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APPLIED RESEARCH ON

FIELD CROP DISEASE CONTROL

2015

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TABLE OF CONTENTS

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Virginia Cotton Board
Virginia Peanut Board
Virginia Peanut Growers Association / National Peanut Board
Virginia Soybean Board
Virginia Small Grains Board

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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) available formulations, (v) mammalian toxicity (LD_{50}), (vi) possible health hazards, and (vii) potential 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.

The use of brand names and any mention or listing of commercial products or services in this publication does not imply endorsement by Virginia Tech nor discrimination against similar products or services not mentioned. Individuals who use agricultural chemicals are responsible for ensuring that the intended use complies with current regulations and conforms to the product label. Not all pesticides in this publication were applied according to their labels, and some of the tested chemicals are not yet registered for use in field crops in Virginia. Be sure to obtain information about usage regulations and examine a current product label before applying any chemical. For assistance, contact your county Extension agent.

INTRODUCTION

Total rainfall during the summer growing season (May 1-Oct 31) was 24.2 inches with monthly totals as follows: 0.55 inches in May; 7.48 inches in Jun; 4.62 inches in Jul; 2.62 inches in Aug; 5.33 inches in Sep; and 3.56 inches in Oct. Monthly average minimum air temperatures were 58°F in May, 69°F in Jun, 70°F in Jul, 66°F in Aug, 65°F in Sep, and 51°F in Oct. Monthly average maximum air temperatures were 83°F in May, 90°F in Jun, 90°F in Jul, 89°F Aug, 84°F in Sep, and 72°F in Oct. Data were recorded at a weather station located at the Tidewater Research Farm located on Hare Road in Suffolk, Virginia.

During the planting period, daily soil temperatures at the 4-in. depth averaged >68°F from 29 Apr through 14 May. Thereafter, soil temperatures averaged >76°F in the period from 20 May through 5 Jun, and reached 83°F on 1 June. These conditions were favorable conditions for rapid emergence and good seedling vigor. Seasonal accumulations of peanut heat units (DD_{56}) and cotton degree days (DD_{60}) in 2015 were above the 20-yr average (Table 1). Peanut and soybean harvest were completed in October while cotton harvest was complete by late November. The first killing frost in southeastern Virginia was on 19 October when temperatures dropped to 32.4ºF.

Peanut was harvested on 19,000 acres in 2015 and yields averaged 3850 lb/A, 350 lb/A below the record yield of 4200 lb/A in 2012 (Table 2). Sclerotinia blight and late leaf spot were the major diseases in 2015, but low to moderate levels of CBR, southern stem rot, and TSWV were observed in certain fields. Impacts of nematodes on peanut production in the region vary by field, but nematodes including Northern root-knot and sting nematode are estimated to result in an overall 2% decrease in yield for the Virginia peanut crop (Table 3). The loss estimate to peanut diseases equals 2,670 tons of peanuts or $1.2 million in farm income based a total production of 36,575 tons and an estimated value of $440/ton (Table 3).

Cotton was harvested on 84,000 acres and yields in Virginia averaged 823 lb/A, or 416 lb/A below the record high for cotton in 2014 (Table 2). Stand losses due to seedling diseases were caused by *Rhizoctonia* and *Fusarium* damping-off, but incidence and impact on production were relatively low in 2015 due to warm soil temperatures at planting (Table 4). Common foliar diseases were caused by fungi that included species of *Stemphyllium*, *Alternaria*, *Colletotrichum*, *Cercospora*, and *Ascochyta*. *Corynespora* target spot was detected in one field in 2015 but did not result in significant defoliation or yield loss. Severity of bacterial and fungal boll rots was relatively severe in 2015 due to stink bug damage and late season rainfall on the mature crop. Yield losses caused by nematodes were estimated at 4.0% of yield potential. The estimated loss to all diseases totaled 11.2% of yield potential. The yield loss estimate to cotton diseases equals 7.74 million pounds or $5 million in farm income based a total production of 69 million pounds and an estimated value of $0.65/A (Table 4).

Soybean was harvested on 620,000 acres and yields in Virginia averaged 34.5 bu/A, or 7.5 bu/A below the record high for soybean in 2012 (Table 2). Nematodes including soybean cyst, southern root-knot, sting, stubby root, and stunt nematodes accounted for an estimated 4.5% of yield loss (Table 5). Frogeye leaf spot and Cercospora blight were the most prevalent foliar diseases and may have caused yield losses where outbreaks occurred during seed development and up to full pod (R6). However, overall levels of foliar disease in the Virginia soybean crop were low in 2015 due to dry conditions during July and August. However, seed rot and other seedborne diseases resulted in significant quality losses due to heavy rains following maturity of the soybean crop. Severe outbreaks of stem canker occurred in certain fields where susceptible varieties were planted. Charcoal rot was also confirmed throughout the state in fields where

drought stress occurred. Yield loss to diseases in 2015 was estimated to be 10.14%. This estimate indicates growers in Virginia lost 2.17 million bushels or $19.5 million in farm income in 2015 based on a total production of 21.4 million bushels and an estimated value of $9/bu (Table 5).

Corn yields averaged 161 bu/A in 2015 on 300,000 acres (Table 2). The exceeded the previous yield record for Virginia of 150 bu/A in 2013. In some areas, seedling disease resulted in poor stand establishment due to a wet spring. Overall, foliar diseases caused only minor damage in widely scattered areas.

Wheat yields averaged 66 bu/A on 210,000 acres (Table 2). This was 5 bu/A lower than the yield record of 71 bu/A in 2008. *Stagonopsora* leaf and glume blotch was the most common foliar disease of wheat in southeastern Virginia, and powdery mildew occurred on susceptible varieties. Rust was minimal in 2015. Scab (Fusarium head blight) incidence was low in the Tidewater Area, but scab was widespread and severe in some fields in Virginia and contributed to yield losses and deoxynivalenol contamination of grain.

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 the results of field research. Data summaries and conclusions in seven chapters from this book have been submitted to the American Phytopathological Society for publication in *Plant Disease Management Reports* in 2016. 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 2015 to an average of historical records at the Tidewater AREC.

Rainfall (in.)

Month	2008	2009	2010	2011	2012	2013	2014	2015	Avg[1]
May	3.43	4.60	6.77	2.23	5.74	2.96	4.76	0.55	4.06
Jun	1.56	3.40	0.83	4.28	4.80	7.11	3.41	7.48	4.14
Jul	5.58	4.86	1.01	7.96	2.67	3.18	3.89	4.62	5.17
Aug	2.18	3.38	2.04	14.21	10.43	3.72	6.61	2.62	5.31
Sep	6.01	7.69	8.75	8.96	4.14	1.64	7.88	5.33	6.29
Oct	0.87	1.72	8.24	3.34	7.11	1.43	1.46	3.56	4.08
Total	19.63	25.65	27.64	40.98	34.89	20.04	28.01	24.16	29.05

[1]Avg. is mean of previous 20 yrs (1995-2014). Data for 1995-2012 were according to records from a NOAA station (44-4044) located at Tidewater AREC, Holland Rd., Suffolk, VA; data for 2013 through present were recorded from a Spectrum Watchdog weather station located at the Tidewater Research Farm, Hare Rd., Suffolk, VA.

Peanut Heat Units (DD_{56})

Month	2008	2009	2010	2011	2012	2013	2014	2015	Avg[1]
May	321	424	457	433	429	355	437	463	369
Jun	695	580	738	645	512	580	598	686	576
Jul	663	635	783	776	774	707	659	724	682
Aug	610	685	703	675	643	589	609	635	637
Sep	482	402	539	503	420	390	513	522	443
Oct	186	204	232	195	213	255	266	230	221
Total	2957	2930	3453	3227	2990	2876	3082	3260	2927

[1]Avg. is mean of previous 20 yrs (1995-2014). Data for 1995-2012 were according to records from a NOAA station (44-4044) located at Tidewater AREC, Holland Rd., Suffolk, VA; data for 2013 through present were recorded from a Spectrum Watchdog weather station located at the Tidewater Research Farm, Hare Rd., Suffolk, VA.

Cotton Degree Days (DD_{60})

Month	2008	2009	2010	2011	2012	2013	2014	2015	Avg[1]
May	229	318	346	332	318	260	331	359	276
Jun	585	460	624	529	403	463	484	567	460
Jul	540	513	676	665	652	583	535	600	553
Aug	488	561	580	551	519	469	485	512	507
Sep	367	292	430	385	319	295	397	409	340
Oct	126	136	160	131	145	169	185	153	150
Total	2335	2280	2816	2593	2357	2239	2417	2600	2286

[1]Avg. is mean of previous 20 yrs (1995-2014). Data for 1995-2012 were according to records from a NOAA station (44-4044) located at Tidewater AREC, Holland Rd., Suffolk, VA; data for 2013 through present were recorded from a Spectrum Watchdog weather station located at the Tidewater Research Farm, Hare Rd., Suffolk, VA.

Table 2. Crop acreages and yields in 2015 compared to years of record yields.

Crop	Statistics of record year for yield			2015 projection[1]	
	Year	Acreage	Yield/A	Acreage	Yield/A
Peanut	2012	20,000	4,200 lb	19,000	3,850 lb
Soybean.....	2012	580,000	42 bu	620,000	34.5 bu
Corn	2013	355,000	150 bu	300,000	161 bu
Cotton (lint)	2014	86,000	1,239 lb	84,000	823 lb
Wheat.....	2008	280,000	71 bu	210,000	66 bu

[1] Crop production estimates issued in January 2016 by the National Agricultural Statistics Service at http://www.nass.usda.gov/va.

Table 3. Estimated loss in yield to peanut diseases in 2015.

Disease	Causal organism	Percent loss
Early leaf spot	*Cercospora arachidicola*	0.1
Late leaf spot	*Cercosporidium personatum*	1.0
Web blotch	*Phoma arachidicola*	0.1
Sclerotinia blight	*Sclerotinia minor*	2.0
Southern stem rot	*Sclerotium rolfsii*	0.5
Stem, root, & pod rot	*Rhizoctonia* spp.	0.1
Tomato spotted wilt virus	Tomato Spotted Wilt Virus	0.5
Cylindrocladium black rot (CBR)	*Cylindrocladium parasiticum*	1.0
Nematode damage	Northern Root Knot, Sting, Lesion, etc.	2.0
Total loss (%)		**7.3[1]**

[1] The loss estimate equals 2,670 tons of peanuts or $1.2 million in farm income based on an estimated total production of 36,575 tons and an estimated value of $440/ton.

Table 4. Estimated loss of yield to cotton diseases in 2015.

Disease	Causal agent(s)	Percent loss
Seedling disease	*Rhizoctonia solani*, *Pythium* spp.	2.0
Ascochyta blight	*Ascochyta gossypii*	0.1
Bacterial blight	*Xanthomonas* spp.	0.0
Boll rots	*Diplodia, Fusarium, Xanthomonas.*	5.0
Leaf spots	*Corynespora, Alternaria, Cercospora*, etc.	0.1
Southern root-knot nematode	*Meloidogyne incognita*	2.0
Other nematodes	*Trichodorus* spp., *Belonolaimus* spp., etc.	2.0
Total loss (%)		**11.2[1]**

[1] The loss estimate equals 7.74 million pounds in Virginia based on production of 69 million pounds of lint in 2015. At a value of $0.65 per pound, the loss in revenues at the farm gate would total $5.03 million.

Table 5. Estimated loss of yield to soybean diseases in 2015.

Disease	Causal agent(s)	Percent loss
Seedling diseases.....	*Rhizoctonia spp.*, *Pythium* spp., etc.	0.5
Seed rot.....	*Diaporthe/Phomopsis* complex	1.0
Cercospora blight	*Cercospora kikuchii*	0.5
Purple seed stain.....	*Cercospora kikuchii*	0.1
Downy mildew	*Peronospora manshurica*	0.01
Target spot……..	*Corynespora cassiicola*	0.1
Anthracnose.....	*Colletotrichum truncatum*	0.5
Brown spot	*Septoria glycines*	0.1
Pod & stem blight	*Diaporthe phaseolorum* var. *sojae*	0.5
Soybean rust	*Phakopsora pachyrhizi*	0.0
Frogeye leaf spot	*Cercospora sojina*	1.0
Southern blight	*Sclerotium rolfsii*	0.0
Brown stem rot	*Phialophora gregata*	0.01
Charcoal rot	*Macrophomina phaseolina*	0.1
Stem canker	*Diaporthe phaseolorum* var. *caulivora*	1.0
Sudden death syndrome	*Fusarium solani* f.sp. *glycines*	0.01
Phytophthora root & stem rot.....	*Phytophthora megasperma* f.sp. *glycinea*	0.1
Sclerotinia stem rot	*Sclerotinia sclerotiorum* and *S. minor*	0.0
Viruses	SMV, PMV, BPMV, etc.	0.1
Bacterial diseases	*Pseudomonas syringae*, *Xanthomonas campestris* pv. *glycines*	0.01
Soybean cyst nematode	*Heterodera glycines*	3.0
Southern root-knot nematode.....	*Meloidogyne incognita*	1.0
Other nematodes.....	*Trichodorus* spp., *Belonolaimus* spp., etc.	0.5
**Total loss (%)..... **		**10.14[1]**

[1] The loss estimate equals 2.17 million bushels based on production of 21.4 million bushels in 2015. At a value of $9/bu, the loss would be $19.5 million in farm revenue.

I. WHEAT FUNGICIDE TEST (WHEATFUN115, Tidewater AREC Research Farm, Field 29)

A. PURPOSE: To compare foliar fungicides in both resistant and susceptible varieties of wheat for disease control and yield response.

B. EXPERIMENTAL DESIGN:
1. Split-plot design with 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, 8002VS nozzles spaced 18-in. apart and delivering 19.88 gal/A. Fungicide sprays were applied at Feekes 6 (jointing) on 6 Apr, Feekes 8 (flag leaf) on 23 Apr, and Feekes 10.5.1 (flowering) on 6 May. All treatments were applied with Induce 3.2 fl oz/A (0.125% v/v).

D. VARIETY (main plot):
1. USG3665
2. SS5205

E. TREATMENT, RATE/A AND TIMING (sub-plot):
1. Untreated
2. Priaxor 4.17 SC 4 fl oz (Feekes 6)
3. Priaxor 4.17 SC 4 fl oz (Feekes 8)
4. Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)
5. Priaxor 4.17 SC 4 fl oz (Feekes 6)
   Priaxor 4.17 SC 4 fl oz (Feekes 8)
6. Priaxor 4.17 SC 4 fl oz (Feekes 6)
   Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)
7. Priaxor 4.17 SC 4 fl oz (Feekes 8)
   Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)
8. Priaxor 4.17 SC 4 fl oz (Feekes 6)
   Priaxor 4.17 SC 4 fl oz (Feekes 8)
   Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)

F. ADDITIONAL INFORMATION:
1. Location: Tidewater AREC Research Farm, Hare Rd., Suffolk, VA
2. Crop history: Peanut 2014, wheat/soybean 2013, peanut 2012
3. Planting date: 10 Nov 2014
4. Soil fertility report (14 Oct 2014):

pH	6.5	K	63 ppm
Ca.....	786 ppm	Zn.....	0.6 ppm
Mg.....	68 ppm	Mn	2.4 ppm
P.....	61 ppm	Soil type.....	Goldsboro fine sandy loam

5. Fertilizer: Lime 1,000 lb/A (18 Oct 2014)
   35-50-100 300 lb/A (19 Oct 2014)
   24-0-0-3 60 units/A (12 Feb, 19 Mar)
   Sysstem-Mn 1.5 pt/A (12 Feb)
6. Herbicide: Harmony Extra SG 0.5 fl oz/A (12 Feb, 14 Mar)
7. Harvest date: 19 Jun 2015

Table 6. Effect of fungicide treatments on disease severity in wheat.

Variety, treatment, rate/A and application timing[1]	% leaf blotch[2]				
	Flag-4 (17 Apr)	4 May			Flag leaf (15 May)
		Flag leaf	Flag-1	Flag-2	
***Split-plot analysis, P*(F)**					
Variety	**.0001**	.20	**.047**	**.03**	**.004**
Treatment	.26	**.003**	**.01**	**.03**	**.0001**
Variety x treatment	.51	.20	.62	.52	.14
Variety mean					
USG3665	5.9 a	0.8	2.7 b	9.8 b	8.8 b
SS5205	4.2 b	0.9	4.1 a	16.6 a	18.4 a
Treatment mean					
Untreated	6.3	1.6 a	4.8 a	16.9 a	16.9 a
Priaxor 4.17 SC 4 fl oz (Feekes 6)	4.5	0.6 c	2.6 c	10.6 c	16.9 a
Priaxor 4.17 SC 4 fl oz (Feekes 8)	4.9	0.8 bc	3.5 a-c	12.5 bc	19.4 a
Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	6.4	1.4 ab	4.3 ab	15.0 ab	12.5 b
Priaxor 4.17 SC 4 fl oz (Feekes 6) Priaxor 4.17 SC 4 fl oz (Feekes 8)	4.9	0.4 c	2.4 c	10.1 c	10.6 b
Priaxor 4.17 SC 4 fl oz (Feekes 6) Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	3.8	0.4 c	2.8 c	12.9 a-c	11.3 b
Priaxor 4.17 SC 4 fl oz (Feekes 6) Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	5.0	0.7 c	3.6 a-c	15.0 ab	11.1 b
Priaxor 4.17 SC 4 fl oz (Feekes 6) Priaxor 4.17 SC 4 fl oz (Feekes 8) Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	4.6	0.7 c	3.0 bc	12.5 bc	10.3 b
USG3665					
Untreated	7.5	2.0 a	4.5 a	16.3	13.8 a
Priaxor 4.17 SC 4 fl oz (Feekes 6)	4.5	0.3 c	1.8 d	6.3	11.3 a
Priaxor 4.17 SC 4 fl oz (Feekes 8)	6.3	0.8 bc	3.3 a-c	10.0	13.8 a
Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	8.5	1.5 ab	4.0 ab	11.3	10.0 ab
Priaxor 4.17 SC 4 fl oz (Feekes 6) Priaxor 4.17 SC 4 fl oz (Feekes 8)	5.8	0.3 c	1.5 d	6.5	5.0 c
Priaxor 4.17 SC 4 fl oz (Feekes 6) Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	4.0	0.1 c	1.5 d	8.3	5.0 c
Priaxor 4.17 SC 4 fl oz (Feekes 6) Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	6.0	0.3 c	2.8 b-d	11.3	6.0 bc
Priaxor 4.17 SC 4 fl oz (Feekes 6) Priaxor 4.17 SC 4 fl oz (Feekes 8) Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	4.8	0.8 bc	2.0 cd	8.8	5.5 c
SS5205					
Untreated	5.0	1.3	5.0	17.5	20.0 bc
Priaxor 4.17 SC 4 fl oz (Feekes 6)	4.5	0.8	3.5	15.0	22.5 ab
Priaxor 4.17 SC 4 fl oz (Feekes 8)	3.5	0.8	3.8	15.0	25.0 a
Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	4.3	1.3	4.5	18.8	15.0 d
Priaxor 4.17 SC 4 fl oz (Feekes 6) Priaxor 4.17 SC 4 fl oz (Feekes 8)	4.0	0.6	3.3	13.8	16.3 cd
Priaxor 4.17 SC 4 fl oz (Feekes 6) Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	3.5	0.8	4.0	17.5	17.5 cd
Priaxor 4.17 SC 4 fl oz (Feekes 6) Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	4.0	1.0	4.5	18.8	16.3 cd
Priaxor 4.17 SC 4 fl oz (Feekes 6) Priaxor 4.17 SC 4 fl oz (Feekes 8) Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	4.5	0.6	4.0	16.3	15.0 d

[1] Fungicide sprays were applied at Feekes 6 (jointing) on 6 Apr, Feekes 8 (flag leaf) on 23 Apr, and Feekes 10.5.1 (flowering) on 6 May. All treatments were applied with Induce 3.2 fl oz/A (0.125% v/v).

[2] Percent of leaf area with signs and symptoms of Stagonospora leaf blotch. No phytotoxicity was observed on 17 Apr & 15 May. Means in a column or group followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05). Percentage data were arcsine transformed prior to statistical analysis.

Table 7. Effect of fungicide treatments on disease severity, yield, and test weight in wheat.

Variety, treatment, rate/A and application timing[1]	% powdery mildew[2] 22 Apr		Yield (bu/A)[3]	Test weight (lb/bu)
	Plant	Flag-2		
***Split-plot analysis, P*(F)**				
Variety	**.03**	**.02**	.27	**.03**
Treatment	.09	.18	**.02**	.18
Variety x treatment	.73	.77	.44	.44
Variety mean				
USG3665	3.7 a	0.2 a	63.5	49.9 b
SS5205	0.5 b	0.0 b	69.9	51.6 a
Treatment mean				
Untreated	9.6	0.5	56.2 c	49.7
Priaxor 4.17 SC 4 fl oz (Feekes 6)	0.8	0.1	67.1 ab	51.0
Priaxor 4.17 SC 4 fl oz (Feekes 8)	2.4	0.2	64.9 bc	50.6
Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	1.5	0.1	65.8 ab	50.2
Priaxor 4.17 SC 4 fl oz (Feekes 6) Priaxor 4.17 SC 4 fl oz (Feekes 8)	0.3	0.0	68.7 ab	51.0
Priaxor 4.17 SC 4 fl oz (Feekes 6) Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	0.6	0.0	70.1 ab	51.6
Priaxor 4.17 SC 4 fl oz (Feekes 6) Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	1.8	0.1	66.7 ab	50.5
Priaxor 4.17 SC 4 fl oz (Feekes 6) Priaxor 4.17 SC 4 fl oz (Feekes 8) Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	0.0	0.0	74.1 a	51.5
USG3665				
Untreated	17.5	1.0	53.8 c	48.9
Priaxor 4.17 SC 4 fl oz (Feekes 6)	1.3	0.3	65.6 ab	50.7
Priaxor 4.17 SC 4 fl oz (Feekes 8)	4.0	0.3	57.8 bc	49.0
Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	1.8	0.1	58.2 bc	48.6
Priaxor 4.17 SC 4 fl oz (Feekes 6) Priaxor 4.17 SC 4 fl oz (Feekes 8)	0.5	0.0	69.9 a	50.7
Priaxor 4.17 SC 4 fl oz (Feekes 6) Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	1.3	0.1	69.2 a	51.1
Priaxor 4.17 SC 4 fl oz (Feekes 6) Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	3.3	0.1	61.5 a-c	49.6
Priaxor 4.17 SC 4 fl oz (Feekes 6) Priaxor 4.17 SC 4 fl oz (Feekes 8) Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	0.0	0.0	72.2 a	50.6
SS5205				
Untreated	1.8	0.1	58.5	50.5
Priaxor 4.17 SC 4 fl oz (Feekes 6)	0.3	0.0	68.6	51.2
Priaxor 4.17 SC 4 fl oz (Feekes 8)	0.8	0.0	71.9	52.2
Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	1.3	0.0	73.5	51.8
Priaxor 4.17 SC 4 fl oz (Feekes 6) Priaxor 4.17 SC 4 fl oz (Feekes 8)	0.0	0.0	67.6	51.3
Priaxor 4.17 SC 4 fl oz (Feekes 6) Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	0.0	0.0	70.9	52.2
Priaxor 4.17 SC 4 fl oz (Feekes 6) Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	0.3	0.0	72.0	51.4
Priaxor 4.17 SC 4 fl oz (Feekes 6) Priaxor 4.17 SC 4 fl oz (Feekes 6) Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	0.0	0.0	76.0	52.4

[1] Fungicide sprays were applied at Feekes 6 (jointing) on 6 Apr, Feekes 8 (flag leaf) on 23 Apr, and Feekes 10.5.1 (flowering) on 6 May. All treatments were applied with Induce 3.2 fl oz/A (0.125% v/v).

[2] Percent of leaf area with signs and symptoms of disease.

[3] Yields are weight of wheat with 13.5% moisture. One bushel equals 60 lbs. Wheat was harvested on 19 Jun 2015. Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05). Percentage data were arcsine transformed prior to statistical analysis.

II. WHEAT FUNGICIDE TEST (WHTVARFUN215, Eastern Virginia AREC, Warsaw, VA)

A. PURPOSE: To compare foliar fungicides in a resistant variety of wheat for disease control.

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks separated by 8-ft alleys
2. Plots 3-ft wide and 41-ft long with 6-in. row spacing
3. Data collected from seven rows in each plot.

C. APPLICATION OF TREATMENTS: Fungicide sprays were applied with a backpack sprayer at Feekes 6 (jointing) on 13 Apr, Feekes 8 (flag leaf) on 29 Apr, and Feekes 10.5.1 (flowering) on 12 May. All treatments were applied with Induce 3.2 fl oz/A (0.125% v/v).

D. TREATMENT, RATE/A AND TIMING:
1. Untreated
2. Priaxor 4.17 SC 4 fl oz (Feekes 6)
3. Priaxor 4.17 SC 4 fl oz (Feekes 8)
4. Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)
5. Priaxor 4.17 SC 4 fl oz (Feekes 6)
   Priaxor 4.17 SC 4 fl oz (Feekes 8)
6. Priaxor 4.17 SC 4 fl oz (Feekes 6)
   Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)
7. Priaxor 4.17 SC 4 fl oz (Feekes 8)
   Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)
8. Priaxor 4.17 SC 4 fl oz (Feekes 6)
   Priaxor 4.17 SC 4 fl oz (Feekes 8)
   Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)

E. ADDITIONAL INFORMATION:
1. Location: EVAREC, Warsaw, VA
2. Planting date and variety: 20 Oct, USG 3665
3. Harvest date: 25 Jun 2015

Table 8. Effect of fungicide treatments on disease severity, yield, and test weight in wheat.

Treatment, rate/A and application timing[1]	% leaf blotch[2] 12 May Flag-1	% leaf blotch[2] 12 May Flag-2	Yield (bu/A)[3]	Test weight (lb/bu)
Untreated	1.0 b	20.0 b	91.0 bc	54.6
Priaxor 4.17 SC 4 fl oz (Feekes 6)	0.1 c	8.8 c	91.4 bc	53.4
Priaxor 4.17 SC 4 fl oz (Feekes 8)	0.1 c	12.5 c	89.3 c	54.8
Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	2.0 a	25.0 a	92.8 a-c	53.4
Priaxor 4.17 SC 4 fl oz (Feekes 6) Priaxor 4.17 SC 4 fl oz (Feekes 8)	0.1 c	11.3c	89.5 c	55.3
Priaxor 4.17 SC 4 fl oz (Feekes 6) Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	0.1 c	11.3 c	96.3 ab	55.0
Priaxor 4.17 SC 4 fl oz (Feekes 6) Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	0.1 c	11.3 c	97.2 a	55.1
Priaxor 4.17 SC 4 fl oz (Feekes 6) Priaxor 4.17 SC 4 fl oz (Feekes 8) Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)	0.1 c	10.0 c	95.5 ab	55.1
P(F)	**.0003**	**.0001**	**.03**	.24

[1] Fungicide sprays were applied at Feekes 6 (jointing) on 13 Apr, Feekes 8 (flag leaf) on 29 Apr, and Feekes 10.5.1 (flowering) on 12 May. All treatments were applied with Induce 3.2 fl oz/A (0.125% v/v).

[2] Percent of leaf area with signs and symptoms of Stagonospora leaf blotch.

[3] Yields are weight of wheat with 13.5% moisture. One bushel equals 60 lbs. Wheat was harvested on 25 Jun 2015. Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05). Percentage data were arcsine transformed prior to statistical analysis.

III. WHEAT FUNGICIDE TEST (WHEATFUN215, Tidewater AREC Research Farm, Field 30)

A. PURPOSE: To compare foliar fungicides for disease control in wheat.

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 19.88 gal/A. Fungicide sprays were applied at Feekes 6 (jointing) on 6 Apr, Feekes 8 (flag leaf) on 25 Apr, and Feekes 10.5.1 (flowering) on 6 May. All treatments were applied with Induce 3.2 fl oz/A (0.125% v/v).

D. TREATMENT, RATE/A AND TIMING:
1. Untreated
2. Priaxor 4.17 SC 4 fl oz (Feekes 6)
3. Priaxor 4.17 SC 2 fl oz
   + Tilt 3.6 EC 2 fl oz (Feekes 6)
4. Twinline 1.75 EC 9 fl oz (Feekes 8)
5. Caramba 0.75 EC 13.5 fl oz (Feekes 10.5.1)
6. Priaxor 4.17 SC 4 fl oz (Feekes 6)
   Caramba 0.75 EC 13.5 fl oz (Feekes 10.5.1)

E. ADDITIONAL INFORMATION:
1. Location: Tidewater AREC Research Farm, Hare Rd., Suffolk, VA
2. Crop history: Corn 2014, wheat/soybean 2013, wheat/soybean 2012
3. Planting date and variety: 10 Nov 2014, USG 3665
4. Soil fertility report (14 Oct 2014):

pH	6.7	K	98 ppm
Ca.....	626 ppm	Zn.....	0.6 ppm
Mg.....	101 ppm	Mn	2.4 ppm
P.....	50 ppm	Soil type.....	Goldsboro fine sandy loam

5. Fertilizer: Lime 1,000 lb/A (18 Oct 2014)
   35-50-100 300 lb/A (19 Oct 2014)
   24-0-0-3 60 units/A (12 Feb, 19 Mar)
   Sysstem-Mn 1.5 pt/A (12 Feb)
6. Herbicide: Harmony Extra SG 0.5 fl oz/A (12 Feb, 14 Mar)
7. Harvest date: 18 Jun 2015

Table 9. Effect of fungicide treatments on disease severity in wheat.

Treatment, rate/A & timing[1]	% leaf blotch[2]					
	22 Apr		5 May			Flag leaf
	Flag-2	Flag-3	Flag leaf	Flag-1	Flag-2	(15 May)
Untreated	5.5 ab	12.5 ab	1.8 a	10.0	30.0	33.8 a
Priaxor 4.17 SC 4 fl oz (F6)	3.0 cd	5.8 c	0.1 c	4.0	18.8	30.0 ab
Priaxor 4.17 SC 2 fl oz + Tilt 3.6 EC 2 fl oz (F6)	3.5 b-d	13.8 ab	0.8 bc	5.0	16.3	23.8 a-c
Twinline 1.75 EC 9 fl oz (F8)	6.3 a	16.8 a	1.3 ab	8.8	28.8	18.8 c
Caramba 0.75 EC 13.5 fl oz (F10.5.1)	5.0 a-c	15.0 a	1.0 ab	10.0	28.8	20.0 bc
Priaxor 4.17 SC 4 fl oz (F6) Caramba 0.75 EC 13.5 fl oz (F10.5.1)	2.8 d	9.0 bc	0.8 bc	7.0	22.5	17.5 c
P(F)	**.01**	**.01**	**.002**	.06	.10	**.03**

[1] Fungicide sprays were applied at Feekes 6 (jointing) on 6 Apr, Feekes 8 (flag leaf) on 25 Apr, and Feekes 10.5.1 (flowering) on 6 May. All treatments were applied with Induce 3.2 fl oz/A (0.125% v/v).

[2] Percent of leaf area with signs and symptoms of Stagonospora leaf blotch. No phytotoxicity was observed on 17 Apr & 15 May.

Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05). Percentage data were arcsine transformed prior to statistical analysis.

Table 10. Effect of fungicide treatments on glume blotch, stay-green, yield and test weight in wheat.

Treatment, rate/A & timing[1]	% glume blotch[2]		% green[3]	Yield	Test
	26 May				
	Incidence	Severity	(26 May)	(bu/A)[4]	weight (lb/bu)
Untreated	88.1 ab	18.9 ab	2.0	68.4	53.2
Priaxor 4.17 SC 4 fl oz (F6)	96.9 a	25.9 a	2.8	78.0	55.1
Priaxor 4.17 SC 2 fl oz + Tilt 3.6 EC 2 fl oz (F6)	86.9 ab	25.3 a	3.0	71.9	54.0
Twinline 1.75 EC 9 fl oz (F8)	84.4 ab	12.1 bc	4.8	74.9	53.4
Caramba 0.75 EC 13.5 fl oz (F10.5.1)	75.0 b	8.8 c	3.0	76.2	54.1
Priaxor 4.17 SC 4 fl oz (F6) Caramba 0.75 EC 13.5 fl oz (F10.5.1)	80.0 b	13.6 bc	4.0	76.4	54.2
P(F)	**.01**	**.001**	.80	.26	.44

[1] Fungicide sprays were applied at Feekes 6 (jointing) on 6 Apr, Feekes 8 (flag leaf) on 25 Apr, and Feekes 10.5.1 (flowering) on 6 May. All treatments were applied with Induce 3.2 fl oz/A (0.125% v/v).

[2] Incidence is percent of grain heads with symptoms of Stagonospora glume blotch. Severity is percent of spikelets within grain heads with symptoms of glume blotch.

[3] Percent green leaf area.

[4] Yields are weight of wheat with 13.5% moisture. One bushel equals 60 lbs. Wheat was harvested on 18 Jun 2015.

Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05). Percentage data were arcsine transformed prior to statistical analysis.

IV. WHEAT FUNGICIDE TEST (WHEATFUN315, Tidewater AREC Research Farm, Field 30)

A. PURPOSE: To compare foliar fungicides for disease control in wheat.

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 19.88 gal/A. Fungicide sprays were applied at Feekes 6 (jointing) on 6 Apr, Feekes 8 (flag leaf) on 26 Apr, and Feekes 10.5.1 (flowering) on 6 May. All treatments were applied with Induce 3.2 fl oz/A (0.125% v/v).

D. TREATMENT, RATE/A AND TIMING:
1. Untreated
2. Stratego YLD 4 fl oz (Feekes 8)
3. Prosaro 421 SC 6.5 fl oz (Feekes 8)
4. Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)
5. Stratego YLD 2 fl oz (Feekes 6)
   + Prosaro 421 SC 6.5 fl oz (Feekes 10.5.1)
6. Quilt Xcel EC 10.5 fl oz (Feekes 8)
7. Trivapro 4.1 fl oz
   + Quilt Xcel EC 10.5 fl oz (Feekes 8)

E. ADDITIONAL INFORMATION:
1. Location: Tidewater AREC Research Farm, Hare Rd., Suffolk, VA
2. Crop history: Corn 2014, wheat/soybean 2013, wheat/soybean 2012
3. Planting date and variety: 10 Nov 2014, USG 3665
4. Soil fertility report (14 Oct 2014):

pH	6.7	K	98 ppm
Ca.....	626 ppm	Zn.....	0.6 ppm
Mg.....	101 ppm	Mn	2.4 ppm
P	50 ppm	Soil type.....	Kenansville loamy fine sand

5. Fertilizer: Lime 1,000 lb/A (18 Oct 2014)
   35-50-100 300 lb/A (19 Oct 2014)
   24-0-0-3 60 units/A (12 Feb, 19 Mar)
   Sysstem-Mn 1.5 pt/A (12 Feb)
6. Herbicide: Harmony Extra SG 0.5 fl oz/A (12 Feb, 14 Mar)
7. Harvest date: 18 Jun 2015

Table 11. Effect of fungicide treatments on disease severity in wheat.

	% leaf blotch[2]					
	22 Apr		5 May			Flag leaf
Treatment, rate/A & timing[1]	Flag-2	Flag-3	Flag leaf	Flag-1	Flag-2	(15 May)
Untreated	3.3	9.8	1.0	4.0	16.3	31.3 a
Stratego YLD 4 fl oz (Feekes 8)	3.5	9.3	0.6	3.0	15.0	27.5 ab
Prosaro 421 SC 6.5 fl oz (F8)	4.5	10.5	0.6	2.5	13.8	27.5 ab
Prosaro 421 SC 6.5 fl oz (F10.5.1)	4.3	12.5	1.0	5.0	18.8	16.3 d
Stratego YLD 2 fl oz (F6) + Prosaro 421 SC 6.5 fl oz (F10.5.1)	3.3	9.3	0.3	3.5	13.8	17.5 cd
Quilt Xcel EC 10.5 fl oz (F8)	3.3	8.8	0.6	4.5	17.5	21.3 b-d
Trivapro 4.1 fl oz + Quilt Xcel EC 10.5 fl oz (F8)	4.8	11.3	1.0	4.0	15.0	25.0 a-c
P(F)	.80	.90	.17	.27	.28	**.01**

[1] Fungicide sprays were applied at Feekes 6 (jointing) on 6 Apr, Feekes 8 (flag leaf) on 26 Apr, and Feekes 10.5.1 (flowering) on 6 May. All treatments were applied with Induce 3.2 fl oz/A (0.125% v/v).

[2] Percent of leaf area with signs and symptoms of disease. No phytotoxicity was observed on 17 Apr & 15 May. Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05). Percentage data were arcsine transformed prior to statistical analysis.

Table 12. Effect of fungicide treatments on disease severity, stay-green, yield, and test weight in wheat.

	% glume blotch[2]				
	28 May				
Treatment, rate/A & timing[1]	Incidence	Severity	% green[3] (28 May)	Yield (bu/A)[4]	Test weight (lb/bu)
Untreated	92.5	29.7 ab	6.5	66.8	54.9
Stratego YLD 4 fl oz (Feekes 8)	95.0	27.2 b	5.8	65.9	54.7
Prosaro 421 SC 6.5 fl oz (F8)	93.1	27.3 b	12.5	70.1	54.9
Prosaro 421 SC 6.5 fl oz (F10.51)	92.5	10.7 c	7.0	67.6	55.5
Stratego YLD 2 fl oz (F6) + Prosaro 421 SC 6.5 fl oz (F10.5.1)	92.5	10.9 c	6.5	70.9	55.3
Quilt Xcel EC 10.5 fl oz (F8)	91.9	30.6 ab	13.8	69.2	55.6
Trivapro 4.1 fl oz + Quilt Xcel EC 10.5 fl oz (F8)	98.1	40.0 a	11.3	67.9	55.3
P(F)	.30	**.0001**	.22	1.0	.39

[1] Fungicide sprays were applied at Feekes 6 (jointing) on 6 Apr, Feekes 8 (flag leaf) on 26 Apr, and Feekes 10.5.1 (flowering) on 6 May. All treatments were applied with Induce 3.2 fl oz/A (0.125% v/v).

[2] Incidence is percent of grain heads with symptoms of Stagonospora glume blotch. Severity is percent of spikelets within grain heads with symptoms of glume blotch.

[3] Percent green leaf area.

[4] Yields are weight of wheat with 13.5% moisture. One bushel equals 60 lbs. Wheat was harvested on 18 Jun 2015. Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05). Percentage data were arcsine transformed prior to statistical analysis.

V. EVALUATION OF FUNGICIDES FOR FOLIAR DISEASE CONTROL IN CORN (CORNFOLFUN115, Tidewater AREC Research Farm, Suffolk, Field 16B)

A. PURPOSE: To compare fungicide application timings for control of foliar diseases in corn.

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

C. APPLICATION OF TREATMENTS: Foliar sprays were applied with a Lee Spider sprayer at 38 psi with two, 8002VS nozzles/row delivering 19.88 gal/A. Fungicides were applied at V4-V5 (3-5 collars) on 2 Jun and R1 (silking) on 29 Jun. All treatments were applied with Induce 3.2 fl oz/A (0.125% v/v).

D. TREATMENT, RATE/A AND APPLICATION TIMING:
1. Untreated
2. Stratego YLD 2 fl oz (V4-5)
3. Stratego YLD 4 fl oz (V4-5)
4. Stratego YLD 4 fl oz (VT-R1)
5. Stratego YLD 2 fl oz (V4-5)
   + Stratego YLD 4 fl oz (VT-R1)

E. ADDITIONAL INFORMATION:
1. Location: Tidewater AREC Research Farm, Hare Rd., Suffolk, VA
2. Crop history: Cotton 2014, peanut 2013, corn 2012
3. Land preparation: strip tillage, 23 Apr
4. Planting date and variety: 29 Apr, H867RC3P
5. Soil fertility report (Jan 2015):

pH	6.1	K.....	106 ppm
Ca.....	450 ppm	Zn	0.4 ppm
Mg.....	37 ppm	Mn	1.4 ppm
P.....	61 ppm	Soil type	Kenansville loamy fine sand

6. Herbicide:
   Pre-plant – Touchdown Total 1.0 qt + 2,4-D 1.0 pt/A (1 Apr)
   Pre-emergence – Brawl 2.0 qt/A + Atrazine 4L 1.0 qt/A (22 Apr)
7. Additional crop management:
   a. Lime 1,000 lb/A (15 Mar)
   b. 11-37-0 10 gal/A (23 Apr)
   c. Nitrogen 24-0-0-3 60 units/A (24 Apr, 5 Jun)
8. Harvest date: 1 Sep

Table 13. Effect of treatments on disease severity in corn.

Treatment, rate/A and timing[1]	% disease 2-4 leaves below ear[2] (14 Jul)		% disease 1 leaf below ear[2] (14 Jul)		% disease 1 leaf below ear[2] (28 Jul)	
	Brown spot	NCLB	Brown spot	NCLB	Brown spot	NCLB
Untreated check	10.0 a	6.0	0.9	0.8	8.0 a	1.0 a-c
Stratego YLD 2 fl oz (V4-5)	2.5 b	3.3	0.5	0.5	4.0 b	1.1 ab
Stratego YLD 4 fl oz (V4-5)	1.8 bc	3.5	0.5	0.5	2.5 bc	0.6 bc
Stratego YLD 4 fl oz (RT-V1)	1.3 c	2.8	0.5	0.5	4.5 b	1.3 a
Stratego YLD 2 fl oz (V4-5) Stratego YLD 4 fl oz (RT-V1)	1.3 c	3.8	0.5	0.5	1.3 c	0.5 c
P(F)	**.0001**	.33	.44	.06	**.0002**	**.03**

[1] Fungicides were applied at V4-V5 (3-5 collars) on 2 Jun and R1 (silking) on 29 Jun.
[2] Percent leaf area with symptoms of Physoderma brown spot and northern corn leaf blight (NCLB). Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05). Percentage data were arcsine transformed prior to statistical analysis.

Table 14. Effect of treatments on senescence, lodging, and yield in corn.

Treatment, rate/A and timing[1]	% green (14 Aug)	% lodging[2] (17 Aug)	Yield[3] (bu/A)	Test weight (lb/bu)
Untreated check	38.5	3.9	140.7	53.2
Stratego YLD 2 fl oz (V4-5)	40.0	4.2	140.9	53.8
Stratego YLD 4 fl oz (V4-5)	42.5	2.5	147.1	53.5
Stratego YLD 4 fl oz (RT-V1)	47.5	3.6	142.2	53.9
Stratego YLD 2 fl oz (V4-5) Stratego YLD 4 fl oz (RT-V1)	50.0	2.0	139.2	54.6
P(F)	.17	.61	.62	.09

[1] Fungicides were applied at V4-V5 (3-5 collars) on 2 Jun and R1 (silking) on 29 Jun.
[2] Percent plants lodged.
[3] Yields are weight of corn with moisture content of 15.5%. Corn was harvested on 1 Sep. One bushel=56 lbs of grain. Percentage data were arcsine transformed prior to statistical analysis.

VI. EVALUATION OF FUNGICIDES FOR FOLIAR DISEASE CONTROL IN CORN (CORNFOLFUN215, Tidewater AREC Research Farm, Suffolk, Field 16B)

A. PURPOSE: To compare fungicides for control of foliar diseases in corn.

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

C. APPLICATION OF TREATMENTS: Foliar sprays were applied with a Lee Spider sprayer at 38 psi with two, 8002VS nozzles/row delivering 19.88 gal/A. Fungicides were applied at V4-V5 (3-5 collars) on 28 May and R1 (silking) on 29 Jun. All treatments were applied with Induce.

D. TREATMENT, RATE/A AND APPLICATION TIMING:
1. Untreated
2. Affiance 10 fl oz (V4-V5)
3. Domark 230 4 fl oz (V4-V5)
4. Affiance 10 fl oz (VT-R1)
5. Domark 230 4 fl oz (VT-R1)
6. Affiance 10 fl oz (V4-V5)
   Affiance 10 fl oz (VT-R1)
7. Quilt Xcel 2.2 SE 10.5 fl oz (V4-V5)
8. Quilt Xcel 2.2 SE 10.5 fl oz
   + A15457 4.1 fl oz (V4-V5)
9. Quilt Xcel 2.2 SE 10.5 fl oz (VT-R1)
10. Aproach Prima 280 SC 6.8 fl oz (VT-R1)

E. ADDITIONAL INFORMATION:
1. Location: Tidewater AREC Research Farm, Hare Rd., Suffolk, VA
2. Crop history: Cotton 2014, peanut 2013, corn 2012
3. Land preparation: strip tillage, 23 Apr
4. Planting date and variety: 29 Apr, H867RC3P
5. Soil fertility report (Jan 2015):

pH	6.1	K.....	106 ppm
Ca.....	450 ppm	Zn	0.4 ppm
Mg.....	37 ppm	Mn	1.4 ppm
P.....	61 ppm	Soil type	Kenansville loamy fine sand

6. Herbicide:
   Pre-plant – Touchdown Total 1.0 qt + 2,4-D 1.0 pt/A (1 Apr)
   Pre-emergence – Brawl 2.0 qt/A + Atrazine 4L 1.0 qt/A (22 Apr)
7. Additional crop management:
   a. Lime 1,000 lb/A (15 Mar)
   b. 11-37-0 10 gal/A (23 Apr)
   c. Nitrogen 24-0-0-3 60 units/A (24 Apr, 5 Jun)
8. Harvest date: 1 Sep

Table 15. Effect of fungicide treatments on foliar disease severity in corn.

Treatment, rate/A and timing[1]	% phyto-toxicity[2] (12 Jun)	% disease[3] Brown spot 14 Jul	% disease[3] NCLB 14 Jul	% disease[4] Brown spot 14 Jul	% disease[4] NCLB 14 Jul
Untreated check	0.0	10.0 a	4.5	0.5	0.5
Affiance 10 fl oz (V4-V5)	0.0	1.3 c	6.3	0.5	0.5
Domark 230 4 fl oz (V4-V5)	2.5	3.0 b	6.5	0.5	0.5
Affiance 10 fl oz (VT-R1)	0.0	1.8 c	5.0	0.5	0.5
Domark 230 4 fl oz (VT-R1)	0.0	1.5 c	5.5	0.5	0.5
Affiance 10 fl oz (V4-V5) Affiance 10 fl oz (VT-R1)	0.0	1.0 c	6.3	0.5	0.5
Quilt Xcel 2.2 SE 10.5 fl oz (V4-V5)	0.0	1.5 c	6.0	0.5	0.5
Quilt Xcel 2.2 SE 10.5 fl oz + A15457 4.1 fl oz (V4-V5)	3.8	1.5 c	6.3	0.5	0.5
Quilt Xcel 2.2 SE 10.5 fl oz (VT-R1)	0.0	1.5 c	7.0	0.5	0.5
Aproach Prima 280 SC 6.8 fl oz (VT-R1)	2.5	1.5 c	7.8	2.9	0.5
P(F)	.29	**.0001**	.71	.46	- -

1 Fungicides were applied at V4-V5 (3-5 collars) on 2 Jun and R1 (silking) on 29 Jun.

2 Percent of plants with phytotoxicity symptoms. No symptoms of phytotoxicity were observed in ratings on 14 Jul.

3 Percent leaf area with symptoms of Physoderma brown spot and northern corn leaf blight (NCLB), rated from two through four leaves below the ear

4 Percent leaf area with disease, rated from one leaf below the ear.

Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05). Percentage data were arcsine transformed prior to statistical analysis.

Table 16. Effect of treatments on disease severity, senescence, lodging, and yield in corn.

Treatment, rate/A and timing[1]	% disease[2]		% green (14 Aug)	% lodging[3] (17 Aug)	Yield[4] (bu/A)	Test weight (lb/bu)
	Brown spot (28 Jul)	NCLB (28 Jul)				
Untreated check	8.8 a	3.8 a	37.5	4.2	151.8	58.6
Affiance 10 fl oz (V4-V5)	1.8 c	1.5 b	36.3	0.8	157.0	53.1
Domark 230 4 fl oz (V4-V5)	4.5 b	2.8 a	42.5	2.2	157.0	53.4
Affiance 10 fl oz (VT-R1)	1.5 c	1.0 b	41.3	5.2	147.3	52.9
Domark 230 4 fl oz (VT-R1)	1.5 c	1.3 b	37.5	3.8	149.1	53.5
Affiance 10 fl oz (V4-V5) Affiance 10 fl oz (VT-R1)	1.3 c	1.0 b	38.8	2.2	146.0	53.6
Quilt Xcel 2.2SE 10.5 fl oz (V4-V5)	4.5 b	2.8 a	40.0	3.3	144.4	58.3
Quilt Xcel 2.2SE 10.5 fl oz + A15457 4.1 fl oz (V4-V5)	2.5 c	1.0 b	38.8	2.6	143.0	57.8
Quilt Xcel 2.2SE 10.5 fl oz (VT-R1)	1.5 c	1.0 b	37.5	2.4	146.0	53.3
Aproach Prima 280SC 6.8 fl oz (VT-R1)	2.5 c	1.0 b	38.8	2.8	151.9	58.8
P(F)	**.0001**	**.0001**	1.0	.07	.55	.58

1 Fungicides were applied at V4-V5 (3-5 collars) on 2 Jun and R1 (silking) on 29 Jun.

2 Percent leaf area with Percent leaf area with symptoms of Physoderma brown spot and northern corn leaf blight (NCLB), rated from one leaf below through one leaf above the ear.

3 Percent plants lodged.

4 Yields are weight of corn with moisture content of 15.5%. Corn was harvested on 1 Sep. One bushel=56 lbs of grain. Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05). Percentage data were arcsine transformed prior to statistical analysis.

VII. NATIONAL COTTONSEED TREATMENT TEST – VIRGINIA LOCATION (COTSEEDFUN115, Tidewater AREC Research Farm, Field 9A)

A. PURPOSE: To evaluate seed treatment fungicides for control of seedling diseases in cotton.

B. EXPERIMENTAL DESIGN:
1. Two, 30-ft rows per plot with 36-in row spacing
2. Seeding rate of 3.5 seed/ft of row
3. Four randomized complete blocks separated by 8-ft alleyways

C. APPLICATION OF TREATMENTS: All seed with the exception of the untreated control received Gaucho 600 12.8 oz/cwt seed. Treatments were applied by Dr. Craig Rothrock, Coordinator of National Cottonseed Treatment Trials at the University of Arkansas.

D. TREATMENT AND RATE/CWT SEED (unless otherwise indicated):
1. Apron XL 3LS 7.5 oz + Maxim 4FS 2.5 oz ai + Systhane WSP 21.0 g ai/100 kg seed + Dynasty CST 125FS 0.03 mg ai/seed
2. Apron XL 3LS 7.5 oz ai + Maxim 4FS 2.5 g oz + Systhane WSP 21.0 g ai/100 kg seed + A21204A 0.042 mg ai/seed
3. Vortex FL 0.08 fl oz + Allegiance FL 0.75 fl oz + Spera 1.8 fl oz + Evergol Prime 0.32 fl oz + Rizolex 1.5fl oz
4. Albaugh CCB1 4.04 fl oz
5. Albaugh CCB2 6.65 fl oz
6. Albaugh CCB3 3.78 fl oz
7. Vortex FL 0.08 fl oz + Allegiance FL 0.75 fl oz + Spera 1.8 fl oz + Evergol Prime 0.32 fl oz
8. L1979-A 0.15 fl oz + Allegiance FL 0.75 fl oz + Spera 1.8 fl oz + Evergol Prime 0.32 fl oz
9. L1979-A 0.3 fl oz + Allegiance FL 0.75 fl oz + Spera 1.8 fl oz + Evergol Prime 0.32 fl oz
10. L1979-A 0.3 fl oz + Allegiance FL 0.75 fl oz + Spera 1.8 fl oz + Evergol Prime 0.32 fl oz + Evergol Energy 2.0 fl oz
11. RTU-Baytan-Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz
12. Vitavax-PCNB 6.0 fl oz + Allegiance FL 0.75 fl oz
13. RTU-PCNB 14.5 fl oz
14. Allegiance FL 1.5 fl oz
15. Untreated

E. ADDITIONAL INFORMATION:
1. Location: Tidewater AREC Research Farm, Hare Rd., Suffolk, VA
2. Crop history: Peanut 2014, corn 2013, cotton 2012
3. Land preparation: strip till (25 Apr)
4. Planting date and variety: 4 May, DP 1044 B2RF
5. Soil fertility report (9 Jan 2015):

pH	6.1	Mn	1.8 ppm
Ca.....	537 ppm	K.....	73 ppm
Mg.....	50 ppm	Zn	0.3 ppm
P.....	57 ppm	Soil type	Kenansville loamy fine sand

6. Herbicide Pre-plant – 2,4-D 1.5 pt/A (19 Mar)
Pre-emergence – Cotoran 4L 1.0 qt + Prowl H_2O 1.0 pt/A (5 May)
Post-emergence – Roundup WeatherMax 22 fl oz/A (19 May, 12 Jun, 22 Jul)
7. Fertilization: 6-16-40 247 lb/A (23 Apr)
ENC Ele-max 1.0 qt/A (2 Jun)
24-0-0-3 40 units + Traco Liquid Boron 1.0 qt/A (20 Jun)
24-0-0-3 60 units + Traco Liquid Boron 1.0 qt/A (2 Jul)
8. Insecticide: Orthene 75S 8 oz/A (19 May, 2 Jun)
Bifenture EC 6.4 fl oz/A (22 Jul)
Beseige 13 fl oz + Bifenture EC 6.4 fl oz/A 13 Aug

9. Growth regulator: Pentia 8 oz/A (2 Jul); 12 oz/A (22 Jul)
10. Defoliant/boll opener: FreeFall SC 3.0 fl oz + Finish 6 Pro 1.0 qt/A (11 Sep)
11. Harvest date: 24 Sep

Table 17. Effect of seed treatments on emergence and yield in cotton.

Treatment and rate/cwt seed (unless otherwise indicated)[1]	**Plants/ft[2] (4 Jun)**	**Yield[3]**	
		lb/A	**bales/A**
Apron XL 3LS 7.5 oz ai + Maxim 4FS 2.5 oz ai + Systhane WSP 21.0 g ai/100 kg seed + Dynasty CST 125FS 0.03 mg ai/seed	2.6	2317	2.2 a-c
Apron XL 3LS 7.5 oz ai + Maxim 4FS 2.5 oz ai + Systhane WSP 21.0 g ai/100 kg seed + A21204A 0.042 mg ai/seed	2.3	2021	2.0 a-d
Vortex FL 0.08 fl oz + Allegiance FL 0.75 fl oz + Spera 1.8 fl oz + Evergol Prime 0.32 fl oz + Rizolex 1.5fl oz	2.7	2308	2.2 ab
Albaugh CCB1 4.04 fl oz	2.7	1960	1.9 b-d
Albaugh CCB2 6.65 fl oz	2.7	1873	1.8 cd
Albaugh CCB3 3.78 fl oz	2.7	2293	2.1 a-c
Vortex FL 0.08 fl oz + Allegiance FL 0.75 fl oz + Spera 1.8 fl oz + Evergol Prime 0.32 fl oz	2.9	2305	2.2 ab
L1979-A 0.15 fl oz + Allegiance FL 0.75 fl oz + Spera 1.8 fl oz + Evergol Prime 0.32 fl oz	2.5	1927	1.7 d
L1979-A 0.3 fl oz + Allegiance FL 0.75 fl oz + Spera 1.8 fl oz + Evergol Prime 0.32 fl oz	2.7	2220	2.1 a-c
L1979-A 0.3 fl oz + Allegiance FL 0.75 fl oz + Spera 1.8 fl oz + Evergol Prime 0.32 fl oz + Evergol Energy 2.0 fl oz	2.6	2090	2.0 a-c
RTU Baytan/Thiram 3.0 fl oz + Allegiance FL 0.75 fl oz	2.4	2387	2.3 a
Vitavax-PCNB 6.0 fl oz + Allegiance FL 0.75 fl oz	2.5	2024	1.9 a-d
RTU-PCNB 14.5 fl oz	2.8	1963	1.9 b-d
Allegiance FL 1.5 fl oz	2.4	1954	1.7 d
Untreated	2.4	1933	1.7 d
P(F)	.45	.09	**.01**

[1] All seed with the exception of the untreated control received Gaucho 600 12.8 oz/cwt seed. Seed treatments were applied by Dr. Craig Rothrock, Coordinator of National Cottonseed Treatment Trials at the University of Arkansas. Seed was planted 4 May.

[2] Determined from counts of two, 30-ft rows per plot.

[3] 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 treatment. Plots were harvested on 24 Sep.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

VIII. COTTON FOUNDATION SEEDLING DISEASE COMMITTEE - COTTON SEED TREATMENT FUNGICIDE TEST (COTSEEDFUN215, Tidewater AREC Research Farm, Field 9A)

A. PURPOSE: To evaluate impacts of seed treatment fungicides and pre-emergence herbicides on seedling disease in cotton.

B. EXPERIMENTAL DESIGN:
1. Split-plot design with main plots of eight rows with and without pre-emergence herbicide
2. Subplots of seed treatments in two 30-ft rows per plot
3. Seeding rate of 3.5 seed/ft of row
4. Four replications in randomized complete block design separated by 8-ft alleyways

C. APPLICATION OF TREATMENTS: Seed treatments (S) were applied by personnel with Bayer CropScience. Pre-emergence herbicide treatment applied 8 May.

D. PRE-EMERGENCE HERBICIDE AND RATE/A:
1. Untreated
2. Prowl H_2O 1.0 pt + Cotoran 4L 1.0 qt

E. TREATMENT AND RATE/CWT SEED (unless otherwise indicated):
1. Gaucho 600FS 0.375 mg ai/seed
2. Gaucho 600FS 0.375 mg ai/seed + Spera 1.8 fl oz + Vortex 0.08 fl oz + Allegiance FL 0.75 fl oz + Evergol Prime 0.32 fl oz/cwt
3. Gaucho 600FS 0.375 mg ai/seed + Spera 1.8 fl oz + Vortex 0.08 fl oz + Allegiance FL 0.75 fl oz + Evergol Prime 0.32 fl oz/cwt + Evergol Extend 0.5 fl oz/cwt
4. Gaucho 600FS 0.375 mg ai/seed + Spera 1.8 fl oz + Vortex 0.08 fl oz + Allegiance FL 0.75 fl oz + Evergol Prime 0.32 fl oz/cwt + Evergol Extend 0.5 fl oz/cwt + Aeris Seed Applied System 0.75 mg ai/seed

F. ADDITIONAL INFORMATION:
1. Location: Tidewater AREC Research Farm, Hare Rd., Suffolk, VA
2. Crop history: Peanut 2014, corn 2013, cotton 2012
3. Land preparation: strip till (25 Apr)
4. Planting date and variety: 4 May, ST4747 B2RF
5. Soil fertility report (9 Jan 2015):

pH	6.1	Mn	1.8 ppm
Ca.....	537 ppm	K.....	73 ppm
Mg.....	50 ppm	Zn	0.3 ppm
P	57 ppm	Soil type	Kenansville loamy fine sand

6. Herbicide Pre-plant – 2,4-D 1.5 pt/A (19 Mar)
Pre-emergence – Cotoran 4L 1.0 qt + Prowl H_2O 1.0 pt/A (5 May)
Post-emergence – Roundup WeatherMax 22 fl oz/A (19 May, 12 Jun, 22 Jul)
7. Fertilization: 6-16-40 247 lb/A (23 Apr)
ENC Ele-max 1.0 qt/A (2 Jun)
24-0-0-3 40 units + Traco Liquid Boron 1.0 qt/A (20 Jun)
24-0-0-3 60 units + Traco Liquid Boron 1.0 qt/A (2 Jul)
Potash 60 units/A (23 Jun)
8. Insecticide: Orthene 75S 8 oz/A (19 May, 2 Jun)
Bifenture EC 6.4 fl oz/A (22 Jul)
Beseige 13 fl oz + Bifenture EC 6.4 fl oz/A (13 Aug)
9. Growth regulator: Pentia 8 fl oz/A (2 Jul); 12 fl oz/A (22 Jul)
10. Defoliant/boll opener: FreeFall SC 3.0 fl oz + Finish 6 Pro 1.0 qt/A (8 Oct)
11. Harvest date: 24 Sep

Table 18. Effect of pre-emergence herbicide and seed treatment fungicides on emergence, vigor, and growth of cotton.

Herbicide and rate/A, seed treatment and rate/cwt seed (unless otherwise indicated)[1]	**Plants/ft[2]**		**Vigor (0-10)[3]**		**Plant height (in.)**	
	18 May	**1 Jun**	**18 May**	**12 Jun**	**19 May[4]**	**15 Jun[5]**
***Split-plot analysis, P*(F)**						
Herbicide	.38	.68	.39	.32	.39	.84
Seed treatment	.53	.62	.29	.75	.20	**.03**
Herbicide × seed treatment	.85	.88	.74	.42	.15	.56
Seed treatment mean						
Gaucho 600FS 0.375 mg ai/seed	1.7	1.7	8.0	9.3	3.3	12.8 ab
Gaucho 600FS 0.375 mg ai/seed + Spera 1.8 fl oz + Vortex 0.08 fl oz + Allegiance FL 0.75 fl oz + Evergol Prime 0.32 fl oz	1.8	1.8	8.3	9.4	3.4	12.5 b
Gaucho 600FS 0.375 mg ai/seed + Spera 1.8 fl oz + Vortex 0.08 fl oz + Allegiance FL 0.75 fl oz + Evergol Prime 0.32 fl oz + Evergol Extend 0.5 fl oz	1.7	1.7	7.9	9.3	3.5	13.3 a
Gaucho 600FS 0.375 mg ai/seed + Spera 1.8 fl oz + Vortex 0.08 fl oz + Allegiance FL 0.75 fl oz + Evergol Prime 0.32 fl oz + Evergol Extend 0.5 fl oz + Aeris Seed Applied System 0.75 mg ai/seed	1.7	1.7	7.8	9.5	3.5	13.1 a
Herbicide mean						
No pre-emergence herbicide	1.7	1.8	7.8	9.4	3.4	12.9
Prowl H_2O 1.0 pt + Cotoran 4L 1.0 qt	1.7	1.7	8.1	9.3	3.4	12.9
No pre-emergence herbicide						
Gaucho 600FS 0.375 mg ai/seed	1.7	1.7	7.8	9.5	3.4	12.5 b
Gaucho 600FS 0.375 mg ai/seed + Spera 1.8 fl oz + Vortex 0.08 fl oz + Allegiance FL 0.75 fl oz + Evergol Prime 0.32 fl oz	1.8	1.9	8.3	9.3	3.3	12.5 b
Gaucho 600FS 0.375 mg ai/seed + Spera 1.8 fl oz + Vortex 0.08 fl oz + Allegiance FL 0.75 fl oz + Evergol Prime 0.32 fl oz + Evergol Extend 0.5 fl oz	1.7	1.8	7.8	9.5	3.5	13.5 a
Gaucho 600FS 0.375 mg ai/seed + Spera 1.8 fl oz + Vortex 0.08 fl oz + Allegiance FL 0.75 fl oz + Evergol Prime 0.32 fl oz + Evergol Extend 0.5 fl oz + Aeris Seed Applied System 0.75 mg ai/seed	1.7	1.7	7.5	9.5	3.5	13.2 ab
Prowl H2O 1.0 pt + Cotoran 4L 1.0 qt						
Gaucho 600FS 0.375 mg ai/seed	1.7	1.7	8.3	9.0	3.2	13.1
Gaucho 600FS 0.375 mg ai/seed + Spera 1.8 fl oz + Vortex 0.08 fl oz + Allegiance FL 0.75 fl oz + Evergol Prime 0.32 fl oz	1.8	1.8	8.3	9.5	3.5	12.4
Gaucho 600FS 0.375 mg ai/seed + Spera 1.8 fl oz + Vortex 0.08 fl oz + Allegiance FL 0.75 fl oz + Evergol Prime 0.32 fl oz + Evergol Extend 0.5 fl oz	1.6	1.7	8.0	9.0	3.5	13.2
Gaucho 600FS 0.375 mg ai/seed + Spera 1.8 fl oz + Vortex 0.08 fl oz + Allegiance FL 0.75 fl oz + Evergol Prime 0.32 fl oz + Evergol Extend 0.5 fl oz + Aeris Seed Applied System 0.75 mg ai/seed	1.7	1.8	8.0	9.5	3.4	13.1

[1]All seed were treated by personnel with Bayer CropScience. [2]Determined from counts of two, 30-ft rows per plot. [3]Vigor index rating scale: 10 = 100% vigor, 0 = no vigor. [4]Measurements of eight, randomly selected seedling plants in each plot. [5]Determined from measurements of 3 randomly selected plants per each row of plot. Means within a column and group followed by the same letter(s) are not significantly different at *P*=0.05 according to Fisher's Protected LSD.

Table 19. Effect of pre-emergence herbicide and seed treatment fungicides on emergence, flowering, and yield of cotton.

Herbicide and rate/A, seed treatment and rate/cwt seed (unless otherwise indicated)[1]	No. of skips[2] (21 May)	Skip index[2] (21 May)	Total missing ft[3] (21 May)	Flowers/12 row ft[4]		Yield[5]	
				6 Jul	15 Jul	lb/A	bales/A
***Split-plot analysis, P*(F)**							
Herbicide	.33	.48	.62	.71	.28	.86	.69
Seed treatment	.36	.39	.43	.76	.89	.53	.58
Herbicide × seed treatment	.43	.51	.69	.09	.81	.47	.54
Seed treatment mean							
Gaucho 600FS 0.375 mg ai/seed	17.4	26.1	25.4	7.5	45.5	1987	1.9
Gaucho 600FS 0.375 mg ai/seed + Spera 1.8 fl oz + Vortex 0.08 fl oz + Allegiance FL 0.75 fl oz + Evergol Prime 0.32 fl oz	15.8	22.0	21.9	8.1	44.0	1918	1.8
Gaucho 600FS 0.375 mg ai/seed + Spera 1.8 fl oz + Vortex 0.08 fl oz + Allegiance FL 0.75 fl oz + Evergol Prime 0.32 fl oz + Evergol Extend 0.5 fl oz	25.0	26.5	25.7	7.9	44.6	1868	1.8
Gaucho 600FS 0.375 mg ai/seed + Spera 1.8 fl oz + Vortex 0.08 fl oz + Allegiance FL 0.75 fl oz + Evergol Prime 0.32 fl oz + Evergol Extend 0.5 fl oz + Aeris Seed Applied System 0.75 mg ai/seed	16.8	23.9	23.4	8.5	42.6	1851	1.8
Herbicide mean							
No pre-emergence herbicide	16.8	24.2	23.8	8.1	44.6	1919	1.9
Prowl H_2O 1.0 pt + Cotoran 4L 1.0 qt	20.7	25.1	24.3	7.9	43.8	1894	1.8
No pre-emergence herbicide							
Gaucho 600FS 0.375 mg ai/seed	17.8	26.3	25.7	7.3	46.5	1954	1.9
Gaucho 600FS 0.375 mg ai/seed + Spera 1.8 fl oz + Vortex 0.08 fl oz + Allegiance FL 0.75 fl oz + Evergol Prime 0.32 fl oz	15.0	21.3	20.9	7.3	44.5	1978	1.9
Gaucho 600FS 0.375 mg ai/seed + Spera 1.8 fl oz + Vortex 0.08 fl oz + Allegiance FL 0.75 fl oz + Evergol Prime 0.32 fl oz + Evergol Extend 0.5 fl oz	17.3	23.8	24.1	9.5	46.5	1945	1.9
Gaucho 600FS 0.375 mg ai/seed + Spera 1.8 fl oz + Vortex 0.08 fl oz + Allegiance FL 0.75 fl oz + Evergol Prime 0.32 fl oz + Evergol Extend 0.5 fl oz + Aeris Seed Applied System 0.75 mg ai/seed	17.0	25.5	24.6	8.5	41.0	1797	1.7
Prowl H2O 1.0 pt + Cotoran 4L 1.0 qt							
Gaucho 600FS 0.375 mg ai/seed	17.0	26.0	25.0	7.8	44.5	2021	1.9
Gaucho 600FS 0.375 mg ai/seed + Spera 1.8 fl oz + Vortex 0.08 fl oz + Allegiance FL 0.75 fl oz + Evergol Prime 0.32 fl oz	16.5	22.8	22.9	9.0	43.5	1857	1.8
Gaucho 600FS 0.375 mg ai/seed + Spera 1.8 fl oz + Vortex 0.08 fl oz + Allegiance FL 0.75 fl oz + Evergol Prime 0.32 fl oz + Evergol Extend 0.5 fl oz	32.8	29.3	27.3	6.3	42.8	1791	1.7
Gaucho 600FS 0.375 mg ai/seed + Spera 1.8 fl oz + Vortex 0.08 fl oz + Allegiance FL 0.75 fl oz + Evergol Prime 0.32 fl oz + Evergol Extend 0.5 fl oz + Aeris Seed Applied System 0.75 mg ai/seed	16.5	22.3	22.2	8.5	44.3	1906	1.8

[1]All seed were treated by personnel with Bayer CropScience. [2]Length and number of skips were recorded to calculate a skip index. Skips were counted and reported according to previous methods (Colyer and Vernon, 2005). The skip index was the sum of skips within each of the two, 30-ft rows/plot. Skips were assigned as 0=no skips, 1=skips 12 to 18 in., 2=skips 18-24 in., 3=skips 24-36 in. and 4=skips >36 in. [3]Determined from measurements in two, 30-ft rows per plot. [4]Determined from counts in a 6-ft section of each row per plot. [5]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 treatment. Plots were harvested on 24 Sep.

IX. COTTON SEED TREATMENT FUNGICIDE TEST (COTSEEDFUN315, Tidewater AREC Research Farm, Field 16A)

A. PURPOSE: To evaluate seed treatment fungicides for control of seedling diseases in cotton.

B. EXPERIMENTAL DESIGN:
1. Split-plot design with main plots of four rows of seed treatment
2. Subplots of two rows with and without Rhizoctonia inoculum in seed furrow
3. Rows 30-ft long and spaced 36 in. apart
4. Four randomized complete blocks separated by 8-ft alleyways

C. APPLICATION OF TREATMENTS: Seed (S) and overcoat (O) treatments were applied by Syngenta Crop Protection.

D. TREATMENT AND RATE (a.i.):
1. Cruiser 5FS 0.375 mg/seed (S)
2. Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)
3. Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + Test compound A 0.03 mg + Cruiser 5FS 0.375 mg/seed (O)
4. Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + Test compound B 9.13 g/100 kg seed + Test compound A 0.03 mg + Cruiser 5FS 0.375 mg/seed (O)
5. Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + Test compound C 0.042 mg + Cruiser 5FS 0.375 mg/seed (O)
6. Test compound D 15 g + Test compound E 10 g + Test compound F 40 g + Test compound G 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)
7. Test compound H 2.35 g + Test compound D 15.25 g + Test compound G 28.25 g + Test compound I 5 g + Test compound J 9 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)

E. INOCULUM: (Sub-plots) Inoculum was prepared in the Plant Pathology Lab at the Tidewater AREC using seed of white millet moistened with a 2:1 ratio of seed to distilled water and autoclaved twice. The seed was then inoculated with *Rhizoctonia solani* that was isolated from peanut and allowed to incubate at room temperature for 10 days. Subsequently, seed was dried at room temperature for 4 days and then screened to ensure uniform size. Inoculum was applied to the seed furrow at 0.35 ml/ft of row.
1. Non-inoculated
2. Inoculated (Millet seed infested with *Rhizoctonia solani*)

F. ADDITIONAL INFORMATION:
1. Location: Tidewater AREC Research Farm, Hare Rd., Suffolk, VA
2. Crop history: Peanut 2014, corn 2013, cotton 2012
3. Land preparation: strip till (25 Apr)
4. Planting date: 4 May
5. Soil fertility report (9 Jan 2015):

pH	5.7	K.....	65 ppm
Ca.....	481 ppm	Zn	0.4 ppm
Mg.....	36 ppm	Mn	1.5 ppm
P	69 ppm	Soil type	Kenansville loamy fine sand

6. Herbicide Pre-plant – 2,4-D 1.5 pt/A (19 Mar)
Pre-emergence – Cotoran 4L 1.0 qt + Prowl H_2O 1.0 pt/A (5 May)
Post-emergence – Roundup WeatherMax 22 fl oz/A (19 May, 12 Jun, 22 Jul)
7. Fertilization: AgLime 1,000 lb/A (5 Mar)
6-16-40 247 lb/A (23 Apr)
24-0-0-3 40 units + 1.0 qt Traco Liquid Boron/A (20 Jun, 2 Jul)

8. Insecticide: Orthene 75S 8 oz/A (19 May, 2 Jun)
   Bifenture EC 6.4 fl oz/A (22 Jul)
   Beseige 13 fl oz + Bifenture EC 6.4 fl oz/A (13 Aug)
9. Growth regulator: Pentia 8 oz/A (2 Jul); 12 fl oz/A (22 Jul)
10. Defoliant/boll opener: Finish 6 Pro 1.0 qt + FreeFall SC 3 fl oz/A (11 Sep)
11. Harvest date: 24 Sep

Table 20. Effect of seed treatments on seedling biomass.

Treatment and rate (a.i.)[1]	**Biomass (g)**[2] **(18 May)**	
	shoots	**roots**
Cruiser 5FS 0.375 mg/seed (S)	5.5	2.1
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	5.6	2.0
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCA 0.03 mg (S)+ Cruiser 5FS 0.375 mg/seed (O)	5.2	2.0
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCB 9.13 g/100 kg seed + TCA 0.03 mg + Cruiser 5FS 0.375 mg/seed	5.6	2.1
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCC 0.042 mg + Cruiser 5FS 0.375 mg/seed (O)	5.6	2.0
TCD 15 g + TCE 10 g + TCF 40 g + TCG 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	5.2	2.1
TCH 2.35 g + TCD 15.25 g + TCG 28.25 g + TCI 5 g + TCJ 9 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	5.7	2.1
P(F)	.93	1.0

[1] S = seed treatment. O = overcoat treatment on top of base seed treatment. TC_=test compound.
[2] Data are mean of ten, randomly selected plants per each destructive sample check plot (non-inoculated).

Table 21. Effect of seed treatment on emergence of cotton.

	Plants/ft[2]			
	18 May		1 Jun	
Treatment and rate (a.i.)[1]	**Non**	**Inoc**	**Non**	**Inoc**
Cruiser 5FS 0.375 mg/seed (S)	2.3	2.0	2.4	2.1
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	2.5	2.1	2.5	2.2
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCA 0.03 mg (S)+ Cruiser 5FS 0.375 mg/seed (O)	2.3	2.2	2.3	2.3
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCB 9.13 g/100 kg seed + TCA 0.03 mg + Cruiser 5FS 0.375 mg/seed	2.4	2.3	2.5	2.3
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCC 0.042 mg + Cruiser 5FS 0.375 mg/seed (O)	2.3	2.1	2.3	2.2
TCD 15 g + TCE 10 g + TCF 40 g + TCG 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	2.3	2.1	2.4	2.1
TCH 2.35 g + TCD 15.25 g + TCG 28.25 g + TCI 5 g + TCJ 9 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	2.6	2.2	2.6	2.2
P(F)	.62	.66	.70	.62
Treatment	.64		.72	
Inoculum	**.0001**		**.0001**	
Treatment × inoculum	.58		.49	
Treatment mean				
Cruiser 5FS 0.375 mg/seed (S)	2.2		2.2	
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	2.3		2.4	
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCA 0.03 mg (S)+ Cruiser 5FS 0.375 mg/seed (O)	2.3		2.3	
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCB 9.13 g/100 kg seed + TCA 0.03 mg + Cruiser 5FS 0.375 mg/seed	2.3		2.4	
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCC 0.042 mg + Cruiser 5FS 0.375 mg/seed (O)	2.2		2.2	
TCD 15 g + TCE 10 g + TCF 40 g + TCG 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	2.2		2.2	
TCH 2.35 g + TCD 15.25 g + TCG 28.25 g + TCI 5 g + TCJ 9 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	2.4		2.4	
Inoculum mean				
Non-inoculated	2.4 a		2.4 a	
Inoculated	2.1 b		2.2 b	

[1] S = seed treatment. O = overcoat treatment on top of base seed treatment. TC_=test compound.

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

Table 22. Effect of seed treatment on emergence of cotton.

	Plants/ft[2]	
Treatment and rate (a.i.)[1]	**18 May**	**1 Jun**
***Split-plot analysis, P*(F)**		
Treatment	.64	.72
Inoculum	**.0001**	**.0001**
Treatment × inoculum	.58	.49
Treatment mean		
Cruiser 5FS 0.375 mg/seed (S)	2.2	2.2
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	2.3	2.4
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCA 0.03 mg (S)+ Cruiser 5FS 0.375 mg/seed (O)	2.3	2.3
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCB 9.13 g/100 kg seed + TCA 0.03 mg + Cruiser 5FS 0.375 mg/seed	2.3	2.4
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCC 0.042 mg + Cruiser 5FS 0.375 mg/seed (O)	2.2	2.2
TCD 15 g + TCE 10 g + TCF 40 g + TCG 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	2.2	2.2
TCH 2.35 g + TCD 15.25 g + TCG 28.25 g + TCI 5 g + TCJ 9 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	2.4	2.4
Inoculum mean		
Non-inoculated	2.4 a	2.4 a
Inoculated	2.1 b	2.2 b

	Non	**Inoc**	**Non**	**Inoc**
Cruiser 5FS 0.375 mg/seed (S)	2.3	2.0	2.4	2.1
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	2.5	2.1	2.5	2.2
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCA 0.03 mg (S)+ Cruiser 5FS 0.375 mg/seed (O)	2.3	2.2	2.3	2.3
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCB 9.13 g/100 kg seed + TCA 0.03 mg + Cruiser 5FS 0.375 mg/seed	2.4	2.3	2.5	2.3
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCC 0.042 mg + Cruiser 5FS 0.375 mg/seed (O)	2.3	2.1	2.3	2.2
TCD 15 g + TCE 10 g + TCF 40 g + TCG 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	2.3	2.1	2.4	2.1
TCH 2.35 g + TCD 15.25 g + TCG 28.25 g + TCI 5 g + TCJ 9 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	2.6	2.2	2.6	2.2

[1] S = seed treatment. O = overcoat treatment on top of base seed treatment. TC_=test compound.

[2] Determined from counts of two, 30-ft rows per plot.

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

Table 23. Effect of seed treatment on seedling vigor of cotton.

	Vigor (0-10)[2]			
Treatment and rate (a.i.)[1]	**18 May**		**5 Jun**	
***Split-plot analysis, P*(F)**				
Treatment	.62		.57	
Inoculum	**.0001**		**.0001**	
Treatment × inoculum	.82		**.006**	
Treatment mean				
Cruiser 5FS 0.375 mg/seed (S)	9.0		8.8	
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	9.0		9.0	
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCA 0.03 mg (S)+ Cruiser 5FS 0.375 mg/seed (O)	9.3		8.6	
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCB 9.13 g/100 kg seed + TCA 0.03 mg + Cruiser 5FS 0.375 mg/seed	8.9		8.9	
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCC 0.042 mg + Cruiser 5FS 0.375 mg/seed (O)	9.3		9.4	
TCD 15 g + TCE 10 g + TCF 40 g + TCG 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	8.9		9.0	
TCH 2.35 g + TCD 15.25 g + TCG 28.25 g + TCI 5 g + TCJ 9 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	9.3		9.1	
Inoculum mean				
Non-inoculated	9.5 a		9.2 a	
Inoculated	8.8 b		8.7 b	
	Non	**Inoc**	**Non**	**Inoc**
Cruiser 5FS 0.375 mg/seed (S)	9.6	8.5	9.3 ab	8.3
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	9.4	8.6	9.0 ab	9.0
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCA 0.03 mg (S)+ Cruiser 5FS 0.375 mg/seed (O)	9.6	9.0	8.5 b	8.8
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCB 9.13 g/100 kg seed + TCA 0.03 mg + Cruiser 5FS 0.375 mg/seed	9.3	8.6	9.0 ab	8.8
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCC 0.042 mg + Cruiser 5FS 0.375 mg/seed (O)	9.5	9.0	9.8 a	9.0
TCD 15 g + TCE 10 g + TCF 40 g + TCG 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	9.3	8.5	9.5 a	8.5
TCH 2.35 g + TCD 15.25 g + TCG 28.25 g + TCI 5 g + TCJ 9 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	9.5	9.0	9.5 a	8.8

[1] S = seed treatment. O = overcoat treatment on top of base seed treatment. TC_=test compound.

[2] Vigor index rating scale: 10 = 100% vigor, 0 = no vigor.
Means within a column and group followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 24. Effect of seed treatment on growth and flowering of cotton.

	Plant height (in.)[2]		Flowers /12 row ft[3]	
Treatment and rate (a.i.)[1]	**17 Jun**		**9 Jul**	
***Split-plot analysis, P*(F)**				
Treatment	.70		.28	
Inoculum	.38		**.02**	
Treatment × inoculum	.39		.14	
Treatment mean				
Cruiser 5FS 0.375 mg/seed (S)	15.2		10.6	
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	15.7		14.1	
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCA 0.03 mg (S)+ Cruiser 5FS 0.375 mg/seed (O)	15.6		9.8	
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCB 9.13 g/100 kg seed + TCA 0.03 mg + Cruiser 5FS 0.375 mg/seed	15.4		9.1	
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCC 0.042 mg + Cruiser 5FS 0.375 mg/seed (O)	14.9		12.1	
TCD 15 g + TCE 10 g + TCF 40 g + TCG 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	15.3		9.8	
TCH 2.35 g + TCD 15.25 g + TCG 28.25 g + TCI 5 g + TCJ 9 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	15.6		13.0	
Inoculum mean				
Non-inoculated	15.3		11.9 a	
Inoculated	15.5		10.5 b	
	Non	**Inoc**	**Non**	**Inoc**
Cruiser 5FS 0.375 mg/seed (S)	15.4	15.0	10.5	10.8
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	15.3	16.1	16.8	11.5
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCA 0.03 mg (S)+ Cruiser 5FS 0.375 mg/seed (O)	15.5	15.8	11.0	8.5
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCB 9.13 g/100 kg seed + TCA 0.03 mg + Cruiser 5FS 0.375 mg/seed	15.1	15.6	8.5	9.8
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCC 0.042 mg + Cruiser 5FS 0.375 mg/seed (O)	15.0	14.9	12.5	11.8
TCD 15 g + TCE 10 g + TCF 40 g + TCG 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	15.4	15.2	10.8	8.8
TCH 2.35 g + TCD 15.25 g + TCG 28.25 g + TCI 5 g + TCJ 9 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	15.6	15.6	13.5	12.5

[1] S = seed treatment. O = overcoat treatment on top of base seed treatment. TC_=test compound.
[2] Determined from measurements of three, randomly selected plants per each row of plot.
[3] Determined from counts in a 6-ft section of each row per plot.

Table 25. Effect of seed treatment on earliness of cotton.

Treatment and rate (a.i.)[1]	Open bolls /12 row ft[2] (4 Sep)	
***Split-plot analysis, P*(F)**		
Treatment	1.0	
Inoculum	**.01**	
Treatment × inoculum	.89	
Treatment mean		
Cruiser 5FS 0.375 mg/seed (S)	64.9	
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	65.9	
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCA 0.03 mg (S)+ Cruiser 5FS 0.375 mg/seed (O)	65.1	
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCB 9.13 g/100 kg seed + TCA 0.03 mg + Cruiser 5FS 0.375 mg/seed	61.9	
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCC 0.042 mg + Cruiser 5FS 0.375 mg/seed (O)	62.3	
TCD 15 g + TCE 10 g + TCF 40 g + TCG 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	65.9	
TCH 2.35 g + TCD 15.25 g + TCG 28.25 g + TCI 5 g + TCJ 9 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	59.1	
Inoculum mean		
Non-inoculated	66.7 a	
Inoculated	60.4 b	
	Non	**Inoc**
Cruiser 5FS 0.375 mg/seed (S)	66.8	63.0
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	71.8	60.0
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCA 0.03 mg (S)+ Cruiser 5FS 0.375 mg/seed (O)	69.3	61.0
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCB 9.13 g/100 kg seed + TCA 0.03 mg + Cruiser 5FS 0.375 mg/seed	65.8	58.0
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCC 0.042 mg + Cruiser 5FS 0.375 mg/seed (O)	62.8	61.8
TCD 15 g + TCE 10 g + TCF 40 g + TCG 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	67.5	64.3
TCH 2.35 g + TCD 15.25 g + TCG 28.25 g + TCI 5 g + TCJ 9 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	63.3	55.0

[1] S = seed treatment. O = overcoat treatment on top of base seed treatment. TC_=test compound.
[2] Determined from counts in a 6-ft section of each row per plot.

Table 26. Effect of seed treatment on yield of cotton.

	Yield[2]	
Treatment and rate (a.i.)[1]	**lb/A**	**bales/A**
***Split-plot analysis, P*(F)**		
Treatment	.96	.96
Inoculum	.85	.87
Treatment × inoculum	.79	.82
Treatment mean		
Cruiser 5FS 0.375 mg/seed (S)	2632	2.6
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	2721	2.7
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCA 0.03 mg (S)+ Cruiser 5FS 0.375 mg/seed (O)	2588	2.6
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCB 9.13 g/100 kg seed + TCA 0.03 mg + Cruiser 5FS 0.375 mg/seed	2512	2.5
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCC 0.042 mg + Cruiser 5FS 0.375 mg/seed (O)	2589	2.6
TCD 15 g + TCE 10 g + TCF 40 g + TCG 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	2910	2.9
TCH 2.35 g + TCD 15.25 g + TCG 28.25 g + TCI 5 g + TCJ 9 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	2824	2.8
Inoculum mean		
Non-inoculated	2676	2.7
Inoculated	2689	2.7

	Non	Inoc	Non	Inoc
Cruiser 5FS 0.375 mg/seed (S)	2738	2526	2.7	2.5
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	2726	2717	2.8	2.7
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCA 0.03 mg (S)+ Cruiser 5FS 0.375 mg/seed (O)	2475	2701	2.5	2.7
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCB 9.13 g/100 kg seed + TCA 0.03 mg + Cruiser 5FS 0.375 mg/seed	2517	2508	2.5	2.5
Apron XL 3LS 7.5 g + Maxim 4FS 2.5 g + Systhane 40WP 21 g/100 kg seed (S) + TCC 0.042 mg + Cruiser 5FS 0.375 mg/seed (O)	2605	2574	2.6	2.6
TCD 15 g + TCE 10 g + TCF 40 g + TCG 21 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	2883	2937	2.9	3.0
TCH 2.35 g + TCD 15.25 g + TCG 28.25 g + TCI 5 g + TCJ 9 g/100 kg seed (S) + Cruiser 5FS 0.375 mg/seed (O)	2789	2859	2.8	2.8

[1] S = seed treatment. O = overcoat treatment on top of base seed treatment. TC_=test compound.

[2] 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 treatment. Plots were harvested on 24 Sep.

X. COTTON SEED FUNGICIDE TEST (COTSEEDFUN515, Tidewater AREC Research Farm, Field 9A)

A. PURPOSE: To evaluate seed treatment fungicides for disease control in cotton.

B. EXPERIMENTAL DESIGN:
1. Two, 30-ft rows per plot with 36-in row spacing
2. Seeding rate of 3.5 seed/ft of row
3. Four randomized complete blocks separated by 8-ft alleyways

C. APPLICATION OF TREATMENTS: All seed received Gaucho 600FS 0.375 mg ai/seed. Treatments were applied by personnel with Bayer CropSciences.

D. SEED TREATMENT AND RATE (as indicated):
1. Untreated
2. Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg
3. Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg + AB0271473 5 g ai/100 kg
4. Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg + AB0271473 5 g + Evergol Prime 5 g ai/100 kg
5. Spera 54.8 ml + Allegiance FL 48.9 ml + Evergol Energy 130.4 ai ml/100 kg + test compound 5 g ai/100 kg
6. Spera 54.8 ml + Allegiance FL 48.9 ml + Evergol Extend 65.2 ml ai/100 kg + AB0271473 5 g
7. Spera 54.8 ml + Allegiance FL 48.9 ml + Evergol Energy 130.4 ml ai/100 kg + AB0271473 5 g + Evergol Prime 5 g ai/100 kg
8. Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg + AB0271473 5 g + Isotianil SC 200 50 g + Evergol Prime 5 g ai/100 kg

E. ADDITIONAL INFORMATION:
1. Location: Tidewater AREC Research Farm, Hare Rd., Suffolk, VA
2. Crop history: Peanut 2014, corn 2013, cotton 2012
3. Land preparation: strip till (25 Apr)
4. Planting date and variety: 4 May, ST4747 B2RF
5. Soil fertility report (9 Jan 2015):

pH	6.1	Mn	1.8 ppm
Ca.....	537 ppm	K.....	73 ppm
Mg.....	50 ppm	Zn	0.3 ppm
P.....	57 ppm	Soil type	Kenansville loamy fine sand

6. Herbicide Pre-plant – 2,4-D 1.5 pt/A (19 Mar)
Pre-emergence – Cotoran 4L 1.0 qt + Prowl H_2O 1.0 pt/A (5 May)
Post-emergence – Roundup WeatherMax 22 fl oz/A (19 May, 12 Jun, 22 Jul)
7. Fertilization: 6-16-40 247 lb/A (23 Apr)
ENC Ele-max 1.0 qt/A (2 Jun)
24-0-0-3 40 units + Traco Liquid Boron 1.0 qt/A (20 Jun)
24-0-0-3 60 units + Traco Liquid Boron 1.0 qt/A (2 Jul)
8. Insecticide: Orthene 75S 8 oz/A (19 May, 2 Jun)
Bifenture EC 6.4 fl oz/A (22 Jul)
Beseige 13 fl oz + Bifenture EC 6.4 fl oz/A 13 Aug
9. Growth regulator: Pentia 8 oz/A (2 Jul); 12 oz/A (22 Jul)
10. Defoliant/boll opener: FreeFall SC 3.0 fl oz + Finish 6 Pro 1.0 qt/A (11 Sep)
11. Harvest date: 12 Oct

Table 27. Effect of seed treatments on emergence and vigor in cotton.

Seed treatment and rate (as indicated)[1]	Plants/ft[2]			Vigor (0-10)[3]
	26 May	8 Jun	17 Jun	(5 Jun)
Untreated	1.8	2.2	1.8	9.0
Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg	2.0	2.2	2.0	9.5
Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg + AB0271473 5 g ai/100 kg	1.7	2.3	1.7	9.3
Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg + AB0271473 5 g + Evergol Prime 5 g ai/100 kg	1.8	2.1	1.8	9.5
Spera 54.8 ml + Allegiance FL 48.9 ml + Evergol Energy 130.4 ml ai/100 kg + test compound 5 g ai/100 kg	2.0	2.1	2.1	9.5
Spera 54.8 ml + Allegiance FL 48.9 ml + Evergol Extend 65.2 ml ai/100 kg + AB0271473 5 g ai/100 kg	1.9	2.2	2.0	9.3
Spera 54.8 ml + Allegiance FL 48.9 ml + Evergol Energy 130.4 ml ai/100 kg + AB0271473 5 g + Evergol Prime 5 g ai/100 kg	1.7	2.2	1.7	9.0
Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg + AB0271473 5 g + Isotianil SC 200 50 g + Evergol Prime 5 g ai/100 kg	1.7	2.3	1.8	10.0
P(F)	.25	.70	.26	.22

[1] All seed received Gaucho 600 0.375 mg ai/seed. Treatments were applied by personnel with Bayer CropSciences. Seed was planted 4 May.

[2] Determined from counts of two, 30-ft rows per plot.

[3] Vigor index rating scale: 10 = 100% vigor, 0 = no vigor.

Table 28. Effect of seed treatments on growth and flowering of cotton.

Seed treatment and rate (as indicated)[1]	Plant height (in)[2] (17 Jun)	Flowers/12 ft[3] 6 Jul	Flowers/12 ft[3] 15 Jul
Untreated	14.6 a-c	4.0	24.0
Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg	14.7 ab	5.0	25.8
Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg + AB0271473 5 g ai/100 kg	14.0 bc	3.8	24.3
Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg + AB0271473 5 g + Evergol Prime 5 g ai/100 kg	14.5 a-c	4.5	22.5
Spera 54.8 ml + Allegiance FL 48.9 ml + Evergol Energy 130.4 ml ai/100 kg + test compound 5 g ai/100 kg	14.2 bc	3.5	21.8
Spera 54.8 ml + Allegiance FL 48.9 ml + Evergol Extend 65.2 ml ai/100 kg + AB0271473 5 g ai/100 kg	15.2 a	3.3	28.0
Spera 54.8 ml + Allegiance FL 48.9 ml + Evergol Energy 130.4 ml ai/100 kg + AB0271473 5 g + Evergol Prime 5 g ai/100 kg	13.8 c	3.8	23.0
Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg + AB0271473 5 g + Isotianil SC 200 50 g + Evergol Prime 5 g ai/100 kg	14.8 ab	5.0	24.8
P(F)	**.03**	.61	.42

[1] All seed received Gaucho 600 0.375 mg ai/seed. Treatments were applied by personnel with Bayer CropSciences. Seed was planted 4 May.

[2] Determined from measurements of 3 plants per each row of plot.

[3] Determined from counts in a 6-ft of each row per plot.

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

Table 29. Effect of seed treatments on earliness and yield of cotton.

Treatment and rate (as indicated)[1]	Open bolls/12 ft[2] (2 Sep)	Yield[3]	
		lb/A	bales/A
Untreated	59.0	1833 d	1.8 c
Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg	61.3	2290 ab	2.2 ab
Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg + AB0271473 5 g ai/100 kg	57.3	1833 d	1.7 c
Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg + AB0271473 5 g + Evergol Prime 5 g ai/100 kg	58.5	2248 a-c	2.2 ab
Spera 54.8 ml + Allegiance FL 48.9 ml + Evergol Energy 130.4 ml ai/100 kg + test compound 5 g ai/100 kg	52.0	2069 a-d	2.0 a-c
Spera 54.8 ml + Allegiance FL 48.9 ml + Evergol Extend 65.2 ml ai/100 kg + AB0271473 5 g ai/100 kg	49.8	2402 a	2.3 a
Spera 54.8 ml + Allegiance FL 48.9 ml + Evergol Energy 130.4 ml ai/100 kg + AB0271473 5 g + Evergol Prime 5 g ai/100 kg	47.8	1891 cd	1.8 c
Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg + AB0271473 5 g + Isotianil SC 200 50 g + Evergol Prime 5 g ai/100 kg	52.0	1984 b-d	1.9 bc
P(F)	.65	**.02**	**.01**

[1] All seed received Gaucho 600 0.375 mg ai/seed. Treatments were applied by personnel with Bayer CropSciences. Seed was planted 4 May.

[2] Determined from counts of two, 30-ft rows per plot.

[3] 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 treatment. Plots were harvested on 12 Oct.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

XI. COTTON SEED NEMATICIDE TEST (COTSEEDNEMA115, Morgan Farm, Suffolk, VA)

A. PURPOSE: To evaluate seed treatments for nematode control in cotton.

B. EXPERIMENTAL DESIGN:
1. Two, 30-ft rows per plot with 36-in. row spacing
2. Seeding rate of 3.5 seed/ft of row
3. Four randomized complete blocks separated by 8-ft alleyways

C. APPLICATION OF TREATMENTS: All treatments received Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg +Proline 480SC 5 g + Evergol Prime 5 g ai/100kg as a base seed treatment. Treatments were applied by personnel with Bayer CropSciences.

D. TREATMENT AND RATE (as indicated):
1. Gaucho 600FS 0.375 mg ai/seed
2. Gaucho 600FS 0.375 mg ai/seed
3. Gaucho 600FS 0.375 mg + Fluopyram 600FS 0.25 mg ai/seed
4. Aeris Seed Applied System 0.75 mg ai/seed
5. Aeris Seed Applied System 0.75 mg + Fluopyram 600FS 0.2 mg ai/seed
6. Gaucho 600FS 0.375 mg + Poncho Votivo 2nd Generation 0.424 mg ai/seed
7. Gaucho 600FS 0.375 mg + Poncho Votivo 2nd Generation 0.424 mg + Fluopyram 600FS 0.2 mg ai/seed
8. Gaucho 600FS 0.375 mg + Fluopyram 600FS 0.2 mg ai/seed
9. Aeris Seed Applied System 0.75 mg + Fluopyram 600FS 0.2 mg ai/seed
10. Gaucho 600FS 0.375 mg + Poncho Votivo 2nd Generation 0.424 mg + Fluopyram 600FS 0.2 mg ai/seed

E. ADDITIONAL INFORMATION:
1. Location: Rick Morgan Farm, Deer Forest Rd., Suffolk, VA
2. Crop history: Continuous cotton since 2001
3. Land preparation: rip and strip till (9 May)
4. Planting date and variety: 14 May, ST4946 GLB2
5. Soil fertility report (Mar 2014):

pH	6.12	K.....	91 ppm
Ca.....	290 ppm	Zn	1 ppm
Mg.....	29 ppm	Mn	2.7 ppm
P	43 ppm	Soil type	Kenansville loamy fine sand

6. Nematode assay report (13 May):

Nematodes/500 cc soil	
Root knot	300
Lesion	20
Spiral.....	440
Stubby root	40

7. Herbicide Pre-emergence – Cotoran 4L 1.0 qt + Prowl H_2O 1.0 pt + Roundup WeatherMax 22 fl oz/A (13 May)
Post-emergence – Roundup WeatherMax 22 fl oz/A (28 May, 8 Jul)
8. Fertilization: 7-0-40 300 lb/A (1 May)
ENC Ele-max 1.0 qt/A (28 May)
Liquid Nitrogen 24% 30 gal/A (8 Jul)
9. Insecticide: Orthene 75S 8 oz/A (28 May)
Besiege 13 fl oz/A (12 Aug)
10. Growth regulator: Pentia 6 fl oz/A (8 Jul)
11. Defoliant/boll opener: Finish 6 Pro 1 qt + FreeFall SC 3 fl oz/A (19 Oct)
12. Harvest date: 27 Nov

Table 30. Effect of seed treatments on emergence, vigor, and thrips injury in cotton.

Treatment and rate (as indicated)[1]	Plants/ft[2] 29 May	Plants/ft[2] 17 Jun	Vigor (0-10)[3] (2 Jun)	Thrips injury (0-5)[4] (5 Jun)
Gaucho 600FS 0.375 mg ai/seed	1.8 a	1.7 ab	8.5	1.2 a
Gaucho 600FS 0.375 mg ai/seed	1.7 a-c	1.8 ab	7.5	0.8 b
Gaucho 600FS 0.375 mg + Fluopyram 600FS 0.25 mg ai/seed	1.6 bc	1.6 bc	8.3	0.8 b
Aeris Seed Applied System 0.75 mg ai/seed	1.8 a	1.7 ab	8.3	0.7 b
Aeris Seed Applied System 0.75 mg + Fluopyram 600FS 0.2 mg ai/seed	1.8 ab	1.8 ab	8.0	0.8 b
Gaucho 600FS 0.375 mg + Poncho Votivo 2nd Generation 0.424 mg ai/seed	1.5 c	1.6 ab	7.8	0.8 b
Gaucho 600FS 0.375 mg + Poncho Votivo 2nd Generation 0.424 mg + Fluopyram 600FS 0.2 mg ai/seed	1.6 bc	1.6 ab	7.5	0.8 b
Gaucho 600FS 0.375 mg + Fluopyram 600FS 0.2 mg ai/seed	1.8 a	1.8 ab	8.3	0.7 b
Aeris Seed Applied System 0.75 mg + Fluopyram 600FS 0.2 mg ai/seed	1.6 c	1.4 c	8.0	0.8 b
Gaucho 600FS 0.375 mg + Poncho Votivo 2nd Generation 0.424 mg + Fluopyram 600FS 0.2 mg ai/seed	1.8 ab	1.8 a	7.5	0.8 b
P(F)	**.008**	**.02**	.06	**.0001**

[1] All treatments received Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg +Proline 480SC 5 g + Evergol Prime 5 g ai/100kg as a base seed treatment. Treatments were applied by personnel with Bayer CropSciences. Seed was planted 14 May.

[2] Determined from counts of two, 30-ft rows per plot.

[3] Vigor index rating scale: 10 = 100% vigor, 0 = no vigor.

[4] Thrips injury rating scale: 0 = no damage, 5 = dead plants.

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

Table 31. Effect of seed treatments on mid-season nematode populations in cotton.

Treatment and rate (as indicated)[1]	Nematodes/500 cc soil (29 Jun)[2]	
	Spiral	Lance
Gaucho 600FS 0.375 mg ai/seed	120	0
Gaucho 600FS 0.375 mg ai/seed	240	120
Gaucho 600FS 0.375 mg + Fluopyram 600FS 0.25 mg ai/seed	60	80
Aeris Seed Applied System 0.75 mg ai/seed	180	220
Aeris Seed Applied System 0.75 mg + Fluopyram 600FS 0.2 mg ai/seed	380	60
Gaucho 600FS 0.375 mg + Poncho Votivo 2nd Generation 0.424 mg ai/seed	300	120
Gaucho 600FS 0.375 mg + Poncho Votivo 2nd Generation 0.424 mg + Fluopyram 600FS 0.2 mg ai/seed	140	180
Gaucho 600FS 0.375 mg + Fluopyram 600FS 0.2 mg ai/seed	80	20
Aeris Seed Applied System 0.75 mg + Fluopyram 600FS 0.2 mg ai/seed	60	0
Gaucho 600FS 0.375 mg + Poncho Votivo 2nd Generation 0.424 mg + Fluopyram 600FS 0.2 mg ai/seed	160	180

[1] All treatments received Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg +Proline 480SC 5 g + Evergol Prime 5 g ai/100kg as a base seed treatment. Treatments were applied by personnel with Bayer CropSciences. Seed was planted 14 May.

[2] Soil was sampled on 29 Jun. Data are counts of nematodes in a composite sample taken 4 reps of each treatment. No root-knot nematodes were detected.

Table 32. Effect of seed treatments on growth, root galling and flowering of cotton.

Treatment and rate (as indicated)[1]	Plant height (in.)[2] (29 Jun)	Root galling[3] (21 Jul)	Flowers /12 ft[4] (29 Jul)
Gaucho 600FS 0.375 mg ai/seed	17.3 b-d	1.3	28.0
Gaucho 600FS 0.375 mg ai/seed	17.9 a-c	1.4	30.3
Gaucho 600FS 0.375 mg + Fluopyram 600FS 0.25 mg ai/seed	17.4 b-d	1.8	28.5
Aeris Seed Applied System 0.75 mg ai/seed	18.2 ab	1.6	28.5
Aeris Seed Applied System 0.75 mg + Fluopyram 600FS 0.2 mg ai/seed	18.7 a	1.8	29.3
Gaucho 600FS 0.375 mg + Poncho Votivo 2nd Generation 0.424 mg ai/seed	16.9 cd	1.3	30.8
Gaucho 600FS 0.375 mg + Poncho Votivo 2nd Generation 0.424 mg + Fluopyram 600FS 0.2 mg ai/seed	16.8 d	1.5	27.0
Gaucho 600FS 0.375 mg + Fluopyram 600FS 0.2 mg ai/seed	17.9 a-c	1.4	29.0
Aeris Seed Applied System 0.75 mg + Fluopyram 600FS 0.2 mg ai/seed	18.1 ab	1.6	31.3
Gaucho 600FS 0.375 mg + Poncho Votivo 2nd Generation 0.424 mg + Fluopyram 600FS 0.2 mg ai/seed	17.7 a-d	1.9	29.5
P(F)	**.01**	.08	.97

[1] All treatments received Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg +Proline 480SC 5 g + Evergol Prime 5 g ai/100kg as a base seed treatment. Treatments were applied by personnel with Bayer CropSciences. Seed was planted 14 May.

[2] Determined from measurements of three randomly selected plants per each row of 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 systems with galls. Ratings were made on four randomly selected plants per plot.

[4] Determined from counts in a 6-ft section of each row per plot.

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

Table 33. Effect of seed treatments on maturity and yield of cotton.

Treatment and rate (as indicated)[1]	Open bolls /12 ft^2 (21 Sep)	Yield[3]	
		lb/A	bales/A
Gaucho 600FS 0.375 mg ai/seed	66.3	2574	2.3
Gaucho 600FS 0.375 mg ai/seed	62.5	2602	2.4
Gaucho 600FS 0.375 mg + Fluopyram 600FS 0.25 mg ai/seed	70.8	2562	2.3
Aeris Seed Applied System 0.75 mg ai/seed	70.5	2807	2.5
Aeris Seed Applied System 0.75 mg + Fluopyram 600FS 0.2 mg ai/seed	73.3	2650	2.4
Gaucho 600FS 0.375 mg + Poncho Votivo 2nd Generation 0.424 mg ai/seed	62.8	2925	2.6
Gaucho 600FS 0.375 mg + Poncho Votivo 2nd Generation 0.424 mg + Fluopyram 600FS 0.2 mg ai/seed	65.5	2741	2.5
Gaucho 600FS 0.375 mg + Fluopyram 600FS 0.2 mg ai/seed	70.8	2592	2.4
Aeris Seed Applied System 0.75 mg + Fluopyram 600FS 0.2 mg ai/seed	63.3	2520	2.3
Gaucho 600FS 0.375 mg + Poncho Votivo 2nd Generation 0.424 mg + Fluopyram 600FS 0.2 mg ai/seed	65.5	2532	2.3
P(F)	.54	.84	.86

[1] All treatments received Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg +Proline 480SC 5 g + Evergol Prime 5 g ai/100kg as a base seed treatment. Treatments were applied by personnel with Bayer CropSciences. Seed was planted 14 May.

[2] Determined from measurements of three randomly selected plants per each row of plot.

[3] 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 treatment. Plots were harvested on 27 Nov.

XII. COTTON SEED NEMATICIDE TEST (COTSEEDNEMA215, Morgan Farm, Suffolk, VA)

A. PURPOSE: To evaluate seed treatment and in-furrow nematicides for nematode control in cotton.

B. EXPERIMENTAL DESIGN:
1. Two, 30-ft rows per plot with 36-in. row spacing
2. Seeding rate of 3.5 seed/ft of row
3. Four randomized complete blocks separated by 8-ft alleyways

C. APPLICATION OF TREATMENTS: All treatments received Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg +Proline 480SC 5 g + Evergol Prime 5 g ai/100kg as a base seed treatment. F = in-furrow. Granular treatments were applied to the seed furrow with a Noble Box, and liquid in-furrow treatments were mixed in water and applied at a volume of 5 gal/A through a microtube to the seed furrow at planting. Seed treatments were applied by personnel with Bayer CropSciences.

D. SEED TREATMENT AND RATE (as indicated):
1. Gaucho 600FS 0.03 mg ai/seed
2. Aeris Seed Applied System 0.75 mg + Gaucho 600FS 0.03 mg ai/seed
3. Temik 15G 5 lb/A (F) + Gaucho 600FS 0.03 mg ai/seed
4. Velum Total 14 oz/A (F) + Gaucho 600FS 0.03 mg ai/seed
5. Velum Total 18 oz/A (F) + Gaucho 600FS 0.03 mg ai/seed
6. Aeris Seed Applied System 0.75 mg + Velum Total 14 oz/A (F) + Gaucho 600FS 0.03 mg ai/seed
7. Aeris Seed Applied System 0.75 mg ai/seed + Admire Pro Systemic 9 oz/A (F)

E. ADDITIONAL INFORMATION:
1. Location: Rick Morgan Farm, Deer Forest Rd., Suffolk, VA
2. Crop history: Continuous cotton since 2001
3. Land preparation: rip and strip till
4. Planting date: 14 May
5. Soil fertility report (Mar 2015):

pH	6.12	K.....	91 ppm
Ca.....	290 ppm	Zn	1 ppm
Mg.....	29 ppm	Mn	2.7 ppm
P	43 ppm	Soil type	Kenansville loamy fine sand

6. Nematode assay report (13 May):

Nematodes/500 cc soil	
Root knot	100
Lesion	20
Spiral.....	440
Stubby root	40

7. Herbicide Pre-emergence – Cotoran 4L 1.0 qt + Prowl H_2O 1.0 pt
+ Roundup WeatherMax 22 fl oz/A (13 May)
Post-emergence – Roundup WeatherMax 22 fl oz/A (28 May, 8 Jul)
8. Fertilization: 7-0-40 300 lb/A (1 May)
ENC Ele-max 1.0 qt/A (28 May)
Liquid Nitrogen 24% 30 gal/A (8 Jul)
9. Insecticide: Orthene 75S 8 oz/A (28 May)
Besiege 13 fl oz/A (12 Aug)
10. Growth regulator: Pentia 6 fl oz/A (8 Jul)
11. Defoliant/boll opener: Finish 6 Pro 1 qt + FreeFall SC 3 fl oz/A (19 Oct)
12. Harvest date: 27 Nov

Table 34. Effect of in-furrow and seed treatments on emergence, plant health, thrips injury, and growth in cotton.

Treatment and rate (as indicated)[1]	Plants/ft[2] 29 May	Plants/ft[2] 22 Jun	Vigor (0-10)[3] (2 Jun)	Thrips injury (0-5)[4] (5 Jun)	Plant height (in.)[5] (29 Jun)
Gaucho 600FS 0.03 mg ai/seed	2.4	2.4	8.3	1.4 a	15.5 c
Aeris Seed Applied System 0.75 mg + Gaucho 600FS 0.03 mg ai/seed	2.2	2.1	8.3	0.8 b	16.4 b
Temik 15G 5 lb/A (F) Gaucho 600FS 0.03 mg ai/seed	2.3	2.4	9.0	0.7 b	18.3 a
Velum Total 14 oz/A (F) Gaucho 600FS 0.03 mg ai/seed	2.3	2.2	8.0	0.6 b	16.2 bc
Velum Total 18 oz/A (F) Gaucho 600FS 0.03 mg ai/seed	2.2	2.1	8.5	0.8 b	16.1 bc
Velum Total 14 oz/A (F) Aeris Seed Applied System 0.75 mg + Gaucho 600FS 0.03 mg ai/seed	2.3	2.3	8.8	0.8 b	15.8 bc
Admire Pro Systemic 9 oz/A (F) Aeris Seed Applied System 0.75 mg ai/seed	2.1	2.1	8.3	0.7 b	15.8 bc
P(F)	.28	.17	.08	**.0001**	**.0001**

[1] All treatments received Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg + Proline 480SC 5 g + Evergol Prime 5 g ai/100kg as a base seed treatment. F = applied in seed furrow at planting. Seed treatments were applied by personnel with Bayer CropSciences. Seed was planted 14 May.

[2] Determined from counts of two, 30-ft rows per plot.

[3] Vigor index rating scale: 10 = 100% vigor, 0 = no vigor.

[4] Thrips injury rating scale: 0 = no damage, 5 = dead plants.

[5] Determined from measurements of three randomly selected plants per each row of plot.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 35. Effect of seed treatments on mid-season nematode populations in cotton.

Treatment and rate (as indicated)[1]	Nematodes/500 cc soil (30 Jun)[2] Root knot juvenile	Lesion	Stunt	Spiral	Lance	Stubby root
Gaucho 600FS 0.03 mg ai/seed	0	0	0	120	20	0
Aeris Seed Applied System 0.75 mg + Gaucho 600FS 0.03 mg ai/seed	0	0	0	240	20	0
Temik 15G 5 lb/A (F) Gaucho 600FS 0.03 mg ai/seed	0	0	0	160	60	0
Velum Total 14 oz/A (F) Gaucho 600FS 0.03 mg ai/seed	0	0	0	300	0	0
Velum Total 18 oz/A (F) Gaucho 600FS 0.03 mg ai/seed	0	0	0	240	80	0
Velum Total 14 oz/A (F) Aeris Seed Applied System 0.75 mg + Gaucho 600FS 0.03 mg ai/seed	0	0	0	60	0	0
Admire Pro Systemic 9 oz/A (F) Aeris Seed Applied System 0.75 mg ai/seed	0	0	0	80	0	0

[1] All treatments received Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg + Proline 480SC 5 g + Evergol Prime 5 g ai/100kg as a base seed treatment. F = applied in seed furrow at planting. Seed treatments were applied by personnel with Bayer CropSciences. Seed was planted 14 May.

[2] Soil was sampled on 30 Jun. Data are counts of nematodes in a composite sample taken 4 reps of each treatment.

Table 36. Effect of in-furrow and seed treatments on root galling, flowering, maturity, and yield of cotton.

Treatment and rate (as indicated)[1]	Root galling[2] (22 Jul)	Flowers /12 ft[3] (29 Jul)	Open bolls /12 ft[3] (21 Sep)	Yield[4]	
				lb/A	bales/A
Gaucho 600FS 0.03 mg ai/seed	1.9 ab	21.3	110.5 b	2475	2.3
Aeris Seed Applied System 0.75 mg + Gaucho 600FS 0.03 mg ai/seed	1.8 b	27.0	116.3 b	2729	2.5
Temik 15G 5 lb/A (F) Gaucho 600FS 0.03 mg ai/seed	1.1 c	22.8	132.3 a	2517	2.3
Velum Total 14 oz/A (F) Gaucho 600FS 0.03 mg ai/seed	1.8 b	22.3	111.8 b	2493	2.3
Velum Total 18 oz/A (F) Gaucho 600FS 0.03 mg ai/seed	1.2 c	24.0	112.8 b	2765	2.6
Velum Total 14 oz/A (F) Aeris Seed Applied System 0.75 mg + Gaucho 600FS 0.03 mg ai/seed	1.9 b	23.3	110.0 b	2523	2.3
Admire Pro Systemic 9 oz/A (F) Aeris Seed Applied System 0.75 mg ai/seed	2.4 a	25.0	115.3 b	2547	2.4
P(F)	**.0001**	.10	**.003**	.93	.90

[1] All treatments received Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg + Proline 480SC 5 g + Evergol Prime 5 g ai/100kg as a base seed treatment. F = applied in seed furrow at planting. Seed treatments were applied by personnel with Bayer CropSciences. Seed was planted 14 May.

[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 systems with galls. Ratings were made on four randomly selected plants per plot.

[3] Determined from counts in a 6-ft section of each row 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 treatment. Plots were harvested on 27 Nov.

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

XIII. COTTON SEED NEMATICIDE TEST (COTSEEDNEMA315, Tidewater Research Farm, Field 16A)

A. PURPOSE: To evaluate seed treatment and in-furrow nematicides for nematode control in cotton.

B. EXPERIMENTAL DESIGN:
1. Two, 30-ft rows per plot with 36-in. row spacing
2. Seeding rate of 3.5 seed/ft of row
3. Four randomized complete blocks separated by 8-ft alleyways

C. APPLICATION OF TREATMENTS: All treatments received Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg +Proline 480SC 5 g + Evergol Prime 5 g ai/100kg as a base seed treatment. (F) Granular treatments were applied to the seed furrow with a Noble Box, and liquid in-furrow treatments were mixed in water and applied at a volume of 5 gal/A through a microtube to the seed furrow at planting.

D. SEED TREATMENT AND RATE (as indicated):
1. Gaucho 600FS 0.03 mg ai/seed
2. Aeris Seed Applied System 0.75 mg + Gaucho 600FS 0.03 mg ai/seed
3. Temik 15G 5 lb/A (F)
   Gaucho 600FS 0.03 mg ai/seed
4. Velum Total 14 oz/A (F)
   Gaucho 600FS 0.03 mg ai/seed
5. Velum Total 18 oz/A (F)
   Gaucho 600FS 0.03 mg ai/seed
6. Velum Total 14 oz/A (F)
   Aeris Seed Applied System 0.75 mg + Gaucho 600FS 0.03 mg ai/seed
7. Admire Pro Systemic 9 oz/A (F)
   Aeris Seed Applied System 0.75 mg ai/seed

E. ADDITIONAL INFORMATION:
1. Location: Tidewater AREC Research Farm, Hare Rd., Suffolk, VA
2. Crop history: Peanut 2014, corn 2013, cotton 2012
3. Land preparation: strip till (25 Apr)
4. Planting date: 4 May
5. Soil fertility report (9 Jan 2015):

pH	5.7	K.....	65 ppm
Ca.....	481 ppm	Zn	0.4 ppm
Mg.....	36 ppm	Mn	1.5 ppm
P	69 ppm	Soil type	Kenansville loamy fine sand

6. Nematode assay report (13 May):

Nematodes/500 cc soil	
Root knot	100
Spiral.....	20
Ring	200

7. Herbicide Pre-plant – 2,4-D 1.5 pt/A (19 Mar)
   Pre-emergence – Cotoran 4L 1.0 qt + Prowl 1.0 pt/A (5 May)
   Post-emergence – Roundup WeatherMax 22 fl oz/A (19 May, 12 Jun, 22 Jul)
8. Fertilization: AgLime 1,000 lb/A (5 Mar)
   6-16-40 247 lb/A (23 Apr)
   24-0-0-3 40 units + 1.0 qt boron/A (20 Jun, 2 Jul)
9. Insecticide: Orthene 75S 8 oz/A (19 May, 2 Jun)
   Bifenture EC 6.4 fl oz/A (22 Jul)
   Beseige 13 fl oz + Bifenture EC 6.4 fl oz/A (13 Aug)

10. Growth regulator: Pentia 8 oz/A (2 Jul); 12 fl oz/A (22 Jul)
11. Defoliant/boll opener: Finish 1.0 qt + FreeFall 3 fl oz/A (11 Sep)
12. Harvest date: 24 Sep

Table 37. Effect of in-furrow and seed treatments on emergence, plant health, and thrips injury in cotton.

	Plants/ft[2]		Vigor rating (0-10)[3]	Thrips injury[4]	
Treatment and rate (as indicated)[1]	**26 May**	**17 Jun**	**(26 May)**	**27 May**	**8 Jun**
Gaucho 600FS 0.03 mg ai/seed	1.8	1.9	7.3	3.4 a	1.0 a
Aeris Seed Applied System 0.75 mg + Gaucho 600FS 0.03 mg ai/seed	1.8	1.8	8.0	1.9 b	0.4 b
Temik 15G 5 lb/A (F) Gaucho 600FS 0.03 mg ai/seed	1.8	1.8	8.3	0.8 c	0.3 b
Velum Total 14 oz/A (F) Gaucho 600FS 0.03 mg ai/seed	1.9	1.9	8.3	0.7 cd	0.4 b
Velum Total 18 oz/A (F) Gaucho 600FS 0.03 mg ai/seed	1.8	1.8	8.5	0.5 cd	0.4 b
Velum Total 14 oz/A Aeris Seed Applied System 0.75 mg + Gaucho 600FS 0.03 mg ai/seed	1.8	1.7	8.5	0.6 cd	0.5 b
Admire Pro Systemic 9 oz/A Aeris Seed Applied System 0.75 mg ai/seed	1.7	1.7	8.3	0.5 d	0.3 b
P(F)	.90	.83	.18	**.0001**	**.02**

[1] All treatments received Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg +Proline 480SC 5 g + Evergol Prime 5 g ai/100kg as a base seed treatment. F = applied in seed furrow at planting. Seed treatments were applied by personnel with Bayer CropSciences. Seed was planted 4 May.

[2] Determined from counts of two, 30-ft rows per plot.

[3] Vigor rating scale: 10 = 100% vigor, 0 = no vigor.

[4] Thrips injury rating scale: 0 = no damage, 5 = dead plants.

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

Table 38. Early season nematode populations in cotton.

Treatment and rate (as indicated)[1]	Nematodes/500 cc soil (30 Jun)[2]					
	Root knot juvenile	Lesion	Stunt	Spiral	Ring	Stubby root
Gaucho 600FS 0.03 mg ai/seed	0	0	0	0	140	0
Aeris Seed Applied System 0.75 mg + Gaucho 600FS 0.03 mg ai/seed	0	0	0	0	40	0
Temik 15G 5 lb/A (F) Gaucho 600FS 0.03 mg ai/seed	0	0	20	40	80	0
Velum Total 14 oz/A (F) Gaucho 600FS 0.03 mg ai/seed	0	0	0	0	80	0
Velum Total 18 oz/A (F) Gaucho 600FS 0.03 mg ai/seed	0	0	20	0	80	0
Velum Total 14 oz/A Aeris Seed Applied System 0.75 mg + Gaucho 600FS 0.03 mg ai/seed	0	0	0	20	100	0
Admire Pro Systemic 9 oz/A Aeris Seed Applied System 0.75 mg ai/seed	0	0	40	0	100	0

[1] All treatments received Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg +Proline 480SC 5 g + Evergol Prime 5 g ai/100kg as a base seed treatment. F = applied in seed furrow at planting. Seed treatments were applied by personnel with Bayer CropSciences. Seed was planted 4 May.

[2] Soil was sampled on 30 Jun. Data are counts of nematodes in a composite sample taken from 4 reps of each treatment.

Table 39. Effect of in-furrow and seed treatments on growth, root galling, flowering, earliness and yield of cotton.

Treatment and rate (as indicated)[1]	Plant height (in.)[2] (17 Jun)	Root galling[3] (2 Jul)	Flowers /12 ft[4] (9 Jul)	Open bolls /12 ft[4] (4 Sep)	Yield[5]	
					lb/A	bales/A
Gaucho 600FS 0.03 mg ai/seed	12.4	0.5	12.3	84.3	2009	2.0
Aeris Seed Applied System 0.75 mg + Gaucho 600FS 0.03 mg ai/seed	13.7	0.4	10.8	84.5	2148	2.1
Temik 15G 5 lb/A (F) Gaucho 600FS 0.03 mg ai/seed	13.4	0.4	12.8	80.8	2196	2.1
Velum Total 14 oz/A (F) Gaucho 600FS 0.03 mg ai/seed	13.5	0.6	13.0	89.8	2096	2.0
Velum Total 18 oz/A (F) Gaucho 600FS 0.03 mg ai/seed	13.2	0.6	10.3	83.0	1930	1.9
Velum Total 14 oz/A Aeris Seed Applied System 0.75 mg + Gaucho 600FS 0.03 mg ai/seed	13.0	0.6	8.0	80.5	1933	1.9
Admire Pro Systemic 9 oz/A Aeris Seed Applied System 0.75 mg ai/seed	13.1	0.4	9.5	77.8	2015	2.0
P(F)	.06	.74	.25	.65	.36	.39

[1] All treatments received Spera 54.8 ml + Allegiance FL 48.9 ml ai/100 kg +Proline 480SC 5 g + Evergol Prime 5 g ai/100kg as a base seed treatment. F = applied in seed furrow at planting. Seed treatments were applied by personnel with Bayer CropSciences. Seed was planted 4 May.

[2] Determined from measurements of 3 randomly selected plants per each row of 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 systems with galls. Ratings were made on four randomly selected plants per plot.

[4] Determined from counts in a 6-ft section of each row per plot.

[5] 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 treatment. Plots were harvested on 24 Sep.

XIV. EVALUATION OF COTTON VARIETIES FOR SOUTHERN ROOT-KNOT NEMATODE RESISTANCE AND TOLERANCE (COTVARNEMA115, Morgan Farm, Suffolk, VA)

A. PURPOSE: To evaluate cotton varieties for resistance/tolerance to southern root-knot nematode.

B. EXPERIMENTAL DESIGN:
1. Split-plot design with four randomized complete blocks separated by 8-ft alleyways
2. Main plots of varieties and treatments in subplots
3. Two, 30-ft rows per subplot at 36-in. row spacing
4. Seeding rate of three seed/ft of row

C. APPLICATION OF TREATMENTS: (F) Granular treatments were applied to the seed furrow with a Noble Box at planting.

D. VARIETY
1. FM1944 GLB2
2. ST4946 GLB2
3. PHY333 WRF
4. PHY339 WRF
5. PHY367 WRF
6. PHY427 WRF
7. PHY487 WRF
8. PHY495 WRF
9. PHY499 WRF
10. DG2285 B2RF
11. NG1511 B2RF
12. DP1028 B2RF

E. TREATMENT:
1. Untreated
2. Temik 15G 5 lb/A (F)

F. ADDITIONAL INFORMATION:
1. Location: Rick Morgan Farm, Deer Forest Rd., Suffolk, VA
2. Crop history: Continuous cotton since 2001
3. Land preparation: rip and strip till (9 May)
4. Planting date: 14 May
5. Soil fertility report (Mar 2014):

pH	6.12	K.....	91 ppm
Ca.....	290 ppm	Zn	1 ppm
Mg.....	29 ppm	Mn	2.7 ppm
P	43 ppm	Soil type	Kenansville loamy fine sand

6. Nematode assay report (13 May):

Nematodes/500 cc soil	
Root knot	20
Spiral.....	1740
Stubby root	20

7. Herbicide Pre-emergence – Cotoran 4L 1.0 qt + Prowl H_2O 1.0 pt
+ Roundup WeatherMax 22 fl oz/A (13 May)
Post-emergence – Roundup WeatherMax 22 fl oz/A (28 May, 8 Jul)
8. Fertilization: 7-0-40 300 lb/A (1 May)
ENC Ele-max 1.0 qt/A (28 May)
Nitrogen 24% 30 gal/A (8 Jul)

9. Insecticide: Orthene 75S 8 oz/A (28 May)
   Besiege 13 fl oz/A (12 Aug)
10. Growth regulator: Pentia 6 fl oz/A (8 Jul)
11. Defoliant/boll opener: Finish 6 Pro 1.0 qt + FreeFall SC 3 fl oz/A (19 Oct)
12. Harvest date: 27 Nov

Table 40. Emergence, vigor, growth, flowering, and root galling of cotton varieties.

Variety, treatment and rate/A[1]	Plants/ft[2]		Vigor (0-10)[3]	Plant height (in.)[4]	Root galling[5]
	29 May	10 Jun	(2 Jun)	(23 Jun)	(17 Jul)
***Split-plot analysis, P*(F)**					
Variety	**.0001**	**.0001**	**.0001**	.55	.44
Treatment	.11	**.04**	**.0001**	**.0001**	**.0001**
Variety x treatment	.74	.50	.08	**.0001**	.14
Variety mean					
FM1944 GLB2	2.6 e	2.6 d	7.9 de	14.9	1.4
ST4946 GLB2	2.0 f	2.0 e	8.1 de	15.1	1.1
PHY333 WRF	2.7 de	2.7 cd	8.8 bc	15.8	1.2
PHY339 WRF	2.9 cd	2.9 c	8.3 cd	15.9	0.9
PHY367 WRF	3.2 b	3.2 b	8.0 de	15.3	0.9
PHY427 WRF	3.6 a	3.7 a	9.1 ab	16.0	1.0
PHY487 WRF	3.7 a	3.7 a	9.5 a	16.3	0.9
PHY495 WRF	3.1 bc	3.2 b	9.3 ab	16.1	1.3
PHY499 WRF	3.7 a	3.7 a	9.3 ab	16.0	0.9
DG2285 B2RF	2.2 f	2.2 e	7.6 e	15.8	1.2
NG1511 B2RF	2.9 cd	2.8 cd	7.9 de	16.4	1.0
DP1028 B2RF	3.5 a	3.5 a	9.1 ab	15.5	0.8
Treatment mean					
Untreated	3.0	3.1 a	8.3 b	15.4 b	1.3 a
Temik 15G 5 lb/A (F)	3.0	3.0 a	8.9 a	16.1 a	0.8 b
FM1944 GLB2					
Untreated	2.6	2.7	7.8	14.4 b	1.6
Temik 15G 5 lb/A (F)	2.6	2.6	8.0	15.3 a	1.2
ST4946 GLB2					
Untreated	2.1	2.0	8.0	15.5	1.3
Temik 15G 5 lb/A (F)	2.0	2.0	8.3	14.7	0.9
PHY333 WRF					
Untreated	2.8	2.9	9.0	15.8	1.4 a
Temik 15G 5 lb/A (F)	2.6	2.6	8.5	15.8	0.9 b
PHY339 WRF					
Untreated	3.0	3.0	7.8	15.0 b	1.1
Temik 15G 5 lb/A (F)	2.8	3.8	8.8	16.7 a	0.7
PHY367 WRF					
Untreated	3.3	3.3	7.5	14.6 b	1.3 a
Temik 15G 5 lb/A (F)	3.1	3.2	8.5	15.9 a	0.6 b
PHY427 WRF					
Untreated	3.7	3.7	8.5 b	15.8	1.4 a
Temik 15G 5 lb/A (F)	3.5	3.6	9.8 a	16.2	0.6 b
PHY487 WRF					
Untreated	3.7	3.7	9.3	16.2	1.1 a
Temik 15G 5 lb/A (F)	3.6	3.6	9.8	16.3	0.7 b
PHY495 WRF					
Untreated	3.2	3.2	9.0	15.4 b	1.6 a
Temik 15G 5 lb/A (F)	3.1	3.1	9.5	16.7 a	1.1 b
PHY499 WRF					
Untreated	3.5	3.6	8.5 b	15.4 b	1.3 a
Temik 15G 5 lb/A (F)	3.8	3.8	10.0 a	16.6 a	0.6 b
DG2285 B2RF					
Untreated	2.1	2.1	7.5	14.9 b	1.3
Temik 15G 5 lb/A (F)	2.2	2.2	7.8	16.6 a	1.1
NG1511 B2RF					
Untreated	3.0	3.0	7.5	16.1 b	1.2
Temik 15G 5 lb/A (F)	2.8	2.7	8.3	16.7 a	0.9
DP1028 B2RF					
Untreated	3.6 a	3.6 a	8.8	15.1	0.8
Temik 15G 5 lb/A (F)	2.5 b	3.4 b	9.5	15.9	0.8

[1]F = in-furrow (14 May). [2]Determined from counts of two, 30-ft rows per plot. [3]Vigor index rating scale: 10 = 100% vigor, 0 = no vigor. [4]Measurements of three, randomly selected plants in each plot. [5]Rating scale: 0=none, 1=1-10%, 2=11-25%, 3=26-50%, 4=51-75%, 5=76-90%, 6=91-100% of root systems with galls. Ratings were made on four randomly selected plants per plot. Means within a column and group followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (P=0.05).

Table 41. Nematode reproduction of cotton varieties.

Variety, treatment and rate/A[1]	Nematodes/500 cc soil (10 Jul)[2]						
	Root knot juvenile	Cyst	Lesion	Stunt	Spiral	Lance	Stubby root
***Split-plot analysis, P*(F)**							
Variety	.96	.82	.51	.98	.39	.59	.84
Treatment	.34	.35	.10	.74	.68	.49	**.0001**
Variety x treatment	.52	.69	.46	.35	.90	.50	.92
Variety mean							
FM1944 GLB2	128	5	8	33	233	550	70
ST4946 GLB2	50	0	15	55	428	1460	103
PHY333 WRF	53	0	0	73	390	747	100
PHY339 WRF	33	5	3	60	240	1663	188
PHY367 WRF	65	3	8	38	458	900	133
PHY427 WRF	88	5	0	35	398	903	143
PHY487 WRF	35	3	13	65	673	3208	155
PHY495 WRF	175	0	10	58	420	3058	170
PHY499 WRF	75	5	10	53	415	1713	145
DG2285 B2RF	18	0	13	38	633	1400	178
NG1511 B2RF	50	0	15	13	458	1108	165
DP1028 B2RF	50	13	5	30	288	1228	173
Treatment mean							
Untreated	84	3	10	43	410	1428	190 a
Temik 15G 5 lb/A (F)	52	4	6	48	429	1563	96 b
FM1944 GLB2							
Untreated	155	10	15	40	220	295	95
Temik 15G 5 lb/A (F)	100	0	0	25	245	805	45
ST4946 GLB2		.39					
Untreated	60	0	25	40	460	995	140
Temik 15G 5 lb/A (F)	40	0	5	70	395	1925	65
PHY333 WRF							
Untreated	45	0	0	60	370	705	130
Temik 15G 5 lb/A (F)	60	0	0	85	410	790	70
PHY339 WRF							
Untreated	45	0	0	60	190	1400	225
Temik 15G 5 lb/A (F)	20	10	5	60	290	1925	150
PHY367 WRF							
Untreated	90	0	10	60	530	1085	165
Temik 15G 5 lb/A (F)	40	5	5	15	385	715	100
PHY427 WRF							
Untreated	65	0	0	40	440	980	215
Temik 15G 5 lb/A (F)	110	10	0	30	355	825	70
PHY487 WRF							
Untreated	15	0	20	35	735	3840 a	200
Temik 15G 5 lb/A (F)	55	5	5.0	950	610	2575 b	110
PHY495 WRF							
Untreated	295	0	10	35	280	2295	235
Temik 15G 5 lb/A (F)	55	0	10	80	560	3822	105
PHY499 WRF							
Untreated	105	5	10	65	435	2115	225
Temik 15G 5 lb/A (F)	45	5	10	40	395	1310	65
DG2285 B2RF							
Untreated	15	0	5	30	610	1110 b	250
Temik 15G 5 lb/A (F)	20	0	20	45	655	1690 a	105
NG1511 B2RF							
Untreated	70	0	20	25	395	920	190 a
Temik 15G 5 lb/A (F)	30	0	10	0	520	1295	140 b
DP1028 B2RF							
Untreated	50	15	10	35	250	1380	215
Temik 15G 5 lb/A (F)	50	10	0	25	325	1075	130

[1]F = in-furrow (14 May). Soil was sampled on 10 Jul. Data are the mean counts of nematodes in a sample from four reps of each treatment/variety combination. Square root transformation of population data was made in analysis to determine statistical significance. Means within a column and group followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 42. Flowering, maturity, and yield of cotton.

Variety, treatment and rate/A[1]	Flowers /12 ft[2] (30 Jul)	Open bolls /12 ft[2] (22 Sep)	Yield[3]	
			lb/A	bales/A
***Split-plot analysis, P*(F)**				
Variety	.42	**.03**	**.01**	**.003**
Treatment	.62	.08	.33	.27
Variety x treatment	.44	.66	.50	.34
Variety mean				
FM1944 GLB2	26.4	86.3d	2583 bc	2.3c
ST4946 GLB2	27.6	86.5d	2479 c	2.3c
PHY333 WRF	28.5	111.6ab	2766 ab	2.6b
PHY339 WRF	28.6	116.9a	2909 a	2.7ab
PHY367 WRF	28.8	118.6a	2414 cd	2.2c
PHY427 WRF	26.9	100.9bc	2331 cd	2.1c
PHY487 WRF	27.6	108.5ab	2934 a	2.8ab
PHY495 WRF	27.3	86.0d	2943 a	2.8a
PHY499 WRF	22.4	90.6cd	3025 a	2.9a
DG2285 B2RF	26.5	106.1ab	2388 cd	2.3c
NG1511 B2RF	26.5	100.9bc	2166 d	2.1c
DP1028 B2RF	23.5	90.5cd	2959 a	2.9a
Treatment mean				
Untreated	26.9	97.8	2632	2.5
Temik 15G 5 lb/A (F)	26.6	102.8	2684	2.5
FM1944 GLB2				
Untreated	26.5	83.3	2611	2.3
Temik 15G 5 lb/A (F)	26.3	89.3	2556	2.3
ST4946 GLB2				
Untreated	28.3	88.8	2329	2.1
Temik 15G 5 lb/A (F)	27.0	84.3	2629	2.4
PHY333 WRF				
Untreated	28.8	117.0	2883	2.7
Temik 15G 5 lb/A (F)	28.3	106.3	2650	2.5
PHY339 WRF				
Untreated	28.5	114.0	2965	2.7
Temik 15G 5 lb/A (F)	28.8	119.8	2853	2.6
PHY367 WRF				
Untreated	28.0	119.8	2426	2.2
Temik 15G 5 lb/A (F)	29.5	117.5	2402	2.2
PHY427 WRF				
Untreated	29.3	97.3	2438	2.2
Temik 15G 5 lb/A (F)	24.5	104.5	2223	2.0
PHY487 WRF				
Untreated	28.8	106.3	2901	2.7
Temik 15G 5 lb/A (F)	26.5	110.8	2968	2.9
PHY495 WRF				
Untreated	27.0	80.0	2841	2.8
Temik 15G 5 lb/A (F)	27.5	92.0	3046	2.9
PHY499 WRF				
Untreated	22.0	81.0	2958	2.9
Temik 15G 5 lb/A (F)	22.8	100.3	3092	2.9
DG2285 B2RF				
Untreated	25.3	101.3	2242	2.1
Temik 15G 5 lb/A (F)	27.8	111.0	2535	2.4
NG1511 B2RF				
Untreated	25.5	93.5	2078	2.1
Temik 15G 5 lb/A (F)	27.5	108.3	2254	2.2
DP1028 B2RF				
Untreated	24.5	91.0	2910	2.9
Temik 15G 5 lb/A (F)	22.5	90.0	3007	2.9

[1]F = in-furrow (14 May). [2]Determined from counts in a 6-ft section of each row per plot. [3]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 27 Nov. Means within a column and group followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

XV. NEMATODE CONTROL AND YIELD RESPONSE OF COTTON VARIETIES WITH SEED TREATMENT AND IN-FURROW NEMATICIDES (COTVARNEMA215, Morgan Farm, Suffolk, VA)

A. PURPOSE: To compare the efficacy and benefits of seed treatment and in-furrow nematicides for control of southern root-knot nematode and yield response in cotton.

B. EXPERIMENTAL DESIGN:
1. Split-plot design with four randomized complete blocks separated by 8-ft alleyways
2. Main plots of varieties and treatments in subplots
3. Two, 30-ft rows per subplot at 36-in. row spacing and seeding rate of three seed/ft of row

C. APPLICATION OF TREATMENTS: (S) Seed treatments were applied by personnel with Bayer CropScience. (F) Granular treatments were applied to the seed furrow with a Noble Box, and liquid in-furrow treatments were mixed in water and applied at a volume of 5 gal/A through a microtube to the seed furrow at planting.

D. VARIETY (Main plots):
1. ST4946 GLB2 (root-knot nematode tolerant)
2. FM1944 GLB2 (root-knot nematode susceptible)

E. TREATMENT, RATE AND APPLICATION METHOD (Sub-plots): F=in furrow, S=seed treatment.
1. Gaucho 600FS 0.5 mg ai/seed (S)
2. Temik 15G 5 lb/A (F)
3. Velum Total 14 fl oz/A (F)
   + Aeris SAS 0.75 mg ai/seed (S)
4. Aeris SAS 0.75 mg ai/seed (S)
5. Gaucho 600FS 0.375 mg + Fluopyram 600FS 0.25 mg ai/seed (S)

F. ADDITIONAL INFORMATION:
1. Location: Rick Morgan Farm, Deer Forest Rd., Suffolk, VA
2. Crop history: Continuous cotton since 2001
3. Land preparation: rip and strip till (9 May)
4. Planting date: 14 May
5. Soil fertility report (Mar 2014):

pH	6.12	K.....	91 ppm
Ca.....	290 ppm	Zn	1 ppm
Mg.....	29 ppm	Mn	2.7 ppm
P	43 ppm	Soil type	Kenansville loamy fine sand

6. Nematode assay report (13 May):

Nematodes/500 cc soil	
Root knot	60
Spiral.....	1720
Lance	40
Stubby root	60

7. Herbicide Pre-emergence – Cotoran 4L 1.0 qt + Prowl H_2O 1.0 pt
   + Roundup WeatherMax 22 fl oz/A (13 May)
   Post-emergence – Roundup WeatherMax 22 fl oz/A (28 May, 8 Jul)
8. Fertilization: 7-0-40 300 lb/A (1 May)
   ENC Ele-max 1.0 qt/A (28 May)
   Nitrogen 24% 30 gal/A (8 Jul)
9. Insecticide: Orthene 75S 8 oz/A (28 May)

Besiege 13 fl oz/A (12 Aug)

10. Growth regulator: Pentia 6 fl oz/A (8 Jul)
11. Defoliant/boll opener: Finish 6 Pro 1.0 qt + FreeFall SC 3 fl oz/A (19 Sep)
12. Harvest date: 27 Nov

Table 43. Effect of treatments on emergence, plant health, growth, and root galling of cotton.

Variety, treatment, rate and application method/timing[1]	Plants/ft[2]		Vigor (0-10)[3] (2 Jun)	Plant height (in.)[4] (22 Jun)	Root galling[5] (22 Jul)
	29 May	10 Jun			
***Split-plot analysis, P*(F)**					
Variety	**.004**	**.005**	.33	.71	.21
Treatment	.31	.38	**.001**	**.0001**	**.0001**
Variety x treatment	.13	.14	.37	.12	.21
Variety mean					
ST4946 GLB2	1.9 b	1.9 b	7.8	11.9	1.7
FM1944 GLB2	2.3 a	2.3 a	8.1	11.8	1.5
Treatment mean					
Gaucho 600FS 0.375 mg ai/seed (S)	2.0	2.1	7.1 b	11.2 b	2.3 a
Temik 15G 5 lb/A (F)	2.2	2.2	8.5 a	13.8 a	1.0 d
Velum Total 14 fl oz/A (F) + Aeris SAS 0.75 mg ai/seed (S)	2.1	2.1	8.4 a	11.5 b	1.4 c
Aeris SAS 0.75 mg ai/seed (S)	2.1	2.1	8.3 a	11.5 b	1.9 b
Gaucho 600FS 0.375 mg + Fluopyram 600FS 0.25 mg ai/seed(S)	2.0	2.0	7.4 b	11.1 b	1.4 c
ST4946 GLB2					
Gaucho 600FS 0.375 mg ai/seed (S)	1.9	1.9	6.8	11.2 b	2.3 a
Temik 15G 5 lb/A (F)	1.8	1.8	8.0	13.5 a	1.1 c
Velum Total 14 fl oz/A (F) + Aeris SAS 0.75 mg ai/seed (S)	1.9	2.0	8.3	11.7 b	1.6 b
Aeris SAS 0.75 mg ai/seed (S)	1.8	1.9	8.3	12.1 b	1.9 b
Gaucho 600FS 0.375 mg + Fluopyram 600FS 0.25 mg ai/seed(S)	1.8	1.9	7.5	11.1 b	1.6 b
FM1944 GLB2					
Gaucho 600FS 0.375 mg ai/seed (S)	2.2 bc	2.2 bc	7.5 bc	11.3 b	2.3 a
Temik 15G 5 lb/A (F)	2.5 a	2.6 a	9.0 a	14.2 a	0.9 b
Velum Total 14 fl oz/A (F) + Aeris SAS 0.75 mg ai/seed (S)	2.3 bc	2.3 bc	8.5 a	11.3 b	1.3 b
Aeris SAS 0.75 mg ai/seed (S)	2.4 ab	2.4 ab	8.3 ab	10.9 b	2.0 a
Gaucho 600FS 0.375 mg + Fluopyram 600FS 0.25 mg ai/seed(S)	2.1 c	2.2 c	7.3 c	11.2 b	1.1 b

[1] S=seed treatment, F=in furrow (14 May) Vortex FL 2.5 g + Allegiance FL 15.6 g + Spera 27 g + Evergol Prime 5 g ai/cwt as a base fungicide treatment was applied to all seed. Seed treatments were applied by personnel with Bayer CropScience.

[2] Determined from counts of two, 30-ft rows per plot.

[3] Vigor index rating scale: 10 = 100% vigor, 0 = no vigor.

[4] Measurements of three, randomly selected plants in each row per plot.

[5] Rating scale: 0=none, 1=1-10%, 2=11-25%, 3=26-50%, 4=51-75%, 5=76-90%, 6=91-100% of root systems with galls. Ratings were made on four randomly selected plants per plot.

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

Table 44. Effect of variety and fungicide treatment on mid-season nematode populations in cotton.

Variety, treatment, rate and application method/timing[1]	Nematodes/500 cc soil (29 Jun)[2]						
	Root knot	Cyst	Lesion	Stunt	Spiral	Lance	Stubby root
***Split-plot analysis, P*(F)**							
Variety	.05	.06	.08	.69	.80	.21	.90
Treatment	.51	.59	.35	.70	.72	.12	.40
Variety x treatment	**.03**	.93	.37	.21	.26	.21	.66
Variety mean							
ST4946 GLB2	23	3	2	9	356	30	227
FM1944 GLB2	35	29	7	13	414	173	206
Treatment mean							
Gaucho 600FS 0.375 mg ai/seed (S)	28	0	3	10	400	25	230
Temik 15G 5 lb/A (F)	50	3	3	10	268	38	160
Velum Total 14 fl oz/A (F) + Aeris SAS 0.75 mg ai/seed (S)	8	13	8	18	333	35	223
Aeris SAS 0.75 mg ai/seed (S)	33	45	10	3	508	60	303
Gaucho 600FS 0.375 mg + Fluopyram 600FS 0.25 mg ai/seed(S)	28	20	0	15	418	350	168
ST4946 GLB2							
Gaucho 600FS 0.375 mg ai/seed (S)	0	0	0	20	215	20	175
Temik 15G 5 lb/A (F)	20	0	5	15	355	20	195
Velum Total 14 fl oz/A (F) + Aeris SAS 0.75 mg ai/seed (S)	5	5	0	10	390	10	335
Aeris SAS 0.75 mg ai/seed (S)	45	5	5	0	505	55	275
Gaucho 600FS 0.375 mg + Fluopyram 600FS 0.25 mg ai/seed(S)	45	5	0	0	315	45	155
P(F)	.13	.79	.61	.34	.48	.26	.98
FM1944 GLB2							
Gaucho 600FS 0.375 mg ai/seed (S)	55	0	5	0	585	30	285
Temik 15G 5 lb/A (F)	80	5	0	5	180	55	125
Velum Total 14 fl oz/A (F) + Aeris SAS 0.75 mg ai/seed (S)	10	20	15	25	275	60	110
Aeris SAS 0.75 mg ai/seed (S)	20	85	15	5	510	65	330
Gaucho 600FS 0.375 mg + Fluopyram 600FS 0.25 mg ai/seed(S)	10	35	0	30	520	655	180
P(F)	.17	.76	.32	.47	.44	.18	.10

[1] S=seed treatment, F=in furrow (14 May) Vortex FL 2.5 g + Allegiance FL 15.6 g + Spera 27 g + Evergol Prime 5 g ai/cwt as a base fungicide treatment was applied to all seed. Seed treatments were applied by personnel with Bayer CropScience.

2 Soil was sampled on 29 Jun. Data are the mean counts of nematodes in a sample from four reps of each treatment/variety combination. Square root transformation of population data was made in analysis to determine statistical significance.

Table 45. Effect of treatments on flowering, maturity, and yield of cotton.

Variety, treatment, rate and application method/timing[1]	Flowers /12 ft^2 (29 Jul)	Open bolls /12 ft^2 (21 Sep)	Yield[3]	
			lb/A	bales/A
***Split-plot analysis, P*(F)**				
Variety	.55	**.02**	.84	.70
Treatment	.95	**.01**	.12	.11
Variety x treatment	.85	.44	.77	.77
Variety mean				
ST4946 GLB2	26.4	70.8 b	2466	2.3
FM1944 GLB2	28.0	87.3 a	2524	2.4
Treatment mean				
Gaucho 600FS 0.375 mg ai/seed (S)	26.4	67.1 c	2493	2.3
Temik 15G 5 lb/A (F)	27.3	89.8 a	2603	2.4
Velum Total 14 fl oz/A (F) + Aeris SAS 0.75 mg ai/seed (S)	27.3	83.4 ab	2682	2.5
Aeris SAS 0.75 mg ai/seed (S)	27.9	80.1 ab	2360	2.2
Gaucho 600FS 0.375 mg + Fluopyram 600FS 0.25 mg ai/seed(S)	27.3	74.8 bc	2337	2.2
ST4946 GLB2				
Gaucho 600FS 0.375 mg ai/seed (S)	24.8	57.5	2438	2.2
Temik 15G 5 lb/A (F)	25.8	75.3	2602	2.4
Velum Total 14 fl oz/A (F) + Aeris SAS 0.75 mg ai/seed (S)	26.8	79.8	2605	2.4
Aeris SAS 0.75 mg ai/seed (S)	28.0	73.8	2441	2.2
Gaucho 600FS 0.375 mg + Fluopyram 600FS 0.25 mg ai/seed(S)	26.8	67.8	2245	2.1
FM1944 GLB2				
Gaucho 600FS 0.375 mg ai/seed (S)	28.0	76.8	2547	2.4
Temik 15G 5 lb/A (F)	28.8	104.3	2605	2.4
Velum Total 14 fl oz/A (F) + Aeris SAS 0.75 mg ai/seed (S)	27.8	87.0	2759	2.5
Aeris SAS 0.75 mg ai/seed (S)	27.8	86.5	2278	2.1
Gaucho 600FS 0.375 mg + Fluopyram 600FS 0.25 mg ai/seed(S)	27.8	81.8	2429	2.3

[1] S=seed treatment, F=in furrow (14 May) Vortex FL 2.5 g + Allegiance FL 15.6 g + Spera 27 g + Evergol Prime 5 g ai/cwt as a base fungicide treatment was applied to all seed. Seed treatments were applied by personnel with Bayer CropScience.

[2] Determined from counts in a 6-ft section of each row per plot.

[3] 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 treatment. Plots were harvested on 27 Nov.
Means within a column and group followed by the same letter(s) are not significantly different at *P*=0.05 according to Fisher's Protected LSD.

XVI. COTTON INCORPORATED REGIONAL TARGET SPOT FUNGICIDE EVALUATION TEST (COTFOLFUN115, Tidewater Research Farm, Field 34B)

A. PURPOSE: To evaluate the effectiveness of single and two application programs of selected registered and candidate fungicides on two cotton varieties for the control of target spot and yield response.

B. EXPERIMENTAL DESIGN:
1. Four randomized complete blocks separated by 10 ft alleyways
2. Full-factorial design with treatments in four, 30-ft rows per plot
3. Data collected from the two, center rows
4. Seeding rate of 3.5 seed/ft of row

C. APPLICATION OF TREATMENTS: Foliar treatments were applied at 1st bloom + 5 weeks (10 Aug) and 1st bloom + 7 weeks (24 Aug) with a Lee Spider Sprayer having 8002VS nozzles spaced 18 inches apart and delivering 19.88 gal/A.

D. VARIETY, TREATMENT, RATE/A AND APPLICATION TIMING:

PHY499

1. Untreated check (no single application)
2. Headline SC 6 fl oz (1st bloom + 5 wks)
3. Topguard 7 fl oz (1st bloom + 5 wks)
4. Priaxor SC 4 fl oz (1st bloom + 5 wks)
5. Quadris 2.08SC 6 fl oz (1st bloom + 5 wks)
6. Untreated check (no two applications)
7. Headline SC 6 fl oz (1st bloom + 5 wks, 1st bloom + 7 wks)
8. Topguard 7 fl oz (1st bloom + 5 wks, 1st bloom + 7 wks)
9. Priaxor SC 4 fl oz (1st bloom + 5 wks, 1st bloom + 7 wks)
10. Quadris 2.08SC 6 fl oz (1st bloom + 5 wks, 1st bloom + 7 wks)

DP1137

11. Untreated check (no single application)
12. Headline SC 6 fl oz (1st bloom + 5 wks)
13. Topguard 7 fl oz (1st bloom + 5 wks)
14. Priaxor SC 4 fl oz (1st bloom + 5 wks)
15. Quadris 2.08SC 6 fl oz (1st bloom + 5 wks)
16. Untreated check (no two applications)
17. Headline SC 6 fl oz (1st bloom + 5 wks, 1st bloom + 7 wks)
18. Topguard 7 fl oz (1st bloom + 5 wks, 1st bloom + 7 wks)
19. Priaxor SC 4 fl oz (1st bloom + 5 wks, 1st bloom + 7 wks)
20. Quadris 208SC 6 fl oz (1st bloom + 5 wks, 1st bloom + 7 wks)

E. ADDITIONAL INFORMATION:
1. Location: Tidewater AREC Research Farm, Hare Rd., Suffolk, VA
2. Crop history: Cotton 2014, corn 2013, peanut 2012
3. Land preparation: strip till 25 Apr
4. Planting date and variety: 6 May, ST4747 GLB2
5. Soil fertility report (9 Jan 2015):

pH	6.4	Mn	2.8 ppm
Ca.....	522 ppm	K.....	137 ppm
Mg.....	56 ppm	Zn	0.4 ppm
P	63 ppm	Soil type	Kenansville loamy fine sand

6. Herbicide Pre-plant – 2,4-D 1.5 pt/A (19 Mar)
   Pre-emergence – Cotoran 4L 1.0 qt + Prowl H_2O 1.0 pt/A (5 May)
   Post-emergence – Roundup WeatherMax 22 fl oz/A (19 May, 12 Jun, 22 Jul)
7. Fertilization: 6-16-40 247 lb/A (23 Apr)
   ENC Ele-max 1.0 qt/A (2 Jun)
   24-0-0-3 40 units + Traco Liquid Boron 1.0 qt/A (20 Jun, 2 Jul)
   Potash 60 units/A (23 Jun)
8. Insecticide: Orthene 75S 8 oz/A (19 May, 2 Jun)
   Bifenture EC 6.4 fl oz/A (22 Jul)
   Beseige 13 fl oz + Bifenture EC 6.4 fl oz/A (13 Aug)
9. Growth regulator: Pentia 8 fl oz/A (2 Jul); 12 fl oz/A (22 Jul)
10. Defoliant/boll opener: Finish Pro 6 1.0 qt + FreeFall 3.0 fl oz/A (8 Oct)
11. Harvest date: 30 Oct

Table 46. Impact of variety, fungicide chemistry, and fungicide application timing on foliar disease in cotton.

Variety, fungicide, rate/A and timing[1]	% incidence[2]	% severity[3]	% defoliation[4]
PHY499			
Untreated check (no single application)	82.5	6.3	82.5
Headline SC 6 fl oz (5 weeks after 1st bloom)	70.0	3.3	70.0
Topguard 7 fl oz (5 weeks after 1st bloom)	72.5	3.5	72.5
Priaxor SC 4 fl oz (5 weeks after 1st bloom)	71.2	3.5	71.3
Quadris 2.08SC 6 fl oz (5 weeks after 1st bloom)	80.0	5.0	80.0
Untreated check (no two applications)	80.0	5.5	80.0
Headline SC 6 fl oz (5 weeks after 1st bloom + 7 weeks after 1st bloom)	72.5	2.8	72.5
Topguard 7 fl oz (5 weeks after 1st bloom + 7 weeks after 1st bloom)	72.5	3.8	72.5
Priaxor SC 4 fl oz (5 weeks after 1st bloom + 7 weeks after 1st bloom)	70.0	3.0	70.0
Quadris 208SC 6 fl oz (5 weeks after 1st bloom + 7 weeks after 1st bloom)	75.0	4.0	75.0
DP1137			
Untreated check (no single application)	77.5	4.5	15.0
Headline SC 6 fl oz (5 weeks after 1st bloom)	67.5	2.8	13.8
Topguard 7 fl oz (5 weeks after 1st bloom)	71.2	3.8	13.8
Priaxor SC 4 fl oz (5 weeks after 1st bloom)	70.0	3.0	13.8
Quadris 2.08SC 6 fl oz (5 weeks after 1st bloom)	72.5	3.5	10.0
Untreated check (no two applications)	75.0	4.3	15.0
Headline SC 6 fl oz (5 weeks after 1st bloom + 7 weeks after 1st bloom)	62.5	2.3	11.3
Topguard 7 fl oz (5 weeks after 1st bloom + 7 weeks after 1st bloom)	70.0	3.3	16.3
Priaxor SC 4 fl oz (5 weeks after 1st bloom + 7 weeks after 1st bloom)	60.0	2.0	12.5
Quadris 208SC 6 fl oz (5 weeks after 1st bloom + 7 weeks after 1st bloom)	72.5	3.8	13.8
Factorial analysis, *P*(F)			
Fungicide (F)	**0.002**	**0.0002**	**0.04**
Timing (T)	0.12	0.08	0.57
Variety (V)	**0.01**	**0.01**	0.17
T*V	0.42	0.84	1.00
T*F	0.85	0.94	0.70
V*F	0.90	0.48	0.07
F*T*V	0.59	0.68	0.37
Variety Means			
PHY499	74.6 a	4.1 a	14.8
DP1137	69.9 b	3.3 b	13.5
Fungicide Means			
Untreated check	78.8 a	5.1 a	17.2 a
Headline SC 6 fl oz	68.1 b	2.8 c	12.8 b
Topguard 7 fl oz	71.6 ab	3.6 bc	13.4 ab
Priaxor SC 4 fl oz	67.8 b	2.9 c	13.1 ab
Quadris 208SC 6 fl oz	75.0 ab	4.1 ab	14.1 ab

[1]The first foliar application was made at 5 weeks after first bloom on 10 Aug; the second application was made on 24 Aug. [2]Incidence was evaluated as the percentage of total leaves with at least one lesion. No *Corynespora* target spot was present. Leaf pathogens included *Stemphylium*, *Alternaria*, *Cercospora*, and *Colletotricum*. [3]Severity was evaluated as the percentage of total leaf area with target spot lesions. [4]Defoliation was evaluated as the percentage of the total canopy defoliated. Means in a column followed by the same letter(s) are not significantly different according to Tukey HSD (P=0.05).

Table 47. Impact of variety, fungicide chemistry, and fungicide application timing on cotton yield.

Variety, fungicide, rate/A and timing[1]	Seed yield, lb/A[2]	Ginned turn-out, %[3]	Lint yield, lb/A[4]
PHY499			
Untreated check (no single application)	1695	47.0	796
Headline SC 6 fl oz (5 weeks after 1st bloom)	1542	44.4	682
Topguard 7 fl oz (5 weeks after 1st bloom)	1653	44.0	724
Priaxor SC 4 fl oz (5 weeks after 1st bloom)	1810	44.8	809
Quadris 2.08SC 6 fl oz (5 weeks after 1st bloom)	1692	47.5	803
Untreated check (no two applications)	1573	45.8	721
Headline SC 6 fl oz (5 weeks after 1st bloom + 7 weeks after 1st bloom)	1586	44.6	716
Topguard 7 fl oz (5 weeks after 1st bloom + 7 weeks after 1st bloom)	1914	46.8	896
Priaxor SC 4 fl oz (5 weeks after 1st bloom + 7 weeks after 1st bloom)	1456	46.6	680
Quadris 208SC 6 fl oz (5 weeks after 1st bloom + 7 weeks after 1st bloom)	1622	47.1	761
DP1137			
Untreated check (no single application)	1596	45.0	710
Headline SC 6 fl oz (5 weeks after 1st bloom)	1429	46.6	666
Topguard 7 fl oz (5 weeks after 1st bloom)	1529	43.4	663
Priaxor SC 4 fl oz (5 weeks after 1st bloom)	1581	45.6	722
Quadris 2.08SC 6 fl oz (5 weeks after 1st bloom)	1739	42.4	735
Untreated check (no two applications)	1499	43.6	648
Headline SC 6 fl oz (5 weeks after 1st bloom + 7 weeks after 1st bloom)	1637	44.6	729
Topguard 7 fl oz (5 weeks after 1st bloom + 7 weeks after 1st bloom)	1602	44.6	715
Priaxor SC 4 fl oz (5 weeks after 1st bloom + 7 weeks after 1st bloom)	1836	44.9	822
Quadris 208SC 6 fl oz (5 weeks after 1st bloom + 7 weeks after 1st bloom)	1499	46.3	695
Factorial analysis, *P*(F)			
Fungicide (F)	0.63	0.86	0.59
Timing (T)	0.94	0.53	0.79
Variety (V)	0.31	0.08	0.08
T*V	0.47	0.71	0.57
T*F	0.34	0.38	0.22
V*F	0.64	0.35	0.40
F*T*V	0.22	0.44	0.37
Variety Means			
PHY499	1654	45.9	759
DP1137	1594	44.7	711
Fungicide Means			
Untreated check	1591	45.3	719
Headline SC 6 fl oz	1549	45.1	698
Topguard 7 fl oz	1675	44.7	749
Priaxor SC 4 fl oz	1671	45.5	758
Quadris 208SC 6 fl oz	1638	45.8	749

[1]The first foliar application was made at 5 weeks after first bloom on 10 Aug; the second application was made on 24 Aug. [2]Seed yield (lb/A) includes lint + seed. [3]Percent lint turn-out following ginning. [4]Lint yield following ginning. Lint weight was determined by ginning samples of seed cotton from each treatment. Plots were harvested on 30 Oct. Means in a column followed by the same letter(s) are not significantly different according to Tukey HSD (P=0.05).

XVII. EVALUATION OF FUNGICIDES AND TIMINGS FOR CONTROL OF FOLIAR DISEASE IN COTTON (COTFOLFUN215, Tidewater AREC, Field 46A)

A. PURPOSE: To evaluate fungicide chemistries and application timings for disease control and yield response in cotton.

B. EXPERIMENTAL DESIGN:
1. Four randomized complete blocks separated by 10 ft alleyways
2. Four, 30-ft rows per plot
3. Data collected from the two, center rows
4. Seeding rate of 3.5 seed/ft of row

C. APPLICATION OF TREATMENTS: The first foliar fungicide application was made 21 days after first bloom (DAB) on 29 Jul; the second application was made 15 days later (36 DAB) on 13 Aug. All treatments were applied with a Lee Spider Sprayer having 8002VS nozzles spaced 18 inches apart and delivering 19.88 gal/A.

D. TREATMENT AND RATE/A:
1. Untreated check
2. Headline 2.08SC 6 fl oz (21 DAB)
3. Twinline EC 8.5 fl oz (21 DAB)
4. Priaxor SC 4 fl oz (21 DAB)
5. Headline 2.08SC 6 fl oz (21 DAB)
   Headline 2.08SC 6 fl oz (36 DAB)
6. Twinline EC 8.5 fl oz (21 DAB)
   Twinline EC 8.5 fl oz (36 DAB)
7. Priaxor SC 4 fl oz (21 DAB)
   Priaxor SC 4 fl oz (36 DAB)
8. Headline 2.08SC 6 fl oz (36 DAB)
9. Twinline EC 8.5 fl oz (36 DAB)
10. Priaxor SC 4 fl oz (36 DAB)

E. ADDITIONAL INFORMATION:
1. Location: Tidewater Agricultural Research and Extension Center, Holland Rd., Suffolk, VA
2. Crop history: Peanut 2014, corn 2013, cotton 2012
3. Land preparation: strip till (5 May)
4. Planting date and variety: 6 May, PHY499 WRF
5. Soil fertility report (9 Jan 2015) :

pH.....	5.8	K	163 ppm
Ca	901 ppm	Zn.....	0.4 ppm
Mg	65 ppm	Mn.....	1.8 ppm
P.....	57 ppm	Soil type.....	Nansemond fine sandy loam

6. Herbicide Pre-plant – 2,4-D 1.5 pt/A (19 Mar)
   Roundup WeatherMax 24 fl oz/A (23 Apr)
   Pre-emergence – Cotoran 4L 1.0 qt + Prowl H_2O 1.0 pt/A (7 May)
   Post-emergence – Roundup WeatherMax 22 fl oz/A (19 May, 12 Jun, 22 Jul)
7. Fertilization: AgLime 1,500 lb/A (5 Mar)
   6-16-40 247 lb/A (16 Apr)
   24-0-0-3 40 units + Traco Liquid Boron 1.0 qt/A (20 Jun, 2 Jul)

8. Insecticide: Orthene 75S 8 oz/A (19 May); 12 ozA (2 Jun, 12 Jun)
   Bifenture EC 6.4 fl oz/A (22 Jul)
   Besiege 13 fl oz + Bifenture EC 6.4 fl oz/A (13 Aug)
9. Growth regulator: Pentia 10 fl oz/A (2 Jul); 12 fl oz/A (22 Jul)
10. Defoliant/boll opener: Finish 6 Pro 1.0 qt + FreeFall SC 3 fl oz/A (14 Oct)
11. Harvest date: 30 Oct

Table 48. Effect of treatments on disease incidence, severity, defoliation, and yield of cotton.

Treatment, rate/A and application date[1]	% disease[2]		% defoliation[3] (8 Sep)	Yield[4]	
	Incidence (8 Sep)	Severity (8 Sep)		lb/A	bales/A
Untreated check	72.5	7.0	11.3	4032	3.9
Headline 2.08SC 6 fl oz (7/29)	75.0	6.3	13.8	3896	3.8
Twinline EC 8.5 fl oz (7/29)	68.8	4.0	11.3	4123	4.0
Priaxor SC 4 fl oz (7/29)	70.0	5.8	12.5	3969	3.9
Headline 2.08SC 6 fl oz (7/29) Headline 2.08SC 6 fl oz (8/13)	60.0	4.8	12.5	3642	3.7
Twinline EC 8.5 fl oz (7/29) Twinline EC 8.5 fl oz (8/13)	65.0	3.5	10.0	4262	4.2
Priaxor SC 4 fl oz (7/29) Priaxor SC 4 fl oz (8/13)	62.5	4.0	11.3	4105	3.9
Headline 2.08SC 6 fl oz (8/13)	62.5	4.0	10.0	4265	4.2
Twinline EC 8.5 fl oz (8/13)	70.0	4.8	10.0	4226	4.1
Priaxor SC 4 fl oz (8/13)	62.5	4.0	10.0	3966	3.8
P(F)	.39	.62	.69	.94	.96

[1] The first fungicide application (29 Jul) was made 21 days after first bloom; the second application (13 Aug) was made 15 days later.

[2] Leaf spot complex (*Cercospora*, *Stemphylium*, *Alternaria*, etc.). Trace amount of Corynespora target spot was also observed on 8 Sep. Plots were rated on 22 Aug for disease; none observed. Incidence = % leaves with one or more lesions. Severity = % leaf area with lesions.

[3] Percent canopy defoliated.

[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 treatment. Plots were harvested on 30 Oct.
Percentage data were arcsine transformed prior to statistical analysis.

XVIII. EVALUATION OF FUNGICIDES AND TIMINGS FOR CONTROL OF FOLIAR DISEASE IN COTTON (COTFOLFUN315, Tidewater AREC, Field 46A)

A. PURPOSE: To evaluate fungicide chemistries and application timings for disease control and yield response in cotton.

B. EXPERIMENTAL DESIGN:
1. Four randomized complete blocks separated by 10 ft alleyways
2. Four, 30-ft rows per plot
3. Data collected from the two, center rows
4. Seeding rate of 3.5 seed/ft of row

C. APPLICATION OF TREATMENTS: The first foliar fungicide application was made 21 days after first bloom (DAB) on 29 Jul; the second application was made 30 days later on 28 Aug. All treatments were applied with a Lee Spider Sprayer having 8002VS nozzles spaced 18 inches apart and delivering 19.88 gal/A. All treatments were applied with Induce (0.125% v/v).

D. TREATMENT AND RATE/A:
1. Untreated check
2. Headline 2.09SC 6 fl oz (2 applications 30d interval)
3. Quadris 2.08SC 6 fl oz (2 applications 30d interval)
4. Quadris TOP 2.71SC 9 fl oz (2 applications 30d interval)
5. Test compound A 6 fl oz (2 applications 30d interval)
6. Test compound A 6 fl oz
   + Pix 0.35 SL 3 fl oz (2 applications 30d interval)
7. Test compound A 7.7 fl oz (2 applications 30d interval)
8. Elatus 45WG 4.76 oz (2 applications 30d interval)
9. Elatus 45WG 4.76 oz
   + Pix 0.35 SL 3 fl oz (2 applications 30d interval)
10. Elatus 45WG 6 oz (2 applications 30d interval)
11. Test compound B 13.7 fl oz (2 applications 30d interval)
12. Pix 0.35 SL 3 fl oz (2 applications 30d interval)

E. ADDITIONAL INFORMATION:
1. Location: Tidewater Agricultural Research and Extension Center, Holland Rd., Suffolk, VA
2. Crop history: Peanut 2014, corn 2013, cotton 2012
3. Land preparation: strip till (5 May)
4. Planting date and cultivar: 6 May, PHY499 WRF
5. Soil fertility report (9 Jan 2015) :

pH.....	5.8	K	163 ppm
Ca	901 ppm	Zn.....	0.4 ppm
Mg	65 ppm	Mn.....	1.8 ppm
P.....	57 ppm	Soil type.....	Nansemond fine sandy loam

6. Herbicide Pre-plant – 2,4-D 1.5 pt/A (19 Mar)
   Roundup WeatherMax 24 fl oz/A (23 Apr)
   Pre-emergence – Cotoran 4L 1.0 qt + Prowl H_2O 1.0 pt/A (7 May)
   Post-emergence – Roundup WeatherMax 22 fl oz/A (19 May, 12 Jun, 22 Jul)
7. Fertilization: AgLime 1,500 lb/A (5 Mar)
   6-16-40 247 lb/A (16 Apr)
   24-0-0-3 40 units + Traco Liquid Boron 1.0 qt/A (20 Jun, 2 Jul)
8. Insecticide: Orthene 75S 8 oz/A (19 May); 12 ozA (2 Jun, 12 Jun)
   Bifenture EC 6.4 fl oz/A (22 Jul)
   Besiege 13 fl oz + Bifenture EC 6.4 fl oz/A (13 Aug)
9. Growth regulator: Pentia 10 fl oz/A (2 Jul); 12 fl oz/A (22 Jul)
10. Defoliant/boll opener: Finish 6 Pro 1.0 qt + FreeFall SC 3 fl oz/A (14 Oct)
11. Harvest date: 30 Oct

Table 49. Effect of treatments on disease incidence and severity, defoliation, and yield of cotton.

Treatment, rate/A[1]	% disease[2]		% defoliation[3]	Yield[4]	
	Incidence (14 Sep)	Severity (14 Sep)	(14 Sep)	lb/A	bales/A
Untreated check	82.5	10.0	13.8 a-c	3839	3.7
Headline 2.09EC 6 fl oz (7/29) Headline 2.09EC 6 fl oz (8/28)	82.5	8.8	16.3 ab	3763	3.6
Quadris 2.08SC 6 fl oz (7/29) Quadris 2.08SC 6 fl oz (8/28)	90.0	10.0	13.8 a-c	3564	3.5
Quadris TOP 2.71SC 9 fl oz (7/29) Quadris TOP 2.71SC 9 fl oz (8/28)	82.5	7.5	12.5 a-c	3657	3.6
TCA 6 fl oz (7/29) TCA 6 fl oz (8/28)	87.5	8.8	10.0 c	3981	3.9
TCA 6 fl oz + Pix 0.35 SL 3 fl oz (7/29) TCA 6 fl oz + Pix 0.35 SL 3 fl oz (8/28)	82.5	7.5	11.3 bc	3694	3.7
TCA 7.7 fl oz (7/29) TCA 7.7 fl oz (8/28)	80.0	6.3	10.0 c	3969	3.9
Elatus 45WG 4.76 oz (7/29) Elatus 45WG 4.76 oz (8/28)	85.0	7.5	17.5 a	3981	3.7
Elatus 45WG 4.76 oz + Pix 0.35 SL 3 fl oz (7/29) Elatus 45WG 4.76 oz + Pix 0.35 SL 3 fl oz (8/28)	80.0	7.5	13.8 a-c	3763	3.5
Elatus 45WG 6 oz (7/29) Elatus 45WG 6 oz (8/28)	77.5	7.5	16.3 ab	3830	3.6
TCB 13.7 fl oz (7/29) TCB 13.7 fl oz (8/28)	80.0	6.3	11.3 bc	3881	3.8
Pix 0.35 SL 3 fl oz (7/29) Pix 0.35 SL 3 fl oz (8/28)	80.0	6.3	10.0 c	3866	3.8
P(F)	.49	.36	**.04**	.96	.96

[1] The first fungicide application was made 21 days after first bloom on 29 Jul; the second application was made 30 days later on 28 Aug. All treatments were applied with Induce 0.125% v/v. TC_ = Test compound.

[2] Foliar pathogens included the leaf spot complex fungi in the following genera: *Stemphylium*, *Alternaria*, *Cercospora*, and *Colletotrichum*. A trace amount of Corynespora target spot was observed in the test plots on 14 Sep. Incidence = % leaves with one or more lesions. Severity = % leaf area with lesions.

[3] Percent canopy defoliated.

[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 treatment. Plots were harvested on 30 Oct.

Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05). Percentage data were arcsine transformed prior to statistical analysis.

XIX. PEANUT SEED TREATMENT TEST #1 (PSEED115, Tidewater Research Farm, Field 28)

A. PURPOSE: To evaluate seed treatments for disease control in peanut.

B. EXPERIMENTAL DESIGN:
1. Two, 35-ft rows per plot with 36-in. row spacing
2. Seeding rate of 4 seed/ft of row
3. Four randomized complete blocks separated by 8-ft alleyways

C. APPLICATION OF TREATMENTS: All treatments received Thimet 20G 5.5 oz/1000 row ft in-furrow at planting (13 May).

D. TREATMENT, INOCULUM, AND RATE: (S) = seed treatment (F) = in-furrow
1. Untreated
2. Untreated
+ Inoculum 0.35 ml/row ft (F)
3. Rancona V PD 4 fl oz/cwt (S)
+ Inoculum 0.35 ml/row ft (F)
4. Dynasty PD 4 fl oz/cwt (S)
+ Inoculum 0.35 ml/row ft (F)

E. INOCULUM: Inoculum was prepared in the Plant Pathology Lab at the Tidewater AREC using seed of white millet moistened with a 2:1 ratio of seed to distilled water and autoclaved twice. The seed was then inoculated with *Rhizoctonia solani* that was isolated from peanut and allowed to incubate at room temperature for 10 days. Subsequently, seed was dried at room temperature for 4 days and then screened to ensure uniform size. Inoculum was applied to the seed furrow at 0.35 ml/ft of row.

F. ADDITIONAL INFORMATION:
1. Location: Tidewater Research Farm, Hare Rd, Suffolk, VA
2. Crop history: Wheat/soybean 2014, peanut 2013, wheat/soybean 2012
3. Land preparation: rip and strip till (18 Apr)
4. Planting date and cultivar: 13 May, Bailey
5. Soil fertility report (9 Jan 2015):

pH	6.0	Mn	1.9 ppm
Ca.....	583 ppm	K.....	99 ppm
Mg.....	63 ppm	Zn	0.3 ppm
P.....	31 ppm	Soil type	Kenansville loamy fine sand

6. Leaf spot control: Provost 433SC 10.7 fl oz/A (13 Jul, 9 Aug, 27 Aug)
Bravo Weather Stik 1.5 pt/A (14 Sep)
7. Cylindrocladium black rot control: Proline 480 5.7 fl oz/A (13 May, in-furrow)
8. Sclerotinia control: Omega 500F 1.0 pt/A (22 Jul, 20 Aug)
9. Herbicide: Pre-plant – Prowl H_2O 1.0 pt + Dual II Magnum 1.0 pt + Strongarm 0.22 fl oz/A (2 May)
Pre-emergence – Dual II Magnum 1.0 pt + Roundup WeatherMax 22 fl oz + Strongarm 0.22 fl oz/A (10 May)
Post-emergence – Select Max 1.0 pt w/Induce 4 fl oz/A (17 Jun)
10. Insecticide: Thimet 20G 5.5 oz/1000 ft row (13 May, in-furrow)
Orthene 75S 8 oz/A (2 Jun)
11. Additional crop management:
a. Traco Liquid Boron 1.0 qt/A (2 May)
b. Landplaster: Peanut Maker 1200 lb/A (22 Jun)
c. Kickstand Xtra Manganese 1.0 qt/A (30 Jun, 9 Jul)
12. Harvest date: 15 Oct

Table 50. Effect of treatments on emergence and vigor in peanut.

Treatment, rate and application timing[1]	Plants/ft[2]		Vigor (0-10)[3]		% phyto-toxicity[4] (12 Jun)
	26 May	9 Jun	26 May	12 Jun	
Untreated	1.7 b	2.2 b	7.3 c	7.3 b	77.5
Untreated + Inoculum 0.35 ml/row ft (F)	1.6 b	2.0 b	6.5 d	7.3 b	72.5
Rancona V PD 4 fl oz/cwt (S) + Inoculum 0.35 ml/row ft (F)	2.6 a	2.9 a	9.3 a	8.5 a	57.5
Dynasty PD 4 fl oz/cwt (S) + Inoculum 0.35 ml/row ft (F)	2.4 a	3.0 a	8.5 b	8.8 a	52.5
P(F)	**.0001**	**.0001**	**.0001**	**.0008**	.052

[1] All treatments received Thimet 20G 5.5 oz/1000 ft row in-furrow (13 May).
[2] Determined from counts of two, 35-ft rows per plot.
[3] Vigor was rated on a 0-10 scale where 0 = no vigor (dead plants) and 10 = 100% vigor.
[4] Percent plants with phytotoxicity symptoms.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 51. Effect of treatments on disease incidence and severity in peanut.

Treatment, rate (as indicated) and application timing[1]	% leaf spot[2] (9 Sep)	Sclerotinia blight[3]		Yellow or dead[3]		Stem rot[3] (9 Sep)
		9 Sep	9 Oct	9 Sep	9 Oct	
Untreated	0.4	0.5	3.5	0.3 b	3.3 b	0.3
Untreated + Inoculum 0.35 ml/row ft (F)	0.4	0.0	3.3	1.3 a	6.0 a	0.8
Rancona V PD 4 fl oz/cwt (S) + Inoculum 0.35 ml/row ft (F)	0.3	0.5	2.5	0.0 b	5.0 ab	0.8
Dynasty PD 4 fl oz/cwt (S) + Inoculum 0.35 ml/row ft (F)	0.3	0.3	3.8	0.0 b	5.0 ab	0.3
P(F)	.84	.69	.97	**.003**	**.04**	.44

[1] All treatments received Thimet 20G 5.5 oz/1000 ft row in-furrow (13 May).
[2] Percentage of total leaflets with early or late leaf spot lesions.
[3] Counts of infection centers in the two center rows of each plot or a total of 70 ft row. An infection center was a point with symptoms and signs of a disease and included 6 in. on either side of that point.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 52. Effect of treatments on disease severity and yield in peanut.

Treatment, rate and application timing[1]	Root disease[2] (9 Oct)	Pod rot[3] (9 Oct)	Yield[4] (lb/A)
Untreated	2.5	2.5	5574
Untreated + Inoculum 0.35 ml/row ft (F)	2.3	2.0	5230
Rancona V PD 4 fl oz/cwt (S) + Inoculum 0.35 ml/row ft (F)	2.8	3.0	5551
Dynasty PD 4 fl oz/cwt (S) + Inoculum 0.35 ml/row ft (F)	2.3	2.8	5826
P(F)	.75	.37	.41

[1] All treatments received Thimet 20G 5.5 oz/1000 ft row in-furrow (13 May).
[2] Root disease includes Cylindrocladium black rot and Southern stem rot. Rating scale: 0 = none, 1 = 1-10%, 2 = 11-25%, 3 = 26-50%, 4 = 51-75%, 5 = 76-90%, 6 = 91-100% of roots decayed.
[3] Pod rot index: 0 = none, 1 = 1-10%, 2 = 11-25%, 3 = 26-50%, 4 = 51-75%, 5 = 76-90%, 6 = 91-100% of pods decayed.
[4] Yields are weight of peanuts with moisture content adjusted to 7%. Peanuts were dug 9 Oct and harvested 15 Oct.

XX. EVALUATION OF CULTIVAR RESISTANCE AND FUNGICIDES FOR DISEASE MANAGEMENT IN PEANUT (PVAR115, Tidewater AREC Research Farm, Field 34A)

A. PURPOSE: To assess the value of cultivar resistance and different fungicide programs in the management of foliar and soilborne diseases of peanut.

B. EXPERIMENTAL DESIGN:
1. Four randomized complete blocks separated by 10-ft alleys between blocks
2. Seeding rate of ca. 4 seed/ft of row
3. Split-plot design with treatments in sixteen-row, main plots and varieties in four-row, subplots.

C. APPLICATION OF TREATMENTS: In-furrow treatments (F) were applied to the two center rows of plots in a volume of 5 gal/A with a microtube to each seed furrow at planting on 7 May. Foliar sprays for leaf spot control were applied with three, $D_3$23 nozzles/row delivering 14.85 gal/A. The initial application was at R_3 (beginning pod, 13 Jul) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until beginning maturity (R_7). Whenever the Sclerotinia blight advisory (http://webipm.ento.vt.edu/cgi-bin/infonet1.cgi) called for a fungicide application, the fungicides in treatment list were applied according to the last effective spray date.

D. TREATMENT AND RATE/A:
1. Untreated
2. Provost 433SC 10.7 fl oz (R_3, 2nd, 3rd spray)
   Bravo Weather Stik 1.5 pt (4th spray)
3. Proline 480SC 5.7 fl oz (F)
   Provost 433SC 10.7 fl oz (R_3, 2nd, 3rd spray)
   Bravo Weather Stik 1.5 pt (4th spray)
4. Omega 500F 1.0 pt (advisory spray)
   Provost 433SC 10.7 fl oz (R_3, 2nd, 3rd spray)
   Bravo Weather Stik 1.5 pt (4th spray)

E. CULTIVAR:
1. Bailey
2. CHAMPS
3. Wynne
4. Sullivan

F. ADDITIONAL INFORMATION:
1. Location: Tidewater AREC Research Farm, Hare Rd., Suffolk, VA
2. Crop history: Corn 2014, cotton 2013, peanut 2012
3. Land preparation: rip and strip till (18 Apr)
4. Planting date: 7 May
5. Soil fertility report: (9 Jan 2015)

pH.....	5.6	K	169 ppm
Ca	378 ppm	Zn.....	0.7 ppm
Mg	43 ppm	Mn.....	2.8 ppm
P.....	136 ppm	Soil type.....	Kenansville loamy fine sand

6. Herbicide: Pre-plant – Prowl H_2O 1.0 pt + Dual II Magnum 1.0 pt + Strongarm 0.22 fl oz/A (2 May)
   Pre-emergence – Dual II Magnum 1.0 pt + Roundup WeatherMax 22 fl oz + Strongarm 0.22 fl oz/A (10 May)
   Post-emergence – Select Max 1.0 pt w/Induce 4 fl oz/A (17 Jun)
7. Insecticide: Admire Pro Systemic 550SC 9 fl oz/A (7 May, in-furrow)
   Orthene 97S 8.0 oz/A (2 Jun)

8. Additional crop management:
    a. Traco Liquid Boron 1.0 qt/A (2 May)
    b. Landplaster: Peanut Maker 1200 lbs/A (22 Jun)
    c. KickStand Xtra Manganese 4% 1 qt/A (30 Jun)
    d. Irrigation ca. 1": (27 Jul, 31 Jul, 1 Sep)
9. Harvest date: 14 Oct

Table 53. Effect of treatment and cultivar on emergence and disease incidence of peanut.

Cultivar, treatment, rate/A and application date[1]	Plants/ft[2] (19 May)	Sclerotinia blight[3] 23 Jul	Sclerotinia blight[3] 3 Aug	Sclerotinia blight[3] 10 Sep	Southern stem rot[3] 3 Aug	Southern stem rot[3] 10 Sep	CBR[3] 10 Sep
Split-plot analysis, P(F)							
Treatment	**.047**	.11	.79	.28	.44	.92	**.04**
Cultivar	**.01**	**.0001**	**.0001**	**.0001**	.08	**.04**	**.0001**
Treatment x cultivar	.41	.53	**.04**	.66	.06	.69	**.045**
Cultivar means							
Bailey	3.2 a	1.7 c	4.7 bc	2.0 b	0.2	1.2 ab	0.4 b
CHAMPS	3.1 ab	5.8 a	7.7 a	4.8 a	0.3	1.8 a	3.2 a
Wynne	2.9 c	3.3 b	5.1 b	4.4 a	0.6	1.9 a	0.8 b
Sullivan	3.0 b	1.8 bc	3.7 c	1.5 b	0.4	0.9 b	0.2 b
Bailey							
Untreated	3.0	2.8	4.5	2.8	0.3	1.3	0.5
Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	3.3	1.0	5.3	2.5	0.3	1.3	0.8
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	3.1	2.0	4.0	2.0	0.0	1.3	0.0
Omega 500F 1 pt (7/22, 8/20) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	3.3	1.0	5.0	0.8	0.3	1.0	0.3
CHAMPS							
Untreated	3.1	8.0	8.0	4.0	0.0	1.0	0.8
Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	3.0	2.3	8.0	4.3	0.8	2.3	3.5
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	3.1	7.5	8.0	7.0	0.0	1.8	3.5
Omega 500F 1 pt (7/22, 8/20) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	3.1	5.5	6.8	3.8	0.3	2.0	5.0
Wynne							
Untreated	2.8	3.8	4.0	4.5	0.3 b	2.5	0.3
Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	3.0	2.0	4.8	3.5	0.8 ab	1.5	1.0
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	2.8	5.0	6.5	6.0	1.0 a	1.8	0.5
Omega 500F 1 pt (7/22, 8/20) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	3.2	2.5	5.0	3.5	0.3 b	1.8	1.3
Sullivan							
Untreated	2.9	2.8	5.8 a	1.5	0.3	1.3	0.0
Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	3.2	1.5	2.0 b	2.5	0.3	0.3	0.0
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	2.9	2.3	5.0 a	1.8	0.3	1.0	0.0
Omega 500F 1 pt (7/22, 8/20) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	3.1	0.8	2.0 b	0.3	0.8	1.0	0.8

[1]F=in-furrow (7 May). Foliar fungicides were applied at R_3 (beginning pod, 13 Jul) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity). [2]Determined from counts of two, 35-ft rows per plot. [3]Counts of infection centers in the two center rows of each plot or a total of 70 ft row. An infection center was a point with symptoms and signs of a disease and included 6 in. on either side of that point. Means within a column and group followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (P=0.05).

Table 54. Effect of treatment and cultivar on disease incidence and severity of peanut.

Cultivar, treatment, rate/A and application date[1]	% leaf spot[2]				% defoliation[3]			
	13 Aug	**25 Aug**	**10 Sep**	**8 Oct**	**13 Aug**	**25 Aug**	**10 Sep**	**8 Oct**
Split-plot analysis, P(F)								
Treatment	.45	**.003**	**.0001**	.08	.60	**.02**	**.0001**	**.0001**
Cultivar	.11	**.02**	**.003**	.30	.55	.12	.09	**.0001**
Treatment x cultivar	**.01**	**.01**	.50	.58	.39	.06	.11	**.002**
Cultivar mean								
Bailey	4.9	12.6 b	18.5 b	96.3	0.1	1.0	3.9	38.6b
CHAMPS	8.4	19.4 a	22.1 a	94.1	0.1	2.0	6.3	61.4a
Wynne	5.9	13.0 b	20.6 ab	97.2	0.1	1.1	2.0	38.0b
Sullivan	5.0	12.8b	19.4 ab	97.2	0.2	1.1	3.8	34.6b
Bailey								
Untreated	6.3	42.5 a	70.0 a	96.8	0.1	2.4a	15.8a	94.5a
Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	6.3	2.0 b	1.5 b	97.3	0.1	0.5b	0.0b	26.3b
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	1.3	2.3 b	1.3 b	97.5	0.1	0.5b	0.0b	22.5bc
Omega 500F 1 pt (7/22, 8/20) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	6.0	3.8 b	1.3 b	93.8	0.1	0.5b	0.0b	11.3c
CHAMPS								
Untreated	20.5	68.8 a	81.3 a	86.8	0.1	6.4a	25.0a	97.0a
Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	4.5	4.8 b	3.3 b	97.0	0.1	0.5b	0.3b	67.5a
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	2.0	1.5 b	2.3 b	98.8	0.1	0.5b	0.0b	60.0ab
Omega 500F 1 pt (7/22, 8/20) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	6.6	2.5 b	1.8 b	93.8	0.1	0.5b	0.0b	21.3b
Wynne								
Untreated	3.5	44.3 a	76.3 a	98.0	0.1	3.0	8.0a	97.0a
Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	8.8	3.3 b	2.3 b	97.0	0.2	0.5	0.0b	17.5b
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	3.5	2.3 b	1.8 b	98.8	0.1	0.5	0.0b	23.8b
Omega 500F 1 pt (7/22, 8/20) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	8.0	2.3 b	2.0 b	95.0	0.1	0.5	0.0b	13.8b
Sullivan								
Untreated	7.5	45.5 a	73.8	98.0a	0.3	2.9	15.0	94.8a
Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	4.5	1.0 b	2.0	98.3a	0.1	0.5	0.0	21.3b
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	1.8	1.8 b	1.3	100.0a	0.1	0.5	0.0	13.8bc
Omega 500F 1 pt (7/22, 8/20) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	6.3	3.0 b	0.8	92.5b	0.1	0.5	0.0	8.8c

[1]F=in-furrow (7 May). Foliar fungicides were applied at R_3 (beginning pod, 13 Jul) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity). [2]Percentage of total leaflets with early or late leaf spot lesions. [3]Percentage of total canopy defoliated. Means within a column and group followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (P=0.05).

Table 55. Effect of treatment and cultivar on disease severity and yield of peanut.

Cultivar, treatment, rate/A and application date[1]	Root disease[2] (13 Oct)	Pod rot[3] (13 Oct)	Yield[4] (lb/A)
Split-plot analysis, P(F)			
Treatment	**.0004**	**.01**	**.0001**
Cultivar	**.0002**	**.001**	**.0001**
Treatment x cultivar	.34	.81	.08
Cultivar means			
Bailey	2.6 b	2.4 b	3800 a
CHAMPS	3.6 a	3.4 a	1504 c
Wynne	2.8 b	2.6 b	3281 b
Sullivan	2.4 b	2.2 b	3993 a
Bailey			
Untreated	3.0	3.0	1790 c
Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	2.5	2.5	3745 b
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	2.3	1.5	4492 ab
Omega 500F 1 pt (7/22, 8/20) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	2.5	2.5	5173 a
CHAMPS			
Untreated	4.0 a	3.8	460 c
Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	4.0 a	3.8	1589 b
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	3.0 b	3.0	1602 b
Omega 500F 1 pt (7/22, 8/20) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	3.3 b	3.0	2364 a
Wynne			
Untreated	3.5	3.3	1853 b
Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	2.3	2.5	3598 a
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	2.5	2.0	3658 a
Omega 500F 1 pt (7/22, 8/20) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	2.8	2.8	4017 a
Sullivan			
Untreated	3.5 a	3.3 a	2308 c
Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	2.8 ab	2.3 ab	3989 b
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	1.8 b	1.5 b	4800 ab
Omega 500F 1 pt (7/22, 8/20) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	1.8 b	1.8 b	4876 a

[1]F=in-furrow (7 May). Foliar fungicides were applied at R_3 (beginning pod, 13 Jul) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity). [2]Root disease includes Cylindrocladium black rot. Rating scale: 0 = none, 1=1-10%, 2=11-25%, 3=26-50%, 4=51-75%, 5=76-90%, 6=91-100% of roots decayed. [3]Pod rot index: 0 = none, 1=1-10%, 2=11-25%, 3=26-50%, 4=51-75%, 5=76-90%, 6=91-100% of pods decayed. [4]Yields are weight of peanuts with moisture content adjusted to 7%. Peanuts were dug 8 Oct and harvested 14 Oct. Means within a column and group followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 56. Effect of treatment and cultivar on grade characteristics of peanut.

Cultivar, treatment, rate/A and application date[1]	%[2]								Value (¢/lb)[3]	
	FM	LSK	FAN	ELK	SS	OK	DK	SMK	100%	comm -ercial
Split-plot analysis, P(F)										
Treatment	.67	**.01**	.19	**.01**	.25	.12	.95	.79	.25	.88
Cultivar	.28	**.002**	**.0001**	**.0001**	**.002**	**.0001**	**.0001**	**.001**	**.0001**	**.0001**
Treatment x cultivar	.83	.21	.74	.05	.67	**.02**	.61	.48	.30	.76
Cultivar means										
Bailey	7.9	3.5a	78.6c	52.5b	3.3a	1.2b	0.9c	70.6a	19.1a	18.9a
CHAMPS	7.7	3.9a	77.8c	46.7c	2.1b	1.9a	2.6a	67.3b	18.0c	17.4c
Wynne	6.7	3.6a	88.7a	55.6a	1.9b	1.1b	1.9b	69.7a	18.6b	18.3b
Sullivan	7.7	2.3b	84.8b	55.7a	2.8a	1.1b	1.1c	70.4a	19.0ab	18.9ab
Bailey										
Untreated	8.2	4.5a	74.0	47.9c	2.7	1.3	1.3	70.3	18.9c	18.6c
Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	7.0	3.1b	80.2	51.3bc	3.7	1.3	1.2	69.4	18.9bc	18.7c
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	7.4	2.6b	78.6	56.4a	3.7	0.9	0.6	71.4	19.5a	19.3a
Omega 500F 1 pt (7/22, 8/20) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	9.2	3.7ab	81.7	54.3ab	2.9	1.2	0.5	71.3	19.3ab	19.0ab
CHAMPS										
Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	6.6	4.8	77.2	39.4b	1.3	2.8a	2.1	65.6	17.3	17.0
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	7.5	3.7	79.3	50.3a	1.8	1.5b	2.7	68.7	18.3	17.5
Omega 500F 1 pt (7/22, 8/20) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	7.9	3.3	78.2	46.5ab	2.3	2.0ab	3.1	67.1	18.0	17.3
Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	8.6	3.6	76.6	50.7a	2.9	1.4b	2.6	68.0	18.4	17.7
Wynne										
Untreated	6.7	4.0	86.3	55.0	1.8	1.3	1.6	70.1	18.7	18.5
Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	7.2	2.9	88.7	56.3	2.1	0.9	1.5	70.6	18.9	18.6
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	5.6	4.7	91.8	56.1	1.8	1.1	2.5	68.9	18.4	17.8
Omega 500F 1 pt (7/22, 8/20) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	7.2	2.9	88.0	55.3	2.0	1.2	1.9	69.3	18.6	18.2
Sullivan										
Untreated	8.0	2.5	82.1	52.8	2.6	1.0	1.5	70.8	19.0	18.7
Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	8.2	2.9	85.1	57.0	3.1	1.2	0.9	70.7	19.2	18.9
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	6.7	1.9	85.3	58.3	2.5	1.1	0.9	70.9	19.1	18.9
Omega 500F 1 pt (7/22, 8/20) Provost 433SC 10.7 fl oz (7/13, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	7.9	2.0	86.7	54.7	3.1	1.2	1.1	69.4	18.8	18.6

[1]F=in-furrow (7 May). Foliar fungicides were applied at R_3 (beginning pod, 13 Jul) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity).[2]FM=foreign material, LSK=loose shelled kernels, FAN=large pods, ELK=extra-large kernels, SS=sound splits, OK=other kernels, DK=damaged kernels, SMK=sound mature kernels. [3]Value (¢/lb) represents the market value of peanuts based on the loan rate. The 100% column reports value without any deduction for segregation 2 peanuts. Commercial value includes the deduction for segregation 2 due to damaged kernels ≥ 2.5%; producers receive 35% of value for these peanuts. Means within a column and group followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

XXI. EVALUATION OF CULTIVAR RESISTANCE AND FUNGICIDES FOR DISEASE MANAGEMENT IN PEANUT (PVAR215, Tidewater AREC, Field 46B)

A. PURPOSE: To assess the value of cultivar resistance and different fungicide programs in the management of foliar and soilborne diseases of peanut.

B. EXPERIMENTAL DESIGN:
1. Four randomized complete blocks separated by 10-ft alleys between blocks
2. Seeding rate of ca. 4 seed/ft of row
3. Split-plot design with treatments in sixteen-row, main plots and varieties in four-row, subplots.

C. APPLICATION OF TREATMENTS: In-furrow treatments (F) were applied to the two center rows of plots in a volume of 5 gal/A with a microtube to each seed furrow at planting on 8 May. Foliar sprays for leaf spot control were applied with three, $D_3$23 nozzles/row delivering 14.85 gal/A. The initial application was at beginning pod (R_3, 17 Jul) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until beginning maturity (R_7). Whenever the Sclerotinia blight advisory (http://webipm.ento.vt.edu/cgi-bin/infonet1.cgi) called for a fungicide application, the fungicides in treatment list were applied according to the last effective spray date.

D. TREATMENT AND RATE/A:
1. Untreated
2. Provost 433SC 10.7 fl oz (R_3, 2nd, 3rd spray)
   Bravo Weather Stik 1.5 pt (4th spray)
3. Proline 480SC 5.7 fl oz (F)
   Provost 433SC 10.7 fl oz (R_3, 2nd, 3rd spray)
   Bravo Weather Stik 1.5 pt (4th spray)
4. Omega 500F 1.0 pt (advisory spray)
   Provost 433SC 10.7 fl oz (R_3, 2nd, 3rd spray)
   Bravo Weather Stik 1.5 pt (4th spray)

E. CULTIVAR:
1. Bailey
2. CHAMPS
3. Wynne
4. Sullivan

F. ADDITIONAL INFORMATION:
1. Location: Tidewater AREC, Holland Rd., Suffolk, VA
2. Crop history: Corn 2014, cotton 2013, peanut 2012
3. Land preparation: rip and strip till (5 May)
4. Planting date: 8 May
5. Soil fertility report: (9 Jan 2015)

pH.....	6.3	K	205 ppm
Ca	940 ppm	Zn.....	0.7 ppm
Mg	86 ppm	Mn.....	2.1 ppm
P.....	107 ppm	Soil type.....	Nansemond fine sandy loam

6. Herbicide: Pre-plant – Roundup WeatherMax 24 fl oz/A (23 Apr)
   Post-emergence – Prowl H_2O 1.0 pt + Dual II Magnum 1.0 pt
   + Strongarm 0.45 fl oz/A (14 May)
   Select Max 1.0 pt + Basagran 1.5 pt w/Induce 4 fl oz/A (17 Jun)
   Select Max 1.0 pt w/Induce 2 fl oz/A (22 Jul)
7. Insecticide: Admire Pro Systemic 550SC 9 fl oz (8 May, in-furrow)
   Orthene 75S 8 oz/A (2 Jun)

8. Additional crop management:
    a. Traco Liquid Boron 1.0 qt/A (14 May)
    b. Landplaster: Peanut Maker 1200 lbs/A (22 Jun)
    c. KickStand Xtra Manganese 4% 1 qt/A (30 Jun, 10 Jul)
9. Harvest date: 20 Oct

Table 57. Effect of treatment and cultivar on emergence and disease incidence of peanut.

Cultivar, treatment, rate/A and application date[1]	Plants/ft[2] (19 May)	Sclerotinia blight[3]			Stem rot[3]		CBR[3] (8 Sep)
		21 Jul	4 Aug	8 Sep	4 Aug	8 Sep	
Split-plot analysis, P(F)							
Treatment	.84	.98	.82	.96	.79	.17	.07
Cultivar	**.0001**	**.02**	**.002**	**.0001**	**.03**	**.002**	**.0001**
Treatment x cultivar	.38	.86	.74	1.0	.89	.43	**.04**
Cultivar means							
Bailey	3.2 a	3.8 b	6.5 b	4.4 b	1.2 b	2.1 b	0.0 b
CHAMPS	2.7 b	7.4 a	8.4 a	6.7 a	2.3 a	3.7 a	0.8 a
Wynne	2.2 c	4.1 b	6.6 ab	4.5 b	1.1 b	1.7 b	0.1 b
Sullivan	2.8 b	2.4 b	4.4 c	2.3 c	0.8 b	2.2 b	0.1 b
Bailey							
Untreated	3.3	2.0	5.5	4.8	1.3	2.3	0.0
Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	3.1	4.5	5.3	4.3	1.8	1.3	0.0
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	3.1	4.5	7.8	4.0	0.8	2.8	0.0
Omega 500F 1 pt (7/22) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	3.1	4.0	7.5	4.8	1.0	2.3	0.0
CHAMPS							
Untreated	2.8	10.0	10.3	7.8	1.8	4.3	0.3
Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	2.7	6.5	6.8	6.8	2.8	2.5	1.0
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	2.6	4.8	7.5	6.3	2.5	5.3	0.3
Omega 500F 1 pt (7/22) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	2.7	8.3	9.3	6.0	2.0	2.8	1.8
Wynne							
Untreated	2.1	3.0	5.3	5.3	1.5	1.8	0.3
Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	2.3	4.3	6.3	4.5	1.5	1.8	0.0
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	2.2	4.5	8.0	4.8	0.5	1.5	0.0
Omega 500F 1 pt (7/22) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	2.4	4.5	7.0	3.5	1.0	1.8	0.3
Sullivan							
Untreated	2.8	2.3	4.5	2.5	0.5	3.5	0.0
Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	2.7	1.3	3.3	2.0	0.5	1.5	0.0
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	2.6	2.8	4.8	2.8	0.8	2.0	0.3
Omega 500F 1 pt (7/22) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	2.9	3.5	5.0	1.8	1.5	1.8	0.0

[1]F=in-furrow (8 May). Foliar fungicides were applied at R_3 (beginning pod, 17 Jul) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity). [2]Determined from counts of two, 35-ft rows per plot. [3]Counts of infection centers in the two center rows of each plot or a total of 70 ft row. An infection center was a point with symptoms and signs of a disease and included 6 in. on either side of that point. Means within a column and group followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (P=0.05).

Table 58. Effect of treatment and cultivar on disease severity of peanut.

Cultivar, treatment, rate/A and application date[1]	% leaf spot[2]			% defoliation[3]		
	22 Aug	3 Sep	11 Oct	22 Aug	3 Sep	11 Oct
Split-plot analysis, P(F)						
Treatment	.25	**.01**	**.03**	--	**.04**	**.0001**
Cultivar	**.005**	**.005**	1.0	--	**.003**	**.0001**
Treatment x cultivar	.61	.22	.10	--	**.03**	.17
Cultivar mean						
Bailey	1.5 b	6.1 b	90.8	0.5	0.3 b	35.9 b
CHAMPS	5.3 a	13.9 a	90.9	0.5	2.3 a	48.8 a
Wynne	1.4 b	7.3 ab	91.6	0.5	0.9 ab	30.0 bc
Sullivan	0.8 b	2.6 b	91.6	0.5	0.2 b	26.3 c
Bailey						
Untreated	3.4 a	18.8 a	94.3	0.5	0.8	88.8 a
Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	1.3 b	2.3 b	95.8	0.5	0.1	31.3 b
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	0.8 b	1.3 b	97.0	0.5	0.1	13.8 b
Omega 500F 1 pt (7/22) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	0.8 b	2.3 b	76.3	0.5	0.3	10.0 b
CHAMPS						
Untreated	11.4	41.3 a	84.5	0.5	7.3	92.5 a
Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	1.3	2.5 b	97.0	0.5	0.1	37.5 bc
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	5.6	6.8 b	95.8	0.5	0.8	50.0 b
Omega 500F 1 pt (7/22) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	3.0	5.0 b	86.3	0.5	0.8	15.0 c
Wynne						
Untreated	3.1	23.8	92.0	0.5	3.0	83.8 a
Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	1.3	1.5	94.8	0.5	0.1	12.5 b
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	0.8	1.8	95.8	0.5	0.1	13.8 b
Omega 500F 1 pt (7/22) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	0.6	2.3	83.8	0.5	0.3	10.0 b
Sullivan						
Untreated	1.1 a	6.8 a	98.0 a	0.5	0.3	75.0 a
Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	0.5 b	1.0 b	96.0 a	0.5	0.1	10.0 b
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	0.8 ab	1.3 b	96.0 a	0.5	0.1	11.3 b
Omega 500F 1 pt (7/22) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	0.8 ab	1.5 b	76.3 b	0.5	0.1	8.8 b

[1]F=in-furrow (8 May). Foliar fungicides were applied at R_3 (beginning pod, 17 Jul) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity). [2]Percentage of total leaflets with early or late leaf spot lesions. [3] Percentage of total canopy defoliated. Means within a column and group followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (P=0.05).

Table 59. Effect of treatment and cultivar on disease severity and yield of peanut.

Cultivar, treatment, rate/A and application date[1]	Root disease[2] (15 Oct)	Pod rot[3] (15 Oct)	Yield[4] (lb/A)
Split-plot analysis, P(F)			
Treatment	**.03**	.45	**.001**
Cultivar	**.0001**	**.0001**	**.0001**
Treatment x cultivar	.25	.41	**.02**
Cultivar means			
Bailey	2.1 b	1.6 bc	3868 b
CHAMPS	3.4 a	2.9 a	1527 d
Wynne	2.1 b	1.8 b	3369 c
Sullivan	1.7 c	1.4 c	4397 a
Bailey			
Untreated	2.5	1.8	2331 b
Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	2.0	1.8	3947 a
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	2.3	1.8	4591 a
Omega 500F 1 pt (7/22) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	1.5	1.3	4604 a
CHAMPS			
Untreated	3.5	3.0	810 b
Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	3.3	2.8	1896 a
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	3.8	3.0	1610 a
Omega 500F 1 pt (7/22) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	3.3	2.8	1791 a
Wynne			
Untreated	2.8 a	2.0	2326 b
Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	1.8 b	1.5	3483 a
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	2.0 b	2.0	3503 a
Omega 500F 1 pt (7/22) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	1.8 b	1.8	4163 a
Sullivan			
Untreated	2.5 a	1.8	2966 b
Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	1.3 b	1.0	4943 a
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	1.5 b	1.3	4767 a
Omega 500F 1 pt (7/22) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	1.5 b	1.8	4912 a

[1]F=in-furrow (8 May). Foliar fungicides were applied at R_3 (beginning pod, 17 Jul) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity). [3]Root disease includes Cylindrocladium black rot and Southern stem rot. Rating scale: 0 = none, 1 = 1-10%, 2 = 11-25%, 3 = 26-50%, 4 = 51-75%, 5 = 76-90%, 6 = 91-100% of roots decayed. [4]Pod rot index: 0 = none, 1 = 1-10%, 2 = 11-25%, 3 = 26-50%, 4 = 51-75%, 5 = 76-90%, 6 = 91-100% of pods decayed. [5]Yields are weight of peanuts with moisture content adjusted to 7%. Peanuts were dug 14 Oct and harvested 20 Oct. Means within a group or column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (P=0.05).

Table 60. Effect of treatment and cultivar on grade characteristics of peanut.

Cultivar, treatment, rate/A and application date[1]	%[2]								Value (¢/lb)[3]	
	FM	LSK	FAN	ELK	SS	OK	DK	SMK	100%	comm-ercial
Split-plot analysis, P(F)										
Treatment	.65	.28	.95	.24	.81	.14	.58	.73	.59	.55
Cultivar	.11	**.01**	**.0001**	**.0001**	.16	**.0001**	**.001**	**.0001**	**.0001**	**.0001**
Treatment x cultivar	.22	.44	.13	.49	.85	.81	.73	.36	.49	.47
Cultivar means										
Bailey	5.0	2.8a	76.5c	49.7a	4.1	1.7c	0.7c	66.6a	18.3a	18.3a
CHAMPS	4.6	2.8a	80.1b	38.5b	3.1	3.4a	1.7a	61.6c	16.8c	16.6c
Wynne	3.7	2.9a	87.8a	48.7a	3.7	2.2b	1.3ab	63.5b	17.5b	17.4b
Sullivan	4.9	2.0b	83.3b	47.8a	3.3	2.3b	1.0bc	65.2ab	17.8b	17.7b
Bailey										
Untreated	5.2	3.4	74.8	49.0	3.5	2.0	0.6	67.8	18.5	18.4
Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	4.8	3.0	75.1	47.5	4.3	1.3	0.7	68.0	18.7	18.6
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	5.1	2.3	77.5	50.1	4.0	1.9	0.7	65.3	18.1	18.0
Omega 500F 1 pt (7/22) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	5.0	2.5	78.6	52.3	4.5	1.6	0.8	65.3	18.2	18.1
CHAMPS										
Untreated	3.3	2.8	83.2	38.0	3.3	3.6	2.3	60.1	16.5	16.3
Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	4.4	3.3	83.5	39.4	2.3	3.1	1.6	62.0	16.7	16.6
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	4.3	2.6	75.5	37.2	3.9	3.5	1.4	61.8	17.0	16.9
Omega 500F 1 pt (7/22) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	6.5	2.4	78.4	39.3	3.0	3.5	1.4	62.4	17.0	16.7
Wynne										
Untreated	3.8	2.6	87.4	45.8	3.3	2.4	1.3	63.4	17.4	17.3
Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	3.4	3.1	87.4	48.5	3.7	2.3	1.0	62.8	17.4	17.3
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	3.7	2.9	88.0	50.1	3.9	2.1	1.4	64.1	17.7	17.6
Omega 500F 1 pt (7/22) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	4.1	3.1	88.4	50.3	4.0	2.2	1.4	63.6	17.6	17.6
Sullivan										
Untreated	6.4	2.6a	81.3	42.5	3.4	2.8	1.3	62.9	17.2	17.0
Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	4.8	1.7b	80.5	47.5	3.3	1.8	0.9	65.7	17.9	17.8
Proline 480SC 5.7 fl oz (F) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	4.4	2.2ab	87.1	52.8	3.0	2.4	0.7	66.7	18.2	18.2
Omega 500F 1 pt (7/22) Provost 433SC 10.7 fl oz (7/17, 8/9, 8/27) Bravo Weather Stik 1.5 pt (9/14)	4.2	1.4b	84.2	48.5	3.6	2.1	1.0	65.6	18.0	17.9

[1]F=in-furrow (8 May). Foliar fungicides were applied at R_3 (beginning pod, 17 Jul) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity).
[2]FM=foreign material, LSK=loose shelled kernels, FAN=large pods, ELK=extra-large kernels, SS=sound splits, OK=other kernels, DK=damaged kernels, SMK=sound mature kernels.
[3]Value (¢/lb) represents the market value of peanuts based on the loan rate. The 100% column reports value without any deduction for segregation 2 peanuts. Commercial value includes the deduction for segregation 2 due to damaged kernels ≥ 2.5%; producers receive 35% of value for these peanuts. Means within a column and group followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (P=0.05).

XXII. COMPARISON OF IN-FURROW AND PEGGING APPLICATIONS FOR CONTROL OF NEMATODES AND SOILBORNE DISEASES OF PEANUT (PNEMA115, Tidewater Research Farm, Field 28)

A. PURPOSE: To evaluate in-furrow and pegging treatments for nematode and disease control in peanut.

B. EXPERIMENTAL DESIGN:
1. Two, 35-ft rows per plot with 36-in. row spacing
2. Seeding rate of 4 seed/ft of row
3. Four randomized complete blocks separated by 8-ft alleyways

C. APPLICATION OF TREATMENTS: F = in seed furrow at planting either as granules delivered by a Noble Box or liquid mixed with water to make a volume of 5 gal/A and delivered through microtubes (7 May). Treatments at pegging (6 Jul) were applied using a backpack sprayer with two, 8004E nozzles per row at 19.5 gal/A in an 8-in band over rows.

D. TREATMENT AND RATE/A (or as indicated otherwise):
1. Untreated
2. Thimet 20G 5 oz ai/1000 row ft (F)
3. Temik 15G 10 lb (F)
4. Velum Total 14 fl oz (F)
5. Velum Total 18 fl oz (F)
6. Velum Total 14 fl oz (F)
   Propulse 400SC 13.7 fl oz (at pegging)
7. Velum Total 18 fl oz (F)
   Propulse 400SC 13.7 fl oz (at pegging)

E. ADDITIONAL INFORMATION:
1. Location: Tidewater Research Farm, Hare Rd, Suffolk, VA
2. Crop history: Wheat/soybean 2014, peanut 2013, wheat/soybean 2012
3. Land preparation: rip and strip till (18 Apr)
4. Planting date and cultivar: 7 May, Bailey
5. Soil fertility report (9 Jan 2015):

pH	6.0	Mn	1.9 ppm
Ca.....	583 ppm	K.....	99 ppm
Mg.....	63 ppm	Zn	0.3 ppm
P	31 ppm	Soil type	Kenansville loamy fine sand

6. Nematode assay report (13 May):

Nematodes/500 cc soil	
Root knot	280
Lesion	20
Stunt.....	120
Spiral.....	100
Lance	40

7. Leaf spot control: Provost 433SC 10.7 fl oz/A (13 Jul, 9 Aug, 27 Aug)
   Bravo Weather Stik 1.5 pt/A (14 Sep)
8. Sclerotinia control: Omega 500F 1.0 pt/A (22 Jul, 20 Aug)
9. Herbicide: Pre-plant – Prowl H_2O 1.0 pt + Dual II Magnum 1.0 pt + Strongarm 0.22 fl oz/A (2 May)
   Pre-emergence – Dual II Magnum 1.0 pt + Roundup WeatherMax 22 fl oz + Strongarm 0.22 fl oz/A (10 May)
   Post-emergence – Select Max 1.0 pt w/Induce 4 fl oz/A (17 Jun)
10. Insecticide: Orthene 75S 8 oz/A (2 Jun)
12. Additional crop management:
    a. Traco Liquid Boron 1.0 qt/A (2 May)
    b. Landplaster: Peanut Maker 1200 lb/A (22 Jun)
    c. KickStand Xtra Manganese 4% 1.0 qt/A (30 Jun, 9 Jul)
    d. Irrigation ca. 1": (27 Jul, 31 Jul, 1 Sep)
13. Harvest date: 15 Oct

Table 61. Effect of treatments on emergence, vigor, and thrips injury in peanut.

Treatment, rate/A, and application timing[1]	Plants/ft[2]		Vigor (0-10)[3] (12 Jun)	% phyto-toxicity[4] (28 May)	Thrips injury[5]	
	19 May	28 May			27 May	5 Jun
Untreated	2.3	3.2	9.0 a	0.0 b	0.3	0.5 c
Thimet 20G 5 oz ai/1000 row ft (F)	2.3	3.2	8.0 b	87.5 a	0.5	0.6 bc
Temik 15G 10 lb (F)	2.2	3.1	9.5 a	0.0 b	0.4	0.5 c
Velum Total 14 fl oz (F)	2.1	3.0	9.3 a	0.0 b	0.5	0.6 bc
Velum Total 18 fl oz (F)	2.3	3.1	9.5 a	0.0 b	0.4	0.8 b
Velum Total 14 fl oz (F) Propulse 400SC 13.7 fl oz (at pegging)	2.1	3.0	9.5 a	0.0 b	0.3	0.8 b
Velum Total 18 fl oz (F) Propulse 400SC 13.7 fl oz (at pegging)	2.1	3.1	9.5 a	0.0 b	0.3	1.1 a
P(F)	.29	.58	**.001**	**.0001**	.58	**.0001**

[1] F = in-furrow (7 May); at pegging treatment applied with backpack sprayer (6 Jul).
[2] Determined from counts of two, 35-ft rows per plot.
[3] Vigor index rating scale: 10 = 100% vigor, 0 = no vigor.
[4] Percent plants with phytotoxicity symptoms.
[5] Thrips injury rating scale: 0 = no damage, 10 = dead plants.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

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

Treatment, rate/A, and application timing[1]	Nematodes/500 cc soil (14 Jul)[2]				
	Root knot juvenile	Cyst juvenile	Stunt	Spiral	Stubby root
Untreated	260	80	140	40	40
Thimet 20G 5 oz ai/1000 row ft (F)	140	0	0	60	120
Temik 15G 10 lb (F)	240	0	80	60	20
Velum Total 14 fl oz (F)	460	0	100	80	0
Velum Total 18 fl oz (F)	1180	20	60	20	120
Velum Total 14 fl oz (F) Propulse 400SC 13.7 fl oz (at pegging)	180	20	120	0	140
Velum Total 18 fl oz (F) Propulse 400SC 13.7 fl oz (at pegging)	340	0	100	0	20

[1] F = in-furrow (7 May); at pegging treatment applied with backpack sprayer (6 Jul).
[2] Soil was sampled on 14 Jul. Data are counts of nematodes in a composite sample from four reps of each treatment.

Table 63. Effect of treatments on disease severity and incidence in peanut.

Treatment, rate/A, and application timing[1]	% leaf spot[2] (9 Sep)	Sclerotinia blight[3] (9 Sep)	Yellow or dead plants[3]		Southern stem rot[3] (9 Sep)
			9 Sep	9 Oct	
Untreated	2.1 b	0.8	0.0	7.0	0.3 b
Thimet 20G 5 oz ai/1000 row ft (F)	1.0 b	0.0	0.0	4.0	0.8 ab
Temik 15G 10 lb (F)	1.4 b	0.3	0.0	6.5	1.5 a
Velum Total 14 fl oz (F)	0.8 b	0.0	0.0	6.0	0.0 b
Velum Total 18 fl oz (F)	1.0 b	0.0	0.3	5.0	0.3 b
Velum Total 14 fl oz (F) Propulse 400SC 13.7 fl oz (at pegging)	4.3 a	0.0	0.0	3.5	0.0 b
Velum Total 18 fl oz (F) Propulse 400SC 13.7 fl oz (at pegging)	5.8 a	0.0	0.0	3.5	0.0 b
P(F)	**.0001**	.46	.46	.12	**.01**

[1] F = in-furrow (7 May); at pegging treatment applied with backpack sprayer (6 Jul).
[2] Percentage of total leaflets with early or late leaf spot lesions. The following fungicides were applied for foliar disease control in all treatments: Provost 433SC 10.7 fl oz/A (13 Jul, 9 Aug, 27 Aug), Bravo Weather Stik 1.5 pt/A (14 Sep).
[3] Counts of infection centers in the two center rows of each plot or a total of 70 ft row. An infection center was a point with symptoms and signs of a disease and included 6 in. on either side of that point.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 64. Effect of treatments on root galling, disease severity and yield in peanut.

Treatment, rate/A, and application timing[1]	**Root galling[2] (9 Oct)**	**Root disease[3] (9 Oct)**	**Pod rot[4] (9 Oct)**	**Yield[5] (lb/A)**
Untreated	2.3	2.3	2.3	5118
Thimet 20G 5 oz ai/1000 row ft (F)	2.3	1.8	2.0	5184
Temik 15G 10 lb (F)	2.0	1.8	2.3	5126
Velum Total 14 fl oz (F)	2.0	2.0	2.0	5136
Velum Total 18 fl oz (F)	2.0	1.3	2.0	5151
Velum Total 14 fl oz (F) Propulse 400SC 13.7 fl oz (at pegging)	2.0	1.5	1.8	5665
Velum Total 18 fl oz (F) Propulse 400SC 13.7 fl oz (at pegging)	1.8	1.5	1.5	5744
P(F)	.97	.37	.86	.22

[1] F = in-furrow (7 May); at pegging treatment applied with backpack sprayer (6 Jul).
[2] Root galling index: 0 = none, 6 = 100% of roots with galls.
[3] Root disease includes Cylindrocladium black rot. Rating scale: 0 = none, 1 = 1-10%, 2 = 11-25%, 3 = 26-50%, 4 = 51-75%, 5 = 76-90%, 6 = 91-100% of roots decayed.
[4] Pod rot index: 0 = none, 1 = 1-10%, 2 = 11-25%, 3 = 26-50%, 4 = 51-75%, 5 = 76-90%, 6 = 91-100% of pods decayed.
[5] Yields are weight of peanuts with moisture content adjusted to 7%. Peanuts were dug 9 Oct and harvested 15 Oct.

XXIII. PEANUT NEMATICIDE TEST (PNEMA215, Tidewater AREC Research Farm, Field 28)

A. PURPOSE: To evaluate efficacy of fumigants and in-furrow treatments for nematode control in peanut.

B. EXPERIMENTAL DESIGN:
1. Two, 35-ft rows per plot with 36-in. row spacing
2. Seeding rate of 4 seed/ft of row
3. Four randomized complete blocks separated by 8-ft alleyways

C. APPLICATION OF TREATMENTS: C = chisel application of treatment applied 8 in. under each row (23 Apr); a single chisel was centered in each during application. F = liquid mixed with water to make a volume of 5 gal/A delivered through microtubes in-furrow (13 May).

D. TREATMENT, RATE/A:
1. Untreated
2. Telone II 4.5 gal (C)
3. Telone II 6 gal (C)
4. Velum Total 440SC 18 fl oz (F)

E. CULTIVAR:
1. GA-14N (RKN susceptible)
2. GA-09B (RKN resistant)

F. ADDITIONAL INFORMATION:
1. Location: Tidewater Research Farm, Hare Rd, Suffolk, VA
2. Crop history: Wheat/soybean 2014, peanut 2013, wheat/soybean 2012
3. Land preparation: rip and strip till (18 Apr)
4. Planting date: 13 May
5. Soil fertility report (9 Jan 2015):

pH	6.0	Mn	1.9 ppm
Ca	583 ppm	K	99 ppm
Mg	63 ppm	Zn	0.3 ppm
P	31 ppm	Soil type	Kenansville loamy fine sand

6. Nematode assay report (20 May):

Nematodes/500 cc soil	Composite sample 1 (no fumigation)	Composite sample 2 (fumigation)
Root knot	440	80
Cyst	0	40
Stunt	220	40
Lance	20	0
Ring	80	0

7. Leaf spot control: Provost 433SC 10.7 fl oz/A (13 Jul, 9 Aug, 27 Aug)
Bravo Weather Stik 1.5 pt/A (14 Sep)
8. Sclerotinia control: Omega 500F 1.0 pt/A (22 Jul, 20 Aug)
9. Cylindrocladium black rot control: Proline 5.7 fl oz/A (13 May, in-furrow)
10. Herbicide: Pre-plant – Prowl H_2O 1.0 pt + Dual II Magnum 1.0 pt + Strongarm 0.22 fl oz/A (2 May)
Pre-emergence – Dual II Magnum 1.0 pt + Roundup WeatherMax 22 fl oz + Strongarm 0.22 fl oz/A (10 May)
Post-emergence – Select Max 1.0 pt w/Induce 4 fl oz/A (17 Jun)

11. Insecticide: Admire Pro Systemic 550SC 9 fl oz/A (13 May, in-furrow)
    Orthene 75S 8 oz/A (2 Jun)
12. Additional crop management:
    a. Traco Liquid Boron 1.0 qt/A (2 May)
    b. Landplaster: Peanut Maker 1200 lb/A (22 Jun)
    c. KickStand Xtra Manganese 4% 1.0 qt/A (30 Jun, 9 Jul)
    d. Irrigation ca. 1": (27 Jul, 31 Jul, 1 Sep)
13. Harvest date: 15 Oct

Table 65. Effect of varieties and treatments on emergence, plant vigor, and disease severity in peanut.

Cultivar, treatment, rate/A and method[1]	Plants/ft[2]		Vigor (0-10)[3]	% leaf spot[4]
	28 May	9 Jun	(27 May)	(9 Sep)
GA-14N (RKN susceptible)				
Untreated	3.8	3.5	8.3	8.8 bc
Telone II 4.5 gal (C)	3.8	3.4	8.8	8.8 bc
Telone II 6 gal (C)	3.7	3.6	8.5	6.3 c
Velum Total 440SC 18 fl oz (F)	3.8	3.6	8.8	9.5 bc
GA-09B (RKN resistant)				
Untreated	3.9	3.6	8.5	17.5 a
Telone II 4.5 gal (C)	3.9	3.7	8.0	13.8 ab
Telone II 6 gal (C)	4.0	3.7	8.3	18.8 a
Velum Total 440SC 18 fl oz (F)	3.8	3.5	8.3	18.8 a
P(F)	.83	.70	.40	**.004**

[1] C = chisel application (13 Apr); F=in-furrow (13 May).
[2] Determined from counts of two, 35-ft rows per plot.
[3] Vigor index rating scale: 10 = 100% vigor, 0 = no vigor.
[4] Percentage of total leaflets with early or late leaf spot lesions.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 66. Effect of varieties and treatments on nematode populations in peanut.

Cultivar, treatment, rate/A, and method[1]	Nematodes/500 cc soil (14 Jul)[2]			
	Cyst	Stunt	Spiral	Ring
GA-14N (RKN susceptible)				
Untreated	0	0	0	60
Telone II 4.5 gal (C)	0	0	20	0
Telone II 6 gal (C)	0	0	0	20
Velum Total 440SC 18 fl oz (F)	0	0	0	20
GA-09B (RKN resistant)				
Untreated	0	0	0	20
Telone II 4.5 gal (C)	0	0	0	20
Telone II 6 gal (C)	0	0	0	0
Velum Total 440SC 18 fl oz (F)	20	40	0	0

[1] C = chisel application (13 Apr); F=in furrow (13 May).
[2] Soil was sampled on 14 Jul. Data are counts of nematodes in a composite sample from four reps of each treatment.

Table 67. Effect of varieties and treatments on disease incidence, root galling, disease severity, and yield of peanut.

Cultivar, treatment, rate/A, and method[1]	Sclerotinia blight[2] (9 Sep)	Stem rot[2] (9 Sep)	CBR[2] (9 Oct)	Root galling[3] (9 Oct)	Root disease[4] (9 Oct)	Pod rot[5] (9 Oct)	Yield[6] (lb/A)
GA-14N (RKN susceptible)							
Untreated	0.8	1.0	5.0a-c	2.5a	2.8ab	2.8	5743
Telone II 4.5 gal (C)	1.3	0.3	5.5a-c	2.0ab	2.8ab	3.0	6337
Telone II 6 gal (C)	0.5	0.8	8.5 a	2.5a	3.0a	3.0	6158
Velum Total 440SC 18 fl oz (F)	1.0	1.0	7.3ab	1.8b	2.3a-c	2.8	5870
GA-09B (RKN resistant)							
Untreated	0.5	0.3	3.3c	1.5bc	1.8c	2.3	6398
Telone II 4.5 gal (C)	0.0	1.0	2.0c	1.3c	1.5c	2.3	6240
Telone II 6 gal (C)	0.3	1.8	4.0bc	1.8bc	2.0bc	2.8	6235
Velum Total 440SC 18 fl oz (F)	0.8	0.8	5.0a-c	1.8bc	2.0bc	2.5	6411
P(F)	.42	.19	**.03**	**.02**	**.004**	.29	.20

[1] C = chisel application (13 Apr); F=in furrow (13 May).

[2] Counts of infection centers in the two centers rows of each plot or a total of 70 ft row. An infection center was a point with symptoms and signs of a disease and included 6 in. on either side of that point.

[3] Root knot nematode galling scale: 0=none, 6=100% of roots with galls.

[4] Root disease includes Cylindrocladium black rot and Southern stem rot. Rating scale: 0 = none, 1=1-10%, 2=11-25%, 3=26-50%, 4=51-75%, 5=76-90%, 6=91-100% of roots decayed.

[5] Pod rot index: 0 = none, 1=1-10%, 2=11-25%, 3=26-50%, 4=51-75%, 5=76-90%, 6=91-100% of pods decayed.

[6] Yields are weight of peanuts with moisture content adjusted to 7%. Peanuts were dug 9 Oct and harvested 15 Oct. Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

XXIV. EVALUATION OF IN-FURROW, EMERGENCE, AND FOLIAR FUNGICIDE SPRAYS FOR CONTROL OF LEAF SPOT AND SOILBORNE DISEASES OF PEANUT (CBRLFSPOT115, Tidewater AREC Research Farm, Suffolk, Field 28)

A. PURPOSE: To compare efficacy of in-furrow, emergence, and foliar applications of fungicides for control of leaf spots, Cylindrocladium black rot (CBR) and other soilborne diseases

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

C. APPLICATION OF TREATMENTS: In-furrow treatments (F) were applied to the two center rows of plots in a volume of 5 gal/A with a microtube to each seed furrow at planting on 7 May. Treatments at 100% emergence (E) were applied on 26 May with two, 8004E nozzles per row at 19.5 gal/A in an 8-in. band over rows. Foliar sprays for leaf spot control were applied with three, $D_3$23 nozzles/row delivering 14.85 gal/A. The initial application was at R_3 (beginning pod, 13 Jul) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until beginning maturity (R_7).

D. TREATMENT AND RATE/A:
   1. Untreated
   2. Propulse 400SC 13.6 fl oz (F)
      Bravo Weather Stik 1.5 pt (2^{nd}, 5^{th} spray)
      Prosaro SC 10 fl oz (3^{rd}, 4^{th} spray)
   3. Propulse 400SC 13.6 fl oz (E)
      Bravo Weather Stik 1.5 pt (2^{nd}, 5^{th} spray)
      Prosaro SC 10 fl oz (3^{rd}, 4^{th} spray)
   4. Velum Total 18 fl oz (F)
      Bravo Weather Stik 1.5 pt (2^{nd}, 5^{th} spray)
      Prosaro SC 10 fl oz (3^{rd}, 4^{th} spray)
   5. Proline 480SC 5.7 fl oz (F)
      Bravo Weather Stik 1.5 pt (2^{nd}, 5^{th} spray)
      Prosaro SC 10 fl oz (3^{rd}, 4^{th} spray)
   6. Proline 480SC 5.7 fl oz (E)
      Bravo Weather Stik 1.5 pt (2^{nd}, 5^{th} spray)
      Prosaro SC 10 fl oz (3^{rd}, 4^{th} spray)
   7. Proline 480SC 5.7 fl oz (F)
      Bravo Weather Stik 1.5 pt (2^{nd}, 5^{th} spray)
      Prosaro SC 10 fl oz (3^{rd} spray)
      Abound SC 18 fl oz (4^{th} spray)
   8. Bravo Weather Stik 1.5 pt (2^{nd}, 5^{th} spray)
      Prosaro SC 10 fl oz (3^{rd}, 4^{th} spray)

E. ADDITIONAL INFORMATION:
   1. Location: Tidewater Research Farm, Hare Rd, Suffolk, VA
   2. Crop history: Wheat/soybean 2014, peanut 2013, wheat/soybean 2012
   3. Land preparation: rip and strip till (18 Apr)
   4. Planting date and cultivar: 7 May, Bailey

5. Soil fertility report (9 Jan 2015):

pH	6.0	Mn	1.9 ppm
Ca.....	583 ppm	K.....	99 ppm
Mg.....	63 ppm	Zn	0.3 ppm
P.....	31 ppm	Soil type	Kenansville loamy fine sand

6. Sclerotinia control: Omega 500F 1.0 pt/A (20 Jul, 22 Aug)
7. Herbicide: Pre-plant – Prowl H_2O 1.0 pt + Dual II Magnum 1.0 pt + Strongarm 0.22 fl oz/A (2 May)
   Pre-emergence – Dual II Magnum 1.0 pt + Roundup WeatherMax 22 fl oz + Strongarm 0.22 fl oz/A (10 May)
   Post-emergence – Select Max 1.0 pt w/Induce 4 fl oz/A (17 Jun)
8. Insecticide: Admire Pro Systemic 550SC 9 fl oz/A (7 May in-furrow)
   Orthene 75S 8 oz/A (2 Jun)
9. Additional crop management:
   a. Traco Liquid Boron 1.0 qt/A (2 May)
   b. Landplaster: Peanut Maker 1200 lb/A (22 Jun)
   c. Kickstand Xtra Manganese 4% 1.0 qt/A (30 Jun, 9 Jul)
   d. Irrigation ca. 1": (27 Jul, 31 Jul, 1 Sep)
10. Harvest date: 15 Oct

Table 68. Effect of treatments on plant emergence and disease severity of peanut.

Treatment, rate/A and application method/date[1]	**Plants/ft[2] (23 May)**	**Vigor[3] (12 Jun)**	**Stem rot[5] (9 Sep)**	**% leaf spot[4]**	
				9 Sep	**9 Oct**
Untreated	2.6	9.5	1.0	5.5 a	87.5 a
Propulse 400SC 13.6 fl oz (F) Bravo Weather Stik 1.5 pt (7/13, 9/14) Prosaro SC 10 fl oz (8/9, 8/27)	2.5	9.0	0.8	2.1 b	55.0 bc
Propulse 400SC 13.6 fl oz (E) Bravo Weather Stik 1.5 pt (7/13, 9/14) Prosaro SC 10 fl oz (8/9, 8/27)	2.6	9.5	0.3	0.8 b	35.0 c
Velum Total 18 fl oz (F) Bravo Weather Stik 1.5 pt (7/13, 9/14) Prosaro SC 10 fl oz (8/9, 8/27)	2.5	9.5	0.3	1.8 b	57.5 bc
Proline 480SC 5.7 fl oz (F) Bravo Weather Stik 1.5 pt (7/13, 9/14) Provost 433SC 10.7 fl oz (8/9, 8/27)	2.4	9.0	1.3	2.3 b	85.0 a
Proline 480SC 5.7 fl oz (F) Bravo Weather Stik 1.5 pt (7/13, 9/14) Prosaro SC 10 fl oz (8/9, 8/27)	2.5	9.3	1.0	0.8 b	68.8 ab
Proline 480SC 5.7 fl oz (F) Bravo Weather Stik 1.5 pt (7/13, 9/14) Prosaro SC 10 fl oz (8/9) Abound SC 18 fl oz (8/27)	2.5	9.3	0.5	0.8 b	52.5 bc
Bravo Weather Stik 1.5 pt (7/13, 9/14) Prosaro SC 10 fl oz (8/9, 8/27)	2.7	9.0	0.8	1.9 b	51.3 bc
P(F)	.10	.72	.58	**.02**	**.01**

[1] F = in-furrow (7 May); E = band application at full emergence (26 May); fungicides were applied at R_3 (beginning pod, 13 Jul) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity).
[2] Determined from counts of two, 35-ft rows per plot.
[3] Vigor rating: 0 = dead plants, 10 = 100% vigor.
[4] Percentage of total leaflets with early or late leaf spot lesions.
[5] Counts of infection centers in the two center rows of each plot or a total of 70 ft row. An infection center was a point with symptoms and signs of a disease and included 6 in. on either side of that point.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 69. Effect of treatments on disease incidence and severity, root galling, and yield of peanut.

Treatment, rate/A and application method/date[1]	CBR[2]		Sclerotinia[2]		Root galling[3] (9 Oct)	Root rot[4] (9 Oct)	Pod rot[5] (9 Oct)	Yield[6] lb/A
	9 Sep	9 Oct	9 Sep	9 Oct				
Untreated	0.0	5.5	3.8	11.8	2.3	3.3	3.3	4733
Propulse 400SC 13.6 fl oz (F) Bravo Weather Stik 1.5 pt (7/13, 9/14) Prosaro SC 10 fl oz (8/9, 8/27)	0.0	5.5	2.8	9.3	2.8	3.8	3.3	4942
Propulse 400SC 13.6 fl oz (E) Bravo Weather Stik 1.5 pt (7/13, 9/14) Prosaro SC 10 fl oz (8/9, 8/27)	0.5	7.3	4.5	12.0	2.3	3.5	3.5	4651
Velum Total 18 fl oz (F) Bravo Weather Stik 1.5 pt (7/13, 9/14) Prosaro SC 10 fl oz (8/9, 8/27)	0.0	6.8	2.8	9.5	2.0	2.8	3.0	5090
Proline 480SC 5.7 fl oz (F) Bravo Weather Stik 1.5 pt (7/13, 9/14) Provost 433SC 10.7 fl oz (8/9, 8/27)	0.3	7.5	5.8	10.0	2.5	3.8	3.5	4853
Proline 480SC 5.7 fl oz (F) Bravo Weather Stik 1.5 pt (7/13, 9/14) Prosaro SC 10 fl oz (8/9, 8/27)	0.3	7.0	3.8	10.0	2.3	3.5	4.0	4830
Proline 480SC 5.7 fl oz (F) Bravo Weather Stik 1.5 pt (7/13, 9/14) Prosaro SC 10 fl oz (8/9) Abound SC 18 fl oz (8/27)	0.0	4.8	5.5	13.8	2.5	3.8	3.5	4766
Bravo Weather Stik 1.5 pt (7/13, 9/14) Prosaro SC 10 fl oz (8/9, 8/27)	0.3	6.5	4.3	10.8	2.0	2.8	3.0	4995
P(F)	.46	.55	.42	.92	.49	.55	.88	.88

[1] F = in-furrow (7 May); E = band application at full emergence (26 May); fungicides were applied at R_3 (beginning pod, 13 Jul) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity).

[2] Counts of infection centers in the two center rows of each plot or a total of 70 ft row. An infection center was a point with symptoms and signs of a disease and included 6 in. on either side of that point.

[3] Root-knot nematode galling index: 0=none, 6=100% of roots with galls.

[4] Root rot index: 0 = none, 1 = 1-10%, 2 = 11-25%, 3 = 26-50%, 4 = 51-75%, 5 = 76-90%, 6 = 91-100% of roots decayed.

[5] Pod rot index: 0 = none, 1 = 1-10%, 2 = 11-25%, 3 = 26-50%, 4 = 51-75%, 5 = 76-90%, 6 = 91-100% of pods decayed.

[6] Yields are weight of peanuts with moisture content adjusted to 7%. Peanuts were dug 9 Oct and harvested 15 Oct.

XXV. EVALUATION OF FOLIAR FUNGICIDES FOR CONTROL OF LEAF SPOT AND SOILBORNE DISEASES OF PEANUT (LFSPOT115, Tidewater AREC Research Farm, Field 34A)

A. PURPOSE: To compare efficacy of registered and experimental fungicides for control of leaf spots, southern stem rot, and other soilborne diseases

B. EXPERIMENTAL DESIGN:
1. Four randomized complete blocks with 10-ft alleys between blocks
2. Four, 35-ft rows per plot with treatments applied to the two center 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 14.85 gal/A. The initial application was at beginning pod (R_3, beginning pod, 13 Jul) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until beginning maturity (R_7). Note: The fifth spray (Bravo Weather Stik 24 fl oz) as prescribed in the original treatment protocol was not triggered by the leaf spot advisory.

D. TREATMENT, RATE/A AND APPLICATION TIMING:
1. Untreated check
2. TiltBravo 4.3SE 24 fl oz (1st spray)
   Elatus 45WG 7.14 oz (2nd, 4th spray)
   Bravo Weather Stik 24 fl oz (3rd, 5th spray)
3. Elatus 45WG 7.14 oz (1st, 3rd spray)
   Bravo Weather Stik 24 fl oz (2nd, 4th, 5th spray)
4. TiltBravo 4.3SE 24 fl oz (1st spray)
   Elatus 45WG 7.14 oz (2nd spray)
   Bravo Weather Stik 24 fl oz (3rd, 4th, 5th spray)
5. TiltBravo 4.3SE 24 fl oz (1st spray)
   Elatus 45WG 7.14 oz (2nd, 4th spray)
   Omega 500F 4 16 fl oz (Advisory spray)
   Bravo Weather Stik 24 fl oz (3rd, 5th spray)
6. Bravo Weather Stik 24 fl oz (1st spray)
   Provost 3.6SC 8 fl oz (2nd, 3rd, 4th spray)
   Bravo Weather Stik 24 fl oz (5th spray)
7. Elatus 45WG 7.14 oz (1st, 3rd spray)
   Bravo Weather Stik 24 fl oz
   + Alto 0.83SL 5.5 fl oz (2nd, 4th spray)
   Bravo Weather Stik 24 fl oz (5th spray)
8. Bravo Weather Stik 24 fl oz
   + Alto 0.83SL 5.5 fl oz (1st, 3rd spray)
   Elatus 45WG 7.14 oz (2nd spray)
   Bravo Weather Stik 24 fl oz (5th spray)
9. TiltBravo 4.3SE 24 fl oz (1st spray)
   Experimental Fungicide 6.84 fl oz (2nd, 4th spray)
10. TiltBravo 4.3SE 24 fl oz (1st, 3rd spray)
    Aproach Prima 2.34SC 6.8 fl oz (2nd, 4th spray)
11. Bravo Weather Stik 24 fl oz (1st, 3rd spray)
    Priaxor 4.17SC 6 fl oz (2nd, 4th spray)

E. ADDITIONAL INFORMATION:
1. Location: Tidewater AREC Research Farm, Hare Rd., Suffolk, VA
2. Crop history: Corn 2014, cotton 2013, peanut 2012
3. Land preparation: rip and strip till (18 Apr)
4. Planting date and cultivar: 7 May, Bailey

5. Soil fertility report: (9 Jan 2015)

pH.....	5.6	K	169 ppm
Ca	378 ppm	Zn.....	0.7 ppm
Mg	43 ppm	Mn.....	2.8 ppm
P.....	136 ppm	Soil type.....	Kenansville loamy fine sand

6. Cylindrocladium black rot control: Proline 480 5.7 fl oz/A (7 May, in-furrow)
7. Herbicide: Pre-plant – Prowl H_2O 1.0 pt + Dual II Magnum 1.0 pt + Strongarm 0.22 fl oz/A (2 May)
   Pre-emergence – Dual II Magnum 1.0 pt + Roundup WeatherMax 22 fl oz + Strongarm 0.22 fl oz/A (10 May)
   Post-emergence – Select Max 1.0 pt w/Induce 4 fl oz/A (17 Jun)
8. Insecticide: Admire Pro Systemic 550SC 9 fl oz/A (7 May, in-furrow)
   Orthene 75S 8 oz/A (2 Jun)
9. Additional crop management:
   a. Traco Liquid Boron 1.0 qt/A (2 May)
   b. Landplaster: Peanut Maker 1200 lbs/A (22 Jun)
   c. Kickstand Xtra Manganese 4% 1.0 qt/A (30 Jun, 9 Jul)
   d. Irrigation ca. 1": (27 Jul, 31 Jul, 1 Sep)
10. Harvest date: 14 Oct

Table 70. Effect of treatments on disease incidence in peanut.

Treatment, rate/A and application date[1]	% leaf spot[2]			% defoliation[3]		
	25 Aug	9 Sep	8 Oct	25 Aug	9 Sep	8 Oct
Untreated check	56.3 a	78.8 a	99.3 a	2.8 a	7.5 a	96.0 a
TiltBravo 4.3SE 24 fl oz (7/13) Elatus 45WG 7.14 oz (8/9, 9/14) Bravo Weather Stik 24 fl oz (8/27)	12.0 b-d	9.3 bc	77.5 b-d	0.6 b	0.5 b	15.0 c
Elatus 45WG 7.14 oz (7/13, 8/27) Bravo Weather Stik 24 fl oz (8/9, 9/14)	4.8 d	7.5 b-d	82.5 a-c	0.5 b	0.1 b	13.8 cd
TiltBravo 4.3SE 24 fl oz (7/13) Elatus 45WG 7.14 oz (8/9) Bravo Weather Stik 24 fl oz (8/27, 9/14)	18.0 b	7.5 b-d	82.5 a-c	0.6 b	0.4 b	11.3 c-f
TiltBravo 4.3SE 24 fl oz (7/13) Elatus 45WG 7.14 oz (8/9, 9/14) Omega 500F 4 16 fl oz (7/30) Bravo Weather Stik 24 fl oz (8/27)	3.5 d	2.5 d	51.3 ef	0.5 b	0.0 b	8.8 d-f
Bravo Weather Stik 24 fl oz (7/13) Provost 3.6SC 8 fl oz (8/9, 8/27, 9/14)	8.3 cd	2.5 d	97.3 ab	0.5 b	0.0 b	31.3 b
Elatus 45WG 7.14 oz (7/13, 8/27) Bravo Weather Stik 24 fl oz + Alto 0.83SL 5.5 fl oz (8/9, 9/14)	5.0 d	5.3 cd	61.3 de	0.5 b	0.3 b	12.5 c-e
Bravo Weather Stik 24 fl oz + Alto 0.83SL 5.5 fl oz (7/13, 8/27) Elatus 45WG 7.14 oz (8/9)	5.8 cd	1.8 d	50.0 ef	0.5 b	0.0 b	8.8 d-f
TiltBravo 4.3SE 24 fl oz (7/13) Experimental Fungicide 6.84 fl oz (8/9, 9/14)	14.3 bc	12.0 b	16.3 g	0.5 b	0.5 b	6.3 f
TiltBravo 4.3SE 24 fl oz (7/13, 8/27) Aproach Prima 2.34SC 6.8 fl oz (8/9, 9/14)	7.5 cd	2.3 d	67.5 c-d	0.5 b	0.0 b	16.3 c
Bravo Weather Stik 24 fl oz (7/13, 8/27) Priaxor 4.17SC 6 fl oz (8/9, 9/14)	6.5 cd	4.0 cd	33.8 fg	0.5 b	0.8 b	7.5 ef
P(F)	**.0001**	**.0001**	**.0001**	**.0001**	**.0001**	**.0001**

[1] Fungicides were applied at R_3 (beginning pod, 13 Jul) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity).

[2] Percent leaflets with one or more leaf spots. No disease was present in observations on 11 Aug.

[3] Percent canopy defoliated.

Means followed by the same letter(s) within 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 71. Effect of treatments on soilborne disease and yield in peanut.

Treatment, rate/A and application date[1]	**Sclerotinia[2] (9 Sep)**	**CBR[2] (9 Sep)**	**Southern stem rot[2] (9 Sep)**	**Root disease[3] (13 Oct)**	**Pod rot[4] (13 Oct)**	**Yield[5] (lb/A)**
Untreated check	1.8	0.0	0.3	2.8	2.3	2266 c
TiltBravo 4.3SE 24 fl oz (7/13) Elatus 45WG 7.14 oz (8/9, 9/14) Bravo Weather Stik 24 fl oz (8/27)	3.0	0.0	0.5	2.0	1.5	5207 a
Elatus 45WG 7.14 oz (7/13, 8/27) Bravo Weather Stik 24 fl oz (8/9, 9/14)	4.8	0.0	0.3	2.3	1.8	4661 ab
TiltBravo 4.3SE 24 fl oz (7/13) Elatus 45WG 7.14 oz (8/9) Bravo Weather Stik 24 fl oz (8/27, 9/14)	4.0	0.0	0.3	2.0	2.3	4560 ab
TiltBravo 4.3SE 24 fl oz (7/13) Elatus 45WG 7.14 oz (8/9, 9/14) Omega 500F 4 16 fl oz (7/30) Bravo Weather Stik 24 fl oz (8/27)	2.8	0.8	0.3	1.8	1.8	5230 a
Bravo Weather Stik 24 fl oz (7/13) Provost 3.6SC 8 fl oz (8/9, 8/27, 9/14)	3.8	0.3	0.0	2.8	1.5	4486 b
Elatus 45WG 7.14 oz (7/13, 8/27) Bravo Weather Stik 24 fl oz + Alto 0.83SL 5.5 fl oz (8/9, 9/14)	4.3	0.0	0.3	2.3	2.0	4862 ab
Bravo Weather Stik 24 fl oz + Alto 0.83SL 5.5 fl oz (7/13, 8/27) Elatus 45WG 7.14 oz (8/9)	4.8	0.0	0.3	2.8	2.0	4461 b
TiltBravo 4.3SE 24 fl oz (7/13) Experimental Fungicide 6.84 fl oz (8/9, 9/14)	2.8	0.0	1.3	2.0	2.3	4809 ab
TiltBravo 4.3SE 24 fl oz (7/13, 8/27) Aproach Prima 2.34SC 6.8 fl oz (8/9, 9/14)	4.5	0.0	0.0	2.5	2.0	4402 b
Bravo Weather Stik 24 fl oz (7/13, 8/27) Priaxor 4.17SC 6 fl oz (8/9, 9/14)	1.8	0.3	1.5	2.3	1.8	4334 b
P(F)	.66	.54	.06	.16	.75	**.0001**

[1] Fungicides were applied at R_3 (beginning pod, 13 Jul) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity).

[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 with symptoms and/or signs of a disease and included 6-in on either side of that point.

[3] Root disease includes Cylindrocladium black rot. Rating scale: 0 = none, 1 = 1-10%, 2 = 11-25%, 3 = 26-50%, 4 = 51-75%, 5 = 76-90%, 6 = 91-100% of roots decayed.

[4] Pod rot index: 0 = none, 1 = 1-10%, 2 = 11-25%, 3 = 26-50%, 4 = 51-75%, 5 = 76-90%, 6 = 91-100% of pods decayed.

[5] Yields are weight of peanuts with moisture content of 7%. Peanuts were dug on 8 Oct and harvested on 14 Oct. Means followed by the same letter(s) within a column are not significantly different according to Fisher's Protected LSD (*P*=0.05).

XXVI. EVALUATION OF FOLIAR FUNGICIDES FOR CONTROL OF LEAF SPOTS AND SOILBORNE DISEASES OF PEANUT (LFSPOT215, Tidewater AREC Research Farm, Field 34A)

A. PURPOSE: To compare efficacy of fungicides for control of leaf spots, southern stem rot, and other soilborne diseases.

B. EXPERIMENTAL DESIGN:
1. Four randomized complete blocks with 10-ft alleys between blocks
2. Four, 35-ft rows per plot with treatments applied to the two center 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 14.85 gal/A. The initial application was at beginning pod (R_3, beginning pod, 13 Jul) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until beginning maturity (R_7). Note: The fifth spray (Bravo Weather Stik 24 fl oz) as prescribed in the original treatment protocol was not triggered by the leaf spot advisory.

D. TREATMENT, RATE/A AND APPLICATION TIMING:
1. Untreated check
2. Bravo Weather Stik 24 fl oz (1st, 3rd spray)
   Priaxor 4.17SC 8 fl oz (2nd, 4th spray)
   Bravo Weather Stik 24 fl oz (5th spray)
3. Bravo Weather Stik 24 fl oz (1st, 3rd spray)
   Priaxor 4.17SC 6 fl oz (2nd, 4th spray)
   Bravo Weather Stik 24 fl oz (5th spray)
4. Bravo Weather Stik 24 fl oz (1st, 3rd spray)
   Headline 2.09SC 9 fl oz (2nd spray)
   Headline 2.09SC 12 fl oz (4th spray)
   Bravo Weather Stik 24 fl oz (5th spray)

E. ADDITIONAL INFORMATION:
1. Location: Tidewater AREC Research Farm, Hare Rd., Suffolk, VA
2. Crop history: Corn 2014, cotton 2013, peanut 2012
3. Land preparation: rip and strip till (18 Apr)
4. Planting date and cultivar: 7 May, Bailey
5. Soil fertility report: (9 Jan 2015)

pH.....	5.6	K	169 ppm
Ca	378 ppm	Zn.....	0.7 ppm
Mg	43 ppm	Mn.....	2.8 ppm
P.....	136 ppm	Soil type.....	Kenansville loamy fine sand

6. Cylindrocladium black rot control: Proline 480 5.7 fl oz/A (& May, in-furrow)
7. Sclerotinia control: Omega 500F 1.0 pt/A (22 Jul, 20 Aug)
8. Herbicide: Pre-plant – Prowl H_2O 1.0 pt + Dual II Magnum 1.0 pt + Strongarm 0.22 fl oz/A (2 May)
   Pre-emergence – Dual II Magnum 1.0 pt + Roundup WeatherMax 22 fl oz + Strongarm 0.22 fl oz/A (10 May)
   Post-emergence – Select Max 1.0 pt w/Induce 4 fl oz/A (17 Jun)
9. Insecticide: Admire Pro Systemic 550SC 9 fl oz/A (7 May, in-furrow)
   Orthene 75S 8 oz/A (2 Jun)
10. Additional crop management:
    a. Traco Liquid Boron 1.0 qt/A (2 May)
    b. Landplaster: Peanut Maker 1200 lbs/A (22 Jun)
    c. KickStand Xtra Manganese 4% 1.0 qt/A (30 Jun)
    d. Irrigation ca. 1": (27 Jul, 31 Jul, 1 Sep)
11. Harvest date: 14 Oct

Table 72. Effect of treatments on disease incidence in peanut.

Treatment, rate/A and application date[1]	% leaf spot[2]			% defoliation[3]		
	25 Aug	9 Sep	8 Oct	25 Aug	9 Sep	8 Oct
Untreated check	1.4	6.3 a	96.0 a	0.5	0.5	31.3 a
Bravo Weather Stik 24 fl oz (7/13, 8/26) Priaxor 4.17SC 8 fl oz (8/9, 9/14)	0.9	0.5 b	4.0 b	0.5	0.0	4.0 b
Bravo Weather Stik 24 fl oz (7/13, 8/26) Priaxor 4.17SC 6 fl oz (8/9, 9/14)	0.9	0.8 b	5.0 b	0.5	0.0	5.0 b
Bravo Weather Stik 24 fl oz (7/13, 8/26) Headline 2.09SC 9 fl oz (8/9) Headline 2.09SC 12 fl oz (9/14)	0.6	0.4 b	5.0 b	0.5	0.0	5.0 b
P(F)	.052	**.01**	**.0001**	--	.44	**.0001**

[1] Fungicides were applied at R_3 (beginning pod, 13 Jul) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity).
[2] Percent leaflets with one or more leaf spots. No disease was present in observations on 11 Aug.
[3] Percent canopy defoliated.
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 73. Effect of treatments on soilborne disease and yield in peanut.

Treatment, rate/A and application date[1]	Sclero-tinia[2] (9 Sep)	CBR[2] (9 Sep)	Southern stem rot[2] (9 Sep)	Root rot[3] (13 Oct)	Pod rot[4] (13 Oct)	Yield[5] (lb/A)
Untreated check	0.8	0.5	0.0	2.0	1.8	3802
Bravo Weather Stik 24 fl oz (7/13, 8/26) Priaxor 4.17SC 8 fl oz (8/9, 9/14)	0.3	1.3	0.5	1.8	1.5	3861
Bravo Weather Stik 24 fl oz (7/13, 8/26) Priaxor 4.17SC 6 fl oz (8/9, 9/14)	0.5	0.5	0.8	2.0	1.8	3802
Bravo Weather Stik 24 fl oz (7/13, 8/26) Headline 2.09SC 9 fl oz (8/9) Headline 2.09SC 12 fl oz (9/14)	0.3	0.8	0.3	2.0	2.3	3813
P(F)	.80	.69	.38	.44	.49	.98

[1] Fungicides were applied at R_3 (beginning pod, 13 Jul) and thereafter according to the Va. Peanut Leaf Spot Advisory Program until R_7 (beginning maturity).
[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 with symptoms and/or signs of a disease and included 6-in on either side of that point.
[3] Root disease includes Cylindrocladium black rot. Rating scale: 0 = none, 1 = 1-10%, 2 = 11-25%, 3 = 26-50%, 4 = 51-75%, 5 = 76-90%, 6 = 91-100% of roots decayed.
[4] Pod rot index: 0 = none, 1 = 1-10%, 2 = 11-25%, 3 = 26-50%, 4 = 51-75%, 5 = 76-90%, 6 = 91-100% of pods decayed.
[5] Yields are weight of peanuts with moisture content of 7%. Peanuts were dug on 8 Oct and harvested on 14 Oct.

XXVII. EVALUATION OF FOLIAR FUNGICIDES FOR CONTROL OF SCLEROTINIA BLIGHT OF PEANUT (SCL115, Tidewater AREC Research Farm, Field 28)

A. PURPOSE: To evaluate different fungicide chemistries and rates for control of Sclerotinia blight in peanut

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks separated by 10-ft alleyways
2. Two, 35-ft rows per plot with 36 in. row spacing
3. Seeding rate of 3 to 4 seed/ft of row
4. Split-plot design with main plots (variety) of 12 rows and subplots (treatment) of 2 rows

C. APPLICATION OF TREATMENTS: Treatments were applied according to the Virginia Sclerotinia Blight Advisory Program (http://webipm.ento.vt.edu/cgi-bin/infonet1.cgi). Treatments were started when the advisory reported a high risk of disease or Sclerotinia blight was first detected in the field (23 Jul). Thereafter, treatments were applied according to the last effective spray date reported in daily advisories. All treatments were applied with three, $D_3$23 nozzles/row delivering 14.8 gal/A.

D. CULTIVAR (Main plot):
1. Bailey
2. CHAMPS

E. TREATMENT AND RATE/A (Sub-plot):
1. Untreated
2. Omega 500F 1.0 pt (1st advisory spray)
   Omega 500F 1.0 pt (2nd advisory spray)
3. Omega 500F 1.5 pt (1st advisory spray)
   Omega 500F 1.5 pt (2nd advisory spray)
4. Fontelis 1.67SC 1.0 (1st advisory spray)
   Fontelis 1.67SC 1.0 (2nd advisory spray)
5. Fontelis 1.67SC 1.5 pt (1st advisory spray)
   Fontelis 1.67SC 1.5 pt (2nd advisory spray)
6. Omega 500F 1.0 pt (1st advisory spray)
   Fontelis 1.67SC 1.5 pt (2nd advisory spray)

F. ADDITIONAL INFORMATION:
1. Location: Tidewater Research Farm, Hare Rd, Suffolk, VA
2. Crop history: Wheat/soybean 2014, peanut 2013, wheat/soybean 2012
3. Land preparation: rip and strip till (18 Apr)
4. Planting date: 7 May
5. Soil fertility report (9 Jan 2015):

pH	6.0	Mn	1.9 ppm
Ca.....	583 ppm	K.....	99 ppm
Mg.....	63 ppm	Zn	0.3 ppm
P	31 ppm	Soil type	Kenansville loamy fine sand

6. Leaf spot control: Provost 433SC 10.7 fl oz/A (13 Jul, 9 Aug, 27 Aug)
   Bravo Weather Stik 1.5 pt/A (14 Sep)
7. Cylindrocladium black rot control: Proline 480SC 5.7 fl oz/A (7 May in-furrow)
8. Herbicide: Pre-plant – Prowl H_2O 1.0 pt + Dual II Magnum 1.0 pt
   + Strongarm 0.22 fl oz/A (2 May)
   Pre-emergence – Dual II Magnum 1.0 pt + Roundup WeatherMax 22 fl oz
   + Strongarm 0.22 fl oz/A (10 May)
   Post-emergence – Select Max 1.0 pt w/Induce 4 fl oz/A (17 Jun)

9. Insecticide: Admire Pro Systemic 550SC 9 fl oz/A(7 May in-furrow)
   Orthene 75S 8 oz/A (2 Jun)
10. Additional crop management:
    a. Traco Liquid Boron 1.0 qt/A (2 May)
    b. Landplaster: Peanut Maker 1200 lb/A (22 Jun)
    c. Kickstand Xtra Manganese 4% 1.0 qt/A (30 Jun, 9 Jul)
    d. Irrigation ca. 1": (27 Jul, 31 Jul, 1 Sep)
11. Harvest date: 15 Oct

Table 74. Effect of treatments on soilborne diseases of peanut.

Cultivar, treatment, rate/A, & application date[1]	Sclerotinia[2]				Southern stem rot[2]			CBR[2]	
	22 Jul	4 Aug	10 Sep	8 Oct	4 Aug	10 Sep	8 Oct	10 Sep	8 Oct
***Split-plot analysis, P*(F)**							.		
Variety	.21	.08	.51	.65	.47	**.005**	.10	**.009**	**.003**
Treatment	.49	**.04**	**.0004**	**.001**	**.03**	.76	.67	.91	**.03**
Variety x treatment	.84	.25	.16	.70	.57	.99	.67	.30	**.02**
Variety mean									
Bailey	0.9	5.3	4.2	14.1	1.3	1.4 b	0.0	0.1 b	0.6 b
CHAMPS	2.3	7.7	5.0	16.1	1.2	2.8 a	0.3	1.0 a	5.8 a
Treatment mean									
Untreated	2.4	7.5 a	7.6a	21.1 a	0.5 c	2.4	0.0	0.8	1.9 bc
Omega 500F 1.0 pt (7/23) Omega 500F 1.0 pt (8/18)	1.4	7.9 a	4.9bc	18.4 a	1.1 a-c	1.6	0.3	0.5	1.1 c
Omega 500F 1.5 pt (7/23) Omega 500F 1.5 pt (8/18)	1.3	5.6 ab	2.9cd	8.4 b	0.8 bc	2.6	0.1	0.5	4.9 a
Fontelis 1.67SC 1.0 (7/23) Fontelis 1.67SC 1.0 (8/18)	2.0	7.3 a	4.4bc	16.1 a	1.8 a	1.8	0.1	0.4	3.9 ab
Fontelis 1.67SC 1.5 (7/23) Fontelis 1.67SC 1.5 (8/18)	1.5	7.0 a	6.4ab	17.8 a	1.9 a	1.9	0.3	0.8	3.3 a-c
Omega 500F 1.0 pt (7/23) Fontelis 1.67SC 1.5 (8/18)	1.0	3.6 b	1.4d	8.9 b	1.5 ab	2.4	0.3	0.5	4.1 ab
Bailey									
Untreated	1.8	5.3	6.5 ab	18.0	1.0	1.5	0.0	0.0	1.3
Omega 500F 1.0 pt (7/23) Omega 500F 1.0 pt (8/18)	1.0	5.5	3.0 bc	16.3	1.5	1.3	0.0	0.5	0.3
Omega 500F 1.5 pt (7/23) Omega 500F 1.5 pt (8/18)	0.3	6.0	2.5 bc	8.5	0.8	2.0	0.0	0.0	1.0
Fontelis 1.67SC 1.0 (7/23) Fontelis 1.67SC 1.0 (8/18)	1.0	5.8	4.3 a-c	14.3	1.5	1.0	0.0	0.3	1.3
Fontelis 1.67SC 1.5 (7/23) Fontelis 1.67SC 1.5 (8/18)	0.5	7.0	8.0 a	19.3	1.8	1.0	0.0	0.0	0.0
Omega 500F 1.0 pt (7/23) Fontelis 1.67SC 1.5 (8/18)	0.8	2.3	1.0 c	8.3	1.5	1.5	0.0	0.0	0.0
CHAMPS									
Untreated	3.0	9.8 a	8.8 a	24.3 a	0.0 b	3.3	0.0	1.5	2.5 b
Omega 500F 1.0 pt (7/23) Omega 500F 1.0 pt (8/18)	1.8	10.3 a	6.8 ab	20.5 a	0.8 ab	2.0	0.5	0.5	2.0 b
Omega 500F 1.5 pt (7/23) Omega 500F 1.5 pt (8/18)	2.3	5.3 bc	3.3 c	8.3 b	0.8 ab	3.3	0.3	1.0	8.8 a
Fontelis 1.67SC 1.0 (7/23) Fontelis 1.67SC 1.0 (8/18)	3.0	8.8 ab	4.5 bc	18.0 ab	2.0 a	2.5	0.3	0.5	6.5 ab
Fontelis 1.67SC 1.5 (7/23) Fontelis 1.67SC 1.5 (8/18)	2.5	7.0 a-c	4.8 bc	16.3 ab	2.0 a	2.8	0.0	1.5	6.5 ab
Omega 500F 1.0 pt (7/23) Fontelis 1.67SC 1.5 (8/18)	1.3	5.0 c	1.8 c	9.5 b	1.5 a	3.3	0.5	1.0	8.3 a

[1]Fungicides were applied on 23 Jul when Sclerotinia was first detected in the trial and thereafter according to the last effective spray date reported in advisories. [2]Counts of infection centers in the two center rows of each plot or a total of 70 ft row. An infection center was a point with symptoms and/or signs of a disease and included 6 in. on either side of that point. Means within a column or group followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 75. Effect of treatments on soilborne diseases of peanut.

Cultivar, treatment, rate/A, & application date[1]	% leaf spot[2] (10 Sep)	% defol.[3] (10 Sep)	Root disease[4] (13 Oct)	Pod rot[5] (13 Oct)	Yield[6] (lb/A)
***Split-plot analysis, P*(F)**					
Variety	.56	.39	**.02**	**.001**	**.01**
Treatment	.28	.43	.50	.76	**.001**
Variety x treatment	.51	.43	.81	.28	.60
Variety mean					
Bailey	0.3	0.1	2.2b	1.8 b	4517 a
CHAMPS	0.5	0.0	3.5a	3.3 a	2950 b
Treatment mean					
Untreated	0.2	0.0	3.0	2.9	2868 b
Omega 500F 1.0 pt (7/23) Omega 500F 1.0 pt (8/18)	0.2	0.0	2.9	2.6	3545 b
Omega 500F 1.5 pt (7/23) Omega 500F 1.5 pt (8/18)	0.7	0.0	2.5	2.4	4449 a
Fontelis 1.67SC 1.0 (7/23) Fontelis 1.67SC 1.0 (8/18)	0.5	0.0	3.0	2.5	3617 b
Fontelis 1.67SC 1.5 (7/23) Fontelis 1.67SC 1.5 (8/18)	0.2	0.0	2.9	2.5	3431 b
Omega 500F 1.0 pt (7/23) Fontelis 1.67SC 1.5 (8/18)	0.3	0.4	2.6	2.6	4493 a
Bailey					
Untreated	0.1	0.0	2.5	2.5	3845
Omega 500F 1.0 pt (7/23) Omega 500F 1.0 pt (8/18)	0.1	0.0	2.0	1.8	4431
Omega 500F 1.5 pt (7/23) Omega 500F 1.5 pt (8/18)	0.6	0.0	1.8	1.3	5173
Fontelis 1.67SC 1.0 (7/23) Fontelis 1.67SC 1.0 (8/18)	0.3	0.0	2.5	2.0	4590
Fontelis 1.67SC 1.5 (7/23) Fontelis 1.67SC 1.5 (8/18)	0.3	0.0	2.3	1.8	3780
Omega 500F 1.0 pt (7/23) Fontelis 1.67SC 1.5 (8/18)	0.1	0.8	2.0	1.8	5285
P(F)	.29	.45	.27	.18	.09
CHAMPS					
Untreated	0.3	0.0	3.5	3.3	1887 c
Omega 500F 1.0 pt (7/23) Omega 500F 1.0 pt (8/18)	0.3	0.0	3.8	3.5	2659 a-c
Omega 500F 1.5 pt (7/23) Omega 500F 1.5 pt (8/18)	0.8	0.0	3.3	3.5	3724 a
Fontelis 1.67SC 1.0 (7/23) Fontelis 1.67SC 1.0 (8/18)	0.6	0.0	3.5	3.0	2644 bc
Fontelis 1.67SC 1.5 (7/23) Fontelis 1.67SC 1.5 (8/18)	0.1	0.0	3.5	3.3	3083 ab
Omega 500F 1.0 pt (7/23) Fontelis 1.67SC 1.5 (8/18)	0.6	0.0	3.3	3.5	3701 ab
P(F)	.50	--	.91	.89	**.02**

[1]Fungicides were applied on 23 Jul when Sclerotinia was first detected in the trial and thereafter according to the last effective spray date reported in advisories. [2]Percentage of total leaflets with early or late leaf spot lesions. [3] Percentage of total canopy defoliated. [4]Root disease includes Cylindrocladium black rot. Rating scale: 0 = none, 1 = 1-10%, 2 = 11-25%, 3 = 26-50%, 4 = 51-75%, 5 = 76-90%, 6 = 91-100% of roots decayed. [5]Pod rot index: 0 = none, 1 = 1-10%, 2 = 11-25%, 3 = 26-50%, 4 = 51-75%, 5 = 76-90%, 6 = 91-100% of pods decayed. [6]Yields are weight of peanuts with moisture content adjusted to 7%. Peanuts were dug 9 Oct and harvested 15 Oct. Means within a column or group followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

XXVIII. EVALUATION OF FOLIAR FUNGICIDES FOR CONTROL OF SCLEROTINIA BLIGHT OF PEANUT (SCL215, TAREC, Field 46B)

A. PURPOSE: To evaluate different fungicide chemistries and rates for control of Sclerotinia blight in peanut

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks separated by 10-ft alleyways
2. Two, 35-ft rows per plot with 36 in. row spacing
3. Seeding rate of 3 to 4 seed/ft of row
4. Split-plot design with main plots (variety) of 12 rows and subplots (treatment) of 2 rows

C. APPLICATION OF TREATMENTS: Treatments were applied according to the Virginia Sclerotinia Blight Advisory Program (http://webipm.ento.vt.edu/cgi-bin/infonet1.cgi). Treatments were started when the advisory reported a high risk of disease or Sclerotinia blight was first detected in the field (23 Jul). Thereafter, treatments were applied according to the last effective spray date reported in daily advisories. All treatments were applied with three, $D_3$23 nozzles/row delivering 14.8 gal/A.

D. CULTIVAR (Main plot):
1. Wynne
2. Sullivan

E. TREATMENT AND RATE/A (Sub-plot):
1. Untreated
2. Omega 500F 1.0 pt (1st advisory spray)
   Omega 500F 1.0 pt (2nd advisory spray)
3. Omega 500F 1.5 pt (1st advisory spray)
   Omega 500F 1.5 pt (2nd advisory spray)
4. Fontelis 1.67SC 1.0 (1st advisory spray)
   Fontelis 1.67SC 1.0 (2nd advisory spray)
5. Fontelis 1.67SC 1.5 pt (1st advisory spray)
   Fontelis 1.67SC 1.5 pt (2nd advisory spray)
6. Omega 500F 1.0 pt (1st advisory spray)
   Fontelis 1.67SC 1.5 pt (2nd advisory spray)

F. ADDITIONAL INFORMATION:
1. Location: Tidewater AREC, Holland Rd., Suffolk, VA
2. Crop history: Corn 2014, cotton 2013, peanut 2011
3. Land preparation: rip and strip till (5 May)
4. Planting date: 8 May
5. Soil fertility report: (9 Jan 2015)

pH.....	6.3	K	205 ppm
Ca	940 ppm	Zn.....	0.7 ppm
Mg	86 ppm	Mn.....	2.1 ppm
P.....	107 ppm	Soil type.....	Nansemond fine sandy loam

6. Leaf spot control: Provost 433SC 10.7 fl oz/A (17 Jul, 9 Aug, 27 Aug)
   Bravo Weather Stik 1.5 pt/A (14 Sep)
7. Cylindrocladium black rot control: Proline 480SC 5.7 fl oz/A (8 May, in-furrow)
8. Herbicide: Pre-plant – Roundup WeatherMax 24 fl oz/A (23 Apr)
   Post-emergence – Prowl H_2O 1.0 pt + Dual II Magnum 1.0 pt
   + Strongarm 0.45 fl oz/A (14 May)
   Select Max 1.0 pt + Basagran 1.5 pt w/Induce 4 fl oz/A (17 Jun)
   Select Max 1.0 pt w/Induce 2 fl oz/A (22 Jul)

9. Insecticide: Admire Pro Systemic 550SC 9 fl oz/A (8 May, in-furrow)
   Orthene 75S 8 oz/A (2 Jun)
10. Additional crop management:
    a. Traco Liquid Boron 1.0 qt/A (14 May)
    b. Landplaster: Peanut Maker 1200 lbs/A (22 Jun)
    c. Kickstand Xtra Manganese 4% 1.0 qt/A (30 Jun, 10 Jul)
11. Harvest date: 20 Oct

Table 76. Effect of treatments on soilborne diseases of peanut.

Cultivar, treatment, rate/A, & application date[1]	Sclerotinia[2]				Stem rot[2]			CBR[2]	
	14 Jul	4 Aug	10 Sep	10 Oct	4 Aug	10 Sep	10 Oct	10 Sep	12 Oct
***Split-plot analysis, P*(F)**									
Variety	.08	**.02**	.28	.13	.37	.20	.15	.08	**.03**
Treatment	.18	.39	.69	.99	.29	.32	.72	.39	.34
Variety x treatment	.19	.91	.64	.69	.16	**.002**	.62	.92	.66
Variety mean									
Wynne	0.9	3.1 a	1.8	8.8	1.5	3.3	0.6	0.3	5.2 a
Sullivan	0.5	2.3 a	1.3	5.3	0.9	2.1	1.0	0.1	3.0 b
Treatment mean									
Untreated	0.4	1.9	1.0	7.3	1.9	3.3	1.1	0.4	5.4
Omega 500F 1.0 pt (7/23) Omega 500F 1.0 pt (8/18)	0.9	2.5	1.4	6.9	1.4	2.5	0.5	0.1	4.3
Omega 500F 1.5 pt (7/23) Omega 500F 1.5 pt (8/18)	0.9	3.6	1.5	7.1	0.6	2.5	0.9	0.1	3.8
Fontelis 1.67SC 1.0 (7/23) Fontelis 1.67SC 1.0 (8/18)	0.5	2.3	1.6	6.6	1.3	1.9	1.3	0.0	3.0
Fontelis 1.67SC 1.5 (7/23) Fontelis 1.67SC 1.5 (8/18)	1.4	3.5	2.0	8.1	0.8	3.3	0.6	0.3	3.8
Omega 500F 1.0 pt (7/23) Fontelis 1.67SC 1.5 (8/18)	0.4	2.5	1.9	6.5	1.1	2.9	0.5	0.5	4.3
Wynne									
Untreated	0.3	2.0	1.3	8.0	1.5	4.8a	0.5	0.5	6.0
Omega 500F 1.0 pt (7/23) Omega 500F 1.0 pt (8/18)	0.8	2.8	1.5	10.0	2.5	3.0a-c	0.0	0.3	5.8
Omega 500F 1.5 pt (7/23) Omega 500F 1.5 pt (8/18)	1.8	3.8	1.3	9.8	0.8	2.3bc	0.8	0.3	5.0
Fontelis 1.67SC 1.0 (7/23) Fontelis 1.67SC 1.0 (8/18)	0.5	2.5	1.8	9.3	1.3	1.0c	1.3	0.0	3.8
Fontelis 1.67SC 1.5 (7/23) Fontelis 1.67SC 1.5 (8/18)	1.8	4.5	2.5	9.8	1.0	4.3ab	1.0	0.3	4.3
Omega 500F 1.0 pt (7/23) Fontelis 1.67SC 1.5 (8/18)	0.5	3.3	2.8	6.3	1.8	4.8a	0.3	0.8	6.3
Sullivan									
Untreated	0.5	1.8	0.8	6.5	2.3	1.8	1.8	0.3	4.8
Omega 500F 1.0 pt (7/23) Omega 500F 1.0 pt (8/18)	1.0	2.3	1.3	3.8	0.3	2.0	1.0	0.0	2.8
Omega 500F 1.5 pt (7/23) Omega 500F 1.5 pt (8/18)	0.0	3.5	1.8	4.5	0.5	2.8	1.0	0.0	2.5
Fontelis 1.67SC 1.0 (7/23) Fontelis 1.67SC 1.0 (8/18)	0.5	2.0	1.5	4.0	1.3	2.8	1.3	0.0	2.3
Fontelis 1.67SC 1.5 (7/23) Fontelis 1.67SC 1.5 (8/18)	1.0	2.5	1.5	6.5	0.5	2.3	0.3	0.3	3.3
Omega 500F 1.0 pt (7/23) Fontelis 1.67SC 1.5 (8/18)	0.3	1.8	1.0	6.8	0.5	1.0	0.8	0.3	2.3

[1]Fungicides were applied on 23 Jul when Sclerotinia was first detected in the trial and thereafter according to the last effective spray date reported in advisories. [2]Counts of infection centers in the two center rows of each plot or a total of 70 ft row. An infection center was a point with symptoms and/or signs of a disease and included 6 in. on either side of that point. Means within a column or group followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (P=0.05).

Table 77. Effect of treatments on disease severity and yield of peanut.

Cultivar, treatment, rate/A, & application date[1]	% leaf spot[2] (10 Sep)	% defol.[3] (10 Sep)	Root Disease[4] (13 Oct)	Pod rot[5] (13 Oct)	Yield[6] (lb/A)
***Split-plot analysis, P*(F)**					
Variety	.40	.50	**.04**	.23	**.02**
Treatment	.48	.42	.24	.75	.08
Variety x treatment	.18	.84	.97	.94	.15
Variety mean					
Wynne	0.4	0.0	2.8 a	2.6	4283 b
Sullivan	0.2	0.1	1.9 b	2.0	5323 a
Treatment mean					
Untreated	0.3	0.1	2.8	2.4	4297
Omega 500F 1.0 pt (7/23) Omega 500F 1.0 pt (8/18)	0.3	0.0	2.3	2.1	4749
Omega 500F 1.5 pt (7/23) Omega 500F 1.5 pt (8/18)	0.4	0.1	2.4	2.5	4871
Fontelis 1.67SC 1.0 (7/23) Fontelis 1.67SC 1.0 (8/18)	0.3	0.0	2.5	2.4	4922
Fontelis 1.67SC 1.5 (7/23) Fontelis 1.67SC 1.5 (8/18)	0.2	0.0	1.9	2.1	4987
Omega 500F 1.0 pt (7/23) Fontelis 1.67SC 1.5 (8/18)	0.2	0.1	2.3	2.4	4991
Wynne					
Untreated	0.1	0.0	3.0	2.8	4031
Omega 500F 1.0 pt (7/23) Omega 500F 1.0 pt (8/18)	0.5	0.0	2.8	2.5	4138
Omega 500F 1.5 pt (7/23) Omega 500F 1.5 pt (8/18)	0.6	0.1	2.8	2.8	4607
Fontelis 1.67SC 1.0 (7/23) Fontelis 1.67SC 1.0 (8/18)	0.5	0.0	3.0	2.5	4459
Fontelis 1.67SC 1.5 (7/23) Fontelis 1.67SC 1.5 (8/18)	0.3	0.0	2.3	2.5	4344
Omega 500F 1.0 pt (7/23) Fontelis 1.67SC 1.5 (8/18)	0.3	0.0	2.8	2.8	4115
Sullivan					
Untreated	0.4	0.1	2.5	2.0	4563 b
Omega 500F 1.0 pt (7/23) Omega 500F 1.0 pt (8/18)	0.0	0.0	1.8	1.8	5360 a
Omega 500F 1.5 pt (7/23) Omega 500F 1.5 pt (8/18)	0.3	0.1	2.0	2.3	5136 ab
Fontelis 1.67SC 1.0 (7/23) Fontelis 1.67SC 1.0 (8/18)	0.1	0.0	2.0	2.3	5385 a
Fontelis 1.67SC 1.5 (7/23) Fontelis 1.67SC 1.5 (8/18)	0.1	0.0	1.5	1.8	5630 a
Omega 500F 1.0 pt (7/23) Fontelis 1.67SC 1.5 (8/18)	0.1	0.1	1.8	2.0	5866 a

[1]Fungicides were applied on 23 Jul when Sclerotinia was first detected in the trial and thereafter according to the last effective spray date reported in advisories. [2]Percentage of total leaflets with early or late leaf spot lesions. [3]Percentage of total canopy defoliated. [4]Root disease includes Cylindrocladium black rot. Rating scale: 0 = none, 1 = 1-10%, 2 = 11-25%, 3 = 26-50%, 4 = 51-75%, 5 = 76-90%, 6 = 91-100% of roots decayed. [5]Pod rot index: 0 = none, 1 = 1-10%, 2 = 11-25%, 3 = 26-50%, 4 = 51-75%, 5 = 76-90%, 6 = 91-100% of pods decayed. [6]Yields are weight of peanuts with moisture content adjusted to 7%. Peanuts were dug 14 Oct and harvested 20 Oct. Means within a column or group followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

XXIX. EVALUATION OF FUNGICIDES FOR DISEASE CONTROL IN SOYBEAN (SOYSEEDFUN115, Tidewater AREC, Field 55)

A. PURPOSE: To evaluate the efficacy of seed treatments, in-furrow, and foliar fungicides for disease control in soybean.

B. EXPERIMENTAL DESIGN:
1. Treatments in plots of four, 30-ft rows, spaced 36 in. apart
2. Four replications in randomized complete block design separated by 8-ft alleyways

C. APPLICATION OF TREATMENTS: In-furrow (F) fungicides were applied to the seed furrow at planting (27 May) as a liquid mixture with water in a volume of 5 gal/A applied through microtubes. Seed treatments (S) were applied by personnel with BASF Corporation. Foliar sprays were applied at R_1 (beginning flower, 2 Jul) and R_3 (14 Jul) with a Lee Spider sprayer having two, 8002VS nozzles per row spaced 18 in. apart and delivering a volume of 19.5 gal/A.

D. TREATMENT, RATE AND APPLICATION METHOD/TIMING:
1. Untreated
2. Vault HP Soy 1 fl oz/cwt (S)
3. Vault HP Soy 1 fl oz/cwt (S)
   + Priaxor 4.17SC 4 fl oz/A (F)
4. Vault HP Soy 1 fl oz/cwt (S)
   + Priaxor 4.17SC SC 4 fl oz/A (F)
   Priaxor 4.17SC 4 fl oz/A (R_3)
5. Vault HP Soy 1 fl oz/cwt (S)
   + Priaxor 4.17SC 4 fl oz/A (R_3)
6. Vault HP Soy 1 fl oz/cwt (S)
   + Priaxor 4.17SC SC 4 fl oz/A (F)
   + Vault NP Soy 8.4 fl oz/A (F)
7. Nutriplant SD 4 fl oz/cwt (S)
   + Nutriplant AG 16 fl oz/A (R1)

E. ADDITIONAL INFORMATION:
1. Location: Tidewater Agricultural Research and Extension Center, Holland Rd., Suffolk, VA
2. Crop history: Corn 2014, soybean 2013, soybean 2012
3. Planting date and variety: AG4730, 20 May
4. Soil fertility report (9 Jan 2015):

pH	5.9	K	201 ppm
Ca.....	620 ppm	Zn.....	0.9 ppm
Mg.....	83 ppm	Mn	1.9 ppm
P	6.5 ppm	Soil type.....	Nansemond fine sandy loam

5. Herbicide: Pre-plant – Roundup WeatherMax 22 fl oz/A (24 Apr)
   Prefix 1.5 pt/A (14 May)
   Post-emergence – Roundup WeatherMax 22 fl oz/A (30 Jun)
6. Fertilization: Lime 2,000 lb/A (15 Mar)
   8-21-32 183 lb/A (27 Apr)
7. Harvest date: 30 Oct

Table 78. Effect of treatments on emergence and disease of soybeans.

Treatment, rate and application method/timing[1]	Plants/ft[2] (12 Jun)	Vigor (0-10)[3]		Nodules /root[4] (16 Jun)	% leaf area w/disease[5] (14 Sep)
		12 Jun	31 Jul		
Untreated	9.3 cd	8.5	10.0	18.1	8.8
Vault HP Soy 1 fl oz/cwt (S)	9.5 b-d	9.0	10.0	23.4	12.5
Vault HP Soy 1 fl oz/cwt (S) + Priaxor 4.17SC 4 fl oz/A (F)	9.6 bc	8.3	10.0	20.9	8.8
Vault HP Soy 1 fl oz/cwt (S) + Priaxor 4.17SC 4 fl oz/A (F) Priaxor 4.17SC 4 fl oz/A (R_3)	10.2 a	9.3	10.0	21.0	5.0
Vault HP Soy 1 fl oz/cwt (S) + Priaxor 4.17SC 4 fl oz/A (R_3)	9.7 a-c	9.0	10.0	21.1	8.0
Vault HP Soy 1 fl oz/cwt (S) + Priaxor 4.17SC 4 fl oz/A (F) + Vault NP Soy 8.4 fl oz/A (F)	9.9 ab	9.0	10.0	17.3	11.3
Nutriplant SD 4 fl oz/cwt (S) Nutriplant AG 16 fl oz/A (R1)	9.0 d	8.3	10.0	--	8.8
P(F)	**.003**	.17	--	.13	.17

[1] S = seed treatment; F = in-furrow (27 May). Foliar treatment applied at R_1 (beginning flower, 2 Jul) and R_3 (14 Jul).
[2] Determined from counts in two, 30-ft rows.
[3] Vigor index rating scale: 10 = 100% vigor, 0 = no vigor.
[4] Determined from counting the nodes on roots of five randomly selected plants per plot.
[5] Percent of leaf area with symptoms of disease including Septoria brown spot. No seedling diseases were observed. Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 79. Effect of treatments on defoliation, senescence, and yield of soybeans.

Treatment, rate and application method/timing[1]	% defoliation[2]		% yellow canopy[3] (14 Sep)	Yield (bu/A)[4]
	31 Jul	14 Sep		
Untreated	15.0	36.3	30.0	50.5
Vault HP Soy 1 fl oz/cwt (S)	12.5	33.8	22.5	52.9
Vault HP Soy 1 fl oz/cwt (S) + Priaxor 4.17SC 4 fl oz/A (F)	15.0	32.5	28.8	52.1
Vault HP Soy 1 fl oz/cwt (S) + Priaxor 4.17SC 4 fl oz/A (F) Priaxor 4.17SC 4 fl oz/A (R_3)	10.0	22.5	21.3	62.2
Vault HP Soy 1 fl oz/cwt (S) + Priaxor 4.17SC 4 fl oz/A (R_3)	11.3	18.8	21.3	54.0
Vault HP Soy 1 fl oz/cwt (S) + Priaxor 4.17SC 4 fl oz/A (F) + Vault NP Soy 8.4 fl oz/A (F)	10.0	31.3	18.8	55.2
Nutriplant SD 4 fl oz/cwt (S) Nutriplant AG 16 fl oz/A (R1)	11.3	27.5	26.3	59.3
P(F)	.27	.22	.72	.57

[1] S = seed treatment; F = in-furrow (27 May). Foliar treatment applied at R_1 (beginning flower, 2 Jul) and R_3 (14 Jul).
[2] Percent canopy defoliated.
[3] Overall yellowing as an indication of senescence.
[4] Yields are weight of soybeans adjusted to 13.5% moisture. One bushel equals 60 lb. Soybeans were harvested 30 Oct.

XXX. EVALUATION OF SEED TREATMENTS ON SOYBEAN FOR NEMATODE AND DISEASE CONTROL (SOYSEEDNEMA115, JENNINGS FARM, CHESAPEAKE, VA)

A. PURPOSE: To evaluate the efficacy of seed treatments for nematode control in soybean.

B. EXPERIMENTAL DESIGN:
   1. Treatments in plots of two, 30-ft rows, spaced 36 in. apart
   2. Four replications in randomized complete block design separated by 8-ft alleyways

C. APPLICATION OF TREATMENTS: Seed treatments were applied by personnel with Bayer Crop Science.

D. SEED TREATMENT AND RATE (as indicated):
   1. Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Gaucho 600FS 0.13 mg ai/seed
   2. Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Poncho/Votivo 0.13 mg ai/seed
   3. Fluopyram 600FS 0.15 mg + Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Poncho/Votivo 0.13 mg ai/seed
   4. Maxim 2.5 g + Apron XL LS 3.75 g + Cruiser 5FS 5 g + Mertect 340F 14.19 g + Clariva PN 130 ml ai/100 kg + Vibrance 500FS .0038 mg ai/seed
   5. Untreated

E. ADDITIONAL INFORMATION:
   1. Location: Jennings Farm, Chesapeake, VA
   2. Planting date: 27 May
   3. Nematode assay report (20 May):

Nematodes/500 cc soil	
Cyst (Juvenile).....	20
Cyst (Female)	10
Lesion	40
Spiral.....	780

   4. Herbicide: Post-emergence – Roundup WeatherMax 22 fl oz + FirstRate 0.3 oz/A (23 Jun)
   5. Harvest date: 27 Oct

Table 80. Effect of treatments on emergence, vigor, and yield of soybean.

Seed treatment and rate[1]	Plants/ft[2] (11 Jun)	Vigor (0-10)[3] (23 Jun)	Yield (bu/A)[4]	Wt./ 100 seed (oz)
Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Gaucho 600FS 0.13 mg ai/seed	8.2 b	10.0	46.2	.54
Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Poncho/Votivo 0.13 mg ai/seed	8.0 bc	9.8	43.8	.54
Fluopyram 600FS 0.15 mg + Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Poncho/Votivo 0.13 mg ai/seed	7.4 c	9.5	43.2	.52
Maxim 2.5 g + Apron XL LS 3.75 g + Cruiser 5FS 5 g + Mertect 340F 14.19 g + Clariva PN 130 ml ai/100 kg + Vibrance 500FS .0038 mg ai/seed	9.0 a	9.8	45.7	.53
Untreated	8.4 ab	9.8	44.6	.53
P(F)	**.01**	.55	.87	.42

[1] S = seed treatment; all seed treated by personnel with Bayer CropScience. Seed were planted 27 May.
[2] Determined from counts in two, 30-ft rows.
[3] Vigor index rating scale: 10 = 100% vigor, 0 = no vigor.
[4] Yields are weight of soybeans adjusted to 13.5% moisture. One bushel equals 60 lb. Soybeans were harvested 27 Oct. Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

XXXI. EVALUATION OF IN-FURROW PRODUCTS FOR CONTROL OF NEMATODES AND DISEASE IN SOYBEAN (SOYNEMA115, Jennings Farm, Chesapeake, VA)

A. PURPOSE: To evaluate the efficacy of in-furrow products for nematode and disease control in soybean.

B. EXPERIMENTAL DESIGN:
   1. Treatments in plots of two, 30-ft rows, spaced 36 in. apart
   2. Four replications in randomized complete block design separated by 8-ft alleyways

C. APPLICATION OF TREATMENTS: In-furrow (F) treatments were applied to the seed furrow at planting (27 May) as a liquid mixture with water in a volume of 5 gal/A applied through microtubes.

D. TREATMENT, RATE/A:
   1. Untreated
   2. Velum Total 8 oz
   3. Velum Total 8 oz
      + Proline 480SC 2.85 oz
   4. Velum Total 8 oz
      + Propulse 400SC 6.84 oz
   5. Propulse 400SC 6.84 oz
   6. Propulse 400SC 13.69 oz
   7. O2YS 1.5 pt

E. ADDITIONAL INFORMATION:
   1. Location: Jennings Farm, Chesapeake, VA
   2. Planting date: 27 May
   3. Nematode assay report (20 May):

Nematodes/500 cc soil	
Cyst (Juvenile).....	20
Cyst (Female)	10
Lesion	40
Spiral.....	780

   4. Herbicide: Roundup WeatherMax 22 fl oz + FirstRate 0.3 oz/A (23 Jun)
   5. Harvest date: 27 Oct

Table 82. Effect of treatments on emergence, vigor, and yield of soybean.

Treatment and rate/A (F)[1]	Plants/ft[2] (11 Jun)	Vigor (0-10)[3] (23 Jun)	Yield (bu/A)[4]	Wt./100 seed (oz)
Untreated	10.0	8.5	42.0	0.56
Velum Total 8 oz	9.5	9.0	45.9	0.57
Velum Total 8 oz + Proline 480SC 2.85 oz	9.4	8.5	44.3	0.56
Velum Total 8 oz + Propulse 400SC 6.84 oz	9.3	9.8	45.0	0.57
Propulse 400SC 6.84 oz	9.3	8.5	44.0	0.55
Propulse 400SC 13.69 oz	8.7	9.5	44.4	0.56
O2YS 1.5 pt	9.7	8.5	43.8	0.57
P(F)	.11	.36	.64	.61

[1] F = in-furrow (27 May).
[2] Determined from counts in two, 30 ft rows.
[3] Vigor index rating scale: 10 = 100% vigor, 0 = no vigor.
[4] Yields are weight of soybeans adjusted to 13.5% moisture. One bushel equals 60 lb. Soybeans were harvested 27 Oct.

Table 83. Effect of seed treatments on mid-season nematode populations in soybean.

	Nematodes/500 cc soil (24 Jul)[2]						
Treatment and rate/A (F)[1]	Cyst juvenile	Cyst males	Cyst female	Lesion	Stunt	Spiral	Stubby root
Untreated	300	40	4	0	20	700	0
Velum Total 8 oz	100	0	4	40	20	840	0
Velum Total 8 oz + Proline 480SC 2.85 oz	260	60	3	20	20	780	20
Velum Total 8 oz + Propulse 400SC 6.84 oz	260	40	1	0	0	700	0
Propulse 400SC 6.84 oz	240	40	5	0	0	620	20
Propulse 400SC 13.69 oz	200	100	6	20	0	420	0
O2YS 1.5 pt	160	40	0	0	0	340	0

[1] F = in-furrow (27 May).
[2] Soil was sampled on 24 Jul. Data are counts of nematodes in a composite sample taken 4 reps of each treatment.

XXXII. EVALUATION OF FOLIAR FUNGICIDES FOR CONTROL OF DISEASES IN SOYBEAN (SOYFOLFUN115, Wynne Farm, Field 64A)

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. Four, 30-ft rows per plot, data and yield taken from center 2 rows
3. Rows spaced 36 in. apart

C. APPLICATION OF TREATMENTS: Treatments were applied at R_3 (beginning pod, 31 Jul), or R_3 + 21 days (18 Aug*), with a Lee Spider sprayer having eight, 8002VS nozzles spaced 18 in. apart and delivering a volume of 19.88 gal/A. All treatments were applied with Induce 3.2 fl oz (0.25% v/v).

D. TREATMENT AND RATE/A:
1. Untreated
2. Trivapro Premix 11.2 fl oz (R_3)
3. Quadris Top SBX 7 fl oz (R_3)
4. Priaxor 4.17SC 4 fl oz (R_3)
5. Priaxor 4.17SC 4 fl oz
   + Tilt EC 4 fl oz (R_3)
6. Priaxor 4.17SC 4 fl oz
   + Domark 230 ME 4 fl oz (R_3)
7. Aproach Prima 2.34SC 6.8 fl oz (R_3)
8. Aproach Prima 2.34SC 6.8 fl oz (R_3)
   Aproach Prima 2.34SC 6.8 fl oz (R_3 + 21d*)

(*R_3 + 21d spray was applied three (3) days early due to an inclimate weather forecast.)

E. ADDITIONAL INFORMATION:
1. Location: Wynne Farm, Hare Rd., Suffolk, VA
2. Crop history: Corn 2014, soybean 2013, corn 2012
3. Land preparation: disk and level with board (20 May)
4. Planting date and variety: 5 Jun, AG5732
5. Soil fertility report (9 Jan 2015):

pH	6.1	K.....	135 ppm
Ca.....	477 ppm	Zn	0.5 ppm
Mg.....	70 ppm	Mn	1.8 ppm
P	53 ppm	Soil type	Rains fine sandy loam

6. Herbicide:
   Pre-plant: Roundup WeatherMax 24 fl oz/A (29 Apr)
   Post-emergence: Prefix 1.5 pt/A (14 May)
   Roundup WeatherMax 22 fl oz + FirstRate 0.3 fl oz/A (15 Jun)
7. Fertilization: Ag Lime 1,000 lb/A (15 Mar)
   8-21-32 183 lb/A (27 Apr)
   ENC Ele-max 1.0 qt/A (15 Jun)
8. Harvest date: 30 Oct

Table 84. Effect of treatments on disease severity in soybeans.

Treatment, rate/A and application date[1]	Disease index scale (0-10)[2]				
	16 Jul	24 Jul	31 Jul	18 Aug	3 Sep
Untreated	1.1	0.9	1.0	3.0	5.0
Trivapro Premix 11.2 fl oz (7/31)	1.0	1.0	1.0	3.0	5.0
Quadris Top SBX 7 fl oz (7/31)	0.8	0.9	1.0	3.1	5.0
Priaxor 4.17SC 4 fl oz (7/31)	1.0	1.0	1.0	3.0	5.0
Priaxor 4.17SC 4 fl oz + Tilt EC 4 fl oz (7/31)	1.1	1.0	1.0	3.1	5.0
Priaxor 4.17SC 4 fl oz + Domark 230ME 4 fl oz (7/31)	1.1	1.0	1.0	3.0	5.0
Aproach Prima 2.34SC 6.8 fl oz (7/31)	1.0	1.0	1.0	3.0	5.0
Aproach Prima 2.34SC 6.8 fl oz (7/31) Aproach Prima 2.34SC 6.8 fl oz (8/18)	1.0	1.0	1.0	3.0	5.0
P(F)	.33	.58	- -	.58	- -

[1] Treatments were applied at R_3 (beginning pod, 31 Jul), or R_3 + 21 days (18 Aug). All treatments were applied with Induce 3.2 fl oz (0.25% v/v).

[2] Disease was rated using a 0-10 scale where 0 = no disease; 1 = lesions present but covering <10% of total leaf surface on <50% of plants; 2 = lesions covering 10-30% of the leaf surface on <50% of plants; 3 = lesions covering <10% of total leaf surface on 50-90% of plants; 4 = lesions covering 10-30% of the leaf surface on 50-90% of plants; 5 = lesions covering <10% of total leaf surface on >90% of plants; 6 = lesions covering 10-30% of total leaf surface on >90% of plants; 7 = lesions covering 31-50% of total leaf surface on >90% of plants; 8 = lesions covering 51-70% of total leaf surface on >90% of plants; 9 = lesions covering 71-80% of total leaf surface on >90% of plants; 10 = lesions covering >80% of total leaf surface on >90% of plants.

Table 85. Effect of treatments on defoliation and senescence in soybeans.

Treatment, rate/A and application date[1]	% defoliation[2]			% yellowing[3] (3 Sep)
	31 Jul	18 Aug	3 Sep	
Untreated	10.0	10.0	13.8 ab	10.0 a
Trivapro Premix 11.2 fl oz (7/31)	10.0	10.0	12.5 ab	8.8 ab
Quadris Top SBX 7 fl oz (7/31)	10.0	10.0	15.0 a	6.3 bc
Priaxor 4.17SC 4 fl oz (7/31)	10.0	12.5	15.0 a	6.3 bc
Priaxor 4.17SC 4 fl oz + Tilt EC 4 fl oz (7/31)	10.0	10.0	12.5 ab	8.8 ab
Priaxor 4.17SC 4 fl oz + Domark 230ME 4 fl oz (7/31)	10.0	10.0	10.0 b	5.0 c
Aproach Prima 2.34SC 6.8 fl oz (7/31)	10.0	8.8	10.0 b	7.5 a-c
Aproach Prima 2.34SC 6.8 fl oz (7/31) Aproach Prima 2.34SC 6.8 fl oz (8/18)	10.0	11.3	10.0 b	5.0 c
P(F)	- -	.35	**.045**	**.004**

[1] Treatments were applied at R_3 (beginning pod, 31 Jul), or R_3 + 21 days (18 Aug). All treatments were applied with Induce 3.2 fl oz (0.25% v/v).

[2] Percent canopy defoliated.

[3] Overall yellowing as an indication of senescence.

Means within 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 analysis to determine statistical significance.

Table 86. Effect of treatments on yield and grade of soybeans.

Treatment, rate/A and application date[1]	**Yield (bu/A)[2]**	**Wt./100 seed (oz)**	**% purple seed stain[3]**	**% anthracnose[3]**	**% phomopsis seed decay[3]**
Untreated	46.9	0.58 d	4.5 b	2.5	2.5
Trivapro Premix 11.2 fl oz (7/31)	50.9	0.62 ab	6.3 b	2.5	2.3
Quadris Top SBX 7 fl oz (7/31)	48.9	0.62 a	6.0 b	1.8	1.5
Priaxor 4.17SC 4 fl oz (7/31)	49.1	0.61 a-c	11.8 a	2.5	1.8
Priaxor 4.17SC 4 fl oz + Tilt EC 4 fl oz (7/31)	53.7	0.59 b-d	2.5 b	2.3	3.0
Priaxor 4.17SC 4 fl oz + Domark 230ME 4 fl oz (7/31)	53.4	0.60 a-d	4.0 b	0.8	1.0
Aproach Prima 2.34SC 6.8 fl oz (7/31)	48.9	0.58 d	4.5 b	2.0	2.3
Aproach Prima 2.34SC 6.8 fl oz (7/31) Aproach Prima 2.34SC 6.8 fl oz (8/18)	53.9	0.59 cd	3.5 b	2.3	2.3
P(F)	.58	**.01**	**.049**	.71	.55

[1] Treatments were applied at R_3 (beginning pod, 31 Jul), or R_3 + 21 days (18 Aug). All treatments were applied with Induce 3.2 fl oz (0.25% v/v).

[2] Yields are weight of soybeans with 13.5% moisture. One bushel equals 60 lb. Soybeans were harvested 30 Oct.

[3] Data are percent of 100 seed with symptoms of indicated disease.
Means within 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 analysis to determine statistical significance.

XXXIII. EVALUATION OF FOLIAR FUNGICIDES FOR CONTROL OF DISEASE IN SOYBEAN (SOYFOLFUN215, Wynne Farm, Field 64A)

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. Four, 30-ft rows per plot, data and yield taken from center 2 rows
3. Rows spaced 36 in. apart

C. APPLICATION OF TREATMENTS: Treatments were applied at R_1 (beginning bloom, 16 Jul), or R_3 (beginning pod, 31 Jul) with a Lee Spider sprayer having eight, 8002VS nozzles spaced 18 in. apart and delivering a volume of 19.88 gal/A. All treatments were applied with Induce 3.2 fl oz (0.25% v/v).

D. TREATMENT, RATE/A AND APPLICATION TIMING:
1. Untreated
2. Affiance SC 10 fl oz (R_1)
3. Affiance SC 10 fl oz (R_3)
4. Domark 230 ME 4 fl oz (R_1)
5. Domark 230 ME 4 fl oz (R_3)
6. Affiance SC 10 fl oz (R_1)
   Affiance SC 10 fl oz (R_3)
7. Domark 230 ME 4 fl oz (R_1)
   Domark 230 ME 4 fl oz (R_3)

E. ADDITIONAL INFORMATION:
1. Location: Wynne Farm, Hare Rd., Suffolk, VA
2. Crop history: Corn 2014, soybean 2013, corn 2012
3. Land preparation: disk and level with board (20 May)
4. Planting date and variety: 5 Jun, AG5732
5. Soil fertility report (9 Jan 2015):

pH	6.1	K.....	135 ppm
Ca.....	477 ppm	Zn	0.5 ppm
Mg.....	70 ppm	Mn	1.8 ppm
P.....	53 ppm	Soil type	Rains fine sandy loam

6. Herbicide:
   Pre-plant: Roundup WeatherMax 24 fl oz/A (29 Apr)
   Post-emergence: Prefix 1.5 pt/A (14 May)
   Roundup WeatherMax 22 fl oz + FirstRate 0.3 fl oz/A (15 Jun)
7. Fertilization: Ag Lime 1,000 lb/A (15 Mar)
   8-21-32 183 lb/A (27 Apr)
   ENC Ele-max 1.0 qt/A (15 Jun)
8. Harvest date: 30 Oct

Table 87. Effect of treatments on disease incidence in soybeans.

Treatment, rate/A and application timing[1]	Disease index scale (0-10)[2]				
	16 Jul	24 Jul	31 Jul	18 Aug	3 Sep
Untreated	1.3	0.9	1.3	3.4	5.3
Affiance SC 10 fl oz (R_1)	1.3	1.1	0.9	3.1	5.0
Affiance SC 10 fl oz (R_3)	1.1	1.1	1.3	3.1	5.3
Domark 230 ME 4 fl oz (R_1)	0.9	0.9	1.0	3.1	5.0
Domark 230 ME 4 fl oz (R_3)	1.4	1.0	1.1	3.0	5.1
Affiance SC 10 fl oz (R_1) Affiance SC 10 fl oz (R_3)	1.1	1.0	0.8	3.4	5.1
Domark 230 ME 4 fl oz (R_1) Domark 230 ME 4 fl oz (R_3)	1.0	1.0	0.9	3.1	5.0
P(F)	.37	.40	.07	.26	.41

[1] Treatments were applied at R_1 (beginning bloom, 16 Jul), or R_3 (beginning pod, 31 Jul). All treatments were applied with Induce 3.2 fl oz (0.25% v/v).

[2] Disease was rated using a 0-10 scale where 0 = no disease; 1 = lesions present but covering <10% of total leaf surface on <50% of plants; 2 = lesions covering 10-30% of the leaf surface on <50% of plants; 3 = lesions covering <10% of total leaf surface on 50-90% of plants; 4 = lesions covering 10-30% of the leaf surface on 50-90% of plants; 5 = lesions covering <10% of total leaf surface on >90% of plants; 6 = lesions covering 10-30% of total leaf surface on >90% of plants; 7 = lesions covering 31-50% of total leaf surface on >90% of plants; 8 = lesions covering 51-70% of total leaf surface on >90% of plants; 9 = lesions covering 71-80% of total leaf surface on >90% of plants; 10 = lesions covering >80% of total leaf surface on >90% of plants.

Table 88. Effect of treatments on defoliation in soybeans.

Treatment, rate/A and application timing[1]	% defoliation[2]		
	31 Jul	18 Aug	3 Sep
Untreated	10.0	13.8	11.3
Affiance SC 10 fl oz (R_1)	10.0	11.8	11.3
Affiance SC 10 fl oz (R_3)	10.0	8.8	11.3
Domark 230 ME 4 fl oz (R_1)	10.0	9.3	16.3
Domark 230 ME 4 fl oz (R_3)	10.0	13.0	12.5
Affiance SC 10 fl oz (R_1) Affiance SC 10 fl oz (R_3)	10.0	13.8	10.0
Domark 230 ME 4 fl oz (R_1) Domark 230 ME 4 fl oz (R_3)	10.0	12.5	11.3
P(F)	- -	.49	.58

[1] Treatments were applied at R_1 (beginning bloom, 16 Jul), or R_3 (beginning pod, 31 Jul). All treatments were applied with Induce 3.2 fl oz (0.25% v/v).

[2] Percent canopy defoliated.
Arcsine transformation of percentage data was made in analysis to determine statistical significance.

Table 89. Effect of treatments on yield and grade of soybeans.

Treatment, rate and application method/timing[1]	**Yield (bu/A)[2]**	**Wt./100 seed (oz)**	**% purple seed stain[3]**	**% anthracnose[3]**	**% phomopsis seed decay[3]**
Untreated	44.5	0.59	11.3	2.8	3.5
Affiance SC 10 fl oz (R_1)	47.6	0.59	5.3	3.0	2.0
Affiance SC 10 fl oz (R_3)	47.5	0.60	5.8	2.8	1.3
Domark 230 ME 4 fl oz (R_1)	41.8	0.60	7.5	2.5	2.5
Domark 230 ME 4 fl oz (R_3)	45.0	0.61	6.0	4.0	2.0
Affiance SC 10 fl oz (R_1) Affiance SC 10 fl oz (R_3)	40.9	0.63	5.3	2.0	1.5
Domark 230 ME 4 fl oz (R_1) Domark 230 ME 4 fl oz (R_3)	40.1	0.61	8.8	2.5	3.8
P(F)	.16	.24	.17	.86	.48

[1] Treatments were applied at R_1 (beginning bloom, 16 Jul), or R_3 (beginning pod, 31 Jul). All treatments were applied with Induce 3.2 fl oz (0.25% v/v).

[2] Yields are weight of soybeans adjusted to 13.5% moisture. One bushel equals 60 lb. Soybeans were harvested 30 Oct.

[3] Data are percent of 100 seed with symptoms of indicated disease.
Arcsine transformation of percentage data was made in analysis to determine statistical significance.

XXXIV. EVALUATION OF FOLIAR FUNGICIDES FOR CONTROL OF FOLIAR DISEASE IN GRAIN SORGHUM (SORGFOLFUN115, Tidewater Research Farm, Field 3)

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

B. EXPERIMENTAL DESIGN:
1. Four, randomized complete blocks with 8-ft alleys between blocks
2. Four, 30-ft rows per plot, data and yield taken from center 2 rows
3. Rows spaced 36 in. apart

C. APPLICATION OF TREATMENTS: Treatments were applied at 50% heading (31 Jul), with a Lee Spider sprayer having eight, 8002VS nozzles spaced 18 in. apart and delivering a volume of 19.88 gal/A. All treatments were applied with Induce 3.2 fl oz (0.25% v/v).

D. TREATMENT AND RATE/A:
1. Untreated
2. Headline 2.09SC 6 fl oz
3. Priaxor 4.17SC 4 fl oz
4. Quadris Top 6 fl oz
5. Quilt Xcel 10.5 fl oz
6. Aproach Prima 6 fl oz

E. ADDITIONAL INFORMATION:
1. Location: Duke Farm, Holland Rd., Suffolk, VA
2. Crop history: Soybean 2014, corn 2013, soybean 2012
3. Land preparation: rip and strip till (28 Apr)
4. Planting date and variety: 3 Jun, P84P80
5. Soil fertility report (9 Jan 2015):

pH	5.9	K.....	141 ppm
Ca.....	695 ppm	Zn	0.7 ppm
Mg.....	41 ppm	Mn	1.9 ppm
P.....	47 ppm	Soil type	Kenansville loamy fine sand

6. Herbicide:
   Pre-plant: Touchdown Total 24 oz + 2,4-D 1.0 pt/A (1 Apr)
7. Fertilization: Ag Lime 2,000 lb/A (15 Mar)
8. Insecticide: Baythroid XL 2 fl oz + Belt SC 2 fl oz/A (10 Jul)
   Besiege 10 fl oz/A (20 Jul); 13 fl oz/A (12 Aug)
9. Dessication: Roundup WeatherMax 28 fl oz (7 Oct)
10. Harvest date: 19 Oct

Table 90. Effect of treatments on disease severity in grain sorghum.

	% foliar disease			
	Upper leaves[2]		Flag leaf[3]	
Treatment, rate/A[1]	**9 Sep**	**18 Sep**	**9 Sep**	**18 Sep**
Untreated	8.8	16.3a	5.0 a	11.3 a
Headline 2.09SC SC 6 fl oz	7.5	16.3a	5.0 a	10.0 a
Priaxor 4.17SC 4 fl oz	2.0	6.3b	1.5 b	3.0 b
Quadris Top 6 fl oz	6.8	16.3a	4.5 a	11.3 a
Quilt Xcel 10.5 fl oz	7.5	16.3a	4.5 a	11.3 a
Aproach Prima 6 fl oz	6.8	18.8a	4.5 a	11.3 a
P(F)	.08	**.0001**	**.0001**	**.0001**

[1] Treatments were applied at 50% heading (31 Jul). All treatments were applied with Induce 3.2 fl oz (0.25% v/v).
[2] Percent leaf area with foliar disease, primarily anthracnose.
[3] Percent area with foliar disease, primarily anthracnose.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (P=0.05). Percentage data were arcsine transformed prior to statistical analysis.

Table 91. Effect of treatments on senescence, greening, lodging, and yield of grain sorghum.

	% green[2]		% lodging[3]	Yield[4]	
Treatment, rate/A[1]	**9 Sep**	**18 Sep**	**(19 Oct)**	**bu/A**	**Test wt.**
Untreated	47.5	26.3	12.0	104.5	52.7
Headline 2.09SC SC 6 fl oz	50.0	27.5	12.8	108.0	52.4
Priaxor 4.17SC 4 fl oz	40.0	26.3	18.0	108.3	52.5
Quadris Top 6 fl oz	47.5	22.5	10.8	106.7	51.8
Quilt Xcel 10.5 fl oz	40.0	25.0	18.0	112.9	52.6
Aproach Prima 6 fl oz	50.0	27.5	23.3	106.8	51.4
P(F)	.13	.85	.48	.59	.39

[1] Treatments were applied at 50% heading (31 Jul). All treatments were applied with Induce 3.2 fl oz (0.25% v/v).
[2] Percent green leaf area on plant.
[3] Percent plants lodged.
[4] Yields are weight of sorghum with moisture content adjusted to 14%. Sorghum was harvested on 19 Oct. One bushel= 56 lbs. of grain. Percentage data were arcsine transformed prior to statistical analysis.

XXXIV. CLIMATOLOGICAL SUMMARY OF THE 2015 GROWING SEASON AT THE TIDEWATER AGRICULTURAL RESEARCH & EXTENSION CENTER, SUFFOLK, VA.

Table 92. Daily maximum and minimum temperatures (◦F) November 2014 - April 2015.

Day of month	NOV		DEC		JAN		FEB		MAR		APR	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	65	35	69	47	51	32	53	14	35	23	66	40
2	52	38	73	45	54	32	61	32	48	29	71	35
3	51	23	58	46	57	32	57	36	42	30	84	50
4	60	36	58	36	44	16	45	35	70	39	72	41
5	73	38	50	29	64	30	48	35	50	28	66	34
6	70	47	56	40	66	22	40	29	30	19	77	46
7	66	41	56	39	50	10	47	26	50	16	79	55
8	62	30	45	33	41	15	44	25	66	38	70	54
9	61	44	47	34	54	22	44	25	68	41	60	48
10	62	34	55	25	60	30	41	30	70	44	86	50
11	68	46	51	28	72	44	35	21	71	53	75	48
12	68	46	59	24	63	35	38	20	56	36	72	43
13	74	47	53	30	62	31	43	28	59	28	79	43
14	583	33	51	37	56	37	60	35	64	45	82	51
15	46	21	47	33	54	33	48	30	68	40	64	52
16	50	27	47	22	43	26	49	26	72	33	72	50
17	65	45	61	40	55	28	37	10	78	50	79	53
18	73	31	53	34	48	24	64	31	53	35	82	57
19	38	19	52	28	51	23	70	34	51	36	73	60
20	65	30	52	29	63	34	66	41	49	37	81	65
21	58	26	52	27	59	22	78	43	58	37	71	47
22	44	25	52	27	40	8	63	34	54	43	79	48
23	54	26	53	34	35	8	56	35	46	33	70	49
24	71	39	71	33	27	11	40	13	55	30	65	46
25	76	54	69	39	36	15	37	19	67	40	55	44
26	62	45	55	32	50	21	37	25	66	59	61	45
27	60	20	62	33	62	30	31	13	64	39	65	42
28	45	25	69	48	45	14	31	19	40	30	67	50
29	43	25	59	42	28	8			46	26	76	51
30	62	33	51	31	38	0			58	33	62	53
31			50	27	53	11			69	33		
Avg.	78	34	56	34	51	23	49	27	57	36	72	48

Table 93. Daily maximum and minimum temperatures (◦F) May 2015 – October 2015.

Day of month	MAY		JUN		JUL		AUG		SEP		OCT	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	58	48	93	71	86	69	94	64	92	70	71	63
2	74	42	86	66	87	72	94	66	96	68	68	65
3	82	47	71	65	86	69	95	68	95	70	88	67
4	81	50	77	68	89	73	95	73	93	70	73	64
5	83	59	79	69	89	71	95	72	86	69	67	61
6	82	53	88	65	90	73	94	71	79	70	75	54
7	80	56	82	61	92	73	87	71	90	64	82	52
8	78	55	88	57	89	75	83	67	91	69	83	54
9	88	67	87	70	94	74	87	65	91	73	83	61
10	86	66	90	67	93	72	84	66	88	71	68	55
11	82	70	93	71	89	70	86	70	87	68	71	53
12	89	70	92	73	86	71	88	66	86	68	81	51
13	79	59	98	73	85	68	89	62	77	58	77	61
14	71	49	95	74	88	73	88	63	79	50	77	52
15	78	46	96	73	89	73	88	58	85	48	74	46
16	85	57	97	74	81	68	90	58	84	51	60	43
17	89	64	90	73	90	65	93	64	83	57	70	40
18	93	69	93	70	92	69	87	67	87	55	58	35
19	91	69	94	74	95	73	88	71	90	61	61	32
20	85	61	95	73	95	73	92	74	87	62	71	34
21	67	57	93	73	92	75	89	71	78	64	77	38
22	76	52	95	71	91	67	86	64	74	67	79	43
23	80	49	98	74	88	66	90	60	77	64	75	46
24	83	49	90	71	90	66	91	62	80	60	71	44
25	85	58	92	69	89	60	89	69	72	68	74	48
26	88	60	85	68	89	60	82	67	72	65	60	51
27	91	70	92	71	89	69	83	63	81	71	63	52
28	88	69	82	66	89	68	87	59	83	71	76	63
29	92	65	87	61	92	69	88	55	84	73	80	63
30	90	64	91	69	95	69	92	60	85	71	69	43
31	91	64			92	69	77	71			65	39
Avg.	**83**	**58**	**90**	**69**	**90**	**70**	**89**	**66**	**84**	**65**	**72**	**51**

Table 94. Daily precipitation (inches) November 2014– April 2015.

Day of month	NOV	DEC	JAN	FEB	MAR	APR
1	0.00	0.00	0.00	0.40	0.18	0.00
2	0.00	0.00	0.59	0.01	0.01	0.00
3	0.05	0.00	0.00	0.22	0.01	0.00
4	0.00	0.00	0.00	0.25	0.11	0.03
5	0.00	0.00	0.00	0.16	0.00	0.00
6	0.00	0.26	0.11	0.02	0.00	0.00
7	0.45	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.07
9	0.00	0.08	0.00	0.00	0.00	0.09
10	0.00	0.00	0.20	0.00	0.00	0.20
11	0.02	0.00	1.61	0.00	0.09	0.03
12	0.00	0.00	0.00	0.29	0.01	0.00
13	0.00	0.00	0.00	0.49	0.12	0.00
14	0.00	0.00	0.29	0.01	0.60	0.00
15	0.00	0.00	0.00	0.49	0.00	0.00
16	0.00	0.27	0.00	0.00	0.00	0.00
17	0.00	0.01	0.00	2.30	0.00	0.00
18	0.78	0.00	0.00	0.02	0.00	0.00
19	0.00	0.00	0.00	0.00	0.05	0.39
20	0.00	0.00	0.00	0.00	0.61	1.26
21	0.00	0.00	0.00	0.39	0.00	0.00
22	0.00	0.84	0.00	0.03	0.00	0.00
23	0.00	0.13	0.01	0.00	0.00	0.00
24	0.59	2.20	0.00	0.20	0.00	0.00
25	0.20	0.01	0.00	3.20	0.00	0.00
26	1.00	0.00	0.00	3.20	0.34	0.00
27	0.00	0.00	0.00	0.01	0.24	0.00
28	0.50	0.01	0.00	0.00	0.00	0.00
29	0.00	0.38	0.03		0.00	0.00
30	0.00	0.02	0.11		0.07	0.00
31		0.00	0.19		0.00	
Total	**3.59**	**4.21**	**3.14**	**11.69**	**2.44**	**2.07**

Table 95. Daily precipitation (inches) May 2015 – October 2015.

Day of month	MAY	JUN	JUL	AUG	SEP	OCT
1	0.07	0.00	0.01	0.00	0.00	0.63
2	0.00	0.39	0.30	0.00	0.59	1.48
3	0.00	0.00	0.41	0.00	0.00	0.62
4	0.00	0.31	0.01	0.00	0.00	0.38
5	0.00	0.01	2.06	0.00	0.00	0.06
6	0.00	0.60	0.77	0.57	0.16	0.00
7	0.00	0.00	0.00	0.74	0.00	0.00
8	0.00	0.00	0.00	0.58	0.01	0.00
9	0.00	0.06	0.00	0.00	0.07	0.00
10	0.02	0.00	0.11	0.00	0.05	0.01
11	0.11	0.00	0.90	0.07	0.01	0.00
12	0.00	0.00	0.00	0.00	0.70	0.00
13	0.00	0.14	0.00	0.00	0.01	0.00
14	0.00	0.42	0.04	0.00	0.00	0.00
15	0.00	0.01	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.05
17	0.00	0.01	0.00	0.00	0.00	0.00
18	0.00	0.11	0.00	0.00	0.00	0.00
19	0.07	0.00	0.00	0.38	0.00	0.00
20	0.01	0.51	0.00	0.00	0.00	0.00
21	0.27	0.12	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.04	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	1.17	0.00	0.00	0.60	0.00
26	0.00	2.05	0.00	0.00	0.76	0.00
27	0.00	0.85	0.00	0.00	0.01	0.10
28	0.00	0.00	0.01	0.00	0.15	0.18
29	0.00	0.00	0.00	0.00	0.64	0.05
30	0.00	0.72	0.00	0.00	1.53	0.00
31	0.00		0.00	0.28		0.00
Total	**0.55**	**7.48**	**4.62**	**2.62**	**5.33**	**3.56**