      Liquid nitrogen (32%) 80 lb/A (30 Jun)
      Liquid boron 1 qt/A (30 Jun)
   10. Harvest date: 10 Nov 2004

Table 47. Emergence and growth of cotton with seed and in-furrow treatments for control of nematodes.

Treatment and rate[1]	Plants/ft[2] (May 27)	Plant height (in.)[3] Jul 1	Plant height (in.)[3] Aug 6
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Cruiser 5FS 0.34 mg/seed	1.68 a	24.4 c	41.2 a
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.12 mg + Cruiser 5FS 0.34 mg/seed	1.70 a	24.8 bc	40.4 ab
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.15 mg + Cruiser 5FS 0.34 mg/seed	1.71 a	24.6 bc	39.5 ab
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Temik 15G 3.5 lb (F)	1.70 a	25.9 a	40.4 ab
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Temik 15G 5 lb (F)	1.84 a	25.2 a-c	38.7 b
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.15 mg + Cruiser 5FS 0.34 mg/seed + Temik 15G 5 lb (F)	1.62 a	25.4 ab	39.0 b
LSD	**0.23**	**0.98**	**2.11**

[1] Seed treatment rates are a.i.; in-furrow treatment rates are formulated product.
[2] Determined from counts of two, 30-ft rows per plot.
[3] Determined from measurements of six plants per plot (1 Jul) and four plants per plot (6 Aug). Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 48. Number of node and bolls/plant in cotton with seed and in-furrow treatments for control of nematodes.

Treatment and rate*	No. of nodes** Jul 1	No. of nodes** Aug 6	No. of bolls** (Aug 6)	Open bolls** (Sep 12)
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Cruiser 5FS 0.34 mg/seed.....	11.5 a	15.6 ab	12.0 a	6.6 a
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.12 mg + Cruiser 5FS 0.34 mg/seed..	11.7 a	15.6 ab	10.7 a	7.1 a
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.15 mg + Cruiser 5FS 0.34 mg/seed..	11.3 a	15.8 ab	10.1 a	6.6 a
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Temik 15G 3.5 lb (F).....	11.9 a	16.5 a	11.6 a	6.9 a
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Temik 15G 5 lb (F).....	11.7 a	15.4 b	11.8 a	7.1 a
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.15 mg + Cruiser 5FS 0.34 mg/seed + Temik 15G 5 lb (F)	11.7 a	15.9 ab	12.6 a	7.3 a
LSD.....	**0.75**	**1.04**	**2.83**	**0.76**

* Seed treatment rates are a.i.; in-furrow treatment rates are formulated product.
** Determined from measurements of six plants per plot (1 Jul) and four plants per plot (6 Aug, 12 Sep). Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 49. Nematode populations, root galling and yield in plots planted to cotton with seed and in-furrow treatments for control of nematodes.

Treatment and rate[1]	Nematodes /500 cc soil[2] (Root-knot)	Root galling[3] (0-6)	Yield[4]	
			lb/A	bales/A
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Cruiser 5FS 0.34 mg/seed	1698 a	2.4 ab	3675 b	3.22 b
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.12 mg + Cruiser 5FS 0.34 mg/seed	1038 a	2.6 a	4084 a	3.57 a
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.15 mg + Cruiser 5FS 0.34 mg/seed	688 a	1.9 ab	3953 ab	3.46 ab
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Temik 15G 3.5 lb (F)	450 a	2.5 ab	3998 a	3.50 a
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed + Temik 15G 5 lb (F)	803 a	2.4 ab	4208 a	3.68 a
Dynasty CST 1.04FS 32 g + Systhane 40WSP 21 g/100 kg seed A14006 0.15 mg + Cruiser 5FS 0.34 mg/seed + Temik 15G 5 lb (F)	943 a	1.6 b	4148 a	3.63 a
LSD	**1482**	**0.92**	**289**	**0.25**

[1] Seed treatment rates are a.i.; in-furrow treatment rates are formulated product.
[2] Soil was sampled on 1 Jul.
[3] Rating scale: 0=none, 1=1-10%, 2=11-25%, 3=26-50%, 4=51-75%, 5=76-90%, 6=91-100% of root system with galls. Ratings were made on 12 Nov.
[4] Weight (lb/A) includes lint + seed; bales/A are weight of lint only. Lint was 42% of total weight and 480 lb/bale. Plots were harvested on 10 Nov 2004.
Means followed by the same letter(s) are not significantly different (LSD, P=0.05). Square root transformation of population data was made in analysis to determine statistical significance.

XIV. IMPACT OF STAND REDUCTIONS ON GROWTH AND YIELD OF COTTON (TAREC, Holland Road)

A. PURPOSE: To determine the effect of reductions in populations of seedlings on growth and yield of cotton in Virginia

B. EXPERIMENTAL DESIGN:
1. Split-plot design with planting date in main plots and stand reductions in subplots
2. Subplots of two, 40-ft rows
3. Fifteen-ft alleyways between blocks
4. Four replications in randomized complete block design

C. VARIETY AND PLANTING DATE (MAINPLOTS): DP451BR seed were planted at rate of 4 seed/ft and 0.5 to 0.75 in. depth.
1. Apr 16
2. May 6
3. May 21

D. STAND REDUCTION: plants in 4-ft sections were removed from each 40-ft row in plots
1. None
2. 20% = two 4-ft sections
3. 40% = four 4-ft sections
4. 60% = six 4-ft sections

E. ADDITIONAL INFORMATION:
1. Location: Tidewater Research Center, 6321 Holland Rd., Suffolk
2. Crop history: peanut 2003; corn 2002-2001
3. Land preparation: Strip-tillage in wheat cover crop
4. Soil fertility report (Dec 2003):

pH.....	6.0
Ca	508 ppm
Mg	33 ppm
P	31 ppm
K.....	87 ppm
Zn	0.8 ppm
Mn	2.1 ppm
Soil type	Nansemond fine sandy loam

5. Herbicide: Prowl 1 pt + Cotoran 1 qt/A (16 Apr)
Roundup Ultra Max 22 fl oz/A (27 Apr, 13 May, 1 Jun)
Cotton Pro 1 pt + Roundup Ultra Max 22 fl oz/A, direct/hooded spray (18 Jun)
6. Insecticide: Temik 15G 5 lb/A (at planting)
Orthene 97S 6 oz/A (13 May, 1 Jun)
Baythroid 4 fl oz/A (10 Aug)
7. Growth regulator: Pentia 4 fl oz/A (Plant date 1-14 Jun, 8 Jul; Plant date 2- 24 Jun, 8 Jul; Plant date 3-8 Jul)
8. Defoliant/Boll opener: Finish 1 qt + Prep 8 fl oz + Dropp 0.1 lb/A (8 Oct)
Aim 1 fl oz + Prep 22 fl oz/A (23 Oct)
9. Fertilization: 9-15-36 330 lb/A (24 Mar)
Liquid N (32%) 60 lb/A (19 May)
10. Harvest date: 8 Nov 2004

Table 50. Growth of cotton in plots with no stand reduction.*

Planting date	Plant height (in.) Jul 13	No. of nodes Jul 13	No. of flowers (Jul 13)
Apr 16	34.0 b	14.6 a	6.5 a
May 6	37.8 a	14.4 a	4.2 b
May 21	29.2 c	11.5 b	0.0 c
LSD	**1.33**	**0.62**	**0.75**

* Determined from measurements of six plants per plot.
Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 51. Plant populations and growth of cotton.

Planting date and stand reduction	Plants/ft* (Jun 17)	Plant height** (in.) (Aug 11)	No. of nodes** (Aug 11)	No. of bolls** (Aug 11)
Apr 16				
No stand reduction.....	2.1 a	39.0 b	16.9 c	10.5 b
20% stand reduction	1.6 b	40.1 ab	18.1 bc	19.3 a
40% stand reduction	1.2 c	40.8 ab	18.3 ab	20.0 a
60% stand reduction	1.0 d	42.8 a	19.4 a	22.4 a
May 6				
No stand reduction.....	2.1 a	46.8 a	17.3 b	7.4 b
20% stand reduction	1.5 b	45.4 a	17.8 b	12.6 a
40% stand reduction	1.1 c	47.1 a	19.4 a	14.2 a
60% stand reduction	1.0 c	46.5 a	19.6 a	15.0 a
May 21				
No stand reduction.....	1.9 a	44.8 a	16.6 a	2.4 ab
20% stand reduction	1.6 a	42.5 a	17.7 a	2.8 a
40% stand reduction	1.1 b	45.5 a	17.3 a	1.6 b
60% stand reduction	1.0 b	43.4 a	16.6 a	1.8 ab
Plant date mean				
Apr 16.....	1.47 a	40.7 c	18.2	18.0
May 6.....	1.40 ab	46.4 a	18.5	12.3
May 21.....	1.35 b	44.0 b	17.0	2.1
LSD	**0.10**	**1.44**	**--**	**--**
Stand reduction mean				
No stand reduction.....	2.0 a	43.5 ab	17.0	6.8
20% stand reduction	1.5 b	42.6 b	17.8	11.5
40% stand reduction	1.1 c	44.5 a	18.3	11.9
60% stand reduction	1.0 d	44.2 ab	18.5	13.1
LSD	**0.12**	**1.66**	**--**	**--**
Split-plot analysis				
Plant date	.0446	.0607	.1178	.0001
Stand reduction.....	.0001	.1352	.0004	.0001
Plant date x stand reduction	.6240	.2166	.0195	.0001

* Determined from counts of two, 40-ft rows per plot.
** Data are measurements of four plants per plot.
Means followed by the same letter(s) in a column and group are not significantly different (LSD, P=0.05).

Table 52. Yield response of cotton to various levels of stand reduction.

Planting date and stand reduction	Yield* lb/A	Yield* bales/A
Apr 16		
No stand reduction	3830 a	3.07 a
20% stand reduction	3421 ab	2.74 ab
40% stand reduction	3742 a	3.00 a
60% stand reduction	3004 b	2.41 b
May 6		
No stand reduction	3110 ab	2.48 ab
20% stand reduction	3671 a	2.93 a
40% stand reduction	3444 ab	2.74 ab
60% stand reduction	2704 b	2.16 b
May 21		
No stand reduction	2645 a	2.06 a
20% stand reduction	2645 a	2.06 a
40% stand reduction	1809 a	1.41 a
60% stand reduction	1774 a	1.38 a
Plant date mean		
Apr 16	3483 a	2.79 a
May 6	3240 a	2.58 a
May 21	2246 b	1.75 b
LSD	**291**	**0.23**
Stand reduction mean		
No stand reduction	3203 a	2.54 a
20% stand reduction	3246 a	2.58 a
40% stand reduction	3043 a	2.42 a
60% stand reduction	2494 b	1.98 b
LSD	**361**	**0.29**
Split-plot analysis		
Plant date	.0015	.0011
Stand reduction	.0009	.0009
Plant date x stand reduction	.1487	.1506

* Weight (lb/A) includes lint + seed; bales/A are lint only. Lint of seed cotton was determined by ginning samples from each plant date. One bale equals 480 lb of lint.
Means followed by the same letter(s) in a column and group are not significantly different (LSD, P=0.05).

XV. EVALUATION OF SEED TREATMENTS FOR CONTROL OF SEEDLING DISEASES OF PEANUT (TAREC Research Farm, Hare Road)

A. PURPOSE: To compare the efficacy of experimental treatments to Vitavax PC for control of seedling diseases of peanut

B. EXPERIMENTAL DESIGN:
1. Four randomized complete blocks with 15-ft alleyways between blocks
2. Two, 40-ft rows per plot
3. Seeding rate of four seed/row ft

C. APPLICATION OF TREATMENTS: Fungicide treatments were applied to seed by Gustafson LLC.

D. TREATMENT AND RATE/100 kg seed:
1. Untreated check
2. Vitavax PC 249.5 g (equiv. to 4 oz/100 lb)
3. L1292-A1 249.5 g
4. L1294-A1 249.5 g
5. L1332-A1 249.5 g
6. L1226-A1 20.8 ml + Thiram 42S 480FL 195.2 ml + Allegiance 318FL 6.5 ml + L0283-A1 195.2 ml + Pro-ized seed colorant 65 ml
7. Thiram 42S 480FL 195.2 ml + RTU PCNB 267.6FL 195.2 ml + Allegiance 318FL 6.5 ml + L0283-A1 195.2 ml + Pro-ized seed colorant 65 ml
8. L1226-A1 20.8 ml + Thiram 42S 480FL 195.2 ml + Allegiance 318FL 6.5 ml + RTU PCNB 267.6FL 195.2 ml + L0283-A1 195.2 ml + Pro-ized seed colorant 65 ml
9. L1138-A1 249.5 g
10. L1402 249.5 g

E. ADDITIONAL INFORMATION:
1. Location: TAREC Research Farm, Hare Rd., Suffolk
2. Crop history: corn 2003; peanut 2002; corn 2001
3. Planting date and cultivar: 30 Apr; VA98R (Lot #99; Germ. 78%)
4. Soil fertility report:

pH.....	5.6
Ca	229 ppm
Mg	25 ppm
P	42 ppm
K.....	55 ppm
Zn	1.8 ppm
Mn	2.7 ppm
Soil type	Kenansville loamy sand

5. Herbicide:
   Pre-plant - Prowl 1 pt/A (7 Apr)
   Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (21 Apr)
   Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (13 May)
6. Insecticide: Temik 15G 7 lb/A in furrow (30 Apr)
   Orthene 97S 12 oz/A (3 Jun)
   Lorsban 15G 13 lb/A (22 Jun)
   Danitol 10 oz/A (6 Aug)
7. Cylindrocladium black rot control: Vapam 7.5 gal/A (17 Apr)

8. Leaf spot control: Stratego 7 fl oz + Induce 1.2 fl oz (29 Jun), Folicur 7.2 fl oz + Induce 1.2 fl oz (15 Jul), Headline 6 fl oz (6 Aug), Bravo WS 1.5 pt/A (23 Aug, 7 Sep) according to leaf spot advisory program
9. Sclerotinia blight control: Omega 500 1 pt/A (22 Jul, 6 Aug, 1 Sep)
10. Additional crop management:
    a. Liquid boron 1 qt (7 Apr)
    b. Landplaster: Gypsum 420 1200 lb/A (9 Jun)
    c. Liquid Mn 2 qt/A (23 Jun, 9 Jul)
    d. Cultivation: 22 Jun
11. Harvest date: 30 Sep 2004

Table 53. Effect of seed treatment on emergence of peanut, disease incidence and severity of cylindrocladium black rot (CBR) and tomato spotted wilt virus (TSWV).

Treatment and rate/100 kg seed	Plants/ft[1] (May 19)	CBR[2] Aug 18	CBR[2] Sep 22	TSWV/ CBR severity[3] (Sep 22)
Untreated check	3.51 a	6.0 a	38.8 a	4.0 a
Vitavax PC 249.5 g (equiv. to 4 oz/100 lb)	3.23 bc	5.5 a	21.3 bc	2.8 ab
L1292-A1 249.5 g	3.43 ab	3.5 ab	21.8 bc	2.3 b
L1294-A1 249.5 g	3.33 a-c	3.5 ab	13.3 c	2.0 b
L1332-A1 249.5 g	3.41 a-c	3.5 ab	23.8 b	3.0 ab
L1226-A1 20.8 ml + Thiram 42S 480FL 195.2 ml + Allegiance 318FL 6.5 ml + L0283-A1 195.2 ml + Pro-ized seed colorant 65 ml	3.17 c	3.3 ab	15.8 bc	2.5 b
Thiram 42S 480FL 195.2 ml + RTU PCNB 267.6FL 195.2 ml + Allegiance 318FL 6.5 ml + L0283-A1 195.2 ml + Pro-ized seed colorant 65 ml	3.18 bc	3.8 ab	15.0 bc	2.5 b
L1226-A1 20.8 ml + Thiram 42S 480FL 195.2 ml + Allegiance 318FL 6.5 ml + RTU PCNB 267.6FL 195.2 ml + L0283-A1 195.2 ml + Pro-ized seed colorant 65 ml	3.16 c	1.8 b	15.0 bc	2.5 b
L1138-A1 249.5 g	3.49 a	4.3 ab	19.8 bc	2.5 b
L1402 249.5 g	3.39 a-c	4.3 ab	15.3 bc	2.3 b

[1] Determined from counts of two, 40-ft rows per plot.
[2] Counts of symptomatic and/or dead plant per plot.
[3] Scale of ratings: 0=none, 10=all plants with symptoms.
Means followed by the same letter(s) are not significantly different at P=0.05 according to the Waller-Duncan k-ratio t test.

Table 54. Effect of seed treatment on root rot caused by CBR and yield of peanut.

Treatment and rate/100 kg seed	Root rot* (Sep 23)	Yield** (lb/A)
Untreated check	69 a	3592 b
Vitavax PC 249.5 g (equiv. to 4 oz/100 lb)	40 ab	4189 a
L1292-A1 249.5 g	31 b	4573 a
L1294-A1 249.5 g	24 b	4424 a
L1332-A1 249.5 g	31 b	4360 a
L1226-A1 20.8 ml + Thiram 42S 480FL 195.2 ml + Allegiance 318FL 6.5 ml + L0283-A1 195.2 ml + Pro-ized seed colorant 65 ml	25 b	4477 a
Thiram 42S 480FL 195.2 ml + RTU PCNB 267.6FL 195.2 ml+ Allegiance 318FL 6.5 ml + L0283-A1 195.2 ml + Pro-ized seed colorant 65 ml	31 b	4456 a
L1226-A1 20.8 ml + Thiram 42S 480FL 195.2 ml + Allegiance 318FL 6.5 ml+ RTU PCNB 267.6FL 195.2 ml + L0283-A1 195.2 ml + Pro-ized seed colorant 65 ml	29 b	4466 a
L1138-A1 249.5 g	27 b	4509 a
L1402 249.5 g	27 b	4562 a

* Number of taproots per plot with symptoms and signs of CBR.

** Yields are weight of peanuts with 7% moisture. Peanuts were dug on 23 Sep and harvested on 30 Sep 2004. Means followed by the same letter(s) are not significantly different at P=0.05 according to the Waller-Duncan k-ratio t test.

XVI. MANAGEMENT OF PLANT PARASITIC NEMATODES, CYLINDROCLADIUM BLACK ROT AND TOMATO SPOTTED WILT VIRUS IN PEANUT (TAREC Research Farm, Hare Road, Suffolk)

A. PURPOSE: To assess the benefits of nematicide, insecticide and cultivar selection in peanut disease management.

B. EXPERIMENTAL DESIGN:
1. Five, randomized complete blocks
2. Split-plot design with main plots of treatments and subplots of varieties
3. Two, 35-ft rows per plot with 36 in. row spacing
4. Fifteen-ft alleyways between blocks

C. APPLICATION OF TREATMENTS: Chisel applications of metam sodium 42% were applied 8 in. under each row on 17 Apr. A single chisel was centered in each row and rows were bedded (24 in. wide and 4 in. high) during application. Granular treatments were applied in-furrow at planting.

D. TREATMENT AND RATE/A:
1. Untreated check
2. Thimet 20G 5 lb/A (in furrow)
3. Temik 15G 7 lb/A (in furrow)
4. Vapam 42% 7.5 gal/A (2 wks pre-plant)
5. Vapam 42% 7.5 gal/A (2 wks pre-plant) + Thimet 20G 5 lb/A (in-furrow)
6. Vapam 42% 7.5 gal/A (2 wks pre-plant) + Temik 15G 7 lb/A (in-furrow)

E. CULTIVAR (Sub-plots):
1. Perry
2. VA 98R
3. Wilson
4. Gregory

F. ADDITIONAL INFORMATION:
1. Location: TAREC Research Farm, Hare Rd., Suffolk
2. Crop history: wheat/soybean 2003, peanut 2002, wheat/soybean 2001
3. Planting date: 11 May 2004
4. Soil fertility report:

pH.....	6.2
Ca	224 ppm
Mg	27 ppm
P	27 ppm
K.....	29 ppm
Zn	1.3 ppm
Mn	1.2 ppm
Soil type	Goldsboro fine sandy loam

5. Herbicide:
Pre-plant - Prowl 1 pt/A (7 Apr)
Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (21 Apr)
Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (13 May)
Pursuit 2 oz/A (4 Jun)

6. Insecticide: Orthene 97S 12 oz/A (4 Jun)
   Lorsban 15G 13 lb/A (22 Jun)
   Danitol 10 oz/A (6 Aug)
7. Leaf spot control: Stratego 7 fl oz + Induce 1.2 fl oz (29 Jun), Folicur 7.2 fl oz + Induce 1.2 fl oz (15 Jul), Headline 6 fl oz (6 Aug), Bravo WS 1.5 pt/A (23 Aug, 7 Sep) according to leaf spot advisory program
8. Sclerotinia blight control: Omega 500 1 pt/A (15 Jul, 6 Aug, 1 Sep)
9. Additional crop management:
   a. Liquid boron 1 qt (7 Apr)
   b. Landplaster: Gypsum 420 1200 lb/A (9 Jun)
   c. Liquid Mn 2 qt/A (23 Jun, 9 Jul)
   d. Cultivation: 22 Jun
10. Harvest date: 16 Oct 2004

Table 55. Effect of treatment on emergence of peanut.

Treatment, rate/A and application method*	Plants/ft (Jun 1)**			
	Perry	VA 98R	Wilson	Gregory
Untreated check	2.87 a	2.94 a	2.81 a	2.47 b
Thimet 20G 5 lb/A (F)	3.07 a	2.78 a	2.78 a	2.69 ab
Temik 15G 7 lb/A (F)	2.94 a	3.01 a	2.88 a	2.60 ab
Vapam 42% 7.5 gal/A (C)	2.91 a	2.91 a	2.85 a	2.74 a
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	2.99 a	2.82 a	2.83 a	2.52 ab
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	2.84 a	2.97 a	2.81 a	2.47 b
LSD (P=0.05)	**0.28**	**0.23**	**0.27**	**0.24**

Treatment mean	
Untreated check	2.8 a
Thimet 20G 5 lb/A (F)	2.8 a
Temik 15G 7 lb/A (F)	2.9 a
Vapam 42% 7.5 gal/A (C)	2.9 a
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	2.8 a
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	2.8 a
LSD (P=0.05)	**0.11**
Cultivar mean	
Perry	2.94 a
VA 98R	2.91 ab
Wilson	2.83 b
Gregory	2.60 c
LSD (P=0.05)	**0.92**
Split plot analysis	
Treatment	0.9113
Cultivar	0.0001
Treatment x cultivar	0.4042

* F-in-furrow (11 May), C=chisel (17 Apr).
** Determined from counts of two, 35-ft rows per plot.
Means followed by the same letter(s) in a column and group are not significantly different (LSD, P=0.05).

Table 56. Effect of treatment on incidence of tomato spotted wilt virus (TSWV) in peanut.

Treatment, rate/A and application method*	TSWV (Jun 6)**			
	Perry	VA 98R	Wilson	Gregory
Untreated check	2.2 a	2.2 a	1.8 ab	2.0 a
Thimet 20G 5 lb/A (F)	0.0 b	0.2 b	0.2 c	0.6 b
Temik 15G 7 lb/A (F)	1.2 ab	0.4 b	0.8 bc	0.6 b
Vapam 42% 7.5 gal/A (C)	2.4 a	2.2 a	2.6 a	2.8 a
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	0.6 b	0.6 a	0.2 c	0.2 b
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	1.2 ab	0.6 a	0.6 bc	0.6 b
LSD (P=0.05)	**1.3**	**1.5**	**1.2**	**0.8**

Treatment mean

Untreated check	2.1 a
Thimet 20G 5 lb/A (F)	0.3 b
Temik 15G 7 lb/A (F)	0.8 b
Vapam 42% 7.5 gal/A (C)	2.5 a
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	0.4 b
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	0.8 b
LSD (P=0.05)	**0.58**

Cultivar mean

Perry	1.3 a
VA 98R	1.0 a
Wilson	1.0 a
Gregory	1.1 a
LSD (P=0.05)	**0.47**

Split plot analysis

Cultivar	0.0001
Variety	0.7307
Treatment x cultivar	0.9697

* F-in-furrow (11 May), C=chisel (17 Apr).
** Number of symptomatic plants per plot.
Means followed by the same letter(s) in a column and group are not significantly different (LSD, P=0.05).

Table 57. Severity of thrips injury in peanut.

Treatment, rate/A and application method*	Thrips injury (0-10)** (Jun 6)			
	Perry	VA 98R	Wilson	Gregory
Untreated check	5.0 b	6.8 a	6.4 a	5.4 a
Thimet 20G 5 lb/A (F)	1.2 c	2.2 b	2.0 b	2.0 b
Temik 15G 7 lb/A (F)	0.6 c	0.6 d	1.0 c	1.0 c
Vapam 42% 7.5 gal/A (C)	6.0 a	6.8 a	6.2 a	5.6 a
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	1.2 c	1.6 bc	1.6 bc	1.6 bc
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	0.4 c	1.0 cd	1.2 c	1.0 c
LSD (P=0.05)	**1.0**	**1.0**	**0.7**	**1.0**

Treatment mean	
Untreated check	5.9
Thimet 20G 5 lb/A (F)	1.9
Temik 15G 7 lb/A (F)	0.8
Vapam 42% 7.5 gal/A (C)	6.2
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	1.5
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	0.9
Cultivar mean	
Perry	2.4
VA 98R	3.2
Wilson	3.1
Gregory	2.8
Split plot analysis	
Treatment	0.0001
Cultivar	0.0001
Treatment x cultivar	0.0027

* F-in-furrow (11 May), C=chisel (17 Apr).
** Thrips injury rated on a 0-10 scale, 0 = no thrips, 10 = dead plants. .
Means followed by the same letter(s) in a column and group are not significantly different (LSD, P=0.05).

Table 58. Incidence of chemical injury in peanut.

Treatment, rate/A and application method*	Chemical burn (0-10)** (Jun 6)			
	Perry	VA 98R	Wilson	Gregory
Untreated check	0.0 b	0.0 b	0.0 b	0.0 c
Thimet 20G 5 lb/A (F)	2.0 a	3.4 a	3.2 a	2.4 a
Temik 15G 7 lb/A (F)	0.0 b	0.0 b	0.0 b	0.0 c
Vapam 42% 7.5 gal/A (C)	0.0 b	0.0 b	0.0 b	0.0 c
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	2.2 a	3.6 a	2.8 a	2.0 b
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	0.0 b	0.0 b	0.0 b	0.0 c
LSD (P=0.05)	**0.7**	**0.8**	**0.6**	**0.3**

Treatment mean	
Untreated check	0.0
Thimet 20G 5 lb/A (F)	2.8
Temik 15G 7 lb/A (F)	0.0
Vapam 42% 7.5 gal/A (C)	0.0
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	2.7
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	0.0
Cultivar mean	
Perry	0.7
VA 98R	1.2
Wilson	1.0
Gregory	0.7
Split plot analysis	
Treatment	0.0001
Cultivar	0.0002
Treatment x cultivar	0.0003

* F-in-furrow (11 May), C=chisel (17 Apr).

** Rating scale: 0=no injury, 10=dead plants.
Means followed by the same letter(s) in a column and group are not significantly different (LSD, P=0.05).

Table 59. Effect of treatments on incidence of tomato spotted wilt virus (TSWV) in peanut.

Treatment, rate/A and application method*	TSWV (Jun 28)**			
	Perry	VA 98R	Wilson	Gregory
Untreated check	12.8 b	13.0 ab	16.6 a	14.0 a
Thimet 20G 5 lb/A (F)	6.4 c	3.8 d	6.0 b	6.2 c
Temik 15G 7 lb/A (F)	8.8 bc	8.8 bc	7.6 b	12.4 ab
Vapam 42% 7.5 gal/A (C)	17.4 a	13.8 a	16.8 a	12.0 a-c
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	5.6 c	6.0 cd	5.8 b	6.2 c
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	5.4 c	5.6 cd	5.6 b	7.6 bc
LSD (P=0.05)	**4.04**	**4.52**	**4.58**	**6.05**

Treatment mean	
Untreated check	14.1 a
Thimet 20G 5 lb/A (F)	5.6 c
Temik 15G 7 lb/A (F)	9.4 b
Vapam 42% 7.5 gal/A (C)	15.0 a
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	5.9 c
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	6.1 c
LSD (P=0.05)	**1.88**
Cultivar mean	
Perry	9.4 a
VA 98R	8.5 a
Wilson	9.7 a
Gregory	9.7 a
LSD (P=0.05)	**1.54**
Split plot analysis	
Treatment	.0001
Cultivar	.3374
Treatment x cultivar	.0897

* F-in-furrow (11 May), C=chisel (17 Apr).
** Number of symptomatic plants per plot.
Means followed by the same letter(s) in a column and group are not significantly different (LSD, P=0.05).

Table 60. Effect of treatments on incidence of tomato spotted wilt virus (TSWV) in peanut.

Treatment, rate/A and application method*	TSWV (Jul 26)**			
	Perry	VA 98R	Wilson	Gregory
Untreated check	45.4 b	48.8 ab	61.8 a	44.8 a-c
Thimet 20G 5 lb/A (F)	23.6 c	18.8 c	29.2 b	22.8 c
Temik 15G 7 lb/A (F)	27.4 c	45.2 ab	34.8 b	52.2 ab
Vapam 42% 7.5 gal/A (C)	61.6 a	55.0 a	67.4 a	56.4 a
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	27.0 c	32.8 bc	36.0 b	32.4 bc
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	29.2 c	22.6 c	28.4 b	34.4 a-c
LSD (P=0.05)	**11.25**	**19.82**	**17.72**	**22.82**

Treatment mean	
Untreated check	50.2 b
Thimet 20G 5 lb/A (F)	23.6 e
Temik 15G 7 lb/A (F)	39.9 c
Vapam 42% 7.5 gal/A (C)	60.1 a
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	32.1 d
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	28.7 de
LSD (P=0.05)	**7.13**
Cultivar mean	
Perry	35.7 b
VA 98R	37.2 ab
Wilson	42.9 a
Gregory	40.5 ab
LSD (P=0.05)	**5.82**
Split plot analysis	
Treatment	.0001
Cultivar	.0675
Treatment x cultivar	.0903

* F-in-furrow (11 May), C=chisel (17 Apr).
** Number of symptomatic plants per plot.
Means followed by the same letter(s) in a column and group are not significantly different (LSD, P=0.05).

Table 61. Effect of treatments on incidence of yellowed and dead plants in peanut.

Treatment, rate/A and application method*	Yellowed/dead plants (Aug 28)**			
	Perry	VA 98R	Wilson	Gregory
Untreated check	12.2 a	42.8 a	40.6 a	17.8 a-c
Thimet 20G 5 lb/A (F)	7.4 ab	25.0 bc	37.6 a	22.4 ab
Temik 15G 7 lb/A (F)	4.8 b	37.2 ab	28.2 ab	23.0 a
Vapam 42% 7.5 gal/A (C)	7.2 ab	10.8 cd	8.4 c	5.0 d
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	3.2 b	16.0 cd	15.6 bc	8.4 cd
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	2.8 b	7.8 d	16.6 bc	11.0 b-d
LSD (P=0.05)	**5.30**	**15.21**	**14.42**	**11.50**

Treatment mean	
Untreated check	28.4
Thimet 20G 5 lb/A (F)	23.1
Temik 15G 7 lb/A (F)	23.3
Vapam 42% 7.5 gal/A (C)	7.9
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	10.8
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	9.6
Cultivar mean	
Perry	6.3
VA 98R	23.3
Wilson	24.5
Gregory	14.6
Split plot analysis	
Treatment	.0001
Cultivar	.0001
Treatment x cultivar	.0001

* F-in-furrow (11 May), C=chisel (17 Apr).

** Number of symptomatic and/or dead plants per two row plot. Yellow/dead plants were indicative of CBR or TSWV, but some lacked distinguishing features of either disease.

Means followed by the same letter(s) in a column and group are not significantly different (LSD, P=0.05).

Table 62. Effect of treatment on incidence of yellowed and dead plants in peanut.

Treatment, rate/A and application method*	Yellowed/dead plants (Oct 3)**			
	Perry	VA 98R	Wilson	Gregory
Untreated check	34.8 a	90.6 ab	96.6 a	79.4 a
Thimet 20G 5 lb/A (F)	28.2 ab	82.8 ab	97.0 a	78.8 a
Temik 15G 7 lb/A (F)	20.2 bc	95.6 a	83.4 ab	83.0 a
Vapam 42% 7.5 gal/A (C)	17.4 cd	38.0 c	43.6 c	24.8 b
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	13.8 cd	57.8 bc	57.2 bc	41.0 b
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	8.4 d	39.0 c	54.2 c	37.4 b
LSD (P=0.05)	**10.21**	**34.13**	**26.70**	**23.82**

Treatment mean	
Untreated check	75.4
Thimet 20G 5 lb/A (F)	71.7
Temik 15G 7 lb/A (F)	70.6
Vapam 42% 7.5 gal/A (C)	31.0
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	42.5
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	34.8
Cultivar mean	
Perry	20.5
VA 98R	67.3
Wilson	72.0
Gregory	57.4
Split plot analysis	
Treatment	.0001
Cultivar	.0001
Treatment x cultivar	.0233

* F-in-furrow (11 May), C=chisel (17 Apr).

** Number of symptomatic and/or dead plants per two row plot. Yellow/dead plants were indicative of CBR or TSWV, but many lacked distinguishing features of either disease.
Means followed by the same letter(s) in a column and group are not significantly different (LSD, P=0.05).

Table 63. Severity of CBR & tomato wpotted wilt virus (TSWV) in peanut on 3 Oct.

Treatment, rate/A and application method*	Disease severity (0-10)**			
	Perry	VA 98R	Wilson	Gregory
Untreated check	3.5 a	8.4 a	8.5 a	8.0 a
Thimet 20G 5 lb/A (F)	2.5 ab	7.2 ab	9.2 a	7.0 a
Temik 15G 7 lb/A (F)	2.2 a-c	8.3 a	7.2 ab	7.4 a
Vapam 42% 7.5 gal/A (C)	1.5 b-d	3.7 c	3.7 c	2.7 b
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	0.9 cd	4.8 bc	5.2 bc	3.7 b
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	0.5 d	2.8 c	4.4 c	3.5 b
LSD (P=0.05)	**1.55**	**3.21**	**2.52**	**2.41**

Treatment mean

Untreated check	7.1 a
Thimet 20G 5 lb/A (F)	6.5 a
Temik 15G 7 lb/A (F)	6.3 a
Vapam 42% 7.5 gal/A (C)	2.9 b
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	3.7 b
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	2.8 b
LSD (P=0.05)	**0.95**

Cultivar mean

Perry	1.9 c
VA 98R	5.9 ab
Wilson	6.4 a
Gregory	5.4 b
LSD (P=0.05)	**0.78**

Split plot analysis

Treatment	.0001
Cultivar	.0001
Treatment x cultivar	.0736

* F-in-furrow (11 May), C=chisel (17 Apr).
** Disease severity scale: 0=none, 10=all plants with symptoms of CBR and/or TSWV.
Means followed by the same letter(s) in a column and group are not significantly different (LSD, P=0.05).

Table 64. Severity of root galling by northern root-knot nematode in peanut.

Treatment, rate/A and application method*	Root galling (0-10)**			
	Perry	VA 98R	Wilson	Gregory
Untreated check	4.4 a	5.8 a	5.6 a	5.0 a
Thimet 20G 5 lb/A (F)	3.2 ab	4.0 b	4.0 b	4.2 ab
Temik 15G 7 lb/A (F)	3.2 ab	3.4 b	3.6 bc	3.6 b
Vapam 42% 7.5 gal/A (C)	1.8 c	1.8 c	2.0 d	1.8 c
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	2.2 bc	1.8 c	2.6 cd	2.2 c
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	1.6 c	1.4 c	2.0 d	1.4 c
LSD (P=0.05)	**1.22**	**1.33**	**1.23**	**1.37**

Treatment mean

Untreated check	5.2 a
Thimet 20G 5 lb/A (F)	3.9 b
Temik 15G 7 lb/A (F)	3.5 b
Vapam 42% 7.5 gal/A (C)	1.9 cd
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	2.2 c
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	1.6 d
LSD (P=0.05)	**0.50**

Cultivar mean

Perry	2.7 b
VA 98R	3.0 ab
Wilson	3.3 a
Gregory	3.0 ab
LSD (P=0.05)	**0.41**

Split plot analysis

Treatment	.0001
Cultivar	.0640
Treatment x cultivar	.6747

* F-in-furrow (11 May), C=chisel (17 Apr).

** Root-knot nematode galling scale: 0=none, 10=100% of roots with galls. Ratings were made after digging on 6 Oct. Means followed by the same letter(s) in a column and group are not significantly different (LSD, P=0.05).

Table 65. Severity of root rot in peanut caused by cylindrocladium black rot (CBR).

Treatment, rate/A and application method*	Root rot (0-10)**			
	Perry	VA 98R	Wilson	Gregory
Untreated check	2.6 a	7.8 a	7.8 ab	5.8 a
Thimet 20G 5 lb/A (F)	2.0 ab	5.8 ab	8.2 a	5.0 ab
Temik 15G 7 lb/A (F)	1.4 bc	6.4 ab	7.0 a-c	5.8 a
Vapam 42% 7.5 gal/A (C)	1.0 c	4.2 b	4.2 d	2.2 c
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	1.4 bc	5.2 ab	5.4 cd	3.6 a-c
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	0.8 c	3.4 b	5.8 b-d	3.2 bc
LSD (P=0.05)	**0.90**	**3.26**	**2.28**	**2.36**

Treatment mean	
Untreated check	6.0 a
Thimet 20G 5 lb/A (F)	5.3 a
Temik 15G 7 lb/A (F)	5.2 a
Vapam 42% 7.5 gal/A (C)	2.9 b
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	3.9 b
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	3.3 b
LSD (P=0.05)	**1.07**

Cultivar mean	
Perry	1.5 d
VA 98R	5.5 b
Wilson	6.4 a
Gregory	4.3 c
LSD (P=0.05)	**0.88**

Split plot analysis	
Treatment	.0010
Cultivar	.0001
Treatment x cultivar	.6428

* F-in-furrow (11 May), C=chisel (17 Apr).
** Root rot scale: 0=none, 10=total decay by CBR.
Means followed by the same letter(s) in a column and group are not significantly different (LSD, P=0.05).

Table 66. Severity of pod rot in peanut caused by cylindrocladium black rot (CBR).

Treatment, rate/A and application method*	Pod rot (0-10)**			
	Perry	VA 98R	Wilson	Gregory
Untreated check	2.6 a	7.8 a	7.6 ab	6.4 a
Thimet 20G 5 lb/A (F)	1.8 ab	5.0 a-c	8.0 a	5.8 ab
Temik 15G 7 lb/A (F)	1.6 a-c	7.0 ab	7.2 ab	5.8 ab
Vapam 42% 7.5 gal/A (C)	1.0 bc	4.0 bc	4.4 c	2.6 c
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	1.2 bc	5.0 a-c	6.0 a-c	3.6 bc
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	0.6 c	3.6 c	5.4 bc	3.2 c
LSD (P=0.05)	**1.01**	**3.10**	**2.26**	**2.31**

Treatment mean

Untreated check	6.1 a
Thimet 20G 5 lb/A (F)	5.2 a
Temik 15G 7 lb/A (F)	5.4 a
Vapam 42% 7.5 gal/A (C)	3.0 b
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	4.0 b
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	3.2 b
LSD (P=0.05)	**1.05**

Cultivar mean

Perry	1.5 c
VA 98R	5.4 b
Wilson	6.4 a
Gregory	4.6 b
LSD (P=0.05)	**0.86**

Split plot analysis

Treatment	.0001
Cultivar	.0001
Treatment x cultivar	.6287

* F-in-furrow (11 May), C=chisel (17 Apr).
** Pod rot scale: 0=none, 10=total decay by CBR.
Means followed by the same letter(s) in a column and group are not significantly different (LSD, P=0.05).

Table 67. Effect of treatments on incidence of *Cylindrocladium parasiticum* in taproots of peanut.

Treatment, rate/A and application method*	Biopsy test (% +)**			
	Perry	VA 98R	Wilson	Gregory
Untreated check	39 ab	86 a	87 a	74 a
Thimet 20G 5 lb/A (F)	46 a	75 ab	91 a	76 a
Temik 15G 7 lb/A (F)	31 a-c	73 ab	80 a	74 a
Vapam 42% 7.5 gal/A (C)	19 bc	52 b	52 c	55 a
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	12 c	58 b	72 ab	62 a
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	17 c	55 b	58 bc	56 a
LSD (P=0.05)	**21.7**	**23.1**	**19.6**	**26.4**

Treatment mean

Untreated check	72 a
Thimet 20G 5 lb/A (F)	72 a
Temik 15G 7 lb/A (F)	65 a
Vapam 42% 7.5 gal/A (C)	45 b
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	51 b
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	47 b
LSD (P=0.05)	**10.1**

Cultivar mean

Perry	27 b
VA 98R	67 a
Wilson	73 a
Gregory	66 a
LSD (P=0.05)	**8.2**

Split plot analysis

Treatment	.0005
Cultivar	.0001
Treatment x cultivar	.9321

* F-in-furrow (11 May), C=chisel (17 Apr).

** Data are percent recovery of *Cylindrocladium parasiticum* from 20 taproots selected at random from each plot. Taproots were assayed with a selective medium on 6, 7 and 8 Oct.
Means followed by the same letter(s) in a column and group are not significantly different (LSD, P=0.05).

Table 68. Effect of treatments on incidence of Tomato spotted wilt virus in taproots of Perry peanut.

Treatment, rate/A and application method*	TSWV taproot assay (% +)**
Untreated check	12 a
Thimet 20G 5 lb/A (F)	14 a
Temik 15G 7 lb/A (F)	10 a
Vapam 42% 7.5 gal/A (C)	22 a
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	16 a
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	16 a
LSD (P=0.05)	**12.8**

* F-in-furrow (11 May), C=chisel (17 Apr).
** Data are percent positive test results from 10 taproots selected at random from each plot. Taproots were tested for TSWV on 6 Oct using Immunostrip Assay kits.
Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 69. Effect of treatments on populations of root-knot nematode in peanuts.

Treatment, rate/A and application method*	Root-knot nematodes/500 cc soil**
Untreated check	2534 a
Thimet 20G 5 lb/A (F)	3360 a
Temik 15G 7 lb/A (F)	3264 a
Vapam 42% 7.5 gal/A (C)	3476 a
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	2626 a
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	2758 a
LSD (P=0.05)	**2009**

* F-in-furrow (11 May), C=chisel (17 Apr).
** Soil samples were collected from all subplots within each treatment on 22 Sep.
Means followed by the same letter(s) are not significantly different (LSD, P=0.05). Square root transformation of population data was made in analysis to determine statistical significance.

Table 70. Effect of treatments on yield of peanut.

Treatment, rate/A and application method[1]	Yield (lb/A)[2]			
	Perry	VA 98R	Wilson	Gregory
Untreated check	4597 c	1208 c	1246 b	1989 b
Thimet 20G 5 lb/A (F)	4805 c	2227 a-c	1142 b	2259 b
Temik 15G 7 lb/A (F)	5769 ab	1513 bc	1833 ab	2207 b
Vapam 42% 7.5 gal/A (C)	5329 bc	2955 ab	2828 a	4040 a
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	6331 a	2836 ab	2912 a	3217 ab
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	6476 a	3141 a	2556 a	3373 ab
MSD (P=0.05)[3]	**876**	**1572**	**1258**	**1471**

Treatment mean

Untreated check	2137 c
Thimet 20G 5 lb/A (F)	2608 b
Temik 15G 7 lb/A (F)	2504 bc
Vapam 42% 7.5 gal/A (C)	3832 a
Vapam 42% 7.5 gal/A (C) + Thimet 20G 5 lb/A (F)	3824 a
Vapam 42% 7.5 gal/A (C) + Temik 15G 7 lb/A (F)	3750 a
MSD (P=0.05)	**439**

Cultivar mean

Perry	5536 a
VA 98R	2291 c
Wilson	2086 c
Gregory	2848 b
MSD (P=0.05)	**349**

Split plot analysis

Treatment	.0008
Cultivar	.0001
Treatment x cultivar	.1921

[1] F-in-furrow (11 May), C=chisel (17 Apr).
[2] Yields are weight of peanuts with 7% moisture. Peanuts were dug on 6 Oct and harvested on 16 Oct 2004.
[3] MSD=minimum significant difference.
Means followed by the same letter(s) in a column and group are not significantly different according to Waller-Duncan k-ratio t test.

XVII. THE EFFECT OF SOIL TEMPERATURE AND RAINFALL ON PERFORMANCE OF METAM SODIUM (42%) FOR CONTROL OF CYLINDROCLADIUM BLACK ROT (CBR) OF PEANUT (TAREC, Holland Road)

A. PURPOSE: To determine the importance of post-treatment, soil temperature and rainfall in performance of metam sodium for control of CBR

B. EXPERIMENTAL DESIGN:
1. Four, 40-ft rows per plot
2. Data collected from the two center rows of each plot
3. Fifteen-ft alleyways between blocks
4. Six replications in randomized complete block design

C. APPLICATION OF TREATMENTS: Soil samples (0-10 in. depth) were collected from bedded rows for gravimetric determination of soil moisture prior to each treatment. Chisel applications of metam sodium 42% were applied 8 in. under each row. A single chisel was centered in each row, and rows were bedded and shaped (24-in. wide x 4-in. high) during application. Weather forecasts were obtained from www.weather.com just prior to application of treatments.

D. TREATMENT DATE (Metam 42%, 7.5 gal/A):
1. Mar 24
2. Mar 30
3. Apr 7
4. Apr 17
5. Apr 21
6. Apr 28
7. May 7
8. Untreated check

E. ADDITIONAL INFORMATION:
1. Location: Tidewater Research Center, 6321 Holland Rd., Suffolk
2. Crop history: corn 2003, peanut-2002
3. Planting date and cultivar: 21 May, NC-V 11
4. Herbicide:
   Pre-plant - Prowl 1 pt/A (22 Mar)
   Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (13 May)
   Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.23 fl oz + Gramoxone Max 11 fl oz/A (26 May)
5. Insecticide: Temik 15G 7 lb/A in furrow (21 May)
   Orthene 97S 12 oz/A (3 Jun)
   Lorsban 15G 13 lb/A (22 Jun)
   Danitol 10 oz/A (9 Aug)
6. Leaf spot control: Stratego 7 fl oz + Induce 1.2 fl oz (29 Jun), Folicur 7.2 fl oz + Induce 1.2 fl oz (16 Jul), Headline 6 fl oz (9 Aug), Bravo WS 1.5 pt/A (24 Aug, 7 Sep) according to leaf spot advisory program
7. Sclerotinia blight control: Omega 500 1 pt/A (22 Jul, 9 Aug, 1 Sep)
8. Additional crop management:
   a. Liquid boron 1 qt (22 Mar)
   b. Landplaster: Gypsum 420 1200 lb/A (9 Jun)
   c. Liquid Mn 2 qt/A (23 Jun, 9 Jul)
   d. Cultivation: 22 Jun
9. Harvest date: 22 Oct 2004

Table 71. Weather forecast on date of soil treatment.*

Appl. date	Day 1		Day 2		Day 3		Day 4	
	% Rain	Hi/Lo	% Rain	Hi/Lo	% Rain	Hi/Lo	% Rain	Hi/Lo
Mar 24	10	71/52	30	74/50	40	69/47	10	62/41
Mar 30	10	67/41	30	65/43	40	62/37	30	61/39
Apr 7.....	50	66/51	20	69/42	20	61/43	40	59/51
Apr 17	0	82/59	10	82/62	40	78/48	20	66/45
Apr 21	10	83/62	10	82/61	10	75/53	30	72/58
Apr 28.....	0	76/57	20	80/59	20	77/68	40	76/58
May 7.....	20	71/63	20	89/67	20	88/69	30	85/62

*Weather forecasts from www.weather.com for Franklin, Va. on the date of soil fumigation.

Table 72. Rainfall and soil temperature after treating peanuts.

		Days after treatment								
Treatment date		0	1	2	3	4	5	6	7	
Rainfall (in.)	% soil moisture									Total
Mar 24	12.15	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.65	0.67
Mar 30	12.61	0.02	0.65	0.01	0.01	0.00	0.00	0.00	0.00	0.69
Apr 7.....	11.66	0.00	0.00	0.00	0.03	0.33	0.38	0.99	0.43	2.16
Apr 17	16.17	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.09
Apr 21	14.61	0.00	0.00	0.09	0.00	0.00	0.69	0.05	0.00	0.83
Apr 28.....	15.43	0.00	0.00	0.00	0.00	0.14	0.86	0.39	0.00	1.39
May 7.....	15.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Soil temperature (F)										Mean
Mar 24		52.7	57.0	60.0	62.5	59.9	54.3	53.3	53.4	56.6
Mar 30		53.3	53.4	52.4	51.2	51.2	53.1	51.5	52.7	52.4
Apr 7.....		59.0	61.9	62.1	60.7	57.9	53.7	60.2	56.6	59.0
Apr 17		60.7	66.9	69.9	74.0	74.3	74.3	75.1	72.1	70.9
Apr 21		74.3	74.3	75.1	72.1	68.2	71.2	66.2	60.8	70.3
Apr 28.....		60.8	64.9	68.6	69.5	70.1	62.4	59.6	61.3	64.7
May 7.....		73.1	73.4	75.1	77.9	78.0	79.0	79.7	80.4	77.1

* Rainfall data from NOAA weather station at TAREC. Soil temperature was measured at 4-in. depth under bedded rows in field by a WatchDog® temperature monitor.

Table 73. Effect of treatment with Metam 42% on incidence and severity of CBR, percentage of taproots infected with *Cylindrocladium parasiticum*, and yield of peanut.

	CBR[1]		CBR/TSWV severity[2]	Biopsy test[3]	Yield[4]
Application date	Aug 12	Oct 11	(0-10)	(% +)	(lb/A)
Mar 24	10.0 b-d	35.8 b-d	3.2 bc	39 cd	3829 ab
Mar 30	11.8 b	39.2 b	3.0 bc	44 b-d	3489 b
Apr 7	11.5 b	40.5 b	3.7 b	53 a-c	3489 b
Apr 17	9.7 b-d	36.7 bc	3.2 bc	47 b-d	3459 b
Apr 21	6.8 cd	29.0 cd	2.8 bc	39 cd	3821 ab
Apr 28	10.5 bc	40.5 b	3.3 bc	57 ab	3225 b
May 7	5.8 d	26.0 d	2.0 c	33 d	4161 a
Untreated check	23.0 a	62.2 a	6.3 a	67 a	2470 c
LSD	**4.21**	**10.07**	**1.33**	**18**	**608**

[1] Counts of symptomatic and/or dead plants per plot.
[2] Disease severity scale: 0=none, 10=all plants with symptoms of CBR/TSWV.
[3] Data are percent recovery of *Cylindrocladium parasiticum* from 25 taproots selected at random from each plot. Taproots were assayed with a selective medium on 19 Oct.
[4] Yields are weight of peanuts with 7% moisture. Peanuts were dug on 18 Oct and harvested on 22 Oct 2004. Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

XVIII. EVALUATION OF SEED AND IN-FURROW TREATMENTS FOR CONTROL OF SEED TRANSMISSION OF CYLINDROCLADIUM BLACK ROT (CBR) OF PEANUT (TAREC Research Farm, Lummis Road)

A. PURPOSE: To compare the benefits of Dynasty PD to Vitavax PC with and without in-furrow fungicides.

B. EXPERIMENTAL DESIGN:
   1. Four randomized complete blocks with 15-ft alleyways between blocks
   2. Two, 30-ft rows per plot
   3. Seeding rate at 4 seed/row ft

C. APPLICATION OF TREATMENTS: Speckled seed infested with *Cylindrocladium parasiticum* was obtained from a local sheller along with normal seed in the same lot. Biopsy assays recovered *C. parasiticum* from 70% of speckled seed and none from normal seed. Dust treatments with Dynasty and Vitavax PC were applied to seed with a Gustafson lab treater. In-furrow fungicides were applied to the seed furrow at planting in water and delivered at a volume of 5 gal/A.

D. TREATMENT AND RATE:

Normal seed

   1. Untreated check
   2. Dynasty PD 5.6DS 3.5 oz/cwt (seed)
   3. Dynasty PD 5.6DS 4 oz/cwt (seed)
   4. Dynasty PD 5.6DS 4 oz/cwt (seed) + Abound 2.08SC 3 fl oz/A (in-furrow)
   5. Dynasty PD 5.6DS 4 oz/cwt (seed) + Thiram 75WDG 2 lb + Matrix 1 qt/100 gal (in-furrow)
   6. Vitavax PC 4 oz/cwt (seed)
   7. Vitavax PC 4 oz/cwt (seed) + Abound 2.08SC 6 fl oz/A (in-furrow)
   8. Vitavax PC 4 oz/cwt (seed) + Thiram 75WDG 2 lb/A + Matrix 1 qt/100 gal (in-furrow)

Speckled seed

   9. Untreated check
   10. Dynasty PD 5.6DS 4 oz/cwt (seed)
   11. Dynasty PD 5.6DS 4 oz/cwt (seed) + Abound 2.08SC 3 fl oz/A (in-furrow)

E. ADDITIONAL INFORMATION:
   1. Location: TAREC Research Farm, Lummis Rd., Suffolk
   2. Crop history: wheat 2003; corn 2002, peanut 2001
   3. Planting date and cultivar: 10 May, NC-V 11
   4. Soil fertility report:

pH.....	5.9
Ca	358 ppm
Mg	73 ppm
P	27 ppm
K.....	117 ppm
Zn	1.0 ppm
Mn	2.9 ppm
Soil type	Nansemond fine sandy loam

5. Herbicide:
   Pre-plant - Prowl 1 pt/A (24 Mar)
   Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (21 Apr)
   Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (13 May)
   Post-emergence – Poast Plus 36 fl oz + ChemOil 1 pt/A (2 Jun, 15 Jun)
6. Cylindrocladium black rot control: Vapam 7.5 gal/A (17 Apr)
7. Insecticide: Temik 15G 7 lb/A in furrow (10 May)
   Orthene 97S 12 oz/A (4 Jun)
   Lorsban 15G 13 lb/A (22 Jun)
   Danitol 10 oz/A (6 Aug)
8. Leaf spot control: Stratego 7 fl oz + Induce 1.2 fl oz (29 Jun), Folicur 7.2 fl oz + Induce 1.2 fl oz (15 Jul), Headline 6 fl oz (6 Aug), Bravo WS 1.5 pt/A (23 Aug, 7 Sep) according to leaf spot advisory program
9. Sclerotinia blight control: Omega 500 1 pt/A (23 Aug)
10. Additional crop management:
    a. Liquid boron 1 qt (24 Mar)
    b. Landplaster: Gypsum 420 1200 lb/A (9 Jun)
    c. Liquid Mn 2 qt/A (23 Jun, 9 Jul)
    d. Cultivation: 22 Jun
11. Harvest date: 1 Oct 2004

Table 74. Effect of seed treatment on emergence and disease incidence in peanuts.

Seed type, treatment and rate[1]	Plants/ft[2] May 27	Plants/ft[2] Jun 7	CBR[3] Aug 18	CBR[3] Sep 24	Disease severity[4] (Sep 24)
Normal seed					
Untreated check	3.11 ab	3.30 a	4.8 b-d	17.0 b-e	1.9 d
Dynasty PD 5.6DS 3.5 oz/cwt (S)	3.08 ab	3.16 a	4.0 cd	13.0 de	1.5 d
Dynasty PD 5.6DS 4 oz/cwt (S)	3.01 ab	3.09 a	6.0 b-d	23.5 bc	3.8 bc
Dynasty PD 5.6DS 4 oz/cwt (S) + Abound 2.08SC 3 fl oz/A (F)	3.14 ab	3.18 a	4.0 cd	19.5 b-e	2.0 cd
Dynasty PD 5.6DS 4 oz/cwt (S) + Thiram 75WDG 2 lb/A + Matrix 1 qt/100 gal/A (F)	3.05 ab	3.28 a	5.5 b-d	15.3 c-e	1.8 d
Vitavax PC 4 oz/cwt (S)	3.13 ab	3.18 a	6.8 b-d	23.3 b-d	2.5 b-d
Vitavax PC 4 oz/cwt (S) + Abound 2.08SC 6 fl oz/A (F)	3.28 a	3.26 a	9.5 b	38.8 a	4.0 b
Vitavax PC 4 oz/cwt (S) Thiram 75WDG 2 lb/A + Matrix 1 qt/100 gal/A(F)	3.02 ab	3.19 a	7.5 bc	26.5 b	3.8 bc
Speckled seed					
Untreated check	3.12 ab	3.23 a	24.0 a	48.0 a	7.0 a
Dynasty PD 5.6DS 4 oz/cwt (S)	3.04 ab	3.18 a	2.5 d	11.5 e	1.3 d
Dynasty PD 5.6DS 4 oz/cwt (S) + Abound 2.08SC 3 fl oz/A (F)	2.95 b	3.25 a	4.8 b-d	19.3 b-e	2.0 cd
LSD	**0.29**	**0.25**	**4.94**	**10.43**	**1.76**

[1] S=seed treatment, F=in furrow.
[2] Determined from counts of plants in two, 30-ft rows per plot.
[3] Number of symptomatic and/or dead plants per plot.
[4] Disease severity rating scale: 0=none, 10=all plants with symptoms. Symptoms were indicative of CBR and TSWV.
Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 75. Effect of seed treatment on severity of root and pod rot, percent of taproots infected with *Cylindrocladium parasiticum*, and yield of peanuts.

Seed type, treatment and rate[1]	Root rot[2] (Sep 24)	Pod rot[2] (Sep 24)	Biopsy test[3] (% +)	Yield[4] (lb/A)
Normal seed				
Untreated check	1.3 c	1.3 cd	13 c	4920 ab
Dynasty PD 5.6DS 3.5 oz/cwt (S)	1.5 bc	1.5 b-d	10 c	4829 ab
Dynasty PD 5.6DS 4 oz/cwt (S)	2.3 bc	2.3 b-d	13 c	4693 a-c
Dynasty PD 5.6DS 4 oz/cwt (S) + Abound 2.08SC 3 fl oz/A (F)	1.8 bc	1.8 b-d	11 c	4889 ab
Dynasty PD 5.6DS 4 oz/cwt (S) + Thiram 75WDG 2 lb/A + Matrix 1 qt/100 gal/A (F)	1.8 bc	1.8 b-d	10 c	5162 a
Vitavax PC 4 oz/cwt (S)	3.0 b	2.8 bc	20 c	4496 bc
Vitavax PC 4 oz/cwt (S) + Abound 2.08SC 6 fl oz/A (F)	3.0 b	3.0 b	40 b	3603 de
Vitavax PC 4 oz/cwt (S) Thiram 75WDG 2 lb/A + Matrix 1 qt/100 gal (F)	3.0 b	3.0 b	25 bc	4117 cd
Speckled seed				
Untreated check	5.8 a	5.8 a	60 a	3179 e
Dynasty PD 5.6DS 4 oz/cwt (S)	1.0 c	0.8 d	10 c	5116 ab
Dynasty PD 5.6DS 4 oz/cwt (S) + Abound 2.08SC 3 fl oz/A (F)	2.3 bc	2.3 b-d	25 bc	4693 a-c
LSD	**1.67**	**1.62**	**15.39**	**634**

[1] S=seed treatment, F=in furrow.
[2] Root and pod rot rating scale: 0=none, 10=total decay by CBR.
[3] Data are percent recovery *of Cylindrocladium parasiticum* from 20 taproots selected at random from each plot. Taproots were assayed with a selective medium on 27 and 28 Sep.
[4] Yields are weight of peanuts with 7% moisture. Peanuts were dug on 27 Sep and harvested on 1 Oct 2004. Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

XIX. EFFECT OF SEED, IN-FURROW AND FOLIAR SPRAY TREATMENTS WITH FUNGICIDES ON SEEDLING EMERGENCE AND CYLINDROCLADIUM BLACK ROT OF PEANUT (TAREC Research Farm, Lummis Road)

A. PURPOSE: To compare the effect of in-furrow fungicide treatments on seed transmission of Cylindrocladium black rot (CBR) and foliar treatments for suppression of yield losses.

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks separated by 15-ft alleyways
2. Four, 30-ft rows per plot with treatments applied only to two center rows, and border rows planted to commercial seed treated with Vitavax PC.
3. Seeding rate at 4 seed/ft of row

C. APPLICATION OF TREATMENTS: Speckled seed infested with *Cylindrocladium parasiticum* was obtained from a local sheller along with normal seed in the same lot. Biopsy assays recovered *C. parasiticum* from 70% of speckled seed and none from normal seed. All seed were treated with Vitavax PC 4 oz/cwt. JAU6476 in treatment #8 was sprayed on seed at a volume of 12.7 fl oz/cwt overtop the Vitavax PC in a Gustafson treater. In-furrow treatments were mixed in water and delivered in a volume of 5 gal/A through a microtube to the seed furrow at planting. Foliar sprays of fungicides were applied according to the Virginia Peanut Leaf spot Advisory Program starting at flowering (R1).

D. TREATMENT AND RATE/A:

Normal Seed (NC-V 11)

1. Echo 720 1.5 pt (R1 Adv. 1st, 2nd, 3rd, 4th, 5th spray)
2. JAU6476 480SC 2.14 fl oz + Folicur 4.75 fl oz (R1 Adv. 1st, 2nd, 3rd, 4th spray)
   Echo 720 1.5 pt (5th Adv. spray)
3. Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (R1 Adv. 1st, 2nd, 3rd, 4th spray)
   Echo 720 1.5 pt (5th Adv. spray)

Speckled Seed (NC-V 11)

4. Echo 720 1.5 pt (R1 Adv. 1st, 2nd, 3rd, 4th, 5th spray)
5. Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (R1 Adv. 1st, 2nd, 3rd, 4th spray)
   Echo 720 1.5 pt (5th Adv. spray)
6. JAU6476 480SC 2.14 fl oz + Folicur 4.75 fl oz (R1 Adv. 1st, 2nd, 3rd, 4th spray)
   Echo 720 1.5 pt (5th Adv. spray)
7. JAU6476 480SC 5.7 fl oz (in furrow)
   JAU6476 480SC 2.14 fl oz + Folicur 4.75 fl oz (R1 Adv. 1st, 2nd, 3rd, 4th spray)
   Echo 720 1.5 pt (5th Adv. spray)
8. JAU6476 480SC 1.54 fl oz/cwt (seed)
   JAU6476 480SC 2.14 fl oz + Folicur 4.75 fl oz (R1 Adv. 1st, 2nd, 3rd, 4th spray)
   Echo 720 1.5 pt (5th Adv. spray)
9. JAU6476 480SC 7.1 fl oz (in furrow)
   JAU6476 480SC 2.14 fl oz + Folicur 4.75 fl oz (R1 Adv. 1st, 2nd, 3rd, 4th spray)
   Echo 720 1.5 pt (5th Adv. spray)
10. Thiram 75WDG 2 lb + Matrix 1 qt/100 gal (in-furrow)
    Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (R1 Adv. 1st, 2nd, 3rd, 4th spray)
    Echo 720 1.5 pt (5th Adv. spray)
11. Thiram 75WDG 4 lb + Matrix 1 qt/100 gal (in-furrow)
    Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (R1 Adv. 1st, 2nd, 3rd, 4th spray)
    Echo 720 1.5 pt (5th Adv. spray)

E. ADDITIONAL INFORMATION:

1. Location: TAREC Research Farm, Lummis Rd., Suffolk
2. Crop history: wheat 2003; corn 2002, peanut 2001
3. Planting date and cultivar: 10 May, NC-V 11
4. Soil fertility report:

pH.....	5.9
Ca	358 ppm
Mg	73 ppm
P	27 ppm
K.....	117 ppm
Zn	1.0 ppm
Mn	2.9 ppm
Soil type	Nansemond fine sandy loam

5. Herbicide:
   Pre-plant - Prowl 1 pt/A (24 Mar)
   Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (21 Apr)
   Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (13 May)
   Post-emergence – Poast Plus 36 fl oz + ChemOil 1 pt/A (2 Jun, 15 Jun)
6. Cylindrocladium black rot control: Vapam 7.5 gal/A (17 Apr)
7. Insecticide: Temik 15G 7 lb/A in furrow (10 May)
   Orthene 97S 12 oz/A (4 Jun)
   Lorsban 15G 13 lb/A (22 Jun)
   Danitol 10 oz/A (6 Aug)
8. Sclerotinia blight control: Omega 500 1 pt/A (23 Aug)
9. Additional crop management:
   a. Liquid boron 1 qt (24 Mar)
   b. Landplaster: Gypsum 420 1200 lb/A (9 Jun)
   c. Liquid Mn 2 qt/A (23 Jun, 9 Jul)
   d. Cultivation: 22 Jun
10. Harvest date: 1 Oct 2004

Table 76. Effect of selected treatments on plant populations.

Seed type, treatment, rate and application date*	Plants/ft (May 27)
Normal Seed	
Echo 720 1.5 pt (6/29, 7/15, 8/4, 8/19, 9/3)	2.91 ab
Speckled Seed	
Echo 720 1.5 pt (6/29, 7/15, 8/4, 8/19, 9/3)	2.80 ab
JAU6476 480SC 5.7 fl oz (F) JAU6476 480SC 2.14 fl oz + Folicur 4.75 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	2.75 b
JAU6476 480SC 1.54 fl oz/cwt (S) JAU6476 480SC 2.14 fl oz + Folicur 4.75 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	2.70 b
JAU6476 480SC 7.1 fl oz (F) JAU6476 480SC 2.14 fl oz + Folicur 4.75 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	2.74 b
Thiram 75WDG 2 lb/A + Matrix 1 qt/100 gal (F) Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	2.92 ab
Thiram 75WDG 4 lb/A + Matrix 1 qt/100 gal (F) Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	3.03 a
LSD	**0.23**

* Determined from counts of plants in two, 30-ft rows per plot.
Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 77. Effect of in-furrow, seed and foliar fungicides on incidence of cylindrocladium black rot (CBR) and severity of root rot caused by CBR.

Seed type, treatment, rate and application date[1]	CBR[2] (Aug 18)	Root rot[3] (Sep 27)
Normal Seed		
Echo 720 1.5 pt (6/29, 7/15, 8/4, 8/19, 9/3)	6.8 b-d	3.5 bc
JAU6476 480SC 2.14 fl oz + Folicur 4.75 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	5.3 cd	2.0 ef
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	8.8 b-d	1.5 f
Speckled Seed		
Echo 720 1.5 pt (6/29, 7/15, 8/4, 8/19, 9/3)	19.8 a	6.3 a
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	10.8 b	4.0 bc
JAU6476 480SC 2.14 fl oz + Folicur 4.75 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	9.8 bc	4.5 b
JAU6476 480SC 5.7 fl oz (F) JAU6476 480SC 2.14 fl oz + Folicur 4.75 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	7.8 b-d	3.0 c-e
JAU6476 480SC 1.54 fl oz/cwt (S) JAU6476 480SC 2.14 fl oz + Folicur 4.75 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	6.8 b-d	1.8 f
JAU6476 480SC 7.1 fl oz (F) JAU6476 480SC 2.14 fl oz + Folicur 4.75 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	4.3 d	2.3 d-f
Thiram 75WDG 2 lb/A + Matrix 1qt/100 gal (F) Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	7.8 b-d	3.5 bc
Thiram 75WDG 4 lb/A + Matrix 1qt/100 gal (F) Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	7.8 b-d	3.3 cd
LSD	**4.59**	**1.21**

[1] F=in furrow, S=seed treatment. Foliar treatments were applied beginning at R1 (flowering) and thereafter according to the leaf spot advisory.

[2] Number of symptomatic and/or dead plants per plot.

[3] Root rot scale: 0=none, 10=total decay by CBR. Ratings were made after digging peanuts on 27 Sep. Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 78. Effect of fungicides on incidence of foliar disease and defoliation of peanut.

Seed type, treatment, rate and application date[1]	% leaf spot[2] (Sep 27)	% web blotch[2] (Sep 27)	% defoliation[3] (Sep 27)
Normal Seed			
Echo 720 1.5 pt (6/29, 7/15, 8/4, 8/19, 9/3)	4.3 a	71.3 bc	13.8 d
JAU6476 480SC 2.14 fl oz + Folicur 4.75 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	4.3 a	78.8 a	23.8 a
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	3.5 a	73.8 ab	15.0 cd
Speckled Seed			
Echo 720 1.5 pt (6/29, 7/15, 8/4, 8/19, 9/3)	2.3 b	71.3 bc	15.0 cd
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	3.3 ab	75.0 ab	17.5 b-d
JAU6476 480SC 2.14 fl oz + Folicur 4.75 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	2.5 ab	76.3 ab	21.3 ab
JAU6476 480SC 5.7 fl oz (F) JAU6476 480SC 2.14 fl oz + Folicur 4.75 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	2.5 ab	75.0 ab	18.8 a-d
JAU6476 480SC 1.54 fl oz/cwt (S) JAU6476 480SC 2.14 fl oz + Folicur 4.75 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	3.5 ab	77.5 ab	20.0 a-c
JAU6476 480SC 7.1 fl oz (F) JAU6476 480SC 2.14 fl oz + Folicur 4.75 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	3.3 ab	77.5 ab	17.5 b-d
Thiram 75WDG 2 lb/A + Matrix 1qt/100 gal (F) Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	2.0 b	65.0 c	15.0 cd
Thiram 75WDG 4 lb/A + Matrix 1qt/100 gal (F) Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	3.0 ab	73.8 ab	16.3 b-d
LSD	**1.94**	**6.28**	**5.82**

[1] F=in furrow, S=seed treatment. Foliar treatments were applied beginning at R1 (flowering) and thereafter according to the leaf spot advisory.

[2] Leaf spot/web blotch rating scale: 0=none, 100=spots or blotches on all leaflets.

[3] Defoliation rating scale: 0=none, 100=no leaves on plants.

Means followed by the same letter(s) are not significantly different (LSD, P=0.05). Arcsine transformation of percentage data was made in analysis to determine statistical significance.

Table 79. Effect of in-furrow, seed and foliar fungicides on percent of taproots infected with *Cylindrocladium parasiticum* and yield of peanut.

Seed type, treatment, rate and application date[1]	Biopsy test[2] (% +)	Yield[3] (lb/A)
Normal Seed		
Echo 720 1.5 pt (6/29, 7/15, 8/4, 8/19, 9/3)	29 b-d	3848 de
JAU6476 480SC 2.14 fl oz + Folicur 4.75 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	13 d	4648 ab
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	16 cd	5131 a
Speckled Seed		
Echo 720 1.5 pt (6/29, 7/15, 8/4, 8/19, 9/3)	51 a	2490 f
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	39 ab	4029 c-e
JAU6476 480SC 2.14 fl oz + Folicur 4.75 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	39 ab	3622 e
JAU6476 480SC 5.7 fl oz (F) JAU6476 480SC 2.14 fl oz + Folicur 4.75 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	34 a-c	4165 b-e
JAU6476 480SC 1.54 fl oz/cwt (S) JAU6476 480SC 2.14 fl oz + Folicur 4.75 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	23 b-d	4497 bc
JAU6476 480SC 7.1 fl oz (F) JAU6476 480SC 2.14 fl oz + Folicur 4.75 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	26 b-d	4346 b-d
Thiram 75WDG 2 lb/A + Matrix 1qt/100 gal (F) Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	20 b-d	4331 b-d
Thiram 75WDG 4 lb/A + Matrix 1qt/100 gal (F) Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/29, 7/15, 8/4, 8/19) Echo 720 1.5 pt (9/3)	31 b-d	4135 b-e
LSD	**19.5**	**546**

[1] F=in furrow, S=seed treatment. Foliar treatments were applied beginning at R1 (flowering) and thereafter according to the leaf spot advisory.

[2] Data are percent recovery of *Cylindrocladium parasiticum* from 20 taproots selected at random from each plot. Taproots were assayed with a selective medium on 28 Sep.

[3] Yields are weight of peanuts with 7% moisture. Peanuts were dug on 27 Sep and harvested on 1 Oct 2004. Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

XX. RESPONSE OF PEANUT CULTIVARS TO REDUCED INPUT OF FOLIAR FUNGICIDES FOR DISEASE MANAGEMENT (TAREC Research Farm, Hare Road)

A. PURPOSE: To compare the response of peanut varieties to foliar disease management according to the R_5-advisory program.

B. EXPERIMENTAL DESIGN:
   1. Split-plot design with main plots of fungicide treatments and subplots of varieties
   2. Two, 25-ft rows per plot with 36-in. row spacing
   3. Ten-ft alleyways between blocks
   4. Four replications in randomized complete block design

C. APPLICATION OF TREATMENTS: 1st spray was applied at R_5 (beginning seed stage) and subsequent sprays were applied according to "last effective spray date" of leaf spot advisory program. Applications were made at 15 gal/A with three, D_3 23 nozzles/row.

D. FUNGICIDE PROGRAM AND RATE/A (MAIN PLOTS):
   1. Untreated check
   2. Bravo WS 1.5 pt (R_5 adv. 1st, 2nd, 3rd, 4th spray)
   3. Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (R_5 adv. 1st spray)
      Headline 250EC 9 fl oz (2nd spray)
      Bravo WS 1.5 pt (R_5 adv. 3rd, 4th spray)
   4. Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (R_5 adv. 1st spray)
      Abound 2.08SC 12 fl oz (2nd spray)
      Bravo WS 1.5 pt (3rd, 4th spray)
   5. Tilt 3.6EC 2 fl oz + Bravo WS 1 pt (R_5 adv. 1st spray)
      Stratego 7 fl oz + Induce 1.2 fl oz (2nd spray)
      Bravo WS 1.5 pt (3rd, 4th spray)

E. CULTIVARS (Sub-plots):
   1. Perry
   2. VA 98R
   3. Wilson
   4. Gregory

F. ADDITIONAL INFORMATION:
   1. Location: TAREC Research Farm, Hare Rd., Suffolk
   2. Crop history: Cotton, 2003; Peanut, 2002; Cotton, 2001
   3. Planting date: 6 May
   4. Soil fertility report:

pH.....	6.2
Ca	200 ppm
Mg	23 ppm
P	33 ppm
K.....	53 ppm
Zn	2.1 ppm
Mn	1.6 ppm
Soil type	Kenansville loamy sand

5. Herbicide:
   Pre-plant - Prowl 1 pt/A (24 Mar)
   Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (21 Apr)
   Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (13 May)
6. Insecticide: Temik 15G 7 lb/A in furrow (6 May)
   Orthene 97S 12 oz/A (4 Jun)
   Lorsban 15G 13 lb/A (22 Jun)
   Danitol 10 oz/A (6 Aug)
7. Cylindrocladium black rot control: Vapam 7.5 gal/A (17 Apr)
8. Sclerotinia blight control: Omega 500 1 pt/A (15 Jul, 6 Aug, 1 Sep)
9. Additional crop management:
   a. Liquid boron 1 qt (24 Mar)
   b. Landplaster: Gypsum 420 1200 lb/A (9 Jun)
   c. Liquid Mn 2 qt/A (23 Jun, 9 Jul)
   d. Cultivation: 22 Jun
10. Harvest date: 17 Oct 2004

Table 80. Severity of early leaf spot in untreated and fungicide-treated plots.

Treatment, rate/A and cultivar*	% leaf spot**		
	Jul 26	Sep 3	Oct 5
UNTREATED CHECK			
Perry	31.3 a	85.8 a	96.5 b
VA 98R	26.3 a	85.8 a	98.5 a
Wilson	25.0 a	77.5 b	96.3 b
Gregory	30.0 a	88.8 a	98.0 ab
BRAVO WS 1.5 PT (7/16, 8/4, 8/19, 9/16)			
Perry	25.0 b	16.5 ab	50.0 ab
VA 98R	45.0 a	23.0 a	66.3 a
Wilson	20.0 b	7.5 b	35.0 b
Gregory	31.3 ab	16.3 ab	55.0 ab
FOLICUR 3.6F 7.2 FL OZ + INDUCE 1.2 FL OZ (7/16)			
HEADLINE 250EC 9 FL OZ (8/4);BRAVO WS 1.5 PT (8/19, 9/16)			
Perry	23.8 b	24.8 a	35.0 ab
VA 98R	40.0 a	27.0 a	51.3 a
Wilson	18.8 b	17.5 a	18.8 b
Gregory	19.5 b	20.5 a	36.3 ab
FOLICUR 3.6F 7.2 FL OZ + INDUCE 1.2 FL OZ (7/16)			
ABOUND 2.08SC 12 FL OZ (8/4); BRAVO WS 1.5 PT (8/19, 9/16)			
Perry	26.3 a	36.3 a	66.3 ab
VA 98R	26.3 a	41.3 a	75.0 a
Wilson	18.8 a	26.3 b	58.8 b
Gregory	27.0 a	41.3 a	76.3 a
TILT 3.6EC 2 FL OZ + BRAVO WS 1 PT (7/16)			
STRATEGO 7 FL OZ + INDUCE 1.2 FL OZ (8/4);			
BRAVO WS 1.5 PT (8/19, 9/16)			
Perry	40.8 a	10.8 a	38.8 a
VA 98R	35.0 ab	15.0 a	42.5 a
Wilson	30.0 ab	13.0 a	30.0 a
Gregory	25.8 b	10.3 a	43.8 a
COMBINED ANALYSIS OF CULTIVARS			
Perry	29.4	34.8 a	57.3 b
VA 98R	34.5	38.4 a	66.7 a
Wilson	22.5	28.4 b	47.8 c
Gregory	26.7	35.4 a	61.9 ab
COMBINED ANALYSIS OF TREATMENTS			
Untreated check	28.1	84.4 a	97.3 a
Bravo WS 1.5 pt (7/16, 8/4, 8/19, 9/16)	30.3	15.8 d	51.6 c
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (7/16) Headline 250EC 9 fl oz (8/4) Bravo WS 1.5 pt (8/19, 9/16)	25.5	22.4 c	35.3 d
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (7/16) Abound 2.08SC 12 fl oz (8/4) Bravo WS 1.5 pt (8/19, 9/16)	24.6	36.3 b	69.1 b
Tilt 3.6EC 2 fl oz + Bravo WS 1 pt (7/16) Stratego 7 fl oz + Induce 1.2 fl oz (8/4) Bravo WS 1.5 pt (8/19, 9/16)	32.9	12.3 d	38.8 d

* Fungicides applied beginning at R5 growth stage (beginning seed) and thereafter according to the leaf spot advisory.

** Leaf spot rating scale: 0=none; 100=spots on all leaflets.

Means followed by the same letter(s) and within the same group are not significantly different (LSD, P=0.05). Arcsine transformation of percentage data was made in analysis to determine statistical significance. Split-plot analysis indicated statistical significance for cultivar and a significant treatment-by-variety interaction on 26 Jul. Split plot analysis of ratings on 3 Sep and 5 Oct indicated statistical significance for treatment and variety.

Table 81. Severity of web blotch and defoliation in untreated and fungicide-treated plots.

Treatment, rate/A and cultivar[1]	% web blotch[2] Sep 3	% web blotch[2] Oct 5	% defoliation[3] Sep 3	% defoliation[3] Oct 5
UNTREATED CHECK				
Perry	0.3 b	11.3 a	23.3 ab	81.3 b
VA 98R	8.3 a	10.0 a	30.0 a	94.5 a
Wilson	2.8 ab	11.3 a	17.5 b	85.5 b
Gregory	2.0 b	9.5 a	28.3 a	94.5 a
BRAVO WS 1.5 PT (7/16, 8/4, 8/19, 9/16)				
Perry	0.3 b	5.8 a	0.0 a	3.5 b
VA 98R	5.8 a	14.0 a	0.3 a	22.5 a
Wilson	1.8 b	10.5 a	0.0 a	8.8 b
Gregory	3.0 ab	13.8 a	0.0 a	10.0 b
FOLICUR 3.6F 7.2 FL OZ + INDUCE 1.2 FL OZ (7/16)				
HEADLINE 250EC 9 FL OZ (8/4);BRAVO WS 1.5 PT (8/19, 9/16)				
Perry	0.0 a	4.3 b	0.3 ab	5.5 b
VA 98R	0.8 a	5.5 ab	0.8 a	12.5 a
Wilson	0.0 a	1.8 b	0.0 b	4.3 b
Gregory	0.3 a	10.0 a	0.3 ab	8.0 ab
FOLICUR 3.6F 7.2 FL OZ + INDUCE 1.2 FL OZ (7/16)				
ABOUND 2.08SC 12 FL OZ (8/4); BRAVO WS 1.5 PT (8/19, 9/16)				
Perry	0.3 b	7.5 b	0.5 ab	12.5 c
VA 98R	1.8 a	13.8 ab	0.8 ab	35.0 a
Wilson	0.8 b	10.8 ab	0.3 b	21.3 bc
Gregory	0.6 b	17.5 a	1.3 a	25.0 b
TILT 3.6EC 2 FL OZ + BRAVO WS 1 PT (7/16)				
STRATEGO 7 FL OZ + INDUCE 1.2 FL OZ (8/4)				
BRAVO WS 1.5 PT (8/19, 9/16)				
Perry	0.3 b	12.5 b	0.0 b	9.8 b
VA 98R	17.0 a	38.8 a	1.5 a	36.3 a
Wilson	2.0 b	22.5 b	0.0 b	16.3 b
Gregory	2.8 b	25.0 b	0.0 b	12.5 b
COMBINED ANALYSIS OF CULTIVARS				
Perry	0.2	8.3	4.8	22.5
VA 98R	6.7	16.4	6.7	40.2
Wilson	1.5	11.4	3.6	27.2
Gregory	1.7	15.2	6.0	30.0
COMBINED ANALYSIS OF TREATMENTS				
Untreated check	3.3	10.5	24.8	88.9
Bravo WS 1.5 pt (7/16, 8/4, 8/19, 9/16)	2.7	11.0	0.1	11.2
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (7/16) Headline 250EC 9 fl oz (8/4) Bravo WS 1.5 pt (8/19, 9/16)	0.3	5.4	0.3	7.6
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (7/16) Abound 2.08SC 12 fl oz (8/4) Bravo WS 1.5 pt (8/19, 9/16)	0.8	12.4	0.7	23.4
Tilt 3.6EC 2 fl oz + Bravo WS 1 pt (7/16) Stratego 7 fl oz + Induce 1.2 fl oz (8/4) Bravo WS 1.5 pt (8/19, 9/16)	5.5	24.7	0.4	18.7

[1] Fungicides applied beginning at R5 growth stage (beginning seed) and thereafter according to the leaf spot advisory.
[2] Web blotch rating scale: 0=none; 100=blotches on all leaflets.
[3] Defoliation scale: 0=none, 100= no leaves.
Means followed by the same letter(s) and within the same group are not significantly different (LSD, P=0.05). Arcsine transformation of percentage data was made in analysis to determine statistical significance. Split-plot analysis indicated statistical significance for cultivar, treatment and a significant treatment-by-cultivar interaction for all rating dates.

Table 82. Severity of tomato spotted wilt virus (TSWV) and cylindrocladium black rot (CBR), and the effect of treatments on yield of peanut.

Treatment, rate/A and cultivar[1]	TSWV/CBR[2] (Oct 5)	Yield[3] (lb/A)
UNTREATED CHECK		
Perry	2.3 a	3328 a
VA 98R	3.3 a	1460 c
Wilson	2.0 a	2367 b
Gregory	2.0 a	2002 bc
BRAVO WS 1.5 PT (7/16, 8/4, 8/19, 9/16)		
Perry	2.5 a	5442 a
VA 98R	2.3 a	4471 b
Wilson	1.9 a	4165 b
Gregory	1.3 a	5419 a
FOLICUR 3.6F 7.2 FL OZ + INDUCE 1.2 FL OZ (7/16)		
HEADLINE 250EC 9 FL OZ (8/4);BRAVO WS 1.5 PT (8/19, 9/16)		
Perry	1.8 a	5792 a
VA 98R	2.5 a	4102 b
Wilson	2.4 a	4349 b
Gregory	1.8 a	5584 a
FOLICUR 3.6F 7.2 FL OZ + INDUCE 1.2 FL OZ (7/16)		
ABOUND 2.08SC 12 FL OZ (8/4); BRAVO WS 1.5 PT (8/19, 9/16)		
Perry	1.9 a	5645 a
VA 98R	2.0 a	4231 b
Wilson	1.9 a	4276 b
Gregory	1.8 a	5070 a
TILT 3.6EC 2 FL OZ + BRAVO WS 1 PT (7/16)		
STRATEGO 7 FL OZ + INDUCE 1.2 FL OZ (8/4); BRAVO WS 1.5 PT (8/19, 9/16)		
Perry	1.8 a	4909 a
VA 98R	2.0 a	3658 b
Wilson	3.0 a	3725 b
Gregory	2.0 a	4812 a
COMBINED ANALYSIS OF CULTIVARS		
Perry	2.1 ab	5023 a
VA 98R	2.4 a	3585 c
Wilson	2.2 ab	3776 c
Gregory	1.8 b	4577 b
COMBINED ANALYSIS OF TREATMENTS		
Untreated check	2.4 a	2289 c
Bravo WS 1.5 pt (7/16, 8/4, 8/19, 9/16)	2.0 a	4874 a
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (7/16) Headline 250EC 9 fl oz (8/4) Bravo WS 1.5 pt (8/19, 9/16)	2.1 a	4957 a
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (7/16) Abound 2.08SC 12 fl oz (8/4) Bravo WS 1.5 pt (8/19, 9/16)	1.9 a	4805 a
Tilt 3.6EC 2 fl oz + Bravo WS 1 pt (7/16) Stratego 7 fl oz + Induce 1.2 fl oz (8/4) Bravo WS 1.5 pt (8/19, 9/16)	2.2 a	4276 b

[1] Fungicides applied beginning at R5 growth stage (beginning seed) and thereafter according to the leaf spot advisory.
[2] Disease severity rating scale: 0=none; 10=all plants with symptoms.
[3] Yields are weight of peanuts with 7% moisture. Peanuts were dug on 7 Oct and harvested on 17 Oct 2004.
Means followed by the same letter(s) and within the same group are not significantly different (LSD, P=0.05). Split-plot analysis of yield indicated statistical significance for cultivar and treatment. No significant cultivar-by-treatment interaction was found.

XXI. EVALUATION OF FOLIAR APPLICATIONS OF FUNGICIDES FOR DISEASE MANAGEMENT IN PEANUT (TAREC Research Farm, Hare Road)

A. PURPOSE: To compare the performance of fungicide spray sequences when applied according to the Virginia R_3-Advisory Program

B. EXPERIMENTAL DESIGN:
   1. Four randomized complete blocks
   2. Four, 35-ft rows/plot
   3. Blocks separated by 10-ft alleyways
   4. Treatments applied with an ATV-mounted sprayer to the two center rows of each plot

C. APPLICATION OF TREATMENTS: Treatments began at the R_3-stage (beginning pod) and continued according to weather-based advisories until beginning maturity. Applications were made at a spray volume of 15 gal/A with three, $D_3$23 nozzles/row.

D. TREATMENT AND RATE/A:
   1. Echo 720 1.5 pt (1^{st}, 2^{nd}, 3^{rd}, 4^{th}, 5^{th} spray)
   2. Echo 825 1.36 lb (1^{st}, 2^{nd}, 3rd, 4^{th} spray)
      Echo 720 1.5 pt (5^{th} spray)
   3. USF2010 500SC 3.5 fl oz (1^{st}, 2^{nd}, 3^{rd}, 4^{th} spray)
      Echo 720 1.5 pt (5^{th} spray)
   4. Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (1^{st}, 2^{nd}, 3^{rd} spray)
      Echo 720 1.5 pt (4^{th}, 5^{th} spray)
   5. Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (1st, 2^{nd} spray)
      Abound 2.08SC 12 fl oz (3^{rd} spray)
      Echo 720 1.5 pt (4^{th}, 5^{th} spray)
   6. Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (1^{st}, 2^{nd} spray)
      Headline 250EC 9 fl oz (3rd spray)
      Echo 720 1.5 pt (4^{th}, 5^{th} spray)
   7. Folicur 3.6 F 7.2 fl oz + Induce 1.2 fl oz (1^{st} spray)
      Abound 2.08SC 12 fl oz (2^{nd}, 3^{rd} spray)
      Echo 720 1.5 pt (4^{th}, 5^{th} spray)
   8. Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (1^{st} spray)
      Headline 250EC 9 fl oz (2^{nd}, 3^{rd} spray)
      Echo 720 1.5 pt (4^{th}, 5^{th} spray)
   9. Tilt 3.6EC 2 fl oz + Bravo WS 1 pt (1^{st} spray)
      Stratego 250EC 7 fl oz + Induce 1.2 fl oz (2^{nd}, 3^{rd} spray)
      Echo 720 1.5 pt (4^{th}, 5^{th} spray)
   10. Untreated check

E. ADDITIONAL INFORMATION:
   1. Location: TAREC Research Farm, Hare Rd., Suffolk
   2. Crop history: corn 2003; peanut 2002; wheat 2001
   3. Planting date and cultivar: 11 May 2004; VA 98R

4. Soil fertility report:
   pH..... 5.6
   Ca ..... 229 ppm
   Mg ..... 25 ppm
   P ..... 42 ppm
   K..... 55 ppm
   Zn ..... 1.8 ppm
   Mn ..... 2.7 ppm
   Soil type ..... Kenansville loamy sand
5. Herbicide:
   Pre-plant - Prowl 1 pt/A (7 Apr)
   Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (21 Apr)
   Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (13 May)
6. Insecticide: Temik 15G 7 lb/A in furrow (11 May)
   Orthene 97S 12 oz/A (3 Jun)
   Lorsban 15G 13 lb/A (22 Jun)
   Danitol 10 oz/A (6 Aug)
7. Cylindrocladium black rot control: Vapam 7.5 gal/A (17 Apr)
8. Sclerotinia blight control: Omega 500 1 pt/A (22 Jul, 6 Aug, 1 Sep)
9. Additional crop management:
   a. Liquid boron 1 qt (7 Apr)
   b. Landplaster: Gypsum 420 1200 lb/A (9 Jun)
   c. Liquid Mn 2 qt/A (23 Jun, 9 Jul)
   d. Cultivation: 22 Jun
10. Harvest date: 16 Oct 2004

Table 83. Severity of early leaf spot in fungicide-treated plots.

Treatment, rate/A and application date*	% leaf spot**		
	Jul 26	Sep 3	Sep 30
Echo 720 1.5 pt (6/30, 7/15, 8/4, 8/18, 9/17)	3.0 bc	5.0 bc	2.8 cd
Echo 825 1.36 lb (6/30, 7/15, 8/4, 8/18) Echo 720 1.5 pt (9/17)	5.3 b	8.3 bc	4.3 cd
USF2010 500SC 3.5 fl oz (6/30, 7/15, 8/4, 8/18) Echo 720 1.5 pt (9/17)	0.1 c	1.5 c	3.3 cd
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/30, 7/15, 8/4) Echo 720 1.5 pt (8/18, 9/17)	2.5 bc	2.0 c	0.6 d
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/30, 7/15) Abound 2.08SC 12 fl oz (8/4) Echo 720 1.5 pt (8/18, 9/17)	1.8 bc	3.3 c	6.5 c
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/30, 7/15) Headline 250EC 9 fl oz (8/4) Echo 720 1.5 pt (8/18, 9/17)	6.3 b	2.3 c	1.8 cd
Folicur 3.6 F 7.2 fl oz + Induce 1.2 fl oz (6/30) Abound 2.08SC 12 fl oz (7/15, 8/4) Echo 720 1.5 pt (8/18, 9/17)	2.8 bc	11.8 b	14.5 b
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/30) Headline 250EC 9 fl oz (7/15, 8/4) Echo 720 1.5 pt (8/18, 9/17)	4.3 bc	2.3 c	1.5 d
Tilt 3.6EC 2 fl oz + Bravo WS 1 pt (6/30) Stratego 250EC 7 fl oz + Induce 1.2 fl oz (7/15, 8/4) Echo 720 1.5 pt (8/18, 9/17)	0.1 c	1.0 c	1.3 d
Untreated check	25.0 a	80.0 a	98.0 a
LSD	**4.92**	**6.39**	**4.73**

* Fungicides applied beginning at R_3 growth stage (beginning pod) and thereafter according to the leaf spot advisory.

** Leaf spot rating scale: 0=none; 100=spots on all leaflets.
Means followed by the same letter(s) are not significantly different (LSD, P=0.05). Arcsine transformation of percentage data was made in analysis to determine statistical significance.

Table 84. Severity of web blotch and defoliation in fungicide-treated plots.

Treatment, rate/A and application date[1]	% web blotch[2]		% defoliation[3]	
	Sep 3	Sep 30	Sep 3	Sep 30
Echo 720 1.5 pt (6/30, 7/15, 8/4, 8/18, 9/17)	0.8 bc	7.0 c-e	1.3 b	0.8 bc
Echo 825 1.36 lb (6/30, 7/15, 8/4, 8/18) Echo 720 1.5 pt (9/17)	2.3 b	16.3 b	1.5 b	1.3 bc
USF2010 500SC 3.5 fl oz (6/30, 7/15, 8/4, 8/18) Echo 720 1.5 pt (9/17)	0.0 c	12.5 bc	1.0 b	0.8 bc
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/30, 7/15, 8/4) Echo 720 1.5 pt (8/18, 9/17)	1.1 bc	3.8 de	1.0 b	0.3 bc
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/30, 7/15) Abound 2.08SC 12 fl oz (8/4) Echo 720 1.5 pt (8/18, 9/17)	1.1 bc	7.3 c-e	1.3 b	3.0 b
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/30, 7/15) Headline 250EC 9 fl oz (8/4) Echo 720 1.5 pt (8/18, 9/17)	0.2 c	2.0 de	1.0 b	0.3 bc
Folicur 3.6 F 7.2 fl oz + Induce 1.2 fl oz (6/30) Abound 2.08SC 12 fl oz (7/15, 8/4) Echo 720 1.5 pt (8/18, 9/17)	1.4 bc	10.0 b-d	2.0 b	1.5 bc
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/30) Headline 250EC 9 fl oz (7/15, 8/4) Echo 720 1.5 pt (8/18, 9/17)	0.2 c	1.0 e	1.0 b	0.0 c
Tilt 3.6EC 2 fl oz + Bravo WS 1 pt (6/30) Stratego 250EC 7 fl oz + Induce 1.2 fl oz (7/15, 8/4) Echo 720 1.5 pt (8/18, 9/17)	0.3 c	4.8 c-e	1.0 b	0.3 bc
Untreated check	7.0 a	27.5 a	32.5 a	94.3 a
LSD	**1.92**	**8.48**	**4.07**	**2.27**

[1] Fungicides applied beginning at R_3 growth stage (beginning pod) and thereafter according to the leaf spot advisory.
[2] Web blotch rating scale: 0=none; 100=blotches on all leaflets.
[3] Defoliation rating scale: 0=none, 100=no leaves on plants.
Means followed by the same letter(s) are not significantly different (LSD, P=0.05). Arcsine transformation of percentage data was made in analysis to determine statistical significance.

Table 85. Incidence of cylindrocladium black rot (CBR) and yield of peanuts in fungicide-treated plots.

Treatment, rate/A and application date[1]	CBR[2] (Sep 30)	Yield[3] (lb/A)
Echo 720 1.5 pt (6/30, 7/15, 8/4, 8/18, 9/17)	21.3 a	4035 a-c
Echo 825 1.36 lb (6/30, 7/15, 8/4, 8/18) Echo 720 1.5 pt (9/17)	21.5 a	4206 a-c
USF2010 500SC 3.5 fl oz (6/30, 7/15, 8/4, 8/18) Echo 720 1.5 pt (9/17)	24.0 a	3825 a-c
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/30, 7/15, 8/4) Echo 720 1.5 pt (8/18, 9/17)	18.5 a	4706 a
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/30, 7/15) Abound 2.08SC 12 fl oz (8/4) Echo 720 1.5 pt (8/18, 9/17)	26.3 a	3812 bc
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/30, 7/15) Headline 250EC 9 fl oz (8/4) Echo 720 1.5 pt (8/18, 9/17)	25.5 a	3536 cd
Folicur 3.6 F 7.2 fl oz + Induce 1.2 fl oz (6/30) Abound 2.08SC 12 fl oz (7/15, 8/4) Echo 720 1.5 pt (8/18, 9/17)	23.5 a	3733 b-d
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (6/30) Headline 250EC 9 fl oz (7/15, 8/4) Echo 720 1.5 pt (8/18, 9/17)	25.0 a	3878 a-c
Tilt 3.6EC 2 fl oz + Bravo WS 1 pt (6/30) Stratego 250EC 7 fl oz + Induce 1.2 fl oz (7/15, 8/4) Echo 720 1.5 pt (8/18, 9/17)	19.8 a	4456 ab
Untreated check	27.0 a	2918 d
LSD	**9.48**	**887**

[1] Fungicides applied beginning at R_3 growth stage (beginning pod) and thereafter according to the leaf spot advisory.
[2] Number of symptomatic and/or dead plants per plot.
[3] Yields are weight of peanuts with 7% moisture. Peanuts were dug on 1 Oct and harvested on 16 Oct 2004. Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

XXII. EVALUATION OF FOLIAR APPLICATIONS OF FUNGICIDES FOR DISEASE MANAGEMENT IN PEANUTS (TAREC Research Farm, Hare Road)

A. PURPOSE: To compare the performance of fungicide spray sequences when applied according to the Virginia R_5-Advisory Program

B. EXPERIMENTAL DESIGN:
1. Four randomized complete blocks
2. Four, 35-ft rows/plot
3. Blocks separated by 10-ft alleyways
4. Treatments applied to the two center rows of plot with an ATV-mounted sprayer

C. APPLICATION OF TREATMENTS: Treatments began at the R_5-stage (beginning seed) and continued according to weather-based advisories until beginning maturity. Applications were made at a spray volume of 15 gal/A with three, $D_3$23 nozzles/row.

D. TREATMENT AND RATE/A:
1. Echo 720 1.5 pt/A (1^{st}, 2^{nd}, 3^{rd}, 4^{th} spray)
2. Stratego 250EC 7 fl oz (1st, 2^{nd} spray)
   Echo 720 1.5 pt (3^{rd}, 4^{th} spray)
3. Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (1st, 2^{nd} spray)
   Echo 720 1.5 pt (3^{rd}, 4^{th} spray)
4. Abound 2.08SC 12 fl oz (1^{st}, 2^{nd} spray)
   Echo 720 1.5 pt (3^{rd}, 4^{th} spray)
5. Headline 250EC 9 fl oz (1^{st}, 2^{nd} spray)
   Echo 720 1.5 pt (3^{rd}, 4^{th} spray)
6. Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (1^{st} spray)
   Abound 2.08SC 12 fl oz (2^{nd} spray)
   Echo 720 1.5 pt (3^{rd}, 4^{th} spray)
7. Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (1^{st} spray)
   Headline 250EC 9 fl oz (2^{nd} spray)
   Echo 720 1.5 pt (3^{rd}, 4^{th} spray)
8. Untreated check

E. ADDITIONAL INFORMATION:
1. Location: TAREC Research Farm, Hare Rd., Suffolk
2. Crop history: Corn, 2003; Peanut, 2002; Wheat, 2001
3. Planting date and cultivar: 11 May 2004; VA 98R
4. Soil fertility report:

pH.....	5.6
Ca	229 ppm
Mg	25 ppm
P	42 ppm
K.....	55 ppm
Zn	1.8 ppm
Mn	2.7 ppm
Soil type	Kenansville loamy sand

5. Herbicide:
   Pre-plant - Prowl 1pt/A (7 Apr)
   Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (21 Apr)
   Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (13 May)

6. Insecticide: Temik 15G 7 lb/A in furrow (11 May)
   Orthene 97S 12 oz/A (3 Jun)
   Lorsban 15G 13 lb/A (22 Jun)
   Danitol 10 oz/A (6 Aug)
7. Cylindrocladium black rot control: Vapam 7.5 gal/A (17 Apr)
8. Sclerotinia blight control: Omega 500 1 pt/A (22 Jul, 6 Aug, 1 Sep)
9. Additional crop management:
   a. Liquid boron 1 qt (7 Apr)
   b. Landplaster: Gypsum 420 1200 lb/A (9 Jun)
   c. Liquid Mn 2 qt/A (23 Jun, 9 Jul)
   d. Cultivation: 22 Jun
10. Harvest date: 16 Oct 2004

Table 86. Incidence of early leaf spot in untreated and fungicide-treated plots.

Treatment, rate/A and application date[1]	% leaf spot[2] Jul 26	% leaf spot[2] Sep 3	% web blotch[2] (Sep 3)	% defoliation[3] (Sep 3)
Echo 720 1.5 pt/A (7/16, 8/9, 8/23, 9/17)	28.8 ab	63.8 b	10.5 ab	8.3 b
Stratego 250EC 7 fl oz (7/16, 8/9) Echo 720 1.5 pt (8/23, 9/17).....	33.8 a	44.5 cd	4.0 bc	3.3 bc
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (7/16, 8/9) Echo 720 1.5 pt (8/23, 9/17)	30.8 ab	23.8 ef	3.0 c	1.0 c
Abound 2.08SC 12 fl oz (7/16, 8/9) Echo 720 1.5 pt (8/23, 9/17).....	27.5 ab	51.3 bc	2.3 c	2.3 c
Headline 250EC 9 fl oz (7/16, 8/9) Echo 720 1.5 pt (8/23, 9/17).....	22.5 ab	7.0 f	0.0 c	1.0 c
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (7/16) Abound 2.08SC 12 fl oz (8/9) Echo 720 1.5 pt (8/23, 9/17).....	30.0 ab	42.0 cd	10.8 a	3.5 bc
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (7/16) Headline 250EC 9 fl oz (8/9) Echo 720 1.5 pt (8/23, 9/17).....	20.0 b	32.5 de	2.5 c	1.5 c
Untreated check	35.0 a	82.5 a	12.5 a	36.3 a
LSD.....	**12.97**	**15.03**	**6.51**	**5.72**

[1] Fungicides applied beginning at R3 growth stage (beginning pod) and thereafter according to the leaf spot advisory.
[2] Leaf spot/web blotch rating scale: 0=none; 100=spots or blotches on all leaflets.
[3] Defoliation rating scale: 0=none, 100=no leaves on plants.
Means followed by the same letter(s) are not significantly different (LSD, P=0.05). Arcsine transformation of percentage data was made in analysis to determine statistical significance.

Table 87. Incidence of cylindrocladium black rot (CBR), and the effect of treatments on yield of peanut.

Treatment, rate/A and application date[1]	CBR[2] (Oct 1)	Yield[3] (lb/A)
Echo 720 1.5 pt/A (7/16, 8/9, 8/23, 9/17)	12.8 b	4225 a
Stratego 250EC 7 fl oz (7/16, 8/9) Echo 720 1.5 pt (8/23, 9/17)	22.0 ab	3620 ab
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (7/16, 8/9) Echo 720 1.5 pt (8/23, 9/17)	19.5 ab	3975 a
Abound 2.08SC 12 fl oz (7/16, 8/9) Echo 720 1.5 pt (8/23, 9/17)	20.5 ab	3764 a
Headline 250EC 9 fl oz (7/16, 8/9) Echo 720 1.5 pt (8/23, 9/17)	23.8 a	3593 ab
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (7/16) Abound 2.08SC 12 fl oz (8/9) Echo 720 1.5 pt (8/23, 9/17)	24.0 a	3883 a
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (7/16) Headline 250EC 9 fl oz (8/9) Echo 720 1.5 pt (8/23, 9/17)	19.5 ab	4225 a
Untreated check	25.8 a	2975 b
LSD	**8.07**	**700**

[1] Fungicides applied beginning at R3 growth stage (beginning pod) and thereafter according to the leaf spot advisory.
[2] Number of symptomatic and/or dead plants per plot.
[3] Yields are weight of peanuts with 7% moisture. Peanuts were dug on 1 Oct and harvested on 16 Oct 2004. Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

XXIII. EVALUATION OF FUNGICIDES AND BIOLOGICAL MATERIALS FOR CONTROL OF SCLEROTINIA BLIGHT OF PEANUT (TAREC Research Farm, Hare Road)

A. PURPOSE: To compare the efficacy of registered and experimental materials for activity against *Sclerotinia minor*

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks
2. Blocks separated by 10-ft alleyways
3. Four, 35-ft rows/plot
4. Treatments applied to the two center rows of plots with an ATV-mounted sprayer

C. APPLICATION OF TREATMENTS: Leaf spot control treatments began at the R_3-stage (beginning pod) and continued according to leaf spot advisories until beginning maturity. Sprays for Sclerotinia blight control were applied according to Sclerotinia blight advisories in a volume of 15 gal/A with three, $D_3$23 nozzles/row

D. TREATMENT AND RATE/A
1. Bravo 720 1.5 pt (1^{st}, 2^{nd}, 3^{rd}, 4^{th}, 5^{th} Leaf spot Adv.)
   QRD 286 2 qt + QRD 602 2.4 fl oz (1^{st}, 2^{nd} Scl. Adv.)
2. Bravo 720 1.5 pt (1^{st}, 2^{nd}, 3^{rd}, 4^{th}, 5^{th} Leaf spot Adv.)
   QRD 143 4 qt + QRD 602 2.4 fl oz (1^{st}, 2^{nd} Scl. Adv.)
3. Bravo 720 1.5 pt (1^{st}, 2^{nd}, 3^{rd}, 4^{th}, 5^{th} Leaf spot Adv.)
   Omega 500 1 pt (1^{st} Scl. Adv.)
   QRD 286 2 qt + QRD 602 2.4 fl oz (2^{nd} Scl. Adv.)
4. Bravo 720 1.5 pt (1^{st}, 2^{nd}, 3^{rd}, 4^{th}, 5^{th} Leaf spot Adv.)
   QRD 143 4 qt + Champ DP 2 lb + QRD 602 2.4 fl oz (1^{st}, 2^{nd} Scl. Adv.)
5. Bravo 720 1.5 pt (1^{st}, 2^{nd}, 3^{rd}, 4^{th}, 5^{th} Leaf spot Adv.)
   Omega 500 1 pt (1^{st}, 2^{nd} Scl. Adv.)
6. Bravo 720 1.5 pt (1^{st}, 2^{nd}, 3^{rd}, 4^{th}, 5^{th} Leaf spot Adv.)
   Omega 500 1 pt (1^{st}, 2^{nd} Scl. Adv. spray)
7. Bravo 720 1.5 pt (1^{st}, 2^{nd}, 3^{rd}, 4^{th}, 5^{th} Leaf spot Adv.)
   Endura 70WG 9 oz (1^{st}, 2^{nd} Scl. Adv.)
8. Bravo 720 1.5 pt (1^{st}, 2^{nd}, 3^{rd}, 4^{th}, 5^{th} Leaf spot Adv.)
   Endura 70WG 9 oz (1^{st}, 2^{nd} Scl. Adv.)
9. Bravo 720 1.5 pt (1^{st}, 2^{nd}, 3^{rd}, 4^{th}, 5^{th} Leaf spot Adv.)
   JRC 20WD 1.75 lb (1^{st}, 2^{nd} Scl. Adv.)
10. Bravo 720 1.5 pt (1^{st}, 2^{nd}, 3^{rd}, 4^{th}, 5^{th} Leaf spot Adv.)
    JRC 20WD 2.70 lb (1^{st}, 2^{nd} Scl. Adv.)
11. Bravo 720 1.5 pt (1^{st}, 2^{nd}, 3^{rd}, 4^{th}, 5^{th} Leaf spot Adv.)
12. Untreated check

E. ADDITIONAL INFORMATION:
1. Location: Tidewater Res. Farm, Hare Rd., Suffolk
2. Crop history: cotton 2003; peanut 2002, cotton 2001
3. Planting date and cultivar: 14 May; NC 12C

4. Soil fertility report:
   pH..... 6.2
   Ca ..... 205 ppm
   Mg ..... 23 ppm
   P ..... 33 ppm
   K..... 53 ppm
   Zn ..... 2.1 ppm
   Mn ..... 1.6 ppm
   Soil type ..... Kenansville loamy sand
5. Herbicide:
   Pre-plant - Prowl 1 pt/A (24 Mar)
   Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (21 Apr)
   Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (17 May)
6. Insecticide: Temik 15G 7 lb/A in furrow (14 May)
   Orthene 97S 12 oz/A (4 Jun)
   Lorsban 15G 13 lb/A (22 Jun)
   Danitol 2.4EC 10 fl oz/A (6 Aug)
7. Cylindrocladium black rot control: Vapam 7.5 gal/A (17 Apr)
8. Additional crop management:
   a. Liquid boron 1 qt (24 Mar)
   b. Landplaster: Gypsum 420 1200 lb/A (9 Jun)
   c. Liquid Mn 2 qt/A (23 Jun, 9 Jul)
   d. Cultivation: 22 Jun
9. Harvest date: 17 Oct 2004

Table 88. Incidence of sclerotinia blight in fungicide-treated plots.

Treatment, rate/A, and application dates*	Sclerotinia blight**		
	Jul 19	Aug 30	Oct 8
Bravo 720 1.5 pt (LS Adv.-7/9, 7/19, 8/4, 8/19, 9/17) QRD 286 2 qt + QRD 602 2.4 fl oz (Scl. Adv.-8/4, 8/30)..	0.3	3.5 a	29.8 a
Bravo 720 1.5 pt (LS Adv.-7/9, 7/19, 8/4, 8/19, 9/17) QRD 143 4 qt + QRD 602 2.4 fl oz (Scl. Adv.-8/4, 8/30)..	0.0	3.3 ab	25.3 a
Bravo 720 1.5 pt (LS Adv.-7/9, 7/19, 8/4, 8/19, 9/17) Omega 500 1 pt (Scl. Adv.-8/4) QRD 286 2 qt + QRD 602 2.4 fl oz (Scl. Adv.-8/30).....	0.0	1.3 ab	17.5 a-c
Bravo 720 1.5 pt (LS Adv.-7/9, 7/19, 8/4, 8/19, 9/17) QRD 143 4 qt + Champ DP 2 lb + QRD 602 2.4 fl oz (Scl. Adv.-8/4, 8/30).....	0.3	2.5 ab	19.8 a-c
Bravo 720 1.5 pt (LS Adv.-7/9, 7/19, 8/4, 8/19, 9/17) Omega 500 1 pt (Scl. Adv.-8/4, 8/30).....	0.0	0.5 b	6.8 c
Bravo 720 1.5 pt (LS Adv.-7/9, 7/19, 8/4, 8/19, 9/17) Omega 500 1 pt (Scl. Adv.-8/4, 8/30).....	0.3	1.0 ab	10.5 bc
Bravo 720 1.5 pt (LS Adv.-7/9, 7/19, 8/19, 9/17) Endura 70WG 9 oz (Scl. Adv.-8/4, 8/30).....	0.0	3.5 a	18.0 a-c
Bravo 720 1.5 pt (LS Adv.-7/9, 7/19, 8/19, 9/17) Endura 70WG 9 oz (Scl. Adv.-8/4, 8/30).....	0.0	1.3 ab	18.0 a-c
Bravo 720 1.5 pt (LS Adv.-7/9, 7/19, 8/4, 8/19, 9/17) JRC 20WD 1.75 lb (Scl. Adv.-8/4, 8/30)	0.0	1.0 ab	19.5 a-c
Bravo 720 1.5 pt (LS Adv.-7/9, 7/19, 8/4, 8/19, 9/17) JRC 20WD 2.70 lb (Scl. Adv.-8/4, 8/30)	0.5	3.5 a	22.0 ab
Bravo 720 1.5 pt (LS Adv.-7/9, 7/19, 8/4, 8/19, 9/17).....	0.0	2.0 ab	25.0 a
Untreated check	0.0	1.3 ab	18.5 a-c
LSD.....	**--**	**2.89**	**13.00**

* LS Adv.=R3 leaf spot advisory, Scl. Adv.=Sclerotinia advisory. Note: sclerotinia blight was first found in plots on 9 Jul.

** Counts of infection centers in the two center rows of each plot or a total of 70 ft of row. An infection center was a point of active growth by *Sclerotinia minor* and included 6 in. on either side of that point.
Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 89. Incidence of leaf spot, web blotch, and defoliation in plots, and the effect of treatments on yield of peanut.

Treatment, rate/A, and application dates[1]	% leaf spot[2] (Oct 8)	% web blotch[2] (Oct 8)	% defolia-tion[3] (Oct 8)	Yield[4] (lb/A)
Bravo 720 1.5 pt (LS Adv.-7/9, 7/19, 8/4, 8/19, 9/17) QRD 286 2 qt + QRD 602 2.4 fl oz (Scl. Adv.-8/4, 8/30)	63.8 b	13.3 bc	16.3 b	4733 bc
Bravo 720 1.5 pt (LS Adv.-7/9, 7/19, 8/4, 8/19, 9/17) QRD 143 4 qt + QRD 602 2.4 fl oz (Scl. Adv.-8/4, 8/30)	61.3 bc	17.5 b	10.0 c	4539 c
Bravo 720 1.5 pt (LS Adv.-7/9, 7/19, 8/4, 8/19, 9/17) Omega 500 1 pt (Scl. Adv.-8/4) QRD 286 2 qt + QRD 602 2.4 fl oz (Scl. Adv.-8/30).....	47.5 d-f	8.8 cd	4.8 c-f	4926 a-c
Bravo 720 1.5 pt (LS Adv.-7/9, 7/19, 8/4, 8/19, 9/17) QRD 143 4 qt + Champ DP 2 lb + QRD 602 2.4 fl oz (Scl. Adv.-8/4, 8/30).....	36.3 fg	12.5 bc	7.5 c-e	5558 a
Bravo 720 1.5 pt (LS Adv.-7/9, 7/19, 8/4, 8/19, 9/17) Omega 500 1 pt (Scl. Adv.-8/4, 8/30).....	37.5 fg	10.0 c	4.0 d-f	5506 a
Bravo 720 1.5 pt (LS Adv.-7/9, 7/19, 8/4, 8/19, 9/17) Omega 500 1 pt (Scl. Adv.-8/4, 8/30).....	45.0 ef	8.8 cd	2.3 ef	5352 ab
Bravo 720 1.5 pt (LS Adv.-7/9, 7/19, 8/19, 9/17) Endura 70WG 9 oz (Scl. Adv.-8/4, 8/30).....	30.0 g	1.3 e	2.3 ef	5029 a-c
Bravo 720 1.5 pt (LS Adv.-7/9, 7/19, 8/19, 9/17) Endura 70WG 9 oz (Scl. Adv.-8/4, 8/30).....	43.8 ef	2.5 de	1.8 f	4952 a-c
Bravo 720 1.5 pt (LS Adv.-7/9, 7/19, 8/4, 8/19, 9/17) JRC 20WD 1.75 lb (Scl. Adv.-8/4, 8/30)	65.0 b	17.5 b	8.5 cd	5094 a-c
Bravo 720 1.5 pt (LS Adv.-7/9, 7/19, 8/4, 8/19, 9/17) JRC 20WD 2.70 lb (Scl. Adv.-8/4, 8/30)	58.8 b-d	13.8 bc	10.0 c	4707 bc
Bravo 720 1.5 pt (LS Adv.-7/9, 7/19, 8/4, 8/19, 9/17).....	50.0 c-e	10.0 c	8.5 cd	4849 a-c
Untreated check	98.0 a	28.8 a	94.8 a	2811 d
LSD.....	**12.50**	**6.58**	**4.77**	**752**

[1] LS Adv.=R3 leaf spot advisory, Scl. Adv.=Sclerotinia advisory.
[2] Leaf spot and web blotch rating scale: 0=none; 100=spots or blotches on all leaflets.
[3] Defoliation rating scale: 0=none, 100=no leaves on plants.
[4] Yields are weight of peanuts with 7% moisture. Peanuts were dug on 8 Oct and harvested on 17 Oct 2004. Means followed by the same letter(s) are not significantly different (LSD, P=0.05). Arcsine transformation of percentage data was made in analysis to determine statistical significance.

XXIV. SUSCEPTIBILITY OF PEANUT CULTIVARS AND BREEDING LINES TO SCLEROTINIA BLIGHT IN PEANUTS (TAREC Research Farm, Hare Road)

A. PURPOSE: To compare the susceptibility of standard varieties and new selections

B. EXPERIMENTAL DESIGN:
1. Four randomized complete blocks
2. Two, 35-ft rows/plot
3. Fifteen-ft alleyways between blocks
4. Rows spaced 36-in. apart

C. CULTIVAR:
1. NC 12C
2. Perry
3. VA 98R
4. Wilson
5. VT 9506102-6 (Champ)
6. Gregory
7. GP-NCWS12
8. GP-NCWS15

D. ADDITIONAL INFORMATION:
1. Location: Tidewater Res. Farm, Hare Rd., Suffolk
2. Crop history: cotton 2003; peanut 2002, cotton 2001
3. Planting date: 14 May 2004
4. Soil fertility report:

pH.....	6.2
Ca	205 ppm
Mg	23 ppm
P	33 ppm
K.....	53 ppm
Zn	2.1 ppm
Mn	1.6 ppm
Soil type	Kenansville loamy sand

5. Herbicide:
   Pre-plant - Prowl 1 pt/A (24 Mar)
   Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (21 Apr)
   Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (17 May)
6. Insecticide: Temik 15G 7 lb/A in furrow (14 May)
   Orthene 97S 12 oz/A (4 Jun)
   Lorsban 15G 13 lb/A (22 Jun)
   Danitol 2.4EC 10 fl oz/A (9 Aug)
7. Cylindrocladium black rot control: Vapam 7.5 gal/A (17 Apr)
8. Leaf spot control: Bravo WS 1.5 pt (29 Jun, 9 Aug, 23 Aug, 7 Sep, 29 Sep); Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz/A (16 Jul) according to leaf spot advisory program
9. Additional crop management:
   a. Liquid boron 1 qt (24 Mar)
   b. Landplaster: Gypsum 420 1200 lb/A (9 Jun)
   c. Liquid Mn 2 qt/A (23 Jun, 9 Jul)
   d. Cultivation: 22 Jun
10. Harvest date: 19 Oct

Table 90. Incidence of sclerotinia blight in peanut cultivars.

Cultivar	Sclerotinia blight*		
	Jul 19	Aug 27	Oct 8
NC 12C	0.8	12.8 a	36.3 a
Perry	0.8	7.3 ab	32.5 a
VA 98R	0.0	6.0 bc	33.8 a
Wilson	1.0	7.3 ab	27.3 ab
VT 9506102-6	0.3	8.8 ab	33.5 a
Gregory	0.3	10.0 ab	32.8 a
GP-NCWS12	0.0	0.0 c	4.5 c
GP-NCWS15	0.0	4.5 bc	20.8 b
LSD	**--**	**6.61**	**10.86**

* Counts of infection centers in the two center rows of each plot or a total of 70 ft of row. An infection center was a point of active growth by *Sclerotinia minor* and included 6 in. on either side of that point.
Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 91. Plant height and yield of peanut cultivars.

Cultivar	Mainstem height (in.)* (Aug 11)	Yield** (lb/A)
NC 12C	23.4 a	3864 ab
Perry	17.9 cd	4196 a
VA 98R	17.4 d	3859 ab
Wilson	20.5 b	3708 ab
VT 9506102-6	18.6 c	2944 c
Gregory	20.1 b	3905 ab
GP-NCWS12	15.6 e	3410 bc
GP-NCWS15	17.2 d	3488 bc
LSD	**1.10**	**699**

* Data are measurements of four plants per plot.
** Yields are weight of peanuts with 7% moisture. Peanuts were dug on 8 Oct and harvested on 19 Oct 2004.
Means followed by the same letter(s) are not significantly different (LSD, P=0.05) .

XXV. SUSCEPTIBILITY OF VIRGINIA- AND RUNNER-TYPE CULTIVARS OF PEANUT TO TOMATO SPOTTED WILT VIRUS (TAREC Research Farm, Lummis Road)

A. PURPOSE: To determine the value of TSWV resistance in new runner-type varieties and compare the susceptibility and yield to virginia-type varieties.

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks with 15-ft alleys between blocks
2. Fifteen-ft alleyways between blocks
3. Two, 35-ft rows per plot
4. Seeding rate of 3.5 seed/row ft

C. CULTIVAR (V = virginia-type; R = runner-type)
1. Andru II (R)
2. ANorden (R)
3. Carver (R)
4. DP-1 (R)
5. Georgia Green (R)
6. Georgia-01R (R)
7. Georgia-02C (R)
8. Hull (R)
9. ViruGard (R)
10. GA-03L (R)
11. AP-3 (R)
12. C99R (R)
13. AgraTech VC2 (V)
14. Georgia Hi O/L (V)
15. Gregory (V)
16. NC-V11 (V)
17. VT 9506102-6 (V)
18. VA 98R (V)
19. Perry (V)
20. NC 12C (V)
21. Wilson (V)
22. N00098 OL (V)
23. N01013 T (V)
24. N02006 9 (V)

D. ADDITIONAL INFORMATION:
1. Location: TAREC Research farm, Lummis Rd., Suffolk
2. Crop history: corn 2003; wheat 2002, peanut 2001
3. Planting date: 7 May
4. Soil fertility report:

pH.....	5.9
Ca	358 ppm
Mg	73 ppm
P	27 ppm
K.....	117 ppm
Zn	1.0 ppm
Mn	2.9 ppm
Soil type	Nansemond fine sandy loam

5. Herbicide:
   Pre-plant - Prowl 1 pt/A (24 Mar)
   Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (21 Apr)
   Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (13 May)
   Post-emergence – Poast Plus 36 fl oz + ChemOil 1 pt/A (2 Jun, 15 Jun)
6. Cylindrocladium black rot control: Vapam 7.5 gal/A (17 Apr)
7. Insecticide: Temik 15G 7 lb/A in furrow (7 May)
   Orthene 97S 12 oz/A (4 Jun)
   Lorsban 15G 13 lb/A (22 Jun)
   Danitol 10 oz/A (6 Aug)
8. Leaf spot control: Stratego 7 fl oz + Induce 1.2 fl oz (29 Jun), Folicur 7.2 fl oz + Induce 1.2 fl oz (15 Jul), Headline 6 fl oz (6 Aug), Bravo WS 1.5 pt/A (23 Aug, 7 Sep) according to leaf spot advisory program
9. Sclerotinia blight control: Omega 500 1 pt/A (23 Aug)
10. Additional crop management:
    a. Liquid boron 1 qt (24 Mar)
    b. Landplaster: Gypsum 420 1200 lb/A (9 Jun)
    c. Liquid Mn 2 qt/A (23 Jun, 9 Jul)
    d. Cultivation: 22 Jun
11. Harvest: dig and invert cultivars in windrows on 18 Oct; combine virginia-type cultivars on 22 Oct; runner-type cultivars on 29 Oct

Table 92. Emergence, mainstem height, incidence of tomato spotted wilt virus (TSWV), and severity of TSWV and cylindrocladium black rot (CBR) in peanut cultivars.

Cultivar and type[1]	Plants/ft[2] (May 24)	Mainstem height[3] (in.)	TSWV[4] Jun 5	TSWV[4] Jul 9	TSWV[4] Jul 28	TSWV/ CBR[5] (Sep 10)
Andru II (R)	1.85 d-g	15.63 h-j	0.5 c	9.8 f-h	28.3 f-k	10.3 e-k
ANorden (R)	1.86 d-g	15.13 ij	0.5 c	7.5 h	22.0 i-k	8.0 h-k
Carver (R)	1.71 fg	14.69 jk	0.3 c	15.8 b-f	36.3 c-h	18.5 b-e
DP-1 (R)	1.73 fg	13.25 kl	0.3 c	8.8 gh	16.8 jk	4.8 k
Georgia Green (R)	2.03 a-d	14.56 jk	0.3 c	11.5 d-h	27.3 g-k	9.3 f-k
Georgia-01R (R)	1.87 c-f	14.56 jk	0.5 c	12.3 d-h	28.8 e-j	13.8 c-k
Georgia-02C (R)	2.03 a-d	15.38 h-k	0.8 bc	7.8 gh	19.0 jk	4.8 k
Hull (R)	1.86 d-g	11.69 l	0.3 c	13.3 c-h	24.3 h-k	7.5 h-k
ViruGard (R)	1.42 h	15.31 ij	0.3 c	16.5 b-e	34.8 c-i	19.3 b-e
GA-03L (R)	1.97 a-e	16.7 f-i	0.3 c	8.0 gh	17.5 jk	7.3 i-k
AP-3 (R)	1.92 b-f	16.4 hi	0.0 c	9.5 gh	15.0 k	5.5 jk
C99R (R)	1.63 gh	14.19 jk	0.0 c	13.3 c-h	24.8 h-k	9.0 g-k
AgraTech VC2 (V)	1.71 fg	15.56 h-j	0.5 c	16.0 b-e	34.5 d-i	15.5 b-i
Georgia Hi O/L (V)	1.92 b-f	16.50 g-i	0.5 c	13.8 b-g	29.8 e-j	12.8 d-k
Gregory (V)	1.78 e-g	20.00 bc	0.3 c	18.5 bc	41.3 c-f	24.0 b
NC-V11 (V)	2.17 a	18.31 d-f	1.5 ab	19.8 ab	42.0 c-e	17.3 b-g
VT 9506102-6 (V)	1.91 c-f	18.44 b-e	1.5 ab	19.5 ab	47.0 b-d	18.3 b-f
VA 98R (V)	2.15 ab	17.00 e-h	2.0 a	19.8 ab	48.0 a-c	17.5 b-g
Perry (V)	1.88 c-f	18.31 d-f	0.5 c	12.0 d-h	39.0 c-g	21.0 b-d
NC 12C (V)	2.10 a-c	22.63 a	0.3 c	17.5 b-d	56.8 ab	34.3 a
Wilson (V)	2.01 a-d	18.38 c-e	0.8 bc	25.3 a	60.5 a	24.0 b
N00098 OL (V)	1.62 gh	18.13 d-g	0.5 c	13.0 c-h	36.0 c-h	16.5 b-h
N01013 T (V)	1.85 d-g	20.06 b	0.5 c	8.5 gh	23.8 h-k	14.0 c-j
N02006 9 (V)	1.80 d-g	19.56 b-d	0.8 bc	10.8 e-h	38.8 c-g	22.3 bc
LSD	**0.24**	**1.65**	**0.96**	**6.03**	**13.25**	**9.04**

[1] R=runner type, V=virginia type
[2] Determined from counts of two, 35-ft rows per plot.
[3] Data are measurements of four plants per plot.
[4] Number of symptomatic plants per plot.
[5] Number of symptomatic and or dead plants per plot. Yellow/dead plants were indicative of CBR and TSWV, but lacked distinguishing features of either disease.
Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 93. Incidence of tomato spotted wilt virus in taproots of selected peanut cultivars in assays on 18 Oct.

Cultivar and type*	TSWV taproot test** (% +)
Georgia Green (R)	33.8 a-c
Hull (R)	31.3 bc
GA-03L (R)	23.8 c
Gregory (V)	51.3 ab
Perry (V)	42.5 a-c
Wilson (V)	52.5 a
LSD	**20.53**

* R=runner type, V=virginia type

** Based on 20 randomly selected root samples per plot subjected to an Agdia TSWV immunoassay test (18 Oct). Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 94. Incidence and severity of cylindrocladium black rot (CBR) and web blotch, and the maturity, yield and value of peanut cultivars.

Cultivar and type[1]	CBR incidence[2] (Sep 2)	CBR severity[3] (Sep 10)	Web blotch severity[3] (Sep 10)	% mature[4] (Sep 20)	Yield[5] (lb/A)	Value[6] ($/A)
Andru II (R)	4.3 a-d	0.33 i-k	1.18 b-e	27	3997 d-f	718 d-f
ANorden (R)	2.5 b-e	0.48 f-k	0.60 d-h	35	3127 g-i	586 g-i
Carver (R)	3.5 a-e	0.50 f-k	0.45 e-h	3	4242 cd	786 cd
DP-1 (R).....	0.8 de	0.08 k	0.10 h	14	4936 a	912 a
Georgia Green (R).....	3.0 a-e	0.40 h-k	0.88 c-h	18	4371 b-d	833 a-c
Georgia-01R (R)	2.3 b-e	0.28 i-k	0.20 gh	1	4213 cd	805 b-d
Georgia-02C (R)	1.5 c-e	0.63 e-k	0.50 e-h	22	4243 cd	798 cd
Hull (R)	0.0 e	0.13 jk	0.08 h	30	4406 a-d	813 a-d
ViruGard (R).....	3.5 a-e	1.30 a-h	1.38 b-d	34	3458 f-h	645 f-h
GA-03L (R).....	4.0 a-e	0.93 c-k	0.63 d-h	54	4608 a-c	850 a-c
AP-3 (R).....	2.0 b-e	0.43 g-k	0.23 gh	8	4306 cd	774 c-e
C99R (R).....	1.8 b-e	0.08 k	0.30 f-h	3	4874 ab	904 ab
AgraTech VC2 (V)	3.3 a-e	0.83 d-k	1.15 b-f	20	4189 cd	781 c-e
Georgia Hi O/L (V)....	5.5 a-c	1.30 a-h	1.73 a-c	23	4346 b-d	823 a-d
Gregory (V).....	5.5 a-c	1.20 a-i	0.88 c-h	52	3432 gh	627 f-h
NC-V11 (V)	3.3 a-e	2.00 ab	2.45 a	50	2715 i-k	507 i-k
VT 9506102-6 (V)	3.3 a-e	1.40 a-f	1.30 b-e	49	2154 k	396 l
VA 98R (V).....	4.5 a-d	1.88 a-c	2.00 ab	54	2474 jk	465 j-l
Perry (V)	5.8 ab	1.35 a-h	1.30 b-e	46	3509 e-g	678 e-g
NC 12C (V).....	7.0 a	1.05 b-j	0.65 d-h	43	3554 e-g	662 fg
Wilson (V)	4.8 a-d	1.75 a-d	1.25 b-e	30	2383 jk	431 kl
N00098 OL (V).....	3.0 a-e	1.50 a-e	1.03 c-g	32	2938 h-j	548 h-j
N01013 T (V).....	3.8 a-e	2.13 a	0.58 d-h	61	3376 gh	626 f-h
N02006 9 (V)	3.0 a-e	1.38 a-g	1.18 b-e	17	4069 c-e	777 c-e
LSD.....	**4.07**	**0.95**	**0.85**	**--**	**562**	**105**

[1] R=runner type, V=virginia type
[2] Number of symptomatic plants per plot.
[3] Scale of ratings: 0=none, 10=all plants with symptoms.
[4] Percentages of whole pods with mesocarp tissues either black or brown in pods.
[5] Yields are weight of peanuts with 7% moisture. Peanuts were dug on 18 Oct; virginia-type cultivars were harvested on 22 Oct and runner-type cultivars were harvested on 29 Oct.
[6] Composite samples of pods were graded to determine market value at the loan rate, and multiplied by yield to estimate value at farm gate ($/A).
Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 95. Grade characteristics of peanut cultivars.

Cultivar and type[1]	%[2]								Value[3]
	FM	LSK	FAN	ELK	SS	OK	DK	SMK	(¢/lb)
Andru II (R)	0	2	--	--	9	3	0	66	17.97573
ANorden (R)	2	1	--	--	9	2	0	69	18.73988
Carver (R)	0	1	--	--	4	3	0	72	18.52475
DP-1 (R)	0	0	--	--	4	4	0	71	18.47002
Georgia Green (R)	0	1	--	--	7	2	0	72	19.05742
Georgia-01R (R)	1	1	--	--	3	1	0	76	19.10693
Georgia-02C (R)	0	2	--	--	6	3	0	72	18.80863
Hull (R)	0	1	--	--	3	2	0	73	18.45438
ViruGard (R)	1	3	--	--	7	3	0	71	18.64505
GA-03L (R)	0	1	--	--	4	2	0	72	18.45443
AP-3 (R)	0	1	--	--	2	2	0	72	17.97933
C99R (R)	1	2	--	--	5	2	0	72	18.54321
AgraTech VC2 (V)	1	4	76	39	3	2	0	71	18.63853
Georgia Hi O/L (V)	1	10	76	59	7	1	1	71	18.93749
Gregory (V)	1	8	91	61	3	2	1	70	18.27693
NC-V11 (V)	1	5	74	49	4	2	0	70	18.68713
VT 9506102-6 (V)	1	7	72	48	3	2	1	71	18.41932
VA 98R (V)	1	5	66	45	2	1	1	73	18.79134
Perry (V)	1	5	65	55	7	1	0	70	19.30714
NC 12C (V)	1	10	87	61	3	1	1	73	18.63417
Wilson (V)	0	4	73	50	5	2	1	66	18.08938
N00098 OL (V)	1	8	82	57	5	2	1	70	18.63733
N01013 T (V)	1	8	83	56	7	2	0	68	18.54518
N02006 9 (V)	1	7	92	65	4	1	0	72	19.08937

[1] R=runner type, V=virginia type

[2] FM=foreign material, LSK=loose shelled kernels, FAN=fancy sized in-shell, ELK=extra large kernels, SS=sound splits, OK=other kernels, DK=damaged kernels, SMK=sound mature kernels. Data are from a composite sample from four reps of each variety.

[3] Value (¢/lb) represents the market value of peanuts based on the loan rate.

XXVI. EFFECT OF PLANTING DATE AND CULTIVAR ON THE INCIDENCE OF TOMATO SPOTTED WILT VIRUS IN PEANUT (TAREC Research Farm, Hare Road)

A. PURPOSE: To assess the importance of planting date as a factor that governs the incidence and severity of tomato spotted wilt virus in peanut

B. EXPERIMENTAL DESIGN:
1. Six randomized complete blocks
2. Four, 40-ft rows/plot
3. Fifteen-ft alleyways between plots
4. Yield and disease ratings determined from the center, 8 rows of each plot

C. PLANTING DATES: Main plots of four rows on each planting date
1. April 8
2. April 16
3. April 22
4. April 28
5. May 6
6. May 12
7. May 19

D. CULTIVARS: Subplots of two rows of each cultivar. Two cultivars were selected to represent the range in cultivar susceptibility among virginia-type peanuts. All cultivars were planted at a rate of 3.5 seed/ft of row.
1. Gregory (partial resistance)
2. Perry (very susceptible)

E. ADDITIONAL INFORMATION:
1. Location: Tidewater Res. Farm, Hare Rd., Suffolk
2. Crop history: cotton, 2003; peanut, 2002; cotton, 2001
3. Soil fertility report:

pH.....	6.2
Ca	205 ppm
Mg	23 ppm
P	33 ppm
K.....	53 ppm
Zn	2.1 ppm
Mn	1.6 ppm
Soil type	Kenansville loamy sand

4. Herbicide:
   Pre-plant - Prowl 1 pt/A (24 Mar)
   Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (21 Apr)
   Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (13 May)
5. Insecticide: Temik 15G 7 lb/A in furrow (at planting)
   Orthene 97S 12 oz/A (4 Jun)
   Lorsban 15G 13 lb/A (22 Jun)
   Danitol 2.4EC 10 fl oz/A (6 Aug)
6. Cylindrocladium black rot control: Vapam 15 gal/A (24 Mar)
7. Leaf spot control: Stratego 7 fl oz + Induce 1.2 fl oz (29 Jun), Folicur 7.2 fl oz + Induce 1.2 fl oz (15 Jul), Headline 6 fl oz (6 Aug), Bravo WS 1.5 pt/A (23 Aug, 7 Sep) according to leaf spot advisory program
8. Sclerotinia blight control: Omega 500 (15 Jul, 6 Aug, 1 Sep)

9. Additional crop management:
   a. Liquid boron 1 qt (24 Mar)
   b. Landplaster: Gypsum 420 1200 lb/A (9 Jun)
   c. Liquid Mn 2 qt/A (23 Jun, 9 Jul)
   d. Cultivation: 22 Jun
10. Harvest date: 18 Oct 2004

Table 96. Effect of plant date on emergence and growth of peanut cultivars.

	Plants/ft* (4 wks AP)		Growth stage**			
			Jun 1		Jun 25	
Planting date	Gregory	Perry	Gregory	Perry	Gregory	Perry
April 8	2.5 ab	2.7 b	1.5 a	1.3 a	3.4 ab	3.4 b
April 16	2.6 a	2.9 a	1.4 a	1.3 a	3.7 a	4.3 a
April 22	2.4 bc	2.8 a	1.2 b	1.2 b	3.1 bc	3.4 b
April 28	2.2 c	2.5 c	0.9 c	0.8 c	3.1 bc	2.7 bc
May 6	2.3 c	2.6 bc	0.7 d	0.6 d	2.8 c	2.3 cd
May 12	2.6 a	2.8 a	0.5 e	0.5 d	1.8 d	1.7 d
May 19	2.6 a	2.9 a	0.3 f	0.3 e	1.7 d	1.6 d
LSD (P=0.05)	**0.2**	**0.2**	**0.1**	**0.1**	**0.5**	**0.8**
Plant date mean						
April 8	2.6		1.4		3.4 b	
April 16	2.8		1.4		4.0 a	
April 22	2.6		1.2		3.3 bc	
April 28	2.3		0.8		2.9 c	
May 6	2.4		0.6		2.6 d	
May 12	2.7		0.5		1.8 e	
May 19	2.8		0.3		1.6 e	
LSD (P=0.05)	**0.1**		**0.1**		**0.3**	
Cultivar mean						
Gregory	2.5		0.9		2.8 a	
Perry	2.7		0.8		2.8 a	
LSD (P=0.05)	**0.1**		**0.03**		**0.2**	
Split-plot analysis						
Plant date.....	0.0001		.0001		.0001	
Cultivar	0.0001		.0001		.7379	
Plant date x cultivar .	0.0260		.0184		.0805	

* Determined from counts of two, 40-ft rows per plot.

** Growth stage scale: 1=flowering, 2=pegging, 3=beginning pod, 4=full pod, 5=beginning seed, 6=full seed, 7=beginning maturity.

Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 97. Effect of plant date on incidence of TSWV in peanut cultivars.

	TSWV*							
	June 1		Jun 25		Jul 20		Sep 9	
Planting date	Gregory	Perry	Gregory	Perry	Gregory	Perry	Gregory	Perry
April 8	1.5 a	2.5 a	16.8 a	18.7 a	33.2 ab	35.3 b-d	24.7 ab	25.3 bc
April 16	1.0 ab	1.0 bc	12.7 b	15.0 ab	30.5 ab	28.8 cd	21.7 b	21.8 c
April 22	1.0 ab	0.8 bc	11.5 bc	13.3 b	36.0 ab	39.2 bc	24.8 ab	24.2 bc
April 28	0.3 bc	1.3 ab	10.3 bc	10.8 bc	36.2 ab	44.0 ab	26.3 ab	26.2 bc
May 6	0.7 a-c	1.3 ab	8.0 cd	11.7 bc	39.5 a	51.0 a	29.7 a	39.8 a
May 12	0.2 bc	0.2 bc	5.5 d	8.3 c	29.8 ab	36.8 b-d	30.0 a	32.0 ab
May 19	0.0 c	0.0 c	4.3 d	2.3 d	29.2 b	27.2 d	21.7 b	20.2 c
LSD (P=0.05)	**0.9**	**1.2**	**4.2**	**4.8**	**10.3**	**11.7**	**7.1**	**9.7**
Plant date mean								
April 8	2.0 a		17.8 a		34.3 bc		25.0 c	
April 16	1.0 b		13.8 b		29.7 c		21.8 c	
April 22	0.9 b		12.4 bc		37.6 b		24.5 c	
April 28	0.8 bc		10.6 cd		40.1 ab		26.3 bc	
May 6	1.0 b		9.8 d		42.3 a		34.8 a	
May 12	0.2 cd		6.9 e		33.3 bc		31.0 ab	
May 19	0.0 d		3.3 f		28.2 c		20.9 c	
LSD (P=0.05)	**0.7**		**2.2**		**7.1**		**5.6**	
Cultivar mean								
Gregory	0.7 a		9.9 b		33.5 b		25.5 a	
Perry.....	1.0 a		11.5 a		37.5 a		27.1 a	
LSD (P=0.05)	**0.4**		**1.2**		**3.8**		**3.0**	
Split-plot analysis								
Plant date.....	.0009		.0001		.0047		.0007	
Cultivar	.0663		.0117		.0398		.3100	
Plant date x cultivar	.4049		.2398		.4211		.4249	

* Number of symptomatic plants per two row plot.
Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 98. Effect of plant date on incidence of cylindrocladium black rot (CBR), percentage of taproots infected with *Cylindrocladium parasiticum* and severity of root rot in peanut cultivars.

Planting date	CBR[1] (Sep 3)		CBR taproot assay [2] (% +)		Root rot[3] (0-10)	
	Gregory	Perry	Gregory	Perry	Gregory	Perry
April 8	3.5 ab	4.5 a	25 a	3 a	1.6 a	1.8 a
April 16	4.2 a	3.8 ab	26 a	8 a	1.6 a	1.3 ab
April 22	2.7 b	3.8 ab	12 ab	3 a	1.1 ab	0.9 bc
April 28	2.2 bc	3.3 ab	18 ab	8 a	1.0 ab	0.8 b-d
May 6	2.3 b	4.3 a	22 a	7 a	0.7 bc	1.1 bc
May 12	2.3 b	2.7 bc	13 ab	11 a	0.5 bc	0.6 cd
May 19	0.8 c	1.3 c	5 b	12 a	0.2 c	0.2 d
LSD (P=0.05)	**1.49**	**1.45**	**17**	**10**	**0.80**	**0.58**
Plant date mean						
April 8	4.0 a		14 ab		1.7 a	
April 16	4.0 a		17 a		1.4 a	
April 22	3.3 b		7 b		1.0 b	
April 28	2.8 bc		13 ab		0.9 b	
May 6	3.3 b		14 ab		0.9 b	
May 12	2.5 c		12 ab		0.5 c	
May 19	1.1 d		8 ab		0.2 d	
LSD (P=0.05)	**0.66**		**9**		**0.32**	
Cultivar mean						
Gregory	2.6 b		17 a		0.9 a	
Perry	3.4 a		7 b		1.0 a	
LSD (P=0.05)	**0.35**		**5**		**0.17**	
Split-plot analysis						
Plant date.....	.0012		.4539		.0007	
Cultivar	.0001		.0003		.8899	
Plant date x cultivar .	.0311		.0486		.2932	

[1] Number of symptomatic plants per two row plot.
[2] Data are percent recovery of *C. parasiticum* from 20 taproots selected at random from each plot. Taproots were assayed with a selective medium on 12 Oct.
[3] Scale of ratings: 0=none, 10=total decay by CBR. Ratings were made after digging on 12 Oct.
Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 99. Percentage of taproots infected with tomato spotted wilt virus, and the effect on yield of peanut cultivars

Planting date	TSWV Taproot assay* (% +) Perry	Yield** (lb/A) Gregory	Yield** (lb/A) Perry
April 8	52 a	4076 c	4311 d
April 16	47 a	4001 c	4704 b-d
April 22	37 a	4787 b	5165 ab
April 28	38 a	4795 b	4999 bc
May 6	47 a	4817 b	4530 cd
May 12	35 a	5120 ab	5226 ab
May 19	35 a	5664 a	5657 a
LSD (P=0.05)	**24**	**626**	**594**

Plant date mean	
April 8	4193 e
April 16	4352 de
April 22	4976 bc
April 28	4897 bc
May 6	4674 cd
May 12	5173 b
May 19	5661 a
LSD (P=0.05)	**350**
Cultivar mean	
Gregory	4751 b
Perry	4942 a
LSD (P=0.05)	**186**
Split-plot analysis	
Plant date	.0001
Cultivar	.0464
Plant date x cultivar	.1722

* Data are percent positive results from 10 taproots selected at random from each plot. Taproots were tested for TSWV on 12 Oct using Agdia Immunostrip Assay kits.

** Yields are weight of peanuts with 7% moisture. Peanuts were dug on 12 Oct and harvested on 18 Oct 2004. Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

XXVII. EFFECT OF CULTIVAR SELECTION AND STRIP TILLAGE IN MANAGING LOSSES TO TOMATO SPOTTED WILT VIRUS IN PEANUTS (TAREC Research Farm, Hare Road)

A. PURPOSE: To validate the influence of cultivar selection on incidence of tomato spotted wilt virus (TSWV)

B. EXPERIMENTAL DESIGN:
1. Six randomized complete blocks
2. Two, 40-ft rows/plot
3. Fifteen-ft alleyways between plots
4. Rows spaced 36-in. apart

C. CULTIVAR:
1. NC 12C
2. Perry
3. VA 98R
4. Wilson
5. VT 9506102-6 (Champ)
6. Gregory
7. AT VC-2
8. NC-V 11

D. ADDITIONAL INFORMATION:
1. Location: Tidewater Res. Farm, Hare Rd., Suffolk
2. Crop history: cotton, 2003; peanut, 2002; cotton, 2001
3. Planting date: 6 May
4. Soil fertility report:

pH.....	6.2
Ca	205 ppm
Mg	23 ppm
P	33 ppm
K.....	53 ppm
Zn	2.1 ppm
Mn	1.6 ppm
Soil type	Kenansville loamy sand

5. Herbicide:
   Pre-plant -Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (21 Apr)
   Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (13 May)
6. Insecticide: Temik 15G 7 lb/A in furrow (6 May)
   Orthene 97S 12 oz/A (3 Jun)
   Lorsban 15G 13 lb/A (22 Jun)
   Danitol 2.4EC 10 fl oz/A (6 Aug)
7. Leaf spot control: Stratego 7 fl oz + Induce 1.2 fl oz (29 Jun), Folicur 7.2 fl oz + Induce 1.2 fl oz (15 Jul), Headline 6 fl oz (6 Aug), Bravo WS 1.5 pt/A (23 Aug, 7 Sep) according to leaf spot advisory program
8. Sclerotinia blight control: Omega 500 (15 Jul, 6 Aug, 1 Sep)
9. Additional crop management:
   a. Landplaster: Gypsum 420 1200 lb/A (9 Jun)
   b. Liquid Mn 2 qt/A (23 Jun, 9 Jul)
10. Harvest date: 30 Sep 2004

Table 100. Emergence of peanuts and the incidence and severity of TSWV.

Variety	Plants/ft[1] (May 24)	TSWV[2] Jun 5	TSWV[2] Jun 24	TSWV[2] Jul 20	TSWV severity[3] (0-10) Jul 20	TSWV severity[3] (0-10) Sep 22
NC 12C	2.5 bc	2.0 ab	15.5 ab	49.0 a	1.7 a	2.7 c
Perry	2.4 c	3.2 ab	16.5 a	39.5 b	1.3 a-c	2.7 c
VA 98R	2.7 ab	3.2 ab	15.2 ab	39.2 b	1.3 a-c	5.2 a
Wilson	2.8 a	2.8 ab	13.8 ab	41.0 ab	1.4 ab	4.3 ab
VT 9506102-6	2.7 ab	2.3 ab	9.0 c	24.8 c	0.7 c	3.2 c
Gregory	2.4 c	1.7 b	13.5 a-c	41.5 ab	1.2 a-c	3.7 bc
AT VC-2	2.6 ab	3.8 a	13.5 a-c	27.0 c	0.9 bc	2.7 c
NC-V 11	2.6 ab	2.0 ab	11.3 bc	38.5 b	0.9 bc	3.0 c
LSD (P≤0.05)	**0.19**	**2.04**	**4.64**	**8.77**	**0.73**	**1.15**

[1] Determined from counts of two, 40-ft rows per plot.
[2] Counts of symptomatic and/or dead plants per two-row plot.
[3] Rating scale: 0=none, 10=all plants with symptoms of TSWV.
Means followed by the same letter(s) are not significantly different (LSD, P≤0.05).

Table 101. Incidence of cylindrocladium black rot (CBR), root rot, and pod rot in peanut cultivars, and the impact on yield.

Variety	CBR[1] (Sep 1)	Root rot[2] (Sep 22)	Pod rot[2] (Sep 22)	Yield[3] (lb/A)
NC 12C	6.3 b	1.8 bc	1.7 cd	3880 a
Perry	6.0 b	1.5 c	1.3 d	4200 a
VA 98R	12.7 a	3.8 a	3.3 a	3042 b
Wilson	13.8 a	3.8 a	2.8 ab	3042 b
VT 9506102-6	12.5 a	2.7 a-c	2.5 a-c	3514 ab
Gregory	9.0 ab	2.2 bc	1.7 cd	3449 ab
AT VC-2	5.8 b	2.5 bc	1.8 b-d	3697 ab
NC-V 11	9.0 ab	2.8 ab	2.2 b-d	3499 ab
LSD (P≤0.05)	**5.09**	**1.20**	**1.06**	**746**

[1] Number of symptomatic and/or dead plants per plot.
[2] Rating scale: 0=none, 10=total decay by CBR.
[3] Yields are weight of peanuts with 7% moisture. Peanuts were dug on 23 Sep and harvested on 30 Sep.
Means followed by the same letter(s) are not significantly different (LSD, P≤0.05).

XXVIII. SUSCEPTIBILITY OF PEANUT CULTIVARS TO TOMATO SPOTTED WILT VIRUS (Darden Farm, Bolling Green Road, Isle of Wight)

A. PURPOSE: To determine the value of TSWV resistance in NC-V 11, Gregory, and Georgia Green in comparison to other cultivars of peanut

B. EXPERIMENTAL DESIGN:
1. Three, randomized complete blocks separated by 15-ft alleyways
2. Four, 40-ft rows per plot
3. Disease and yield data collected from two center rows of each plot

C. CULTIVARS:
1. VA 98R
2. VA-C 92R
3. Wilson
4. Perry
5. VT-9506201-6 (Champ)
6. Gregory
7. Georgia-Green
8. NC-V 11
9. NC 12C

D. ADDITIONAL INFORMATION:
1. Location: Darden Farm, Isle of Wight County
2. Crop history: cotton, 2003
3. Planting date: 10 May
4. Soil fertility report:

pH.....	6.0
Ca	519 ppm
Mg	57 ppm
P	76 ppm
K.....	94 ppm
Zn	1.1 ppm
Mn	1.8 ppm
Soil type	unknown sandy loam

5. Herbicide:
   Pre-plant - Prowl 1 pt + Strongarm 0.23 oz/A (1 May)
   Pre-emergence – Gramoxone Max 11 fl oz + Pursuit 0.72 oz/A (12 May)
   Post-emergence – Cadre 1.44 oz + Butyrac 0.5 pt/A (28 May)
6. Cylindrocladium black rot control: Metam 7.5 gal/A (16 Apr)
7. Insecticide: Temik 15G 5 lb/A in furrow(10 May)
   Karate 1 oz/A (20 May, 5 Jun)
8. Leaf spot control: Folicur 7.2 oz (10 Jul); Headline 9 oz (31 Jul),
   Bravo WS 1.5 pt/A (1 Sep)
9. Additional crop management:
   a. Liquid boron 1 qt/A (10 Jul)
   b. Landplaster: Peanut Maker 1200 lb/A (12 Jun)
   c. Liquid Mn 2 qt/A (10 Jul)
   d. Cultivation: 12 Jun
10. Harvest date: 5 Oct 2004

Table 102. Incidence and severity of tomato spotted wilt virus (TSWV) and the impact of disease on yield and value of peanut cultivars.

Cultivar	TSWV[1] Jun 15	TSWV[1] Jul 22	TSWV[1] Aug 31	Yield[2] (lb/A)	Value[3] ($/A)
VA 98R	4.7 ab	24.0 cd	20.0 cd	5457 a	982 a
VA-C 92R	5.3 ab	26.7 b-d	26.7 bc	4627 b	794 cd
Wilson	5.0 ab	36.7 a-c	36.7 ab	3838 c	671 e
Perry	5.0 ab	29.3 b-d	30.7 a-c	4710 b	910 ab
VT-9506201-6	5.0 ab	28.7 b-d	19.3 cd	4793 b	856 bc
Gregory	7.0 a	44.3 a	34.3 ab	4420 bc	746 c-e
Georgia-Green	2.7 b	17.7 d	8.3 d	4166 bc	769 c-e
NC-V 11	5.0 ab	38.3 ab	28.3 bc	4215 bc	738 de
NC 12C	6.3 a	43.7 a	42.3 a	3805 c	689 de
LSD	**2.9**	**14.2**	**13.97**	**646**	**116**

[1] Number of symptomatic plants per plot.
[2] Yields are weight of peanuts with 7% moisture. Peanuts were dug on 24 Sep and harvested on 5 Oct 2004.
[3] Data are from composite samples from all reps.
Means in columns followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 103. Grade characteristics of peanut cultivars.

Cultivar	%* Fan	ELK	SS	OK	DK	SMK	¢/lb
VA 98R	71	49	2	1	0	71	18.99
VA C 92R	89	51	1	1	0	70	18.53
Wilson	87	47	1	1	0	68	17.96
Perry	87	57	2	1	0	72	19.38
VT-9506201-6	87	55	1	1	0	73	19.34
Gregory	84	54	1	1	0	69	18.34
Georgia-Green**	0	0	7	2	0	72	19.18
NC-V 11	80	51	1	2	0	70	18.60
NC 12C	92	60	1	1	0	72	19.18

* FAN=fancy sized in-shell, ELK=extra large kernels, SS=sound splits, OK=other kernels, DK=damaged kernels, SMK=sound mature kernels.
** Samples of Georgia Green were not from the test site and may not be comparable to other cultivars at this site. Data are from a composite sample of four reps from each variety.

XXIX. EVALUATION OF FUNGICIDES FOR CONTROL OF SOUTHERN STEM ROT AND EARLY LEAF SPOT IN PEANUT (TAREC, Holland Road)

A. PURPOSE: To compare the performance of fungicides for disease management in peanut

B. EXPERIMENTAL DESIGN:
   1. Four randomized complete blocks
   2. Four, 35-ft rows/plot
   3. Blocks separated by 10-ft alleyways
   4. Treatments applied with an ATV-mounted sprayer to the two center rows of each plot

C. APPLICATION OF TREATMENTS: Treatments began at the R_2-stage (early pegging) and continued according to weather-based leaf spot advisories until beginning maturity. All applications were made at a spray volume of 15 gal/A with three, $D_3$23 nozzles/row.

D. TREATMENT AND RATE/A:
   1. Bravo 720 1.5 pt (1st, 2nd, 3rd, 4th, 5th spray)
   2. Bravo 720 1.5 pt (1st and 5th leaf spot spray)
      V-10116 1.81FL 7.1 fl oz (2nd, 3rd, 4th spray)
   3. Bravo 720 1.5 pt (1st and 5th leaf spot spray)
      V-10116 1.81FL 10.6 fl oz (2nd, 3rd, 4th spray)
   4. Bravo 720 1.5 pt (1st and 5th spray)
      Bravo 720 1.5 pt + Omega 500 1 pt (2nd, 3rd, 4th spray)
   5. Bravo 720 1.5 pt (1st and 5th spray)
      Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (2nd, 3rd, 4th spray)
   6. Bravo 720 1.5 pt (1st and 5th spray)
      Abound 2.08SC 12 fl oz (2nd, 3rd, 4th spray)
   7. Bravo 720 1.5 pt (1st and 5th spray)
      Headline 250EC 9 fl oz (2nd, 3rd, 4th spray)
   8. Bravo 720 1.5 pt (1st, 5th spray)
      Artisan 3.6SE 32 fl oz (2nd, 3rd spray)
      Headline 250EC 9 fl oz (4th spray)
   9. Untreated check

E. ADDITIONAL INFORMATION:
   1. Location: Tidewater Research Center, 6321 Holland Rd., Suffolk
   2. Crop history: corn 2003, corn 2002, peanut 2001
   3. Planting date and cultivar: 11 May 2004, NC-V 11
   4. Soil fertility report:

pH.....	6.4
Ca	506 ppm
Mg	80 ppm
P	79 ppm
K.....	79 ppm
Zn	0.8 ppm
Mn	1.6 ppm
Soil type	Nansemond fine sandy loam

5. Herbicide:
   Pre-plant - Prowl 1 pt/A (22 Mar)
   Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (13 May)
   Post-emergence - Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (26 May)
6. Insecticide: Temik 15G 7 lb/A in furrow (11 May)
   Orthene 97S 12 oz/A (3 Jun)
   Lorsban 15G 13 lb/A (22 Jun)
   Danitol 10 oz/A (9 Aug)
7. Cylindrocladium black rot control: Vapam 7.5 gal/A (19 Apr)
8. Additional crop management:
   a. Liquid boron 1 qt (22 Mar)
   b. Landplaster: Gypsum 420 1200 lb/A (9 Jun)
   c. Liquid Mn 2 qt/A (23 Jun, 9 Jul)
   d. Cultivation: 22 Jun
9. Harvest date: 30 Sep 2004

Table 104. Incidence of leaf spot, web blotch and defoliation in untreated and fungicide-treated plots.

Treatment, rate/A and application date[1]	% leaf spot[2] Aug 4	% leaf spot[2] Sep 22	% web blotch[2] Aug 4	% web blotch[2] Sep 22	% defoliation[3] (Sep 22)
Bravo 720 1.5 pt (6/30, 7/21, 8/9, 8/24, 9/10)	1.0 a	1.5 b	0.5 a	13.3 e	6.3 cd
Bravo 720 1.5 pt (6/30, 9/10) V-10116 1.81FL 7.1 fl oz (7/21, 8/9, 8/24)	0.1 b	8.8 b	0.0 b	73.8 b	32.5 b
Bravo 720 1.5 pt (6/30, 9/10) V-10116 1.81FL 10.6 fl oz (7/21, 8/9, 8/24)	0.3 ab	8.8 b	0.0 b	68.8 b	33.8 b
Bravo 720 1.5 pt (6/30, 9/10) Bravo 720 1.5 pt + Omega 500 1 pt (7/21, 8/9, 8/24)	0.1 b	2.5 b	0.1 ab	4.5 e	1.0 d
Bravo 720 1.5 pt (6/30, 9/10) Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (7/21, 8/9, 8/24)	0.1 b	3.3 b	0.0 b	52.5 c	31.3 b
Bravo 720 1.5 pt (6/30, 9/10) Abound 2.08SC 12 fl oz (7/21, 8/9, 8/24)	0.0 b	5.3 b	0.0 b	33.3 d	13.8 c
Bravo 720 1.5 pt (6/30, 9/10) Headline 250EC 9 fl oz (7/21, 8/9, 8/24)	0.3 ab	1.5 b	0.0 b	2.8 e	2.3 d
Bravo 720 1.5 pt (6/30, 9/10) Artisan 3.6SE 32 fl oz (7/21, 8/9) Headline 250EC 9 fl oz (8/24)	0.1 b	2.3 b	0.0 b	10.8 e	6.3 cd
Untreated check	1.0 a	25.0 a	0.1 ab	89.5 a	94.5 a
LSD	**0.86**	**8.36**	**0.48**	**10.69**	**9.28**

[1] Fungicides applied beginning at R2 growth stage (early pegging) and thereafter according to the leaf spot advisory.
[2] Leaf spot/web blotch rating scale: 0=none, 100=spots or blotches on all leaflets.
[3] Defoliation rating scale: 0=none, 100=no leaves on plants.
Means followed by the same letter(s) are not significantly different (LSD, P=0.05). Arcsine transformation of percentage data was made in analysis to determine statistical significance.

Table 105. Incidence of sclerotinia blight and southern stem rot, and the severity of tomato spotted wilt virus and cylindrocladium black rot (CBR) in untreated and fungicide-treated plots.

Treatment, rate/A and application date[1]	Sclerotinia blight[2] Jul 28	Sclerotinia blight[2] Sep 22	Stem rot[2] Jul 28	Stem rot[2] Sep 22	Severity of TSWV/ CBR[3] (Sep 22)
Bravo 720 1.5 pt (6/30, 7/21, 8/9, 8/24, 9/10)	1.3 a	14.5 a	0.5 a	0.8 a	2.4 a
Bravo 720 1.5 pt (6/30, 9/10) V-10116 1.81FL 7.1 fl oz (7/21, 8/9, 8/24)	1.5 a	2.5 d	0.0 a	0.0 a	2.5 a
Bravo 720 1.5 pt (6/30, 9/10) V-10116 1.81FL 10.6 fl oz (7/21, 8/9, 8/24)	1.3 a	5.0 cd	0.0 a	0.5 a	2.0 a
Bravo 720 1.5 pt (6/30, 9/10) Bravo 720 1.5 pt + Omega 500 1 pt (7/21, 8/9, 8/24)	1.5 a	2.5 d	0.3 a	0.0 a	2.3 a
Bravo 720 1.5 pt (6/30, 9/10) Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (7/21, 8/9, 8/24)	0.3 a	2.5 d	0.0 a	0.3 a	3.3 a
Bravo 720 1.5 pt (6/30, 9/10) Abound 2.08SC 12 fl oz (7/21, 8/9, 8/24)	1.0 a	6.3 bc	0.3 a	0.0 a	2.0 a
Bravo 720 1.5 pt (6/30, 9/10) Headline 250EC 9 fl oz (7/21, 8/9, 8/24)	1.0 a	4.3 cd	0.0 a	0.8 a	2.6 a
Bravo 720 1.5 pt (6/30, 9/10) Artisan 3.6SE 32 fl oz (7/21, 8/9) Headline 250EC 9 fl oz (8/24)	0.5 a	4.0 cd	0.3 a	0.5 a	2.3 a
Untreated check	1.5 a	8.0 b	0.5 a	0.8 a	2.8 a
LSD	**1.70**	**2.90**	**0.59**	**0.90**	**1.40**

[1] Fungicides applied beginning at R2 growth stage (early pegging) and thereafter according to the leaf spot advisory.
[2] Counts of infection centers in the two center rows of each plot or a total of 70 ft of row. An infection center was a point of active growth by the causal fungus and included 6 in. on either side of that point.
[3] Scale of ratings: 0=none, 10=all plants with symptoms.
Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 106. Yield of peanut in untreated and fungicide-treated plots.

Treatment, rate/A and application date*	Yield** (lb/A)	
Bravo 720 1.5 pt (6/30, 7/21, 8/9, 8/24, 9/10)	2621	a-c
Bravo 720 1.5 pt (6/30, 9/10) V-10116 1.81FL 7.1 fl oz (7/21, 8/9, 8/24)	2634	ab
Bravo 720 1.5 pt (6/30, 9/10) V-10116 1.81FL 10.6 fl oz (7/21, 8/9, 8/24)	2856	ab
Bravo 720 1.5 pt (6/30, 9/10) Bravo 720 1.5 pt + Omega 500 1 pt (7/21, 8/9, 8/24)	3260	a
Bravo 720 1.5 pt (6/30, 9/10) Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (7/21, 8/9, 8/24)	2556	a-c
Bravo 720 1.5 pt (6/30, 9/10) Abound 2.08SC 12 fl oz (7/21, 8/9, 8/24)	2960	ab
Bravo 720 1.5 pt (6/30, 9/10) Headline 250EC 9 fl oz (7/21, 8/9, 8/24)	2191	bc
Bravo 720 1.5 pt (6/30, 9/10) Artisan 3.6SE 32 fl oz (7/21, 8/9) Headline 250EC 9 fl oz (8/24)	2621	a-c
Untreated check	1826	c
LSD	**806**	

* Fungicides applied beginning at R2 growth stage (early pegging) and thereafter according to the leaf spot advisory.
** Yields are weight of peanuts with 7% moisture. Peanuts were dug on 23 Sep and harvested on 30 Sep 2004. Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

XXX. EVALUATION OF FUNGICIDES FOR CONTROL OF SOUTHERN STEM ROT AND EARLY LEAF SPOT IN PEANUT (TAREC, Holland Road)

A. PURPOSE: To compare the performance of fungicides for disease management in peanuts

B. EXPERIMENTAL DESIGN:
   1. Four randomized complete blocks
   2. Four, 35-ft rows/plot
   3. Blocks separated by 10-ft alleyways
   4. Treatments applied with an ATV-mounted sprayer to the two center rows of each plot

C. APPLICATION OF TREATMENTS: Treatments began at the R_3-stage (beginning pod) and continued according to weather-based leaf spot advisories until beginning maturity. All applications were made at a spray volume of 15 gal/A with three, $D_3$23 nozzles/row.

D. TREATMENT AND RATE/A:
   1. Bravo 720 1.5 pt (1^{st}, 2^{nd}, 3^{rd}, 4^{th} spray)
   2. Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (1^{st}, 2^{nd} spray)
      Abound 2.08SC 12 oz (3^{rd} spray)
      Bravo 1.5 pt (4^{th} spray)
   3. Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (1^{st}, 2^{nd} spray)
      Abound 2.08SC 12 oz (3^{rd} spray)
      Bravo 1.5 pt (4^{th} spray)
   4. Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (1^{st}, 2^{nd} spray)
      Headline 250EC 9 fl oz (3^{rd} spray)
      Bravo 1.5 pt (4^{th} spray)
   5. Stratego 250EC 7 fl oz (1^{st}, 2^{nd} spray)
      Headline 250EC 9 fl oz + Omega 500 1 pt (3^{rd} spray)
      Bravo 720 1.5 pt (4^{th} spray)
   6. NAI 301 45 oz (1^{st} spray)
      Artisan 32 oz (2^{nd} spray)
      Headline 250EC 9 fl oz (3^{rd} spray)
      Bravo 720 1.5 pt (4^{th} spray)
   7. Stratego 250EC 7 fl oz (1^{st} spray)
      Artisan 32 oz (2^{nd} spray)
      Headline 250EC 9 fl oz (3^{rd} spray)
      Bravo 720 1.5 pt/A (4^{th} spray)
   8. Untreated check

E. ADDITIONAL INFORMATION:
   1. Location: Tidewater Research Center, 6321 Holland Rd., Suffolk
   2. Crop history: corn 2003, corn 2002, peanut 2001
   3. Planting date and cultivar: 11 May, NC-V 11

4. Soil fertility report:
   pH..... 6.4
   Ca ..... 506 ppm
   Mg..... 80 ppm
   P ..... 79 ppm
   K..... 79 ppm
   Zn ..... 0.8 ppm
   Mn..... 1.6 ppm
   Soil type ..... Nansemond fine sandy loam
5. Herbicide:
   Pre-plant - Prowl 1 pt/A (22 Mar)
   Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (13 May)
   Post-emergence - Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (26 May)
6. Insecticide: Temik 15G 7 lb/A in furrow (11 May)
   Orthene 97S 12 oz/A (3 Jun)
   Lorsban 15G 13 lb/A (22 Jun)
   Danitol 10 oz/A (9 Aug)
7. Cylindrocladium black rot control: Vapam 7.5 gal/A (19 Apr)
8. Additional crop management:
   a. Liquid boron 1 qt (22 Mar)
   b. Landplaster: Gypsum 420 1200 lb/A (9 Jun)
   c. Liquid Mn 2 qt/A (23 Jun, 9 Jul)
   d. Cultivation: 22 Jun
9. Harvest date: 30 Sep 2004

Table 107. Incidence of sclerotinia blight and southern stem rot, and the severity of tomato spotted wilt virus and cylindrocladium black rot (CBR) in untreated and fungicide-treated plots.

Treatment, rate/A and application date[1]	Sclerotinia blight[2] Jul 28	Sclerotinia blight[2] Sep 22	Stem rot[2] (Jul 28)	Severity of TSWV/ CBR[3] (Sep 22)
Bravo 720 1.5 pt (7/9, 8/9, 8/24, 9/10)	1.3 a	7.0 a	0.0 a	1.9 a
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (7/9, 8/9) Abound 2.08SC 12 oz (8/24) Bravo 1.5 pt (9/10)	1.0 a	4.8 a-c	0.3 a	1.9 a
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (7/9, 8/9) Abound 2.08SC 12 oz (8/24) Bravo 1.5 pt (9/10)	0.8 a	3.8 bc	0.3 a	2.9 a
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (7/9, 8/9) Headline 250EC 9 fl oz (8/24) Bravo 1.5 pt (9/10)	0.8 a	5.3 ab	0.0 a	2.1 a
Stratego 250EC 7 fl oz (7/9, 8/9) Headline 250EC 9 fl oz + Omega 500 1 pt (8/24) Bravo 720 1.5 pt (9/10)	1.0 a	4.3 bc	0.0 a	2.1 a
NAI 301 45 oz (7/9) Artisan 32 oz (8/9) Headline 250EC 9 fl oz (8/24) Bravo 720 1.5 pt (9/10)	1.3 a	4.5 bc	0.3 a	2.4 a
Stratego 250EC 7 fl oz (7/9) Artisan 32 oz (8/9) Headline 250EC 9 fl oz (8/24) Bravo 720 1.5 pt/A (9/10)	0.5 a	2.8 c	0.0 a	2.3 a
Untreated check	0.5 a	3.5 bc	0.3 a	2.9 a
LSD	**1.55**	**2.39**	**0.51**	**1.43**

[1] Fungicides applied beginning at R3 growth stage (beginning pod) and thereafter according to the leaf spot advisory.
[2] Counts of infection centers in the two center rows of each plot or a total of 70 ft of row. An infection center was a point of active growth by the causal fungus and included 6 in. on either side of that point.
[3] Scale of ratings: 0=none, 10=all plants with symptoms.
Means followed by the same letter(s) are not significantly different (LSD, P=0.05).

Table 108. Incidence of leaf spot, web blotch and defoliation, and the yield of peanut in untreated and fungicide-treated plots.

Treatment, rate/A and application date[1]	% leaf spot[2] (Sep 22)	% web blotch[2] (Sep 22)	% defolia-tion[3] (Sep 22)	Yield[4] (lb/A)
Bravo 720 1.5 pt (7/9, 8/9, 8/24, 9/10).....	6.3 b	40.0 b	30.0 bc	2165 a
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (7/9, 8/9) Abound 2.08SC 12 oz (8/24) Bravo 1.5 pt (9/10).....	8.3 b	37.5 b	41.3 b	2138 a
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (7/9, 8/9) Abound 2.08SC 12 oz (8/24) Bravo 1.5 pt (9/10).....	8.0 b	46.3 b	37.5 b	2239 a
Folicur 3.6F 7.2 fl oz + Induce 1.2 fl oz (7/9, 8/9) Headline 250EC 9 fl oz (8/24) Bravo 1.5 pt (9/10).....	5.3 b	11.3 d	22.5 c	2011 a
Stratego 250EC 7 fl oz (7/9, 8/9) Headline 250EC 9 fl oz + Omega 500 1 pt (8/24) Bravo 720 1.5 pt (9/10).....	8.3 b	23.8 c	20.0 c	2335 a
NAI 301 45 oz (7/9) Artisan 32 oz (8/9) Headline 250EC 9 fl oz (8/24) Bravo 720 1.5 pt (9/10).....	8.8 b	21.3 cd	21.3 c	2125 a
Stratego 250EC 7 fl oz (7/9) Artisan 32 oz (8/9) Headline 250EC 9 fl oz (8/24) Bravo 720 1.5 pt/A (9/10)	7.5 b	23.3 cd	25.0 c	2116 a
Untreated check	27.5 a	72.5 a	87.5 a	1872 a
LSD.....	**6.75**	**11.96**	**11.09**	**871**

[1] Fungicides applied beginning at R3 growth stage (early pegging) and thereafter according to the leaf spot advisory.
[2] Leaf spot/web blotch rating scale: 0=none, 100=spots or blotches on all leaflets.
[3] Defoliation rating scale: 0=none, 100=no leaves on plants.
[4] Yields are weight of peanuts with 7% moisture. Peanuts were dug on 23 Sep and harvested on 30 Sep 2004.
Means for disease followed by the same letter(s) are not significantly different (LSD, P≤0.05). Arcsine transformation of percentage data was made in analysis to determine significant differences. Means for yield followed by the same letter(s) are not significantly different at P≤0.05 according to Waller-Duncan k-ratio t test.

XXXI. APPENDIX. Climatological summary of the 2004 growing season, TAREC, 6321 Holland Road, Suffolk (Normal is the 72-yr mean of records at this site).

Table 109. Daily maximum and minimum temperatures (◦F) November 2003 – April 2004.

Day of month	NOV		DEC		JAN		FEB		MAR		APR	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	70	45	61	37	57	28	36	18	69	24	54	42
2	82	45	65	30	62	28	39	30	72	30	60	41
3	81	47	48	24	63	48	50	30	70	52	54	43
4	81	56	42	25	74	47	54	28	71	49	57	40
5	80	63	49	32	76	53	51	25	83	51	59	31
6	82	69	49	34	74	42	51	25	82	50	53	25
7	84	63	40	25	48	22	72	47	63	53	65	32
8	70	54	46	24	35	19	54	28	64	35	78	47
9	59	37	46	24	39	19	43	23	54	28	76	42
10	53	35	55	33	34	20	50	27	41	38	70	41
11	60	37	62	44	25	10	55	38	42	32	67	48
12	71	58	57	27	35	15	52	37	60	34	60	46
13	81	58	49	27	58	26	39	29	63	28	68	48
14	67	36	51	27	59	23	56	31	54	28	75	53
15	53	29	51	25	46	26	54	40	62	36	58	43
16	68	29	51	28	44	20	44	25	61	52	65	34
17	67	39	60	29	37	19	36	25	52	38	69	42
18	74	53	61	31	45	19	35	31	47	31	83	57
19	70	56	45	30	54	28	48	25	61	38	86	61
20	76	45	38	24	39	21	63	32	55	28	87	59
21	62	35	42	21	36	19	72	44	64	32	86	60
22	74	28	47	21	35	20	62	30	64	33	86	63
23	74	33	59	37	55	23	54	25	45	20	84	62
24	72	47	68	43	38	24	51	34	51	28	87	64
25	74	36	61	37	52	20	57	31	64	42	73	48
26	52	30	41	24	30	19	48	28	73	43	76	51
27	56	29	42	24	32	27	39	33	77	52	83	55
28	62	29	56	25	33	24	45	29	79	50	71	35
29	71	36	58	27	34	8	56	23	57	42	66	41
30	49	38	62	31	49	8			49	41	77	49
31			61	26	50	18			53	42		
Avg.	**69**	**43**	**52**	**29**	**47**	**24**	**51**	**30**	**61**	**38**	**71**	**47**
Normal	**63**	**39**	**53**	**31**	**50**	**29**	**51**	**29**	**60**	**37**	**70**	**45**
Deviation from normal	**+6**	**+4**	**-1**	**-2**	**-3**	**-5**	**0**	**+1**	**+1**	**+1**	**+1**	**+2**

Table 110. Daily maximum and minimum temperatures (◦F) May 2004 - October 2004.

Day of month	MAY		JUN		JUL		AUG		SEP		OCT	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	78	58	88	62	84	63	90	72	89	71	81	61
2	77	61	86	56	87	68	89	74	85	59	76	61
3	83	55	89	65	91	67	84	74	85	61	81	61
4	57	42	87	65	89	68	82	68	85	69	75	58
5	64	42	78	65	85	71	93	78	86	64	77	53
6	75	48	75	60	93	70	87	65	84	72	71	48
7	81	59	81	60	92	71	76	51	85	71	69	40
8	90	60	79	65	95	64	78	52	87	72	74	42
9	72	58	88	66	93	68	84	62	86	74	77	49
10	86	59	91	70	92	70	86	62	85	64	75	51
11	87	62	90	69	89	70	88	66	84	64	77	48
12	87	62	89	63	88	69	89	66	81	59	72	45
13	86	63	76	50	90	73	87	69	82	58	73	43
14	87	65	81	58	91	69	80	70	84	61	65	47
15	86	64	85	69	92	66	73	66	75	66	68	56
16	87	64	87	73	86	60	72	68	84	67	67	43
17	87	63	84	74	87	60	83	62	81	69	69	39
18	86	62	90	75	89	61	85	65	87	68	67	39
19	84	64	94	72	86	68	86	71	70	58	72	44
20	88	63	89	67	87	65	91	73	72	50	80	58
21	77	66	79	53	89	64	92	73	72	49	63	58
22	92	65	84	65	89	66	91	65	79	54	64	53
23	91	66	89	71	90	67	81	57	86	56	62	46
24	91	70	89	69	75	70	85	60	85	59	62	40
25	91	71	86	69	80	71	86	59	79	55	53	48
26	93	71	87	71	85	73	86	65	81	56	52	44
27	92	65	80	59	85	73	88	65	82	57	68	42
28	86	68	78	59	86	69	89	64	80	71	65	46
29	86	63	83	65	90	70	89	69	83	66	68	49
30	79	55	85	64	85	71	91	61	73	59	64	57
31	75	58			89	71	86	69			80	62
Avg.	**83**	**61**	**85**	**65**	**88**	**68**	**85**	**66**	**82**	**63**	**70**	**49**
Normal	**77**	**54**	**84**	**63**	**88**	**67**	**87**	**65**	**82**	**60**	**71**	**46**
Deviation from normal	**+6**	**+7**	**+1**	**+2**	**0**	**+1**	**+2**	**+2**	**0**	**+3**	**-1**	**+3**

Table 111. Daily precipitation (inches) November 2003 - April 2004.

Day of month	NOV	DEC	JAN	FEB	MAR	APR
1						0.65
2						0.01
3				0.03		0.01
4				0.32		
5		1.09				
6	0.03	0.03	0.30			
7	0.26			1.04	1.40	
8				0.06	0.54	
9						
10			0.28	0.07		
11		1.33			0.30	0.03
12				0.01		0.33
13				0.36		0.38
14		1.10				0.99
15		1.62		0.03	0.11	0.43
16					0.91	
17		0.68			0.12	
18		0.22	0.32	0.25		
19		0.01	0.14		0.01	
20	1.87					
21						
22						
23						
24		0.42				0.09
25	0.04					
26			0.82			
27			0.04			0.69
28						0.05
29	0.21					
30		0.02				
31					0.02	
Total	**2.41**	**6.52**	**1.90**	**2.17**	**3.41**	**3.66**
Normal	**3.08**	**3.28**	**3.95**	**3.47**	**3.89**	**3.31**
Deviation from normal	**-0.67**	**+0.24**	**-2.05**	**-1.3**	**-0.48**	**+0.35**

Table 112. Daily precipitation (inches) May 2004 – October 2004.

Day of month	MAY	JUN	JUL	AUG	SEP	OCT
1			0.66	0.19		
2	0.14		0.01	0.03		
3	0.86		0.79	1.04		1.90
4	0.39		0.02	0.01		0.02
5		1.35	0.15			
6	0.99	0.01		0.27	0.04	
7					0.02	
8			0.73			
9					0.81	
10						
11		0.56				
12		0.34				
13				0.95		
14			1.49	0.16		1.46
15			0.74	3.50	0.02	
16				3.03	2.22	0.22
17		0.20		0.01		
18		0.03	3.30		1.39	
19					0.23	0.15
20	1.06					0.63
21	0.01		0.47			0.07
22				0.53	0.01	
23			0.19	0.01		
24		0.15	0.84			0.02
25			0.28			0.05
26		1.44	0.72			
27	1.05	0.39	0.69		0.02	
28		0.01	0.55		0.22	
29		0.07	0.62		0.17	
30		0.55	0.28			
31	0.27			1.27		
Total	**4.77**	**5.10**	**12.53**	**11.00**	**5.15**	**4.52**
Normal	**3.82**	**4.27**	**5.91**	**5.77**	**4.48**	**3.43**
Deviation from normal	**+0.95**	**+0.83**	**+6.62**	**+5.23**	**+0.67**	**+1.09**