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VIRGINIA STATE UNIVERSITY

APPLIED RESEARCH ON

FIELD CROP DISEASE CONTROL

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PLANT PATHOLOGIST

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Nichino America, Inc. San Antonio, TX
Syngenta Crop Protection, Wilmington, DE
United Phosphorus, Inc., Walhalla, SC
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POLICY FOR ACCEPTANCE OF PESTICIDES FOR TESTING

Research on synthesis and exploration of agricultural chemicals and biotechnology for use in pest control continues to provide new materials for field evaluation. Compounds are being made available by private companies and universities for local research in a variety of ways; ranging from a sample with a code number to a thoroughly-tested material, with secure patents, technical data sheets, and comprehensive résumés of results of laboratory and field trials. Unfortunately, it is not possible for a scientist to include all materials and use patterns in a field research demonstration program. Therefore, materials are selected according to (i) overall need for a product in a particular crop or problem area, and (ii) overall promise of the material to improve crop management at the local level.

Before a material can be accepted for testing, the following descriptive information is required: (i) a list of the spectrum of biological activity, (ii) data on phytotoxicity and suggested rates of application, (iii) methods of application, (iv) formulations available, (v) mammalian toxicity (LD_{50}), (vi) possible health hazards, and (vii) possible hazards to the environment. Additional information that would be desirable includes: (i) identity of the active ingredient(s) and inert materials, (ii) physical properties (solubility, MP, VP, stability, etc.), (iii) residue information, (iv) residual soil life, (v) EPA residue tolerance (if any) and registration status, (vi) patent status, and (vii) unit cost in commercial markets.

Upon completion of field applications, it is the responsibility of the sponsor to dispose of all unused test materials. Because of limited space in controlled pesticide storage facilities and expenses associated with shipping and disposal, all sponsors are encouraged to ship not more than 1.5 times the anticipated quantity needed to complete a test.

INTRODUCTION

Rainfall in May, Jun, Jul, Aug and Oct was 0.39, 2.77, 0.29, 3.53 and 2.67 in. below normal, respectively, and Sep was 1.54 in. above normal (Table 1). Rainfall during the period totaled 19.63 in., which was 8.11 in. below normal. Average minimum air temperatures were normal (±1° F) in Jul, Aug and Oct, 2° F above normal in Sep, 3° F above normal in Jun, and 2° F below normal in May. Maximum air temperatures were near normal in May, Aug, Sep and Oct, 2° F above normal in Jul, and 8° F above normal in Jun according to records from a NOAA station (44-4044) at the Tidewater AREC in Suffolk. Normal represented the mean for the past 75 yrs of records. Cool temperatures and rainfall delayed planting of cotton and peanut until after 20 April in Virginia. Thereafter, rainfall was widely scattered and soil temperatures averaged above 60 ºF which allowed planting to proceed in a timely manner. Most crops showed good emergence after planting throughout Eastern Virginia, except for some stand losses in early plantings of corn. Sand blasting of corn and cotton caused considerable damage to emerging plants. Periods of moderate to severe drought stress in June and August wilting and stunting of crops especially in fields with sandy textured soils and without irrigation. Seasonal heat units for peanut from 1 May to 31 October totaled 2957 in Suffolk, 107 units above the previous 13-yr average (Table 1). A total of 2450 to 2600 heat units are needed for maturation of most commercial peanut varieties in Virginia. Cotton degree-days (DD_{60}) in the same period were 2335 or 149 above the 13-yr average. As the harvest season approached, many fields exhibited early maturity but reduced yield potential due to dry weather stress. Harvest was completed early in many areas because of excellent weather until the period of frequent rainfall ($\geq$ 3 in.) from 4 Nov to 16 Nov. The first killing frost in the Tidewater area was on 30 October when night-time temperatures ranged in the mid to low 20's.

Peanut was harvested on 24,000 acres in 2008 and yields averaged 3300 lb/A which was 50 lb above the previous record yield (Table 2). Dry weather stress and above normal temperatures suppressed yields in areas scattered across the peanut production area. Fields that received timely rains or irrigation made yields that were as high as 6,000 lb/A while severely stressed areas had yields of 2,000 lb or lower. Disease in peanuts was generally low and caused relatively low yield losses in comparison to years with near normal or greater rainfall. Nematodes were among the most common causes of yield loss in 2008 (Table 3). Cylindrocladium black rot and southern stem rot accounted for the most common causes of root, stem and pod rot in peanuts. Sclerotinia blight and leaf spot incidence were low throughout the production area as a result of extended periods of dry weather stress and above normal temperatures. The incidence of tomato spotted wilt virus (TSWV) was low in 2008 and caused minimal damage.

Soybean yields averaged 32 bu/A in 2008 on 570,000 acres (Table 2). Low yields were mostly a result of dry weather stress and root damage by nematodes (Table 4). Soybean cyst, southern and northern root-knot, sting, lance and stubby root nematodes probably accounted for the greatest losses of yield. Leaf spot diseases (brown spot, frogeye leaf spot, anthracnose, Cercospora blight) showed low incidence as a result of dry weather stress. Soybean rust was first detected on 1 October in Chesapeake through weekly examinations of leaf samples from 10 sentinel plots and numerous commercial fields. Further sampling up to 29 October confirmed incidence of the disease in a total of ten counties (Accomack, Chesapeake, Isle of Wight, Mecklenburg, Northampton, Southampton, Suffolk, Surry, Sussex, and Virginia Beach).

Corn yields averaged 108 bu/A in 2008 on 340,000 acres (Table 2). Seedling disease caused heavy losses of stand in several fields during early April as a result of cool temperatures, frequent rainfall, and sand blasting by strong winds.The widespread occurrence of stubby root nematode and patches of southern root-knot and sting nematode were thought to account for most of the yield losses to disease in corn. An outbreak of Southern corn rust in early August caused some damage in widely scattered areas. Otherwise, stalk rots and foliar diseases were minimal as a result of low rainfall and moisture stress.

Cotton yields in 2008 averaged 896 lb or 1.87 bales/A on 60,000 acres (Table 2). Rhizoctonia and Pythium damping-off were the most common cause of damping-off and seedling disease (Table 5). Like corn, sand blasting by strong winds caused severe injury in young seedlings. Crop damage by southern root-knot nematode, *Meloidogyne incognita*, accounted for the heaviest loss of yield in fields planted continuously to cotton for 5 years or longer. No significant losses to reniform nematode, *Rotylenchulus reniformis*, were detected in 2008. Instances of yield losses to stubby root and sting nematodes were found, but overall were less destructive than southern root knot. No occurrences of root damage by Columbia lance nematode were detected.

Powdery mildew, Stagonospora leaf blotch, and tan spot were the most common diseases of wheat in southeastern Virginia. Stripe rust was widely scattered and caused minimal crop damage. Occurrences of scab on heads were minimal in 2008.

The research described in this book was designed to evaluate strategies for improving disease control and the efficiency of crop production in Virginia. Commercial products are named for informational purposes only. Virginia Cooperative Extension, Virginia Polytechnic Institute and State University, and Virginia State University do not advocate or warrant products named nor do they intend or imply discrimination against those not named.

The primary purpose of this book is to provide cooperators and contributors a summary of field research. Data summaries and conclusions in nine chapters from this book have been submitted to the American Phytopathological Society for publication in *Plant Disease Management Reports* in 2009. Reprints of these publications are available upon request.

Table 1. Comparison of rainfall, peanut heat units (DD_{56}) and cotton degree-days (DD_{60}) in 2008 to records for the previous six years and averages of historical records.

	Rainfall (in.)							
Month	2002	2003	2004	2005	2006	2007	2008	Normal*
May	3.98	7.14	4.77	4.78	2.86	2.16	3.43	3.82
Jun	1.66	4.10	5.10	2.64	10.08	3.00	1.56	4.33
Jul	5.53	4.98	12.53	5.19	3.66	1.71	5.58	5.87
Aug	2.22	3.50	11.00	4.50	2.50	5.00	2.18	5.71
Sep	2.96	11.81	5.15	3.08	9.16	0.43	6.01	4.47
Oct	4.89	4.40	4.52	5.68	8.14	5.26	0.87	3.54
Total	21.24	35.93	43.07	25.87	36.40	17.56	19.63	27.74

*Normal is the 75-yr mean of records maintained at the Tidewater AREC, Suffolk.

	Peanut Heat Units (DD_{56})							
Month	2002	2003	2004	2005	2006	2007	2008	Avg.**
May	365	313	508	248	307	319	321	347
Jun	627	537	544	549	504	547	695	551
Jul	731	667	647	710	665	629	663	667
Aug	681	660	548	680	664	664	610	632
Sep	488	446	429	506	363	455	482	431
Oct	242	184	168	240	171	368	186	221
Total	3134	2807	2844	2933	2674	2982	2957	2850

**Avg. is the 13-yr mean (1995-2007).

	Cotton Degree Days (DD_{60})							
Month	2002	2003	2004	2005	2006	2007	2008	Avg.**
May	271	216	395	169	221	230	229	254
Jun	513	421	426	433	386	431	585	427
Jul	615	543	523	587	541	508	540	529
Aug	564	536	427	557	542	541	488	499
Sep	373	334	320	393	259	351	367	326
Oct	162	116	100	158	104	273	126	150
Total	2498	2166	2191	2297	2053	2334	2335	2186

**Avg. is the 13-yr mean (1995-2007).

Table 2. Crop production statistics in year of record yield compared to 2008.

Crop	Statistics of record year for yield*			2008 projection*	
	Year	Acreage	Yield/A	Acreage	Yield/A
Peanut.....	2004	32,000	3,250 lb	24,000	3,300 lb
Soybean.....	2004	530,000	39.0 bu	570,000	32 bu
Corn.....	2000	330,000	146 bu	340,000	108 bu
Cotton (lint)..	2004	81,000	956 lb	60,000	896 lb
Wheat	2006	155,000	68 bu	280,000	71 bu

* Based on crop production estimates by the Virginia Agricultural Statistics Service at http://www.nass.usda.gov/va. Acreage based on harvested acres.

Table 3. Estimated loss in yield as a result of peanut diseases in 2008.

Disease	Causal organism	Percent loss
Early leaf spot	*Cercospora arachidicola*	1.0
Late leaf spot	*Cercosporidium personatum*	0.2
Pepper spot & leaf scorch	*Leptosphaerulina crassiasca*	0
Web blotch	*Phoma arachidicola*	0.1
Botrytis blight	*Botrytis* sp.	0
Peanut rust	*Puccinia arachidis*	0
Sclerotinia blight	*Sclerotinia minor*	1.0
Sclerotinia blight	*Sclerotinia sclerotiorum*	ND*
Southern stem rot	*Sclerotium rolfsii*	1.5
Stem, root, & pod rot	*Rhizoctonia* spp.	0.2
Botrytis blight	*Botrytis* sp.	Trace
Pythium pod rot	*Pythium* spp.	0
Tomato spotted wilt virus	*Tospovirus*	0.75
Cylindrocladium black rot (CBR)	*Cylindrocladium parasiticum*	2.0
Nematode damage	Northern root knot, sting, lesion, etc.	2.0
Total		8.75**

* Not detected.

** The loss estimate equals 3,797 tons of peanuts or $2.088 million in farm income based on an estimated total production of 39,600 tons and a mean value of $550 per ton in 2008.

Table 4. Estimated loss in yield as a result of soybean diseases in 2008.

Disease	Causal agent(s)	Percent loss
Seedling diseases	*Rhizoctonia spp., Pythium spp., etc.*	0.5
Cercospora blight	*Cercospora kikuchii*	0.2
Purple seed stain	*Cercospora kikuchii*	0.1
Downy mildew	*Peronospora manshurica*	Trace
Anthracnose	*Colletotrichum truncatum*	0.4
Brown spot	*Septoria glycines*	0.2
Pod & stem blight	*Diaporthe phaseolorum* var. *sojae*	0.2
Soybean rust	*Phakopsora pachyrhizi*	0
Frogeye leaf spot	*Cercospora sojina*	0
Southern blight	*Sclerotium rolfsii*	0.1
Brown stem rot	*Phialophora gregata*	0.3
Charcoal rot	*Macrophomina phaseolina*	0.2
Stem canker	*Diaporthe phaseolorum* var. *caulivora*	Trace
Sudden death syndrome	*Fusarium solani* f.sp. *glycines*	Trace
Root & lower stem rot	*Rhizoctonia* spp.	Trace
Red crown rot	*Cylindrocladium parasiticum*	Trace
Phytophthora root & stem rot	*Phytophthora megasperma* f.sp. *glycinea*	0
Sclerotinia stem rot	*Sclerotinia sclerotiorum* and *S. minor*	0
Viruses	SMV, PMV, BPMV, etc.	Trace
Bacterial pustule	*Xanthomonas phaseoli*	0
Bacterial blight	*Pseudomonas glycinea*	0.2
Soybean cyst nematode	*Heterodera glycines*	2.5
Southern root knot nematode	*Meloidogyne incognita*	1.5
Other nematodes	---various---	1.0
Total loss (%)		**7.4***

* The loss estimate equals 1.458 million bushels based on production of 18.240 million bushels in 2008. At a value of $8.65/bu, the loss would be $12.612 million in farm revenue.

Table 5. Estimated loss of yield to cotton diseases in 2008.

Disease	Causal agent(s)	Percent loss
Seedling disease	*Rhizoctonia solani*, *Pythium* spp.	1.0
Fusarium wilt	*Fusarium oxysporum* f. sp. *vasinfectum*	trace
Verticillium wilt	*Verticillium dahliae*	0
Texas root rot	*Phymatotrichum omnivorum*	0
Ascochyta blight	*Ascochyta gossypii*	0
Bacterial blight	*Xanthomonas* spp.	0.1
Boll rots	*Diplodia* spp., *Fusarium* spp., *Xanthomonas* spp.	0.2
Leaf spots	---various---	0.3
Southern root-knot nematode.	*Meloidogyne incognita*	3.5
Reniform nematode	*Rotylenchulus reniformis*	0.1
Other nematodes	*Trichodorus* spp., *Belonolaimus* spp., etc.	1.4
Total loss (%)		6.6*

* The loss estimate equals 3.80 million pounds in Virginia based on production of 53.76 million pounds of lint in 2008. At a value of $0.39 per pound, the loss in revenues at the farm gate would be 1.48 million dollars in 2008.

I. WHEAT FUNGICIDE TEST (WHEAT108, TAREC Res. Farm, Field 28)

A. PURPOSE: To compare fungicide treatments for foliar disease control and impact on yield

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks separated by 8-ft alleys
2. Plots 12-ft wide and 30-ft long with 6.67-in row spacing
3. Data collected from the center, seven rows in each plot

C. APPLICATION OF TREATMENTS: Fungicide treatments were applied with a Lee Spider Sprayer having eight, 8003VS nozzles spaced 18-in. apart and delivering 23.2 gal/A. Sprays were applied at GS 32 on 21 Mar. Headline was applied at GS 45 on 18 Apr (Trt 4) with 8002VS nozzles spaced 18-in. apart and delivering 16.5 gal/A.

D. TREATMENT AND RATE/A: All treatments received a total of 60 units of N between GS 31 and 32. Treatments #1 and #5 received one application of N (18 gal 32% N + 6 gal water). Treatments #2, #3, and #4 received two applications of N (10 gal 32% N + 14 gal water at GS 31; 8 gal 32% N + 16 gal water mixture with fungicide/herbicide treatments).
1. Kocide 3000 46.1 WDG 0.75 lb + NIS 0.25% (v/v) + Harmony Extra 0.75 oz (GS 32)
2. Kocide 3000 46.1 WDG 0.75 lb + NIS 0.125% (v/v) + Harmony Extra 0.75 oz + Nitrogen (33%) 8 gal (GS 32)
3. Headline 2.09EC 3 fl oz + NIS 0.125% (v/v) + Harmony Extra 0.75 oz + Nitrogen (33%) 8 gal (GS 32)
4. Headline 2.09EC 3 fl oz + NIS 0.125% (v/v) + Harmony Extra 0.75 oz + Nitrogen (33%) 8 gal/A (GS 32) + Headline 2.06 EC 3 fl oz (GS 45)
5. Harmony Extra 0.75 oz (GS 32)

E. ADDITIONAL INFORMATION:
1. Location: TAREC Research Farm, Hare Rd.
2. Crop history: peanut 2007, wheat/soybean 2006, peanut 2005
3. Planting date and variety: 10 Nov 2007, SS 8302
4. Soil fertility report:

pH.....	7.1	K.....	42 ppm
Ca	329 ppm	Zn	0.3 ppm
Mg	48 ppm	Mn	2.0 ppm
P	26 ppm	Soil type	Kenansville loamy fine sand

5. Fertilization: 9-16-31-3 300 lb/A (23 Oct 2007)
Liquid nitrogen (30%) 60 lb/A (4 Feb)
6. Herbicide: Harmony Extra 0.6 oz/A (4 Feb)
7. Harvest date: 16 Jun 2008

Table 6. Severity of phytotoxicity and effect of fungicide treatments on powdery mildew in wheat on 10 Apr.

Treatment, rate/A and application timing[1]	Phytotoxicity[2] (0-10)	% mildew[3]
Kocide 3000 46.1 WDG 0.75 lb + NIS 0.25% (v/v) + Harmony Extra 0.75 oz (3/21)	3.0	4.5
Kocide 3000 46.1 WDG 0.75 lb + NIS 0.125% (v/v) + Harmony Extra 0.75 oz + Nitrogen (33%) 8 gal (3/21)	1.5	3.0
Headline 2.09EC 3 fl oz + NIS 0.125% (v/v) + Harmony Extra 0.75 oz + Nitrogen (33%) 8 gal (3/21)	3.3	3.3
Headline 2.09EC 3 fl oz + NIS 0.125% (v/v) + Harmony Extra 0.75 oz + Nitrogen (33%) 8 gal/A (3/21) Headline 2.06 EC 3 fl oz (4/18)	4.0	2.8
Harmony Extra 0.75 oz (3/21)	3.0	2.5
LSD	n.s.	n.s.

[1] GS 32= 21 Mar; GS 45 = 18 Apr.
[2] Phytoxicity rating scale: 0=none, 10=severe foliar burn.
[3] Data represent percent of leaf area with disease symptoms.
Arcsine transformation of percentage data was made in analysis to determine statistical significance, n.s. denotes that means are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 7. Effect of fungicide treatments on foliar disease in wheat on 4 May.

Treatment, rate/A and application timing*	% mildew**			% septoria**
	Flag leaf	Flag-1	Flag-2 to base	Flag-2 to base
Kocide 3000 46.1 WDG 0.75 lb + NIS 0.25% (v/v) + Harmony Extra 0.75 oz (3/21)	2.3	3.0	8.5	26.3 ab
Kocide 3000 46.1 WDG 0.75 lb + NIS 0.125% (v/v) + Harmony Extra 0.75 oz + Nitrogen (33%) 8 gal (3/21)	1.8	3.0	8.3	22.5 bc
Headline 2.09EC 3 fl oz + NIS 0.125% (v/v) + Harmony Extra 0.75 oz + Nitrogen (33%) 8 gal (3/21)	3.5	5.3	10.0	17.5 c
Headline 2.09EC 3 fl oz + NIS 0.125% (v/v) + Harmony Extra 0.75 oz + Nitrogen (33%) 8 gal/A (3/21) Headline 2.06 EC 3 fl oz (4/18)	2.0	1.8	7.5	18.8 bc
Harmony Extra 0.75 oz (3/21)	3.0	4.0	10.0	32.5 a
LSD	n.s.	n.s.	n.s.	8.4

* GS 32= 21 Mar; GS 45 = 18 Apr.

** Data represent percent of leaf area with disease symptoms. Flag-1 or Flag-2 represent 1st or 2nd leaf below flag leaf, respectively; base refers to leaves at lower nodes on stalk.
Arcsine transformation of percentage data was made in analysis to determine statistical significance. Means followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (P=0.05). n.s. denotes not significant.

Table 8. Effect of fungicide treatments on foliar disease in wheat on 19 May.

Treatment, rate/A and application timing*	Flag leaf			% mildew, septoria & tan spot** Flag-1 to Flag-2
	% mildew**	% septoria**	% tan spot**	
Kocide 3000 46.1 WDG 0.75 lb + NIS 0.25% (v/v) + Harmony Extra 0.75 oz (3/21)	9.8	2.3	10.0	36.3 a
Kocide 3000 46.1 WDG 0.75 lb + NIS 0.125% (v/v) + Harmony Extra 0.75 oz + Nitrogen (33%) 8 gal (3/21)	5.3	2.0	7.5	33.8 a
Headline 2.09EC 3 fl oz + NIS 0.125% (v/v) + Harmony Extra 0.75 oz + Nitrogen (33%) 8 gal (3/21)	8.0	2.0	10.8	21.3 b
Headline 2.09EC 3 fl oz + NIS 0.125% (v/v) + Harmony Extra 0.75 oz + Nitrogen (33%) 8 gal/A (3/21) Headline 2.06 EC 3 fl oz (4/18)	4.3	1.8	9.3	18.8 b
Harmony Extra 0.75 oz (3/21)	7.0	2.5	10.0	30.0 ab
LSD	n.s.	n.s.	n.s.	11.4

* GS 32= 21 Mar; GS 45 = 18 Apr.

** Data represent percent of leaf area with disease symptoms. Flag-1 or Flag-2 represent 1st or 2nd leaf below flag leaf, respectively.
Arcsine transformation of percentage data was made in analysis to determine statistical significance. Means followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (P=0.05) except for disease ratings on Flag-1 to Flag-2 which was analyzed at P=0.10. n.s. denotes not significant.

Table 9. Effect of fungicide treatments on glume diseases in wheat on 19 May.

Treatment, rate/A and application timing*	% scab**	% glume blotch**
Kocide 3000 46.1 WDG 0.75 lb + NIS 0.25% (v/v) + Harmony Extra 0.75 oz (3/21)	0.03	2.0
Kocide 3000 46.1 WDG 0.75 lb + NIS 0.125% (v/v) + Harmony Extra 0.75 oz + Nitrogen (33%) 8 gal (3/21)	0.00	1.8
Headline 2.09EC 3 fl oz + NIS 0.125% (v/v) + Harmony Extra 0.75 oz + Nitrogen (33%) 8 gal (3/21)	0.00	2.0
Headline 2.09EC 3 fl oz + NIS 0.125% (v/v) + Harmony Extra 0.75 oz + Nitrogen (33%) 8 gal/A (3/21) Headline 2.06 EC 3 fl oz (4/18)	0.03	0.8
Harmony Extra 0.75 oz (3/21)	0.03	1.0
LSD	n.s.	n.s.

* GS 32= 21 Mar; GS 45 = 18 Apr.

** Data represent percent of glumes with disease symptoms. Arcsine transformation of percentage data was made in analysis to determine statistical significance. n.s. denotes that means are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 10. Effect of fungicide treatments on yield and test weight in wheat.

Treatment, rate/A and application timing*	Yield** (bu/A)	Test weight (lb/bu)
Kocide 3000 46.1 WDG 0.75 lb + NIS 0.25% (v/v) + Harmony Extra 0.75 oz (3/21)	100.1	63.7
Kocide 3000 46.1 WDG 0.75 lb + NIS 0.125% (v/v) + Harmony Extra 0.75 oz + Nitrogen (33%) 8 gal (3/21)	80.9	64.0
Headline 2.09EC 3 fl oz + NIS 0.125% (v/v) + Harmony Extra 0.75 oz + Nitrogen (33%) 8 gal (3/21)	88.7	63.4
Headline 2.09EC 3 fl oz + NIS 0.125% (v/v) + Harmony Extra 0.75 oz + Nitrogen (33%) 8 gal/A (3/21) Headline 2.06 EC 3 fl oz (4/18)	92.6	63.0
Harmony Extra 0.75 oz (3/21)	89.9	64.7
LSD	n.s.	n.s.

* GS 32= 21 Mar; GS 45 = 18 Apr.

** Yields are weight of wheat with 13.5% moisture. One bushel equals 60 lbs. Wheat was harvested on 16 Jun 2008. n.s. denotes that means are not significantly different according to Fisher's Protected LSD (*P*=0.05).

II. WHEAT FUNGICIDE TEST (WHEAT208, TAREC Res. Farm, Field 28)

A. PURPOSE: To compare fungicide treatments for foliar disease control and impact on yield

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks with 8-ft alleys between blocks
2. Plots 12-ft wide and 30-ft long with 6.67-in row spacing
3. Data collected from the center, seven rows in each plot

C. APPLICATION OF TREATMENTS: Fungicide treatments were applied with a Lee Spider Sprayer having eight, 8002VS nozzles spaced 18-in. apart and delivering 16.5 gal/A. Sprays were applied at Growth stage 37 (10 Apr).

D. TREATMENT AND RATE/A:
1. YT669 2.08 SC 4 fl oz/A + NIS 0.25% v/v (GS 37)
2. YT669 2.08 SC 6 fl oz/A + NIS 0.25% v/v (GS 37)
3. YT669 2.08 SC 8 fl oz/A + NIS 0.25% v/v (GS 37)
4. LEM17 EC 9.6 fl oz/A (GS 37)
5. LEM17 EC 16.8 fl oz/A (GS 37)
6. LEM17 EC 9.6 fl oz + Punch 3.3 EC 3 fl oz/A (GS 37)
7. Punch 3.3 EC 4 fl oz/A (GS 37)
8. Headline 2.09 EC 6 fl oz/A + NIS 0.25% v/v (GS 37)
9. Untreated

E. ADDITIONAL INFORMATION:
1. Location: TAREC Research Farm, Hare Rd.
2. Crop history: peanut 2007, wheat/soybean 2006, peanut 2005
3. Planting date and variety: 10 Nov 2007, SS 8302
4. Soil fertility report:

pH.....	7.1	K.....	42 ppm
Ca	329 ppm	Zn	0.3 ppm
Mg	48 ppm	Mn	2.0 ppm
P	26 ppm	Soil type	Kenansville loamy fine sand

5. Fertilization: 9-16-31-3 300 lb/A (23 Oct 2007)
Liquid nitrogen (30%) 60 lb/A (4 Feb, 13 Mar)
6. Herbicide: Harmony Extra 0.6 oz/A (4 Feb)
7. Harvest date: 16 Jun 2008

Table 11. Effect of fungicide treatments on severity of foliar disease in wheat on 4 May.*

Treatment, rate/A and application timing**	% mildew			% septoria
	Flag leaf	Flag -1	Flag -2 to base	Flag -2 to base
YT669 2.08 SC 4 fl oz/A + NIS 0.25% v/v (4/10)	1.5 b-d	3.3 bc	10.5 b	9.5 bc
YT669 2.08 SC 6 fl oz/A + NIS 0.25% v/v (4/10)	0.3 d	1.5 de	9.5 b	7.8 c
YT669 2.08 SC 8 fl oz/A + NIS 0.25% v/v (4/10)	0.5 cd	1.3 e	9.3 b	9.0 bc
LEM17 EC 9.6 fl oz/A (4/10)	2.3 ab	3.0 b-d	12.0 b	10.3 bc
LEM17 EC 16.8 fl oz/A (4/10)	2.5 ab	4.3 ab	9.0 b	11.8 b
LEM17 EC 9.6 fl oz + Punch 3.3 EC 3 fl oz/A (4/10)	2.0 a-c	2.3 c-e	9.0 b	10.5 bc
Punch 3.3 EC 4 fl oz/A (4/10)	2.5 ab	2.3 c-e	7.8 b	9.0 bc
Headline 2.09 EC 6 fl oz/A + NIS 0.25% v/v (4/10)	1.3 b-d	1.8 c-e	9.8 b	9.5 bc
Untreated	3.5 a	5.0 a	17.5 a	16.3 a
LSD	1.5	1.7	4.8	3.2

* Data represent percent of leaf area with disease symptoms. Flag-1 or Flag-2 represent 1st or 2nd leaf below flag leaf, respectively; base refers to leaves at lower nodes on stalk.

** GS 37 = 10 Apr.

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

Table 12. Effect of fungicide treatments on severity of foliar disease in wheat on 19 May.*

Treatment, rate/A and application timing**	% mildew		% septoria	
	Flag leaf	Flag-1 to Flag-2	Flag leaf	Flag-1 to Flag-2
YT669 2.08 SC 4 fl oz/A + NIS 0.25% v/v (4/10)	1.0 c	4.3 cd	0.6 c	13.8 e
YT669 2.08 SC 6 fl oz/A + NIS 0.25% v/v (4/10)	2.0 c	6.3 b-d	0.3 c	15.0 de
YT669 2.08 SC 8 fl oz/A + NIS 0.25% v/v (4/10)	1.5 c	2.8 d	0.1 c	15.0 de
LEM17 EC 9.6 fl oz/A (4/10)	5.3 b	13.0 b	2.8 ab	26.3 bc
LEM17 EC 16.8 fl oz/A (4/10)	4.3 b	10.3 bc	1.5 bc	21.3 cd
LEM17 EC 9.6 fl oz + Punch 3.3 EC 3 fl oz/A (4/10)	2.3 c	5.5 cd	1.3 bc	22.5 bc
Punch 3.3 EC 4 fl oz/A (4/10)	2.5 c	10.0 bc	0.8 c	28.8 b
Headline 2.09 EC 6 fl oz/A + NIS 0.25% v/v (4/10)	2.5 c	7.0 b-d	0.8 c	13.8 e
Untreated	9.5 a	30.0 a	4.3 a	38.8 a
LSD	1.7	6.5	1.7	6.9

* Data represent percent of leaf area with disease symptoms. Flag-1 or Flag-2 represent 1st or 2nd leaf below flag leaf, respectively.

** GS 37 = 10 Apr.

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

Table 13. Effect of fungicide treatments on severity of glume disease in wheat on 19 May.*

Treatment, rate/A and application timing**	% scab	% glume blotch
YT669 2.08 SC 4 fl oz/A + NIS 0.25% v/v (4/10)	0.3	0.3
YT669 2.08 SC 6 fl oz/A + NIS 0.25% v/v (4/10)	0.1	0.3
YT669 2.08 SC 8 fl oz/A + NIS 0.25% v/v (4/10)	0.0	0.3
LEM17 EC 9.6 fl oz/A (4/10)	0.3	0.8
LEM17 EC 16.8 fl oz/A (4/10)	0.0	1.3
LEM17 EC 9.6 fl oz + Punch 3.3 EC 3 fl oz/A (4/10)	0.0	1.3
Punch 3.3 EC 4 fl oz/A (4/10)	0.0	0.8
Headline 2.09 EC 6 fl oz/A + NIS 0.25% v/v (4/10)	0.0	0.8
Untreated	0.3	2.0
LSD	n.s.	n.s.

* Data represent percent of glumes with disease symptoms.

** GS 37 = 10 Apr.

Arcsine transformation of percentage data was made in analysis to determine statistical significance, n.s. denotes that means are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 14. Effect of fungicide treatments on yield and test weight in wheat.

Treatment, rate/A and application timing*	Yield** (bu/A)	Test weight (lb/bu)	
YT669 2.08 SC 4 fl oz/A + NIS 0.25% v/v (4/10)	96.8	65.7	a
YT669 2.08 SC 6 fl oz/A + NIS 0.25% v/v (4/10)	95.9	65.3	a
YT669 2.08 SC 8 fl oz/A + NIS 0.25% v/v (4/10)	99.2	65.3	a
LEM17 EC 9.6 fl oz/A (4/10)	95.2	65.5	a
LEM17 EC 16.8 fl oz/A (4/10)	83.9	64.0	c
LEM17 EC 9.6 fl oz + Punch 3.3 EC 3 fl oz/A (4/10)	90.1	65.2	ab
Punch 3.3 EC 4 fl oz/A (4/10)	92.9	64.9	a-c
Headline 2.09 EC 6 fl oz/A + NIS 0.25% v/v (4/10)	87.3	65.2	ab
Untreated	83.9	64.2	bc
LSD	n.s.	1.0	

* GS 37 = 10 Apr.

** Yields are weight of wheat with 13.5% moisture. One bushel equals 60 lb. Wheat was harvested on 16 Jun. Arcsine transformation of percentage data was made in analysis to determine statistical significance. Means followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05); n.s. denotes that means are not significantly different.

III. WHEAT FUNGICIDE TEST (WHEAT308, TAREC Res. Farm, Field 28)

A. PURPOSE: To compare fungicide treatments for foliar disease control and impact on yield

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks separated by 8-ft alleys
2. Plots 12-ft wide and 30-ft long with 6.67-in row spacing
3. Data collected from the center, seven rows in each plot

C. APPLICATION OF TREATMENTS: Quilt 2.08 SC at 7 fl oz/A (Treatment #11) was applied at GS 32 (27 Mar) with a Lee Spider Sprayer having eight, 8003VS nozzles spaced 18-in. apart and delivering 23.2 gal/A. Fungicide sprays at GS 37 (10 Apr) were applied with 8002VS nozzles spaced 18-in. apart and delivering 16.5 gal/A.

D. TREATMENT AND RATE/A:
1. Untreated check
2. Headline 2.09 EC 6 fl oz/A (GS 37)
3. BAS 556 01 1.75 EC 7 fl oz/A (GS 37)
4. BAS 556 01 1.75 EC 9 fl oz/A (GS 37)
5. Quilt 1.66 EC 10.5 fl oz/A (GS 37)
6. Quilt 1.66 EC 14.0 fl oz/A (GS 37)
7. Stratego 7 fl oz/A (GS 37)
8. Stratego 10 fl oz/A (GS 37)
9. Quadris 2.08 SC 6 fl oz (GS 37)
10. Quadris 2.08 SC 8 fl oz + Tilt 3.6EC 4 fl oz (GS 37)
11. Quilt 1.66 EC 7 fl oz (GS 32) + 7 fl oz (GS 37)
12. Proline 480SC 5 fl oz (GS 37)

E. ADDITIONAL INFORMATION:
1. Location: TAREC Research Farm, Hare Rd.
2. Crop history: peanut 2007, wheat/soybean 2006, peanut 2005
3. Planting date and variety: 10 Nov 2007, SS 8302
4. Soil fertility report:

pH.....	7.1	K.....	42 ppm
Ca	329 ppm	Zn	0.3 ppm
Mg	48 ppm	Mn	2.0 ppm
P	26 ppm	Soil type	Kenansville loamy fine sand

5. Fertilization: 9-16-31-3 300 lb/A (23 Oct 2007)
Liquid nitrogen (30%) 60 lb/A (4 Feb, 13 Mar)
6. Herbicide: Harmony Extra 0.6 oz/A (4 Feb)
7. Harvest date: 16 Jun 2008

Table 15. Effect of fungicide treatments on severity of foliar disease in wheat on 4 May.*

Treatment, rate/A and application timing**	% mildew			% septoria
	Flag leaf	Flag -1	Flag -2 to base	Flag -2 to base
Untreated check	1.8 a	3.5 a	8.8	22.5 a
Headline 2.09 EC 6 fl oz (4/10).	1.0 b	2.0 b	8.3	16.3 b
BAS 556 01 1.75 EC 7 fl oz (4/10).	0.1 cd	0.6 cd	5.0	11.8 b-d
BAS 556 01 1.75 EC 9 fl oz (4/10).	0.1 cd	0.8 cd	3.3	10.5 cd
Quilt 1.66 EC 10.5 fl oz (4/10)	0.1 cd	0.6 cd	4.5	10.0 cd
Quilt 1.66 EC 14.0 fl oz (4/10)	0.1 cd	0.6 cd	6.0	9.3 d
Stratego 7 fl oz (4/10)	0.0 cd	1.0 b-d	4.5	12.5 b-d
Stratego 10 fl oz (4/10)	0.0 cd	0.3 d	3.0	12.5 b-d
Quadris 2.08 SC 6 fl oz (4/10)	1.0 b	1.5 bc	7.0	15.0 bc
Quadris 2.08 SC 8 fl oz + Tilt 3.6EC 4 fl oz (4/10)	0.5 bc	0.6 cd	3.3	13.8 b-d
Quilt 1.66 EC 7 fl oz (3/27) + 7 fl oz (4/10)	0.1 cd	0.1 d	3.3	12.5 b-d
Proline 480SC 5 fl oz (4/10)	0.0 d	0.1 d	1.8	11.3 b-d
LSD	0.5	1.1	n.s.	5.1

* Data represent percent of leaf area with disease symptoms. Flag-1 or Flag-2 represent 1st or 2nd leaf below flag leaf, respectively; base refers to leaves at lower nodes on stalk.

** GS 32= 27 Mar; GS 37 = 10 Apr.

Arcsine transformation of percentage data was made in analysis to determine statistical significance. Means followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (P=0.05); n.s. denotes that means are not significantly different.

Table 16. Effect of fungicide treatments on severity of foliar disease in wheat on 19 May.*

Treatment, rate/A and application timing**	% mildew		% septoria	
	Flag leaf	Flag -1 & Flag-2	Flag leaf	Flag -1 & Flag-2
Untreated check	7.5 ab	15.5 a	1.8 a	26.3 a
Headline 2.09 EC 6 fl oz (4/10).	8.3 a	15.0 a	0.8 bc	11.8 cd
BAS 556 01 1.75 EC 7 fl oz (4/10).	4.0 cd	6.5 b	0.3 cd	11.3 d
BAS 556 01 1.75 EC 9 fl oz (4/10).	4.5 b-d	6.0 b	0.0 d	11.0 d
Quilt 1.66 EC 10.5 fl oz (4/10)	2.8 d	5.5 b	0.5 b-d	11.3 d
Quilt 1.66 EC 14.0 fl oz (4/10)	2.5 d	4.8 b	0.5 b-d	15.5 b-d
Stratego 7 fl oz (4/10)	2.3 d	3.5 b	0.8 bc	15.0 b-d
Stratego 10 fl oz (4/10)	1.8 d	3.0 b	0.3 cd	11.5 d
Quadris 2.08 SC 6 fl oz (4/10)	6.5 a-c	16.3 a	1.0 b	17.0 b
Quadris 2.08 SC 8 fl oz + Tilt 3.6EC 4 fl oz (4/10)	3.0 d	4.0 b	0.0 d	16.8 bc
Quilt 1.66 EC 7 fl oz (3/27) + 7 fl oz (4/10)	2.5 d	4.8 b	0.5 b-d	15.0 b-d
Proline 480SC 5 fl oz (4/10)	2.3 d	3.0 b	0.5 b-d	13.8 b-d
LSD	3.0	5.7	0.7	5.2

* Data represent percent of leaf area with disease symptoms. Flag-1 or Flag-2 represent 1st or 2nd leaf below flag leaf, respectively.

** GS 32= 27 Mar; GS 37 = 10 Apr.
Arcsine transformation of percentage data was made in analysis to determine statistical significance. Means followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 17. Effect of fungicide treatments on incidence of scab and glume blotch in wheat on 19 May.*

Treatment, rate/A and application timing**	% scab	% glume blotch
Untreated check	0.00	1.28
Headline 2.09 EC 6 fl oz (4/10).	0.00	0.55
BAS 556 01 1.75 EC 7 fl oz (4/10).	0.25	1.03
BAS 556 01 1.75 EC 9 fl oz (4/10).	0.03	0.05
Quilt 1.66 EC 10.5 fl oz (4/10)	0.75	0.33
Quilt 1.66 EC 14.0 fl oz (4/10)	0.00	0.08
Stratego 7 fl oz (4/10)	0.75	0.75
Stratego 10 fl oz (4/10)	0.03	0.58
Quadris 2.08 SC 6 fl oz (4/10)	0.03	0.55
Quadris 2.08 SC 8 fl oz + Tilt 3.6EC 4 fl oz (4/10)	0.00	0.53
Quilt 1.66 EC 7 fl oz (3/27) + 7 fl oz (4/10)	0.75	0.30
Proline 480SC 5 fl oz (4/10)	0.03	0.30
LSD	n.s.	n.s.

* Data represent percent of glumes with disease symptoms.
** GS 32= 27 Mar; GS 37 = 10 Apr.
Arcsine transformation of percentage data was made in analysis to determine statistical significance, n.s. denotes that means are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 18. Effect of fungicide treatments on yield and test weight in wheat.

Treatment, rate/A and application timing*	Yield** (bu/A)	Test weight (lb/bu)
Untreated check	84.3	64.9
Headline 2.09 EC 6 fl oz (4/10).	95.1	65.7
BAS 556 01 1.75 EC 7 fl oz (4/10).	96.9	65.5
BAS 556 01 1.75 EC 9 fl oz (4/10).	98.8	64.2
Quilt 1.66 EC 10.5 fl oz (4/10)	102.2	65.5
Quilt 1.66 EC 14.0 fl oz (4/10)	107.0	66.0
Stratego 7 fl oz (4/10)	87.3	64.5
Stratego 10 fl oz (4/10)	93.5	65.5
Quadris 2.08 SC 6 fl oz (4/10)	100.6	65.5
Quadris 2.08 SC 8 fl oz + Tilt 3.6EC 4 fl oz (4/10)	94.9	64.2
Quilt 1.66 EC 7 fl oz (3/27) + 7 fl oz (4/10)	94.2	65.2
Proline 480SC 5 fl oz (4/10)	94.7	65.2
LSD	n.s.	n.s.

* GS 32= 27 Mar; GS 37 = 10 Apr.
** Yields are weight of wheat with 13.5% moisture. One bushel equals 60 lb. Wheat was harvested on 16 Jun.
Arcsine transformation of percentage data was made in analysis to determine statistical significance, n.s. denotes that means are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Note: High variability in yield data was likely a result of poor efficiency of plot combine which has been replaced by the Agricultural Experiment Station.

IV. WHEAT FUNGICIDE TEST (WHEAT408, TAREC Res. Farm, Field 28)

A. PURPOSE: To compare fungicide treatments for foliar disease control and impact on yield

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks with 8-ft alleys between blocks
2. Plots 12-ft wide and 30-ft long with 6.67-in row spacing
3. Data collected from the center, seven rows in each plot

C. APPLICATION OF TREATMENTS: Fungicide treatments were applied with a Lee Spider Sprayer having eight, 8002VS nozzles spaced 18-in. apart and delivering 16.5 gal/A. Sprays were applied at GS 60 (30 Apr).

D. TREATMENT AND RATE/A: All plots were treated with Tilt 3.6EC 4 fl oz/A on 11 Apr for control of an epidemic of powdery mildew.
1. Untreated check
2. Caramba 0.75SL 14 fl oz/A (GS 60)
3. Proline 4SC 5.7 fl oz/A (GS 60)
4. Proline 4SC 5.7 fl oz + Folicur 3.6F 4 fl oz/A (GS 60)

E. ADDITIONAL INFORMATION:
1. Location: TAREC Research Farm, Hare Rd.
2. Crop history: peanut 2007, wheat/soybean 2006, peanut 2005
3. Planting date and variety: 10 Nov 2007, SS 8302
4. Soil fertility report:

pH.....	7.1	K.....	42 ppm
Ca	329 ppm	Zn	0.3 ppm
Mg	48 ppm	Mn	2.0 ppm
P	26 ppm	Soil type	Kenansville loamy fine sand

5. Fertilization: 9-16-31-3 300 lb/A (23 Oct 2007)
Liquid nitrogen (30%) 60 lb/A (4 Feb, 13 Mar)
6. Herbicide: Harmony Extra 0.6 oz/A (4 Feb)
7. Harvest date: 16 Jun 2008

Table 19. Effect of fungicide treatments on severity of powdery mildew and phytotoxicity in wheat on 10 April.

Treatment, rate/A and application timing[1]	% mildew[2]	Phytotoxcity[3] (0-10)
Untreated check	11.8	2.0
Caramba 0.75SL 14 fl oz/A (4/30)	10.5	2.0
Proline 4SC 5.7 fl oz/A (4/30)	8.8	1.8
Proline 4SC 5.7 fl oz + Folicur 3.6F 4 fl oz/A (4/30)	11.0	2.0
LSD	n.s.	n.s.

[1] GS 60=30 Apr.
[2] Data represent percent of leaf area with disease symptoms.
[3] Phytotoxicity rating: 0=none, 10=severe foliar burn.
Arcsine transformation of percentage data was made in analysis to determine statistical significance, n.s. denotes that means are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 20. Effect of fungicide treatments on severity of foliar disease in wheat on 4 May.*

Treatment, rate/A and application timing**	% mildew			% septoria
	Flag leaf	Flag -1	Flag -2 to base	Flag -2 to base
Untreated check	0.6	1.0	7.8	9.0
Caramba 0.75SL 14 fl oz/A (4/30)	0.3	0.8	6.3	8.5
Proline 4SC 5.7 fl oz/A (4/30)	0.1	0.8	6.3	8.8
Proline 4SC 5.7 fl oz + Folicur 3.6F 4 fl oz/A (4/30)	0.6	1.3	6.0	9.0
LSD	n.s.	n.s.	n.s.	n.s.

* Data represent percent of leaf area with disease symptoms. Flag-1 or Flag-2 represent 1st or 2nd leaf below flag leaf, respectively; base refers to leaves at lower nodes on stalk.
** GS 60=30 Apr.
Arcsine transformation of percentage data was made in analysis to determine statistical significance, n.s. denotes that means are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 21. Effect of fungicide treatments on severity of disease in wheat on 24 May.*

Treatment, rate/A and application timing**	Flag leaf % mildew	Flag leaf % septoria	% glumes w/scab	% glume blotch
Untreated check	1.3 a	2.8 a	0.6 a	1.5 a
Caramba 0.75SL 14 fl oz/A (4/30)	0.1 b	0.3 b	0.0 b	0.3 b
Proline 4SC 5.7 fl oz/A (4/30)	0.0 b	0.3 b	0.1 b	0.8 ab
Proline 4SC 5.7 fl oz + Folicur 3.6F 4 fl oz/A (4/30)	0.1 b	0.3 b	0.1 b	0.3 b
LSD	0.4	0.01	0.3	0.9

* Data represent percent of leaf or glume surface area with disease symptoms.
** GS 60=30 Apr.
Arcsine transformation of percentage data was made in analysis to determine statistical significance, Means followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 22. Effect of fungicide treatments on yield and test weight of wheat

Treatment, rate/A and application timing*	Yield** (bu/A)	Test weight (lb/bu)
Untreated check	95.5	63.7
Caramba 0.75SL 14 fl oz/A (4/30)	93.4	65.0
Proline 4SC 5.7 fl oz/A (4/30)	97.6	63.7
Proline 4SC 5.7 fl oz + Folicur 3.6F 4 fl oz/A (4/30)	101.6	65.0
LSD	n.s.	n.s.

* GS 60=30 Apr.
** Yields are weight of wheat with 13.5% moisture. One bushel equals 60 lbs. Wheat was harvested on 16 Jun 2008.
n.s. denotes that means are not significantly different according to Fisher's Protected LSD (*P*=0.05).

V. EVALUATION OF VALENT COMPOUNDS ON CORN SEED FOR SEEDLING DISEASE CONTROL (CORNFUN108, TAREC Res. Farm, Suffolk, Field 2)

A. PURPOSE: to assess the efficacy of experimental seed treatments for control of seedling disease in corn

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

C. PLANTING DATES:
1. 17 April
2. 1 May

D. TREATMENT AND RATE (a.i.): All seed treatments applied by personnel with Valent USA
1. Untreated check
2. Apron XL 3 SL 3 g/100 kg seed
3. Maxim 4FS 2.5 g + Trilex 2SC 5 g + Apron XL 3SL 3 g/100 kg seed
4. Maxim 4FS 2.5 g + V-10178 4.17FS 10 g + Apron XL 3SL 3 g/100 kg seed
5. V-10178 4.17FS 10 g + Apron XL 3SL 3 g/100 kg seed
6. V-10116 50WG 1.25 g + Apron XL 3SL 3 g/100 kg seed
7. V-10116 3.7FS 1.625 g + Apron XL 3SL 3 g/100 kg seed
8. V-10116 3.7FS 2 g + Apron XL 3SL 3 g/100 kg seed
9. V-10116 3.7FS 2.25 g + Apron XL 3SL 3 g/100 kg seed
10. V-10116 3.7FS 2.5 g + Apron XL 3SL 3 g/100 kg seed
11. V-10190 3.4SC 5 g + Apron XL 3SL 3 g/100 kg seed
12. V-10190 3.4SC 10 g + Apron XL 3SL 3 g/100 kg seed
13. V-10202 6.0SS 2.5 g + Apron XL 3SL 3 g/100 kg seed

E. ADDITIONAL INFORMATION:
1. Location: TAREC Research farm, Hare Rd., Suffolk
2. Crop History: cotton 2007, peanut 2006, corn 2005
3. Variety: TA 440-13
4. Soil fertility report (Jan 2008):

pH.....	6.54	K.....	77 ppm
Ca	373 ppm	Zn	0.4 ppm
Mg	37 ppm	Mn	3.7 ppm
P	16 ppm	Soil type	Eunola loamy fine sand

5. Fertilization: 9-15-36 300 lb/A (18 Mar); liquid 32% N 60 units/A (18 Apr, 21 May)
Sol-U-Gro (12-48-8) 5 lb/A (16 May)
6. Herbicide: Gramoxone 1.5 pt + Banvel 8 fl oz/A (22 Mar)
Roundup Ultra Max 1.0 qt/A (28 Mar); 22 fl oz/A (21 May)
7. Irrigation (ca 1"): 12 Jun, 27 Jun
8. Harvest date: 12 & 15 Sep

Table 23. Disease severity on hypocotyls and roots in untreated plots sampled 2 Jun.[1]

Plant date and rep	Hypocotyl disease index[2]	Root disease index[3]	% of plants infected			
			Rhizoctonia solani	Rhizoctonia (binucleate)	Pythium sp.	Fusarium sp.
17 Apr						
I	3.0	2.3	0	25	25	100
II.....	3.0	1.5	0	25	50	100
III	2.5	1.3	0	25	100	100
IV	2.3	1.5	0	0	75	75
1 May						
I	2.0	2.0	0	0	0	100
II.....	2.0	1.8	0	0	25	100
III	2.0	1.8	0	25	25	100
IV	2.8	1.3	0	0	75	100

[1] Ratings and fungi identification were performed on four plants per plot by Dr. Craig Rothrock, University of Arkansas.
[2] Hypocotyls were rated on a 1-5 scale: 1=clean, 2=few pinpoint lesions, 3=distinct necrotic lesions, 4=girdling lesions, 5=dead top.
[3] Seminal roots were rated for % discoloration on a 1-5 scale: 1=0%, 2=1-10%, 3=11-25%, 4=26-50%, 5=51-100%.

Table 24. Effect of seed treatments on emergence of corn.

Treatment and rate (g/100 kg seed)*	Plants/ft**					
	7 DAP			14 DAP		
	Plant date 1	Plant date 2	Treat-ment mean	Plant date 1	Plant date 2	Treat-ment mean
Untreated check	1.30 a-c	1.40	1.35	1.38	1.38	1.38
Apron XL 3 SL 3 g	1.32 ab	1.41	1.36	1.38	1.36	1.37
Maxim 4FS 2.5 g + Trilex 2SC 5 g + Apron XL 3SL 3 g	1.22 b-e	1.38	1.30	1.40	1.32	1.36
Maxim 4FS 2.5 g + V-10178 4.17FS 10 g + Apron XL 3SL 3 g	1.35 a	1.43	1.39	1.44	1.37	1.40
V-10178 4.17FS 10 g + Apron XL 3SL 3 g	1.25 a-d	1.39	1.32	1.40	1.31	1.35
V-10116 50WG 1.25 g + Apron XL 3SL 3 g	1.23 b-e	1.40	1.32	1.38	1.37	1.38
V-10116 3.7FS 1.625 g + Apron XL 3SL 3 g	1.16 d-f	1.43	1.29	1.41	1.41	1.41
V-10116 3.7FS 2 g + Apron XL 3SL 3 g	1.20 c-f	1.38	1.29	1.39	1.38	1.39
V-10116 3.7FS 2.25 g + Apron XL 3SL 3 g	1.13 ef	1.43	1.28	1.36	1.40	1.38
V-10116 3.7FS 2.5 g + Apron XL 3SL 3 g	1.11 f	1.35	1.23	1.43	1.36	1.39
V-10190 3.4SC 5 g + Apron XL 3SL 3 g	1.28 a-c	1.45	1.36	1.40	1.38	1.39
V-10190 3.4SC 10 g + Apron XL 3SL 3 g	1.33 ab	1.41	1.37	1.43	1.35	1.39
V-10202 6.0SS 2.5 g + Apron XL 3SL 3 g	1.29 a-c	1.41	1.35	1.40	1.37	1.38
P(F)	.0007	.4329	--	.2445	.1830	.3220
Plant date mean						
Plant date 1, 17 Apr		1.24			1.40	
Plant date 2, 1 May		1.41			1.37	
P(F)		--			.5810	
Split-plot analysis						
Plant date		.0004			.5810	
Treatment		.0002			.3220	
Plant date x treatment		.0093			.0960	

* All seed treated by personnel with Valent USA Corp.

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

Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (*P*=0.05), n.s. denotes not significant, -- denotes significant plant date by treatment interaction.

Table 25. Effect of seed treatments on emergence and growth of corn.

Treatment and rate (g/100 kg seed)[1]	Plants/ft^2 (28 DAP)			Vigor (0-10)[3], 27 May		
	Plant date 1	Plant date 2	Treat-ment mean	Plant date 1	Plant date 2	Treat-ment mean
Untreated check	1.34	1.35	1.35	6.3	5.8	6.0
Apron XL 3 SL 3 g	1.35	1.35	1.35	6.0	5.5	5.8
Maxim 4FS 2.5 g + Trilex 2SC 5 g + Apron XL 3SL 3 g	1.33	1.31	1.32	6.8	5.3	6.0
Maxim 4FS 2.5 g + V-10178 4.17FS 10 g + Apron XL 3SL 3 g	1.38	1.35	1.36	7.0	5.3	6.1
V-10178 4.17FS 10 g + Apron XL 3SL 3 g	1.37	1.33	1.35	6.8	5.5	6.1
V-10116 50WG 1.25 g + Apron XL 3SL 3 g	1.33	1.31	1.32	6.3	5.8	6.0
V-10116 3.7FS 1.625 g + Apron XL 3SL 3 g	1.38	1.38	1.38	6.0	5.5	5.8
V-10116 3.7FS 2 g + Apron XL 3SL 3 g	1.35	1.36	1.35	6.8	5.0	5.9
V-10116 3.7FS 2.25 g + Apron XL 3SL 3 g	1.34	1.37	1.35	6.5	6.0	6.3
V-10116 3.7FS 2.5 g + Apron XL 3SL 3 g	1.36	1.35	1.36	7.5	5.3	6.4
V-10190 3.4SC 5 g + Apron XL 3SL 3 g	1.38	1.38	1.38	6.8	6.0	6.4
V-10190 3.4SC 10 g + Apron XL 3SL 3 g	1.37	1.35	1.36	6.8	5.5	6.1
V-10202 6.0SS 2.5 g + Apron XL 3SL 3 g	1.33	1.35	1.34	6.5	5.8	6.1
P(F)	.8641	.8161	.5629	.1630	.1209	--
Plant date mean						
Plant date 1, 17 Apr		1.35			6.6	
Plant date 2, 1 May		1.35			5.5	
P(F)		.4690			--	
Split-plot analysis						
Plant date		.4690			.0005	
Treatment		.5629			.4938	
Plant date x treatment		.9898			.0228	

[1] All seed treated by personnel with Valent USA Corp.
[2] Determined from counts of two, 30-ft rows per plot.
[3] Plant vigor rating scale: 1=severely stunted, 10=healthy.
Means are not significantly different according to Fisher's Protected LSD (*P*=0.05), -- denotes significant plant date by treatment interaction.

Table 26. Effect of seed treatments on growth and yield of corn.

Treatment and rate (g/100 kg seed)[1]	Height (in.) to base of ear[2] (1 Aug)			Yield (bu/A)[3]		
	Plant date 1	Plant date 2	Treat-ment mean	Plant date 1	Plant date 2	Treat-ment mean
Untreated check	40.3 a	42.1 ab	41.2	107.7	118.0	112.8
Apron XL 3 SL 3 g	37.9 b-d	41.6 b	39.8	104.2	120.7	112.4
Maxim 4FS 2.5 g + Trilex 2SC 5 g + Apron XL 3SL 3 g	38.6 a-d	40.6 bc	39.6	117.8	111.2	114.5
Maxim 4FS 2.5 g + V-10178 4.17FS 10 g + Apron XL 3SL 3 g	38.0 b-d	43.0 ab	40.5	109.3	122.6	115.9
V-10178 4.17FS 10 g + Apron XL 3SL 3 g	37.7 b-d	43.2 ab	40.4	111.7	120.4	116.0
V-10116 50WG 1.25 g + Apron XL 3SL 3 g	36.8 d	43.1 ab	40.0	111.3	124.8	118.1
V-10116 3.7FS 1.625 g + Apron XL 3SL 3 g	39.3 ab	43.2 ab	41.2	115.9	124.2	120.0
V-10116 3.7FS 2 g + Apron XL 3SL 3 g	39.3 ab	40.3 bc	39.8	114.4	115.6	115.0
V-10116 3.7FS 2.25 g + Apron XL 3SL 3 g	39.2 ab	41.0 b	40.1	112.4	112.0	112.2
V-10116 3.7FS 2.5 g + Apron XL 3SL 3 g	40.0 a	44.6 a	42.3	119.1	121.9	120.5
V-10190 3.4SC 5 g + Apron XL 3SL 3 g	37.9 b-d	42.5 ab	40.2	112.2	121.2	116.7
V-10190 3.4SC 10 g + Apron XL 3SL 3 g	38.7 a-c	41.2 b	39.9	109.5	112.5	111.0
V-10202 6.0SS 2.5 g + Apron XL 3SL 3 g	37.0 cd	37.8 c	37.4	102.6	109.8	106.2
P(F)	.0027	.0026	--	.5043	.8633	.6314
Plant date mean						
Plant date 1, 17 Apr		38.5			111.4 b	
Plant date 2, 1 May		41.9			118.1 a	
P(F)		--			.0814	
Split-plot analysis						
Plant date		.0160			.0814	
Treatment		.0001			.6314	
Plant date x treatment		.0189			.8683	

[1] All seed treated by personnel with Valent USA Corp.
[2] Measurement from ground to base of first ear on three, randomly selected plants per row in each plot.
[3] Yields are weight of corn with moisture content of 15.5%. Corn was harvested on 12 Sep (plant date 1) and 15 Sep (plant date 2). One bushel=56 lbs of grain.
Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (*P*=0.05) except plant date mean for yield was analyzed at P=0.10, -- denotes significant plant date by treatment interaction.

VI. EVALUATION OF VALENT COMPOUNDS ON CORN SEED FOR SEEDLING DISEASE CONTROL (CORNFUN208, TAREC Research Farm, Suffolk, Field 2)

A. PURPOSE: to assess the efficacy of experimental seed treatments for control of seedling disease in corn

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

C. TREATMENT AND RATE (a.i.): All seed treatments applied by personnel with Valent USA
1. Untreated check
2. Apron XL 3 SL 3 g/100 kg seed
3. V-10178 4.17FS 10 g + Apron XL 3SL 3 g/100 kg seed
4. V-10208 3.6SC 3 g/100 kg seed
5. V-10208 3.6SC 5 g/100 kg seed
6. V-10208 3.6SC 7.5 g/100 kg seed
7. V-10208 3.6SC 10 g/100 kg seed
8. V-10230 100FS 13 g/100 kg seed
9. V-10230 100FS 15 g/100 kg seed
10. V-10230 100FS 17.5 g/100 kg seed

D. ADDITIONAL INFORMATION:
1. Location: TAREC Research farm, Hare Rd., Suffolk
2. Crop History: cotton 2007, peanut 2006, corn 2005
3. Planting date and variety: 17 Apr, TA 440-13
4. Soil fertility report (Jan 2008):

pH.....	6.54	K.....	77 ppm
Ca	373 ppm	Zn	0.4 ppm
Mg	37 ppm	Mn	3.7 ppm
P	16 ppm	Soil type	Eunola loamy fine sand

5. Fertilization: 9-15-36 300 lb/A (18 Mar); liquid 32% N 60 units/A (18 Apr, 21 May) Sol-U-Gro (12-48-8) 5 lb/A (16 May)
6. Herbicide: Gramoxone 1.5 pt + Banvel 8 fl oz/A (22 Mar)
   Roundup Ultra Max 1.0 qt/A (28 Mar); 22 fl oz/A (21 May)
7. Irrigation (ca 1"): 12 Jun, 27 Jun
8. Harvest date: 12 Sep

Table 27. Disease severity on hypocotyls and roots in untreated plots sampled 2 Jun.[1]

Rep	Hypocotyl disease index[2]	Root disease index[3]	% of plants infected			
			Rhizoctonia solani	Rhizoctonia (binucleate)	Pythium sp.	Fusarium sp.
I.....	3.5	2.3	0	0	3	3
II.....	2.8	2.0	0	1	2	1
III	2.8	1.8	0	0	1	4
IV	3.0	1.8	0	1	2	4

[1] Ratings and fungi identification were performed on four plants per plot by Dr. Craig Rothrock, University of Arkansas.
[2] Hypocotyls were rated on a 1-5 scale: 1=clean, 2=few pinpoint lesions, 3=distinct necrotic lesions, 4=girdling lesions, 5=dead top.
[3] Seminal roots were rated for % discoloration on a 1-5 scale: 1=0%, 2=1-10%, 3=11-25%, 4=26-50%, 5=51-100%.

Table 28. Effect of seed treatments on emergence, growth and yield of corn.

Treatment and rate g (a.i.)/100 kg seed[1]	Plants/ft[2]			Plant vigor[3] (0-10) (27 May)	Height (in.) to base of ear[4] (1 Aug)	Yield[5] (bu/A)
	24 Apr	1 May	8 May			
Untreated check	1.18	1.33	1.33	6.0	35.8	113.8
Apron XL 3 SL 3 g	1.23	1.36	1.38	5.3	35.3	109.5
V-10178 4.17FS 10 g + Apron XL 3SL 3 g.....	1.12	1.33	1.36	5.3	34.1	105.2
V-10208 3.6SC 3 g	1.24	1.40	1.38	5.8	36.1	118.0
V-10208 3.6SC 5 g	1.22	1.37	1.38	5.8	35.4	108.0
V-10208 3.6SC 7.5 g	1.23	1.38	1.36	6.0	34.3	113.4
V-10208 3.6SC 10 g	1.14	1.35	1.37	6.0	34.4	106.7
V-10230 100FS 13 g.....	1.25	1.36	1.36	5.8	35.2	110.9
V-10230 100FS 15 g.....	1.18	1.37	1.37	6.0	35.8	116.2
V-10230 100FS 17.5 g.....	1.12	1.35	1.40	6.0	36.2	117.0
P(F)	.6682	.8711	.8887	.5469	.4414	.1212

[1] All seed treated by personnel with Valent USA Corp.
[2] Determined from counts of two, 30-ft rows per plot.
[3] Plant vigor rating scale: 1=severely stunted, 10=healthy.
[4] Measurement from ground to base of first ear on three, randomly selected plants per row in each plot.
[5] Yields are based on weight of corn with 15.5% moisture. Corn was harvested on 12 Sep (one bushel=56 lbs of grain). Means in columns are not significantly different according to Fisher's Protected LSD (*P*=0.05).

VII. EVALUATION OF FOLIAR FUNGICIDE SPRAYS FOR CONTROLLING DISEASE AND INCREASING YIELD OF CORN (CORNFUN408, TAREC Res. Farm, Suffolk, Field 2)

A. PURPOSE: To determine the growth and yield benefits of foliar fungicide treatments

B. EXPERIMENTAL DESIGN:
1. Four randomized complete blocks separated by 10-ft alleys
2. Four, 30 ft rows per plot with treatments applied to the center two rows
3. Seeding rate for 8-in. spacing between seed

C. APPLICATION OF TREATMENTS: Foliar sprays were applied with a Lee Spider Sprayer at vegetative stage V_{14} or 25% silk emergence at 38 psi with three, 8002VS nozzles/row delivering 19.88 gal/A. Sprays were applied to the four rows of each plot.

D. TREATMENT AND RATE/A:
1. Untreated check
2. Stratego 10 fl oz + Coverall 3.2 fl oz (0.125% spray vol.) at V14
3. Stratego 10 fl oz/A + Coverall 3.2 fl oz (0.125% spray vol.) at 25% silk
4. Headline 250EC 6 fl oz + Coverall 3.2 fl oz (0.125% spray vol.) at V14
5. Headline 250EC 6 fl oz + Coverall 3.2 fl oz (0.125% spray vol.) at 25% silk
6. Quadris 250SC 9 fl oz + ChemOil 20.5 fl oz (0.8% v/v) at V14
7. Quadris 250SC 9 fl oz + ChemOil 20.5 fl oz (0.8% v/v) at 25% silk
8. Quilt 250SC 14 fl oz + ChemOil 20.5 fl oz (0.8% v/v) at V14
9. Quilt 250SC 14 fl oz + ChemOil 20.5 fl oz (0.8% v/v) at 25% silk
10. Tilt 3.6EC 4 fl oz at V14
11. Tilt 3.6EC 4 fl oz at 25% silk

E. ADDITIONAL INFORMATION:
1. Location: TAREC Farm, Hare Rd.
2. Crop history: peanut 2007, corn 2006, cotton 2005
3. Planting date and cultivar: 18 Apr, Pioneer 34F96
4. Soil fertility report (Jan 2008):

pH.....	6.54	K.....	77 ppm
Ca	373 ppm	Zn	0.4 ppm
Mg	37 ppm	Mn	3.7 ppm
P	16 ppm	Soil type	Eunola loamy fine sand

5. Fertilization: 9-15-36 300 lb/A (18 Mar); 32% N 60 units/A (18 Apr, 21 May)
   Sol-U-Gro (12-48-8) 5 lb/A (16 May)
6. Herbicide: Gramoxone 1.5 pt + Banvel 8 fl oz/A (22 Mar)
   Roundup Ultra Max 1.0 qt/A (28 Mar); 22 fl oz/A (21 May)
7. Irrigation (ca 1"): 12 Jun, 27 Jun
8. Harvest date: 16 Sep

Table 29. Effect of fungicides on disease incidence in corn.

Treatment and rate/A	% leaf area with Northern blight			
	Ear leaf 28 Jul	Ear leaf 15 Jul	Top leaves 15 Jul	Lower leaves 15 Jul
Untreated check	0.8	2.5 a	1.3	4.3 a
Stratego 10 fl oz + Coverall 3.2 fl oz (6/25)	0.8	1.0 b	0.8	1.8 bc
Stratego 10 fl oz/A + Coverall 3.2 fl oz (7/8)	0.5	1.0 b	0.8	1.5 c
Headline 250EC 6 fl oz + Coverall 3.2 fl oz (6/25)	0.5	1.0 b	1.0	2.0 bc
Headline 250EC 6 fl oz + Coverall 3.2 fl oz (7/8)	0.5	1.0 b	1.0	1.8 bc
Quadris 250SC 9 fl oz + ChemOil 20.5 fl oz (6/25)	0.8	1.3 b	1.3	1.5 c
Quadris 250SC 9 fl oz + ChemOil 20.5 fl oz (7/8)	0.5	1.3 b	1.0	2.0 bc
Quilt 250SC 14 fl oz + ChemOil 20.5 fl oz (6/25)	0.8	1.3 b	1.0	2.3 bc
Quilt 250SC 14 fl oz + ChemOil 20.5 fl oz (7/8)	0.3	1.3 b	1.0	2.5 b
Tilt 3.6EC 4 fl oz (6/25)	1.0	1.5 b	0.8	2.3 bc
Tilt 3.6EC 4 fl oz (7/8)	0.0	1.5 b	1.0	2.3 bc
LSD	n.s.	0.7	n.s.	0.9

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

Table 30. Effect of fungicides on maturity and yield of corn.

Treatment and rate/A	% senescence		Yield* (bu/A)
	15 Aug	27 Aug	
Untreated check	27.5	78.8	139.4
Stratego 10 fl oz + Coverall 3.2 fl oz (6/25)	25.0	71.3	127.2
Stratego 10 fl oz/A + Coverall 3.2 fl oz (7/8)	21.3	73.8	129.1
Headline 250EC 6 fl oz + Coverall 3.2 fl oz (6/25)	18.8	61.3	138.8
Headline 250EC 6 fl oz + Coverall 3.2 fl oz (7/8)	20.0	68.8	135.2
Quadris 250SC 9 fl oz + ChemOil 20.5 fl oz (6/25)	26.3	68.8	129.5
Quadris 250SC 9 fl oz + ChemOil 20.5 fl oz (7/8)	27.5	71.3	130.7
Quilt 250SC 14 fl oz + ChemOil 20.5 fl oz (6/25)	13.8	66.3	139.3
Quilt 250SC 14 fl oz + ChemOil 20.5 fl oz (7/8)	23.8	66.3	123.6
Tilt 3.6EC 4 fl oz (6/25)	26.3	67.5	135.5
Tilt 3.6EC 4 fl oz (7/8)	26.3	73.8	122.5
LSD	n.s.	n.s.	n.s.

* Yields are weight of corn with moisture content of 15.5%. Corn was harvested from the two, center rows of plots on 16 Sep. One bushel=56 lbs of grain.
Means are not significantly different (n.s.) according to Fisher's Protected LSD (P=0.05).

VIII. EVALUATION OF SYNGENTA SEED TREATMENTS ON CORN FOR NEMATODE CONTROL (CORNNEMA108, TAREC Res. Farm, Suffolk, Field 34)

A. PURPOSE: to evaluate interactions of Avicta, Cruiser and fungicide treatments on seed

B. EXPERIMENTAL DESIGN:
1. Four, 35-ft rows (reps 1-5) and 30-ft rows (rep 6) per plot with 36-in. row spacing; data collected from two center rows
2. Six randomized complete blocks separated by 15-ft alleys

C. APPLICATION OF TREATMENTS: All seed treatments applied by personnel with Syngenta Crop Protection

D. TREATMENT AND RATE (a.i.): All seed were treated with a base fungicide/insecticide treatment of Maxim XL 2.7 FS 0.0089 mg + Apron XL 3LS 0.0025 mg + Dynasty 0.83 FS 0.0025 mg/seed. Treatments listed were applied as an over-coat (O).
1. Untreated check
2. Cruiser 5 FS 0.5 mg/seed (O)
3. A10466 SC 0.05 mg + Cruiser 5 FS 0.5 mg/seed (O)
4. A9180 WG 0.025 mg + Cruiser 5 FS 0.5 mg/seed (O)
5. A15775 FS 0.2 mg + Cruiser 5 FS 0.5 mg/seed (O)
6. STP27320 0.0036 mg + Cruiser 5 FS 0.5 mg/seed (O)
7. A16115 SC 0.65 mg + Cruiser 5 FS 0.05 mg /seed (O)
8. A9180 WG 0.025 mg/seed + A16115 SC 0.65 mg + Cruiser 5 FS 0.05 mg /seed (O)
9. A10466 SC 0.05 mg/seed + A16115 SC 0.65 mg + Cruiser 5 FS 0.05 mg /seed (O)
10. A9180 WG 0.025 mg + A10466 SC 0.05 mg + A16115 SC 0.65 mg + Cruiser 5 FS 0.05 mg /seed (O)
11. CA2498A AL 1 fl oz/cwt seed + A16115 SC 0.65 mg + Cruiser 5 FS 0.05 mg /seed (O)
12. ASF271B FS 0.05 mg + A16115 SC 0.65 mg + Cruiser 5 FS 0.05 mg /seed (O)
13. ASF271B FS 0.2 mg + A16115 SC 0.65 mg + Cruiser 5 FS 0.05 mg /seed (O)
14. STP27320 0.0036 mg + A16115 SC 0.65 mg + Cruiser 5 FS 0.05 mg /seed (O)

E. ADDITIONAL INFORMATION:
1. Location: TAREC Research farm, Hare Rd., Suffolk
2. Crop History: cotton 2007, peanut 2006, corn 2005
3. Land preparation: Rip and strip till into wheat cover crop
4. Planting date and variety: 17 Apr, N68-B8
5. Soil fertility report (Jan 2008):

pH.....	6.57	K	59 ppm
Ca	207 ppm	Zn.....	0.6 ppm
Mg	25 ppm	Mn.....	2.2 ppm
P	28 ppm	Soil type.....	Kenansville loamy fine sand

6. Fertilization: 9-15-36 300 lb/A (18 Mar); 32% N 60 units/A (17 Apr, 21 May) 10-34-0 + Sulfur 1 gal/A (16 Apr); Sol-U-Gro (12-48-8) 5 lb/A (16 May)
7. Herbicide:
   Pre-plant - Gramoxone 1.5 pt + Banvel 8 fl oz/A (22 Mar)
   Pre-emergence – Intro 2 qt + Atrazine 1 qt/A (17 Apr)
   Post-emergence – Liberty 1.5 pt/A (21 May)
8. Irrigation (ca 0.75 in.): 12 Jun, 1 Jul
9. Harvest date: 17 Sep

Table 31. Nematode populations in untreated plots of corn.*

	Nematodes/100 cc soil/rep**						
Nematode	I	II	III	IV	V	VI	Mean
Sting	10	0	0	10	1	0	4
Lesion	100	20	20	0	0	0	23
Stubby root	110	70	40	30	150	70	78
Stunt	60	80	180	120	100	130	112
	Nematodes/gram root/rep						
Lesion	48	36	38	0	52	0	29

* All seed treated with a base seed treatment of Maxim XL 2.7 FS 0.0089 mg + Apron XL 3LS 0.0025 mg + Dynasty 0.83 FS 0.0025 mg/seed.

** Soil was sampled on 19 May. Data are counts of nematodes in a sample from each rep of the untreated check. Samples were processed by Nema-Test, Lincoln, NE.

Table 32. Effect of seed treatments on nematode populations and yield of corn.

Treatment and rate*	Nematodes/500 cc soil (30 Jul)**					
	Root-knot juveniles	Lesion	Stunt	Ring	Stubby root	Sting
Untreated check	20	10	730	120	10	0
Cruiser 5 FS 0.5 mg/seed (O)	110	90	440	340	130	0
A10466 SC 0.05 mg + Cruiser 5 FS 0.5 mg/seed (O)	0	10	210	160	50	0
A9180 WG 0.025 mg + Cruiser 5 FS 0.5 mg/seed (O)	40	40	260	80	80	30
A15775 FS 0.2 mg + Cruiser 5 FS 0.5 mg/seed (O)	10	0	370	60	10	0
STP27320 0.0036 mg + Cruiser 5 FS 0.5 mg/seed (O)	30	20	430	220	40	10
A16115 SC 0.65 mg + Cruiser 5 FS 0.05 mg /seed (O)	70	20	1010	230	180	0
A9180 WG 0.025 mg/seed + A16115 SC 0.65 mg + Cruiser 5 FS 0.05 mg /seed (O)	40	40	570	70	150	0
A10466 SC 0.05 mg/seed + A16115 SC 0.65 mg + Cruiser 5 FS 0.05 mg /seed (O)	20	60	380	150	70	0
A9180 WG 0.025 mg + A10466 SC 0.05 mg + A16115 SC 0.65 mg + Cruiser 5 FS 0.05 mg /seed (O)	0	10	570	120	20	40
CA2498A AL 1 fl oz/cwt seed + A16115 SC 0.65 mg + Cruiser 5 FS 0.05 mg /seed (O)	50	50	530	180	100	10
ASF271B FS 0.05 mg + A16115 SC 0.65 mg + Cruiser 5 FS 0.05 mg /seed (O)	1110	20	0	0	40	0
ASF271B FS 0.2 mg + A16115 SC 0.65 mg + Cruiser 5 FS 0.05 mg /seed (O)	70	40	640	30	10	0
STP27320 0.0036 mg + A16115 SC 0.65 mg + Cruiser 5 FS 0.05 mg /seed (O)	30	10	420	130	90	0

* All seed treated with a base seed treatment of Maxim XL 2.7 FS 0.0089 mg + Apron XL 3LS 0.0025 mg + Dynasty 0.83 FS 0.0025 mg/seed. O=overcoat.

** Soil was sampled on 30 Jul. Data are counts of nematodes in a composite sample from four reps of each treatment.

Table 33. Effect of seed treatments on emergence, growth and yield of corn.

Treatment and rate[1]	Plants/ft[2] 1 May	Plants/ft[2] 15 May	Plant height(in.)[3] (16 May)	Plant vigor[4] (0-10) (24 May)	Yield[5] (bu/A)
Untreated check.....	1.37 a-c	1.37 a-c	10.6 cd	6.0	140.3
Cruiser 5 FS 0.5 mg/seed (O).....	1.30 d	1.31 de	10.4 d	5.7	124.9
A10466 SC 0.05 mg + Cruiser 5 FS 0.5 mg/seed (O)	1.36 b-d	1.37 a-c	10.7 cd	5.7	135.3
A9180 WG 0.025 mg + Cruiser 5 FS 0.5 mg/seed (O)	1.39 a-c	1.38 a-c	10.8 b-d	5.8	141.2
A15775 FS 0.2 mg + Cruiser 5 FS 0.5 mg/seed (O)	1.40 ab	1.40 ab	11.5 ab	6.1	152.9
STP27320 0.0036 mg + Cruiser 5 FS 0.5 mg/seed (O)	1.37 a-c	1.36 a-d	10.7 cd	5.9	133.7
A16115 SC 0.65 mg + Cruiser 5 FS 0.05 mg /seed (O)	1.37 a-c	1.36 a-d	10.7 cd	5.9	143.7
A9180 WG 0.025 mg/seed + A16115 SC 0.65 mg + Cruiser 5 FS 0.05 mg /seed (O)	1.38 a-c	1.37 a-c	11.8 a	6.0	146.5
A10466 SC 0.05 mg/seed + A16115 SC 0.65 mg + Cruiser 5 FS 0.05 mg /seed (O)	1.37 a-c	1.36 a-d	11.3 a-c	6.0	147.5
A9180 WG 0.025 mg + A10466 SC 0.05 mg + A16115 SC 0.65 mg + Cruiser 5 FS 0.05 mg /seed (O)	1.43 a	1.40 a	11.1 a-d	6.0	140.7
CA2498A AL 1 fl oz/cwt seed + A16115 SC 0.65 mg + Cruiser 5 FS 0.05 mg /seed (O)	1.33 cd	1.29 e	11.6 a	6.1	139.9
ASF271B FS 0.05 mg + A16115 SC 0.65 mg + Cruiser 5 FS 0.05 mg /seed (O)	1.40 ab	1.39 a-c	11.0 a-d	6.0	138.8
ASF271B FS 0.2 mg + A16115 SC 0.65 mg + Cruiser 5 FS 0.05 mg /seed (O)	1.37 bc	1.34 b-e	11.0 a-d	6.0	138.8
STP27320 0.0036 mg + A16115 SC 0.65 mg + Cruiser 5 FS 0.05 mg /seed (O)	1.33 cd	1.33 c-e	11.2 a-d	6.1	142.5
LSD	0.06	0.06	0.8	n.s.	n.s.

[1] All seed treated with a base seed treatment of Maxim XL 2.7 FS 0.0089 mg + Apron XL 3LS 0.0025 mg + Dynasty 0.83 FS 0.0025 mg/seed. O=overcoat.

[2] Determined from counts of two, 35-ft rows in reps 1-5 and two, 30-ft rows in rep 6 per plot.

[3] Data are measurements of three randomly selected plants per row in each plot.

[4] Plant vigor rating scale: 1=severely stunted, 10=healthy.

[5] Yields are weight of corn with moisture content of 15.5%. Corn was harvested on 17 Sep. One bushel=56 lbs of grain. Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (*P*=0.05), n.s. denotes not significant.

IX. EVALUATION OF SYNGENTA SEED TREATMENTS ON CORN FOR NEMATODE CONTROL (CORNNEMA208, Rick Morgan Farm, Suffolk)

A. PURPOSE: To assess the efficacy of experimental seed treatments for control of nematodes in corn

B. EXPERIMENTAL DESIGN:
1. Four, 33-ft rows per plot with 38-in. row spacing; data collected in two center rows
2. Fifteen-ft alleyways between blocks
3. Four replications in a randomized complete block design

C. APPLICATION OF TREATMENTS: All seed treatments applied by personnel with Syngenta Crop Protection

D. TREATMENT AND RATE (a.i.): (S)=seed treatment, (F)=in furrow at planting.
1. Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + Cruiser 500 FS 0.25 mg/seed (S)
2. Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + Cruiser 500 FS 0.25 mg + Avicta 500 FS 0.25 mg/seed (S)
3. Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + A16115 SC 0.72 mg/seed (S)
4. Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + A16115 SC 0.82 mg/seed (S)
5. A14918 FS 0.0652 mg + A16115 SC 0.82 mg/seed (S)
6. A14918 FS 0.0652 mg + A16115 SC 0.82 mg/seed + EXC3405 SL 29.57 ml/100 kg seed (S)
7. A14918 FS 0.0652 mg + A16115 SC 0.72 mg/seed + A9180 WG 0.6 g/100 kg seed (S)
8. Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + Cruiser 500 FS 0.25 mg + A16115 SC 0.72 mg/seed (S)
9. Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + STP15201 0.25 mg + A16115 SC 0.72 mg/seed (S)
10. Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg/seed (S) + Counter 15G 8 oz/1000 row ft (F)

E. ADDITIONAL INFORMATION:
1. Location: Rick Morgan farm, Suffolk
2. Crop History: cotton 2007-2001
3. Planting date and variety: 6 May, N68-B8
4. Soil fertility report (20 Mar):

pH.....	6.8	Mn.....	2.3 ppm
Ca	959 ppm	Cu.....	0.4 ppm
Mg	148 ppm	Fe	8.0 ppm
P	55 ppm	B.....	0.2 ppm
K.....	176 ppm		
Zn	0.8 ppm	Soil type.....	Rumford loamy fine sand
% sand.....	69.4	% silt.....	25.2
% clay.....	5.4	Textural class.....	Sandy loam

5. Nematode assay report (20 Mar):

Nematodes/500 cc soil	
Root knot	260
Spiral	100
Lance	30

6. Fertilization: 11-25-25, 300 lb/A (1 May); 32% N 60 units/A (6 Jun)
7. Herbicide: Bicep 2 qt/A (6 May)
8. Harvest date: 24 Sep

Table 34. Effect of seed treatments on nematode populations in corn.

Treatment and rate* (a.i. unless otherwise noted)	Nematodes/500 cc soil**		
	Root-knot juveniles	Spiral	Stubby root
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + Cruiser 500 FS 0.25 mg/seed (S).....	180	460	20
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + Cruiser 500 FS 0.25 mg + Avicta 500 FS 0.25 mg/seed (S).....	1520	190	0
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + A16115 SC 0.72 mg/seed (S)	340	360	10
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + A16115 SC 0.82 mg/seed (S)	340	330	0
A14918 FS 0.0652 mg + A16115 SC 0.82 mg/seed (S).....	830	80	20
A14918 FS 0.0652 mg + A16115 SC 0.82 mg/seed + EXC3405 SL 29.57 ml/100 kg seed (S)	1150	80	80
A14918 FS 0.0652 mg + A16115 SC 0.72 mg/seed + A9180 WG 0.6 g/100 kg seed (S).....	650	80	40
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + Cruiser 500 FS 0.25 mg + A16115 SC 0.72 mg/seed (S)	410	110	40
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + STP15201 0.25 mg + A16115 SC 0.72 mg/seed (S)	660	200	50
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg/seed (S) + Counter 15G 8 oz/1000 row ft (F)	2010	140	10

* S=seed treatment, F=in furrow.
** Soil was sampled on 18 Jun. Data are counts of nematodes in a composite sample from four reps of each treatment.

Table 35. Effect of seed treatments on emergence and growth of corn.

Treatment and rate[1]	Plants/ft[2] 27 May	Plants/ft[2] 10 Jun	Plant vigor[3] (1-10) (18 Jun)
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + Cruiser 500 FS 0.25 mg/seed (S)	1.62 ab	1.64 ab	5.5
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + Cruiser 500 FS 0.25 mg + Avicta 500 FS 0.25 mg/seed (S)	1.60 ab	1.60 ab	5.8
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + A16115 SC 0.72 mg/seed (S)	1.55 b	1.55 b	6.0
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + A16115 SC 0.82 mg/seed (S)	1.55 b	1.56 b	6.3
A14918 FS 0.0652 mg + A16115 SC 0.82 mg/seed (S)	1.56 b	1.56 b	5.8
A14918 FS 0.0652 mg + A16115 SC 0.82 mg/seed + EXC3405 SL 29.57 ml/100 kg seed (S)	1.40 c	1.40 c	6.3
A14918 FS 0.0652 mg + A16115 SC 0.72 mg/seed + A9180 WG 0.6 g/100 kg seed (S)	1.55 b	1.55 b	5.8
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + Cruiser 500 FS 0.25 mg + A16115 SC 0.72 mg/seed (S)	1.56 b	1.57 b	6.0
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + STP15201 0.25 mg + A16115 SC 0.72 mg/seed (S)	1.59 ab	1.59 ab	5.5
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg/seed (S) + Counter 15G 8 oz/1000 row ft (F)	1.69 a	1.68 a	5.8
LSD	0.10	0.10	n.s.

[1] S=seed treatment, F=in furrow.
[2] Determined from counts of two, 33-ft rows per plot.
[3] Plant vigor rating scale: 1=severely stunted, 10=healthy.
Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (*P*=0.05), n.s. denotes not significant.

Table 36. Effect of seed treatments on growth and severity of root galling in corn.

Treatment and rate[1]	Plant height (in.)[2] 2 Jun	Plant height (in.)[2] 17 Jun	Root galling[3] (0-6) (5 Sep)
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + Cruiser 500 FS 0.25 mg/seed (S)	12.8 a-c	23.3 a	3.8 bc
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + Cruiser 500 FS 0.25 mg + Avicta 500 FS 0.25 mg/seed (S)	13.0 ab	22.5 a-d	3.8 bc
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + A16115 SC 0.72 mg/seed (S)	12.6 a-c	22.8 a-c	3.8 bc
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + A16115 SC 0.82 mg/seed (S)	12.5 a-d	23.4 a	3.7 bc
A14918 FS 0.0652 mg + A16115 SC 0.82 mg/seed (S)	13.1 a	23.2 a	4.0 a-c
A14918 FS 0.0652 mg + A16115 SC 0.82 mg/seed + EXC3405 SL 29.57 ml/100 kg seed (S)	12.5 a-c	21.5 cd	4.2 ab
A14918 FS 0.0652 mg + A16115 SC 0.72 mg/seed + A9180 WG 0.6 g/100 kg seed (S)	11.7 d	21.2 d	4.5 a
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + Cruiser 500 FS 0.25 mg + A16115 SC 0.72 mg/seed (S)	12.6 a-c	21.8 b-d	4.3 ab
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + STP15201 0.25 mg + A16115 SC 0.72 mg/seed (S)	12.1 cd	21.2 d	3.5 c
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg/seed (S) + Counter 15G 8 oz/1000 row ft (F)	12.3 b-d	22.0 a-d	3.4 c
LSD	0.8	1.4	0.6

[1] S=seed treatment, F=in furrow.

[2] Data are measurements of three randomly selected plants per row in each plot.

[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 caused by southern root-knot nematode. Ratings were made on two randomly selected plants per row in each plot. Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05).

Table 37. Effect of seed treatments on nematode populations and yield of corn.

Treatment and rate[1]	Nematodes/500 cc soil (11 Aug)[2]					Yield[3] (bu/A)	
	Root-knot juve-niles	Lesion	Stunt	Spiral	Stubby root		
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + Cruiser 500 FS 0.25 mg/seed (S)	40	50	1390	0	170	123.4	a-c
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + Cruiser 500 FS 0.25 mg + Avicta 500 FS 0.25 mg/seed (S)	4470	0	10	470	60	115.6	bc
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + A16115 SC 0.72 mg/seed (S)	5210	10	20	720	90	125.9	ab
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + A16115 SC 0.82 mg/seed (S)	1820	10	20	770	50	133.3	a
A14918 FS 0.0652 mg + A16115 SC 0.82 mg/seed (S)	3110	10	20	190	10	114.3	bc
A14918 FS 0.0652 mg + A16115 SC 0.82 mg/seed + EXC3405 SL 29.57 ml/100 kg seed (S)	2960	10	10	60	190	112.9	c
A14918 FS 0.0652 mg + A16115 SC 0.72 mg/seed + A9180 WG 0.6 g/100 kg seed (S)	3960	0	70	420	240	111.4	c
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + Cruiser 500 FS 0.25 mg + A16115 SC 0.72 mg/seed (S)	2930	0	0	310	130	125.4	ab
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg + STP15201 0.25 mg + A16115 SC 0.72 mg/seed (S)	3440	0	10	340	110	116.1	bc
Apron XL 3LS 0.0025 mg + Maxim XL 2.7 FS 0.0089 mg + Dynasty 100 FS 0.0025 mg/seed (S) + Counter 15G 8 oz/1000 row ft (F)	431	0	0	50	20	113.8	bc
LSD	--	--	--	--	--	12.1	

[1] S=seed treatment, F=in furrow.

[2] Data are counts of nematodes in a composite sample from four reps of each treatment.

[3] Yields are weight of corn with moisture content of 15.5%. Corn was harvested on 24 Sep. One bushel=56 lbs of grain. Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (*P*=0.10).

X. NATIONAL COTTONSEED TREATMENT TEST – VIRGINIA LOCATION
(COTFUN108, TAREC Res. Farm, Suffolk, Field 9B)

A. PURPOSE: To evaluate seed treatment fungicides for control of damping-off diseases

B. EXPERIMENTAL DESIGN:
1. Two, 30-ft rows per plot with 36 in. row spacing
2. Four randomized complete blocks separated by 15-ft alleyways

C. APPLICATION OF TREATMENTS: Treatments were applied by Dr. Craig Rothrock, Coordinator of National Cottonseed Treatment Trials at the University of Arkansas

D. TREATMENT AND RATE: Rates are either active ingredient (a.i.) or formulated product.
1. Baytan 30 0.5 fl oz + Allegiance FL 0.75 fl oz + Vortex FL 0.08 fl oz + Trilex FL 0.32 fl oz/cwt seed
2. Baytan 30 0.5 fl oz + Allegiance FL 0.75 fl oz + Vortex FL 0.08 fl oz/cwt seed
3. Allegiance FL 0.75 fl oz + Vortex FL 0.34 fl oz + Trilex FL 0.64 fl oz/cwt seed
4. Baytan 30 0.5 fl oz + Allegiance FL 0.75 fl oz + Vortex FL 0.17 fl oz
5. RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz/cwt seed
6. RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz/cwt seed + Dynasty Extreme 0.045 mg a.i./seed
7. RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz/cwt seed + Bion 0.6 g a.i./100 kg seed
8. RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz + Dynasty CST 3.95 fl oz/cwt seed + Bion 0.6 g a.i./100 kg seed
9. Vitavax-PCNB 6.0 fl oz + Allegiance FL 0.75 fl oz/cwt seed
10. RTU-PCNB 14.5 fl oz/cwt seed
11. Allegiance FL1.5 fl oz/cwt seed
12. Argent 4.5 fl oz/cwt
13. Non-treated

E. ADDITIONAL INFORMATION:
1. Location: TAREC Research farm
2. Crop history: peanut 2007, corn 2006, cotton 2005
3. Land preparation: rip and strip till into wheat cover crop
4. Planting date and variety: 18 Apr; DP 444 BG/RR
5. Soil fertility report (Jan 2008):

pH.....	6.44	K	49 ppm
Ca	385 ppm	Zn.....	0.4 ppm
Mg	34 ppm	Mn.....	2.3 ppm
P	33 ppm	Soil type.....	Kenansville loamy fine sand

6. Herbicide:
Pre-emergence – Prowl H_2O 1 pt + Cotoran 1 qt/A (19 Apr)
Post-emergence – Roundup Ultra Max 22 fl oz/A (29 May)
Envoke 0.10 oz + MSMA 1 qt + Caparol 1.5 pt/A directed between rows (17 Jul)
7. Nematicide: Temik 15G 5 lb/A (18 Apr)
8. Insecticide: Orthene 97S 8 oz/A (6 Jun, 25 Jul); Baythroid XL 2 fl oz/A (4 Aug); Baythroid XL 3 fl oz + Centric 2 fl oz/A (12 Aug)

9. Cultivation: 19 May
10. Growth regulator: Pentia 8 oz/A (11 Jul, 25 Jul)
11. Defoliant/boll opener: Finish 1 qt + Def 8 oz + Dropp 3 oz/A (3 Oct)
12. Fertilization: 6-16-39 300 lb/A (3 Apr)
    Liquid nitrogen (30%) N 30 lb/A (25 Jun, 12 Jul)
    Liquid boron 1 qt/A (25 Jun, 11 Jul)
13. Harvest date: 20 Oct

Table 38. Effect of seed treatments on emergence and yield of cotton.

Treatment and rate	Plants/ft* (17 May)	Yield** lb/A	Yield** bales/A
Baytan 30 0.5 fl oz + Allegiance FL 0.75 fl oz + Vortex FL 0.08 fl oz + Trilex FL 0.32 fl oz/cwt seed ...	1.06 a-c	3854 a	3.14 a
Baytan 30 0.5 fl oz + Allegiance FL 0.75 fl oz + Vortex FL 0.08 fl oz/cwt seed	0.96 a-c	3612 a	2.94 a
Allegiance FL 0.75 fl oz + Vortex FL 0.34 fl oz + Trilex FL 0.64 fl oz/cwt seed.....	1.14 a	3487 a	2.84 a
Baytan 30 0.5 fl oz + Allegiance FL 0.75 fl oz + Vortex FL 0.17 fl oz	1.00 a-c	3784 a	3.08 a
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz/cwt seed	1.20 a	3712 a	3.02 a
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz/cwt seed + Dynasty Extreme 0.045 mg a.i./seed	0.94 a-c	3439 a	2.80 a
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz/cwt seed + Bion 0.6 g a.i./100 kg seed	1.14 a	3446 a	2.81 a
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz + Dynasty CST 3.95 fl oz/cwt seed + Bion 0.6 g a.i./100 kg seed	1.12 ab	3872 a	3.15 a
Vitavax-PCNB 6.0 fl oz + Allegiance FL 0.75 fl oz/cwt seed	0.88 b-d	3582 a	2.92 a
RTU-PCNB 14.5 fl oz/cwt seed.....	0.66 de	3343 a	2.72 a
Allegiance FL1.5 fl oz/cwt seed	1.00 a-c	3452 a	2.81 a
Argent 4.5 fl oz/cwt	0.61 e	2789 b	2.27 b
Non-treated	0.81 c-e	3427 a	2.79 a
LSD	0.26	543	0.44

* 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 39.1% of total weight and 480 lb/bale. Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05).

XI. COTTON SEED TREATMENT FUNGICIDE TEST (COTFUN208, TAREC Res. Farm, Suffolk, Field 16B)

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

B. EXPERIMENTAL DESIGN:
1. Seed treatments in plots of two, 30-ft rows with 36 in. row spacing
2. Four randomized complete blocks separated by 15-ft alleyways

C. APPLICATION OF TREATMENTS: Seed and overcoat treatments were applied by Valent USA

D. TREATMENT AND RATE A.I./100 KG SEED:
1. Untreated
2. Baytan 30 2.65SC 10.0 g
3. Allegiance-FL 2.65SC 15 g
4. Baytan 30 2.65SC 10 g + Allegiance-FL 2.65SC 15 g
5. V-10178 4.17FS 50 g + V-10209 2.65FS 15 g
6. V-10178 4.17FS 50 g + V-10208 3.60FS 15 g
7. V-10116 43.70FS 10 g + V-10209 2.65FS 15 g
8. V-10190 3.4SC 10 g + V-10209 2.65FS 15 g
9. V-10190 3.4SC 15 g + V-10209 2.65FS 15 g
10. V-10190 3.4SC 20 g + V-10209 2.65FS 15 g
11. V-10182 1.9ES 10 g + V-10209 2.65FS 15 g
12. V-10182 1.9ES 20 g + V-10209 2.65FS 15 g

E. ADDITIONAL INFORMATION:
1. Location: TAREC Research farm
2. Crop history: peanut 2007, corn 2006, cotton 2005
3. Land preparation: rip and strip till into wheat cover crop
4. Planting date and variety: 25 Apr; DP 555 BG/RR (entire trial replanted 25 May due to severe sand burn)
5. Soil fertility report (Jan 2008):

pH.....	6.43	K	52 ppm
Ca	313 ppm	Zn.....	0.5 ppm
Mg	36 ppm	Mn.....	1.8 ppm
P	33 ppm	Soil type.....	Kenansville loamy fine sand

6. Herbicide:
Pre-emergence – Prowl H_2O 1 pt + Cotoran 1 qt/A (25 Apr, 7 May)
Post-emergence – Roundup Ultra Max 20 fl oz/A (29 May)
Envoke 0.10 oz + MSMA 1 qt + Caparol 1.5 pt/A directed between rows (17 Jul)
7. Nematicide: Temik 15G 5 lb/A (25 May)
8. Insecticide: Orthene 97S 8 oz/A (6 Jun, 25 Jul); Baythroid XL 2 fl oz/A (Aug 4)
Baythroid XL 3 fl oz (12 Aug)
9. Cultivation: 25 Jun
10. Growth regulator: Pentia 8 oz/A (11 Jul, 25 Jul)
11. Defoliant/boll opener: Finish 1 qt + Def 8 oz + Dropp 3 oz/A (6 Oct)

12. Fertilization: 6-16-39 300 lb/A (3 Apr)
    Liquid nitrogen (30%) N 30 lb/A (25 Jun, 12 Jul)
    Liquid boron 1 qt/A (25 Jun, 11 Jul)
    Mangro 5 lb/A (30 Jul)
13. Harvest date: 22 Oct

Table 39. Effect of seed treatments on emergence and growth of cotton (original planting).

	Plants/ft*			Plant vigor**
Treatment and rate (a.i.)/cwt seed	2 May	9 May	23 May	(24 May)
Untreated	0.0	1.55 a-d	1.18 b-d	0.9
Baytan 30 2.65SC 10.0 g	0.0	2.00 a	1.90 a	1.1
Allegiance-FL 2.65SC 15 g	0.0	1.29 cd	0.92 cd	1.0
Baytan 30 2.65SC 10 g + Allegiance-FL 2.65SC 15 g	0.0	1.40 cd	1.18 b-d	0.9
V-10178 4.17FS 50 g + V-10209 2.65FS 15 g	0.0	1.55 a-d	1.24 b-d	1.0
V-10178 4.17FS 50 g + V-10208 3.60FS 15 g	0.0	1.15 d	0.85 d	0.6
V-10116 43.70FS 10 g + V-10209 2.65FS 15 g	0.0	1.35 cd	1.32 bc	0.8
V-10190 3.4SC 10 g + V-10209 2.65FS 15 g	0.0	1.72 a-c	1.48 ab	0.9
V-10190 3.4SC 15 g + V-10209 2.65FS 15 g	0.0	1.50 b-d	1.20 b-d	0.8
V-10190 3.4SC 20 g + V-10209 2.65FS 15 g	0.0	1.72 a-c	1.30 b-d	1.0
V-10182 1.9ES 10 g + V-10209 2.65FS 15 g	0.0	1.88 ab	1.56 ab	0.8
V-10182 1.9ES 20 g + V-10209 2.65FS 15 g	0.0	1.63 a-c	1.37 bc	1.1
LSD	n.s.	0.5	0.47	n.s.

* Determined from counts of two, 30-ft rows per plot.
** Plant vigor rating scale: 1=severely stunted, 10=healthy.
Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05), n.s. denotes not significant.

Table 40. Effect of seed treatments on emergence of cotton (replanted 25 May).

	Plants/ft*		
Treatment and rate (a.i.)/cwt seed	3 Jun	9 Jun	23 Jun
Untreated	2.50 d	2.71 c	2.68 de
Baytan 30 2.65SC 10.0 g	2.66 b-d	2.87 bc	2.85 b-e
Allegiance-FL 2.65SC 15 g	2.64 cd	2.88 bc	2.75 c-e
Baytan 30 2.65SC 10 g + Allegiance-FL 2.65SC 15 g	2.66 b-d	2.68 c	2.71 de
V-10178 4.17FS 50 g + V-10209 2.65FS 15 g	2.54 d	2.65 c	2.61 e
V-10178 4.17FS 50 g + V-10208 3.60FS 15 g	3.70 a	3.90 a	3.84 a
V-10116 43.70FS 10 g + V-10209 2.65FS 15 g	2.66 b-d	2.93 bc	2.89 b-e
V-10190 3.4SC 10 g + V-10209 2.65FS 15 g	2.86 bc	3.08 b	3.02 bc
V-10190 3.4SC 15 g + V-10209 2.65FS 15 g	2.92 bc	3.14 b	3.05 b
V-10190 3.4SC 20 g + V-10209 2.65FS 15 g	2.95 b	3.11 b	3.10 b
V-10182 1.9ES 10 g + V-10209 2.65FS 15 g	2.94 bc	3.08 b	3.01 bc
V-10182 1.9ES 20 g + V-10209 2.65FS 15 g	2.88 bc	2.95 bc	2.95 b-d
LSD	0.31	0.33	0.29

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

Table 41. Effect of seed treatments on growth of cotton.

Treatment and rate (a.i.)/cwt seed	Plant height (in.)* (18 Jul)	Flowers/ 12 ft** (31 Jul)
Untreated	24.9	10.3
Baytan 30 2.65SC 10.0 g	25.0	9.0
Allegiance-FL 2.65SC 15 g	25.0	10.3
Baytan 30 2.65SC 10 g + Allegiance-FL 2.65SC 15 g	24.2	11.8
V-10178 4.17FS 50 g + V-10209 2.65FS 15 g	24.8	10.0
V-10178 4.17FS 50 g + V-10208 3.60FS 15 g	24.6	12.5
V-10116 43.70FS 10 g + V-10209 2.65FS 15 g	25.1	9.5
V-10190 3.4SC 10 g + V-10209 2.65FS 15 g	25.3	11.8
V-10190 3.4SC 15 g + V-10209 2.65FS 15 g	25.0	9.0
V-10190 3.4SC 20 g + V-10209 2.65FS 15 g	25.1	12.3
V-10182 1.9ES 10 g + V-10209 2.65FS 15 g	24.5	15.0
V-10182 1.9ES 20 g + V-10209 2.65FS 15 g	24.9	10.0
LSD	n.s.	n.s.

* Measurements of three, randomly selected plants per row in each plot.
** Number of flowers in two, 6-ft sections of row in each plot.
Means in columns are not significantly different according to Fisher's Protected LSD (P=0.05).

Table 42. Effect of seed treatments on yield of cotton.

Treatment and rate (a.i.)/cwt seed	Yield* (lbA)	Yield* (bales/A)
Untreated	3551	3.22
Baytan 30 2.65SC 10.0 g	2913	2.64
Allegiance-FL 2.65SC 15 g	3488	3.16
Baytan 30 2.65SC 10 g + Allegiance-FL 2.65SC 15 g	2971	2.69
V-10178 4.17FS 50 g + V-10209 2.65FS 15 g	2955	2.68
V-10178 4.17FS 50 g + V-10208 3.60FS 15 g	3331	3.02
V-10116 43.70FS 10 g + V-10209 2.65FS 15 g	3358	3.04
V-10190 3.4SC 10 g + V-10209 2.65FS 15 g	3403	3.08
V-10190 3.4SC 15 g + V-10209 2.65FS 15 g	3300	2.99
V-10190 3.4SC 20 g + V-10209 2.65FS 15 g	2949	2.67
V-10182 1.9ES 10 g + V-10209 2.65FS 15 g	3164	2.87
V-10182 1.9ES 20 g + V-10209 2.65FS 15 g	3204	2.90
LSD	n.s.	n.s

* Weight (lb/A) includes lint + seed; bales/A are weight of lint only. Lint was 43.5% of total weight and 480 lb/bale.
Means in columns are not significantly different according to Fisher's Protected LSD (P=0.05).

XII. COTTON SEED TREATMENT FUNGICIDE TEST (COTFUN308, TAREC Res. Farm, Suffolk, Field 16B)

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

B. EXPERIMENTAL DESIGN:
1. Seed treatments in plots of two, 30-ft rows with 36 in. row spacing
2. Four randomized complete blocks separated by 15-ft alleyways

C. APPLICATION OF TREATMENTS: Seed and overcoat treatments were applied by Valent USA

D. TREATMENT AND RATE A.I./100 KG SEED:
1. Untreated
2. Allegiance-FL 2.65SC 15 g
3. V-10208 3.60FS 5 g
4. V-10208 3.60FS 7.5 g
5. V-10208 3.60FS 10.0 g
6. V-10208 3.60FS 15.0 g
7. V-10208 3.60FS 20.0 g
8. V-10208 3.60FS 25.0 g
9. V-10230 100FS 55.0 g
10. V-10230 100FS 65.0 g
11. V-10280 100FS 15.0 g
12. V-10208 0.83SC 15.0 g
13. V-10231 100FS 15.0 g

E. ADDITIONAL INFORMATION:
1. Location: TAREC Research farm
2. Crop history: peanut 2007, corn 2006, cotton 2005
3. Land preparation: rip and strip till into wheat cover crop
4. Planting date and variety: 30 Apr; DP 143 B2RF.
Note: Rep I was replanted on 26 May due to severe sand burn.
5. Soil fertility report (Jan 2008):

pH.....	6.43	K	52 ppm
Ca	313 ppm	Zn.....	0.5 ppm
Mg	36 ppm	Mn.....	1.8 ppm
P	33 ppm	Soil type.....	Kenansville loamy fine sand

6. Herbicide:
Preplant – Prowl H_2O 1 pt + Cotoran 1 qt/A (25 Apr)
Post emergence – Roundup 22 fl oz/A (29 May)
Envoke 0.1 oz + MSMA 1 qt + Caparol 1.5 pt/A directed between rows (17 Jul)
7. Insecticide: Temik 15G 5 lb/A in furrow (30 Apr)
Orthene 75S 8 oz/A (19 May); 4 oz/A (29 May); 8 oz/A (6 Jun - Rep I)
Baythroid XL 2 fl oz/A (4 Aug); 3 fl oz/A (12 Aug)

8. Cultivation: 26 Jun
9. Growth regulator: Pentia 8 fl oz/A (11 Jul, 25 Jul)
10. Defoliant/boll opener: Finish 1 qt + Dropp 3 oz + Def 8 oz/A (6 Oct)
11. Fertilization: 6-16-39 300 lb/A (3 Apr)
    Liquid nitrogen (30%) N 30 lb/A (25 Jun, 12 Jul)
    Liquid boron 1 qt/A (25 Jun, 11 Jul)
    Mangro 5 lb/A (30 Jul)
12. Harvest date: 22 Oct

Table 43. Disease severity on hypocotyls and roots in untreated plots sampled 2 Jun.[1]

Rep	Hypocotyl disease index[2]	Root disease index[3]	% of plants infected			
			Rhizoctonia solani	Rhizoctonia (binucleate)	Pythium sp.	Fusarium sp.
II.....	2.3	30.8	25	50	0	100
III	2.5	10.0	50	25	0	25
IV	2.5	42.5	25	25	0	75

[1] Ratings and fungi identification were performed on four plants per plot by Dr. Craig Rothrock, University of Arkansas.
[2] Hypocotyls were rated on a 1-5 scale: 1=clean, 2=few pinpoint lesions, 3=distinct necrotic lesions, 4=girdling lesions, 5=dead top.
[3] Root ratings are percent of root system discolored.

Table 44. Effect of seed treatments on emergence and growth of cotton.

Treatment and rate (a.i.)/cwt seed	Plants/ft*			Plant vigor** (0-10)
	7 May	14 May	28 May	(24 May)
Untreated	0.56	1.65 de	1.44 bc	0.6
Allegiance-FL 2.65SC 15 g	0.55	1.94 a-d	1.68 ab	0.6
V-10208 3.60FS 5 g.....	0.29	1.84 a-e	1.70 ab	0.7
V-10208 3.60FS 7.5 g.....	0.44	1.56 e	1.17 c	0.7
V-10208 3.60FS 10.0 g.....	0.35	1.64 de	1.17 c	0.5
V-10208 3.60FS 15.0 g.....	0.43	1.79 b-e	1.56 bc	0.7
V-10208 3.60FS 20.0 g.....	0.42	1.68 c-e	1.19 c	0.7
V-10208 3.60FS 25.0 g.....	0.48	1.61 de	1.23 c	0.7
V-10230 100FS 55.0 g	0.58	2.06 ab	1.71 ab	0.7
V-10230 100FS 65.0 g	0.78	2.18 a	2.03 a	0.7
V-10280 100FS 15.0 g	0.74	2.05 a-c	1.84 ab	0.7
V-10208 0.83SC 15.0 g	0.52	1.98 a-d	1.72 ab	0.7
V-10231 100FS 15.0 g	0.56	1.83 a-e	1.66 ab	0.6
LSD.....	n.s.	0.37	0.41	n.s.

* Determined from counts of two, 30-ft rows per plot in Reps 2-4. Rep 1 data were dropped due to severe sand burn.
** Plant vigor rating scale: 1=severely stunted, 10=healthy.
Means followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (P=0.05), n.s. denotes not significant.

Table 45. Effect of seed treatments on growth and yield of cotton.

Treatment and rate (a.i.)/cwt seed	Plant height (in.)[1] (18 Jul)	Flowers/ 12 ft[2] (31 Jul)	Open bolls[3] (19 Sep)	Yield[4]	
				lb/A	bales/A
Untreated	22.3	14.3	7.1	3228	2.62
Allegiance-FL 2.65SC 15 g	23.0	18.0	6.4	3019	2.45
V-10208 3.60FS 5 g	22.1	18.0	5.6	3158	2.57
V-10208 3.60FS 7.5 g	21.6	13.3	6.6	2847	2.31
V-10208 3.60FS 10.0 g	21.8	16.3	6.5	2895	2.35
V-10208 3.60FS 15.0 g	23.0	15.0	5.7	3143	2.55
V-10208 3.60FS 20.0 g	22.7	12.5	5.3	3140	2.55
V-10208 3.60FS 25.0 g	22.4	18.0	7.3	2922	2.37
V-10230 100FS 55.0 g	22.4	16.3	4.8	3240	2.63
V-10230 100FS 65.0 g	22.9	19.0	6.9	2962	2.41
V-10280 100FS 15.0 g	22.8	16.3	6.3	3170	2.58
V-10208 0.83SC 15.0 g	22.6	12.0	5.8	2828	2.30
V-10231 100FS 15.0 g	22.7	17.5	5.5	3031	2.46
LSD	n.s.	n.s.	n.s.	n.s.	n.s.

[1] Measurements of three, randomly selected plants per row in each plot.
[2] Number of flowers in two, 6-ft sections of row in each plot.
[3] Counts of two randomly selected plants per row in each plot.
[4] Weight (lb/A) includes lint + seed; bales/A are weight of lint only. Lint was 39.0% of total weight and 480 lb/bale. Means are not significantly different (n.s.) according to Fisher's Protected LSD (P=0.05).

XIII. COTTON SEED TREATMENT FUNGICIDE TEST (COTFUN408, TAREC Res. Farm, Suffolk, Field 16B)

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

B. EXPERIMENTAL DESIGN:
1. Seed treatments in plots of two, 30-ft rows with 36 in. row spacing
2. Four randomized complete blocks separated by 15-ft alleyways

C. APPLICATION OF TREATMENTS: Seed treatments were applied by Valent USA

D. TREATMENT AND RATE A.I./100 KG SEED:
1. Untreated
2. V-10229 100FS 37.5 g
3. V-10234 100FS 75.0 g
4. V-10239 100FS 75.0 g
5. V-10244 100FS 35.0 g
6. V-10249 100FS 35.0 g
7. V-10254 100FS 85.0 g
8. V-10259 100FS 85.0 g

E. ADDITIONAL INFORMATION:
1. Location: TAREC Research farm
2. Crop history: peanut 2007, cotton 2006, peanut 2005
3. Land preparation: rip and strip till into wheat cover crop
4. Planting date and variety: 25 Apr; DP 143 B2RF
   Note: Rep I was replanted on 26 May due to severe sand burn
5. Soil fertility report (Jan 2008):

pH.....	6.43	K	52 ppm
Ca	313 ppm	Zn.....	0.5 ppm
Mg	36 ppm	Mn.....	1.8 ppm
P	33 ppm	Soil type.....	Kenansville loamy fine sand

6. Herbicide:
   Preplant – Prowl H_2O 1 pt + Cotoran 1 qt/A (25 Apr)
   Post emergence – Roundup 22 fl oz/A (29 May)
   Envoke 0.1 oz + MSMA 1 qt + Caparol 1.5 pt/A, directed between rows (17 Jul)
7. Insecticide: Temik 15G 5 lb/A in furrow (30 Apr)
   Orthene 75S 8 oz/A (19 May); 4 oz/A (29 May); 8 oz/A (6 Jun - Rep I)
   Baythroid XL 2 fl oz/A (4 Aug);
   Baythroid XL 3 fl oz + Centric 2 fl oz/A (12 Aug)
8. Cultivation: 26 Jun
9. Growth regulator: Pentia 8 fl oz/A (11 Jul, 25 Jul)
10. Defoliant/boll opener: Finish 1 qt + Dropp 3 oz + Def 8 oz/A (6 Oct)
11. Fertilization: 6-16-39 300 lb/A (3 Apr)
    Liquid nitrogen (30%) N 30 lb/A (25 Jun, 12 Jul)
    Liquid boron 1 qt/A (25 Jun, 11 Jul)
    Mangro 5 lb/A (30 Jul)
12. Harvest date: 22 Oct

Table 46. Disease severity on hypocotyls and roots in untreated plots sampled 2 Jun.[1]

Rep	Hypocotyl disease index[2]	Root disease index[3]	% of plants infected			
			Rhizoctonia solani	Rhizoctonia (binucleate)	Pythium sp.	Fusarium sp.
II.....	3.0	8.6	0	0	0	100
III	2.8	13.0	25	25	0	25
IV	2.5	12.2	0	25	0	100

[1] Ratings and fungi identification were performed on four plants per plot by Dr. Craig Rothrock, University of Arkansas.
[2] Hypocotyls were rated on a 1-5 scale: 1=clean, 2=few pinpoint lesions, 3=distinct necrotic lesions, 4=girdling lesions, 5=dead top.
[3] Seminal roots were rated for % discoloration on a 1-5 scale: 1=0%, 2=1-10%, 3=11-25%, 4=26-50%, 5=51-100%.

Table 47. Effect of seed treatments on emergence and growth of cotton.

Treatment and rate (a.i.)/cwt seed	Plants/ft*					Plant vigor** (24 May)
	2 May	9 May	23 May	30 May	6 Jun	
Untreated	0.0	1.41 bc	1.13 b	1.23 cd	1.03 d	2.7
V-10229 100FS 37.5 g...	0.0	1.81 a	1.61 a	1.69 a	1.63 a	2.7
V-10234 100FS 75.0 g...	0.0	1.44 b	1.38 ab	1.29 b-d	1.42 a-c	2.7
V-10239 100FS 75.0 g...	0.0	1.88 a	1.63 a	1.50 a-c	1.53 ab	3.0
V-10244 100FS 35.0 g...	0.0	1.61 ab	1.33 ab	1.26 cd	1.30 b-d	2.7
V-10249 100FS 35.0 g...	0.0	1.62 ab	1.62 a	1.60 ab	1.57 ab	3.0
V-10254 100FS 85.0 g...	0.0	1.45 b	1.35 ab	1.41 a-d	1.43 a-c	3.0
V-10259 100FS 85.0 g ..	0.0	1.15 c	1.17 b	1.13 d	1.18 cd	2.7
LSD.....	--	0.28	0.31	0.33	0.31	n.s.

* Determined from counts of two, 30-ft rows per plot. Rep I data were not included in stand counts on 30 May and 6 Jun because of replanting on 26 May due to severe sand burn.
** Plant vigor rating scale: 1=severely stunted, 10=healthy. Rep I data was not included in ratings.
Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05), except stand count on 6 Jun, which was analyzed at P=0.10, n.s. denotes not significant.

Table 48. Effect of seed treatments on growth and yield of cotton.

Treatment and rate (a.i.)/cwt seed	Plant height (in.)[1] (18 Jul)	Flowers/ 12 ft[2] (31 Jul)	Open bolls[3] (19 Sep)	Yield[4]	
				lb/A	bales/A
Untreated	27.2 a	14.8	9.5	3513	2.86
V-10229 100FS 37.5 g.....	25.5 b	17.5	9.6	3610	2.94
V-10234 100FS 75.0 g.....	25.6 b	23.0	9.3	3787	3.06
V-10239 100FS 75.0 g.....	25.3 b	16.0	9.8	3578	2.91
V-10244 100FS 35.0 g.....	25.9 ab	18.3	8.9	3566	2.90
V-10249 100FS 35.0 g.....	24.6 b	17.0	7.9	3473	2.83
V-10254 100FS 85.0 g.....	25.3 b	18.0	8.5	3707	3.02
V-10259 100FS 85.0 g	24.8 b	15.5	8.8	3166	2.58
LSD.....	1.4	n.s.	n.s.	n.s.	n.s.

[1] Measurements of three, randomly selected plants per row in each plot in rep II, III and IV.
[2] Number of flowers in two, 6-ft sections of row in each plot in rep II, III and IV.
[3] Counts of two randomly selected plants per row in each plot of reps II, III and IV.
[4] Weight (lb/A) includes lint + seed; bales/A are weight of lint only. Lint was 39.1% of total weight and 480 lb/bale. Plots were harvested on 22 Oct. Rep I data were not included in analysis.
Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05), n.s. denotes not significant.

XIV. COTTON SEED TREATMENT FUNGICIDE TEST (COTFUN508, TAREC Res. Farm, Suffolk, Field 16)

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

B. EXPERIMENTAL DESIGN:
1. Seed treatments in plots of two, 30-ft rows with 36-in. row spacing
2. Four randomized complete blocks separated by 15-ft alleyways

C. APPLICATION OF TREATMENTS: Seed treatments were applied by Bayer CropScience

D. TREATMENT AND RATE (OZ/CWT SEED):
1. Untreated
2. RTU Baytan-Thiram 3 oz + Allegiance-FL 0.75 oz
3. RTU Baytan-Thiram 3 oz + Allegiance-FL 0.75 oz + Trilex Advanced FS300 1.6 oz
4. RTU Baytan-Thiram 3 oz + Allegiance-FL 0.75 oz + Trilex Flowable 0.64 oz + Baytan 30 0.25 oz + Allegiance-FL 0.75 oz
5. RTU Baytan-Thiram 3 oz + Allegiance-FL 0.75 oz + V-10244 100FS 35.0 g + Dynasty CST 3.95 oz
6. RTU Baytan-Thiram 3 oz + Allegiance-FL 0.75 oz + Trilex Advanced FS300 1.6 oz + Vortex FL 0.17 oz
7. RTU Baytan-Thiram 3 oz + Allegiance-FL 0.75 oz + Trilex Advanced FS300 1.6 oz + Kodiak FL 0.5 oz

E. ADDITIONAL INFORMATION:
1. Location: TAREC Research farm
2. Crop history: peanut 2007, corn 2006, cotton 2005
3. Land preparation: rip and strip till into wheat cover crop
4. Planting date and variety: 25 Apr; FM 9063B2RF
5. Soil fertility report (Jan 2008):

pH.....	6.43	K	52 ppm
Ca	313 ppm	Zn.....	0.5 ppm
Mg	36 ppm	Mn.....	1.8 ppm
P	33 ppm	Soil type.....	Kenansville loamy fine sand

6. Herbicide:
Pre-emergence – Prowl H_2O 1 pt + Cotoran 1 qt/A (25 Apr)
Post-emergence – Roundup Ultra Max 22 fl oz/A (29 May)
Envoke 0.10 oz + MSMA 1 qt + Caparol 1.5 pt/A directed between rows (17 Jul)
7. Insecticide: Temik 15G 5 lb/A (25 Apr)
Orthene 97S 8 oz/A (19 May); 4 oz/A (29 May)
Baythroid XL 2 oz/A (4 Aug)
Baythroid XL 3 oz + Centric 2 oz/A (12 Aug)
8. Cultivation: 25 Jun
9. Growth regulator: Pentia 8 oz/A (11 Jul, 25 Jul)
10. Defoliant/Boll opener: Finish 1 qt + Def 8 oz + Dropp 3 oz/A (6 Oct)

11. Fertilization: 6-16-39 300 lb/A (3 Apr)
    Liquid nitrogen (30%) N 30 lb/A (25 Jun, 12 Jul)
    Liquid boron 1 qt/A (25 Jun, 11 Jul)
    Mangro 5 lb/A (30 Jul)
12. Harvest date: 20 Oct

Table 49. Effect of seed treatments on emergence and growth of cotton.

Treatment and rate/cwt seed	Plants/ft* 16 May	Plants/ft* 30 May	Plant vigor** (28 May) (0-10)
Untreated	1.29 c	1.14 c	2.0 b
RTU Baytan-Thiram 3 oz + Allegiance-FL 0.75 oz	1.35 bc	1.39 bc	3.0 a
RTU Baytan-Thiram 3 oz + Allegiance-FL 0.75 oz + Trilex Advanced FS300 1.6 oz	1.72 a	1.72 a	3.0 a
RTU Baytan-Thiram 3 oz + Allegiance-FL 0.75 oz + Trilex Flowable 0.64 oz + Baytan 30 0.25 oz + Allegiance-FL 0.75 oz	1.60 ab	1.57 ab	3.0 a
RTU Baytan-Thiram 3 oz + Allegiance-FL 0.75 oz + V-10244 100FS 35.0 g + Dynasty CST 3.95 oz	1.51 a-c	1.50 ab	2.5 ab
RTU Baytan-Thiram 3 oz + Allegiance-FL 0.75 oz + Trilex Advanced FS300 1.6 oz + Vortex FL 0.17 oz	1.75 a	1.65 ab	3.0 a
RTU Baytan-Thiram 3 oz + Allegiance-FL 0.75 oz + Trilex Advanced FS300 1.6 oz + Kodiak FL 0.5 oz	1.35 bc	1.34 bc	2.0 b
LSD	0.27	0.31	0.6

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

** Plant vigor rating scale: 1=severely stunted, 10=healthy.
Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05).

Table 50. Effect of seed treatments on growth of cotton.

Treatment and rate/cwt seed	Plant height (in.)* (18 Jul)	Flowers/ 12 ft** (31 Jul)
Untreated	23.8	22.0
RTU Baytan-Thiram 3 oz + Allegiance-FL 0.75 oz	23.3	21.3
RTU Baytan-Thiram 3 oz + Allegiance-FL 0.75 oz + Trilex Advanced FS300 1.6 oz	22.3	19.8
RTU Baytan-Thiram 3 oz + Allegiance-FL 0.75 oz + Trilex Flowable 0.64 oz + Baytan 30 0.25 oz + Allegiance-FL 0.75 oz	23.6	23.3
RTU Baytan-Thiram 3 oz + Allegiance-FL 0.75 oz + V-10244 100FS 35.0 g + Dynasty CST 3.95 oz	21.9	23.0
RTU Baytan-Thiram 3 oz + Allegiance-FL 0.75 oz + Trilex Advanced FS300 1.6 oz + Vortex FL 0.17 oz	23.2	21.5
RTU Baytan-Thiram 3 oz + Allegiance-FL 0.75 oz + Trilex Advanced FS300 1.6 oz + Kodiak FL 0.5 oz	22.9	25.5
LSD	n.s.	n.s.

* Determined from measurements of three randomly selected plants per row in each plot.
** Data are counts from 6-ft sections of row in each plot.
Means in a column are not significantly different according to Fisher's Protected LSD (P=0.05).

Table 51. Effect of seed treatments on boll opening and yield of cotton.

Treatment and rate/cwt seed	Open bolls* (19 Sep)	Yield**	
		lb/A	bales/A
Untreated	10.3 a	3636	3.04
RTU Baytan-Thiram 3 oz + Allegiance-FL 0.75 oz	7.9 b	3718	3.11
RTU Baytan-Thiram 3 oz + Allegiance-FL 0.75 oz + Trilex Advanced FS300 1.6 oz	7.9 b	3769	3.15
RTU Baytan-Thiram 3 oz + Allegiance-FL 0.75 oz + Trilex Flowable 0.64 oz + Baytan 30 0.25 oz + Allegiance-FL 0.75 oz	7.4 b	3358	2.81
RTU Baytan-Thiram 3 oz + Allegiance-FL 0.75 oz + V-10244 100FS 35.0 g + Dynasty CST 3.95 oz	7.4 b	3639	3.04
RTU Baytan-Thiram 3 oz + Allegiance-FL 0.75 oz + Trilex Advanced FS300 1.6 oz + Vortex FL 0.17 oz	7.6 b	3624	3.03
RTU Baytan-Thiram 3 oz + Allegiance-FL 0.75 oz + Trilex Advanced FS300 1.6 oz + Kodiak FL 0.5 oz	8.0 b	3576	2.99
LSD	1.7	n.s.	n.s.

* Counts of two randomly selected plants per row in each 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 20 Oct.
Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05), n.s. denotes not significant.

XV. COTTON SEED TREATMENT FUNGICIDE TEST (COTFUN608, TAREC Res. Farm, Suffolk, Field 16)

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

B. EXPERIMENTAL DESIGN:
1. Seed treatments in plots of two, 30-ft rows with 36 in. row spacing
2. Four randomized complete blocks separated by 15-ft alleyways

C. APPLICATION OF TREATMENTS: Seed treatments were applied by Bayer CropScience

D. TREATMENT AND RATE (OZ/CWT SEED):
1. Untreated
2. Baytan 30 0.5 oz + Allegiance FL 0.75 oz + Vortex FL 0.0856 oz
3. Trilex Advanced FS300 1.6 oz + Baytan 30 0.5 oz + Allegiance FL 0.75 oz + Vortex FL 0.0856 oz
4. Baytan 30 1.0 oz + Allegiance FL 1.5 oz + Vortex FL 0.17 oz
5. Baytan 30 1.0 oz + Allegiance FL 1.5 oz + Vortex FL 0.17 oz + Trilex Flowable 0.32 oz
6. Dynasty CST 3.95 oz

E. ADDITIONAL INFORMATION:
1. Location: TAREC Research farm
2. Crop history: peanut 2007, corn 2006, cotton 2005
3. Land preparation: rip and strip till into wheat cover crop
4. Planting date and variety: 25 Apr; FM 9063B2RF
5. Soil fertility report (Jan 2008):

pH.....	6.43	K	52 ppm
Ca	313 ppm	Zn.....	0.5 ppm
Mg	36 ppm	Mn.....	1.8 ppm
P	33 ppm	Soil type.....	Kenansville loamy fine sand

6. Herbicide:
Pre-emergence – Prowl H_2O 1 pt + Cotoran 1 qt/A (25 Apr)
Post-emergence – Roundup Ultra Max 22 fl oz/A (29 May)
Envoke 0.10 oz + MSMA 1 qt + Caparol 1.5 pt/A directed between rows (17 Jul)
7. Insecticide: Temik 15G 5 lb/A (25 Apr)
Orthene 97S 8 oz/A (19 May); 4 oz/A (29 May)
Baythroid XL 2 oz/A (4 Aug)
Baythroid XL 3 oz + Centric 2 oz/A (12 Aug)
8. Cultivation: 25 Jun
9. Growth regulator: Pentia 8 oz/A (11 Jul, 25 Jul)
10. Defoliant/Boll opener: Finish 1 qt + Def 8 oz + Dropp 3 oz/A (6 Oct)
11. Fertilization: 6-16-39 300 lb/A (3 Apr)
Liquid nitrogen (30%) N 30 lb/A (25 Jun, 12 Jul)
Liquid boron 1 qt/A (25 Jun, 11 Jul)
Mangro 5 lb/A (30 Jul)
12. Harvest date: 20 Oct

Table 52. Effect of seed treatments on emergence and growth of cotton.

Treatment and rate/cwt seed	Plants/ft[1] 16 May	Plants/ft[1] 30 May	Plant vigor[2] (0-10) (28 May)	Plant height (in.)[3] (18 Jul)
Untreated	1.24 b	1.15 c	2.0 b	21.8
Baytan 30 0.5 oz + Allegiance FL 0.75 oz + Vortex FL 0.0856 oz	1.46 ab	1.45 bc	2.3 b	20.7
Trilex Advanced FS300 1.6 oz + Baytan 30 0.5 oz + Allegiance FL 0.75 oz + Vortex FL 0.0856 oz	1.73 a	1.62 ab	2.8 a	22.0
Baytan 30 1.0 oz + Allegiance FL 1.5 oz + Vortex FL 0.17 oz	1.78 a	1.80 a	2.8 a	20.9
Baytan 30 1.0 oz + Allegiance FL 1.5 oz + Vortex FL 0.17 oz + Trilex Flowable 0.32 oz	1.56 ab	1.54 ab	2.8 a	21.2
Dynasty CST 3.95 oz	1.73 a	1.62 ab	2.8 a	20.9
LSD	0.34	0.35	0.5	n.s.

[1] Determined from counts of two, 30-ft rows per plot.
[2] Plant vigor rating scale: 0=dead, 10=healthy.
[3] Determined from measurements of three randomly selected plants per row in each plot.
Means followed by the same letter(s) in a column and group are not significantly different according to Fisher's Protected LSD (*P*=0.05), except stand counts and plant vigor ratings were analyzed at P=0.10, n.s. denotes not significant.

Table 53. Effect of seed treatments on growth and yield of cotton.

Treatment and rate/cwt seed	Flowers/ 12 ft[1] (31 Jul)	Open bolls[2] (19 Sep)	Yield[3] lb/A	Yield[3] bales/A
Untreated	23.5	7.9	3034	2.49
Baytan 30 0.5 oz + Allegiance FL 0.75 oz + Vortex FL 0.0856 oz	21.3	8.1	3137	2.57
Trilex Advanced FS300 1.6 oz + Baytan 30 0.5 oz + Allegiance FL 0.75 oz + Vortex FL 0.0856 oz	23.8	8.4	3579	2.94
Baytan 30 1.0 oz + Allegiance FL 1.5 oz + Vortex FL 0.17 oz	21.3	7.1	3095	2.54
Baytan 30 1.0 oz + Allegiance FL 1.5 oz + Vortex FL 0.17 oz + Trilex Flowable 0.32 oz	22.8	7.8	3542	2.91
Dynasty CST 3.95 oz	22.3	7.4	3364	2.76
LSD	n.s.	n.s.	n.s.	n.s.

[1] Data are counts from plants in a 6-ft section of row in each plot.
[2] Counts of two randomly selected plants per row in each plot.
[3] Weight (lb/A) includes lint + seed; bales/A are weight of lint only. Lint was 39.4% of total weight and 480 lb/bale. Plots were harvested on 20 Oct.
Means in a column are not significantly different according to Fisher's Protected LSD (*P*=0.05).

XVI. BELTWIDE SEEDLING DISEASE COMMITTEE - COTTON SEED TREATMENT FUNGICIDE TEST (COTFUN708, TAREC Res. Farm, Suffolk, Field 9B)

A. PURPOSE: To compare the benefit of new seed treatments on seed having low and high cool germ

B. EXPERIMENTAL DESIGN:
1. Split-plot design with seed treatments in main plots of four, 30-ft rows
2. Sub-plots in two rows of seed lots with low and high cool germ
3. Four randomized complete blocks separated by 15-ft alleyways

C. APPLICATION OF TREATMENTS: Seed treatments were applied by Bayer CropScience

D. TREATMENT AND RATE (OZ/CWT SEED):
1. Untreated
2. RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz
3. RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz + Trilex Advanced FS300 1.64 fl oz
4. RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz + Dynasty CST 3.95 fl oz

E. SEED LOT:
1. Low vigor: FM 9063 B2RF (warm germ 90%, cool germ 60%)
2. High vigor: FM 9063 B2RF (warm germ 95%, cool germ 80%)

F. ADDITIONAL INFORMATION:
1. Location: TAREC Research farm
2. Crop history: peanut 2007, corn 2006, cotton 2005
3. Land preparation: rip and strip till into wheat cover crop
4. Planting date and variety: 25 Apr; FM 9063 B2RF
5. Soil fertility report (Jan 2008):

pH.....	6.44	K	49 ppm
Ca	385 ppm	Zn.....	0.4 ppm
Mg	34 ppm	Mn.....	2.3 ppm
P	33 ppm	Soil type.....	Kenansville loamy fine sand

6. Herbicide:
   Pre-emergence – Prowl H_2O 1 pt + Cotoran 1 qt/A (25 Apr)
   Post-emergence – Roundup Ultra Max 22 fl oz/A (29 May)
   Envoke 0.10 oz + MSMA 1 qt + Caparol 1.5 pt/A directed between rows (17 Jul)
7. Nematicide: Temik 15G 5 lb/A (25 Apr)
8. Insecticide: Orthene 97S 8 oz/A (19 May); 4 oz/A (29 May)
   Baythroid XL 2 fl oz/A (4 Aug)
   Baythroid XL 3 fl oz + Centric 2 fl oz/A (12 Aug)
9. Cultivation: 25 Jun
10. Growth regulator: Pentia 8 fl oz/A (11 Jul, 25 Jul)
11. Defoliant/Boll opener: Finish 1 qt + Def 8 oz + Dropp 3 oz/A (3 Oct)
12. Fertilization: 6-16-39 300 lb/A (3 Apr)
    Liquid nitrogen (30%) N 30 lb/A (25 Jun, 12 Jul)
    Liquid boron 1 qt/A (25 Jun, 11 Jul)
13. Harvest date: 20 Oct

Table 54. Effect of seed treatments and seed vigor on emergence of cotton.

Treatment and rate/cwt seed	Plants/ft*			
	9 May		23 May	
	Low vigor seed	High vigor seed	Low vigor seed	High vigor seed
Untreated	1.30	1.28	1.17	1.11
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz	1.63	1.39	1.64	1.48
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz + Trilex Advanced FS300 1.64 fl oz	1.41	1.50	1.43	1.48
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz + Dynasty CST 3.95 fl oz	1.65	1.32	1.48	1.35
P(F)	.5476	.8108	.5719	.3088
Treatment mean				
Untreated	1.28		1.14	
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz	1.51		1.56	
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz + Trilex Advanced FS300 1.64 fl oz	1.46		1.45	
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz + Dynasty CST 3.95 fl oz	1.48		1.41	
Seed lot mean				
Low vigor	1.50		1.43	
High vigor	1.37		1.35	
Split-plot analysis				
Treatment	.4899		.2792	
Seed lot	.3829		.5241	
Treatment x seed lot	.6815		.9267	

* Determined from counts of two, 30-ft rows per plot.
Means in a column and group are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 55. Effect of seed treatments and seed vigor on growth of cotton.

Treatment and rate/cwt seed	Plant vigor (26 May)*		Plant height (18 Jul)**	
	Low vigor seed	High vigor seed	Low vigor seed	High vigor seed
Untreated	3.3	3.0	24.6	24.0
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz	3.3	3.8	23.3	23.6
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz + Trilex Advanced FS300 1.64 fl oz	2.8	3.5	23.5	24.9
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz + Dynasty CST 3.95 fl oz	3.3	3.3	24.0	23.5
P(F)	.8436	.4861	.1212	.2652
Treatment mean				
Untreated	3.1		24.3	
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz	3.5		23.4	
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz + Trilex Advanced FS300 1.64 fl oz	3.1		24.2	
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz + Dynasty CST 3.95 fl oz	3.3		23.8	
Seed lot mean				
Low vigor	3.1		23.9	
High vigor	3.4		24.0	
Split-plot analysis				
Treatment	.8377		.7510	
Seed lot	.3061		.6383	
Treatment x seed lot	.4463		.0555	

* Plant vigor rating scale: 1=severely stunted, 10=healthy.

** Data are measurements of three randomly selected plants per row in each plot.
Means in a column and group are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 56. Effect of seed treatments and seed vigor on growth of cotton.

Treatment and rate/cwt seed	Flowers/12 ft (31 Jul)*		Open bolls (19 Sep)**	
	Low vigor seed	High vigor seed	Low vigor seed	High vigor seed
Untreated	24.5	20.5	9.8	11.6 a
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz	24.0	22.3	7.6	8.9 b
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz + Trilex Advanced FS300 1.64 fl oz	21.8	24.3	8.3	8.4 b
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz + Dynasty CST 3.95 fl oz	20.8	23.3	9.8	9.4 b
P(F)	.4204	.7995	.1503	.0226
Treatment mean				
Untreated	22.5		10.7	
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz	23.1		8.3	
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz + Trilex Advanced FS300 1.64 fl oz	23.0		8.3	
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz + Dynasty CST 3.95 fl oz	22.0		9.6	
Seed lot mean				
Low vigor	22.8		8.9	
High vigor	22.6		9.6	
Split-plot analysis				
Treatment	.9236		.2705	
Seed lot	.9162		.1502	
Treatment x seed lot	.4883		.4459	

* Data are counts in two, 6-ft section of row in each plot.

** Counts of two randomly selected plants per row in each plot.

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

Table 57. Effect of seed treatments and seed vigor on yield of cotton.

Treatment and rate/cwt seed	Yield* lb/A Low vigor seed	Yield* lb/A High vigor seed	Yield* bales/A Low vigor seed	Yield* bales/A High vigor seed
Untreated	3201	3204	2.70	2.74
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz	3210	3276	2.71	2.80
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz + Trilex Advanced FS300 1.64 fl oz	3246	3485	2.74	2.98
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz + Dynasty CST 3.95 fl oz	3334	3213	2.81	2.74
P(F)	.9583	.7603	.9583	.7603
Treatment mean				
Untreated	3202		2.72	
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz	3243		2.75	
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz + Trilex Advanced FS300 1.64 fl oz	3365		2.86	
RTU Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz + Dynasty CST 3.95 fl oz	3273		2.78	
Seed lot mean				
Low vigor	3247		2.74	
High vigor	3294		2.81	
Split-plot analysis				
Treatment	.7858		.7841	
Seed lot	.7475		.5525	
Treatment x seed lot	.8408		.8395	

* Weight (lb/A) includes lint + seed; bales/A are weight of lint only. Lint was 40.5% of total weight for low vigor seed and 41.0% of total weight for high vigor seed. One bale equals 480 lb. Plots were harvested on 20 Oct.
Means in a column and group are not significantly different according to Fisher's Protected LSD (*P*=0.05).

XVII. RESPONSE OF COTTON TO FUNGICIDES FOR CONTROL OF FOLIAR DISEASE, BOLL ROT AND HARDLOCK (COTHARDLOCK108, TAREC, Field #46C)

A. PURPOSE: To evaluate fungicide chemistries for disease control and improvement of yield in cotton.

B. EXPERIMENTAL DESIGN:
   1. Four randomized complete blocks separated by 10 ft alleyways
   2. Four, 30-ft rows per plot with 36 in. row spacing

C. APPLICATION OF TREATMENTS: All treatments were applied with 8002VS nozzles spaced 18-inches apart and delivering 19.88 gal/A. Entire test area including the untreated control was treated with Pentia (mepiquat) according to Virginia Tech recommendations.

D. TREATMENT AND RATE/A:
   1. Untreated check
   2. Headline 2.09EC 6 fl oz + NIS 2.56 fl oz (14 days after 1st bloom)
   3. Headline 2.09EC 6 fl oz + NIS 2.56 fl oz (1st cracked boll)
   4. Caramba 0.75SL 15 fl oz (1st cracked boll)
   5. BAS 556 01 1.75EC 8 fl oz (1st cracked boll)
   6. Quadris 250SC 6 fl oz + NIS 2.56 fl oz (14 days after 1st bloom)

E. ADDITIONAL INFORMATION:
   1. Location: TAREC Research Center, Holland Rd., Suffolk, VA
   2. Crop history: peanut 2007, corn 2006, cotton 2005
   3. Planting date and cultivar: 15 May 2006, DP 454 BG/RR
   4. Soil fertility report (Jan 2008):

pH.....	6.24	K	78 ppm
Ca	542 ppm	Zn.....	0.5 ppm
Mg	55 ppm	Mn.....	2.1 ppm
P	14 ppm	Soil type.....	Nansemond fine sandy loam

   5. Herbicide:
      Pre-plant - Buccaneer 1 qt/A (3 Apr)
      Roundup Ultra Max 22 fl oz/A (9 May)
      Pre-emergence – Prowl H_2O 1.5 pt + Cotoran 1 qt/A (15 May)
      Post-emergence – Buccaneer 1 qt/A (5 Jun)
      Roundup Ultra Max 20 fl oz/A (13 Jun)
      Envoke 0.10 oz + MSMA 1 qt + Caparol 1.5 pt/A directed between rows (19 Jul)
   6. Nematicide: Temik 15G 5 lb/A (15 May)
   7. Insecticide: Orthene 97S 8 oz/A (26 Jul); Baythroid XL 2 oz/A (4 Aug)
      Baythroid XL 3 oz + Centric 2 oz/A (12 Aug)
   8. Cultivation: 26 Jun
   9. Growth regulator: Pentia 12 fl oz/A (12 Jul); 16 fl oz/A (26 Jul)
      Pix Plus 10 fl oz/A (5 Aug)
   10. Defoliant/boll opener: Finish 1 qt + Def 8 oz + Dropp 3 oz/A (14 Oct)
   11. Fertilization: 6-16-39 300 lb/A (3 Apr)
      Liquid nitrogen (30%) N 30 lb/A (24 Jun, 15 Jul)
      Liquid boron 1 qt/A (24 Jun, 12 Jul)
   12. Harvest date: 31 Oct

Table 58. Emergence and growth of cotton.

Treatment, rate/A and application date	Plants/ft (7 Jul)*	No. bolls/plant** 6 Oct		% open bolls (6 Oct)
		Total	Open	
Untreated check	2.98	11.9	4.8 a	40.7 a
Headline 2.09EC 6 fl oz + NIS 2.56 fl oz (8/4)	2.89	10.6	3.1 b	27.2 b
Headline 2.09EC 6 fl oz + NIS 2.56 fl oz (9/8)	2.98	10.4	2.9 b	27.0 b
Caramba 0.75SL 15 fl oz (9/8)	3.05	9.9	3.9 ab	38.5 ab
BAS 556 01 1.75EC 8 fl oz (9/8)	2.98	10.1	4.3 ab	37.2 ab
Quadris 250SC 6 fl oz + NIS 2.56 fl oz (8/4)	3.00	10.8	5.4 a	49.8 a
LSD	n.s.	n.s.	1.8	12.7

* Determined from counts of two, 30-ft rows per plot.
** Counts of two, randomly selected plants per row in each plot.
Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (*P*=0.05), n.s. denotes not significant.

Table 59. Growth in untreated plots of cotton at 14 days after 1st bloom.

Treatment, rate/A and application date	Flowers 12/ft (4 Aug)*	Plant ht. (in.)** (4 Aug)	No. nodes** (4 Aug)
Untreated check	30.0	39.3	13.3

* Number of flowers in one, 6-ft section per row in each plot.
** Data are measurements of three randomly-selected plants per row in each plot.

Table 60. Disease incidence and yield of cotton.

Treatment, rate/A and application date	% leaf spot (13 Oct)*		Yield**	
	top leaves	bottom leaves	lb/A	bales/A
Untreated check	43.8	11.3 b	5209 a	4.73 a
Headline 2.09EC 6 fl oz + NIS 2.56 fl oz (8/4)	42.5	12.5 ab	4879 ab	4.43 ab
Headline 2.09EC 6 fl oz + NIS 2.56 fl oz (9/8)	40.0	12.5 ab	5140 a	4.67 a
Caramba 0.75SL 15 fl oz (9/8)	42.5	13.8 ab	4583 b	4.16 b
BAS 556 01 1.75EC 8 fl oz (9/8)	36.3	10.0 b	4625 b	4.20 b
Quadris 250SC 6 fl oz + NIS 2.56 fl oz (8/4)	43.8	16.3 a	4689 b	4.26 b
LSD	n.s.	3.8	418	0.38

* Percent alternaria leaf spot and anthracnose on leaves.
** Weight (lb/A) includes lint + seed; bales/A are weight of lint only. Lint was 43.6% of total weight and 480 lb/bale. Plots were harvested on 31 Oct.
Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (*P*=0.05), except yield was analyzed at P=0.10, n.s. denotes not significant.

XVIII. YIELD AND GROWTH RESPONSE OF COTTON TREATED WITH AVICTA COMPLETE PAK AND AERIS ON SEED AND TEMIK 15G IN-FURROW (COTVARNEMA108, Rick Morgan Farm, Suffolk)

A. PURPOSE: To compare the efficacy and benefits of nematicide treatments and variety selection for control of southern root-knot nematode in cotton production

B. EXPERIMENTAL DESIGN:
1. Split-plot design with four randomized complete blocks separated by 15-ft alleyways
2. Two, 30-ft rows per plot at 38-in. row spacing and seeding rate of 3.5 seed/ft of row

C. APPLICATION OF TREATMENTS: Temik 15G was applied in-furrow (F) at planting. Avicta Complete Pak was applied by Syngenta Crop Protection and Aeris was applied by Bayer CropScience as an overcoat (O) on top of the seed company's fungicide treatment.

D. TREATMENT (Main plots):
1. Untreated check
2. Avicta Complete Pak (O): Avicta + Cruiser + Dynasty CST
3. Aeris (O): Thiodicarb + Gaucho
4. Temik 15G 5 lb/A (F)

E. VARIETY, COOL GERM AND BASE SEED TREATMENT (Sub-plots):
1. ST 4427 B2RF, 61%, Allegiance/Lorsban/Baytan/Thiram
2. ST 5458 B2RF, 82%, Allegiance/Lorsban/Baytan/Thiram
3. DP 141 B2RF, 81%, Lorsban/Apron XL/Maxim/Systhane M
4. DP 143 B2RF, 75%, Lorsban/Apron XL/Maxim/Systhane M
5. PHY 370 WR, 85%, Maxim 4FS/Apron XL/Nuflow M/Nusan 30/Lorsban
6. FM 1740 B2RF, 79%, Allegiance/Lorsban/Baytan/Thiram

F. ADDITIONAL INFORMATION:
1. Location: Rick Morgan farm, Deer Forest Road, Suffolk
2. Crop history: Cotton 2007-2001, Peanut 2000
3. Land preparation: Rip and bed rows over stale cotton beds from 2007
4. Planting date: 6 May
5. Soil fertility report (20 Mar):

pH	6.7	Mn	1.9 ppm
Ca	877 ppm	Cu	0.4 ppm
Mg	131 ppm	Fe	8.3 ppm
P	50 ppm	B	0.2 ppm
K	173 ppm		
Zn	0.8 ppm	Soil type	Rumford loamy fine sand

6. Nematode assay report (20 Mar):

Nematodes/500 cc soil			
Root knot	300	Spiral	40
Lesion	40	Stubby root	10

7. Herbicide: Prowl H_20 1 pt + Cotoran 1 qt/A (6 May)
Roundup 22 fl oz/A (17 Jun)
8. Fertilization: 11-25-25, 300 lb/A (1 May); liquid (32%) N 30 lb/A (6 Jun, 27 Jun)
9. Insecticide: Orthene 97S 8 oz/A (3 Jun)
10. Growth regulator: Pentia 8 fl oz + Induce 4 fl oz/A (14 Jul)
11. Defoliant/boll opener: Finish 1 qt/A (9 Oct)
12. Harvest date: 29 Oct

Table 61. Effect of treatments on emergence, growth and severity of thrips injury in cotton.

Variety and treatment[1]	Plants/ft[2] (7 Jun)	Vigor[3] (18 Jun)	Thrips injury[4] (18 Jun)	Plant ht. (in.)[5] (21 Jul)	Flowers/12 ft[6] (28 Jul)
ST 4427 B2RF					
Untreated Check	1.68	4.0 b	3.3 a	21.9 c	21.8
Avicta Complete Pak (O)	1.92	6.3 a	0.0 b	24.5 ab	29.3
Aeris Seed Applied System (O)	1.78	5.8 a	0.0 b	23.5 b	21.8
Temik 15G 5 lb/A (F)	1.63	6.3 a	0.0 b	25.9 a	29.0
ST 5458 B2RF					
Untreated Check	2.31	4.0 b	3.3 a	21.5 c	21.0 b
Avicta Complete Pak (O)	2.23	6.5 a	0.0 b	24.3 ab	26.8 b
Aeris Seed Applied System (O)	2.47	6.3 a	0.0 b	23.6 b	28.5 b
Temik 15G 5 lb/A (F)	2.17	7.0 a	0.0 b	25.6 a	39.8 a
DP 141 B2RF					
Untreated Check	2.10	4.3 b	3.0 a	21.8 b	28.0
Avicta Complete Pak (O)	2.26	6.0 a	0.0 b	25.3 a	26.5
Aeris Seed Applied System (O)	1.92	5.8 a	0.0 b	23.4 b	27.5
Temik 15G 5 lb/A (F)	2.13	6.3 a	0.0 b	26.6 a	32.3
DP 143 B2RF					
Untreated Check	2.24	4.0 b	3.0 a	20.6 b	27.0
Avicta Complete Pak (O)	2.35	6.3 a	0.0 b	23.2 a	25.0
Aeris Seed Applied System (O)	2.11	5.8 a	0.0 b	24.0 a	25.0
Temik 15G 5 lb/A (F)	2.28	6.0 a	0.0 b	24.4 a	26.5
PHY 370 WR					
Untreated Check	1.98	4.3 b	3.3 a	22.8 c	18.5
Avicta Complete Pak (O)	2.00	6.8 a	0.0 b	26.1 b	20.5
Aeris Seed Applied System (O)	1.80	6.3 a	0.0 b	25.2 b	23.0
Temik 15G 5 lb/A (F)	1.83	6.8 a	0.0 b	28.0 a	29.3
FM 1740 B2RF					
Untreated Check	2.55	4.5 b	3.0 a	20.5 b	24.8
Avicta Complete Pak (O)	2.30	6.0 a	0.5 b	21.5 b	28.3
Aeris Seed Applied System (O)	2.38	5.8 a	0.0 b	21.8 b	26.0
Temik 15G 5 lb/A (F)	2.43	6.5 a	0.0 b	23.6 a	29.3
Variety mean					
ST 4427 B2RF	1.75 c	5.6	0.8	23.9 b	25.4
ST 5458 B2RF	2.29 a	5.9	0.8	23.7 bc	29.0
DP 141 B2RF	2.10 b	5.6	0.8	24.3 b	28.6
DP 143 B2RF	2.24 ab	5.5	0.8	23.0 c	25.9
PHY 370 WR	1.90 c	6.0	0.8	25.5 a	22.8
FM 1740 B2RF	2.41 a	5.7	0.9	21.9 d	27.1
LSD	0.17	n.s.	n.s.	0.8	n.s.
Treatment mean					
Untreated check	2.14	4.2 c	3.1 a	21.5 c	23.5 b
Avicta Complete Pak (O)	2.18	6.3 ab	0.1 b	24.1 b	26.0 b
Aeris Seed Applied System (O)	2.08	5.9 b	0.0 b	23.6 b	25.3 b
Temik 15G 5 lb/A (F)	2.08	6.5 a	0.0 b	25.7 a	31.0 a
LSD	n.s.	0.4	0.2	0.7	4.2
***Split-plot analysis, P*(F)**					
Treatment	.7613	.0004	.0001	.0001	.0030
Variety	.0001	.1665	.7786	.0001	.1886
Treatment x variety	.5475	.9539	.5055	.9489	.7058

[1] O=overcoat treatment on top of base seed treatment, F=in furrow.
[2] Determined from counts of two, 30-ft rows per plot.
[3] Plant vigor rating scale: 1=severely stunted, 10=healthy.
[4] Thrips rating scale: 0=no damage, 10=severe thrips damage.
[5] Determined from measurements of six plants per plot.
[6] Number of flowers in a 6-ft section of row in each plot.
Means followed by different letter(s) in a column and group are significantly different (LSD, *P*=0.05), except flowers/12 ft in ST 5458 B2RF were analyzed at P=0.10, n.s. denotes not significant.

Table 62. Effect of treatments on nematode populations in cotton.

Variety and treatment*	Nematodes/500 cc soil**		
	Root-knot	Lesion	Stubby root
ST 4427 B2RF			
Untreated Check	1650	0	330
Avicta Complete Pak (O)	930	20	190
Aeris Seed Applied System (O)	720	10	180
Temik 15G 5 lb/A (F)	720	0	480
ST 5458 B2RF			
Untreated Check	240	0	210
Avicta Complete Pak (O)	580	20	230
Aeris Seed Applied System (O)	170	20	120
Temik 15G 5 lb/A (F)	1480	0	450
DP 141 B2RF			
Untreated Check	670	10	300
Avicta Complete Pak (O)	1440	10	170
Aeris Seed Applied System (O)	1340	10	40
Temik 15G 5 lb/A (F)	610	10	390
DP 143 B2RF			
Untreated Check	430	20	280
Avicta Complete Pak (O)	1110	10	340
Aeris Seed Applied System (O)	560	20	190
Temik 15G 5 lb/A (F)	560	0	150
PHY 370			
Untreated Check	990	0	450
Avicta Complete Pak (O)	1880	40	170
Aeris Seed Applied System (O)	2060	0	190
Temik 15G 5 lb/A (F)	710	0	190
FM 1740 B2RF			
Untreated Check	340	30	160
Avicta Complete Pak (O)	1240	70	210
Aeris Seed Applied System (O)	2090	20	190
Temik 15G 5 lb/A (F)	1210	0	460
Variety mean			
ST 4427 B2RF	1005	8	295
ST 5458 B2RF	618	10	253
DP 141 B2RF	1015	10	225
DP 143 B2RF	665	13	240
PHY 370 WR	1410	10	250
FM 1740 B2RF	1220	30	255
LSD	n.s.	n.s.	n.s.
Treatment mean			
Untreated Check	720	10 bc	288 ab
Avicta Complete Pak (O)	1197	28 a	218 ab
Aeris Seed Applied System (O)	1157	13 ab	152 b
Temik 15G 5 lb/A (F)	882	2 c	353 a
LSD	n.s.	16	137

* O=overcoat treatment on top of base seed treatment, F=in furrow.

** Soil was sampled on 11 Aug. Data are counts of nematodes in a composite sample from four reps of each treatment/variety combination.
Means followed by different letter(s) in a column and group are significantly different (LSD, *P*=0.10), n.s. denotes not significant.

Table 63. Effect of treatments on open bolls, root galling, and yield of cotton.

Variety, treatment and rate[1]	Open bolls[2] (22 Sep)	Root galling[3] (7 Nov)	Yield[4] lb/A	Yield[4] bales/A
ST 4427 B2RF				
Untreated Check	4.8	3.88 a	2164	1.82
Avicta Complete Pak (O)	5.7	2.69 b	2385	2.00
Aeris Seed Applied System (O)	4.3	4.13 a	2448	2.06
Temik 15G 5 lb/A (F)	5.1	3.44 ab	2680	2.25
ST 5458 B2RF				
Untreated Check	2.8 c	2.38 a	2605	2.23
Avicta Complete Pak (O)	3.5 bc	1.56 b	2898	2.48
Aeris Seed Applied System (O)	3.6 b	2.00 ab	2795	2.39
Temik 15G 5 lb/A (F)	4.4 a	1.44 b	3199	2.73
DP 141 B2RF				
Untreated Check	4.3	3.63 b	2485	2.05
Avicta Complete Pak (O)	4.4	3.56 b	2809	2.31
Aeris Seed Applied System (O)	5.3	4.31 a	2901	2.39
Temik 15G 5 lb/A (F)	4.6	3.19 b	3133	2.58
DP 143 B2RF				
Untreated Check	3.8	3.38 b	2150	1.77
Avicta Complete Pak (O)	4.1	3.38 b	2978	2.45
Aeris Seed Applied System (O)	4.1	4.00 a	2872	2.36
Temik 15G 5 lb/A (F)	4.6	3.06 b	2932	2.41
PHY 370 WR				
Untreated Check	4.3	3.06 b	2026	1.82
Avicta Complete Pak (O)	4.8	3.13 b	2502	2.24
Aeris Seed Applied System (O)	4.6	4.56 a	2617	2.34
Temik 15G 5 lb/A (F)	5.3	3.38 b	2723	2.44
FM 1740 B2RF				
Untreated Check	4.0 b	2.88 b	1995	1.79
Avicta Complete Pak (O)	4.6 b	2.69 b	2534	2.27
Aeris Seed Applied System (O)	4.4 b	4.38 a	2565	2.30
Temik 15G 5 lb/A (F)	5.6 a	2.44 b	2327	2.09
Variety mean				
ST 4427 B2RF	4.9 a	3.53 a	2419 c	2.03 c
ST 5458 B2RF	3.6 c	1.84 c	2874 a	2.46 a
DP 141 B2RF	4.6 a	3.67 a	2832 a	2.33 ab
DP 143 B2RF	4.1 b	3.45 ab	2733 ab	2.25 a-c
PHY 370 WR	4.7 a	3.53 a	2467 bc	2.21 bc
FM 1740 B2RF	4.6 a	3.09 b	2355 c	2.11 bc
LSD	0.5	0.40	2.68	0.23
Treatment mean				
Untreated check	4.0	3.20	2238 b	1.91 b
Avicta Complete Pak (O)	4.5	2.83	2684 a	2.29 a
Aeris Seed Applied System (O)	4.4	3.90	2700 a	2.31 a
Temik 15G 5 lb/A (F)	4.9	2.82	2832 a	2.42 a
LSD	n.s.	n.s.	182	0.16
***Split-plot analysis, P*(F)**				
Treatment	.1316	.1242	.0820	.0822
Variety	.0001	.0001	.0002	.0078
Treatment x variety	.1943	.0557	.9239	.9294

[1] O=overcoat treatment on top of base seed treatment, F=in furrow.

[2] Mean of counts on four plants per plot.

[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 four randomly selected plants per plot.

[4] Weight (lb/A) includes lint + seed; bales/A are weight of lint only. Lint weight (480 lb/bale) was determined by ginning samples of seed cotton from each variety. Plots were harvested on 29 Oct.

Means followed by different letter(s) in a column and group are significantly different at *P*=0.05, except root galling in ST 4427 B2RF and DP 143 B2RF, and treatment mean for yield were analyzed at P=0.10, n.s. denotes not significant.

XIX. SYNGENTA COTTON SEED TREATMENT NEMATICIDE TEST (COTNEMA108, Rick Morgan Farm, Suffolk)

A. PURPOSE: To compare the efficacy of seed treatment nematicides to Temik 15G in furrow

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks separated by 15-ft alleys
2. Two, 30-ft rows per plot with 38-in. row spacing

C. APPLICATION OF TREATMENTS: Temik 15G was applied in-furrow (F) at planting. Seed treatments (S) were applied to seed by Syngenta Crop Protection; all treatments received A15436 FS 31.0 g/100 kg seed as a base fungicide treatment.

D. TREATMENT AND RATE (a.i. unless specified otherwise):
1. Cruiser 5FS 0.342 mg/seed (S)
2. Temik 15G 5 lb/A (F)
3. Dynasty 100FS 0.034 mg + Cruiser 5FS 0.342 mg + Avicta 4.17FS 0.145 mg/seed (S)
4. Dynasty CST 125FS 0.034 mg + A16115A SC 0.5 mg/seed (S)
5. Dynasty CST 125FS 0.034 mg + A16115B SC 0.5 mg/seed (S)
6. Dynasty CST 125FS 0.034 mg + A16115C SC 0.5 mg/seed (S)
7. Dynasty CST 125FS 0.034 mg + A16115A SC 0.5 mg/seed + EXC3405 SL 29.57 ml/100 kg seed (S)
8. Dynasty CST 125FS 0.034 mg + A16115A SC 0.5 mg + ASF271B 0.075 mg/seed (S)
9. Allegiance LS 15.0 g + Baytan 30FS 5.0 g + Trilex Flowable FS 10.0 g/100 kg seed + STP15273 0.375 mg + STP17217 0.375 mg/seed (S)

E. ADDITIONAL INFORMATION:
1. Location: Rick Morgan farm, Deer Forest Road, Suffolk
2. Crop history: cotton 2007-2001, peanut 2000
3. Planting date and variety: 5 May, DP 143 B2RF
4. Land preparation: Rip and bed rows over stale cotton beds from 2007
5. Soil fertility report (20 Mar):

pH	6.7	Mn	1.9 ppm
Ca	877 ppm	Cu	0.4 ppm
Mg	131 ppm	Fe	8.3 ppm
P	50 ppm	B	0.2 ppm
K	173 ppm		
Zn	0.8 ppm	Soil type	Rumford loamy fine sand

6. Nematode assay report (20 Mar):

Nematodes/500 cc soil			
Root knot	300	Spiral	40
Lesion	40	Stubby root	10

7. Herbicide: Prowl H_20 1 pt + Cotoran 1 qt/A (6 May)
Roundup 22 fl oz/A (17 Jun)
8. Fertilization: 11-25-25, 300 lb/A (1 May); 32% N 60 units/A (6 Jun, 27 Jun)
9. Insecticide: Orthene 97S 8 oz/A (3 Jun)

10. Growth regulator: Pentia 8 fl oz + Induce 4 fl oz/A (14 Jul)
11. Defoliant/boll opener: Finish 1 qt/A (9 Oct)
12. Harvest date: 29 Oct

Table 64. Effect of treatments on emergence, growth and thrips injury in cotton.

Treatment and application method[1]	Plants/ft[2]		Vigor[3] (18 Jun)	Thrips injury (0-10)[4] (18 Jun)
	19 May	2 Jun		
Cruiser 5FS 0.342 mg/seed (S)	2.43 cd	2.346 e	5.3	2.0 a
Temik 15G 5 lb/A (F)	2.57 b-d	2.725 d	6.0	1.5 ab
Dynasty 100FS 0.034 mg + Cruiser 5FS 0.342 mg + Avicta 4.17FS 0.145 mg/seed (S)	2.34 d	2.404 e	5.3	1.8 ab
Dynasty CST 125FS 0.034 mg + A16115A SC 0.5 mg/seed (S)	3.05 a	3.329 a	5.8	1.0 bc
Dynasty CST 125FS 0.034 mg + A16115B SC 0.5 mg/seed (S)	2.79 ab	2.908 b-d	5.5	1.0 bc
Dynasty CST 125FS 0.034 mg + A16115C SC 0.5 mg/seed (S)	2.69 bc	3.142 ab	5.8	1.0 bc
Dynasty CST 125FS 0.034 mg + A16115A SC 0.5 mg/seed + EXC3405 SL 29.57 ml/100 kg seed (S)	2.74 a-c	3.029 bc	5.8	1.3 a-c
Dynasty CST 125FS 0.034 mg + A16115A SC 0.5 mg + ASF271B 0.075 mg/seed (S)	2.77 a-c	3.033 a-c	5.0	2.0 a
Allegiance LS 15.0 g + Baytan 30FS 5.0 g + Trilex Flowable FS 10.0 g/100 kg seed + STP15273 0.375 mg + STP17217 0.375 mg/seed (S)	2.54 b-d	2.829 cd	5.5	0.5 c
LSD	0.34	0.297	n.s.	0.8

[1] S=seed treatment, F=in furrow. All treatments received A15436 FS 31.0 g/100 kg seed as a base fungicide treatment.
[2] Determined from counts of two, 30-ft rows per plot.
[3] Plant vigor rating scale: 1=severely stunted, 10=healthy.
[4] Thrips injury rating scale: 0=no damage, 10=severe damage.
Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (*P*=0.05), except thrips injury was analyzed at P=0.10, n.s. denotes not significant.

Table 65. Effect of treatments on nematode populations in cotton.

Treatment and application method*	Nematodes/500 cc soil**					
	18 Jun		22 Jul		3 Oct	
	Root knot juveniles	Stubby root	Root knot juveniles	Stubby root	Root knot juveniles	Stubby root
Cruiser 5FS 0.342 mg/seed (S)	330	70	2040	40	3830	110
Temik 15G 5 lb/A (F)	100	90	1200	130	3250	150
Dynasty 100FS 0.034 mg + Cruiser 5FS 0.342 mg + Avicta 4.17FS 0.145 mg/seed (S)	60	50	1040	60	2350	290
Dynasty CST 125FS 0.034 mg + A16115A SC 0.5 mg/seed (S)	120	20	2620	150	7710	120
Dynasty CST 125FS 0.034 mg + A16115B SC 0.5 mg/seed (S)	170	30	3640	80	4560	80
Dynasty CST 125FS 0.034 mg + A16115C SC 0.5 mg/seed (S)	210	70	2570	40	3090	80
Dynasty CST 125FS 0.034 mg + A16115A SC 0.5 mg/seed + EXC3405 SL 29.57 ml/100 kg seed (S)	160	40	2450	90	4980	140
Dynasty CST 125FS 0.034 mg + A16115A SC 0.5 mg + ASF271B 0.075 mg/seed (S)	30	70	970	150	4850	160
Allegiance LS 15.0 g + Baytan 30FS 5.0 g + Trilex Flowable FS 10.0 g/100 kg seed + STP15273 0.375 mg + STP17217 0.375 mg/seed (S)	70	0	1490	70	5080	240

* S=seed treatment, F=in furrow. All treatments received A15436 FS 31.0 g/100 kg seed as a base fungicide treatment.

** Data are counts of nematodes in a composite sample from four reps of each treatment.

Table 66. Effect of treatments on growth and severity of root galling in cotton.

Treatment and application method[1]	Root galling[2] 9 Jul	Root galling[2] 10 Nov	Plant height (in.)[3] (21 Jul)	Flowers/ 12 ft[4] (21 Jul)	No. squares/ plant[5] (22 Jul)
Cruiser 5FS 0.342 mg/seed (S)	4.3 a	4.6 a	22.3 b	10.8	11.7
Temik 15G 5 lb/A (F)	1.7 c	2.1 e	24.2 a	16.5	12.8
Dynasty 100FS 0.034 mg + Cruiser 5FS 0.342 mg + Avicta 4.17FS 0.145 mg/seed (S)	3.4 b	2.6 de	22.6 b	11.3	11.7
Dynasty CST 125FS 0.034 mg + A16115A SC 0.5 mg/seed (S)	4.3 a	3.8 b	23.3 ab	13.0	12.4
Dynasty CST 125FS 0.034 mg + A16115B SC 0.5 mg/seed (S)	3.7 ab	2.9 cd	23.3 ab	12.3	11.0
Dynasty CST 125FS 0.034 mg + A16115C SC 0.5 mg/seed (S)	3.9 ab	3.4 bc	24.0 a	18.3	12.2
Dynasty CST 125FS 0.034 mg + A16115A SC 0.5 mg/seed + EXC3405 SL 29.57 ml/100 kg seed (S)	3.6 b	2.7 c-e	23.2 ab	16.8	10.7
Dynasty CST 125FS 0.034 mg + A16115A SC 0.5 mg + ASF271B 0.075 mg/seed (S)	3.6 b	2.8 c-e	20.8 c	9.3	11.0
Allegiance LS 15.0 g + Baytan 30FS 5.0 g + Trilex Flowable FS 10.0 g/100 kg seed + STP15273 0.375 mg + STP17217 0.375 mg/seed (S)	4.3 a	2.9 cd	24.3 a	13.5	12.4
P(F)	.0001	0.001	.0001	.1046	.3402

[1] S=seed treatment, F=in furrow. All treatments received A15436 FS 31.0 g/100 kg seed as a base fungicide 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 caused by southern root-knot nematode. Ratings were made on five randomly selected plants per row in each plot on 9 Jul and two randomly selected plants per row in each plot on 10 Nov.

[3] Data are measurements of three plants per row in each plot.

[4] Number of flowers in one, 6-ft section per row in each plot.

[5] Counts of squares on 5 plants/row in each plot.

Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (*P*=0.05), except for root gall ratings which were analyzed using Student-Newman-Keuls test (*P*=0.05).

Table 67. Effect of treatments on earliness and yield of cotton.

Treatment and application method[1]	Open bolls[2] (19 Sep)	Yield[3]	
		lb/A	bales/A
Cruiser 5FS 0.342 mg/seed (S)	3.9	2828	2.30
Temik 15G 5 lb/A (F)	4.0	3046	2.48
Dynasty 100FS 0.034 mg + Cruiser 5FS 0.342 mg + Avicta 4.17FS 0.145 mg/seed (S)	3.4	2668	2.17
Dynasty CST 125FS 0.034 mg + A16115A SC 0.5 mg/seed (S)	3.1	2874	2.33
Dynasty CST 125FS 0.034 mg + A16115B SC 0.5 mg/seed (S)	3.4	3276	2.66
Dynasty CST 125FS 0.034 mg + A16115C SC 0.5 mg/seed (S)	3.1	3279	2.66
Dynasty CST 125FS 0.034 mg + A16115A SC 0.5 mg/seed + EXC3405 SL 29.57 ml/100 kg seed (S)	4.0	2786	2.26
Dynasty CST 125FS 0.034 mg + A16115A SC 0.5 mg + ASF271B 0.075 mg/seed (S)	2.9	2692	2.19
Allegiance LS 15.0 g + Baytan 30FS 5.0 g + Trilex Flowable FS 10.0 g/100 kg seed + STP15273 0.375 mg + STP17217 0.375 mg/seed (S)	3.6	3064	2.49
P(F)	.1396	.1025	.1025

[1] S=seed treatment, F=in furrow. All treatments received A15436 FS 31.0 g/100 kg seed as a base fungicide treatment.
[2] Data are counts of two randomly-selected plants per row in each plot.
[3] Weight (lb/A) includes lint + seed; bales/A are weight of lint only. Lint was 39.0% of total weight and 480 lb/bale. Plots were harvested on 29 Oct.
Means in a column are not significantly different according to Fisher's Protected LSD (*P*=0.05).

XX. BAYER COTTON SEED TREATMENT NEMATICIDE TEST (COTNEMA208, TAREC Res. Farm, Suffolk, Field 16B)

A. PURPOSE: To compare the efficacy of seed treatment nematicides to Aeris Seed Applied System

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks separated by 15-ft alleys
2. Two, 30-ft rows per plot with 36-in. row spacing

C. APPLICATION OF TREATMENTS: Overcoat seed treatments (O) were applied to seed by Bayer CropScience; all treatments received (a.i.) Baytan 30 32.5 ml + Vortex FL 2.5 g + Allegiance FL 15.6 g + Calcium Carbonate 500 g + Suspending Agent 25 g +Precise S Finisher 1005 522 ml + Pro-ized Blue Colorant 65 ml/100 kg seed as a base fungicide treatment. Temik 15G was applied in-furrow (F) at planting.

D. TREATMENT AND RATE (a.i. unless otherwise noted):
1. Gaucho Grande 0.375 mg/seed (O)
2. Aeris Seed Applied System 0.75 mg/seed (O)
3. Aeris Seed Applied System 0.75 mg/seed + L1460 1E6/seed 0.1 oz/cwt (O)
4. Aeris Seed Applied System 0.75 mg/seed + L1460 5E6/seed 0.1 oz/cwt (O)
5. Aeris Seed Applied System 0.75 mg/seed + L1460 1E7/seed 0.1 oz/cwt (O)
6. L1859 0.75 mg/seed (O)
7. Gaucho Grande 0.375 mg + L1460 5E6/seed 0.1 oz/cwt (O)
8. Cruiser 600FS 0.34 mg + Avicta 500FS 0.15 mg/seed (O)
9. Temik 15G 5 lb/A (F)

E. ADDITIONAL INFORMATION:
1. Location: TAREC Res. Farm
2. Crop history: peanut 2007, corn 2006, cotton 2005
3. Land preparation: rip and strip till into wheat cover crop
4. Planting date and cultivar: 5 May, ST 4554 B2RF
5. Soil fertility report (Jan 2008):

pH	6.43	K	52 ppm
Ca	313 ppm	Zn	0.5 ppm
Mg	36 ppm	Mn	1.8 ppm
P	33 ppm	Soil type	Kenansville loamy fine sand

6. Nematode assay report (30 Apr):
Nematodes/500 cc soil:

Root knot	120
Stunt	130
Ring	240
Stubby root	40

7. Herbicide:
Pre-emergence – Prowl H_2O 1 pt + Cotoran 1 qt/A (25 Apr, 6 May)
Post-emergence – Roundup Ultra Max 22 fl oz/A (29 May)
Envoke 0.10 oz + MSMA 1 qt + Caparol 1.5 pt/A directed between rows (17 Jul)

8. Insecticide: Orthene 97S 4 oz/A (29 May)
   Baythroid XL 2 fl oz/A (4 Aug)
   Baythroid XL 3 fl oz + Centric 2 fl oz/A (12 Aug)
9. Cultivation: 25 Jun
10. Growth regulator: Pentia 8 oz/A (11 Jul, 25 Jul)
11. Defoliant/boll opener: Finish 1 qt + Def 8 oz + Dropp 3 oz/A (6 Oct)
12. Fertilization: 6-16-39 300 lb/A (3 Apr)
    Liquid nitrogen (30%) N 30 lb/A (25 Jun, 12 Jul)
    Liquid boron 1 qt/A (25 Jun, 11 Jul)
    Mangro 5 lb/A (30 Jul)
13. Harvest date: 22 Oct

Table 68. Effect of treatments on emergence and growth of cotton.

Treatment, rate and application method[1]	Plants/ft[2] (29 May)	Plant height (in.)[3] (18 Jul)	Flowers/ 12 ft[4] (18 Jul)	Open bolls[5] (16 Sep)
Gaucho Grande 0.375 mg/seed (O)	1.69 ab	23.2 ab	4.0	6.2
Aeris Seed Applied System 0.75 mg/seed (O)	1.66 ab	22.5 bc	5.5	5.4
Aeris Seed Applied System 0.75 mg/seed + L1460 1E6/seed 0.1 oz/cwt (O)	1.42 c	22.3 bc	2.0	5.1
Aeris Seed Applied System 0.75 mg/seed + L1460 5E6/seed 0.1 oz/cwt (O)	1.55 bc	21.2 c	1.8	5.1
Aeris Seed Applied System 0.75 mg/seed + L1460 1E7/seed 0.1 oz/cwt (O)	1.54 bc	22.9 ab	4.0	6.0
L1859 0.75 mg/seed (O)	1.64 ab	22.7 bc	4.5	7.0
Gaucho Grande 0.375 mg + L1460 5E6/seed 0.1 oz/cwt (O)	1.60 bc	22.8 ab	5.8	5.8
Cruiser 600FS 0.34 mg + Avicta 500FS 0.15 mg/seed (O)	1.84 a	21.6 bc	3.5	5.6
Temik 15G 5 lb/A (F)	1.63 a-c	24.4 a	5.0	5.2
LSD	0.22	1.6	n.s.	n.s.

[1] O=overcoat treatment, F=in furrow.
[2] Determined from counts of two, 30-ft rows per plot.
[3] Measurements of three randomly selected plants per row in each plot.
[4] Number of flowers in two, 6-ft sections of row from each plot.
[5] Plant mean for counts of four plants in each plot.
Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05), n.s. denotes not significant.

Table 69. Effect of treatments on nematode populations in cotton.

Treatment, rate and application method*	Nematodes/500 cc soil**					
	Root knot	Lesion	Stunt	Ring	Stubby root	Sting
Gaucho Grande 0.375 mg/seed (O)	260	0	10	90	20	10
Aeris Seed Applied System 0.75 mg/seed (O)	20	10	100	450	20	0
Aeris Seed Applied System 0.75 mg/seed + L1460 1E6/seed 0.1 oz/cwt (O)	110	10	10	350	40	0
Aeris Seed Applied System 0.75 mg/seed + L1460 5E6/seed 0.1 oz/cwt (O)	30	0	20	310	20	30
Aeris Seed Applied System 0.75 mg/seed + L1460 1E7/seed 0.1 oz/cwt (O)	440	10	20	70	60	10
L1859 0.75 mg/seed (O)	50	0	20	30	10	0
Gaucho Grande 0.375 mg + L1460 5E6/seed 0.1 oz/cwt (O)	40	10	10	570	30	0
Cruiser 600FS 0.34 mg + Avicta 500FS 0.15 mg/seed (O)	90	10	40	310	30	0
Temik 15G 5 lb/A (F)	460	0	40	440	70	10

* O=overcoat treatment, F=in furrow.
** Soil was sampled on 12 Aug. Data are counts of nematodes in a composite sample from four reps of each treatment.

Table 70. Effect of treatments on yield of cotton.

Treatment, rate and application method*	Yield**	
	lb/A	bales/A
Gaucho Grande 0.375 mg/seed (O)	2919	2.44
Aeris Seed Applied System 0.75 mg/seed (O)	3443	2.88
Aeris Seed Applied System 0.75 mg/seed + L1460 1E6/seed 0.1 oz/cwt (O)	3243	2.71
Aeris Seed Applied System 0.75 mg/seed + L1460 5E6/seed 0.1 oz/cwt (O)	3204	2.68
Aeris Seed Applied System 0.75 mg/seed + L1460 1E7/seed 0.1 oz/cwt (O)	3143	2.63
L1859 0.75 mg/seed (O)	3346	2.80
Gaucho Grande 0.375 mg + L1460 5E6/seed 0.1 oz/cwt (O)	3315	2.77
Cruiser 600FS 0.34 mg + Avicta 500FS 0.15 mg/seed (O)	3409	2.85
Temik 15G 5 lb/A (F)	3382	2.83
LSD	n.s.	n.s.

* O=overcoat treatment, F=in furrow.
** 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 22 Oct.
Means are not significantly different (n.s.) according to Fisher's Protected LSD (P=0.05).

XXI. BELTWIDE NEMATODE RESEARCH AND EDUCATION COMMITTEE 2008 RESEARCH PROTOCOL (COTNEMA308 – TAREC Res. Farm, Suffolk, Field 16B)

A. PURPOSE: To compare the efficacy and benefits of nematicide treatments for control of southern root-knot nematode

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks separated by 15-ft alleys
2. Split-plot design with main plots of varieties and subplots of treatments
3. Two, 30-ft rows per plot with 36-in. row spacing

C. APPLICATION OF TREATMENTS: Temik 15G was applied in-furrow (F) at planting

D. VARIETY (Main plots):
1. ST 5599 BR
2. ST 4554 B2RF
3. ST 5458 B2RF
4. PHY 370 WR
5. DP 143 B2RF

E. TREATMENT AND RATE (Sub-plots):
1. Untreated check
2. Temik 15G 5 lb/A (F)

F. ADDITIONAL INFORMATION:
1. Location: TAREC Research farm, Hare Rd., Suffolk
2. Crop history: peanut 2007, corn 2006, cotton 2005
3. Land preparation: Rip and strip till into wheat cover crop
4. Planting date: 25 Apr
5. Soil fertility report (Jan 2008):

pH	6.43	K	52 ppm
Ca	313 ppm	Zn	0.5 ppm
Mg	36 ppm	Mn	1.8 ppm
P	33 ppm	Soil type	Kenansville loamy fine sand

6. Nematode assay report (30 Apr):

Nematodes/500 cc soil:	
Root knot	430*
Ring	820

*Count was northern root-knot nematode which was parasitic on peanut in 2007.

7. Herbicide:
Pre-emergence – Prowl H_2O 1 pt + Cotoran 1 qt/A (25 Apr)
Post-emergence – Roundup Ultra Max 22 fl oz/A (29 May)
Envoke 0.10 oz + MSMA 1 qt + Caparol 1.5 pt/A directed spray (17 Jul)
8. Insecticide: Orthene 97S 8 oz/A (19 May); 4 oz/A (29 May)
Baythroid XL 2 oz/A (4 Aug)
Baythroid XL 3 oz + Centric 2 oz/A (12 Aug)
9. Cultivation: 26 Jun
10. Growth regulator: Pentia 8 oz/A (11 Jul, 25 Jul)

11. Defoliant/Boll opener: Finish 1 qt + Def 8 oz + Dropp 3 oz/A (6 Oct)
12. Fertilization: 6-16-39 300 lb/A (3 Apr)
    Liquid nitrogen (30%) 30 lb/A (25 Jun, 12 Jul)
    Liquid boron 1 qt/A (25 Jun, 11 Jul)
    Mangro 5 lb/A (30 Jul)
13. Harvest date: 22 Oct

Table 71. Effect of treatments on emergence and growth of cotton.

Variety and treatment[1]	Plants/ft[2] 15 May	Plants/ft[2] 29 May	Plants/ft[2] 9 Jun	Flowers/ 12 ft[3] (18 Jul)	Plant ht. (in.)[4] (18 Jul)	Open bolls[5] (16 Sep)
ST 5599 BR						
Untreated Check.....	1.14	1.09	1.09	9.5	25.7	6.8
Temik 15G 5 lb/A (F) ...	1.32	1.23	1.24	12.5	24.7	5.8
ST 4554 B2RF						
Untreated Check.....	1.40	1.25	1.10	8.0	22.7	6.0 b
Temik 15G 5 lb/A (F) ...	1.52	1.33	1.35	11.8	25.9	8.5 a
ST 5458 B2RF						
Untreated Check.....	1.72	1.66	1.67	12.3	24.1	6.0
Temik 15G 5 lb/A (F) ...	1.81	1.65	1.63	11.5	23.9	6.1
PHY 370 WR						
Untreated Check.....	0.90 b	0.79 b	0.75 b	8.3	24.6	7.7
Temik 15G 5 lb/A (F) ...	1.16 a	1.06 a	1.11 a	7.3	27.2	7.8
DP 143 B2RF						
Untreated Check.....	1.02	0.92	1.03	7.5	23.6	5.4 b
Temik 15G 5 lb/A (F) ...	1.15	1.08	1.18	9.3	24.0	7.7 a
Variety mean						
ST 5599 BR	1.24 bc	1.16 bc	1.16 bc	11.0	25.2	6.3
ST 4554 B2RF	1.46 b	1.29 b	1.22 b	9.9	24.3	7.3
ST 5458 B2RF	1.76 a	1.66 a	1.65 a	11.9	24.0	6.0
PHY 370 WR	1.03 c	0.93 d	0.93 c	7.8	25.9	7.7
DP 143 B2RF	1.08 c	1.00 cd	1.10 bc	8.4	23.8	6.5
LSD	0.26	0.23	0.24	n.s.	--	--
Treatment mean						
Untreated check	1.24 b	1.14 b	1.13 b	9.1	24.1	6.4
Temik 15G 5 lb/A (F) ...	1.39 a	1.27 a	1.30 a	10.5	25.1	7.2
LSD	0.13	0.12	0.15	n.s.	--	--
***Split-plot analysis, P*(F)**						
Variety.....	.0005	.0005	.0035	.4619	.4977	.0153
Treatment	.0574	.0825	.0301	.2641	.0034	.0259
Treatment x variety	.9576	.7700	.5353	.6128	.0021	.0084

[1] F=in furrow.
[2] Determined from counts of two, 30-ft rows per plot.
[3] Data are number of flowers per two, 6-ft sections of row in each plot.
[4] Determined from measurements of six plants per plot.
[5] Counts of two, randomly selected plants per row in each plot.
Means followed by different letter(s) in a column and group are significantly different according Fisher's Protected LSD, (*P*=0.05), n.s. denotes not significant, -- LSD not reported due to significant variety by treatment interaction.

Table 72. Effect of treatments on nematode populations in cotton.

	Nematodes/500 cc soil**							
	19 Jun		12 Aug					
Variety and treatment*	Root knot	Ring	Root knot	Lesion	Stunt	Ring	Stubby root	Sting
ST 5599 BR								
Untreated Check.....	270	260	20	0	0	150	0	0
Temik 15G 5 lb/A (F) ..	690	490	60	0	20	140	30	10
ST 4554 B2RF								
Untreated Check.....	10	140	20	20	20	180	30	30
Temik 15G 5 lb/A (F) ..	190	240	30	0	0	230	10	50
ST 5458 B2RF								
Untreated Check.....	120	140	30	0	0	190	20	0
Temik 15G 5 lb/A (F) ..	250	710	220	20	30	810	30	0
PHY 370 WR								
Untreated Check.....	110	100	60	10	0	210	20	0
Temik 15G 5 lb/A (F) ..	270	300	40	10	0	110	20	0
DP 143 B2RF								
Untreated Check.....	0	220	10	0	10	80	50	0
Temik 15G 5 lb/A (F) ..	40	380	10	0	0	190	20	10

* F=in furrow.

** Data are counts of nematodes in a composite sample from four reps of each variety/treatment combination.

Table 73. Effect of treatments on yield of cotton.

Variety and treatment*	Yield** lb/A	Yield** bales/A
ST 5599 BR		
Untreated Check	2928	2.59
Temik 15G 5 lb/A (F)	3191	2.83
ST 4554 B2RF		
Untreated Check	3031	2.62
Temik 15G 5 lb/A (F)	3721	3.22
ST 5458 B2RF		
Untreated Check	3518	3.08
Temik 15G 5 lb/A (F)	3715	3.25
PHY 370 WR		
Untreated Check	2768 b	2.34 b
Temik 15G 5 lb/A (F)	3424 a	2.89 a
DP 143 B2RF		
Untreated Check	2983	2.45
Temik 15G 5 lb/A (F)	3439	2.83
Variety mean		
ST 5599 BR	3060	2.71
ST 4554 B2RF	3376	2.92
ST 5458 B2RF	3616	3.16
PHY 370 WR	3096	2.61
DP 143 B2RF	3211	2.64
LSD	n.s.	n.s.
Treatment mean		
Untreated check	3046 b	2.62 b
Temik 15G 5 lb/A (F)	3498 a	3.00 a
LSD	308	0.26
***Split-plot analysis, P*(F)**		
Variety	.2392	.1256
Treatment	.0069	.0070
Treatment x variety	.7525	.7624

* F=in furrow.

** Weight (lb/A) includes lint + seed; bales/A are weight of lint only. Lint was determined by ginning each variety and was 480 lb/bale. Plots were harvested on 22 Oct.
Means followed by different letter(s) in a column and group are significantly different according Fisher's Protected LSD, (*P*=0.05), except yield for PHY 370WR was analyzed at P=0.10.

XXII. BAYER PEANUT SEED TREATMENT TEST (PSEED108, TAREC Res. Farm, Suffolk, Field 14)

A. PURPOSE: To compare the efficacy and benefit of seed treatment fungicides for control of seedling diseases of peanut

B. EXPERIMENTAL DESIGN:
1. Four randomized complete blocks separated by 15-ft alleyways
2. Two, 35-ft rows/plot spaced 36-in. apart and planted to 4 seed/ft of row

C. APPLICATION OF TREATMENTS: Seed treatments (S) were applied to seed with a Gustafson lab treater

D. TREATMENT AND RATE:
1. Untreated
2. Trilex Star 4 oz/cwt (S)
3. Trilex Optimum 4 oz/cwt (S)
4. Dynasty PD 4 oz/cwt (S)
5. Vitavax PC 4 oz/cwt (S)
6. Kodiak Concentrate 0.25 oz/cwt (S)
7. Kodiak Concentrate 0.25 oz + Trilex Star 4 oz/cwt (S)

E. ADDITIONAL INFORMATION:
1. Location: TAREC Research Farm, Hare Rd., Suffolk
2. Crop History: cotton 2007, corn 2006, peanut 2005
3. Planting date and cultivar: 19 Apr; Brantley, Lot B001C – 70% germ
4. Land preparation: Disk, plow, disk and level with field cultivator
5. Soil fertility report (Jan 2008):

pH	6.69	K	72 ppm
Ca	235 ppm	Zn	0.4 ppm
Mg	47 ppm	Mn	1.8 ppm
P	19 ppm	Soil type	Eunola loamy fine sand

6. Nematode assay report (30 Apr):

Nematodes/500 cc soil:	
Stunt	50
Ring	10
Stubby root	50

7. Herbicide:
Pre-plant - Prowl H_2O 1 pt + Dual II Magnum 1 pt/A (19 Apr)
Pre-emergence - Dual II Magnum 1 pt/A (6 May)
Post-emergence – Poast Plus 1EC 1.5 pt/A (2 Sep)
8. Insecticide: Temik 15G 7 lb/A (1 May)
Orthene 97S 8 oz/A (19 May, 3 Jun)
Lorsban 15G 13 lb/A (19 Jun)
Baythroid XL 3 fl oz/A (2 Sep)
9. Acaricide: Danitol 16 fl oz/A (13 Aug)
10. Leaf spot control: Folicur 7.2 fl oz + Induce 1.2 fl oz/A (16 Jul)
Provost 9 fl oz/A (12 Aug)
Headline 9 fl oz/A (9 Sep)

11. Sclerotinia blight control: Omega 1 pt/A (12 Aug, 9 Sep)
12. Additional crop management:
    a. Liquid boron 1 qt/A (26 Mar)
    b. Landplaster: Peanut Maker 1200 lb/A (14 Jun)
    c. Cultivation: 19 Jun
    d. Liquid Mn 3 pt/A (25 Jun); 1 qt/A (16 Jul, 12 Aug)
13. Harvest date: 7 Oct 2008

Table 74. Effect of seed treatments on emergence and growth of peanut.

Treatment and rate/ cwt seed[1]	Plants/ft[2]		Mainstem height (in.)[3]
	14 May	29 May	(1 Aug)
Untreated	1.08 b	1.26 b	11.3 c
Trilex Star 4 oz (S)	1.71 a	1.97 a	12.3 a
Trilex Optimum 4 oz (S)	1.92 a	2.03 a	11.9 ab
Dynasty PD 4 oz (S)	1.95 a	2.18 a	11.6 bc
Vitavax PC 4 oz (S)	1.73 a	1.97 a	11.3 c
Kodiak Concentrate 0.25 oz (S)	1.33 b	1.49 b	11.4 c
Kodiak Concentrate 0.25 oz + Trilex Star 4 oz (S)	1.75 a	2.02 a	11.6 bc
LSD	0.27	0.25	0.5

[1] S=seed treatment.
[2] Determined from counts of two, 35-ft rows per plot.
[3] Data are measurements of three randomly selected plants per row in each plot.
Means followed by the same letter(s) in a column are not significantly different (Fisher's Protected LSD, *P*=0.05).

Table 75. Disease incidence in peanuts.

Treatment and rate/ cwt seed*	CBR**		TSWV**	
	16 Sep	3 Oct	16 Sep	3 Oct
Untreated	3.8	2.8	9.5	17.8
Trilex Star 4 oz (S)	2.5	1.3	12.8	14.0
Trilex Optimum 4 oz (S)	5.0	2.8	10.3	18.5
Dynasty PD 4 oz (S)	4.3	2.8	12.8	18.3
Vitavax PC 4 oz (S)	3.5	0.5	7.8	11.8
Kodiak Concentrate 0.25 oz (S)	6.3	5.0	7.3	17.0
Kodiak Concentrate 0.25 oz + Trilex Star 4 oz (S)	3.8	1.8	11.5	16.5
LSD	n.s.	n.s.	n.s.	n.s.

* S=seed treatment.
** Number of symptomatic plants per plot.
Means are not significantly different (n.s.) according to Fisher's Protected LSD at *P*=0.05.

Table 76. Disease incidence and yield in peanuts.

Treatment and rate/ cwt seed[1]	Stem rot[2] (16 Sep)	Sclerotinia[2] 16 Sep	Sclerotinia[2] 3 Oct	Yield[3] (lb/A)
Untreated	0.3	0.5	0.0	4490
Trilex Star 4 oz (S)	0.3	0.3	0.0	5009
Trilex Optimum 4 oz (S)	0.3	1.3	0.8	4617
Dynasty PD 4 oz (S)	0.3	2.0	1.0	4796
Vitavax PC 4 oz (S)	0.0	0.8	0.5	4975
Kodiak Concentrate 0.25 oz (S)	0.5	2.0	0.3	4568
Kodiak Concentrate 0.25 oz + Trilex Star 4 oz (S)	0.8	1.0	0.5	5154
LSD	n.s.	n.s.	n.s.	n.s.

[1] S=seed treatment.
[2] Counts of infection centers in two-row 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] Yields are weight of peanuts with moisture content of 7%. Peanuts were dug on 3 Oct and harvested on 7 Oct. Means are not significantly different (n.s.) according to Fisher's Protected LSD at P=0.05.

XXIII. BAYER PEANUT SEED TREATMENT TEST (PSEED208, TAREC Res. farm, Suffolk, Field 14)

A. PURPOSE: To compare the efficacy and benefit of seed treatment fungicides for control of seedling diseases and nematodes in peanuts

B. EXPERIMENTAL DESIGN:
1. Four randomized complete blocks separated by 15-ft alleyways
2. Two, 35-ft rows/plot spaced 39-in. apart and planted to 4 seed/ft of row

C. APPLICATION OF TREATMENTS: Seed treatments (S) were applied to seed by personnel with Bayer CropScience

D. TREATMENT AND RATE:
1. Trilex Optimum 4 oz/cwt (S)
2. Trilex Star 4 oz/cwt (S)
3. L1138A 4 oz/cwt (S)
4. L1865A 4 oz/cwt (S)
5. Trilex Optimum 4 oz/cwt + L1460 0.1 oz/cwt (S)
6. Trilex Star 4 oz/cwt + L1460 0.1 oz/cwt (S)
7. L1138A 4 oz/cwt + L1460 0.1 oz/cwt (S)
8. L1865 A 4 oz/cwt + L1460 0.1 oz/cwt (S)
9. Untreated check

E. ADDITIONAL INFORMATION:
1. Location: TAREC Research Farm, Hare Rd., Suffolk
2. Crop History: cotton 2007, corn 2006, peanut 2005
3. Land preparation: Disk, plow, disk and level with field cultivator
4. Planting date and cultivar: 1 May; Brantley, Lot B001C – 70% germ
5. Soil fertility report (Jan 2008):

pH	6.69	K	72 ppm
Ca	235 ppm	Zn	0.4 ppm
Mg	47 ppm	Mn	1.8 ppm
P	19 ppm	Soil type	Eunola loamy fine sand

6. Nematode assay report (30 Apr):
Nematodes/500 cc soil:

Stunt	50
Ring	10
Stubby root	50

7. Herbicide:
Pre-plant - Prowl H_2O 1 pt + Dual II Magnum 1 pt/A (19 Apr)
Pre-emergence - Dual II Magnum 1 pt/A (6 May)
Post-emergence – Poast Plus 1EC 1.5 pt/A (2 Sep)
8. Insecticide: Temik 15G 7 lb/A (1 May); Orthene 97S 8 oz/A (19 May, 3 Jun)
Lorsban 15G 13 lb/A (19 Jun); Baythroid XL 3 fl oz/A (2 Sep)
9. Acaricide: Danitol 16 fl oz/A (13 Aug)
10. Leaf spot control: Folicur 7.2 fl oz + Induce 1.2 fl oz/A (16 Jul)
Provost 9 fl oz/A (12 Aug); Headline 9 fl oz/A (9 Sep)
11. Sclerotinia blight control: Omega 1 pt/A (12 Aug, 9 Sep)

12. Additional crop management:
    a. Liquid boron 1 qt/A (26 Mar)
    b. Landplaster: Peanut Maker 1200 lb/A (14 Jun)
    c. Cultivation: 19 Jun
    d. Liquid Mn 3 pt/A (25 Jun); 1 qt/A (16 Jul, 12 Aug)
13. Harvest date: 7 Oct 2008

Table 77. Effect of seed treatments on emergence and growth of peanut.

Treatment and rate/cwt seed[1]	Plants/ft[2] 14 May	Plants/ft[2] 29 May	Mainstem height (in.)[3] (30 Jul)
Trilex Optimum 4 oz (S)	1.73 ab	2.67 a	10.0 b
Trilex Star 4 oz (S)	1.59 ab	2.57 a	10.4 ab
L1138A 4 oz (S)	1.70 ab	2.68 a	10.1 b
L1865A 4 oz (S)	1.67 ab	2.64 a	10.8 a
Trilex Optimum 4 oz + L1460 0.1 oz (S)	1.74 ab	2.63 a	10.6 ab
Trilex Star 4 oz + L1460 0.1 oz (S)	1.53 b	2.60 a	10.6 ab
L1138A 4 oz + L1460 0.1 oz (S)	1.62 ab	2.60 a	10.4 ab
L1865 A 4 oz + L1460 0.1 oz (S)	1.81 a	2.76 a	10.3 ab
Untreated check	0.94 c	1.61 b	8.7 c
LSD	0.26	0.32	0.7

[1] S=seed treatment.
[2] Determined from counts of two, 35-ft rows per plot.
[3] Data are measurements of three randomly selected plants per row in each plot.
Means followed by the same letter(s) in a column are not significantly different (Fisher's Protected LSD, P=0.05).

Table 78. Effect of seed treatments on nematode populations.

Treatment and rate/cwt seed*	Nematodes/500 cc soil** Root knot	Lesion	Ring
Trilex Optimum 4 oz (S)	210	10	880
Trilex Star 4 oz (S)	50	30	870
L1138A 4 oz (S)	130	10	880
L1865A 4 oz (S)	320	10	480
Trilex Optimum 4 oz + L1460 0.1 oz (S)	10	0	240
Trilex Star 4 oz + L1460 0.1 oz (S)	10	0	110
L1138A 4 oz + L1460 0.1 oz (S)	20	0	120
L1865 A 4 oz + L1460 0.1 oz (S)	20	0	1030
Untreated check	0	10	290

* S=seed treatment.
** Composite soil samples were taken from all four reps of each treatment. Soil was sampled on 29 Jul.

Table 79. Disease incidence in peanuts.

Treatment and rate/cwt seed*	CBR**		TSWV**	
	16 Sep	3 Oct	16 Sep	3 Oct
Trilex Optimum 4 oz (S)	3.3	2.5	8.3	15.5
Trilex Star 4 oz (S)	9.0	6.8	8.3	16.0
L1138A 4 oz (S)	2.8	4.0	10.3	14.5
L1865A 4 oz (S)	3.5	4.8	11.3	17.5
Trilex Optimum 4 oz + L1460 0.1 oz (S)	1.0	1.8	10.0	15.0
Trilex Star 4 oz + L1460 0.1 oz (S)	5.0	5.0	10.0	16.3
L1138A 4 oz + L1460 0.1 oz (S)	7.0	4.8	12.3	20.5
L1865 A 4 oz + L1460 0.1 oz	5.8	6.3	9.5	17.0
Untreated check (S)	5.3	3.5	8.5	14.5
LSD	n.s.	n.s	n.s.	n.s

* S=seed treatment.
** Number of symptomatic plants per plot.
Means are not significantly different (n.s.) according to Fisher's Protected LSD at P=0.05.

Table 80. Disease incidence in peanuts.

Treatment and rate/cwt seed*	Sclerotinia**		Stem rot** (16 Sep)
	16 Sep	3 Oct	
Trilex Optimum 4 oz (S)	0.5	0.0	0.3
Trilex Star 4 oz (S)	1.8	0.3	0.5
L1138A 4 oz (S)	1.0	0.0	0.0
L1865A 4 oz (S)	0.8	1.0	0.0
Trilex Optimum 4 oz + L1460 0.1 oz (S)	1.5	0.8	1.0
Trilex Star 4 oz + L1460 0.1 oz (S)	0.8	0.5	0.8
L1138A 4 oz + L1460 0.1 oz (S)	0.8	0.0	0.0
L1865 A 4 oz + L1460 0.1 oz	0.8	0.0	0.5
Untreated check (S)	0.3	0.0	0.0
LSD	n.s.	n.s.	n.s.

* S=seed treatment.
** Counts of infection centers in a two-row 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.
Means are not significantly different (n.s.) according to Fisher's Protected LSD at P=0.05.

Table 81. Root and pod disease and yield of peanuts.

Treatment and rate/cwt seed[1]	Root-knot gall index[2] (6 Oct)	Root disease[3] (6 Oct)	Pod rot[4] (6 Oct)	Yield[5] (lb/A)
Trilex Optimum 4 oz (S)	1.3	0.1 b	0.3 bc	5302
Trilex Star 4 oz (S)	1.3	0.3 b	0.8 ab	4848
L1138A 4 oz (S)	0.8	0.1 b	0.3 bc	5390
L1865A 4 oz (S)	1.0	0.1 b	0.3 bc	5201
Trilex Optimum 4 oz + L1460 0.1 oz (S)	0.6	0.1 b	0.1 c	5457
Trilex Star 4 oz + L1460 0.1 oz (S)	0.3	0.1 b	0.1 c	5291
L1138A 4 oz + L1460 0.1 oz (S)	0.8	0.6 b	0.8 ab	4791
L1865 A 4 oz + L1460 0.1 oz	0.3	0.5 b	0.6 bc	5006
Untreated check (S)	1.5	1.5 a	1.3 a	4718
LSD	n.s.	0.9	0.6	n.s.

[1] S=seed treatment.
[2] Root-knot nematode galling scale: 0=none, 10=100% of roots with galls. Ratings were made after digging on 6 Oct.
[3] Root disease includes Cylindrocladium black rot and Southern stem rot. Rating scale: 0=none, 10=100% of roots decayed.
[4] Pod rot index: 0=none, 10=total necrosis.
[5] Yields are weight of peanuts with moisture content of 7%. Peanuts were dug on 3 Oct and harvested on 7 Oct.
Means followed by the same letter(s) are not significantly different according to Fisher's Protected LSD at *P*=0.05, except pod rot was analyzed at P=0.10, n.s. denotes not significant.

XXIV. EVALUATION OF PROLINE (IN-FURROW) AND PROVOST (FOLIAR SPRAYS) FOR CBR SUPPRESSION AND LEAF SPOT CONTROL IN PEANUT (CBRLFSPOT108, TAREC Res. Farm, Field 9A)

A. PURPOSE: To compare in-furrow and foliar sprays of new fungicide chemistry (prothioconazole, prothioconazole + tebuconazole) to soil fumigation for disease control in a field with a history of low to moderate CBR

B. EXPERIMENTAL DESIGN:
   1. Four randomized complete blocks separated by 10-ft alleys between blocks
   2. Four, 35-ft rows per plot with 36 in. row spacing and four seed/ft of row

C. APPLICATION OF TREATMENTS: Chisel applications (C) of Vapam 42% were applied 8 in. under each row on 15 Apr. A single chisel was centered in each row and rows were bedded (24 in. wide and 4 in. high) during application. Proline 480SC in-furrow (F) was mixed in water and applied in a volume of 5 gal/A with a microtube to each seed furrow at planting. Foliar sprays were applied with three, $D_3$23 nozzles/row delivering 15 gal/A. The initial application was at beginning pod (R_3) and thereafter according to the Va. Peanut Leaf spot Advisory Program until beginning maturity (R_7).

D. TREATMENT AND RATE/A:
   1. Echo 720 1.5 pt/A (1^{st}, 2^{nd}, 3^{rd} adv.)
   2. Provost 433SC 8 fl oz + Induce 1.2 fl oz/A (1^{st}, 2^{nd}, 3^{rd} adv.)
   3. Provost 433SC 10.7 fl oz + Induce 1.2 fl oz /A (1^{st}, 2^{nd}, 3^{rd} adv.)
   4. Proline SC 5.7 fl oz/A (in-furrow)
      Provost 433SC 8 fl oz + Induce 1.2 fl oz /A (1^{st}, 2^{nd}, 3^{rd} adv.)
   5. Proline SC 5.7 fl oz/A (in-furrow)
      Provost 433SC 10.7 fl oz + Induce 1.2 fl oz /A (1^{st}, 2^{nd}, 3^{rd} adv.)
   6. Vapam 42% 7.5 gal/A (C)
      Provost 433SC 8 fl oz + Induce 1.2 fl oz /A (1^{st}, 2^{nd}, 3^{rd} adv.)
   7. Vapam 42% 7.5 gal/A (C)
      Proline SC 5.7 fl oz/A (F)
      Provost 433SC 8 fl oz + Induce 1.2 fl oz /A (1^{st}, 2^{nd}, 3^{rd} adv.)
   8. Vapam 42% 7.5 fl oz/A (C)
      Proline SC 5.7 fl oz/A (F)
      Provost 433SC 10.7 fl oz + Induce 1.2 fl oz /A (1^{st}, 2^{nd}, 3^{rd} adv.)
   9. Untreated check

E. ADDITIONAL INFORMATION:
   1. Location: TAREC Research farm, Hare Rd.
   2. Crop history: corn 2007, cotton 2006, peanut 2005
   3. Land preparation: Rip and strip till during Vapam application (15 Apr)
   4. Planting date and cultivar: 1 May, CHAMPS
   5. Soil fertility report (Jan 2008):

pH.....	6.43	K	49 ppm
Ca	220 ppm	Zn.....	0.4 ppm
Mg	32 ppm	Mn.....	1.8 ppm
P	33 ppm	Soil type.....	Kenansville loamy fine sand

6. Herbicide:
   Pre-plant – Touchdown 23 fl oz/A (10 Apr)
   Dual II Magnum 1 pt + Prowl H_2O 1 pt + Strongarm 0.23 oz/A (18 Apr)
   Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.23 oz/A (6 May)
   Post-emergence - Poast 2 pt (18 Jun, 24 Jun)
   Select 2EC 8 fl oz + Coverall 2 fl oz (8 Jul)
   Select 2EC 8 fl oz + Pursuit 1.4 fl oz + Induce 4 fl oz/A (21 Jul)
7. Insecticide: Temik 15G 7 lb/A (1 May); Orthene 97S 8 oz/A (19 May, 3 Jun)
   Lorsban 15G 13 lb/A (19 Jun); Baythroid XL 3 fl oz/A (2 Sep)
8. Acaricide: Danitol 16 fl oz/A (13 Aug)
9. Sclerotinia blight control: Omega 500 1 pt/A (14 Aug, 9 Sep)
10. Additional crop management:
    a. Liquid boron 1 qt/A (18 Apr)
    b. Landplaster: Peanut Maker 1200 lb/A (14 Jun)
    c. Cultivation: 19 Jun
    d. Liquid Mn 3 pt/A (25 Jun, 17 Jul, 14 Aug)
    e. Irrigation: ca. 1" (27 Aug)
11. Harvest date: 7 Oct

Table 82. Effect of treatments on emergence and disease incidence in peanut.

Treatment, rate/A and application date[1]	Plants/ft[2] (27 May)	% leaf spot[3] 29 Jul	30 Aug	30 Sep	% defoliation[4]
Echo 720 1.5 pt (7/16, 8/12, 9/8)	2.55	1.3	9.5 b	37.5 b	3.3 b
Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	2.53	0.5	5.5 bc	30.3 b	2.3 b
Provost 433SC 10.7 fl oz (7/16, 8/12, 9/8)	2.24	3.0	3.0 c	13.0 cd	1.5 b
Proline SC 5.7 fl oz (F) Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	2.67	0.7	1.7 c	23.0 bc	1.7 b
Proline SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/16, 8/12, 9/8)	2.47	0.3	2.3 c	4.8 d	1.0 b
Vapam 42% 7.5 gal (C) Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	2.59	0.3	2.0 c	24.5 bc	1.8 b
Vapam 42% 7.5 gal (C) Proline SC 5.7 fl oz (F) Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	2.49	0.5	2.5 c	28.8 b	2.0 b
Vapam 42% 7.5 fl oz (C) Proline SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/16, 8/12, 9/8)	2.62	0.8	2.5 c	13.3 cd	1.5 b
Untreated check	2.61	0.5	38.8 a	98.3 a	83.8 a
P(F)	.5199	.6137	.0001	.0001	.0001

[1] C=chisel application (15 Apr), F=in furrow at planting (1 May). Fungicide sprays were applied at R_3 (beginning pod) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity). Foliar sprays of Provost were applied with Induce 1.2 fl oz/A.
[2] Determined from counts of two 35-ft rows in each plot.
[3] Leaf spot rating scale: 0=none; 100=spots on all leaflets.
[4] Defoliation rating scale: 0=none, 100=no leaves on plants.
Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 83. Effect of treatments on disease incidence in peanut.

Treatment, rate/A and application date[1]	TSWV[2]		CBR[2]		Sclerotinia[3]	
	30 Aug	30 Sep	30 Aug	30 Sep	30 Aug	30 Sep
Echo 720 1.5 pt (7/16, 8/12, 9/8)	1.5	10.5 bc	0.5	2.8	1.0	2.3
Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	3.0	14.0 ab	2.3	2.8	0.0	0.0
Provost 433SC 10.7 fl oz (7/16, 8/12, 9/8)	3.8	14.5 ab	3.0	2.0	0.3	1.3
Proline SC 5.7 fl oz (F) Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	2.7	14.0 ab	1.7	1.7	0.3	1.0
Proline SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/16, 8/12, 9/8)	4.0	13.3 ab	1.8	4.0	3.5	4.5
Vapam 42% 7.5 gal (C) Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	2.5	15.0 ab	2.0	1.0	0.8	2.0
Vapam 42% 7.5 gal (C) Proline SC 5.7 fl oz (F) Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	4.0	15.8 a	2.0	1.8	0.8	0.0
Vapam 42% 7.5 fl oz (C) Proline SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/16, 8/12, 9/8)	3.5	11.3 ab	0.3	0.3	1.3	1.5
Untreated check	2.3	5.8 c	1.3	4.3	0.0	0.0
P(F)	.7314	.0537	.7493	.8330	.1033	.1669

[1] C=chisel application (15 Apr), F=in furrow at planting (1 May). Fungicide sprays were applied at R_3 (beginning pod) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity). Foliar sprays of Provost were applied with Induce 1.2 fl oz/A.

[2] Number of symptomatic plants per plot.

[3] 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 *Sclerotinia minor* and included 6 in. on either side of that point.

Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (*P*=0.05), except TSWV on 30 Sep was analyzed at P=0.10.

Table 84. Effect of treatments on yield of peanut.

Treatment, rate/A and application date*	Yield** (lb/A)
Echo 720 1.5 pt (7/16, 8/12, 9/8)	4807 d
Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	4959 cd
Provost 433SC 10.7 fl oz (7/16, 8/12, 9/8)	5438 b-d
Proline SC 5.7 fl oz (F) Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	5638 a-c
Proline SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/16, 8/12, 9/8)	5338 cd
Vapam 42% 7.5 gal (C) Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	6194 ab
Vapam 42% 7.5 gal (C) Proline SC 5.7 fl oz (F) Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	5690 a-c
Vapam 42% 7.5 fl oz (C) Proline SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/16, 8/12, 9/8)	6341 a
Untreated check	3567 e
P(F)	.0001

* C=chisel application (15 Apr), F=in furrow at planting (1 May). Fungicide sprays were applied at R_3 (beginning pod) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity). Foliar sprays of Provost were applied with Induce 1.2 fl oz/A.

** Yields are weight of peanuts with moisture content of 7%. Peanuts were dug on 3 Oct and harvested on 7 Oct. Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (*P*=0.05).

XXV. EVALUATION OF PROLINE (IN-FURROW) AND PROVOST (FOLIAR SPRAYS) FOR CBR SUPPRESSION AND LEAF SPOT CONTROL IN PEANUT (CBRLFSPOT208, TAREC, Field 46A)

A. PURPOSE: To compare in-furrow and foliar sprays of new fungicide chemistry to soil fumigation for disease control in a field with a history of high CBR incidence

B. EXPERIMENTAL DESIGN:
1. Four randomized complete blocks separated by 10-ft alleys between blocks
2. Four, 35-ft rows per plot with 36 in. row spacing and four seed/ft of row

C. APPLICATION OF TREATMENTS: Chisel applications (C) of Vapam 42% were applied 8 in. under each row on 14 Apr. A single chisel was centered in each row and rows were bedded (24 in. wide and 4 in. high) during application. Proline 480SC in-furrow (F) was mixed in water and applied in a volume of 5 gal/A with a microtube to each seed furrow at planting. Foliar sprays were applied with three, $D_3$23 nozzles/row delivering 15 gal/A. The initial application was at beginning pod (R_3) and thereafter according to the Va. Peanut Leaf spot Advisory Program until beginning maturity (R_7).

D. TREATMENT AND RATE/A:
1. Echo 720 1.5 pt (1^{st}, 2^{nd}, 3^{rd} adv.)
2. Provost 433SC 8 fl oz + Induce 1.2 fl oz (1^{st}, 2^{nd}, 3^{rd} adv.)
3. Provost 433SC 10.7 fl oz + Induce 1.2 fl oz (1^{st}, 2^{nd}, 3^{rd} adv.)
4. Proline SC 5.7 fl oz (in-furrow)
   Provost 433SC 8 fl oz + Induce 1.2 fl oz (1^{st}, 2^{nd}, 3^{rd} adv.)
5. Proline SC 5.7 fl oz (in-furrow)
   Provost 433SC 10.7 fl oz + Induce 1.2 fl oz (1^{st}, 2^{nd}, 3^{rd} adv.)
6. Vapam 42% 7.5 gal (C)
   Provost 433SC 8 fl oz + Induce 1.2 fl oz (1^{st}, 2^{nd}, 3^{rd} adv.)
7. Vapam 42% 7.5 gal (C)
   Proline SC 5.7 fl oz (F)
   Provost 433SC 8 fl oz + Induce 1.2 fl oz (1^{st}, 2^{nd}, 3^{rd} adv.)
8. Vapam 42% 7.5 fl oz (C)
   Proline SC 5.7 fl oz (F)
   Provost 433SC 10.7 fl oz + Induce 1.2 fl oz A (1^{st}, 2^{nd}, 3^{rd} adv.)
9. LEM17 SC 16.8 fl oz (F) + 16.8 fl oz (1^{st}, 2^{nd}, 3^{rd} adv.)
10. LEM17 SC 24.0 fl oz (F) + 24.0 fl oz (1^{st}, 2^{nd}, 3^{rd} adv.)
11. Untreated check

E. ADDITIONAL INFORMATION:
1. Location: TAREC Research farm, Hare Rd. (Field 46A)
2. Crop history: corn 2007, cotton 2006, peanut 2005
3. Land preparation: Disk, plow, disk and level with field cultivator (10 Apr)
4. Planting date and cultivar: 2 May, CHAMPS
5. Soil fertility report (Jan 2008):

pH.....	6.48	K	73 ppm
Ca	431 ppm	Zn.....	0.5 ppm
Mg	51 ppm	Mn.....	1.6 ppm
P	30 ppm	Soil type.....	Nansemond fine sandy loam

6. Herbicide:
   Pre-plant – Prowl H_20 1 pt/A (26 Apr)
   Dual II Magnum 1 pt + Strongarm 0.23 oz/A (18 Apr)
   Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.23 oz/A (6 May)
7. Insecticide: Temik 15G 7 lb/A (2 May); Orthene 97S 8 oz/A (19 May, 3 Jun)
   Lorsban 15G 13 lb/A (19 Jun)
8. Sclerotinia blight control: Omega 500 1 pt/A (30 Jul, 25 Aug)
9. Additional crop management:
   a. Liquid boron 1 qt/A (26 Apr)
   b. Landplaster: Peanut Maker 1200 lb/A (16 Jun)
   c. Cultivation: 19 Jun
   d. Liquid Mn 1 qt/A (16 Jul, 13 Aug)
10. Harvest date: 14 Oct

Table 85. Effect of treatments on emergence and disease incidence in peanut.

Treatment, rate/A and application date[1]	Plants/ft[2] (29 May)	% leaf spot[3] 29 Jul	5 Sep	9 Oct
Echo 720 1.5 pt (7/16, 8/12, 9/8)	2.79 a-c	0.0 c	0.3	0.0 b
Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	2.72 b-d	1.3 a-c	0.1	0.0 b
Provost 433SC 10.7 fl oz (7/16, 8/12, 9/8)	2.66 cd	2.5 ab	0.1	0.0 b
Proline SC 5.7 fl oz (F) Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	2.68 cd	1.5 a-c	0.3	0.0 b
Proline SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/16, 8/12, 9/8)	2.58 d	0.5 bc	0.3	0.0 b
Vapam 42% 7.5 gal (C) Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	2.71 b-d	0.5 bc	0.1	0.0 b
Vapam 42% 7.5 gal (C) Proline SC 5.7 fl oz (F) Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	2.61 cd	2.8 a	0.1	0.0 b
Vapam 42% 7.5 fl oz (C) Proline SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/16, 8/12, 9/8)	2.61 cd	2.5 ab	0.1	0.0 b
LEM17 SC 16.8 fl oz (F) + 16.8 fl oz (7/16, 8/12, 9/8)	2.91 a	0.3 c	0.1	0.0 b
LEM17 SC 24.0 fl oz (F) + 24.0 fl oz (7/16, 8/12, 9/8)	2.89 ab	0.0 c	0.1	0.1 b
Untreated check	2.54 d	0.5 bc	0.3	38.8 a
LSD	0.19	2.0	n.s.	4.5

[1] C=chisel application (14 Apr), F=in furrow at planting (2 May). Fungicide sprays were applied at R_3 (beginning pod) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity). Foliar sprays of Provost were applied with Induce 1.2 fl oz/A.

[2] Determined from counts of two 35-ft rows in each plot.

[3] Leaf spot rating scale: 0=none; 100=spots on all leaflets.
Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (*P*=0.05), n.s. denotes not significant. Arcsine transformation of percentage data was made in analysis to determine statistical significance.

Table 86. Effect of treatment on disease incidence in peanut.

Treatment, rate/A and application date*	CBR** 5 Sep	CBR** 9 Oct	TSWV** (9 Oct)
Echo 720 1.5 pt (7/16, 8/12, 9/8)	7.3	12.0	15.0
Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	5.3	9.5	16.3
Provost 433SC 10.7 fl oz (7/16, 8/12, 9/8)	5.0	8.0	15.0
Proline SC 5.7 fl oz (F) Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	4.3	8.3	13.8
Proline SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/16, 8/12, 9/8)	7.5	9.5	15.3
Vapam 42% 7.5 gal (C) Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	2.8	2.5	11.8
Vapam 42% 7.5 gal (C) Proline SC 5.7 fl oz (F) Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	2.3	2.5	11.5
Vapam 42% 7.5 fl oz (C) Proline SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/16, 8/12, 9/8)	2.8	2.8	13.5
LEM17 SC 16.8 fl oz (F) + 16.8 fl oz (7/16, 8/12, 9/8)	1.5	8.5	11.0
LEM17 SC 24.0 fl oz (F) + 24.0 fl oz (7/16, 8/12, 9/8)	8.3	13.8	13.0
Untreated check	4.0	6.3	12.5
LSD	n.s.	n.s.	n.s.

* C=chisel application (14 Apr), F=in furrow at planting (2 May). Fungicide sprays were applied at R_3 (beginning pod) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity). Foliar sprays of Provost were applied with Induce 1.2 fl oz/A.

** Number of symptomatic plants per plot.
Means are not significantly different (n.s.) according to Fisher's Protected LSD (*P*=0.05).

Table 87. Effect of treatment on incidence of Sclerotinia blight, yield and value in peanut.

Treatment, rate/A and application date[1]	Sclerotinia blight[2] 29 Jul	5 Sep	9 Oct	Yield[3] (lb/A)	Value[4] ($/A)
Echo 720 1.5 pt (7/16, 8/12, 9/8)	1.3	1.8	2.8	5778 d	1068 e
Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	1.0	1.3	4.3	5998 cd	1133 de
Provost 433SC 10.7 fl oz (7/16, 8/12, 9/8)	0.5	1.5	2.3	6360 b-d	1180 b-e
Proline SC 5.7 fl oz (F) Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	0.3	2.5	3.5	6498 a-d	1233 a-e
Proline SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/16, 8/12, 9/8)	0.8	1.8	2.8	5946 d	1140 de
Vapam 42% 7.5 gal (C) Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	0.5	0.3	1.3	7346 a	1374 a
Vapam 42% 7.5 gal (C) Proline SC 5.7 fl oz (F) Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	0.8	1.8	3.5	7017 ab	1325 ab
Vapam 42% 7.5 fl oz (C) Proline SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/16, 8/12, 9/8)	0.5	0.8	2.0	6892 a-c	1314 a-c
LEM17 SC 16.8 fl oz (F) + 16.8 fl oz (7/16, 8/12, 9/8)	1.8	1.5	3.0	6611 a-d	1253 a-d
LEM17 SC 24.0 fl oz (F) + 24.0 fl oz (7/16, 8/12, 9/8)	0.0	0.5	1.8	6044 cd	1145 c-e
Untreated check	1.8	2.0	4.0	6262 b-d	1221 a-e
LSD	n.s.	n.s.	n.s	907	172

[1] C=chisel application (14 Apr), F=in furrow at planting (2 May). Fungicide sprays were applied at R_3 (beginning pod) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity). Foliar sprays of Provost were applied with Induce 1.2 fl oz/A.

[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 *Sclerotinia minor* and included 6 in. on either side of that point.

[3] Yields are weight of peanuts with moisture content of 7%. Peanuts were dug on 10 Oct and harvested on 14 Oct.

[4] Composite samples were graded to determine market value at loan rate and multiplied by yield to estimate value at farm gate ($/A).

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

Table 88. Effect of treatment and cultivar on grade characteristics and value.

Treatment ,rate/A and application date[1]	%*						Value** (¢/lb)
	FAN	ELK	SS	OK	DK	SMK	
Echo 720 1.5 pt (7/16, 8/12, 9/8)	88	51	3	1	1	68	18.4800
Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	84	56	2	2	1	70	18.8900
Provost 433SC 10.7 fl oz (7/16, 8/12, 9/8)	80	54	2	2	0	69	18.5500
Proline SC 5.7 fl oz (F) Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	88	58	1	2	1	71	18.9700
Proline SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/16, 8/12, 9/8)	89	58	1	2	1	72	19.1800
Vapam 42% 7.5 gal (C) Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	84	55	2	2	0	73	18.7000
Vapam 42% 7.5 gal (C) Proline SC 5.7 fl oz (F) Provost 433SC 8 fl oz (7/16, 8/12, 9/8)	88	56	2	2	0	70	18.8800
Vapam 42% 7.5 fl oz (C) Proline SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/16, 8/12, 9/8)	90	59	1	2	0	74	19.0600
LEM17 SC 16.8 fl oz (F) + 16.8 fl oz (7/16, 8/12, 9/8)	84	56	2	2	0	70	18.9500
LEM17 SC 24.0 fl oz (F) + 24.0 fl oz (7/16, 8/12, 9/8)	86	58	2	2	0	70	18.9500
Untreated check	86	59	1	1	0	73	19.5000

* FAN=large whole pods, ELK=extra large kernels, SS=sound splits, OK=other kernels, DK=damaged kernels, SMK=sound mature kernels. Data are from a composite sample of four reps of each treatment.

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

XXVI. EVALUATION OF FOLIAR FUNGICIDES FOR CONTROL OF LEAFSPOT DISEASES AND SOUTHERN STEM ROT OF PEANUT (LFSPOT108, Wyne Farm, Suffolk, Field 64B)

A. PURPOSE: To compare LEM 17 (DuPont), Provost (Bayer), and Abound (Syngenta) for control of leaf spot and southern stem rot.

B. EXPERIMENTAL DESIGN:
1. Four randomized complete blocks separated by 10-ft alleys
2. Four, 35-ft rows per plot with treatments applied to the center two rows
3. Seeding rate of ca. 4 seed/ft of row

C. APPLICATION OF TREATMENTS: Foliar sprays were applied with three, $D_3$23 nozzles/row delivering 15 gal/A. The initial application was at beginning pod (R_3) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until beginning maturity (R_7).

D. TREATMENT AND RATE/A:
1. Untreated Check
2. Bravo 720 1.5 pt (1st, 2nd, 3rd spray)
3. LEM-17 200SC 9.6 fl oz (1st, 2nd, 3rd spray)
4. QFA61 350SC 19.2 fl oz (1st, 2nd, 3rd spray)
5. LEM-17 200SC 16.8 fl oz (1st, 2nd, 3rd spray)
6. Tilt 3.6EC 2 fl oz + Bravo 720 1 pt (1st spray)
   LEM-17 200SC 16.8 fl oz (2nd, 3rd spray)
7. Tilt 3.6EC 2 fl oz + Bravo 720 1 pt (1st spray)
   Abound 2.08SC 18.2 fl oz (2nd spray)
   Bravo 720 1.5 pt (3rd spray)
8. Tilt 3.6EC 2 fl oz + Bravo 720 1 pt (1st spray)
   Provost 433SC 8 fl oz (2nd, 3rd spray)

E. ADDITIONAL INFORMATION:
1. Location: Wyne Farm
2. Crop history: corn 2007, cotton 2006, peanut 2005
3. Land preparation: Rip under rows and strip till
4. Planting date and cultivar: 9 May, CHAMPS
5. Soil fertility report (Jan 2008):

pH.....	6.47	K	64 ppm
Ca	397 ppm	Zn.....	0.6 ppm
Mg	64 ppm	Mn.....	1.2 ppm
P	26 ppm	Soil type.....	Nansemond fine sandy loam

6. Cylindrocladium black rot control: Vapam 42% 7.5 gal/A (15 Apr)
7. Herbicide:
   Pre-plant – Touchdown 23 fl oz/A (10 Apr)
   Prowl H_2O 1 pt + Dual II Magnum1 pt + Stongarm 0.23 fl oz/A (18 Apr)
   Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (6 May)
   Post-emergence - Poast 1.5 pt/A (2 Sep)
8. Insecticide: Temik 15G 7 lb/A (9 May); Orthene 97S 8 oz/A (19 May, 3 Jun);
   Lorsban 15G 13 lb/A (19 Jun); Baythroid XL 3 fl oz/A (2 Sep)

9. Acaricide: Danitol 16 fl oz/A (13 Aug)
10. Additional crop management:
    a. Liquid boron 1 qt/A (18 Apr)
    b. Landplaster: Peanut Maker 1200 lb/A (14 Jun)
    c. Cultivation: 19 Jun
    d. Liquid Mn 1 qt/A (17 Jul, 14 Aug)
    e. Mangro 5 lb/A (30 Jul)
11. Harvest date: 10 Oct

Table 89. Effect of treatments on disease incidence in peanut.

Treatment, rate/A and application timing[1]	% leaf spot[2] 4 Sep	% leaf spot[2] 2 Oct	% defoliation[3] (2 Oct)	TSWV[4] (2 Oct)
Untreated Check	6.3 a	77.5 a	23.8 a	13.5
Bravo 720 1.5 pt (7/16, 8/14, 9/8)	0.1 b	0.3 b	0.0 b	8.0
LEM-17 200SC 9.6 fl oz (7/16, 8/14, 9/8)	0.1 b	5.0 b	0.3 b	9.3
QFA61 350SC 19.2 fl oz (7/16, 8/14, 9/8)	0.1 b	6.8 b	0.8 b	10.3
LEM-17 200SC 16.8 fl oz (7/16, 8/14, 9/8)	0.1 b	0.8 b	0.1 b	9.3
Tilt 3.6EC 2 fl oz + Bravo 720 1 pt (7/16) LEM-17 200SC 16.8 fl oz (8/14, 9/8)	1.1 b	3.1 b	0.5 b	12.0
Tilt 3.6EC 2 fl oz + Bravo 720 1 pt (7/16) Abound 2.08SC 18.2 fl oz (8/14) Bravo 720 1.5 pt (9/8)	0.1 b	3.3 b	0.1 b	16.0
Tilt 3.6EC 2 fl oz + Bravo 720 1 pt (7/16) Provost 433SC 8 fl oz (8/14, 9/8)	0.1 b	5.5 b	0.8 b	11.8
LSD	3.4	7.3	7.2	n.s.

[1] Fungicides were applied at R_3 (beginning pod) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity).
[2] Leaf spot rating scale: 0=none; 100=spots on all leaflets.
[3] Defoliation rating scale: 0=none, 100=no leaves on plants.
[4] Number of symptomatic plants per plot.
Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05), n.s. denotes not significant. Arcsine transformation of percentage data was made in analysis to determine statistical significance.

Table 90. Effect of treatments on incidence of soilborne disease and yield of peanuts.

Treatment, rate/A and application timing[1]	CBR[2]		Sclerotinia[3]		Yield[4] (lb/A)
	4 Sep	2 Oct	4 Sep	2 Oct	
Untreated Check	3.0	2.0	3.3	4.3	4919
Bravo 720 1.5 pt (7/16, 8/14, 9/8)	2.0	4.5	3.0	2.5	5680
LEM-17 200SC 9.6 fl oz (7/16, 8/14, 9/8)	2.3	1.5	0.8	2.5	5948
QFA61 350SC 19.2 fl oz (7/16, 8/14, 9/8)	3.0	1.3	4.3	3.8	5864
LEM-17 200SC 16.8 fl oz (7/16, 8/14, 9/8)	2.5	6.0	3.0	1.3	5814
Tilt 3.6EC 2 fl oz + Bravo 720 1 pt (7/16) LEM-17 200SC 16.8 fl oz (8/14, 9/8)	5.3	2.8	2.5	3.5	5090
Tilt 3.6EC 2 fl oz + Bravo 720 1 pt (7/16) Abound 2.08SC 18.2 fl oz (8/14) Bravo 720 1.5 pt (9/8)	1.5	1.8	3.3	4.0	5871
Tilt 3.6EC 2 fl oz + Bravo 720 1 pt (7/16) Provost 433SC 8 fl oz (8/14, 9/8)	1.5	2.5	4.0	3.5	5466
LSD	n.s.	n.s.	n.s.	n.s.	n.s.

[1] Fungicides were applied at R_3 (beginning pod) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity).
[2] Number of symptomatic plants per plot.
[3] 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.
[4] Yields are weight of peanuts with 7% moisture. Peanuts were dug on 2 Oct and harvested on 10 Oct.
Means are not significantly different (n.s.) according to Fisher's Protected LSD (P=0.05).

XXVII. EVALUATION OF FOLIAR FUNGICIDES FOR CONTROL OF LEAFSPOT DISEASES AND SOUTHERN STEM ROT OF PEANUT (LFSPOT208, TAREC Res. Farm, Suffolk, Field 16A)

A. PURPOSE: To evaluate flutriafol (TopGuard) on peanut and compare performance to Folicur (tebuconazole), Headline (pyraclostrobin), Provost (prothioconazole), and Tilt/Bravo + Convoy (flutolonil).

B. EXPERIMENTAL DESIGN:
1. Four randomized complete blocks separated by 10-ft alleys
2. Four, 35-ft rows per plot with treatments applied to the center two rows
3. Seeding rate of ca. 4 seed/ft of row

C. APPLICATION OF TREATMENTS: Foliar sprays were applied with three, $D_3$23 nozzles/row delivering 15 gal/A. The initial application was at beginning pod (R_3) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until beginning maturity (R_7).

D. TREATMENT AND RATE/A:
1. Untreated Check
2. Bravo 720 1.5 pt (1st, 2nd, 3rd spray)
3. Bravo 720 1.5 pt (1st spray)
   Topguard 1.04SC 7 fl oz (2nd, 3rd spray)
4. Bravo 720 1.5 pt (1st spray)
   Topguard 1.04SC 10 fl oz (2nd, 3rd spray)
5. Bravo 720 1.5 pt (1st spray)
   Topguard 1.04SC 14 fl oz (2nd, 3rd spray)
6. Bravo 720 1.5 pt (1st spray)
   Topguard 1.04SC 28 fl oz (2nd, 3rd spray)
7. Bravo 720 1.5 pt (1st spray)
   Folicur 3.6EC 7.2 fl oz + Induce 1.2 fl oz (2nd, 3rd spray)
8. Bravo 720 1.5 pt (1st spray)
   Bravo 720 1 pt + Topguard 1.04SC 7 fl oz (2nd, 3rd spray)
9. Proline 480SC 5.7 fl oz (1st, 2nd spray)
   Headline 2.09SC 9 fl oz (3rd spray)
10. Bravo 720 1.5 pt (1st spray)
    Provost 433SC 8 fl oz (2nd, 3rd spray)
11. Tilt 3.6EC 2 fl oz + Bravo 720 1 pt (1st spray)
    Tilt 3.6EC 2 fl oz + Bravo 720 1 pt + Convoy 40SC 16 fl oz (2nd, 3rd spray)
12. Tilt 3.6EC 2 fl oz + Bravo 720 1 pt (1st spray)
    Tilt 3.6EC 2 fl oz + Bravo 720 1 pt + Convoy 20 fl oz (2nd, 3rd spray)

E. ADDITIONAL INFORMATION:
1. Location: TAREC Farm, Hare Rd.
2. Crop history: corn 2007, cotton 2006, peanut 2005
3. Land preparation: Rip under rows and strip till into wheat cover crop (15 Apr)
4. Planting date and cultivar: 9 May, CHAMPS

5. Soil fertility report (Jan 2008):

pH.....	6.49	K	59 ppm
Ca	244 ppm	Zn.....	0.5 ppm
Mg	45 ppm	Mn.....	2.4 ppm
P	46 ppm	Soil type.....	Kenansville loamy fine sand

6. Herbicide:
   Pre-plant – Touchdown 23 fl oz/A (10 Apr)
   Dual II Magnum 1 pt + Prowl H_2O 1 pt/A (18 Apr)
   Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.46 oz/A (14 May)
   Post-emergence - Select 2EC 8 fl oz + Coverall 4 fl oz/A (11 Jul)
   Poast Plus 1.5 pt/A (2 Sep)
7. Cylindrocladium black rot control: Vapam 7.5 gal/A (15 Apr)
8. Insecticide: Temik 15G 7 lb/A (9 May)
   Orthene 97S 8 oz/A (3 Jun)
   Lorsban 15G 13 lb/A (19 Jun)
   Baythroid XL 3 fl oz/A (2 Sep)
9. Acaricide: Danitol 6 fl oz/A (25 Jul)
10. Sclerotinia blight control: Omega 500 1 pt/A (30 Jul, 25 Aug)
11. Additional crop management:
    a. Liquid boron 1 qt/A (18 Apr)
    b. Landplaster: Peanut Maker 1200 lb/A (14 Jun)
    c. Cultivation: 19 Jun
    d. Liquid Mn 3 pt/A (17 Jul, 12 Aug)
    e. Irrigation: ca. 1" (27 Aug)
12. Harvest date: 8 Oct

Table 91. Effect of treatments on foliar disease incidence and severity of defoliation.

Treatment, rate/A and application timing[1]	% leaf spot[2]		% defoliation[3]
	3 Sep	2 Oct	(2 Oct)
Untreated Check	4.0 a	7.0 a	0.8 a
Bravo 720 1.5 pt (7/16, 8/14, 9/8)	0.5 b	0.3 b	0.0 b
Bravo 720 1.5 pt (7/16) Topguard 1.04SC 7 fl oz (8/14, 9/8)	0.5 b	0.1 b	0.0 b
Bravo 720 1.5 pt (7/16) Topguard 1.04SC 10 fl oz (8/14, 9/8)	0.3 b	0.5 b	0.1 b
Bravo 720 1.5 pt (7/16) Topguard 1.04SC 14 fl oz (8/14, 9/8)	0.5 b	0.1 b	0.0 b
Bravo 720 1.5 pt (7/16) Topguard 1.04SC 28 fl oz (8/14, 9/8)	0.8 b	0.3 b	0.0 b
Bravo 720 1.5 pt (7/16) Folicur 3.6EC 7.2 fl oz + Induce 1.2 fl oz (8/14, 9/8)	1.0 b	0.1 b	0.0 b
Bravo 720 1.5 pt (7/16) Bravo 720 1 pt + Topguard 1.04SC 7 fl oz (8/14, 9/8)	0.1 b	0.3 b	0.0 b
Proline 480SC 5.7 fl oz (7/16, 8/14) Headline 2.09SC 9 fl oz (9/8)	0.3 b	0.1 b	0.0 b
Bravo 720 1.5 pt (7/16) Provost 433SC 8 fl oz (8/14, 9/8)	0.3 b	0.1 b	0.0 b
Tilt 3.6EC 2 fl oz + Bravo 720 1 pt (7/16) Tilt 3.6EC 2 fl oz + Bravo 720 1 pt + Convoy 40SC 16 fl oz (8/14, 9/8)	0.5 b	0.1 b	0.0 b
Tilt 3.6EC 2 fl oz + Bravo 720 1 pt (7/16) Tilt 3.6EC 2 fl oz + Bravo 720 1 pt + Convoy 20 fl oz (8/14, 9/8)	0.6 b	0.3 b	0.0 b
LSD	1.5	1.7	0.2

[1] Fungicides were applied at R_3 (beginning pod) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity).

[2] Leaf spot rating scale: 0=none; 100=spots on all leaflets.

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

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

Table 92. Effect of treatments on soilborne disease and Tomato Spotted Wilt Virus (TSWV) incidence.

Treatment, rate/A and application timing[1]	CBR[2]		Sclerotinia blight[3]		TSWV[4]
	3 Sep	2 Oct	3 Sep	2 Oct	(2 Oct)
Untreated Check	4.0	3.0 b	1.8	2.0	16.3
Bravo 720 1.5 pt (7/16, 8/14, 9/8)	7.3	10.0 a	0.8	3.3	13.0
Bravo 720 1.5 pt (7/16) Topguard 1.04SC 7 fl oz (8/14, 9/8)	6.0	5.5 b	1.3	2.8	16.3
Bravo 720 1.5 pt (7/16) Topguard 1.04SC 10 fl oz (8/14, 9/8)	8.0	3.5 b	1.3	2.0	21.3
Bravo 720 1.5 pt (7/16) Topguard 1.04SC 14 fl oz (8/14, 9/8)	2.3	2.0 b	0.5	1.0	10.0
Bravo 720 1.5 pt (7/16) Topguard 1.04SC 28 fl oz (8/14, 9/8)	4.3	3.0 b	3.0	4.3	15.0
Bravo 720 1.5 pt (7/16) Folicur 3.6EC 7.2 fl oz + Induce 1.2 fl oz (8/14, 9/8)	6.8	4.8 b	1.5	1.0	17.8
Bravo 720 1.5 pt (7/16) Bravo 720 1 pt + Topguard 1.04SC 7 fl oz (8/14, 9/8)	4.0	3.3 b	2.5	1.5	16.3
Proline 480SC 5.7 fl oz (7/16, 8/14) Headline 2.09SC 9 fl oz (9/8)	5.8	3.8 b	1.5	2.0	16.3
Bravo 720 1.5 pt (7/16) Provost 433SC 8 fl oz (8/14, 9/8)	7.5	5.0 b	0.8	2.3	18.3
Tilt 3.6EC 2 fl oz + Bravo 720 1 pt (7/16) Tilt 3.6EC 2 fl oz + Bravo 720 1 pt + Convoy 40SC 16 fl oz (8/14, 9/8)	5.3	5.0 b	2.3	0.3	18.3
Tilt 3.6EC 2 fl oz + Bravo 720 1 pt (7/16) Tilt 3.6EC 2 fl oz + Bravo 720 1 pt + Convoy 20 fl oz (8/14, 9/8)	5.0	3.0 b	2.5	2.0	17.3
LSD	n.s.	4.1	n.s.	n.s.	n.s.

[1] Fungicides were applied at R_3 (beginning pod) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity).
[2] Number of symptomatic plants per plot.
[3] 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.
[4] Number of symptomatic plants per plot.
Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05), n.s. denotes not significant.

Note: Only traces of southern stem rot were detected in widely scattered plots.

Table 93. Effect of treatments on yield of peanuts.

Treatment, rate/A and application timing[1]	Yield** (lb/A)
Untreated Check	4991
Bravo 720 1.5 pt (7/16, 8/14, 9/8)	4511
Bravo 720 1.5 pt (7/16) Topguard 1.04SC 7 fl oz (8/14, 9/8)	5046
Bravo 720 1.5 pt (7/16) Topguard 1.04SC 10 fl oz (8/14, 9/8)	3938
Bravo 720 1.5 pt (7/16) Topguard 1.04SC 14 fl oz (8/14, 9/8)	5263
Bravo 720 1.5 pt (7/16) Topguard 1.04SC 28 fl oz (8/14, 9/8)	5293
Bravo 720 1.5 pt (7/16) Folicur 3.6EC 7.2 fl oz + Induce 1.2 fl oz (8/14, 9/8)	5160
Bravo 720 1.5 pt (7/16) Bravo 720 1 pt + Topguard 1.04SC 7 fl oz (8/14, 9/8)	5328
Proline 480SC 5.7 fl oz (7/16, 8/14) Headline 2.09SC 9 fl oz (9/8)	5087
Bravo 720 1.5 pt (7/16) Provost 433SC 8 fl oz (8/14, 9/8)	4813
Tilt 3.6EC 2 fl oz + Bravo 720 1 pt (7/16) Tilt 3.6EC 2 fl oz + Bravo 720 1 pt + Convoy 40SC 16 fl oz (8/14, 9/8)	4257
Tilt 3.6EC 2 fl oz + Bravo 720 1 pt (7/16) Tilt 3.6EC 2 fl oz + Bravo 720 1 pt + Convoy 20 fl oz (8/14, 9/8)	4828
LSD	n.s.

* Fungicides were applied at R_3 (beginning pod) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity).

** Yields are weight of peanuts with 7% moisture. Peanuts were dug on 3 Oct and harvested on 8 Oct. Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05), n.s. denotes not significant.

XXVIII. EVALUATION OF FOLIAR FUNGICIDES FOR CONTROL OF LEAF SPOT DISEASES AND SOUTHERN STEM ROT OF PEANUT (LFSPOT308, TAREC Research Farm, Suffolk, Field 9A)

A. PURPOSE: To compare fungicide chemistries for disease control in a reduced input program

B. EXPERIMENTAL DESIGN:
1. Four randomized complete blocks separated by 10-ft alleys
2. Four, 35-ft rows per plot with treatments applied to the center two rows
3. Seeding rate of ca. 4 seed/ft of row

C. APPLICATION OF TREATMENTS: Foliar sprays were applied with three, $D_3$23 nozzles/row delivering 15 gal/A. The initial application was at beginning seed (R_5) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until beginning maturity (R_7).

D. TREATMENT AND RATE/A:
1. Untreated Check
2. Bravo 720 1.5 pt (1st, 2nd, 3rd spray)
3. Folicur 3.6EC 7.2 fl oz + Induce 1.2 fl oz (1st, 2nd spray)
   Headline 2.09SC 9 fl oz (3rd spray)
4. Tebuzol 3.6SC 7.2 fl oz + Induce 2.4 fl oz (1st, 2nd spray)
   Headline 2.09SC 9 fl oz (3rd spray)
5. Tebuzol 3.6SC 7.2 fl oz + Induce 2.4 fl oz (1st, 2nd spray)
   Headline 2.09SC 9 fl oz (3rd spray)
6. Tebuzol 3.6SC 7.2 fl oz + Induce 2.4 fl oz (1st, 2nd, 3rd spray)
7. Tebuzol 3.6SC 7.2 fl oz + Induce 2.4 fl oz (1st, 3rd spray)
   Abound 2.08SC 18.2 fl oz (2nd spray)
8. Artisan 3.6F 18 fl oz + Topsin 4.5FL 5 fl oz (1st, 2nd spray)
   Headline 2.09SC 9 fl oz (3rd spray)
9. Convoy 40SC 16 fl oz + Topsin 4.5FL 10 fl oz (1st, 2nd spray)
   Headline 2.09SC 9 fl oz (3rd spray)
10. Convoy 20 fl oz + Topsin 4.5FL 10 fl oz (1st, 2nd spray)
    Headline 2.09SC 9 fl oz (3rd spray)
11. Convoy 40SC 29 fl oz + Topsin 4.5FL 10 fl oz (1st, 2nd spray)
    Headline 2.09SC 9 fl oz (3rd spray)
12. Stratego 7 fl oz (1st, 2nd spray)
    Headline 2.09SC 9 fl oz (3rd spray)
13. Proline 480SC 5.7 fl oz (1st, 2nd spray)
    Headline 2.09SC 9 fl oz (3rd spray)
14. Provost 433SC 8 fl oz (1st, 2nd, 3rd spray)
15. Provost 433SC 10.7 fl oz (1st, 2nd, 3rd spray)

E. ADDITIONAL INFORMATION:
1. Location: TAREC Farm, Hare Rd.
2. Crop history: corn 2007, cotton 2006, peanut 2005
3. Land preparation: Rip under rows and strip till into wheat cover crop (15 Apr)
4. Planting date and cultivar: 9 May, CHAMPS

5. Soil fertility report (Jan 2008):

pH.....	6.43	K	49 ppm
Ca	220 ppm	Zn.....	0.4 ppm
Mg	32 ppm	Mn.....	1.8 ppm
P	33 ppm	Soil type.....	Kenansville loamy fine sand

6. Herbicide:
   Pre-plant – Touchdown 23 fl oz/A (10 Apr)
   Dual II Magnum 1 pt + Prowl H_2O 1 pt + Strongarm 0.23 oz/A (18 Apr)
   Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.23 oz/A (6 May)
   Post-emergence - Poast 2 pt (18 Jun, 24 Jun); 1 pt/A (19 Aug)
   Select 2EC 8 fl oz + Coverall 2 fl oz (8 Jul)
   Select 2EC 8 fl oz + Pursuit 1.4 fl oz + Induce 4 fl oz/A (21 Jul)
7. Cylindrocladium black rot control: Vapam 7.5 gal/A (15 Apr)
8. Insecticide: Temik 15G 7 lb/A (9 May)
   Orthene 97S 8 oz/A (19 May, 3 Jun)
   Lorsban 15G 13 lb/A (19 Jun)
   Baythroid XL 3 fl oz/A (2 Sep)
9. Acaricide: Danitol 16 fl oz/A (13 Aug)
10. Sclerotinia blight control: Omega 500 1 pt/A (30 Jul, 25 Aug)
11. Additional crop management:
    a. Liquid boron 1 qt/A (18 Apr)
    b. Landplaster: Peanut Maker 1200 lb/A (14 Jun)
    c. Cultivation: 19 Jun
    d. Liquid Mn 3 pt/A (25 Jun, 17 Jul, 14 Aug)
    e. Irrigation: ca. 1" (27 Aug)
12. Harvest date: 8 Oct

Table 94. Effect of treatments on incidence of early leaf spot and severity of defoliation.

Treatment, rate/A and application timing[1]	% leaf spot[2] 31 Aug	% leaf spot[2] 30 Sep	% defoliation[3]
Untreated Check	28.8 a	97.0 a	44.5 a
Bravo 720 1.5 pt (7/28, 8/25, 9/15)	1.8 b-d	6.5 d	1.0 b
Folicur 3.6EC 7.2 fl oz + Induce 1.2 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	1.3 b-d	38.3 c	4.3 b
Tebuzol 3.6SC 7.2 fl oz + Induce 2.4 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	4.5 b-d	63.8 b	7.5 b
Tebuzol 3.6SC 7.2 fl oz + Induce 2.4 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	1.0 b-d	20.8 cd	1.3 b
Tebuzol 3.6SC 7.2 fl oz + Induce 2.4 fl oz (7/28, 8/25, 9/15)	0.1 d	28.8 cd	1.5 b
Tebuzol 3.6SC 7.2 fl oz + Induce 2.4 fl oz (7/28, 9/15) Abound 2.08SC 18.2 fl oz (8/25)	1.0 b-d	4.5 d	1.0 b
Artisan 3.6F 18 fl oz + Topsin 4.5FL 5 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	1.3 b-d	40.0 c	1.8 b
Convoy 40SC 16 fl oz + Topsin 4.5FL 10 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	5.3 b	40.0 c	4.3 b
Convoy 20 fl oz + Topsin 4.5FL 10 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	4.0 b-d	40.0 c	2.8 b
Convoy 40SC 29 fl oz + Topsin 4.5FL 10 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	4.8 bc	63.8 b	4.5 b
Stratego 7 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	1.5 b-d	6.5 d	1.0 b
Proline 480SC 5.7 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	0.3 cd	4.8 d	1.0 b
Provost 433SC 8 fl oz (7/28, 8/25, 9/15)	0.8 b-d	10.5 d	1.0 b
Provost 433SC 10.7 fl oz (7/28, 8/25, 9/15)	0.8 b-d	15.3 d	2.0 b
LSD	4.3	21.8	11.5

[1] Fungicides were applied at R_5 (beginning seed) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity).
[2] Leaf spot rating scale: 0=none; 100=spots on all leaflets.
[3] Defoliation rating scale: 0=none, 100=no leaves on plants.
Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05). Arcsine transformation of percentage data was made in statistical analysis.

Note: Southern stem rot incidence was widely scattered in the field trial and not likely responsible for any significant losses of yield.

Table 95. Effect of treatments on disease incidence other diseases.

Treatment, rate/A and application timing[1]	CBR[2]		Sclerotinia[3]		TSWV[4]
	31 Aug	30 Sep	31 Aug	30 Sep	(30 Sep)
Untreated Check	1.5	0.8 bc	0.0	0.0	7.5
Bravo 720 1.5 pt (7/28, 8/25, 9/15)	0.3	0.3 bc	0.3	0.5	8.5
Folicur 3.6EC 7.2 fl oz + Induce 1.2 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	1.0	0.3 bc	0.3	0.5	10.5
Tebuzol 3.6SC 7.2 fl oz + Induce 2.4 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	1.3	0.5 bc	0.0	0.8	12.0
Tebuzol 3.6SC 7.2 fl oz + Induce 2.4 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	0.3	0.0 c	0.3	1.8	9.3
Tebuzol 3.6SC 7.2 fl oz + Induce 2.4 fl oz (7/28, 8/25, 9/15)	0.0	0.0 c	0.0	0.5	10.3
Tebuzol 3.6SC 7.2 fl oz + Induce 2.4 fl oz (7/28, 9/15) Abound 2.08SC 18.2 fl oz (8/25)	0.8	0.3 bc	0.3	1.0	11.0
Artisan 3.6F 18 fl oz + Topsin 4.5FL 5 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	0.8	0.5 bc	0.0	0.3	10.8
Convoy 40SC 16 fl oz + Topsin 4.5FL 10 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	2.5	2.3 ab	0.0	0.8	13.3
Convoy 20 fl oz + Topsin 4.5FL 10 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	4.3	4.0 a	0.0	1.0	13.5
Convoy 40SC 29 fl oz + Topsin 4.5FL 10 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	1.3	0.0 c	0.3	1.0	11.5
Stratego 7 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	0.5	0.3 bc	1.0	4.5	7.8
Proline 480SC 5.7 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	1.0	1.3 bc	0.0	0.5	16.3
Provost 433SC 8 fl oz (7/28, 8/25, 9/15)	2.3	0.0 c	0.0	0.3	14.0
Provost 433SC 10.7 fl oz (7/28, 8/25, 9/15)	2.5	1.3 bc	0.0	0.5	8.0
LSD	n.s.	2.1	n.s.	n.s.	n.s.

[1]Fungicides were applied at R_5 (beginning seed) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity). [2]Number of symptomatic plants per plot. [3]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 *Sclerotinia minor* and included 6 in. on either side of that point. [4]Number of symptomatic plants per plot.
Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05), n.s. denotes not significant.

Table 96. Effect of treatments on yield of peanuts.

Treatment, rate/A and application timing*	Yield** (bu/A)
Untreated Check	5219
Bravo 720 1.5 pt (7/28, 8/25, 9/15)	6201
Folicur 3.6EC 7.2 fl oz + Induce 1.2 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	5779
Tebuzol 3.6SC 7.2 fl oz + Induce 2.4 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	5490
Tebuzol 3.6SC 7.2 fl oz + Induce 2.4 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	5816
Tebuzol 3.6SC 7.2 fl oz + Induce 2.4 fl oz (7/28, 8/25, 9/15)	6273
Tebuzol 3.6SC 7.2 fl oz + Induce 2.4 fl oz (7/28, 9/15) Abound 2.08SC 18.2 fl oz (8/25)	6256
Artisan 3.6F 18 fl oz + Topsin 4.5FL 5 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	6040
Convoy 40SC 16 fl oz + Topsin 4.5FL 10 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	5261
Convoy 20 fl oz + Topsin 4.5FL 10 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	5993
Convoy 40SC 29 fl oz + Topsin 4.5FL 10 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	5648
Stratego 7 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	6000
Proline 480SC 5.7 fl oz (7/28, 8/25) Headline 2.09SC 9 fl oz (9/15)	5983
Provost 433SC 8 fl oz (7/28, 8/25, 9/15)	5887
Provost 433SC 10.7 fl oz (7/28, 8/25, 9/15)	5623
LSD	n.s.

* Fungicides were applied at R_5 (beginning seed) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity).

** Yields are weight of peanuts with 7% moisture. Peanuts were dug on 3 Oct and harvested on 8 Oct. Means followed by the same letter(s) in a column are not significantly different according to Student-Newman-Keuls test (P=0.05).

XXIX. RESPONSE OF VIRGINIA- AND RUNNER-TYPE PEANUTS TO SOIL FUMIGATION WITH METAM SODIUM (PNEMA108, TAREC Res. Farm, Suffolk, Field 29)

A. PURPOSE: To compare the response of peanut cultivars to soil fumigation with metam sodium and susceptibility to Tomato Spotted Wilt, Cylindrocladium black rot, and nematodes

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks separated by 15-ft alleyways
2. Split-plot design with main plots of treatments and subplots of cultivars
3. Two, 35-ft rows per plot with 36 in. row spacing

C. APPLICATION OF TREATMENTS: Vapam 42% was applied 8 in. under each row by a single chisel on 14 Apr. Rows were bedded (24 in. wide and 4 in. high) during application. Temik 15G was applied in-furrow at planting on 1 May.

D. PEANUT TYPE, TREATMENT, AND RATE/A (Main plots):
1. Virginia-type peanut, Temik 15G 7 lb/A (in-furrow)
2. Virginia-type peanut, Vapam 42% 7.5 gal + Temik 15G 7 lb/A (in-furrow)
3. Runner-type peanut, Temik 15G 7 lb/A (in-furrow)
4. Runner-type peanut, Vapam 42% 7.5 gal/A + Temik 15G 7 lb/A (in-furrow)

E. CULTIVAR (Sub-plots):

Virginia-types	Runner-types
1. Perry	1. GA Green
2. Wilson	2. GA-02C
3. CHAMPS	3. GA-03L
4. GA Hi O/L	4. Florida 07-R
5. Florida Fancy	5. McCloud
6. Georgia 05E	6. AP-4

F. ADDITIONAL INFORMATION:
1. Location: TAREC Research Farm, Hare Rd., Suffolk
2. Crop history: wheat/soybean 2007, peanut 2006, wheat/soybean 2005
3. Land preparation: Disk, plow, disk and level with field cultivator
4. Planting date: 1 May
5. Soil fertility report (Jan 2008):

pH.....	6.11	K	55 ppm
Ca	259 ppm	Zn.....	0.7 ppm
Mg	34 ppm	Mn.....	1.6 ppm
P	21 ppm	Soil type.....	Goldsboro fine sandy loam

6. Herbicide:
Pre-plant - Prowl H_2O 1 pt/A (26 Mar)
Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (18 Apr)
Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (6 May)
Post-emergence - Basagran 1.5 pt + Poast 1.0 pt + Coverall 4 fl oz/A (11 Jul)
Poast 1.5 pt/A (2 Sep)
7. Insecticide: Orthene 97S 8 oz/A (19 May, 3 Jun)
Lorsban 15G 13 lb/A (19 Jun)
Baythroid XL 3 fl oz/A (2 Sep)

8. Acaricide: Danitol 16 fl oz/A (13 Aug)

9. Leaf spot control: Folicur 7.2 fl oz + Induce 1.2 fl oz/A (17 Jul)
   Provost 9 fl oz/A (12 Aug); Headline 9 fl oz/A (9 Sep)
10. Sclerotinia blight control: Omega 1 pt/A (12 Aug)
11. Additional crop management:
    a. Liquid boron 1 qt/A (26 Mar)
    b. Landplaster: Peanut Maker 1200 lb/A (14 Jun)
    c. Cultivation: 19 Jun
    d. Liquid Mn 3 pt/A (25 Jun, 17 Jul, 12 Aug)
12. Harvest date: 14 Oct 2008

Table 97. Effect of market type and treatment on nematode populations.

Market type and treatment	Root-knot juveniles/ 500 cc soil*
Virginia-type cultivars, Temik 15G 7 lb/A (F)	653
Virginia-type cultivars, Vapam 7.5 gal/A + Temik 15G 7 lb/A(F)	182
Runner-type cultivars, Temik 15G 7 lb/A (F)	417
Runner-type cultivars, Vapam 7.5 gal/A + Temik 15G 7 lb/A (F)	342
P value	.1699

* Soil samples were collected from all subplots within each treatment on 29 Jul.
Means in the column were not significantly different according to Fisher's Protected LSD (*P*=0.05). Square root transformation of data was made in analysis to determine statistical significance.

Table 98. Effect of Vapam treatment on plant populations, incidence of Tomato Spotted Wilt (TSWV) and Cylindrocladium black rot (CBR) in peanut cultivars.

Treatment, rate/A and cultivar	Plants/ft[1] (26 May)	TSWV[2] 8 Sep	TSWV[2] 4 Oct	CBR[3] 8 Sep	CBR[3] 4 Oct
Virginia-type					
Temik 15G 7 lb					
Perry	1.88	3.3	18.3	14.0 bc	9.0 c
Wilson	1.98	1.3	16.8	37.8 a	37.0 a
CHAMPS	1.94	1.8	17.0	28.5 ab	30.0 ab
GA Hi O/L	1.85	0.8	18.5	15.3 bc	17.3 bc
Florida Fancy	1.81	0.8	21.5	13.3 c	12.3 bc
GA 05E	1.87	1.5	23.0	17.0 bc	13.0 bc
P(F)	.6679	.1813	.6768	.0521	.0253
Vapam 7.5 gal + Temik 15G 7 lb					
Perry	1.97 b	1.0	12.3 b	6.8 b	4.8 bc
Wilson	2.18 a	1.8	21.5 a	17.5 a	18.8 a
CHAMPS	1.78 c	1.3	25.8 a	17.3 a	16.3 a
GA Hi O/L	1.86 bc	2.0	12.0 b	7.0 b	8.3 b
Florida Fancy	1.86 bc	0.0	10.7 b	8.5 b	4.8 bc
GA 05E	1.80 c	1.0	10.5 b	6.0 b	3.0 c
P(F)	.0002	.6284	.0014	.0001	.0001
Runner-type					
Temik 15G 7 lb					
GA Green	2.09 a	0.8	29.3 a	20.8	16.5
GA-02C	1.95 a	0.5	21.0 bc	7.8	6.3
GA-03L	1.66 b	0.3	14.0 c	11.3	10.3
Florida 07-R	2.03 a	0.3	22.0 ab	17.0	19.0
McCloud	1.23 c	0.5	23.8 ab	11.5	12.3
AP-4	1.68 b	0.8	19.8 bc	8.8	8.5
P(F)	.0001	.8679	.0226	.2350	.1050
Vapam 7.5 gal + Temik 15G 7 lb					
GA Green	2.09 a	0.5 b	15.3	10.0	10.0
GA-02C	1.94 ab	0.5 b	6.8	1.8	1.8
GA-03L	1.62 c	0.5 b	15.5	7.3	7.0
Florida 07-R	2.05 a	1.0 b	16.5	4.3	6.5
McCloud	1.37 d	2.3 a	14.5	5.0	4.8
AP-4	1.78 bc	0.3 b	10.0	2.8	3.3
P(F)	.0001	.0367	.2901	.1138	.2348
Comparison of main effects					
Virginia-type, Temik 15G 7 lb	1.89	1.5 a	19.2 ab	21.0 a	19.8 a
Virginia-type Vapam 7.5 gal + Temik 15G 7 lb	1.91	1.2 ab	15.5 bc	10.5 bc	9.3 bc
Runner-type, Temik 15G 7 lb	1.77	0.5 b	21.6 a	12.8 b	12.1 b
Runner-type Vapam 7.5 gal + Temik 15G 7 lb	1.81	0.8 ab	13.1 c	5.2 c	5.5 c
P(F)	.1690	.0364	.0013	.0001	.0001

[1] Determined from counts of two, 35-ft rows per plot.
[2] Counts of plants per plot with symptoms of TSWV.
[3] Number of plants per plot with symptoms of CBR.
Means followed by the same letter(s) within a column and group are not significantly different according to Fisher's Protected LSD (*P*=0.05), except CBR ratings on 8 Sep for Virginia-type w/Temik 7 lb/A were analyzed at P=0.10.

Table 99. Effect of treatment and cultivar selection on root and pod disease.

Treatment, rate/A and cultivar	Root-knot gall index[1] (0-10) (6 Oct)	Root disease[2] (0-10) (6 Oct)	Pod rot[3] (0-10) (6 Oct)
Virginia-type			
Temik 15G 7 lb			
Perry	2.3	1.5 c	1.5 b
Wilson	2.0	5.0 a	5.0 a
CHAMPS	3.0	4.8 ab	4.3 a
GA Hi O/L	2.3	3.5 a-c	2.5 b
Florida Fancy	2.5	1.8 c	1.5 b
GA 05E	2.8	2.3 bc	2.3 b
P(F)	.6982	.0474	.0011
Vapam 7.5 gal + Temik 15G 7 lb			
Perry	1.5	1.5 b	1.8 bc
Wilson	1.0	3.5 a	3.3 a
CHAMPS	1.3	3.3 a	2.8 ab
GA Hi O/L	1.0	2.0 b	1.8 bc
Florida Fancy	1.0	1.5 b	1.5 c
GA 05E	1.3	1.3 b	1.3 c
P(F)	.3759	.0010	.0051
Runner-type			
Temik 15G 7 lb			
GA Green	2.8	3.3 ab	3.0 ab
GA-02C	2.8	1.3 c	2.0 bc
GA-03L	2.3	1.5 c	1.5 c
Florida 07-R	2.8	3.8 a	3.8 a
McCloud	2.5	2.5 a-c	2.3 bc
AP-4	2.8	2.0 bc	1.5 c
P(F)	.7951	.0114	.0131
Vapam 7.5 gal + Temik 15G 7 lb			
GA Green	1.3	1.8	2.0
GA-02C	1.0	0.5	0.6
GA-03L	1.0	1.5	2.0
Florida 07-R	1.0	1.3	1.5
McCloud	1.0	1.3	1.3
AP-4	1.0	1.0	1.5
P(F)	.4509	.5258	.2446
Comparison of main effects			
Virginia-type, Temik 15G 7 lb	2.5 a	3.1 a	2.8 a
Virginia-type Vapam 7.5 gal + Temik 15G 7 lb	1.2 b	2.2 b	2.0 bc
Runner-type, Temik 15G 7 lb	2.6 a	2.4 ab	2.3 ab
Runner-type Vapam 7.5 gal + Temik 15G 7 lb	1.0 b	1.2 c	1.5 c
P(F)	.0001	.0002	.0037

[1] Root-knot nematode galling scale: 0=none, 10=100% of roots with galls. Ratings were made after digging on 6 Oct.
[2] Root disease includes Cylindrocladium black rot and Southern stem rot. Rating scale: 0=none, 10=100% of roots decayed.
[3] Pod rot index: 0=none, 10=total necrosis.
Means followed by the same letter(s) within a column and group are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 100. Effect of treatment and cultivar selection on yield and value of peanuts.

Treatment, rate/A and cultivar	Yield* (lb/A)	Value** ($/A)
Virginia-type		
Temik 15G 7 lb		
Perry	4171 a	786 a
Wilson	1761 c	298 c
CHAMPS	2108 c	370 c
GA Hi O/L	3173 b	561 b
Florida Fancy	3957 ab	728 ab
GA 05E	3756 ab	695 ab
P(F)	.0003	.0001
Vapam 7.5 gal + Temik 15G 7 lb		
Perry	4471 a	787 a
Wilson	3072 b	520 b
CHAMPS	2909 b	518 b
GA Hi O/L	3463 b	627 b
Florida Fancy	4506 a	806 a
GA 05E	4390 a	864 a
P(F)	.0009	.0003
Runner-type		
Temik 15G 7 lb		
GA Green	3016 c	545 b
GA-02C	3748 a	690 a
GA-03L	3679 ab	636 ab
Florida 07-R	3102 bc	512 b
McCloud	3112 bc	532 b
AP-4	3910 a	704 a
P(F)	.0655	.0165
Vapam 7.5 gal + Temik 15G 7 lb		
GA Green	3814	687 bc
GA-02C	4543	829 ab
GA-03L	3854	648 c
Florida 07-R	4534	795 a-c
McCloud	3803	660 c
AP-4	4551	847 a
P(F)	.1628	.0420
Comparison of main effects		
Virginia-type, Temik 15G 7 lb	3155 c	573 c
Virginia-type Vapam 7.5 gal + Temik 15G 7 lb	3802 ab	687 ab
Runner-type, Temik 15G 7 lb	3428 bc	603 bc
Runner-type Vapam 7.5 gal + Temik 15G 7 lb	4183 a	744 a
P(F)	.0003	.0013

* Yields are weight of peanuts with moisture content of 7%. Peanuts were dug on 6 Oct and harvested on 14 Oct.

** Composite samples were graded to determine market value at loan rate and multiplied by yield to estimate value at farm gate ($/A).

Means followed by the same letter(s) in a column and group are not significantly different (Fisher's Protected LSD, *P*=0.05), except yield of runner-type peanuts with Temik 7 lb/A was analyzed at P=0.10.

Table 101. Effect of treatment and cultivar on grade characteristics and value.

Treatment, rate/A and cultivar	%[1]									Value[2] (¢/lb)
	FM	LSK	FAN	ELK	SS	OK	DK	Conc. RMD	SMK	
Virginia -type										
Temik 15G 7 lb										
Perry	0	0	75	53	2	2	0	0.00	70	18.85000
Wilson	0	0	78	37	2	3	1	0.00	63	16.91000
CHAMPS	0	0	79	40	3	3	2	0.00	65	17.53000
GA Hi O/L	0	0	60	45	10	2	4	0.10	61	17.67000[3]
Florida Fancy	0	0	79	51	4	2	2	0.00	67	18.39000
GA 05E	0	0	65	48	6	2	2	0.00	66	18.51000
Vapam 7.5 gal + Temik 15G 7 lb										
Perry	0	0	79	49	2	2	2	0.00	66	17.62000
Wilson	0	0	75	39	3	3	1	0.00	62	16.94000
CHAMPS	0	0	79	46	2	3	1	0.00	66	17.81000
GA Hi O/L	0	0	64	50	9	3	4	0.00	63	18.12000[3]
Florida Fancy	0	0	86	54	2	2	1	0.00	66	17.88000
GA 05E	0	0	70	58	4	2	1	0.00	71	19.68000
Runner-type										
Temik 15G 7 lb										
GA Green	1	1	--	--	2	4	1	0.00	72	18.08687
GA-02C	1	1	--	--	4	2	0	0.00	72	18.42225
GA-03L	2	1	--	--	4	3	0	0.00	67	17.29388
Florida 07-R	2	2	--	--	7	5	1	0.00	61	16.49224
McCloud	1	2	--	--	4	5	0	0.00	66	17.09192
AP-4	1	1	--	--	4	3	0	0.00	70	18.01758
Vapam 7.5 gal + Temik 15G 7 lb										
GA Green	1	1	--	--	1	3	0	0.00	73	18.01758
GA-02C	1	1	--	--	3	3	0	0.00	72	18.25515
GA-03L	1	1	--	--	3	3	1	0.00	66	16.80890
Florida 07-R	1	1	--	--	4	3	1	0.12	68	17.53143
McCloud	1	1	--	--	3	4	0	0.00	68	17.36424
AP-4	1	0	--	--	2	3	0	0.00	74	18.61000

[1] FM=foreign material, LSK=loose shelled kernels, FAN=large whole pods, ELK=extra large kernels, SS=sound splits, OK=other kernels, DK=damaged kernels, Conc. RMD=concealed damage from rancidity, mold or decay, SMK=sound mature kernels. Data are from a composite sample of four reps of each cultivar.

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

[3] Segregation 2 due to damage ≥2.5% or concealed RMD >1.0%.

XXX. COMPARISON OF VIRGINIA- AND RUNNER-TYPE PEANUT CULTIVARS IN STRIP-TILLAGE AND CONVENTIONAL (PTIL108, Field 64B, Wyne Farm, Suffolk)

A. PURPOSE: To compare the profitability of cultivars in reduced tillage systems

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks separated by 10-ft alleyways
2. Randomized strips of tillage and market-type
3. Cultivars in subplots of two, 35-ft rows with 36-in. row spacing

C. TILLAGE: Tillage was performed in a field planted to a cover crop of wheat. Conventional tillage included disking followed by chisel plowing, disking and leveling with a field cultivator. Vapam 42% 7.5 gal/A was applied on 16 Apr with a coulter and trailing single chisel centered in each row of both tillage treatments. In conventional tillage, the rows were bedded (24 in. wide and 4 in. high) during application. Strip tillage and Vapam application were performed in one step using fluted coulters and soil crumbler baskets to level 12-in. wide tillage strips.
1. Virginia type cultivars: Strip tillage
2. Virginia-type cultivars: Conventional tillage
3. Runner-type cultivars: Strip tillage
4. Runner-type cultivars: Conventional tillage

D. MARKET-TYPE AND VARIETY:

Virginia-types	Runner-types
1. Perry	1. GA Green
2. Wilson	2. GA-02C
3. CHAMPS	3. GA-03L
4. GA Hi O/L	4. Florida 07-R
5. Florida Fancy	5. McCloud
6. Georgia 05E	6. AP-4

E. ADDITIONAL INFORMATION:
1. Location: Wyne Farm, Box Elder Rd., Suffolk
2. Crop History: corn 2007, cotton 2006, peanut 2005
3. Planting date: 2 May
4. Soil fertility report (Jan 2008):

pH.....	6.47	K	64 ppm
Ca	397 ppm	Zn.....	0.6 ppm
Mg	64 ppm	Mn.....	1.2 ppm
P	26 ppm	Soil type.....	Nansemond fine sandy loam

5. Herbicide:
Pre-plant – Touchdown 23 fl oz/A (10 Apr)
Prowl H_2O 1 pt + Dual II Magnum1 pt + Stongarm 0.23 fl oz/A (18 Apr)
Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.23 oz/A (6 May)
Post-emergence - Poast 1.5 pt/A (2 Sep)
6. Insecticide: Orthene 97S 8 oz/A (19 May, 3 Jun)
Lorsban 15G 13 lb/A (19 Jun)
Baythroid XL 3 fl oz/A (2 Sep)
7. Acaricide: Danitol 16 fl oz/A (13 Aug)

8. Leaf spot control: Folicur 7.2 fl oz + Induce 1.2 fl oz/A (17 Jul)
   Provost 9 fl oz/A (14 Aug)
   Headline 9 fl oz/A (9 Sep)
9. Additional crop management:
   a. Liquid boron 1 qt/A (18 Apr)
   b. Landplaster: Peanut Maker 1200 lb/A (14 Jun)
   c. Cultivation: 19 Jun
   d. Liquid Mn 1 qt/A (17 Jul, 14 Aug)
   e. Mangro 5 lb/A (30 Jul)
10. Harvest date: 9 Oct 2008

Table 102. Effect of tillage method and cultivar selection on emergence, and disease incidence in peanut.

Market type, tillage and cultivar	Plants/ft[1] (1 Jun)	% leaf spot[2] (29 Jul)	CBR[3] 9 Sep	CBR[3] 1 Oct	TSWV[3] 9 Sep	TSWV[3] 1 Oct
Virginia-type						
Strip tillage						
Perry	1.84 b	0.5 c	4.5 a-c	2.5 ab	3.3	19.0 ab
Wilson	2.05 a	0.0 d	5.3 ab	5.5 a	5.0	21.5 a
CHAMPS	1.75 b	0.0 d	7.0 a	5.5 a	2.8	16.5 a-c
GA Hi O/L	1.87 ab	2.3 a	2.5 bc	1.5 b	1.5	13.5 bc
Florida Fancy	1.88 ab	1.0 b	2.3 bc	1.5 b	2.0	10.8 cd
GA 05E	1.73 b	0.0 d	0.8 c	0.0 b	1.3	6.0 d
P(F)	.0484	.0001	.0451	.0821	.1365	.0013
Conventional tillage						
Perry	1.93 bc	0.0 b	2.8 b	0.3 b	6.8	23.5 a
Wilson	2.11 a	0.0 b	5.8 a	6.0 a	3.5	20.0 a
CHAMPS	1.91 bc	0.3 b	3.0 b	0.5 b	2.3	13.8 ab
GA Hi O/L	1.82 bc	2.3 a	0.5 bc	1.0 b	3.3	13.3 ab
Florida Fancy	1.94 b	2.3 a	3.0 b	0.0 b	1.5	14.3 ab
GA 05E	1.75 c	0.3 b	0.0 c	0.3 b	2.3	4.8 b
P(F)	.0118	.0008	.0049	.0012	.1533	.0298
Runner-type						
Strip tillage						
GA Green	2.11 a	0.8 ab	2.0	3.3	3.3	15.3
GA-02C	1.65 bc	2.0 a	1.3	0.5	1.5	7.3
GA-03L	1.40 cd	0.3 b	1.8	1.3	1.0	9.0
Florida 07-R	1.95 ab	0.3 b	2.0	1.3	2.5	10.0
McCloud	1.24 d	0.0 b	2.0	0.3	3.8	12.5
AP-4	1.55 cd	2.3 a	4.5	0.0	1.0	9.3
P(F)	.0008	.0271	.3129	.2226	.7164	.4597
Conventional tillage						
GA Green	2.13 a	0.8 a-c	3.3	2.3	4.8	18.0 a
GA-02C	1.93 ab	1.3 ab	1.0	0.5	2.3	6.5 b
GA-03L	1.63 c	0.8 a-c	1.0	0.8	3.0	13.3 ab
Florida 07-R	2.09 a	0.0 c	0.3	1.3	1.8	12.8 ab
McCloud	1.37 d	0.3 bc	1.3	0.8	3.0	9.0 b
AP-4	1.80 bc	1.8 a	0.8	0.8	1.8	13.3 ab
P(F)	.0001	.0589	.1700	.4290	.1476	.0424
Comparison of main effects						
Virginia-type, strip till	1.85 a	0.6	3.7 a	2.8 a	2.6	14.5 a
Virginia-type, conv. till	1.91 a	0.8	2.5 ab	1.3 b	3.3	14.9 a
Runner-type, strip till	1.65 b	0.9	2.3 b	1.1 b	2.2	10.5 b
Runner-type, conv. till	1.82 a	0.8	1.3 b	1.0 b	2.8	12.1 ab
P(F)	.0082	.8304	.0072	.0495	.5473	.0777

[1] Determined from counts of two, 35-ft rows per plot.
[2] Leaf spot rating scale: 0=none; 100=spots on all leaflets.
[3] Number of symptomatic plants per plot.
Means followed by the same letter(s) within a group and column are not significantly different (*P*=0.05) according to Fisher's Protected LSD. Means followed by letters in groups with P≥0.05 and ≤0.10 were based on analysis at P=0.10.

Table 103. Maturity of peanut cultivars based on color of pod mesocarp after pod blasting.

Market type, sample date, and cultivar	Number of pods					% mature *	
	Total	White/ yellow	Orange	Brown/ black	damaged	Brown/ black	Orange/ brown/ black
Virginia-type, 19 Sep							
Perry	158	46	22	86	4	54	68
Wilson	165	61	41	63	0	38	63
CHAMPS	172	57	41	74	0	43	67
GA Hi O/L	155	55	49	50	1	32	64
Florida Fancy	133	59	31	42	1	32	55
GA 05E	142	79	43	19	1	13	44
Runner-type, 19 Sep							
GA Green	150	47	31	69	3	46	66
GA-02C	196	91	48	56	1	29	53
GA-03L	165	48	35	82	0	50	71
Florida 07-R	158	69	38	50	1	32	56
McCloud	153	82	39	30	2	20	45
AP-4	179	65	28	83	3	46	62
Virginia-type,1 Oct							
Perry	171	26	28	117	3	68	85
Wilson	248	41	47	160	1	65	83
CHAMPS	166	30	38	98	0	59	82
GA Hi O/L	241	41	38	162	0	67	83
Florida Fancy	229	52	69	108	0	47	77
GA 05E	214	79	94	41	0	19	63
Runner-type, 1 Oct							
GA Green	147	41	36	70	1	48	72
GA-02C	139	37	49	53	1	38	73
GA-03L	205	15	26	164	0	80	92
Florida 07-R	148	31	20	97	2	66	79
McCloud	167	44	34	89	0	53	74
AP-4	240	35	64	141	0	59	85

* Pods with brown to black mesocarp tissue were considered mature for harvest. Orange mesocarp color indicated that kernels were approaching maturity. Yellow to white mesocarp identified immature pods that may be lost during harvest due to light weight after drying in windrows. Samples were taken from conventional tillage plots on 19 Sep and 1 Oct.

Table 104. Effect of tillage method and cultivar selection on incidence of Sclerotinia blight, yield and value in peanut.

Market type, tillage and cultivar	Sclerotinia blight[1] 29 Jul	9 Sep	1 Oct	Yield[2] (lb/A)	Value[3] ($/A)
Virginia-type					
Strip tillage					
Perry	0.3	4.8 ab	8.0 b	5405	--
Wilson	0.3	4.3 ab	6.3 b	4960	--
CHAMPS	0.5	4.0 b	6.8 b	4915	--
GA Hi O/L	0.3	1.3 b	3.8 b	5496	--
Florida Fancy	0.3	2.0 b	5.0 b	5820	--
GA 05E	0.0	8.0 a	14.3 a	4933	--
P(F)	.7902	.0815	.0528	.2901	--
Conventional tillage					
Perry	1.3	8.3 a	9.3	5566	1058
Wilson	1.0	6.3 a	10.0	5747	1030
CHAMPS	1.5	9.0 a	14.0	5497	1062
GA Hi O/L	0.0	0.3 b	1.8	5592	1079
Florida Fancy	0.3	5.3 ab	5.3	5835	1070
GA 05E	0.3	4.5 ab	7.5	5629	1139
P(F)	.2202	.0889	.1235	.9774	.8756
Runner-type					
Strip tillage					
GA Green	1.0 a	6.3 a	7.3	5724 b	1051 a
GA-02C	0.0 b	2.3 bc	3.3	5071 c	938 b
GA-03L	0.0 b	2.3 bc	3.0	5229 bc	897 b
Florida 07-R	0.0 b	4.0 ab	6.8	6532 a	1145 a
McCloud	0.3 b	4.3 ab	9.0	4861 c	864 b
AP-4	0.0 b	0.5 c	6.0	5785 b	1056 a
P(F)	.0001	.0643	.2055	.0001	.0001
Conventional tillage					
GA Green	0.5	4.0	6.0	5521 ab	1024 ab
GA-02C	0.5	2.8	5.3	5545 ab	1035 ab
GA-03L	0.0	1.5	4.0	5844 ab	1030 ab
Florida 07-R	0.0	4.0	4.5	6224 a	1102 a
McCloud	0.3	2.8	7.8	5212 b	942 b
AP-4	0.3	3.5	5.3	5795 ab	1068 a
P(F)	.3891	.3759	.4160	.0176	.0523
Comparison of main effects					
Virginia-type, strip till	0.3 b	4.0 ab	7.3	5255 b	--
Virginia-type, conv. till	0.7 a	5.6 a	8.0	5644 ab	1073 a
Runner-type, strip till	0.2 b	3.3 b	5.9	5490 ab	985 b
Runner-type, conv. till	0.3 b	3.1 b	5.5	5690 a	1033 ab
P(F)	.0241	.0598	.2306	.0424	.0134

[1] 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 *Sclerotinia minor* and included 6 in. on either side of that point.

[2] Yields are weight of peanuts with moisture content of 7%. Peanuts were dug on 2 Oct and harvested on 9 Oct.

[3] Composite samples were graded to determine market value at loan rate and multiplied by yield to estimate value at farm gate ($/A). Virginia-type cultivars in strip till were not graded, therefore value is not reported.

Means followed by the same letter(s) within a group and column are not significantly different (*P*=0.05) according to Fisher's Protected LSD. Means followed by letters in groups with P≥0.05 and ≤0.10 were based on analysis at P=0.10. Yields were analyzed using Student-Newman-Keuls test (P=0.05).

Table 105. Effect of tillage method and cultivar on grade characteristics and value.

Treatment, rate/A and cultivar	%*									Value** (¢/lb)
	FM	LSK	FAN	ELK	SS	OK	DK	Conc. RMD	SMK	
Virginia -type										
Conventional tillage										
Perry	0	0	82	52	3	1	0	0.00	70	19.01000
Wilson	0	0	86	43	2	2	0	0.10	67	17.93000
CHAMPS	0	0	88	56	3	1	0	0.22	71	19.32000
GA Hi O/L.....	0	0	77	55	8	2	2	0.00	67	19.29000
Florida Fancy	0	0	88	52	3	2	0	0.00	67	18.34000
GA 05E.....	0	0	84	60	6	0	0	0.00	72	20.23000
Runner-type										
Strip tillage										
GA Green	1	2	--	--	3	3	0	0.30	73	18.37545
GA-02C	1	1	--	--	3	3	0	0.00	73	18.49273
GA-03L	1	0	--	--	1	3	1	0.00	69	17.16000
Florida 07-R	1	1	--	--	4	3	1	0.30	68	17.53253
McCloud.....	1	1	--	--	4	3	1	0.16	69	17.77010
AP-4	1	1	--	--	2	3	0	0.00	73	18.25515
Conventional tillage										
GA Green	1	2	--	--	3	2	0	0.00	74	18.54202
GA-02C	1	1	--	--	3	2	0	0.00	74	18.66101
GA-03L	0	1	--	--	3	1	1	0.00	70	17.63260
Florida 07-R	1	1	--	--	3	2	0	0.00	70	17.70081
McCloud.....	1	2	--	--	4	2	0	0.00	71	18.07172
AP-4	1	1	--	--	3	2	1	0.00	73	18.42343

* FM=foreign material, LSK=loose shelled kernels, FAN=large whole pods, ELK=extra large kernels, SS=sound splits, OK=other kernels, DK=damaged kernels, Conc. RMD=concealed damage from rancidity, mold or decay, SMK=sound mature kernels. Data are from a composite sample of four reps of each cultivar.

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

XXXI. EVALUATION OF DISEASE PROBLEMS IN VIRGINIA- AND RUNNER-TYPE PEANUTS IN STRIP TILLAGE (PTIL208, Billy Bain Farm, Dinwiddie County)

A. PURPOSE: To compare susceptibility of cultivars to disease in reduced tillage

B. EXPERIMENTAL DESIGN:
1. Four randomized complete blocks separated by 10-ft alleyways
2. Cultivars were planted in two, 35-ft rows/plot with 36-in. row spacing

C. TILLAGE AND SEEDING RATES: All plots prepared by strip tillage with fluted coulters running into a cover crop of wheat. Seeding rates were 3 to 4 seed/ft for Virginia types and runner types.

D. CULTIVAR: V=Virginia type, R=runner type
1. Perry (V)
2. GA Hi O/L (V)
3. Gregory (V)
4. Brantley (V)
5. Phillips (V)
6. Florida Fancy (V)
7. GA-05E (V)
8. CHAMPS (V)
9. VA 98R (V)
10. GA Green (R)
11. GA-02C (R)
12. GA-03L (R)
13. Florida 07-R
14. McCloud (R)
15. 97 x 22HO-2-2-B2-1-1-2-B (V)
16. AP-4 (R)

E. ADDITIONAL INFORMATION:
1. Location: Billy Bain farm, Dinwiddie County
2. Crop History: corn 2007, corn 2006, wheat/soybean 2005, peanut 2004
3. Land preparation: rip and strip-tilled in wheat cover crop (Apr)
4. Planting date: 7 May
5. Soil fertility report (Mar 2008):

pH.....	6.8	Mn.....	4.4 ppm
Ca	991 ppm	Cu.....	0.4 ppm
Mg	152 ppm	Fe	12.4 ppm
P	35 ppm	B.....	0.2 ppm
K.....	157 ppm	Soil type.....	Emporia sandy loam
Zn	1.0 ppm		

6. Herbicide:
Pre-plant – Roundup (Apr 21)
Prowl H_2O 1.5 pt + Dual II Magnum 1 pt + Strongarm 0.23 oz/A (May 2)
Pre-emergence – Dual 0.5 pt + Valor 2 oz + Strongarm 0.23 oz/A (May 7)
Post-emergence - Storm 1.5 pt + Butoxone 8 fl oz/A (May 27)
7. Insecticide: Temik 15G 7 lb/A in furrow (7 May)
Orthene 97S 8 oz/A (18 Jun)
Lorsban 15G 13 lb/A (23 Jun)
Karate 2 fl oz/A (18 Aug)
8. Leaf spot control: Abound 12 fl oz/A (7 Jul, 15 Aug)
Bravo WS 1.5 pt/A (21 Jul, 31 Aug, 12 Sep)
9. Additional crop management:
a. Liquid boron 1 qt (1 Jul, 21 Jul)
b. Landplaster: Peanut Maker 1300 lb/A (2 Jul)

c. Cultivation: 23 Jun
d. Irrigation: ca. 1.2 in. (5 Jul, 17 Jul, 30 Jul, 10 Aug, 28 Aug)
e. Liquid Mn 2 qt (21 Jul, 15 Aug)

10. Harvest date: 15 Oct 2008

Table 106. Emergence and disease incidence in peanut cultivars.

Cultivar and market type	Plants/ft[1] (6 Jun)	TSWV[2] 7 Jul	TSWV[2] 8 Oct	% leaf spot[3] (3 Sep)	CBR[4] 3 Sep	CBR[4] 8 Oct
Perry (V)	1.95 cd	0.8	3.0	1.3 d	0.5 a-c	0.3
GA Hi/OL (V)	1.82 de	0.3	1.3	4.5 ab	0.0 c	0.0
Gregory (V)	2.36 a	0.3	1.3	2.5 b-d	0.5 a-c	1.0
Brantley (V)	2.12 bc	0.3	4.5	0.3 d	0.0 c	0.0
Phillips (V)	2.23 ab	0.0	1.3	0.3 d	1.3 a	0.5
Florida Fancy (V)	1.86 d	0.0	1.5	4.0 a-c	0.3 bc	0.5
GA 05E (V)	1.82 de	0.0	1.0	0.1 d	0.3 bc	0.3
CHAMPS (V)	1.91 d	0.3	1.5	1.0 d	0.3 bc	2.0
VA 98R (V)	2.19 b	0.3	1.8	1.8 cd	1.0 ab	2.3
GA Green (R)	1.91 d	0.0	1.3	1.1 d	0.5 a-c	0.0
GA-02C (R)	1.83 de	0.0	0.8	5.5 a	0.0 c	0.0
GA-03L (R)	1.38 g	0.0	1.0	1.0 d	0.0 c	0.0
Florida 07-R (R)	1.90 d	0.3	1.3	0.6 d	0.0 c	1.0
McCloud (R)	1.13 h	0.5	1.5	0.6 d	0.3 bc	0.3
97 x 22HO (V)	1.63 f	1.0	4.3	0.3 d	0.3 bc	0.0
AP-4 (R)	1.98 ef	0.3	1.2	1.1 d	0.0 c	0.0
LSD	0.17	n.s.	n.s.	2.6	0.8	n.s.

[1] Determined from counts of two, 35-ft rows per plot.
[2] Counts of plants per plot with symptoms of TSWV.
[3] Leaf spot rating scale: 0=none; 100=spots on all leaflets (Note: spots were likely caused by unknown chemical injury).
[4] Number of symptomatic plants per plot.
Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (*P*=0.05), n.s. denotes not significant.

Table 107. Maturity of peanut cultivars based on color of pod mesocarp after pod blasting on 29 Sep.

Cultivar and market type	Number of pods					% mature *	
	Total	White/ yellow	Orange	Brown/ black	damaged	Brown/ black	Orange/ brown/ black
Perry (V)	210	85	53	72	0	34	60
GA Hi/OL (V)	225	72	57	94	2	42	68
Gregory (V)	181	53	40	88	0	49	71
Brantley (V)	183	63	34	86	0	47	66
Phillips (V)	206	99	42	65	0	32	52
Florida Fancy (V)	228	81	75	69	3	31	64
GA 05E (V)	201	111	81	9	0	4	44
CHAMPS (V)	138	51	23	64	0	46	63
VA 98R (V)	193	56	38	98	1	51	71
GA Green (R)	255	92	31	131	1	52	64
GA-02C (R)	244	144	48	52	0	21	41
GA-03L (R)	240	89	45	106	2	44	63
Florida 07-R (R)	197	86	29	82	0	42	56
McCloud (R)	185	67	42	76	0	41	64
97 x 22HO (V)	161	47	60	54	2	34	71
AP-4 (R)	274	95	38	141	0	51	65

* Pods with brown to black mesocarp tissue were considered mature for harvest. Orange mesocarp color indicated that kernels were approaching maturity. Yellow to white mesocarp identified immature pods that may be lost during harvest due to light weight after drying in windrows.

Table 108. Incidence of Sclerotinia blight and yield of peanut cultivars.

Cultivar and market type	Sclerotinia blight[1] 7 Jul	3 Sep	8 Oct	Yield[2] (lb/A)	Value[3] ($/A)
Perry (V)	0.3 b	0.8	5.3 a-c	5663 a-c	1054 a-d
GA Hi/OL (V)	0.0 b	0.0	0.8 cd	4051 h	772 i
Gregory (V)	0.8 a	1.0	6.3 ab	5719 ab	980 c-f
Brantley (V)	0.3 b	1.0	5.0 a-d	5811 ab	1101 ab
Phillips (V)	0.3 b	1.5	9.0 a	5679 a-c	1068 a-c
Florida Fancy (V)	0.3 b	0.0	2.0 b-d	5155 c-f	951 ef
GA 05E (V)	0.3 b	0.8	1.0 cd	4788 fg	960 d-f
CHAMPS (V)	0.3 b	1.0	5.3 a-c	5153 c-f	942 e-g
VA 98R (V)	0.0 b	0.0	2.3 b-d	5467 a-d	1015 b-e
GA Green (R)	0.8 a	1.0	6.8 ab	6007 a	1129 a
GA-02C (R)	0.0 b	0.0	2.5 b-d	4858 e-g	898 f-h
GA-03L (R)	0.0 b	0.3	0.3 d	4953 d-g	844 g-i
Florida 07-R (R)	0.0 b	0.5	3.8 b-d	5412 b-d	949 ef
McCloud (R)	0.3 b	0.0	2.3 b-d	4530 gh	805 hi
97 x 22HO (V)	0.0 b	0.0	1.3 cd	5388 b-e	939 e-g
AP-4 (R)	0.0 b	0.3	0.5 cd	5271 b-f	978 c-f
LSD	0.4	n.s.	4.8	544	100

[1] 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 *Sclerotinia minor* and included 6 in. on either side of that point.

[2] Yields are weight of peanuts with moisture content of 7%. Peanuts were dug on 8 Oct and harvested on 15 Oct.

[3] Composite samples were graded to determine market value at loan rate and multiplied by yield to estimate value at farm gate ($/A).

Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (*P*=0.05), except Sclerotinia blight on 7 Jul was analyzed at P=0.10, n.s. denotes not significant.

Table 109. Grade characteristics and value of cultivars.

Cultivar and market type	%*									Value** (¢/lb)
	FM	LSK	FAN	ELK	SS	OK	DK	Conc. RMD	SMK	
Perry (V)	0	0	78	50	3	3	1	0.00	68	18.62000
GA Hi/OL (V).....	0	0	58	45	14	2	1	0.00	61	19.05000
Gregory (V).....	0	0	82	50	1	3	1	0.22	64	17.14000
Brantley (V)	0	0	91	62	1	1	0	0.06	71	18.94000
Phillips (V).....	0	0	78	51	3	2	1	0.00	69	18.81000
Florida Fancy (V).....	0	0	85	49	6	2	0	0.00	65	18.45000
GA 05E (V).....	0	0	80	57	5	1	0	0.00	72	20.05000
CHAMPS (V)	0	0	77	45	3	3	0	0.00	67	18.29000
VA 98R (V)	0	0	68	47	3	3	1	0.00	68	18.56000
GA Green (R).....	1	1	--	--	2	4	0	0.00	75	18.79960
GA-02C (R)	1	1	--	--	3	3	0	0.00	73	18.49273
GA-03L (R).....	0	0	--	--	2	5	0	0.00	67	17.05000
Florida 07-R (R).....	1	1	--	--	2	3	0	0.00	70	17.53253
McCloud (R)	1	1	--	--	4	3	0	0.00	69	17.77010
97 x 22HO (V)	0	0	92	52	2	2	2	0.28	65	17.43000
AP-4 (R).....	1	1	--	--	3	4	0	0.00	73	18.56202

* 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, Conc. RMD=internal damage from rancidity, mold or decay, SMK=sound mature kernels. Data are from a composite sample from four reps of each cultivar.

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

XXXII. PEANUT IPM DECISION SUPPORT SYSTEM TRIAL (PNUTDSS108, Jay Darden Farm, Statesville Rd., Newsoms, VA)

A. PURPOSE: To develop a regional decision support system that includes risk indices for important peanut diseases, arthropods, viruses, and nematode pests in Virginia, North Carolina, and South Carolina.

B. EXPERIMENTAL DESIGN:
1. Strip plots, eight rows wide and 950 ft long (0.52 acres)
2. Three treatments with LOW to HIGH risk of CBR, TSWV, and Sclerotinia blight
3. Treatments replicated three times in random order within each block
4. Data were collected from three subplots (two rows, 35-ft long) in each strip.

C. APPLICATION OF TREATMENTS: Peanut variety and chemical treatments were selected in combinations to achieve levels of risk ranging from low to high. Vapam 42% 10 gal/A was applied 8 in. under rows to be planted with CHAMPS or Gregory by a single chisel while bedding rows on 26 Apr. Strips to be planted with Perry were not treated with Vapam. Temik 15G was applied in-furrow at planting in all strip plots.

D. PEANUT VARIETY AND TREATMENT: Cylindrocladium black rot (CBR), Sclerotinia blight, tomato spotted wilt virus (TSWV), and nematodes were the primary pests of concern at the test site. Variety selection was chosen for CBR, Sclerotinia blight and TSWV management) and Vapam for CBR and nematode management.
1. Perry without Vapam (CBR resistant, partial Sclerotinia resistance)
2. CHAMPS with Vapam (CBR and Sclerotinia susceptible; partial TSWV resistance)
3. Gregory with Vapam (partial TSWV resistance; CBR and Sclerotinia susceptible)

E. ADDITIONAL INFORMATION:
1. Location: Jay Darden Farm, Statesville Rd., Newsoms, VA
2. Crop history: watermelon 2007, cotton 2006, cotton 2005
3. Land preparation: Disk wheat cover crop, then rip and bed rows
4. Planting date: 9 May
5. Soil fertility report (January): North Carolina Department of Agriculture

pH	5.7	Cu index	66
Ca %	57.0	Zn avail	29
Mg %	12.0	S index	64
P index	78	Na	0.1
K index	55	CEC	3.2
Mn avail.	49	Soil type	Slagle fine sandy loam

6. Herbicide:
   Pre-plant – Magnum 1 pt + Strongarm 0.45 oz/A (3 May)
   Gramoxone Xtra 2 pt/A (8 May)
   Post-emergence - Volunteer 12 fl oz/A (20 July)
7. Insecticide: Temik 15G 7 lb/A in seed furrow (9 May); Orthene 90S 12 oz/A (10 Jun)
8. Fungicide:
   Tilt 3.6EC 2 fl oz + Bravo 720 1 pt/A (20 Jun); Abound 2.08SC 12 fl oz/A (13 Jul)
   Provost 8 fl oz/A (30 Jul); Headline 2.09EC 10 fl oz/A (17 Aug);
   Bravo Weather Stik 1.5 pt + Omega 500 1 pt/A (3 Sep)

9. Additional crop management:
   a. Boron D 1.25 lb/A (10 Jul, 28 Jul)
   b. Mangro DF 5 lb/A (20 Jun, 13 Jul)
   c. Landplaster: Peanut Maker 1375 lb/A (15 Jun)
10. Harvest date: 16 Oct 2008

Table 110. Effect of peanut decision support systems on nematode populations.

Cultivar, treatment and rate/A*	Nematodes/500 cc soil**	
	Root knot	Ring
Perry, Temik 15G 7 lb (F)		
Subplot A	10	130
Subplot B	860	1850
Subplot C	160	270
CHAMPS, Vapam 10 gal (C) + Temik 15G 7 lb (F)		
Subplot A	480	60
Subplot B	40	60
Subplot C	1150	180
Gregory, Vapam 10 gal (C) + Temik 15G 7 lb (F)		
Subplot A	5190	580
Subplot B	260	200
Subplot C	40	350

* Subplots were two, 35 ft rows within each replicated strip. F=in furrow; C=chisel application on 26 Apr.
** Soil was sampled on 3 Oct. Data are counts of nematodes in a composite sample from three reps of each treatment/subplot combination.

Table 111. Effect of peanut decision support systems on emergence and incidence of Southern stem rot and tomato spotted wilt virus (TSWV) in peanuts.

Cultivar, treatment and rate/A[1]	Plants/ft[2] (13 Jun)	Stem rot[3]		TSWV[4]	
		30 Jul	17 Sep	30 Jul	17 Sep
Perry, Temik 15G 7 lb (F)	2.42 b	0.9	3.0	4.8 a	12.9 a
CHAMPS, Vapam 10 gal (C) + Temik 15G 7 lb/A (F)	2.46 b	0.2	2.9	2.7 ab	6.0 b
Gregory, Vapam 10 gal (C) + Temik 15G 7 lb/A (F)	3.03 a	0.4	5.1	1.6 b	5.1 b
LSD	0.35	n.s.	n.s.	2.5	4.4

[1] F=in seed furrow on 9 May; C=chisel application on 26 Apr.
[2] Counts of plants in three, 35-ft subplots within each strip or a total of 210 ft of row.
[3] Counts of infection centers in three, 35-ft subplots within each strip or a total of 210 ft of row. An infection center was a point of active growth by *Sclerotium rolfsii* and included 6 in. on either side of that point.
[4] Counts of plants in three, 35-ft subplots within each strip or a total of 210 ft of row with symptoms.
Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (*P*=0.05), n.s. denotes not significant.

Table 112. Effect of peanut decision support systems on disease incidence and yield in peanuts.

Cultivar, treatment and rate/A[1]	CBR[2] (17 Sep)	Sclerotinia[3] (17 Sep)	% leaf spot[4] (17 Sep)	Yield[5] (lb/A)	Value[6] ($/A)
Perry, Temik 15G 7 lb (F).....	1.6	0.3 b	0.2	5072	884
CHAMPS, Vapam 10 gal (C) + Temik 15G 7 lb/A(F).....	2.0	0.1 b	0.2	5037	867
Gregory, Vapam 10 gal (C) + Temik 15G 7 lb/A(F).....	1.3	1.6 a	0.6	4648	753
LSD.....	n.s.	1.2	n.s.	n.s.	n.s.

[1] F=in seed furrow on 9 May; C=chisel application on 26 Apr.
[2] Counts of symptomatic plants in three, 35-ft subplots within each strip or a total of 210 ft of row.
[3] Counts of infection centers in three, 35-ft subplots within each strip or a total of 210 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.
[4] Leaf spot rating scale: 0=none, 100=spots on all leaflets.
[5] Yields are weight of peanuts with moisture content of 7%. Peanuts were dug on 8 Oct and harvested on 16 Oct.
[6] Samples were graded to determine market value at loan rate and multiplied by yield to estimate value at farm gate ($/A). Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (*P*=0.05), n.s. denotes not significant.

Table 113. Grade characteristics and value of cultivars.

Cultivar, treatment and rate/A	%* FAN	ELK	SS	OK	DK	SMK	Value** (¢/lb)
Perry, Temik 15G 7 lb (F).....	77 c	46	2	3	2	65	17.3833
CHAMPS, Vapam 10 gal (C) + Temik 15G 7 lb (F)..	82 b	45	1	3	1	64	17.1000
Gregory, Vapam 10 gal (C) + Temik 15G 7 lb (F)..	91 a	46	3	3	2	60	16.2278
LSD.....	3	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.

* FAN=fancy sized in-shell, ELK=extra large kernels, SS=sound splits, OK=other kernels, DK=damaged kernels, SMK=sound mature kernels. Data are results of grading a composite sample from subplots in each replicated strip plot.
** Value (¢/lb) represents the market value of peanuts based on the loan rate.

XXXIII. EVALUATION OF SCLEROTINIA BLIGHT RESISTANCE IN TRANSGENIC PEANUTS WITH THE OXALATE OXIDASE GENE (SCLT108-VA, TAREC Res. Farm, Suffolk, Field 34)

A. PURPOSE: To compare agronomic traits, levels of Sclerotinia blight and the yield response of parent cultivars and transformed lines with and without Omega fungicide in Virginia

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks separated by 10-ft alleys
2. Split-plot design with Omega 500 applied in main plots and cultivar in subplots
3. Two border rows of VA 98R between main plots and along outside borders.
4. Two, 30-ft rows per plot with 36 in. row spacing and seed spaced 4 in. apart

C. FUNGICIDE TREATMENT: Main plots
1. Non-treated control
2. Omega 500 l pt/A applied 30 Jul and 2 Sep according to Sclerotinia blight advisory program.

D. CULTIVARS: Sub-plots
1. NC 7 (non-transformed)
2. N70-8-24-B-B-B (transformed)
3. N70-6-B-B-B-B (transformed)

4. WILSON (non-transformed)
5. W14-10-2-B-B-B (transformed)
6. W73-27-B-B-B-B (transformed)

7. PERRY (non-transformed)
8. P39-7-9-B-B-B (transformed)
9. P53-30-21-B-B-B (transformed)

E. ADDITIONAL INFORMATION:
1. Location: TAREC Res. Farm, Hare Rd., Suffolk
2. Crop history: cotton 2007, peanut 2006, corn 2005
3. Planting date: 8 May
4. Land preparation: Disk, plow, disk, and level with field cultivator
5. Soil fertility report (Jan 2008):

pH.....	6.57	K.....	59 ppm
Ca	207 ppm	Zn	0.6 ppm
Mg	25 ppm	Mn.....	2.2 ppm
P	28 ppm	Soil type	Kenansville loamy fine sand

6. Cylindrocladium black rot control: Vapam 42% 7.5 gal/A (14 and 15 Apr)
7. Herbicide:
   Pre-plant - Prowl H_20 1 pt/A (26 Mar)
   Dual II Magnum 1 pt + Strongarm 0.23 oz/A (18 Apr)
   Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (14 May)
   Post-emergence – Poast Plus 2 pt + Crop Oil 2 pt/A (2 Sep)
8. Insecticide: Temik 15G 7 lb/A in furrow (8 May)
   Orthene 97S 8 oz/A (3 Jun)
   Lorsban 15G 13 lb/A (19 Jun)
   Baythroid XL 3 fl oz/A (2 Sep)

9. Acaricide: Danitol 6 fl oz/A (25 Jul)
10. Leaf spot control: BravoWeather Stik 1.5 pt/A (18 Jul, 15 Aug, 9 Sep)
11. Additional crop management:
    a. Liquid boron 1 qt/A (26 Mar)
    b. Landplaster: Peanut Maker 1200 lb/A (16 Jun)
    c. Cultivation: 19 Jun
    d. Irrigation: 0.75 in. (1 Jul, 8 Aug, 26 Aug)
    e. Liquid Mn 1 qt/A (17 Jul, 15 Aug)
    f. Coron (25-0-0) 1 gal/A (23 Jul)
    g. Mangro 5 lb/A (23 Jul)
12. Harvest date: 16 Oct

Table 114. Stand count, plant height and oxalate oxidase expression in non-transformed cultivars and genetically transformed lines with the barley oxalate oxidase gene.

Cultivar	Plants/ft[1] (2 Jun)	Plant ht. (cm)[2] (22 Aug)	Oxalate oxidase expression[3] 3 Jul		4 Sep	
NC 7 (non-transformed).....	1.81	34.0	0.009	c	0.012	c
N70-8-24-B-B-B	1.79	32.7	0.434	a	0.563	a
N70-6-B-B-B-B	1.85	31.5	0.157	b	0.425	b
LSD	n.s.	n.s.	0.067		0.12	
Wilson (non-transformed).....	1.95	32.2	0.014	c	0.013	c
W14-10-2-B-B-B	1.75	31.7	0.328	a	0.478	a
W73-27-B-B-B-B.....	1.91	31.6	0.210	b	0.273	b
LSD	n.s.	n.s.	0.058		0.1	
Perry (non-transformed).....	1.96	26.3 b	0.011	c	0.009	c
P39-7-9-B-B-B.....	1.84	31.5 a	0.322	a	0.458	a
P53-30-21-B-B-B.....	1.76	34.1 a	0.201	b	0.300	b
LSD	n.s.	2.8	0.090		0.087	

[1] Determined from counts of two, 30-ft rows per plot.
[2] Measured from soil surface to the growing point of main stem on 10 randomly-selected plants/plot.
[3] Oxalate oxidase expression determined by assay of leaflets from 10 plants/plot in Omega-treated main plots by a colorimetric detection method that measures hydrogen peroxide released from oxalic acid substrate using a microtiter plate reader at 540 nm (Livingstone et al. 2005, Plant Physiol. 137:1354).
Means followed by the same letter(s) in a column and group are not significantly different according to Fisher's Protected LSD (P=0.05), n.s. denotes not significant.

Table 115. Incidence of TSWV and Cylindrocladium black rot in non-transformed cultivars and transformed lines with the barley oxalate oxidase gene.

Variables	TSWV*			Cylindrocladium black rot**			
	30 Jul	3 Sep	19 Sep	18 Aug	3 Sep	19 Sep	7 Oct
Non-treated							
NC7 (non-transformed)	0.0	1.0	1.5	0.0	1.0	4.0	4.5
N70-8-24-B-B-B	1.0	0.5	1.5	0.0	0.5	2.0	6.3
N70-6-B-B-B-B	1.3	1.0	1.0	0.3	0.8	6.0	10.3
LSD	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Wilson (non-transformed)	1.0	0.3	1.5	0.0	0.0	2.5	5.3
W14-10-2-B-B-B	0.3	0.5	1.0	0.0	0.8	2.5	6.3
W73-27-B-B-B-B	0.8	0.8	2.0	0.0	0.3	3.5	6.3
LSD	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Perry (non-transformed)	0.3	0.0	1.3	0.3	1.0	1.8	3.3
P39-7-9-B-B-B	1.8	1.0	4.0	0.0	0.8	3.0	4.8
P53-30-21-B-B-B	0.5	0.8	0.0	0.5	1.8	8.0	13.0
LSD	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Treated with Omega 500							
NC7 (non-transformed)	0.3	1.0	1.8	0.0	2.0	5.3	8.3
N70-8-24-B-B-B	0.8	2.5	3.5	0.0	1.5	4.8	6.5
N70-6-B-B-B-B	0.8	1.5	2.0	0.0	1.5	5.0	6.8
LSD	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Wilson (non-transformed)	1.0	2.8	5.3	0.0	1.5	5.5	11.3
W14-10-2-B-B-B	1.0	0.8	2.8	0.0	1.5	4.3	9.3
W73-27-B-B-B-B	0.8	1.3	1.3	0.0	0.5	3.8	7.3
LSD	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Perry (non-transformed)	1.5	1.3 ab	2.0	0.0	0.3 b	2.3	3.5
P39-7-9-B-B-B	1.0	2.8 a	6.0	0.0	0.3 b	1.8	4.5
P53-30-21-B-B-B	0.8	0.3 b	0.5	0.3	3.0 a	8.0	12.3
LSD	n.s.	1.7	n.s.	n.s.	2.2	n.s.	n.s.
Fungicide							
Non-treated control	0.8	0.6 b	1.5	0.1	0.8 b	3.7	6.6
Omega 500	0.9	1.6 a	2.8	0.0	1.3 a	4.5	7.7
LSD	n.s.	0.6	n.s.	n.s.	0.4	n.s.	n.s.
***Split-plot analysis, P*(F)**							
Cultivar	0.5754	0.4536	0.0484	0.2335	0.1789	0.0577	0.0291
Fungicide	0.7629	0.0380	0.0634	0.2152	0.0354	0.4487	0.4742
Fungicide x cultivar	0.7153	0.3567	0.8536	0.9488	0.7751	0.9359	0.7094

* Counts of plants per plot with symptoms of TSWV.

** Number of symptomatic and/or dead plants per plot suspected of Cylindrocladium black rot.
Means followed by the same letter(s) in a column and group are not significantly different according to Fisher's Protected LSD (*P*=0.05), n.s. denotes not significant.

Table 116. Incidence of Sclerotinia blight, AUDPC and yield in parent cultivars (non-transformed) and genetically transformed lines containing the barley oxalate oxidase gene.

Variables	Sclerotinia blight[1]					AUDPC[2]	Yield lb/A[3]
	30 Jul	18 Aug	3 Sep	19 Sep	7 Oct		
Non-treated							
NC7 (non-transformed)	0.8	1.3 a	7.3 a	11.5 a	16.8 a	491 a	4228 b
N70-8-24-B-B-B	0.0	0.0 b	0.3 c	0.3 b	1.0 b	17 c	5721 a
N70-6-B-B-B-B	0.3	0.0 b	3.3 b	4.5 b	5.5 b	180 b	4756 ab
LSD	n.s.	1.0	2.3	4.5	5.7	159	1015
Wilson (non-transformed)	0.3	2.3	7.8 a	12.8 a	18.0 a	545 a	3865 b
W14-10-2-B-B-B	0.0	0.0	0.0 b	0.8 b	2.0 b	31 b	5186 a
W73-27-B-B-B-B	0.0	0.0	0.3 b	1.0 b	2.0 b	39 b	5406 a
LSD	n.s.	n.s.	6.2	6.8	8.1	321	613
Perry (non-transformed)	0.0	1.0 a	6.8 a	13.8 a	22.3 a	560 a	3840 b
P39-7-9-B-B-B	0.0	0.0 b	0.3 b	1.8 b	2.8 b	59 b	5644 a
P53-30-21-B-B-B	0.0	0.0 b	0.3 b	0.3 b	0.8 b	15 b	4630 ab
LSD	n.s.	0.8	1.0	3.4	4.6	77	1320
Treated with Omega 500							
NC7 (non-transformed)	0.3	0.3	1.3	1.5	4.0 a	88 a	5327
N70-8-24-B-B-B	0.0	0.0	0.0	0.0	0.0 b	0 b	5480
N70-6-B-B-B-B	0.0	0.0	0.0	0.0	0.0 b	0 b	5116
LSD	n.s.	n.s.	n.s.	n.s.	3.2	63	n.s.
Wilson (non-transformed)	0.0	0.0	2.0 a	2.3	4.5 a	111 a	4919
W14-10-2-B-B-B	0.0	0.0	0.3 b	0.3	0.0 b	8 b	4945
W73-27-B-B-B-B	0.0	0.0	0.0 b	0.0	0.3 b	2 b	5195
LSD	n.s.	n.s.	1.5	n.s.	3.9	90	n.s.
Perry (non-transformed)	0.0	0.0	0.3	1.3	1.0	34	5341
P39-7-9-B-B-B	0.0	0.0	0.0	0.3	0.5	9	5819
P53-30-21-B-B-B	0.0	0.0	0.0	0.0	0.0	0	4896
LSD	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Fungicide							
Non-treated control	0.1	0.5	2.9 a	5.2	7.9	215	4808
Omega 500	0.0	0.0	0.4 b	0.6	1.1	28	5224
LSD	n.s.	--	0.8	--	--	--	--
Split-plot analysis, P(F)							
Cultivar	0.0294	0.0036	0.0001	0.0001	0.0001	0.0001	0.0004
Fungicide	0.3081	0.1505	0.0105	0.0104	0.0012	0.0073	0.0286
Fungicide x cultivar	0.6716	0.0090	0.0001	0.0001	0.0001	0.0001	0.0357

[1] Infection centers per plot or a total of 60 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.

[2] AUDPC is area under disease progress curve from July to harvest.

[3] Yields are weight of peanuts with 7% moisture. Peanuts were dug on 7 Oct and harvested on 16 Oct.

Means followed by the same letter(s) in a column and group are not significantly different according to Fisher's Protected LSD (*P*=0.05), n.s. denotes not significant, -- LSD for combined analysis not reported due to significant cultivar by fungicide interaction.

XXXIV. EVALUATION OF LEAF SPOT IN TRANSFORMED PEANUT LINES WITH THE OXALATE OXIDASE GENE (SCLTLFSPOT108VA, TAREC Res. Farm, Suffolk, Field 34)

A. PURPOSE: To compare agronomic traits and disease resistance in non-transformed cultivars to genetically transformed lines with the barley oxalate oxidase gene

B. EXPERIMENTAL DESIGN:
1. Four randomized complete blocks separated by 10-ft alleyways
2. Split-plot design with fungicide treatment in main plots and cultivars in subplots
3. Two, 30-ft rows per plot and seed spaced 4 to 5 in. apart at planting

C. FUNGICIDE TREATMENT: Main plots
1. Non-treated control
2. Bravo 720 1.5 pt/A at R_3 (beginning pod – 18 Jul) and thereafter according to the Va. Leaf Spot Advisory Program (15 Aug, 9 Sep)

D. CULTIVARS: Sub-plots
1. NC 7 (non-transformed)
2. N70-8-24-B-B-B (transformed)
3. N70-6-B-B-B-B (transformed)

4. WILSON (non-transformed)
5. W14-10-2-B-B-B (transformed)
6. W73-27-B-B-B-B (transformed)

7. PERRY (non-transformed)
8. P39-7-9-B-B-B (transformed)
9. P53-30-21-B-B-B (transformed)

E. ADDITIONAL INFORMATION:
1. Location: TAREC Res. Farm, Hare Rd., Suffolk
2. Crop history: cotton 2007, peanut 2006, corn 2005
3. Land preparation: Disk, plow, disk, and level with field cultivator
4. Planting date: 8 May
5. Soil fertility report (Jan 2008):

pH	6.57	K	59 ppm
Ca	207 ppm	Zn	0.6 ppm
Mg	25 ppm	Mn	2.2 ppm
P	28 ppm	Soil type	Kenansville loamy fine sand

6. Cylindrocladium black rot control: Vapam 42% 7.5 gal/A (14 and 15 Apr)
7. Herbicide:
   Pre-plant - Prowl H_20 1 pt/A (26 Mar)
   Dual II Magnum 1 pt + Strongarm 0.23 fl oz/A (18 Apr)
   Pre-emergence - Dual II Magnum 1 pt + Strongarm 0.23 oz/A (14 May)
   Post-emergence – Poast Plus 2 pt + Crop Oil 2 pt/A (2 Sep)
8. Insecticide: Temik 15G 7 lb/A in furrow (8 May); Orthene 97S 8 oz/A (3 Jun)
   Lorsban 15G 13 lb/A (19 Jun); Baythroid XL 3 fl oz/A (2 Sep)
9. Acaricide: Danitol 6 fl oz/A (25 Jul)

10. Additional crop management:
    a. Liquid boron 1 qt/A (26 Mar)
    b. Landplaster: Peanut Maker 1200 lb/A (16 Jun)
    c. Cultivation: 19 Jun
    d. Irrigation: 0.75 in. (1 Jul, 8 Aug, 26 Aug)
    e. Liquid Mn 1 qt/A (25 Jun, 12 Aug); 2 qt/A (17 Jul)
    f. Coron (25-0-0) 1 gal/A (23 Jul)
    g. Mangro 5 lb/A (23 Jul)
11. Harvest date: 16 Oct

Table 117. Stand count, plant height and oxalate oxidase expression in parent cultivars and transformed cultivars in Bravo-treated plots.

Cultivar	Plants/ft[1] 2 Jun	Plant ht. (cm)[2] 22 Aug	Oxalate oxidase expression[3] 8 Jul	Oxalate oxidase expression[3] 4 Sep
NC7 (non-transformed).....	1.93	36.7 a	0.010 c	0.012 c
N70-8-24-B-B-B	1.90	35.9 a	0.534 a	0.656 a
N70-6-B-B-B-B	1.94	32.6 b	0.162 b	0.349 b
LSD	n.s.	2.9	0.075	0.13
Wilson (non-transformed).....	2.03	34.7	0.011 c	0.013 b
W14-10-2-B-B-B	1.85	35.4	0.436 a	0.392 a
W73-27-B-B-B-B.....	1.95	36.5	0.232 b	0.371 a
LSD	n.s.	n.s.	0.072	0.11
Perry (non-transformed).....	1.98	30.7 c	0.019 c	0.009 c
P39-7-9-B-B-B.....	1.91	34.6 b	0.260 a	0.690 a
P53-30-21-B-B-B.....	1.86	37.5 a	0.119 b	0.338 b
LSD	n.s.	2.6	0.050	0.12

[1] Determined from counts in two, 30-ft rows per plot.
[2] Measured from soil surface to the growing point of main stem in 10 randomly-selected plants.
[3] Oxalate oxidase expression determined by assay of leaflets from 10 plants/plot by a colorimetric detection method that measures hydrogen peroxide release from oxalic acid substrate with a microtiter plate reader at 540 nm wavelength (Livingstone et al. 2005, Plant Physiol. 137:1354).
Means followed by the same letter(s) in a column and group are not significantly different according to Fisher's Protected LSD (*P*=0.05), n.s. denotes not significant.

Table 118. Incidence of TSWV and Cylindrocladium black rot in parent cultivars and transformed lines with the barley oxalate oxidase gene.

Variables	TSWV*			Cylindrocladium black rot**			
	30 Jul	3 Sep	19 Sep	18 Aug	3 Sep	19 Sep	7 Oct
Non-treated							
NC7 (non-transformed)	1.8	2.5	3.5	0.0	0.5	2.2	3.3
N70-8-24-B-B-B	0.8	0.8	0.8	0.0	0.0	1.2	1.3
N70-6-B-B-B-B	0.5	1.3	1.3	0.3	0.8	3.8	4.8
LSD	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Wilson (non-transformed)	1.0	1.0	0.8	0.0	1.0	2.7	3.3
W14-10-2-B-B-B	0.5	1.0	1.0	0.3	0.5	2.1	2.5
W73-27-B-B-B-B	1.5	2.3	2.3	0.5	1.3	5.1	5.0
LSD	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Perry (non-transformed)	0.8	1.3	1.8	0.3	0.8	3.3	4.3
P39-7-9-B-B-B	1.8	1.0	1.8	0.0	0.5	1.0	0.5
P53-30-21-B-B-B	1.0	0.3	0.0	0.0	0.3	4.9	5.0
LSD	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Treated with Omega 500							
NC7 (non-transformed)	2.3	1.5	2.5	0.0	0.5	4.0	3.8
N70-8-24-B-B-B	0.8	1.3	2.5	0.3	2.0	12.0	12.5
N70-6-B-B-B-B	1.3	0.8	0.5	0.0	0.0	2.5	3.0
LSD	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Wilson (non-transformed)	1.3	1.0	0.3	0.5	0.3 b	4.0	2.3
W14-10-2-B-B-B	0.3	0.0	0.3	0.0	0.0 b	2.5	3.3
W73-27-B-B-B-B	0.8	0.8	0.8	0.0	3.0 a	10.8	10.0
LSD	n.s.	n.s.	n.s.	n.s.	2.0	n.s.	n.s.
Perry (non-transformed)	0.8	1.3	0.0	0.0	0.0 b	2.8	3.3 b
P39-7-9-B-B-B	0.8	1.3	1.0	0.0	0.8 b	2.8	2.8 b
P53-30-21-B-B-B	1.8	0.8	1.3	0.3	2.3 a	11.0	15.3 a
LSD	n.s.	n.s.	n.s.	n.s.	1.0	n.s.	4.5
Fungicide							
Non-treated control	1.1	1.3	1.4	0.1	0.6	2.9	4.8
Omega 500	1.1	1.1	1.0	0.1	1.0	5.8	6.2
LSD	n.s.	n.s.	n.s.	n.s.	--	--	-
***Split-plot analysis, P*(F)**							
Cultivar	0.4197	0.3815	0.0899	0.8795	0.0050	0.0003	0.0005
Fungicide	0.8982	0.2351	0.2710	0.8543	0.5001	0.1401	0.0732
Fungicide x cultivar	0.8769	0.2435	0.4133	0.1915	0.0035	0.0116	0.0034

* Counts of plants per plot with symptoms of TSWV.

** Number of symptomatic and/or dead plants.

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

Table 119. Disease incidence in parent cultivars and transformed lines containing the barley oxalate oxidase gene.

Variables	Southern stem rot[1]		% leaf spot[2]		% defoliation[3]	
	3 Sep	19 Sep	9 Sep	6 Oct	9 Sep	6 Oct
Non-treated						
NC7 (non-transformed)	1.0	4.3	51.3	92.8	10.5	77.5
N70-8-24-B-B-B	0.0	0.0	48.8	95.8	15.0	80.0
N70-6-B-B-B-B	0.0	1.5	52.5	92.5	11.8	80.0
LSD	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Wilson (non-transformed)	1.5	2.5	47.5	97.3	10.0	81.3
W14-10-2-B-B-B	0.0	0.0	43.8	93.5	9.8	73.8
W73-27-B-B-B-B	0.0	0.5	51.3	97.5	11.0	82.5
LSD	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Perry (non-transformed)	0.5	2.8	45.0	88.3	6.8	65.0 b
P39-7-9-B-B-B	0.0	0.0	56.3	93.8	12.8	80.0 a
P53-30-21-B-B-B	0.3	1.5	47.5	93.3	10.5	72.5 ab
LSD	n.s.	n.s.	n.s.	n.s.	n.s.	10.8
Treated with Bravo 720						
NC7 (non-transformed)	1.0	0.0	2.3	17.5	0.8	4.0
N70-8-24-B-B-B	0.0	0.0	1.5	20.5	1.5	3.8
N70-6-B-B-B-B	0.0	0.8	2.5	16.5	0.8	2.8
LSD	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Wilson (non-transformed)	1.5	0.8	1.3	22.0	0.8	3.0
W14-10-2-B-B-B	0.0	0.0	1.3	14.8	0.8	3.3
W73-27-B-B-B-B	0.3	0.8	1.8	14.3	0.5	2.3
LSD	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Perry (non-transformed)	0.3	0.5	3.0	25.3	1.0	3.8 ab
P39-7-9-B-B-B	0.0	0.5	4.0	31.3	0.8	5.0 a
P53-30-21-B-B-B	0.0	1.5	1.5	11.8	1.0	1.8 b
LSD	n.s.	n.s.	n.s.	n.s.	n.s.	2.2
Fungicide						
Non-treated control	0.4	1.4 a	49.3 a	93.8	10.9 a	76.9
Bravo 720 1.5 pt	0.3	0.5 b	2.1 b	19.3	0.9 b	3.3
LSD	n.s.	0.8	3.3	--	1.2	--
***Split-plot analysis, P*(F)**						
Cultivar	0.0019	0.0969	0.5760	0.0024	0.1035	0.0052
Fungicide	0.9185	0.0380	0.0037	0.0005	0.0197	0.0001
Fungicide x cultivar	0.9997	0.1073	0.8359	0.0002	0.1896	0.0051

[1] Number of symptomatic and/or dead plants/plot.
[2] Leaf spot rating scale: 0=none; 100=spots on all leaflets.
[3] Defoliation rating scale: 0=none, 100=no leaves on plants.
Means followed by the same letter(s) in a column and group are not significantly different according to Fisher's Protected LSD (*P*=0.05), n.s. denotes not significant, -- LSD for combined analysis not reported due to significant cultivar by fungicide interaction.

Table 120. Incidence of Sclerotinia blight, AUDPC and yield in parent cultivars and transformed lines containing the barley oxalate oxidase gene.

Variables	Sclerotinia blight[1] 30 Jul	18 Aug	3 Sep	19 Sep	7 Oct	AUDPC[2]	Yield lb/A[3]
Non-treated							
NC7 (non-transformed)	1.3	4.8 a	7.3 a	11.1 a	10.5 a	505 a	3623
N70-8-24-B-B-B	0.0	0.0 b	0.0 b	0.0 b	0.0 b	0 b	4424
N70-6-B-B-B-B	0.0	0.8 b	1.0 b	1.3 b	0.5 b	68 b	4160
LSD	n.s.	2.8	2.6	1.8	2.2	177	n.s.
Wilson (non-transformed)	0.0	1.8 a	3.3 a	8.1 a	8.5 a	291 a	3471 b
W14-10-2-B-B-B	0.0	0.0 b	0.0 b	0.1 b	0.3 b	2 b	4534 a
W73-27-B-B-B-B	0.0	0.3 b	0.0 b	0.1 b	0.0 b	9 b	3944 ab
LSD	n.s.	0.6	2.5	2.1	4.8	110	674
Perry (non-transformed)	0.0	0.8	3.5 a	7.1 a	6.8 a	257 a	4247
P39-7-9-B-B-B	0.0	0.0	0.3 b	0.8 b	0.8 b	24 b	4235
P53-30-21-B-B-B	0.0	0.0	0.0 b	0.0 b	0.0 b	0 b	4232
LSD	n.s.	n.s.	1.6	1.6	2.4	103	n.s.
Treated with Omega 500							
NC7 (non-transformed)	1.0	4.3 a	8.5 a	15.3 a	15.8 a	621 a	3909
N70-8-24-B-B-B	0.0	0.0 b	0.0 b	0.0 b	0.0 b	0 b	4680
N70-6-B-B-B-B	0.0	0.8 b	2.3 b	5.5 b	4.0 b	179 b	5348
LSD	n.s.	3.2	5.2	8.7	8.9	329	n.s.
Wilson (non-transformed)	0.0	1.8	6.0 a	15.5 a	16.5 a	539 a	4110 b
W14-10-2-B-B-B	0.0	0.0	0.3 b	2.3 b	2.3 b	63 b	5687 a
W73-27-B-B-B-B	0.0	0.3	0.0 b	1.8 b	1.5 b	48 b	4838 ab
LSD	n.s.	n.s.	4.3	8.1	7.5	291	1222
Perry (non-transformed)	0.8	0.8 a	4.0 a	14.5 a	17.0 a	484 a	4322 b
P39-7-9-B-B-B	0.0	0.0 b	0.8 b	1.5 b	1.8 b	53 b	5333 a
P53-30-21-B-B-B	0.0	0.0 b	0.3 b	0.3 b	0.0 b	8 b	4554 ab
LSD	n.s.	0.5	2.3	5.2	6.7	180	827
Fungicide							
Non-treated control	0.1	0.9	1.7	3.2 b	3.0	128	4097
Omega 500	0.2	0.9	2.4	6.3 a	6.5	222	4753
LSD	n.s.	n.s.	n.s.	--	n.s.	n.s.	n.s.
***Split-plot analysis, P*(F)**							
Cultivar	0.0018	0.0001	0.0001	0.0001	0.0001	0.0001	0.0021
Fungicide	0.3910	0.6042	0.2559	0.1040	0.0590	0.1291	0.0892
Fungicide x cultivar	0.8634	1.0000	0.8703	0.0032	0.0136	0.3146	0.5374

[1] Infection centers per plot or a total of 60 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.

[2] AUDPC is area under disease progress curve from July to harvest.

[3] Yields are weight of peanuts with 7% moisture. Peanuts were dug on 7 Oct and harvested on 16 Oct.

Means followed by the same letter(s) in a column and group are not significantly different according to Fisher's Protected LSD (*P*=0.05), n.s. denotes not significant, -- LSD for combined analysis not reported due to significant cultivar by fungicide interaction.

XXXV. EVALUATION OF SCLEROTINIA BLIGHT RESISTANCE IN TRANSGENIC PEANUTS WITH THE OXALATE OXIDASE GENE (SCLT108-NC, Upper Coastal Plain Research Station, Rocky Mount, NC)

A. PURPOSE: To compare agronomic traits and levels of resistance to Sclerotinia blight in parent cultivars and their transformed lines

B. EXPERIMENTAL DESIGN:
   1. Four, randomized complete blocks separated by 10-ft alleys
   2. Split-plot design with Omega treatment in main plots and cultivars in subplots.
   3. Two, 30-ft rows per subplot with 36 in. row spacing and seeding rate of 3.5 seed/ft

C. FUNGICIDE TREATMENT: Main plots
   1. Non-treated control
   2. Omega 500 l pt/A (16 Jul, 14 Aug according to Sclerotinia blight advisory program)

D. CULTIVAR: Sub-plots
   1. NC 7 (non-transformed)
   2. N70-8-24-B-B-B (transformed)
   3. N70-6-B-B-B-B (transformed)

   4. WILSON (non-transformed)
   5. W14-10-2-B-B-B (transformed)
   6. W73-27-B-B-B-B (transformed)

   7. PERRY (non-transformed)
   8. P39-7-9-B-B-B-B (transformed)
   9. P53-30-21-B-B-B-B (transformed)

E. ADDITIONAL INFORMATION:
   1. Location: Upper Coastal Plain Research Station, Rocky Mount, NC
   2. Crop history: cotton 2007, cotton/soybean/peanut 2006, cotton 2005
   3. Land preparation: Disk, rip and bed rows
   4. Planting date: 13 May
   5. Soil type : Soil type: Goldsboro fine sandy loam
   6. Herbicide:
      Pre-plant - Dual II Magnum 1.3 pt + Prowl H_2O 2.4 pt/A (7 May)
      Pre-emergence – Dual II Magnum 1.3 pt + Valor 4 fl oz/A (14 May)
   7. Insecticide: Temik 15G 14 lb/A (13 May); Orthene 97S 12 oz/A (30 May)
      Lorsban 15G 15 lb/A (15 Jul); Karate 0.9 fl oz/A (13 Aug)
   8. Fungicide: Bravo WeatherStik 2 pt/A (14 Jul); Abound 18 fl oz/A (28 Jul)
      Tilt/Bravo (14 Aug); Bravo Weather Stik 1.5 pt/A (26 Aug, 12 Sep)
   9. Additional crop management:
      a. Landplaster: 565 lb/A with cultivation (14 Jul)
      b. Solubor 2.5 lb + Techmangam 2 lb/A (25 Jul)
      c. Irrigation: ca. 1.0 in (16 Jun)
   10. Harvest date: 21 October

Table 121. Stand count, oxalate oxidase gene expression, disease incidence, AUDPC and yield in parent lines (non-transformed) and transformed lines containing the barley oxalate oxidase gene.

Variables	Plants/ft[1] (9 Jun)	Oxalate oxidase expression[2] (3 Jul)	Sclerotinia blight [3] 18 Aug	15 Sep	29 Sep	AUDPC[4]	Yield[5] (lb/A)
Non-treated control							
NC 7 (non-transformed)	3.1 a	na	0.8	5.3	9.8	202	3345
N70-8-24-B-B-B	2.4 b	na	0.0	0.0	0.3	2	3125
N70-6-B-B-B-B	2.7 ab	na	0.0	0.3	2.3	21	3209
LSD	0.6		n.s.	n.s.	n.s.	n.s.	n.s.
Wilson (non-transformed)	2.8	na	0.5	6.3	17.8	265	3328
W14-10-2-B-B-B	3.1	na	0.0	0.8	1.3	25	3144
W73-27-B-B-B-B	2.9	na	0.3	0.3	0.5	14	3034
LSD	n.s.		n.s.	n.s.	n.s.	n.s.	613
Perry (non-transformed)	2.6 b	na	0.0	1.0	13.8	117	3504
P39-7-9-B-B-B	2.8 ab	na	0.0	1.0	4.3	51	3134
P53-30-21-B-B-B	3.6 a	na	0.0	0.0	0.0	0	2979
LSD	0.8		n.s.	n.s.	n.s.	n.s.	n.s.
Treated with Omega							
NC 7 (non-transformed)	2.9 a	0.011 c	2.8	7.8	12.8	348	3490
N70-8-24-B-B-B	2.6 ab	0.413 a	0.3	0.5	0.5	19	3225
N70-6-B-B-B-B	2.4 b	0.197 b	1.3	3.3	4.5	149	2721
LSD	0.5	0.102	n.s.	n.s.	n.s.	n.s.	n.s.
Wilson (non-transformed)	2.8	0.011 b	1.8	5.8	14.0	263	3407
W14-10-2-B-B-B	3.0	0.248 a	0.0	0.0	0.8	5	3250
W73-27-B-B-B-B	3.2	0.309 a	0.0	0.0	0.5	4	2912
LSD	n.s.	0.082	n.s.	n.s.	n.s.	n.s.	n.s.
Perry (non-transformed)	2.5 b	0.029 c	1.0	2.0	4.3	97	3478
P39-7-9-B-B-B	2.9 ab	0.254 a	0.3	0.3	0.3	14	3309
P53-30-21-B-B-B	3.3 a	0.127 b	0.0	0.0	0.3	2	3143
LSD	0.5	0.059	n.s.	n.s.	n.s.	n.s.	n.s.
Fungicide							
Non-treated control	2.9	na	0.2	1.6	5.5	77	3200
Omega 500 l pt/A	2.8	na	0.8	2.2	4.2	100	3215
LSD	n.s.		n.s.	n.s.	n.s.	n.s.	n.s.
Split-plot analysis (P value)							
Cultivar	0.0001	na	0.2334	0.0632	0.0347	0.0648	0.4714
Fungicide	0.7478	na	0.4635	0.8278	0.8061	0.8405	0.9438
Fungicide x cultivar	0.8090	na	0.8126	0.9959	0.9759	0.9912	0.9615

[1]Counts of two, 30-ft rows per plot. [2]Oxalate oxidase expression was determined by assay of leaflets from 10 plants/plot in Omega-treated main plots using a colorimetric detection method to measure hydrogen peroxide released from oxalic acid substrate and a microtiter plate reader at 550 nm (Livingston, *et al*. 2005 Plant Phys. 137:1354). [3] Counts of diseased plants in two 30-ft rows/plot on each date. [4]AUDPC is area under disease progress curve from July to harvest. [5]Yields are weight of peanuts with 7% moisture. Peanuts were dug on 10 Oct and harvested on 21 Oct. Means in each parent group and column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (LSD, *P*=0.05); n.s. denotes differences within a group are not significant; na denotes not applicable because oxalate oxidase expression was measured only in Omega-treated plots.

XXXVI. EVALUATION OF LEAF SPOT IN TRANSFORMED PEANUT LINES WITH THE OXALATE OXIDASE GENE (SCLTLFSPOT108NC, Upper Coastal Plain Research Station, Rocky Mount, NC)

A. PURPOSE: To compare agronomic traits and disease resistance in non-transformed cultivars to genetically transformed lines with the barley oxalate oxidase gene

B. EXPERIMENTAL DESIGN:
   1. Four randomized complete blocks separated by 10-ft alleyways
   2. Split-plot design with fungicide treatment in main plots and cultivars in subplots
   3. Two, 30-ft rows per plot and seed spaced 4 to 5 in. apart at planting

C. FUNGICIDE TREATMENT: Main plots
   1. Non-treated control
   2. Bravo 720 2 pt/A at R_3 (14 Jul); Abound 18 fl oz/A (28 Jul) Tilt/Bravo (14 Aug); Bravo Weather Stik 1.5 pt/A (26 Aug, 12 Sep)

D. CULTIVARS: Sub-plots
   1. NC 7 (non-transformed)
   2. N70-8-24-B-B-B (transformed)
   3. N70-6-B-B-B-B (transformed)

   4. WILSON (non-transformed)
   5. W14-10-2-B-B-B (transformed)
   6. W73-27-B-B-B-B (transformed)

   7. PERRY (non-transformed)
   8. P39-7-9-B-B-B (transformed)
   9. P53-30-21-B-B-B (transformed)

E. ADDITIONAL INFORMATION:
   1. Location: Upper Coastal Plain Research Station, Rocky Mount, NC
   2. Crop history: tobacco 2007, corn 2006, peanut 2005
   3. Land preparation: Disk, rip and bed rows
   4. Planting date: 13 May
   5. Soil type : Norfolk loamy sand
   6. Herbicide:
      Pre-plant - Dual II Magnum 1.3 pt + Prowl H_2O 2.4 pt/A (7 May)
      Pre-emergence – Dual II Magnum 1.3 pt + Valor 4 fl oz/A (14 May)
   7. Insecticide: Temik 15G 14 lb/A (13 May); Orthene 97S 12 oz/A (30 May) Lorsban 15G 15 lb/A (15 Jul); Karate 0.9 fl oz/A (13 Aug)
   8. Fungicide: Bravo WeatherStik 2.0 pt/A (14 Jul); Abound 18 fl oz/A (28 Jul); Tilt/Bravo (14 Aug); Bravo Weather Stik 1.5 pt/A (26 Aug, 12 Sep)
   9. Additional crop management:
      a. Landplaster: 565 lb/A with cultivation (14 Jul)
      b. Solubor 2.5 lb + Techmangam 2 lb/A (25 Jul)
      c. Irrigation: ca. 1.0 in (16 Jun, 29 Jul, 5 Aug)
   10. Harvest date: 21 October

Table 122. Stand count, oxalate oxidase gene expression, disease incidence in parent cultivars and transformed lines containing the barley oxalate oxidase gene.

Variables	Plants/ft[1] (9 Jun)	Oxalate oxidase expression[2] (3 Jul)	TSWV[3] (7 Aug)	Southern stem rot[4] 7 Aug	Southern stem rot[4] 10 Oct
Non-treated control					
NC 7 (non-transformed).....	3.0	na	3.0	0.0	na
N70-8-24-B-B-B	2.3	na	0.5	0.0	na
N70-6-B-B-B-B	2.4	na	2.3	0.0	na
LSD	n.s.		n.s.	n.s.	
Wilson (non-transformed)..	2.8	na	1.8	0.3	na
W14-10-2-B-B-B	2.7	na	0.5	0.0	na
W73-27-B-B-B-B	2.8	na	1.3	0.0	na
LSD	n.s.		n.s.	n.s.	
Perry (non-transformed).....	2.3	na	1.0	0.3	na
P39-7-9-B-B-B.....	2.9	na	1.8	0.0	na
P53-30-21-B-B-B.....	3.1	na	0.8	0.8	na
LSD	n.s.		n.s.	n.s.	
Treated with Bravo					
NC 7 (non-transformed).....	3.1	0.010 c	1.0	1.0	18.3
N70-8-24-B-B-B	2.1	0.534 a	1.0	0.5	6.5
N70-6-B-B-B-B	2.9	0.162 b	0.8	1.0	7.5
LSD	n.s.	0.075	n.s.	n.s.	n.s.
Wilson (non-transformed)..	2.9	0.011 c	0.5	0.8	10.3
W14-10-2-B-B-B	2.6	0.436 a	0.3	0.3	5.5
W73-27-B-B-B-B	2.8	0.232 b	1.8	1.5	15.3
LSD	n.s.	0.072	n.s.	n.s.	n.s.
Perry (non-transformed).....	2.6	0.019 c	1.5	1.3	8.0
P39-7-9-B-B-B.....	2.7	0.260 a	0.5	0.0	4.0
P53-30-21-B-B-B.....	3.1	0.119 b	0.8	1.3	11.0
LSD	n.s.	0.050	n.s.	n.s.	n.s.
Fungicide					
Non-treated control	2.7	na	1.3	0.1 b	na
Bravo 720 l pt/A.....	2.8	na	0.9	0.8 a	na
LSD	n.s.		n.s.	0.4	
Split-plot analysis (P value)					
Cultivar.....	0.1664	na	0.1537	0.3283	na
Fungicide.....	0.5137	na	0.5441	0.0053	na
Fungicide x cultivar	0.9958	na	0.2588	0.7593	na

[1]Counts of two, 30-ft rows per plot. [2] Oxalate oxidase expression was measured in leaf samples from 10 plants/plot using a colorimetric detection method to measure hydrogen peroxide released from oxalic acid substrate using a microtiter plate reader at 550 nm (Livingston, et al. 2005 Plant Phys. 137:1354). [3] Counts of plants/plot with symptoms. [4] Number of symptomatic and/or dead plants/plot. Means in each parent group and column followed by the same letter(s) are not significantly different (LSD, *P*=0.05); n.s. denotes not significant; na denotes not applicable because data was collected only in Bravo-treated plots.

Table 123. Disease incidence and yield of parent cultivars and transformed lines containing the barley oxalate oxidase gene.

Variables	% leaf spot[1]		% defoliation[2]		CBR[3]	Yield[4]
	18 Sep	10 Oct	18 Sep	10 Oct	(7 Aug)	(lb/A)
Non-treated						
NC 7 (non-transformed)	6.5	86.3	25.0	37.5	0.3	4270 b
N70-8-24-B-B-B	14.4	71.3	26.3	27.5	0.0	5281 a
N70-6-B-B-B-B	3.3	56.3	28.1	16.3	0.0	5154 a
LSD	n.s.	n.s.	n.s.	n.s.	n.s.	605
Wilson (non-transformed)	0.9	46.3	22.5	12.5	0.0	4370 b
W14-10-2-B-B-B	0.8	60.0	13.8	22.5	0.0	5233 a
W73-27-B-B-B-B	2.3	71.3	22.5	21.3	0.0	5065 ab
LSD	n.s.	n.s.	n.s.	n.s.	n.s.	766
Perry (non-transformed)	12.0	79.5	22.5	26.3	0.0	4392 b
P39-7-9-B-B-B	14.3	77.0	25.6	30.0	0.3	4938 ab
P53-30-21-B-B-B	2.0	55.0	24.4	16.3	0.0	5344 a
LSD	n.s.	n.s.	n.s.	n.s.	n.s.	716
Treated with Bravo 720						
NC 7 (non-transformed)	0.8	0.6	14.4	1.0	0.0	4378
N70-8-24-B-B-B	0.0	0.8	19.4	1.0	0.0	5123
N70-6-B-B-B-B	0.6	0.8	21.9	1.0	0.0	4905
LSD	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Wilson (non-transformed)	0.6	0.6	12.5	1.0	0.0	5025
W14-10-2-B-B-B	0.6	0.1	13.8	1.0	0.0	5468
W73-27-B-B-B-B	3.4	0.3	11.3	1.0	0.0	4756
LSD	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Perry (non-transformed)	1.5	0.3	7.5	1.0	0.0	4695
P39-7-9-B-B-B	0.9	0.1	18.1	1.0	0.0	4982
P53-30-21-B-B-B	0.1	0.1	21.3	1.0	0.0	4938
LSD	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Fungicide						
Non-treated control	6.3	67.0	23.4 a	23.4 a	0.1 b	4894
Bravo 720 1.5 pt	0.9	0.4	15.6 b	1.0 b	0.8 a	4919
LSD	n.s.	--	3.4	2.1	0.4	n.s.
***Split-plot analysis, P*(F)**						
Cultivar	0.5002	0.0474	0.0273	0.1156	0.5724	0.0008
Fungicide	0.1205	0.0002	0.0008	0.0120	0.1817	0.9671
Fungicide x cultivar	0.4274	0.0467	0.5985	0.1156	0.5724	0.4147

[1] Leaf spot rating scale: 0=none; 100=spots on all leaflets.
[2] Defoliation rating scale: 0=none, 100=no leaves on plants.
[3] Number of symptomatic and/or dead plants/plot.
[4] Yields are weight of peanuts with 7% moisture. Peanuts were dug on 10 Oct and harvested on 21 Oct.
Means followed by the same letter(s) in a column and group are not significantly different according to Fisher's Protected LSD (*P*=0.05), n.s. denotes not significant, -- denotes that LSD for combined analysis not reported due to significant cultivar by fungicide interaction.

XXXVII. SOYBEAN SEED TREATMENT TEST (SOYSEED108, TAREC Res. Farm, Suffolk, Field 30)

A. PURPOSE: To compare the efficacy and benefit of seed treatment for control of seedling disease of soybean

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks separated by 15-ft alleys
2. Plots 7-ft wide planted to four, 30-ft rows
3. Rows spaced 18-in. apart except for 24-in. tramlines between plots
4. Data collected from the two center rows of each plot

C. APPLICATION OF TREATMENTS: Seed treatments (S) were applied to seed by Bayer CropScience.

D. TREATMENT AND RATE:
1. Untreated
2. Trilex 2000 1 fl oz/cwt
3. Trilex 2000 1 fl oz + Gaucho 600 1.6 fl oz/cwt
4. Trilex 2000 2 fl oz/cwt
5. Trilex 2000 1 fl oz + LSP 0.25 fl oz/cwt
6. Apron Maxx RFC 1.5 fl oz/cwt
7. Apron Maxx RFC 1.5 fl oz/cwt + Cruiser 5FS 1.28 fl oz/cwt
8. Hi Moly Captan 2 oz/bu (1 bu = 60 lb)

E. ADDITIONAL INFORMATION:
1. Location: TAREC Research farm, Hare Rd., Suffolk
2. Crop History: corn 2007, soybean 2006, soybean 2005
3. Planting date and cultivar: 30 May, Garst 4512RR/N, Lot 755901, 64% germ.
4. Soil fertility report (Jan 2008):

pH	6.57	K	69 ppm
Ca	281 ppm	Zn	0.8 ppm
Mg	57 ppm	Mn	2.0 ppm
P	26 ppm	Soil type	Goldsboro fine sandy loam

5. Herbicide:
   Post-emergence – Roundup Ultra Max 20 fl oz/A (13 Jun); 22 fl oz/A (8 Jul, 30 Jul)
   First Rate 84WG 0.3 oz/A (8 Jul)
6. Insecticide: Orthene 97S 12 oz/A (13 Jun)
   Baythroid XL 3.0 fl oz/A (22 Aug)
7. Fertilization: 3-9-30 250 lb/A (6 May)
   Liquid Mn 1 qt/A (25 Jun, 17 Jul)
   Coron (25-0-0) 1 gal/A (23 Jul)

Table 124. Effect of seed treatments on emergence of soybean.

Treatment and rate/ cwt seed or bushel	Plants/ft*	
	13 Jun	27 Jun
Untreated	1.81	1.52
Trilex 2000 1 fl oz/cwt	2.08	1.73
Trilex 2000 1 fl oz + Gaucho 600 1.6 fl oz/cwt	1.75	1.31
Trilex 2000 2 fl oz/cwt	2.03	1.69
Trilex 2000 1 fl oz + LSP 0.25 fl oz/cwt	2.12	1.63
Apron Maxx RFC 1.5 fl oz/cwt	2.07	1.67
Apron Maxx RFC 1.5 fl oz/cwt + Cruiser 5FS 1.28 fl oz/cwt	1.80	1.53
Hi Moly Captan 2 oz/bu	1.95	1.56
LSD	n.s.	n.s.

* Determined from counts of two, 30-ft rows per plot.
Means in a column are not significantly different (n.s.) according to Fisher's Protected LSD, (P=0.05).

XXXVIII. EVALUATION OF FOLIAR FUNGICIDES FOR CONTROL OF SOYBEAN RUST AND COMMON FOLIAR DISEASES (SOYRUST108, TAREC Res. Center, Suffolk, Field 62C, Front)

A. PURPOSE: To compare fungicides for foliar disease control and impact on soybean yield

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks separated by 8-ft alleys
2. Plots 13-ft wide planted to eight, 30-ft rows
3. Rows spaced 18-in. apart except for 24-in. tramlines between rows 2-3 and 6-7
4. Data collected from the four center rows of each plot

C. APPLICATION: Treatments were applied with a Lee Spider Sprayer having 8002VS nozzles spaced 18 in. apart and delivered in a volume of 19.88 gal/A. The 1st application was applied on 20 Aug at R_3 (beginning pod). The 2nd application (trt # 3,4,6,8,10) was applied on 2 Sep at R_5 (beginning seed).

D. TREATMENT AND RATE/A:
1. Untreated
2. Quilt 14 fl oz + crop oil 25.4 fl oz (R_3)
3. Quilt 14 fl oz + crop oil 25.4 fl oz (R_3, R_5)
4. Quadris Xtra 4 fl oz + Coverall 3.2 fl oz (R_3, R_5)
5. Headline 2.08EC 6 fl oz + Folicur 432SC 3.1 fl oz + Coverall 3.2 fl oz (R_3)
6. Headline 2.08EC 6 fl oz + Folicur 432SC 3.1 fl oz + Coverall 3.2 fl oz (R_3, R_5)
7. Stratego 250EC 10 fl oz + Induce 3.2 fl oz (R_3)
8. Stratego 250EC 10 fl oz + Induce 3.2 fl oz (R_3, R_5)
9. Absolute 500SC 5 fl oz (R_3)
10. Absolute 500SC 5 fl oz (R_3, R_5)

E. ADDITIONAL INFORMATION:
1. Location: Swine Lagoon, Tidewater AREC, Suffolk
2. Crop history: soybean 2007-2006, corn 2005
3. Planting date and variety: 4 Jun, Pioneer 95Y20
4. Soil fertility report (Jan 2008):

pH	6.38	K	108 ppm
Ca	516 ppm	Zn	0.6 ppm
Mg	77 ppm	Mn	1.6 ppm
P	32 ppm	Soil type	Kenansville loamy fine sand

5. Herbicide:
   Post-emergence – Roundup Ultra Max 22 fl oz/A (24 Jun, 8 Jul)
   First Rate 84WG 0.3 oz/A (8 Jul)
   Butyrac 8 fl oz/A (21 Jul)
6. Insecticide: Baythroid XL 3.0 fl oz/A (22 Aug)
7. Fertilization: 9-15-36 300 lb/A (18 Mar)
   Liquid Mn 1 qt/A (25 Jun, 17 Jul)
8. Harvest date: 3 Nov

Table 125. Effect of treatments on early senescence and incidence of foliar diseases.

Treatment, rate/A and application date[1]	% senescence[2] (7 Oct)	% leaf area with disease (7 Oct)[3] Brown spot	Cercospora blight
Untreated	73.8 a	19.5 a	22.0 a
Quilt 14 fl oz +COC 25.4 fl oz (8/20)	37.5 c	11.8 bc	12.5 b-d
Quilt 14 fl oz + COC 25.4 fl oz (8/20, 9/2)	25.0 d	7.8 d-f	8.8 cd
Quadris Xtra 4 fl oz + Coverall 3.2 fl oz (8/20, 9/2)	42.5 c	14.5 b	12.5 b-d
Headline 250EC 6 fl oz + Folicur 432SC 3.1 fl oz + Coverall 3.2 fl oz (8/20)	42.5 c	10.0 c-e	11.5 b-d
Headline 250EC 6 fl oz + Folicur 432SC 3.1 fl oz + Coverall 3.2 fl oz (8/20, 9/2)	23.8 d	5.8 f	8.0 d
Stratego 250EC 10 fl oz + Induce 3.2 fl oz (8/20)	51.3 b	14.3 b	14.0 b
Stratego 250EC 10 fl oz + Induce 3.2 fl oz (8/20, 9/2)	43.8 bc	11.3 b-d	12.5 b-d
Absolute 500SC 5 fl oz (8/20)	43.8 bc	11.0 b-d	13.0 bc
Absolute 500SC 5 fl oz (8/20, 9/2)	22.5 d	6.8 ef	8.8 cd
LSD	8.1	3.2	4.5

[1] The 1st application was applied on 20 Aug at R_3 (beginning pod) and 2nd application was applied on 2 Sep at R_5 (beginning seed).

[2] % senescence is percent of yellow and/or necrotic leaves and leaflets shed.

[3] Foliar disease rating scale: 0=none; 100=symptoms on all leaflets. Brown spot ratings were on lower leaves, Cercospora blight was rated on upper leaves.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05). Arcsine transformation of percentage data was made in statistical analysis.

Table 126. Effect of treatment on yield and grade of soybeans.

Treatment and rate/A[1]	Yield[2] (bu/A)	Wt./100 seed (oz)	% phomopsis seed decay[3]
Untreated	44.2	.5520 e	0.3
Quilt 14 fl oz + COC 25.4 fl oz (8/20)	43.5	.5627 c-e	0.3
Quilt 14 fl oz + COC 25.4 fl oz (8/20, 9/2)	39.1	.5732 a-e	0.0
Quadris Xtra 4 fl oz + Coverall 3.2 fl oz (8/20, 9/2)	44.3	.5617 c-e	0.0
Headline 250EC 6 fl oz + Folicur 432SC 3.1 fl oz + Coverall 3.2 fl oz (8/20)	41.3	.5910 a	0.3
Headline 250EC 6 fl oz + Folicur 432SC 3.1 fl oz + Coverall 3.2 fl oz (8/20, 9/2)	46.9	.5845 a-c	0.3
Stratego 250EC 10 fl oz + Induce 3.2 fl oz (8/20)	39.0	.5592 de	0.3
Stratego 250EC 10 fl oz + Induce 3.2 fl oz (8/20, 9/2)	43.2	.5796 a-d	0.3
Absolute 500SC 5 fl oz (8/20)	41.2	.5653 b-e	0.0
Absolute 500SC 5 fl oz (8/20, 9/2)	41.7	.5901 ab	0.0
LSD	n.s.	.0250	n.s.

[1] The 1st application was applied on 20 Aug at R_3 (beginning pod) and 2nd application was applied on 2 Sep at R_5 (beginning seed).

[2] Yields are weight of soybeans with 13.5% moisture. One bushel equals 60 lb. Soybeans were harvested on 3 Oct.

[3] Data are percent of 100 seed with symptoms of disease.

Means followed by the same letters were not significantly different according to Fisher's Protected LSD (*P*=0.05), n.s. denotes differences are not significant.

XXXIX. EVALUATION OF FOLIAR FUNGICIDES FOR CONTROL OF SOYBEAN RUST AND COMMON FOLIAR DISEASES (SOYRUST208, TAREC Res. Center, Suffolk, Field 62C-Rear)

A. PURPOSE: To compare fungicides for foliar disease control and impact on soybean yield

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks separated by 8-ft alleys
2. Plots 13-ft wide planted to eight, 30-ft rows
3. Rows spaced 18-in. apart except for 24-in. tramlines between rows 2-3 and 6-7
4. Data collected from the four center rows of each plot

C. APPLICATION: Treatments were applied with a Lee Spider sprayer having 8002VS nozzles spaced 18 in. apart and delivered in a volume of 19.88 gal/A. Application was applied 20 Aug at R_3 (beginning pod) in all treatments. If an alert for SBR was issued and the disease appeared prior to R_6 (full seed), a 2nd application may be applied.

D. TREATMENT AND RATE/A:
1. Untreated
2. Quadris 2.08SC 6 fl oz + crop oil 25.4 fl oz (R_3)
3. Quilt 1.67SC 14 fl oz + crop oil 25.4 fl oz (R_3)
4. Stratego 250EC 10 fl oz + Induce 3.2 fl oz (R_3)
5. Absolute 500SC 5 fl oz (R_3)
6. Folicur 432SC 4 fl oz + Induce 3.2 fl oz (R_3)
7. Headline 250EC 6 fl oz + Coverall 3.2 fl oz (R_3)
8. Headline 250EC 4.7 fl oz + Folicur 3.1 fl oz + Coverall 3.2 fl oz (R_3)
9. Domark 1.9ME 4 fl oz (R_3)
10. Domark 1.9ME 5 fl oz (R_3)
11. Proline 480SC 2.5 fl oz (R_3)
12. Stratego 250EC 10 fl oz + Proline 480SC 1.0 fl oz (R_3)

E. ADDITIONAL INFORMATION:
1. Location: Swine Lagoon, Field 62C, Tidewater AREC, Suffolk
2. Crop history: soybean 2007-2006, corn 2005
3. Planting date and variety: 4 Jun, Pioneer 95Y20
4. Soil fertility report:

pH	6.38	K	108 ppm
Ca	516 ppm	Zn	0.6 ppm
Mg	77 ppm	Mn	1.6 ppm
P	32 ppm	Soil type	Kenansville loamy fine sand

5. Herbicide:
   Post-emergence – Roundup Ultra Max 22 fl oz/A (24 Jun, 8 Jul)
   First Rate 84WG 0.3 oz/A (8 Jul)
   Butyrac 8 fl oz/A (21 Jul)
6. Insecticide: Baythroid XL 3.0 fl oz/A (22 Aug)
7. Fertilization: 9-15-36 300 lb/A (18 Mar)
   Liquid Mn 1 qt/A (25 Jun, 17 Jul)
8. Harvest date: 3 Nov

Table 127. Effect of treatments on maturity and incidence of foliar disease in soybeans.

Treatment, and rate/A[1]	% senescence[2] (7 Oct)	% leaf area with disease (7 Oct)[3]	
		Brown spot	Cercospora blight
Untreated	68.8 a	20.0 a	18.3 a
Quadris 2.08SC 6 fl oz + COC 25.4 fl oz	38.8 c	9.8 de	11.0 de
Quilt 1.67SC 14 fl oz + COC 25.4 fl oz	32.5 c-e	10.0 de	12.3 c-e
Stratego 250EC 10 fl oz + Induce 3.2 fl oz	36.3 cd	9.0 d-f	11.8 c-e
Absolute 500SC 5 fl oz	24.5 e	8.3 ef	9.5 e
Folicur 432SC 4 fl oz + Induce 3.2 fl oz	36.3 cd	13.5 bc	11.8 c-e
Headline 250EC 6 fl oz + Coverall 3.2 fl oz	28.8 c-e	6.5 f	9.5 e
Headline 250EC 4.7 fl oz + Folicur 3.1 fl oz + Coverall 3.2 fl oz	35.0 cd	8.5 ef	9.8 de
Domark 1.9ME 4 fl oz	30.0 c-e	11.5 cd	12.8 b-d
Domark 1.9ME 5 fl oz	48.8 b	14.8 b	14.3 bc
Proline 480SC 2.5 fl oz	56.3 b	16.3 b	15.8 ab
Stratego 250EC 10 fl oz + Proline 480SC 1.0 fl oz	27.5 de	20.0 a	11.0 de
LSD	9.3	3.0	3.1

[1] All treatments were applied on 20 Aug at R_3 (beginning pod).
[2] % senescence is percent of yellow and necrotic leaves and defoliation.
[3] Foliar disease rating scale: 0=none; 100=symptoms on all leaflets. Brown spot ratings were on lower leaves, Cercospora blight was rated on upper leaves.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05). Arcsine transformation of percentage data was made in statistical analysis.

Table 128. Effect of treatments on yield and quality of soybeans.

Treatment, and rate/A[1]	Yield[2] (bu/A)	Wt./100 seed (oz)	% purple seed stain[3]
Untreated	50.3	.5358	0.8 b
Quadris 2.08SC 6 fl oz + COC 25.4 fl oz	51.8	.5446	0.3 bc
Quilt 1.67SC 14 fl oz + COC 25.4 fl oz	49.2	.5505	0.0 c
Stratego 250EC 10 fl oz + Induce 3.2 fl oz	52.5	.5505	0.0 c
Absolute 500SC 5 fl oz	49.6	.5607	0.0 c
Folicur 432SC 4 fl oz + Induce 3.2 fl oz	53.0	.5535	0.3 bc
Headline 250EC 6 fl oz + Coverall 3.2 fl oz	53.1	.5730	0.3 bc
Headline 250EC 4.7 fl oz + Folicur 3.1 fl oz + Coverall 3.2 fl oz	50.3	.5569	0.0 c
Domark 1.9ME 4 fl oz	49.8	.5570	0.5 bc
Domark 1.9ME 5 fl oz	50.4	.5668	0.3 bc
Proline 480SC 2.5 fl oz	48.8	.5627	1.5 a
Stratego 250EC 10 fl oz + Proline 480SC 1.0 fl oz	46.8	.5524	0.3 bc
LSD	n.s.	n.s.	0.7

[1] All treatments were applied on 20 Aug at R_3 (beginning pod).
[2] Yields are weight of soybeans with 13.5% moisture. One bushel equals 60 lb. Soybeans were harvested on 3 Oct.
[3] Data are percent of 100 seed with symptoms of disease.
Means were not significantly different according to Fisher's Protected LSD (*P*=0.05), except purple seed stain was analyzed at P=0.10, n.s. denotes not significant.

XL. EVALUATION OF FOLIAR FUNGICIDES FOR CONTROL OF SOYBEAN RUST AND COMMON FOLIAR DISEASES (SOYRUST308, Duke farm, Suffolk, Field 45-Right)

A. PURPOSE: To compare fungicides for foliar disease control and impact on soybean yield

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks separated by 8-ft alleys
2. Plots 13-ft wide planted to eight, 30-ft rows
3. Rows spaced 18-in. apart except for 24-in. tramlines between rows 2-3 and 6-7
4. Data collected from the four center rows of each plot

C. APPLICATION: Treatments were applied with a Lee Spider Sprayer having 8002VS nozzles spaced 18 in. apart and delivered in a volume of 19.88 gal/A. The 1st application was applied on 7 Aug at R_2 (full flowering) and 2nd application (trt #3) was applied on 20 Aug at R_5 (beginning seed). Other treatments did not receive a 2nd application since alerts were not issued for soybean rust and disease was not detected.

D. TREATMENT AND RATE/A:
1. Untreated
2. Topguard 7 fl oz (R_2)
3. Topguard 7 fl oz (R_2, R_5)
4. Topguard 14 fl oz (R_2)
5. Quilt 14 fl oz + crop oil 25.4 fl oz (R_2)
6. Quadris Xtra 4 fl oz + Coverall 3.2 fl oz (R_2)
7. Headline 250EC 6 fl oz + Folicur 432S 3.1 fl oz + Coverall 3.2 fl oz (R_2)
8. Absolute 500SC 5 fl oz (R_2)

E. ADDITIONAL INFORMATION
1. Location: Duke farm, Field 45, Tidewater AREC, Suffolk
2. Crop history: soybean 2007, soybean 2006, corn 2005
3. Planting date and variety: 22 May, Pioneer 95Y20
4. Soil fertility report (Jan 2008):

pH	6.30	K	96 ppm
Ca	234 ppm	Zn	0.4 ppm
Mg	52 ppm	Mn	1.5 ppm
P	21 ppm	Soil type	Dragston fine sandy loam

5. Herbicide:
   Post-emergence – Roundup Ultra Max 22 fl oz/A (24 Jun, 8 Jul)
   First Rate 84WG 0.3 oz/A (8 Jul)
6. Insecticide: Baythroid XL 3.0 fl oz/A (22 Aug)
7. Fertilization: 3-9-30 250 lb/A (6 May)
   Liquid Mn 1 qt/A (25 Jun, 17 Jul)
8. Harvest date: 3 Nov

Table 129. Effect of treatments on senescence and incidence of foliar disease in soybeans.

Treatment, rate/A and application date[1]	% senescence[2] (9 Oct)	% leaf area with disease (9 Oct)[3]	
		Brown spot	Cercospora blight
Untreated	93.8 a	12.0 a	11.3
Topguard 7 fl oz (8/7)	88.0 a-c	7.5 bc	7.5
Topguard 7 fl oz (8/7, 8/20)	84.5 bc	8.8 ab	7.5
Topguard 14 fl oz (8/7)	90.0 ab	7.5 bc	9.5
Quilt 14 fl oz + COC 25.4 fl oz (8/7)	81.3 c	7.5 bc	8.8
Quadris Xtra 4 fl oz + Coverall 3.2 fl oz (8/7)	83.8 bc	6.3 bc	7.5
Headline 250EC 6 fl oz + Folicur 432S 3.1 fl oz + Coverall 3.2 fl oz (8/7)	82.5 c	5.0 c	6.3
Absolute 500SC 5 fl oz (8/7)	81.3 c	7.5 bc	8.8
LSD	8.1	3.7	n.s.

[1] Treatments were applied on 7 Aug at R_2 (full flower) and 20 Aug (Trt. #3) at R5 (beginning seed).
[2] % senescence is percent of yellow and necrotic leaves and defoliation.
[3] Foliar disease rating scale: 0=none; 100=symptoms on all leaflets. Brown spot ratings were on lower leaves, Cercospora blight was rated on upper leaves.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05), except percent senescence was analyzed at P=0.10, n.s. denotes not significant. Arcsine transformation of percentage data was made in statistical analysis.

Table 130. Effect of treatments on yield and grade of soybeans.

Treatment and rate/A[1]	Yield[2] (bu/A)	Wt./100 seed (oz)	% seed disease[3]	
			purple seed stain	downy mildew
Untreated	46.4	.5628	0.0	0.0 b
Topguard 7 fl oz (8/7)	42.7	.5371	0.5	0.0 b
Topguard 7 fl oz (8/7, 8/20)	41.9	.5464	0.3	0.0 b
Topguard 14 fl oz (8/7)	41.5	.5422	0.3	0.3 b
Quilt 14 fl oz + COC 25.4 fl oz (8/7)	45.6	.5583	0.0	1.0 a
Quadris Xtra 4 fl oz + Coverall 3.2 fl oz (8/7)	45.1	.5495	0.5	0.0 b
Headline 250EC 6 fl oz + Folicur 432S 3.1 fl oz + Coverall 3.2 fl oz (8/7)	37.3	.5467	0.5	0.0 b
Absolute 500SC 5 fl oz (8/7)	43.8	.5396	0.3	0.0 b
LSD	n.s.	n.s.	n.s.	0.5

[1] Treatments were applied on 7 Aug at R_2 (full flower) and 20 Aug (Trt. #3) at R5 (beginning seed).
[2] Yields are weight of soybeans with 13.5% moisture. One bushel equals 60 lb. Soybeans were harvested on 31 Oct.
[3] Data are percent of 100 seed with symptoms of each disease.
Means followed by the same letter(s) were not significantly different according to Fisher's Protected LSD (*P*=0.05), n.s. denotes not significant.

XLI. EVALUATION OF FOLIAR FUNGICIDES FOR CONTROL OF SOYBEAN RUST AND COMMON FOLIAR DISEASES (SOYRUST408, Duke farm, Suffolk, Field 45-Left)

A. PURPOSE: To compare fungicides for foliar disease control and impact on soybean yield

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks with 8-ft alleys between blocks
2. Plots 13-ft wide planted to eight, 30-ft rows
3. Rows spaced 18-in. apart except for 24-in. tramlines between rows 2-3 and 6-7
4. Data collected from the four center rows of each plot

C. APPLICATION: Treatments were applied with 8002VS nozzles spaced 18 in. apart and delivered in a volume of 19.88 gal/A. The 1st application was applied at R_3 (beginning pod). If an alert for SBR was issued and the disease appeared prior to R_6 (full seed), a 2nd application may be applied.

D. TREATMENT AND RATE/A:
1. Untreated
2. Quadris 2.08SC 6 fl oz + Crop Oil 25.4 fl oz (R_3)
3. Quilt 1.67SC 14 fl oz + Crop Oil 25.4 fl oz (R_3)
4. Quadris Xtra 4 fl oz + Coverall 3.2 fl oz (R_3)
5. Stratego 250EC 10 fl oz + Induce 3.2 fl oz (R_3)
6. Absolute 500SC 5 fl oz (R_3)
7. Headline 250EC 6 fl oz + Coverall 3.2 fl oz (R_3)
8. Headline 250EC 4.7 fl oz+ Folicur 432SC 3.1 fl oz + Coverall 3.2 fl oz (R_3)
9. Domark 1.9ME 5 fl oz (R_3)

E. ADDITIONAL INFORMATION:
1. Location: Duke farm, Field 45, Tidewater AREC, Suffolk
2. Crop history: soybean 2007, soybean 2006, corn 2005
3. Planting date and variety: 22 May, Pioneer 95Y20
4. Soil fertility report (Jan 2008):

pH	6.30	K	96 ppm
Ca	234 ppm	Zn	0.4 ppm
Mg	52 ppm	Mn	1.5 ppm
P	21 ppm	Soil type	Dragston fine sandy loam

5. Herbicide:
   Post-emergence – Roundup Ultra Max 22 fl oz/A (24 Jun, 8 Jul)
   First Rate 84WG 0.3 oz/A (8 Jul)
6. Insecticide: Baythroid XL 3.0 fl oz/A (22 Aug)
7. Fertilization: 3-9-30 250 lb/A (6 May)
   Liquid Mn 1 qt/A (25 Jun, 17 Jul)
8. Harvest date: 3 Nov

Table 131. Effect of treatments on senescence and incidence of foliar disease in soybeans.

Treatment and rate/A [1]	% senescence[2] (9 Oct)	% leaf area with disease (9 Oct)[3]	
		Brown spot	Cercospora blight
Untreated	95.3 a	12.5 a	11.3
Quadris 2.08SC 6 fl oz + COC 25.4 fl oz	87.5 b-d	7.0 b	6.3
Quilt 1.67SC 14 fl oz + COC 25.4 fl oz	88.8 bc	6.3 b	7.5
Quadris Xtra 4 fl oz + Coverall 3.2 fl oz	86.3 b-d	7.5 b	8.3
Stratego 250EC 10 fl oz + Induce 3.2 fl oz	81.3 cd	5.0 b	5.8
Absolute 500SC 5 fl oz	82.5 cd	6.3 b	6.3
Headline 250EC 6 fl oz + Coverall 3.2 fl oz	83.8 b-d	5.0 b	6.3
Headline 250EC 4.7 fl oz + Folicur 432SC 3.1 fl oz + Coverall 3.2 fl oz	80.0 d	5.0 b	6.3
Domark 1.9ME 5 fl oz	90.0 b	6.3 b	7.5
LSD	7.7	3.3	n.s.

[1] All treatments were applied on 12 Aug at R_3 (beginning pod).
[2] % senescence is percent of yellow and necrotic leaves and defoliation.
[3] Foliar disease rating scale: 0=none; 100=symptoms on all leaflets. Brown spot ratings were on lower leaves, Cercospora blight was rated on upper leaves.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05), n.s. denotes not significant. Arcsine transformation of percentage data was made in statistical analysis.

Table 132. Effect of treatments on yield and grade of soybeans.

Treatment and rate/A[1]	Yield[2] (bu/A)	Wt./100 seed (oz)	% Phomopsis seed decay[3]
Untreated	61.0	.5505 a-e	0.0 b
Quadris 2.08SC 6 fl oz + COC 25.4 fl oz	51.6	.5348 de	0.3 ab
Quilt 1.67SC 14 fl oz + COC 25.4 fl oz	55.2	.5377 c-e	0.0 b
Quadris Xtra 4 fl oz + Coverall 3.2 fl oz	48.7	.5280 e	0.0 b
Stratego 250EC 10 fl oz + Induce 3.2 fl oz	55.0	.5388 b-e	0.0 b
Absolute 500SC 5 fl oz	54.2	.5613 ab	0.0 b
Headline 250EC 6 fl oz + Coverall 3.2 fl oz	53.1	.5589 a-c	0.0 b
Headline 250EC 4.7 fl oz + Folicur 432SC 3.1 fl oz + Coverall 3.2 fl oz	58.7	.5680 a	0.0 b
Domark 1.9ME 5 fl oz	55.4	.5511 a-d	0.5 a
LSD	n.s.	.0226	0.3

[1] All treatments were applied on 12 Aug at R_3 (beginning pod).

[2] Yields are weight of soybeans with 13.5% moisture. One bushel equals 60 lb. Soybeans were harvested on 31 Oct and 3 Nov.

[3] Data are percent of 100 seed with symptoms of disease.

Means were not significantly different according to Fisher's Protected LSD (*P*=0.05), except percent Phomopsis seed decay was analyzed at P=0.10, n.s. denotes not significant.

XLII. EVALUATION OF FOLIAR FUNGICIDES FOR CONTROL OF SOYBEAN RUST AND COMMON FOLIAR DISEASES (SOYRUST508, Clements farm, Greensville Co.)

A. PURPOSE: To compare fungicides for foliar disease control and impact on soybean yield

B. EXPERIMENTAL DESIGN:
   1. Four, randomized complete blocks separated by 8-ft alleys
   2. Plots 13-ft wide planted to eight, 30-ft rows
   3. Rows spaced 18-in. apart except for 24-in. tramlines between rows 2-3 and 6-7
   4. Data collected from the four center rows of each plot

C. APPLICATION: Treatments were applied with a backpack sprayer having 8002VS nozzles spaced 18 in. apart and delivered in a volume of 16 gal/A. The 1st application was applied on 21 Aug at R_3 (beginning pod). If an alert for SBR was issued and the disease appeared prior to R_6 (full seed), a 2nd application may be applied.

D. TREATMENT AND RATE/A:
   1. Untreated
   2. Quadris 2.08SC 6 fl oz + Crop Oil 25.4 fl oz (R_3)
   3. Quilt 1.67SC 14 fl oz + Crop Oil 25.4 fl oz (R_3)
   4. Quadris Xtra 4 fl oz + Coverall 3.2 fl oz (R_3)
   5. Stratego 250EC 10 fl oz + Induce 3.2 fl oz (R_3)
   6. Absolute 500SC 5 fl oz (R_3)
   7. Folicur 432SC 4 fl oz + Induce 3.2 fl oz (R_3)
   8. Headline 250EC 6 fl oz + Coverall 3.2 fl oz (R_3)
   9. Headline 250EC 4.7 fl oz + Folicur 3.1 fl oz + Coverall 3.2 fl oz (R_3)
   10. Domark 1.9ME 5 fl oz (R_3)

E. ADDITIONAL INFORMATION:
   1. Location: Clements farm, Greensville Co.
   2. Crop history: Milo 2007, Soybean 2006
   3. Planting date and variety: 2 Jun, Pioneer 95Y20
   4. Soil type: Fluvanna-Mattaponi complex
   5. Herbicide: Roundup Ultra Max 22 fl oz/A (17 Jun)
      Roundup Ultra Max 22 fl oz + First Rate 0.3 oz/A (15 Jul)
   6. Insecticide: Orthene 97S 8 oz/A (17 Jun)
   7. Harvest date: 3 Dec

Table 133. Effect of treatments on senescence and incidence of foliar disease in soybeans.

Treatment and rate/A [1]	% senescence[2] (10 Oct)	% leaf area with disease (10 Oct)[3]	
		Brown spot	Cercospora blight
Untreated	50.0 a	20.0 a	26.3 a
Quadris 2.08SC 6 fl oz + COC 25.4 fl oz	23.8 d-f	6.3 c	9.5 bc
Quilt 1.67SC 14 fl oz + COC 25.4 fl oz	28.8 c-f	7.8 c	8.8 bc
Quadris Xtra 4 fl oz + Coverall 3.2 fl oz	35.0 bc	7.8 c	10.0 bc
Stratego 250EC 10 fl oz + Induce 3.2 fl oz	20.0 ef	5.0 c	7.3 bc
Absolute 500SC 5 fl oz	33.8 b-d	5.0 c	7.5 bc
Folicur 432SC 4 fl oz + Induce 3.2 fl oz	25.0 c-f	6.5 c	10.5 bc
Headline 250EC 6 fl oz + Coverall 3.2 fl oz	18.8 f	5.0 c	5.0 c
Headline 250EC 4.7 fl oz + Folicur 3.1 fl oz + Coverall 3.2 fl oz	30.0 b-e	5.5 c	6.3 c
Domark 1.9ME 5 fl oz	40.0 b	13.8 b	12.5 b
LSD	10.5	3.5	6.0

[1] All treatments were applied on 21 Aug at R_3 (beginning pod).
[2] % senescence is percent of yellow and necrotic leaves and defoliation.
[3] Foliar disease rating scale: 0=none; 100=symptoms on all leaflets. Brown spot ratings were on lower leaves, Cercospora blight was rated on upper leaves.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05). Arcsine transformation of percentage data was made in statistical analysis.

Table 134. Effect of treatments on yield and grade of soybeans.

Treatment and rate/A[1]	Yield[2] (bu/A)		Wt./ 100 seed (oz)	% seed disease[3] Purple seed stain		Phomopsis seed decay
Untreated	50.5	a-d	.6255	0.0	b	0.3
Quadris 2.08SC 6 fl oz + COC 25.4 fl oz	52.6	a-c	.6426	0.0	b	0.3
Quilt 1.67SC 14 fl oz + COC 25.4 fl oz	45.8	d	.6114	0.0	b	0.0
Quadris Xtra 4 fl oz + Coverall 3.2 fl oz	49.9	b-d	.6020	0.0	b	0.3
Stratego 250EC 10 fl oz + Induce 3.2 fl oz	54.5	ab	.6023	0.0	b	0.0
Absolute 500SC 5 fl oz	48.7	cd	.6352	0.0	b	0.3
Folicur 432SC 4 fl oz + Induce 3.2 fl oz	56.0	a	.6373	0.5	ab	0.0
Headline 250EC 6 fl oz + Coverall 3.2 fl oz	53.2	a-c	.6572	0.0	b	0.0
Headline 2.08EC 4.7 fl oz + Folicur 3.1 fl oz + Coverall 3.2 fl oz	52.4	a-c	.6483	0.0	b	0.0
Domark 1.9ME 5 fl oz	48.3	cd	.6146	0.8	a	0.0
LSD	5.7		n.s.	0.5		n.s.

[1] All treatments were applied on 21 Aug at R_3 (beginning pod).
[2] Yields are weight of soybeans with 13.5% moisture. One bushel equals 60 lb. Soybeans were harvested on 3 Dec.
[3] Data are percent of 100 seed with symptoms of disease.
Means were not significantly different according to Fisher's Protected LSD (P=0.05), n.s. denotes not significant.

XLIII. CLIMATOLOGICAL SUMMARY OF THE 2008 GROWING SEASON AT THE TIDEWATER AGRICULTURAL RESEARCH & EXTENSION CENTER, SUFFOLK, VA

Table 135. Daily maximum and minimum temperatures (◦F) November 2007 - April 2008.

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

Table 136. Daily maximum and minimum temperatures (◦F) May 2008 – October 2008.

Day of month	MAY		JUN		JUL		AUG		SEP		OCT	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	65	43	89	70	90	63	95	71	84	56	77	59
2	77	56	90	59	85	58	92	69	85	54	77	46
3	82	60	82	53	92	68	95	69	89	57	79	59
4	83	64	83	69	92	68	91	63	92	59	75	45
5	82	55	94	75	96	67	93	67	92	60	79	48
6	76	53	98	70	89	66	95	76	84	74	82	49
7	78	50	95	68	88	66	95	79	85	55	80	50
8	84	64	100	70	90	70	88	65	89	61	70	41
9	74	65	100	72	92	66	89	57	89	67	75	56
10	82	51	98	82	83	69	87	63	90	69	76	52
11	75	42	100	71	87	67	82	59	76	67	76	58
12	65	30	102	89	88	59	84	52	79	63	75	53
13	58	44	91	58	88	59	85	54	89	70	77	48
14	71	40	92	61	89	65	79	56	94	72	78	46
15	78	58	92	80	84	68	88	62	93	74	85	52
16	81	63	88	63	86	69	88	61	90	67	86	54
17	82	47	94	62	88	59	87	60	74	58	87	63
18	76	54	84	53	100	78	87	60	77	52	66	50
19	81	53	84	56	93	57	89	62	82	56	59	44
20	73	56	85	59	92	69	92	64	75	67	61	34
21	83	47	87	61	92	68	85	62	74	55	72	45
22	77	48	85	61	95	73	84	57	78	60	65	45
23	78	49	88	67	98	67	85	63	77	57	60	36
24	76	47	90	62	89	68	86	64	76	57	65	36
25	75	46	89	60	86	64	88	65	72	59	76	48
26	80	51	98	63	85	60	93	69	73	60	74	45
27	84	64	99	66	88	68	79	66	83	65	70	39
28	88	56	97	67	90	67	77	70	85	64	57	32
29	63	40	97	75	90	67	84	73	79	63	57	34
30	77	47	95	67	94	72	90	71	79	58	55	35
31	85	65			95	72	89	72			55	26
Avg.	**77**	**52**	**92**	**66**	**90**	**66**	**88**	**65**	**83**	**62**	**72**	**46**
Normal	**77**	**54**	**84**	**63**	**88**	**67**	**87**	**65**	**82**	**60**	**71**	**46**
Deviation from normal	**0**	**-2**	**+8**	**+3**	**+2**	**-1**	**+1**	**0**	**+1**	**+2**	**+1**	**0**

Table 137. Daily precipitation (inches) November 2007 - April 2008.						
Day of month	NOV	DEC	JAN	FEB	MAR	APR
1	0	0	0.01	0.5	0	0
2	0	0	0	0.42	0	0.03
3	0	0.13	0	0	0	0
4	0	0	0	0	0	0.81
5	0	0	0	0	0.73	0.29
6	0	0.03	0	0.06	0	0.58
7	0	0	0	0	0	0.04
8	0	0.1	0	0	1.11	0.02
9	0	0	0	0	0.37	0.01
10	0.13	0	0	0	0	0.01
11	0.01	0	0.13	0	0	0.04
12	0	0	0	0	0	0
13	0	0	0	0.69	0	0.11
14	0	0	0.02	1.11	0	0.03
15	0.01	0	0	0.05	0	0
16	0	1.13	0	0	0.01	0
17	0	0	0.05	0	0.28	0
18	0	0	0.43	0.58	0	0
19	0	0	0.15	0.04	0	0
20	0	0	0	0	0	0
21	0.05	0.03	0.02	0.41	0	2.13
22	0	0.01	0	0.46	0	1.2
23	0	0.04	0.22	0	0	0.05
24	0	0.13	0.02	0	0	0
25	0	0	0	0	0	0
26	0	0.87	0	0	0	0
27	0	1.04	0	0.06	0	0.95
28	0	0.02	0	0	0	0.04
29	0	0.02	0	0	0.07	1.18
30	0	0.07	0.1		0	0
31	0.2	0.44	0		0.24	
Total	**0.40**	**4.06**	**1.15**	**4.38**	**2.81**	**7.52**
Normal	**3.14**	**3.27**	**3.94**	**3.42**	**3.84**	**3.28**
Deviation from normal	**-2.74**	**+0.79**	**-2.79**	**+0.96**	**-1.03**	**+4.24**

Table 138. Daily precipitation (inches) May 2008 – October 2008.						
Day of month	MAY	JUN	JUL	AUG	SEP	OCT
1	0	0	0	0.71	0	0.12
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0.01	0.97	0.02	0	0
6	0	0	1.54	0	1.33	0
7	0	0	0.29	0	0.58	0
8	0	0	0	0	0	0
9	0.05	0	0.45	0	0	0
10	0.12	0	0.44	0	0	0
11	0.01	0	0	1.04	0.31	0
12	1.16	0	0	0	0	0
13	0	0	0	0	0	0
14	0.02	0	0	0	0	0
15	0	0.05	0.27	0	0	0
16	0.18	0	0	0	0.08	0
17	0	0.84	0	0.01	0.02	0
18	0	0	0	0	0	0.58
19	0.43	0	0	0	0	0
20	0	0	0	0	0	0
21	0.4	0		0	0	0
22	0	0.06	0	0	0	0
23	0	0.05	0	0	0	0
24	0.08	0.01	1.19	0	0	0
25	0	0	0	0	0.25	0.1
26	0	0	0	0	3.31	0.07
27	0	0	0	0	0.09	0
28	0.77	0	0.43	0.23	0.04	0
29	0.02	0	0	0.17	0	0
30	0.19	0.54	0	0	0	0
31	0		0	0		0
Total	**3.43**	**1.56**	**5.58**	**2.18**	**6.01**	**0.87**
Normal	**3.82**	**4.33**	**5.87**	**5.71**	**4.47**	**3.54**
Deviation from normal	**-0.39**	**-2.77**	**-0.29**	**-3.53**	**+1.54**	**-2.67**