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APPLIED RESEARCH ON FIELD CROP DISEASE & NEMATODE MANAGEMENT 2017

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ACKNOWLEDGMENTS

The authors wish to thank the Virginia Agricultural Experiment Station and the many cooperators and contributors who provided the resources needed to support this applied research program. Special recognition is extended to Linda Byrd-Masters, Steve Byrum, Ed Hobbs, Zoe Dunlow, Kelsey Vasser, Loni Askew, and Curtis Guilford for technical skills in managing the Peanut/Cotton InfoNet, four online weather stations, field trials, data organization and processing, and helping prepare this report. Joseph Opoku, Tian Zhou, Bhupendra Acharya, Navjot Kaur, and Xing Wei assisted with disease ratings in field trials. The general assistance of all AREC faculty and their technicians throughout the growing season was greatly appreciated. Dr. Sally Taylor, Sean Malone, and Mike Arrington conducted thrips counts in our trials. Dr. Wade Thomason, Harry Behl, and Elizabeth Hokanson in the Department of Crop, Soil & Environmental Sciences (CSES) at Virginia Tech provided equipment and assistance in harvest of corn trials at the Tidewater AREC. Thank you to our farm and assistant farm managers Karl Jones and Brad Slye for general maintenance of field plots. The assistance of Dr. Benjy Cline at Virginia Tech in updating programs for the Peanut/Cotton InfoNet was greatly appreciated. Dr. Dave Walker is recognized for running climatology forecast models and issuing frost advisories for peanut on the Peanut/Cotton InfoNet. Dr. Saleh Ahmed contributed to this research by processing and identifying nematode populations in soil samples from cotton, soybean, and peanut trials. Rick Morgan (Corapeake) is recognized for his cooperation in on-farm evaluations of nematode control in cotton, Watson Lawrence and Bennie Jennings (Chesapeake) for cooperation in on-farm evaluations of nematode control in soybean, Manly West (Moyock) for cooperation in on-farm evaluations of root-knot nematode control in soybean, and Mike Grizzard (Southampton) for cooperation in on-farm evaluations of nematode control in cotton and peanut. Collectively, the contributions of colleagues, professionals, students and growers were responsible for a highly successful and productive program to evaluate products and practices for disease management in field crops.

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Commodity Groups and Organizations
Cotton Incorporated
Cotton Foundation, Seedling Disease and Nematode Control Committees
National Cottonseed Treatment Program
Virginia Cotton Board
Virginia Corn Board
Virginia Peanut Board
Virginia Soybean Board
Virginia Peanut Growers Association / National Peanut Board
Virginia Small Grains Board
US Wheat Barley Scab Initiative

Private Companies
Albaugh, LLC
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Bayer Crop Science
Dow AgroSciences
Dupont
Gowan
Murphy Brown LLC
Syngenta Crop Protection

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.

SUMMARY OF 2017 GROWING SEASON

Table 1. Comparison of rainfall, peanut heat units (DD_{56}) and cotton degree-days (DD_{60}) in 2017 to an average of historical records at the Tidewater AREC.

Rainfall (in.)

Month	2010	2011	2012	2013	2014	2015	2016	2017	Normal[1]
May	6.57	2.36	8.02	3.60	2.76	0.55	3.92	4.72	3.46
Jun	1.53	3.53	6.17	8.10	3.95	7.48	5.82	2.78	4.33
Jul	1.85	6.84	4.74	3.50	4.99	4.62	3.85	2.36	4.83
Aug	5.60	18.08	8.05	6.40	2.14	2.62	2.19	7.33	4.91
Sep	17.14	8.79	3.62	2.00	7.04	5.33	7.65	3.70	5.86
Oct	2.75	2.53	8.18	4.50	2.30	3.56	5.11	2.32	3.70
Total	35.44	42.13	38.78	28.10	23.18	24.16	28.54	23.21	27.09

[1]Avg. is mean of previous 22 yrs (1995-2016). 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	2010	2011	2012	2013	2014	2015	2016	2017	Avg.[2]
May	457	433	429	355	437	463	324	386	371
Jun	738	645	512	580	598	686	577	681	581
Jul	783	776	774	707	659	724	766	790	689
Aug	703	675	643	589	609	635	735	628	641
Sep	539	503	420	390	513	522	550	461	451
Oct	232	195	213	255	266	230	277	309	224
Total	3453	3227	2990	2876	3082	3260	3229	3255	2957

[2]Avg. is mean of previous 22 yrs (1995-2016). 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	2010	2011	2012	2013	2014	2015	2016	2017	Avg.[3]
May	346	332	318	260	331	359	226	286	272
Jun	624	529	403	463	484	567	459	570	459
Jul	676	665	652	583	535	600	643	674	558
Aug	580	551	519	469	485	512	611	505	511
Sep	430	385	319	295	397	409	430	351	333
Oct	160	131	145	169	185	153	205	229	151
Total	2816	2593	2357	2239	2417	2600	2574	2615	2284

[3]Avg. is mean of previous 22 yrs (1995-2016). 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 production statistics in year of record yield compared to 2017.

Crop	Statistics of record year for yield*			2017[1]	
	Year	Acreage	Yield/A	Acreage	Yield/A
Peanut.....	2014	19,000	4,450 lb	27,000	4,550 lb
Soybean.....	2012	580,000	42 bu	590,000	44 bu
Corn.....	2015	340,000	161 bu	340,000	140 bu
Cotton (lint).....	2014	86,000	1,239 lb	83,000	1,128 lb
Wheat.....	2008	280,000	71 bu	145,000	66 bu

[1] http://www.nass.usda.gov/va.

Table 3. Estimated percent yield loss to peanut diseases in 2017.

Disease	Causal organism	Percent loss
Early leaf spot	*Cercospora arachidicola*	0.0
Late leaf spot	*Cercosporidium personatum*	2.0
Pepper spot & leaf scorch	*Leptosphaerulina crassiasca*	0.0
Web blotch	*Phoma arachidicola*	0.0
Botrytis blight	*Botrytis* sp.	0.0
Peanut rust	*Puccinia arachidis*	0.0
Sclerotinia blight	*Sclerotinia minor*	1.0
Southern stem rot	*Sclerotium rolfsii*	2.0
Stem, root, & pod rot	*Rhizoctonia*, *Pythium*, *Fusarium* spp., etc.	0.5
Tomato spotted wilt virus	Tomato Spotted Wilt Virus	0.5
Cylindrocladium black rot (CBR)	*Cylindrocladium parasiticum*	0.5
Nematode damage	Northern Root Knot, Sting, Lesion, etc.	2.0
Total loss (%)		**8.5**

Table 4. Estimated percent yield loss to cotton diseases in 2017.

Disease	Causal agent(s)	Percent loss
Seedling disease	*Rhizoctonia solani, Pythium* spp.	2.0
Fusarium wilt	*Fusarium oxysporum* f. sp. *vasinfectum*	0.0
Verticillium wilt	*Verticillium dahlia*	0.0
Ascochyta blight	*Ascochyta gossypii*	0.1
Bacterial blight	*Xanthomonas* spp.	0.0
Boll rots	*Diplodia, Fusarium, Xanthomonas.*	3.0
Leaf spots	*Corynespora, Alternaria, Cercospora*, etc.	0.5
Southern root-knot nematode	*Meloidogyne incognita*	2.0
Reniform nematode	*Rotylenchulus reniformis*	0.0
Other nematodes	*Trichodorus* spp., *Belonolaimus* spp., etc.	2.0
Total loss (%)		**9.6**

Table 5. Estimated percent yield loss to soybean diseases in 2017.

Disease	Causal agent(s)	Percent loss
Seedling diseases.....	*Rhizoctonia spp., Pythium* spp., etc.	0.5
Seed rot.....	*Diaporthe/Phomopsis* complex	0.5
Cercospora blight	*Cercospora kikuchii*	1.0
Purple seed stain.....	*Cercospora kikuchii*	0.01
Downy mildew	*Peronospora manshurica*	0.001
Target spot……..	*Corynespora cassiicola*	0.1
Anthracnose.....	*Colletotrichum truncatum*	0.01
Brown spot	*Septoria glycines*	0.01
Pod & stem blight	*Diaporthe phaseolorum* var. *sojae*	0.1
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*	0.0
Stem canker	*Diaporthe phaseolorum* var. *caulivora*	0.5
Sudden death syndrome	*Fusarium solani* f.sp. *glycines*	1.0
Phytophthora root & stem rot.....	*Phytophthora megasperma* f.sp. *glycinea*	0.01
Sclerotinia stem rot	*Sclerotinia sclerotiorum* and *S. minor*	0.0
Viruses	SMV, PMV, BPMV, etc.	0.1
Bacterial diseases	*Pseudomonas syringae, P. syringae* pv. *tabaci, Xanthomonas campestris* pv. *glycines*	0.01
Soybean cyst nematode	*Heterodera glycines*	3.0
Southern root-knot nematode.....	*Meloidogyne incognita*	1.0
Other nematodes.....	Stubby root, ting, lesion, stunt	0.5
Total loss (%).....		**9.5**

Table 6. Estimated percent yield loss to corn diseases in 2017.

Disease	Causal agent(s)	Percent loss
Root rots & seedling diseases	*Rhizoctonia spp., Pythium* spp., *Fusarium* spp.	0.6
Nematodes.....	Stubby root, sting, root-knot	1.0
Gray leaf spot	*Cercospora zea maydis*	1.0
Northern corn leaf blight.....	*Exserophilum turcicum*	0.5
Physoderma leaf spot	*Physoderma maydis*	0.1
Southern leaf blight…….	*Bipolaris maydis*	0.5
Stalk rots	*Colletotrichum, Fusarium, Macrophomina,* etc.	1.5
Ear rots	*Aspergillus, Fusarium, Stenocarpella,* etc.	1.3
Total loss (%).....		**6.5**

TEST ID: WHTFUN117

PURPOSE: Compare timings of generic and premium fungicides for control of scab and foliar diseases of wheat

LOCATION: Tidewater AREC Research Farm, Hare Road, Suffolk, VA

CROP INFORMATION:

Field	9B
Crop history	2016 wheat/dc soy; 2015 soybean; 2014 corn
Planting date	26 Nov 2016
Variety	Shirley
Seeding rate	30 seed/ft
Plot length/width:	30' x 5'
Number of rows	8
Row spacing	7.5"
Alleys (length between blocks)	8'
Harvest date	14 Jun 2017

EXPERIMENTAL DESIGN: Randomized complete block design with four replicates

INOCULUM: *Fusarium graminearum* conidia (~50,000/ml) applied 24 hours after F10.5.1 (Anthesis) treatment (29 Apr) with Lee Spider Sprayer; 1 L inoculum to 11 L H_2O

APPLICATION OF TREATMENTS:

Equipment	Lee Spider Sprayer
Pressure (psi)	38 psi
Nozzle type	Twinjet 8002VS
Volume (gal/A)	19.88
Surfactant	NIS, 0.25%

TREATMENTS:

Trt. #	Product and formulation	Rate, fl oz/A	Application timing	Application date
1	Untreated	---	---	---
2	Trivapro SE Miravis ACE SE	9.4 11.5	F4-6 (jointing) F10.3 (heading)	21 Mar 19 Apr
3	Tilt 3.6 SE Miravis ACE SE	2 11.5	F4-6 (jointing) F10.3 (heading)	21 Mar 19 Apr
4	Tilt 3.6 SE Prosaro 421 SC	2 6.5	F4-6 (jointing) F10.3 (heading)	21 Mar 19 Apr
5	Tilt 3.6 SE Miravis ACE SE	2 11.5	F4-6 (jointing) F10.51-10.52 (flowering)	21 Mar 28 Apr
6	Tilt 3.6 SE Prosaro 421 SC	2 6.5	F4-6 (jointing) F10.51-10.52 (flowering)	21 Mar 28 Apr
7	Tilt 3.6 SE	2	F4-6 (jointing)	21 Mar
8	Tilt 3.6 SE	4	F9	14 Apr
9	Folicur 3.6 F	4	F9	14 Apr
10	Quilt Xcel 2.2 SE	10.5	F9	14 Apr
11	Trivapro SE	9.4	F9	14 Apr
12	Tilt 3.6 SE	4	F10.5.1-10.5.2 (flowering)	28 Apr
13	Folicur 3.6 F	4	F10.5.1-10.5.2 (flowering)	28 Apr
14	Prosaro 421 SC	6.5	F10.5.1-10.5.2 (flowering)	28 Apr
15	Miravis ACE SE	11.5	F10.5.1-10.5.2 (flowering)	28 Apr
16	Trivapro SE Miravis ACE SE	9.4 11.5	F9 F10.5.1-10.5.2 (flowering)	14 Apr 28 Apr

SOIL PROPERTIES:

Soil type: Kenansville loamy fine sand

Soil fertility report (Nov 2016):

pH	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)
6.6	89	64	862	96	0.6	3.8	0.3	15.7	01

MAINTENANCE CHEMICAL PROGRAMS

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	None except treatments
Nematicides	None

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
15 Nov 16	Fertility	9-15-31	379 lb
6 Feb 17	Herbicide	Osprey	4.75 fl oz
	Fertility	24-0-0-3	60 units
28 Feb 17	Fertility	Liquid Manganese	1.5 pt
23 Mar 17	Fertility	24-0-0-3	60 units

Table 7. Effect of fungicide treatments on disease severity in wheat (WHTFUN117, Suffolk, VA 2017).

Treatment, rate/A and timing[z]	Scab (27 May)		% Leaf blotch[w] (31 May)
	% incidence[y]	% severity[x]	
1. Untreated	75.2 bc	25.1 b-d	30.5 a
2. Trivapro SE 9.4 fl oz (F4-6) Miravis ACE SE 11.5 fl oz (F10.3)	53.7 d	11.8 fg	4.1 e
3. Tilt 3.6SE 2 fl oz (F4-6) Miravis ACE SE 11.5 fl oz (F10.3)	72.7 bc	16.1 d-g	5.0 e
4. Tilt 3.6SE 2 fl oz (F4-6) Prosaro 421SC 6.5 fl oz (F10.3)	75.1 bc	19.2 c-f	16.4 bc
5. Tilt 3.6SE 2 fl oz (F4-6) Miravis ACE SE 11.5 fl oz (F10.5.1/5.2)	64.7 cd	15.2 e-g	6.0 e
6. Tilt 3.6SE 2 fl oz (F4-6) Prosaro 421SC 6.5 fl oz (F10.5.1/5.2)	79.2 a-c	25.4 b-d	15.0 cd
7. Tilt 3.6SE 2 fl oz (F4-6)	80.2 a-c	32.7 ab	24.6 a-c
8. Tilt 3.6SE 4 fl oz (F9)	80.5 a-c	29.1 a-c	19.8 a-c
9. Folicur 3.6F 4 fl oz (F9)	83.7 ab	28.8 a-c	30.5 a
10. Quilt Xcel 2.2SE 10.5 fl oz (F9)	77.2 a-c	25.6 a-d	22.3 a-c
11. Trivapro SE 9.4 fl oz (F9)	85.9 ab	36.8 a	27.4 ab
12. Tilt 3.6SE 4 fl oz (F10.5.1/5.2)	89.2 a	29.9 ab	14.2 cd
13. Folicur 3.6F 4 fl oz (F10.5.1/5.2)	84.3 ab	22.6 b-e	20.9 a-c
14. Prosaro 421SC 6.5 fl oz (F10.5.1/5.2)	78.7 a-c	26.2 a-c	17.3 bc
15. Miravis ACE SE 11.5 fl oz (F10.5.1/5.2)	53.7 d	10.5 g	7.0 de
16. Trivapro SE 9.4 fl oz (F9) Miravis ACE SE 11.5 fl oz (F10.5.1/5.2)	50.5 d	8.4 g	3.3 e
P(F)	**0.0001**	**0.0001**	**0.0001**
LSD	13.61 - 17.76	7.96 - 11.31	6.65 - 11.80

[z] Fungicide sprays were applied at Feekes 6 (jointing) on 21 Mar, Feekes 9 on 14 Apr, Feekes 10.3 (heading) on 19 Apr, and Feekes 10.5.1 (flowering) on 28 Apr.

[y] Percent of grain heads with signs and symptoms of *Fusarium* head blight.

[x] Percent of spikelets with signs and symptoms of *Fusarium* head blight.

[w] Percent of leaf area with signs and symptoms of *Stagnospora* leaf blotch.

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 8. Effect of fungicide treatment on yield, test weight, and DON in wheat (WHTFUN117, Suffolk, VA 2017).

Treatment, rate/A and timing[z]	Yield (bu/A)[y]	Test weight (lb/bu)	% FDK[x]	DON ppm
1. Untreated	91.3	55.3 a-c	6.0 c-e	2.3 a-c
2. Trivapro SE 9.4 fl oz (F4-6) Miravis ACE SE 11.5 fl oz (F10.3)	98.6	55.3 a-c	8.1 a-d	2.2 a-d
3. Tilt 3.6SE 2 fl oz (F4-6) Miravis ACE SE 11.5 fl oz (F10.3)	104.2	55.7 a-c	5.0 d-f	2.3 a-c
4. Tilt 3.6SE 2 fl oz (F4-6) Prosaro 421SC 6.5 fl oz (F10.3)	90.5	55.3 a-c	7.3 b-d	2.0 b-e
5. Tilt 3.6SE 2 fl oz (F4-6) Miravis ACE SE 11.5 fl oz (F10.5.1/5.2)	104.1	56.5 a	2.9 f	1.2 fg
6. Tilt 3.6SE 2 fl oz (F4-6) Prosaro 421SC 6.5 fl oz (F10.5.1/5.2)	107.7	55.9 ab	5.0 d-f	1.6 d-g
7. Tilt 3.6SE 2 fl oz (F4-6)	95.7	53.9 d	12.0 a	2.7 a
8. Tilt 3.6SE 4 fl oz (F9)	90.1	55.0 b-d	7.3 b-d	2.5 a-b
9. Folicur 3.6F 4 fl oz (F9)	96.6	55.8 ab	8.8 a-c	2.0 b-e
10. Quilt Xcel 2.2SE 10.5 fl oz (F9)	100.6	54.5 b-d	10.4 ab	2.7 a
11. Trivapro SE 9.4 fl oz (F9)	100.2	55.1 b-d	5.5 c-f	2.3 a-c
12. Tilt 3.6SE 4 fl oz (F10.5.1/5.2)	100.4	55.4 a-c	6.2 c-e	1.6 d-g
13. Folicur 3.6F 4 fl oz (F10.5.1/5.2)	97.9	55.7 a-c	5.0 d-f	1.7 c-f
14. Prosaro 421SC 6.5 fl oz (F10.5.1/5.2)	103.4	54.4 cd	4.0 ef	1.0 g
15. Miravis ACE SE 11.5 fl oz (F10.5.1/5.2)	101.6	56.6 a	3.7 ef	1.5 e-g
16. Trivapro SE 9.4 fl oz (F9) Miravis ACE SE 11.5 fl oz (F10.5.1/5.2)	100.7	56.7 a	2.8 f	1.4 e-g
P(F)	0.22	**0.01**	**0.0001**	**0.0001**
LSD	N.S.	1.42	2.84 – 4.25	.67

[z] Fungicide sprays were applied at Feekes 6 (jointing) on 21 Mar, Feekes 9 on 14 Apr, Feekes 10.3 (heading) on 19 Apr, and Feekes 10.5.1 (flowering) on 28 Apr.

[y] Yields are weight of wheat with 13.5% moisture. One bushel equals 60 lbs. Wheat was harvested on 14 Jun.

[x] Percent *Fusarium* damaged kernels. FDK rating scale: 0 = no damage, 100=100% fusarium damaged kernels in scabby wheat; FDK scale by Engle, De Wolf & Lipps, Ohio State.

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.

TEST ID: WHTFUN217

PURPOSE: Compare timings of generic and premium fungicides for control of scab and foliar diseases of wheat

LOCATION: Tidewater AREC Research Farm, Hare Road, Suffolk, VA

CROP INFORMATION:

Field	29
Crop history	2016 peanut; 2015 wheat/soy; 2014 peanut
Planting date	22 Nov 2016
Variety	SS 5205
Seeding rate	30 seed/ft
Plot length/width	30' x 4.4'
Number of rows	7
Row spacing	7.5"
Alleys (length between blocks)	8'
Harvest date	19 Jun 2017

EXPERIMENTAL DESIGN: Random complete block design with four replicates

APPLICATION OF TREATMENTS:

Equipment	Lee Spider Sprayer
Pressure (psi)	38 psi
Nozzle type	Twinjet 8002VS
Volume (gal/A)	19.88
Surfactant	NIS, 0.25%

TREATMENTS:

Trt #	Product and formulation	Rate fl oz/A	Application timing	Application date
1	Untreated			
2	Tilt 3.6 SE	4	F9	10 Apr
3	Folicur 3.6 F	4	F9	10 Apr
4	Quilt Xcel 2.2 SE	10.5	F9	10 Apr
5	Trivapro SE	9.4	F9	10 Apr
6	Tilt 3.6 SE	4	F10.5.1	19 Apr
7	Folicur 3.6 F	4	F10.5.1	19 Apr
8	Prosaro 421 SC	6.5	F10.5.1	19 Apr
9	Miravis ACE SE	11.5	F10.5.1	19 Apr

SOIL PROPERTIES:

Soil type: Goldsboro fine sandy loam

Soil fertility report (3 Nov 2016):

pH	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)
6.4	47	76	810	89	0.9	2.8	0.5	9.9	0.2

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	None except treatments
Nematicides	None

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
15 Nov 16	Fertility	9-15-31	379 lb
28 Feb 17	Fertility Fertility Herbicide	24-0-0-3 Liquid Manganese Harmony Extra SG	60 units 1.5 pt 0.75 fl oz
23 Mar 17	Fertility	24-0-0-3	60 units

Table 9. Effect of fungicide treatment on disease severity, yield, test weight and kernel damage in wheat (WHTFUN217, Suffolk, VA 2017).

Treatment, rate/A and timing[z]	% Scab[y] (9 May)	% Leaf blotch (Flag leaf)[x] (31 May)	Yield (bu/A)[w]	Test weight (lb/bu)	% FDK[v]
1. Untreated	8.4 a	4.5 a	84.1 c	50.4 d	3.4
2. Tilt 3.6 SE 4 fl oz (F9)	4.9 b-d	2.8 a-c	92.6 ab	50.7 cd	3.9
3. Folicur 3.6 F 4 fl oz (F9)	4.5 cd	1.7 cd	87.5 bc	51.6 bc	2.6
4. Quilt Xcel 2.2 SE 10.5 fl oz (F9)	6.5 ab	3.0 a-c	87.7 bc	51.4 b-d	2.6
5. Trivapro SE 9.4 fl oz (F9)	6.5 ab	2.4 b-d	92.0 a-c	51.9 ab	2.1
6. Tilt 3.6 SE 4 fl oz (F10.5.1)	6.0 bc	3.5 ab	87.6 bc	51.1 b-d	2.1
7. Folicur 3.6 F 4 fl oz (F10.5.1)	4.9 b-d	2.2 b-d	91.6 bc	51.1 b-d	1.1
8. Prosaro 421 SC 6.5 fl oz (F10.5.1)	3.9 d	1.2 d	93.2 ab	51.0 b-d	3.7
9. Miravis ACE SE 11.5 fl oz (F10.5.1)	5.5 b-d	1.7 cd	99.8 a	53.0 a	1.0
P(F)	**0.001**	**0.02**	**0.02**	**0.01**	0.08
LSD	1.83 – 2.22	1.47 – 1.96	7.98	1.13	N.S.

[z] Fungicide sprays were applied at Feekes 9 on 10 Apr, and Feekes 10.5.1 (flowering) on 19 Apr. All fungicides were applied with a non-ionic surfactant at 0.25% v/v.

[y] Percent of spikelets with signs and symptoms of *Fusarium* head blight.

[x] Percent of leaf area with signs and symptoms of *Stagnospora* leaf blotch.

[w] Yields are weight of wheat with 13.5% moisture. One bushel equals 60 lbs. Wheat was harvested on 19 Jun.

[v] Percent *Fusarium* damaged kernels. FDK rating scale: 0 = no damage, 100=100% *Fusarium* damaged kernels in scabby wheat; FDK scale by Engle, De Wolf & Lipps, Ohio State. Only trace amounts of DON were detected from untreated controls so the other treatments were not analyzed (data not shown).

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.

TEST ID: WHTFUN317

PURPOSE: Compare flag leaf and flowering applications of commercial standards for control of scab and foliar diseases of wheat

LOCATION: Tidewater AREC Research Farm, Hare Road, Suffolk, VA

CROP INFORMATION:

Field	29
Crop history	2016 peanut; 2015 wheat/soy; 2014 peanut
Planting date	22 Nov 2016
Variety	SS 5205
Seeding rate	30 seed/ft
Plot length/width	30' x 12'
Number of rows	7
Row spacing	7.5"
Alleys (length between blocks)	8'
Harvest date	14 Jun 2017

EXPERIMENTAL DESIGN: Random complete block design with four replicates

APPLICATION OF TREATMENTS:

Equipment	Lee Spider Sprayer
Pressure (psi)	38 psi
Nozzle type	Twinjet 8002VS
Volume (gal/A)	19.88
Surfactant	0.125% NIS

TREATMENTS:

Trt #	Product and formulation	Rate, fl oz/A	Application timing	Application date
1	Untreated			
2	Folicur 3.6 F	4	F9	10 Apr
3	Tilt 3.6 EC	4	F9	10 Apr
4	Aproach Prima 2.34 SC	6.8	F9	10 Apr
5	Priaxor 4.17 SC Tilt 3.6EC	4 2	F9 F9	10 Apr 10 Apr
6	Priaxor 4.17SC	4	F9	10 Apr
7	Quilt Xcel 2.2 SE	10.5	F9	10 Apr
8	Stratego YLD	4	F9	10 Apr
9	Trivapro SE	9.4	F9	10 Apr
10	Priaxor 4.17 SC Tilt 3.6EC	4 4	F9 F9	10 Apr 10 Apr
11	Caramba 0.75 SL	13.5	F10.5.1	19 Apr
12	Folicur 3.6 F	4	F10.5.1	19 Apr
13	Proline 480 SC	5.7	F10.5.1	19 Apr
14	Prosaro 421 SC	6.5	F10.5.1	19 Apr
15	Tilt 3.6 EC	4	F10.5.1	19 Apr
16	Miravis ACE SE	11.5	F10.5.1	19 Apr

SOIL PROPERTIES:

Soil type: Goldsboro fine sandy loam

Soil fertility report (3 Nov 2016):

pH	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)
6.4	47	76	810	89	0.9	2.8	0.5	9.9	0.2

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	None except treatments
Nematicides	None

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
15 Nov 16	Fertility	9-15-31	379 lb
	Fertility	24-0-0-3	60 units
	Fertility	Liquid Manganese	1.5 pt
28 Feb 17	Herbicide	Harmony Extra SG	0.75 fl oz
23 Mar 17	Fertility	24-0-0-3	60 units

Table 10. Effect of fungicide treatment on disease severity, yield, test weight, and kernel damage in wheat (WHTFUN317, Suffolk, VA 2017).

Treatment, rate/A and timing[z]	% Leaf blotch[y] (9 May)		Yield (bu/A)[x]	Test weight (lb/bu)	% FDK[w]
	Flag leaf	1 leaf below flag leaf			
1. Untreated	3.5	7.2	94.5	56.4 bc	2.3
2. Folicur 3.6F 4 fl oz (F9)	1.9	3.9	91.8	57.0 bc	2.1
3. Tilt 3.6EC 4 fl oz (F9)	1.9	5.4	94.5	56.2 c	1.8
4. Aproach Prima 2.34SC 6.8 fl oz (F9)	2.2	5.4	90.0	56.4 bc	2.9
5. Priaxor 4.17SC 4 fl oz + Tilt 3.6EC 2 fl oz (F9)	2.2	5.4	99.5	57.1 bc	1.2
6. Priaxor 4.17SC 4 fl oz (F9)	3.0	6.1	104.5	57.3 b	1.5
7. Quilt Xcel 2.2SE 10.5 fl oz (F9)	2.3	5.4	100.0	56.8 bc	2.9
8. Stratego YLD4 fl oz (F9)	2.4	7.2	93.2	56.7 bc	2.1
9. Trivapro SE9.4 fl oz (F9)	3.3	7.7	89.8	56.8 bc	1.5
10. Priaxor 4.17SC 4 fl oz + Tilt 3.6EC 4 fl oz (F9)	2.6	6.0	94.7	57.0 bc	1.5
11. Caramba 0.75SL 13.5 fl oz (F10.5.1)	3.3	7.2	98.1	56.7 bc	1.2
12. Folicur 3.6F 4 fl oz (F10.5.1)	2.4	6.0	91.6	56.8 bc	1.8
13. Proline 480SC 5.7 fl oz (F10.5.1)	3.9	8.6	95.9	56.9 bc	1.5
14. Prosaro 421SC 6.5 fl oz (F10.5.1)	2.9	6.0	95.1	56.9 bc	2.1
15. Tilt 3.6 EC 4 fl oz (F10.5.1)	2.8	6.6	91.1	56.5 bc	2.4
16. Miravis ACE SE 11.5 fl oz (F10.5.1)	2.6	6.0	97.5	58.3 a	0.6
P(F)	0.77	0.39	0.30	**0.02**	0.45
LSD	N.S	N.S	N.S	0.91	N.S

[z] Fungicide sprays were applied at Feekes 9 on 10 Apr, and Feekes 10.5.1 (flowering) on 19 Apr. All fungicides were applied with a non-ionic surfactant at 0.125% v/v.

[y] Percent of leaf area with signs and symptoms of *Stagnospora* leaf blotch. Trace amount of *Fusarium* head blight also observed.

[x] Yields are weight of wheat with 13.5% moisture. One bushel equals 60 lbs. Wheat was harvested on 14 Jun.

[w] Percent *Fusarium* damaged kernels. FDK rating scale: 0 = no damage, 100=100% *Fusarium* damaged kernels in scabby wheat; FDK scale by Engle, De Wolf & Lipps, Ohio State. Only trace amounts of DON were detected from untreated controls so the other treatments were not analyzed (data not shown).

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.

TEST ID: WHTFUN517

PURPOSE: Determine if flag leaf applications of new fungicides elevate DON

LOCATION: Tidewater AREC, 6321 Holland Road, Suffolk, VA

CROP INFORMATION:

Field	62C
Crop history	2016 corn; 2015 cotton; 2014 wheat/soybean
Planting date	22 Nov 2016
Variety	Shirley
Seeding rate	30 seed/ft
Plot length	30’ x 12’
Number of rows	8
Row spacing	7.5”
Alleys (length between blocks)	8’
Harvest date	13 Jun 2017

EXPERIMENTAL DESIGN: Random complete block design with four replicates

INOCULUM: *Fusarium graminearum* conidia (~50,000/ml) applied at flowering (21 Apr) with Lee Spider Sprayer; 1 L inoculum to 11 L H_2O

APPLICATION OF TREATMENTS:

Equipment	Lee Spider Sprayer
Pressure (psi)	38 psi
Nozzle type	Twinjet 8002VS
Volume (gal/A)	19.88
Surfactant	NIS 0.125% v/v

TREATMENTS:

Trt #	Product and formulation	Rate, fl oz/A	Application timing	Application date
1	Untreated			
2	Trivapro SE	10.5	F9	10 Apr
3	Aproach Prima 2.34 SC	6.8	F9	10 Apr
4	Priaxor 4.17 SC	8	F9	10 Apr
5	Tilt 3.6 SE	4	F9	10 Apr
6	Trivapro SE	10.5	F10.3	14 Apr
7	Aproach Prima 2.34 SC	6.8	F10.3	14 Apr
8	Priaxor 4.17 SC	8	F10.3	14 Apr
9	Tilt 3.6 SE	4	F10.3	14 Apr

SOIL PROPERTIES:

Soil type: Goldsboro fine sandy loam

Soil fertility report (3 Nov 2016):

pH	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)
6.2	35	125	826	113	0.3	1.9	0.3	31.4	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	None except treatments
Nematicides	None

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
12 Oct 16	Herbicide	Roundup WeatherMAX	28 fl oz
17 Nov 16	Fertility	9-15-31	379 lb
6 Feb 16	Herbicide	Osprey	4.75 fl oz
28 Feb 17	Fertility Fertility Herbicide	24-0-0-3 Liquid Manganese Harmony Extra SG	60 units 1.5 pt 0.75 fl oz
23 Mar 17	Fertility	24-0-0-3	60 units

Table 11. Effect of fungicide treatment on disease severity, yield, test weight, and DON in wheat (WHTFUN517, Suffolk, VA 2017).

Treatment, rate/A and application timing[z]	Scab (26 May)		Leaf blotch[w] (26 May)	Yield (bu/A)[v]	Test weight (lb/bu)	% FDK[u]	DON
	% incidence[y]	% severity[x]					
1. Untreated	77.4	18.5	3.9	92.0	53.5	12.0 a	0.9 b
2. Trivapro SE 10.5 fl oz (F9)	77.9	14.8	2.2	97.0	54.0	4.5 b	1.2 b
3. Aproach Prima 2.34SC 6.8 fl oz (F9)	82.0	20.2	2.4	90.6	53.5	4.8 b	1.2 b
4. Priaxor 4.17SC 8 fl oz (F9)	85.0	22.1	2.4	88.6	53.8	5.0 b	1.7 a
5. Tilt 3.6SE 4 fl oz (F9)	83.1	15.7	3.3	96.0	53.9	4.5 b	0.9 b
6. Trivapro SE 10.5 fl oz (F10.3)	74.3	17.1	3.3	96.7	54.2	4.5 b	1.0 b
7. Aproach Prima 2.34SC 6.8 fl oz (F10.3)	82.6	20.6	3.9	93.1	54.1	4.8 b	1.1 b
8. Priaxor 4.17SC 8 fl oz (F10.3)	75.3	17.7	2.8	93.0	53.6	5.5 b	1.8 a
9. Tilt 3.6SE 4 fl oz (10.3)	83.8	18.8	3.5	97.0	54.0	5.5 b	1.0 b
P(F)	0.65	0.62	0.73	0.35	0.21	**0.001**	**0.003**
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	2.60 – 3.40	0.47

[z] Fungicide sprays were applied at Feekes 9 on 10 Apr and Feekes 10.3 (heading) on 19 Apr. All treatments were applied with a non-ionic surfactant at 0.125% v/v.

[y] Percent of grain heads with signs and symptoms of *Fusarium* head blight.

[x] Percent of spikelets with signs and symptoms of *Fusarium* head blight.

[w] Percent of leaf area with signs and symptoms of *Stagnospora* leaf blotch.

[v] Yields are weight of wheat with 13.5% moisture. One bushel equals 60 lbs. Wheat was harvested on 13 Jun.

[u] Percent *Fusarium* damaged kernels. FDK rating scale: 0 = no damage, 100=100% fusarium damaged kernels in scabby wheat; FDK scale by Engle, De Wolf & Lipps, Ohio State.

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.

TEST ID: WHTFUN617

PURPOSE: Determine if QoI fungicides applied at heading elevate DON

LOCATION: Tidewater AREC, 6321 Holland Road, Suffolk, VA

CROP INFORMATION:

Field	62C
Crop history	2016 corn; 2015 cotton; 2014 wheat/soybean
Planting date	22 Nov 2016
Variety	Shirley
Seeding rate	30 seed/ft
Plot length	30' x 12'
Number of rows	8
Row spacing	7.5"
Alleys (length between blocks)	8'
Harvest date	13 Jun 2017

EXPERIMENTAL DESIGN: Random complete block design with four replicates

INOCULUM: *Fusarium graminearum* conidia (~50,000/ml) applied at flowering (21 Apr) with Lee Spider Sprayer; 1 L inoculum to 11 L H_2O

APPLICATION OF TREATMENTS:

Equipment	Lee Spider Sprayer
Pressure (psi)	38 psi
Nozzle type	Twinjet 8002VS
Volume (gal/A)	19.88
Surfactant	NIS 0.125% v/v

TREATMENTS:

Trt #	**Product and formulation**	**Rate fl oz/A**	**Application timing**	**Application date**
1	Untreated			
2	Trivapro SE	10.5	F10.3	14 Apr
3	Aproach Prima 2.34 SC	6.8	F10.3	14 Apr
4	Priaxor 4.17 SC	8	F10.3	14 Apr
5	Caramba 0.75 SL	13.5	F10.5.1	28 Apr
6	Trivapro SE Caramba 0.75 SL	10.5 13.5	F10.3 F10.5.1	14 Apr 28 Apr
7	Aproach Prima 2.34 SC Caramba 0.75 SL	6.8 13.5	F10.3 F10.5.1	14 Apr 28 Apr
8	Priaxor 4.17 SC Caramba 0.75 SL	8 13.5	F10.3 F10.5.1	14 Apr 28 Apr

SOIL PROPERTIES:

Soil type: Goldsboro fine sandy loam

Soil fertility report (3 Nov 2016):

pH	**P (lb/A)**	**K (lb/A)**	**Ca (lb/A)**	**Mg (lb/A)**	**Zn (ppm)**	**Mn (ppm)**	**Cu (ppm)**	**Fe (ppm)**	**B (ppm)**
6.2	35	125	826	113	0.3	1.9	0.3	31.4	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	None except treatments
Nematicides	None

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
12 Oct 16	Herbicide	Roundup WeatherMAX	28 fl oz
17 Nov 16	Fertility	9-15-31	379 lb
6 Feb 16	Herbicide	Osprey	4.75 fl oz
28 Feb 17	Fertility	24-0-0-3	60 units
	Fertility	Liquid Manganese	1.5 pt
	Herbicide	Harmony Extra SG	0.75 fl oz
23 Mar 17	Fertility	24-0-0-3	60 units

Table 12. Effect of fungicide treatment on disease severity, yield, test weight, and DON in wheat (WHTFUN617, Suffolk, VA 2017).

Treatment, rate/A and timing[z]	Scab (25 May) % incidence[y]	Scab (25 May) % severity[x]	Leaf blotch[w] (26 May)	Yield (bu/A)[v]	Test weight (lb/bu)	% FDK[u]	DON (ppm)
1. Untreated	66.1	15.6	5.0	88.7	54.4	5.0 a	0.6 c
2. Trivapro SE 10.5 fl oz (F10.3)	68.6	17.1	1.9	93.9	54.1	4.5 a	1.0 b
3. Aproach Prima 2.34SC 6.8 fl oz (F10.3)	59.2	13.6	3.0	90.8	54.4	2. b	0.9 b
4. Priaxor 4.17SC 8 fl oz (F10.3)	64.4	17.9	3.3	92.3	54.3	4.5 a	1.4 a
5. Caramba 0.75SL 13.5 (F10.5.1)	70.9	16.0	2.4	94.9	54.5	2.9 b	0.3 d
6. Trivapro SE 10.5 fl oz (F10.3) Caramba 0.75SL 13.5 fl oz (F10.5.1)	72.3`	17.1	2.4	93.2	54.4	3.4 ab	0.4 cd
7. Aproach Prima 2.34SC 6.8 fl oz (F 10.3) Caramba 0.75SL 13.5 fl oz (F10.5.1)	75.7	14.8	1.9	93.4	54.3	2.9 b	0.3 d
8. Priaxor 4.17SC 8 fl oz (F10.3) Caramba 0.75SL 13.5 fl oz (F10.5.1)	71.7	13.7	1.7	95.9	54.6	2.9 b	0.4 cd
P(F)	0.44	0.85	0.10	0.65	0.87	**0.04**	**0.0001**
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	1.54 – 1.63	0.21

[z] Fungicide sprays were applied at Feekes 10.3 (heading) on 14 Apr and Feekes 10.5.1 (flowering) on 28 Apr. All treatments were applied with a non-ionic surfactant at 0.125% v/v.

[y] Percent of grain heads with signs and symptoms of *Fusarium* head blight.

[x] Percent of spikelets with signs and symptoms of *Fusarium* head blight.

[w] Percent of leaf area with signs and symptoms of *Stagnospora* leaf blotch.

[v] Yields are weight of wheat with 13.5% moisture. One bushel equals 60 lbs. Wheat was harvested on 13 Jun.

[u] Percent *Fusarium* damaged kernels. FDK rating scale: 0 = no damage, 100=100% fusarium damaged kernels in scabby wheat; FDK scale by Engle, De Wolf & Lipps, Ohio State.

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.

TEST ID: WHTSCAB117

PURPOSE: To evaluate foliar fungicides and application timings for foliar disease control and impact on yield in wheat

LOCATION: Tidewater AREC Research Farm, Hare Road, Suffolk, VA

CROP INFORMATION:

Field	9B
Crop history	2016 wheat/dc soy; 2015 soybean; 2014 corn
Planting date	26 Nov 2016
Variety	Various
Seeding rate	30 seed/ft
Plot length/width:	30' x 12'
Number of rows	8
Row spacing	7.5"
Alleys (length between blocks)	8'
Harvest date	13 Jun 2017

EXPERIMENTAL DESIGN: Split plot design with four replicates

INOCULUM: *Fusarium graminearum* conidia (~50,000/ml) applied 24 hours after F10.5.1 (Anthesis) treatment (28 Apr) with Lee Spider Sprayer; 1 L inoculum to 11 L H_2O

APPLICATION OF TREATMENTS:

Equipment	Lee Spider Sprayer
Pressure (psi)	38 psi
Nozzle type	Twinjet 8002VS
Volume (gal/A)	19.88
Surfactant	NIS, 0.125% v/v

TREATMENTS:

Trt. #	Variety	Product and formulation	Rate, fl oz/A	Application timing	Application date
1	Shirley	Untreated Inoculum	-- --	-- F10.5.1 + 1d	 28 Apr
2	Shirley	Prosaro 421SC Inoculum	6.5	F10.5.1 F10.5.1 + 1d	28 Apr 28 Apr
3	Shirley	Prosaro 421SC Inoculum Caramba 0.75SL	6.5 -- 14	F10.5.1 F10.5.1 + 1d F10.5.1 + 4d	28 Apr 28 Apr 2 May
4	Shirley	Caramba 0.75SL Inoculum Folicur 3.6F	14 -- 4	F10.5.1 F10.5.1 + 1d F10.5.1 + 4d	28 Apr 28 Apr 2 May
5	Shirley	Proline 480SC Inoculum Folicur 3.6F	5.7 -- 4	F10.5.1 F10.5.1 + 1d F10.5.1 + 4d	28 Apr 28 Apr 2 May
6		Untreated (no inoc)	--	--	--
7	Jamestown	Untreated Inoculum	-- --	-- F10.5.1 + 1d	-- 20 Apr
8	Jamestown	Prosaro 421SC Inoculum	6.5	F10.5.1 F10.5.1 + 1d	18 Apr 20 Apr

Trt. #	Variety	Fungicide and formulation	Rate, fl oz/A	Application timing	Application date
9	Jamestown	Prosaro 421SC	6.5	F10.5.1	18 Apr
		Inoculum	--	F10.5.1 + 1d	20 Apr
		Caramba 0.75SL	14	F10.5.1 + 4d	28 Apr
10	Jamestown	Caramba 0.75SL	14	F10.5.1	18 Apr
		Inoculum	--	F10.5.1 + 1d	20 Apr
		Folicur 3.6F	4	F10.5.1 + 4d	28 Apr
11	Jamestown	Proline 480SC	5.7	F10.5.1	18 Apr
		Inoculum	--	F10.5.1 + 1d	20 Apr
		Folicur 3.6F	4	F10.5.1 + 4d	28 Apr
12	Jamestown	Untreated (no inoc)	--	--	--
13	Hilliard	Untreated	--	--	--
		Inoculum	--	F10.5.1 + 1d	21 Apr
14	Hilliard	Prosaro 421SC	6.5	F10.5.1	20 Apr
		Inoculum		F10.5.1 + 1d	21 Apr
15	Hilliard	Prosaro 421SC	6.5	F10.5.1	20 Apr
		Inoculum	--	F10.5.1 + 1d	21 Apr
		Caramba 0.75SL	14	F10.5.1 + 4d	28 Apr
16	Hilliard	Caramba 0.75SL	14	F10.5.1	20 Apr
		Inoculum	--	F10.5.1 + 1d	21 Apr
		Folicur 3.6F	4	F10.5.1 + 4d	28 Apr
17	Hilliard	Proline 480SC	5.7	F10.5.1	20 Apr
		Inoculum	--	F10.5.1 + 1d	21 Apr
		Folicur 3.6F	4	F10.5.1 + 4d	28 Apr
18	Hilliard	Untreated (no inoc)	--	--	--
19	VA13W-38	Untreated	--	--	--
		Inoculum	--	F10.5.1 + 1d	21 Apr
20	VA13W-38	Prosaro 421SC	6.5	F10.5.1	20 Apr
		Inoculum		F10.5.1 + 1d	21 Apr
21	VA13W-38	Prosaro 421SC	6.5	F10.5.1	20 Apr
		Inoculum	--	F10.5.1 + 1d	21 Apr
		Caramba 0.75SL	14	F10.5.1 + 4d	28 Apr
22	VA13W-38	Caramba 0.75SL	14	F10.5.1	20 Apr
		Inoculum	--	F10.5.1 + 1d	21 Apr
		Folicur 3.6F	4	F10.5.1 + 4d	28 Apr
23	VA13W-38	Proline 480SC	5.7	F10.5.1	20 Apr
		Inoculum	--	F10.5.1 + 1d	21 Apr
		Folicur 3.6F	4	F10.5.1 + 4d	28 Apr
24	VA13W-38	Untreated (no inoc)	--	---	--

SOIL PROPERTIES:

Soil type: Kenansville loamy fine sand

Soil fertility report (Nov 2016):

pH	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)
6.6	89	64	862	96	0.6	3.8	0.3	15.7	01

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	None except treatments
Nematicides	None

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
15 Nov 16	Fertility	9-15-31	379 lb
6 Feb 17	Herbicide	Osprey	4.75 fl oz
	Fertility	24-0-0-3	60 units
28 Feb 17	Fertility	Liquid Manganese	1.5 pt
23 Mar 17	Fertility	24-0-0-3	60 units

Table 13. Effect of fungicide treatment and variety on disease severity, yield, test weight, and DON in wheat (WHTSCAB117, Suffolk, VA 2017).

Treatment, rate/A and timing (Feekes)/date[z]	Scab (19 May) % incidence[y]	Scab (19 May) % severity[x]	Leaf blotch[w] (31 May)	Yield[v] (bu/A)	Test weight (lb/bu)	% FDK[u]	DON ppm
Split-plot analysis *P*(F)							
Variety	**0.0001**	**0.0001**	**0.001**	**0.002**	**0.0001**	**0.0001**	**0.0001**
Treatment	**0.002**	**0.0001**	0.28	0.17	**0.0001**	**0.02**	**0.0001**
Variety x treatment	0.07	**0.001**	0.06	0.70	**0.01**	0.16	**0.0001**
Variety mean							
Shirley	27.2 a	7.7 a	14.4 a	86.6 b	55.4 d	6.0 a	1.1 a
Jamestown	4.0 c	0.3 c	1.0 c	81.4 b	57.8 a	1.1 c	0.1 d
Hilliard	10.2 b	2.0 b	9.0 b	94.5 a	56.6 c	3.4 b	0.4 b
VA13W-38	2.5 c	0.4 c	6.9 b	93.7 a	57.1 b	0.4 c	0.3 c
LSD	3.47	1.44	3.93	6.41	0.26	0.01	0.10
Fungicide treatment							
Untreated	13.0 ab	3.4 ab	10.6	85.0	56.4 d	4.3 a	0.8 a
Prosaro 421SC 6.5 fl oz (F10.51)	14.3 a	4.4 a	8.8	86.7	56.7 b-d	3.4 ab	0.5 b
Prosaro 421SC 6.5 fl oz (F10.51) Caramba 14 fl oz (F10.51 + 4d)	9.0 b	1.4 c	5.3	92.3	57.0 ab	2.1 c	0.2 d
Caramba 14 fl oz (F10.51) Folicur 3.6F 4 fl oz (F10.51 + 4d)	8.7 b	1.1 c	3.1	92.2	56.7 bc	2.2 c	0.3 cd
Proline 480SC 5.7 fl oz (F10.51) + Folicur 3.6F 4 fl oz (F10.51+4d)	8.8 b	1.7 bc	7.2	92.2	57.2 a	1.9 c	0.4 c
Untreated (no inoculum)	12.1 ab	3.8 a	11.9	86.0	56.5 cd	2.5 bc	0.7 a
LSD	4.25	1.76	N.S.	N.S.	0.32	0.01	0.13

[z]Fungicide sprays were scheduled for Feekes 10.51 and Feekes 10.51 + 4 days, unless rescheduled due to unfavorable weather conditions(*). All treatments were applied with Induce 0.125% v/v. Fusarium inoculum (trts 1-5) was applied up to 24 hours after first treatment application. [y]Percent of grain heads with signs and symptoms of *Fusarium* head blight. [x]Percent of spikelets with signs and symptoms of *Fusarium* head blight. [w]Percent of leaf area with signs and symptoms of *Stagnospora* leaf blotch. [v]Yields are weight of wheat with 13.5% moisture. One bushel equals 60 lbs. Wheat was harvested on 13 Jun. [u]Percent *Fusarium* damaged kernels. FDK rating scale: 0 = no damage, 100=100% fusarium damaged kernels in scabby wheat; FDK scale by Engle, De Wolf & Lipps, Ohio State. 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 13 (cont). Effect of fungicide treatment and variety on disease severity, yield, test weight, and DON in wheat (WHTSCAB117, Suffolk, VA 2017).

Treatment, rate/A and timing (Feekes)[z]	Scab (19 May)		Leaf blotch[w] (31 May)	Yield[v] (bu/A)	Test weight (lb/bu)	% FDK[u]	DON ppm
	% incidence[y]	% severity[x]					
Shirley							
1. Untreated	23.3	7.0 bc	20.0 a	79.0	55.1 bc	8.5	1.9 a
2. Prosaro 421SC 6.5 fl oz (F10.51)	39.8	14.8 a	20.0 a	86.2	55.1 bc	9.0	1.2 bc
3. Prosaro 421SC 6.5 fl oz (F10.51) Caramba 14 fl oz (F10.51 + 4d)	27.6	4.7 c	5.0 b	98.8	56.0 a	4.5	0.6 d
4. Caramba 14 fl oz (F10.51) Folicur 3.6F 4 fl oz (F10.51 + 4d)	20.8	2.2 c	5.0 b	92.5	55.9 ab	5.0	0.5 d
5. Proline 480SC 5.7 fl oz (F10.51) + Folicur 3.6F 4 fl oz (F10.51+4d)	19.9	4.7 c	10.0 b	85.0	55.8 ab	4.0	0.8 cd
6. Untreated (no inoculum)	31.7	13.1 ab	26.3 a	78.3	54.8 c	5.3	1.6 ab
Jamestown							
7. Untreated	5.8	0.6	0.0 b	81.4	57.8 b	1.0	0.2 ab
8. Prosaro 421SC 6.5 fl oz (F10.51)	3.3	0.3	0.0 b	75.9	57.7 b	1.8	0.1 bc
9. Prosaro 421SC 6.5 fl oz (F10.51) Caramba 14 fl oz (F10.51 + 4d)	2.9	0.3	3.8 a	81.6	57.8 b	1.3	0.0 d
10. Caramba 14 fl oz (F10.51) Folicur 3.6F 4 fl oz (F10.51 + 4d)	2.9	0.3	0.0 b	83.8	57.7 b	1.3	0.1 cd
11. Proline 480SC 5.7 fl oz (F10.51) + Folicur 3.6F 4 fl oz (F10.51+4d)	3.4	0.3	2.5 a	85.8	58.3 a	0.5	0.1 cd
12. Untreated (no inoculum)	5.5	0.4	0.0 b	79.7	57.5 b	1.0	0.2 a
Hilliard							
13. Untreated	13.0	4.2	15.0	88.7	55.6 b	7.0 a	0.7 a
14. Prosaro 421SC 6.5 fl oz (F10.51)	12.7	2.4	2.5	89.0	56.7 a	2.8 b	0.4 bc
15. Prosaro 421SC 6.5 fl oz (F10.51) Caramba 14 fl oz (F10.51 + 4d)	5.4	0.8	8.8	95.8	57.1 a	2.0 b	0.2 d
16. Caramba 14 fl oz (F10.51) Folicur 3.6F 4 fl oz (F10.51 + 4d)	10.7	1.6	3.8	94.7	56.4 a	2.0 b	0.2 cd
17. Proline 480SC 5.7 fl oz (F10.51) + Folicur 3.6F 4 fl oz (F10.51+4d)	10.4	1.6	10.0	99.3	57.2 a	3.0 b	0.4 b-d
18. Untreated (no inoculum)	9.2	1.7	13.8	99.9	56.6 a	3.5 b	0.6 ab
VA13W-38							
19. Untreated	9.7 a	1.9 a	7.5	90.7	57.1	0.5	0.4
20. Prosaro 421SC 6.5 fl oz (F10.51)	1.3 b	0.1 b	12.5	95.7	57.2	0.0	0.3
21. Prosaro 421SC 6.5 fl oz (F10.51) Caramba 14 fl oz (F10.51 + 4d)	0.0 b	0.0 b	3.8	92.8	57.0	0.8	0.1
22. Caramba 14 fl oz (F10.51) Folicur 3.6F 4 fl oz (F10.51 + 4d)	0.4 b	0.4 b	3.8	98.0	56.9	0.5	0.3
23. Proline 480SC 5.7 fl oz (F10.51) + Folicur 3.6F 4 fl oz (F10.51+4d)	1.7 b	0.1 b	6.3	98.9	57.4	0.3	0.2
24. Untreated (no inoculum)	2.1 b	0.2 b	7.5	86.0	57.1	0.3	0.4

[z]Fungicide sprays were scheduled for Feekes 10.51 and Feekes 10.51 + 4 days, unless rescheduled due to unfavorable weather conditions(*). All treatments were applied with Induce 0.125% v/v. Fusarium inoculum (trts 1-5) was applied up to 24 hours after first treatment application. [y]Percent of grain heads with signs and symptoms of *Fusarium* head blight. [x]Percent of spikelets with signs and symptoms of *Fusarium* head blight. [w]Percent of leaf area with signs and symptoms of *Stagnospora* leaf blotch. [v]Yields are weight of wheat with 13.5% moisture. One bushel equals 60 lbs. Wheat was harvested on 13 Jun. [u]Percent *Fusarium* damaged kernels. FDK rating scale: 0 = no damage, 100=100% fusarium damaged kernels in scabby wheat; FDK scale by Engle, De Wolf & Lipps, Ohio State. 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.

TEST ID: CORNNEMA117

PURPOSE: Evaluate corn yield response to in-furrow nematicide applications

LOCATION: Tidewater AREC Research Farm, Hare Road, Suffolk, VA

CROP INFORMATION:

Field	34A
Crop history	2016 cotton, 2015 peanut, 2014 corn
Planting date	3 May (emerge: 10 May)
Variety	DK6208
Seeding rate	2 seed/row ft
Plot length/width	30’
Number of rows	2 rows
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	11 Sep

EXPERIMENTAL DESIGN: Random complete block design with four replicates

INOCULUM: RKN (*M. incognita*) in-furrow at planting, treatments #1-8

APPLICATION OF TREATMENTS:

	IF liquid	**IF granular**
Equipment	---	Noble Box
Pressure (psi)		---
Nozzle type	0.075 microtube	---
Volume (gal/A)	5 gal/A	Rate/A

TREATMENTS:

Trt #	**Product and formulation**	**Rate**	**Appl. timing**
1	Untreated w/RKN inoc	---	
2	Luna Privilege SC w/RKN inoc	3 fl oz/A	In-furrow
3	Luna Privilege SC w/RKN inoc	2 fl oz/A	In-furrow
4	Luna Privilege SC w/RKN inoc	1 fl oz/A	In-furrow
5	Propulse w/RKN inoc	4 fl oz/A	In-furrow
6	Counter 20G w/RKN inoc	6 oz wt/1000 row ft	In-furrow
7	Luna Privilege SC w/RKN inoc	4 fl oz/A	In-furrow In-furrow
8	QST713 HICFU 150FS + Luna Privilege SC w/RKN inoc	3.2 fl oz/A 1 fl oz/A	In-furrow In-furrow
9	Untreated (no inoc)		

SOIL PROPERTIES:

Soil type: Kenansville loamy fine sand

Soil fertility report (3 Nov 2016):

pH	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)
6.2	83	60	522	54	0.4	2.4	0.3	15.9	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	None
Nematicides	None except treatments

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
30 Mar	Herbicide	Roundup WeatherMAX	32 fl oz
30 Mar	Herbicide	2 4-D	1 pt
10 Apr	Fertility	10-14-28	283 lb
2 May	Fertility	24-0-0-3	10 gal
27 May	Herbicide	Roundup WeatherMAX	22 fl oz
8 Jun	Herbicide	Halex GT	4 pt
16 Jun	Herbicide	Roundup WeatherMAX	1 qt

Table 14. Pre-plant, mid-season and end-season nematode populations in soil (CORNNEMA117, Suffolk, VA 2017).

	Nematodes /500 cc soil[y]								
	Root knot			Ring			Stubby root		
Treatment and rate/A (F)[z]	3 May	30 Jun	12 Sep	3 May	30 Jun	12 Sep	3 May	30 Jun	12 Sep
1. Untreated	240	0	180	60	360	960	540	240	300
2. Luna Privilege SC 3 fl oz	60	60	180	960	720	1140	540	960	540
3. Luna Privilege SC 2 fl oz	120	0	0	300	480	2280	420	120	720
4. Luna Privilege SC 1 fl oz	300	0	0	300	720	1260	540	540	420
5. Propulse 4 fl oz	0	0	180	60	120	1560	60	300	420
6. Counter 20G 6 oz wt/1000 row ft	120	0	300	600	540	1440	300	240	180
7. Luna Privilege SC 4 fl oz	120	0	180	240	540	1380	300	300	780
8. QST713 HICFU 150FS 3.2 fl oz + Luna Privilege SC 1 fl oz	360	60	300	480	120	1620	480	120	540
9. Untreated (no inoculum)	240	0	0	360	120	480	0	480	420

[z] F = in-furrow (3 May). Treatments #1-8 were inoculated with root knot nematode (*M. incognita*) in-furrow at planting.

[y] Soil was sampled on 3 May prior to planting. Data are counts of nematodes in a composite sample taken from 4 reps of each treatment.

Table 15. Effect of in-furrow treatment on phytotoxicity, emergence, and yield in corn (CORNNEMA117, 2017).

Treatment and rate/A (F)[z]	% phytotoxicity[y] (24 Jun)	Plants/ft[x] (25 Jun)	Yield[w] (bu/A)	Test weight (lb/bu)
1. Untreated	0.0 b	2.6	164.7	50.5
2. Luna Privilege SC 3 fl oz	0.0 b	2.4	164.8	50.2
3. Luna Privilege SC 2 fl oz	0.0 b	2.6	165.1	50.3
4. Luna Privilege SC 1 fl oz	0.0 b	2.5	160.2	46.1
5. Propulse 4 fl oz	0.0 b	2.4	161.8	50.0
6. Counter 20G 6 oz wt/1000 row ft	4.5 a	2.5	170.6	50.3
7. Luna Privilege SC 4 fl oz	0.0 b	2.5	166.3	50.1
8. QST713 HICFU 150FS 3.2 fl oz + Luna Privilege SC 1 fl oz	0.1 b	2.5	156.0	45.8
9. Untreated (no inoculum)	0.0 b	2.4	172.1	50.5
P(F)	**0.0001**	0.38	0.84	0.90
LSD	0.42 – 1.44	N.S.	N.S.	N.S.

[z] F = in-furrow (3 May). Treatments #1-8 were inoculated with Root Knot Nematode (*M. incognita*) in-furrow at planting.
[y] Percent of leaf area with phytotoxicity symptoms.
[x] Determined from counts in two, 30-ft rows per plot.
[w] Yields are weight of corn with moisture content of 15.5%. Corn was harvested on 11 Sep. One bushel = 56 lbs of grain. Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05), Arcsine transformation of percentage data was made in analysis to determine statistical significance.

TEST ID: CORNFOLFUN117

PURPOSE: Evaluate fungicide chemistries and timings for management of fungal diseases and yield response in corn

LOCATION: Tidewater AREC Research Farm, Hare Road, Suffolk, VA

CROP INFORMATION:

Field	34A
Crop history	2016 cotton, 2015 peanut, 2014 corn
Planting date	3 May
Variety	DK6208
Seeding rate	2 seed/row ft
Plot length/width	30
Number of rows	4 rows
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	17 Sep

EXPERIMENTAL DESIGN: Randomized complete block with four replicates

APPLICATION OF TREATMENTS:

	Foliar spray
Equipment	Lee Spider sprayer
Pressure (psi)	38 psi
Nozzle type	8002 VS
Surfactant	None
Volume (gal/A)	19.88

TREATMENTS:

Trt #	**Product and formulation**	**Rate (fl oz/A**	**Appl. timing**	**Appl. date**
1	Untreated	---	V4-6	
2	Untreated	---	VT/R1	
3	Untreated	---	R3	
4	Quadris	6	V4-6	12 Jun
5	Quadris	6	VT/R1	6 Jul
6	Quadris	6	R3	21 Jul
7	Domark 230 ME	5	V4-6	12 Jun
8	Domark 230 ME	5	VT/R1	6 Jul
9	Domark 230 ME	5	R3	21 Jul
10	Affiance	14	V4-6	12 Jun
11	Affiance	14	VT/R1	6 Jul
12	Affiance	14	R3	21 Jul

SOIL PROPERTIES:

Soil type: Kenansville loamy fine sand

Soil fertility report (3 Nov 2016):

pH	**P (lb/A)**	**K (lb/A)**	**Ca (lb/A)**	**Mg (lb/A)**	**Zn (ppm)**	**Mn (ppm)**	**Cu (ppm)**	**Fe (ppm)**	**B (ppm)**
6.2	83	60	522	54	0.4	2.4	0.3	15.9	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	None except treatments
Nematicides	None

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
30 Mar	Herbicide	Roundup WeatherMAX	32 fl oz
30 Mar	Herbicide	2 4-D	1 pt
10 Apr	Fertility	10-14-28	283 lb
2 May	Fertility	24-0-0-3	10 gal
27 May	Herbicide	Roundup WeatherMAX	22 fl oz
8 Jun	Herbicide	Halex	4 pt
16 Jun	Herbicide	Roundup WeatherMAX	1 qt

Table 16. Effect of fungicide treatment and timing on greening, foliar disease, lodging, and yield in corn (CORNFOLFUN117, Suffolk, VA 2017).

Treatment, rate/A and timing[z]	% green[y] (14 Aug)	% foliar disease[x] Flag leaf (14 Aug)		% lodging[w] (31 Aug)	Yield[v] (bu/A)	Test weight (lb/bu)
		Brown spot	Leaf blight			
1. Untreated (V4-6)	38.0 cd	50.0 ab	42.4 a	44.3 a-c	170.3	51.6
2. Untreated (VT/R1)	30.9 d	53.8 a	37.2 ab	56.1 a	162.6	51.6
3. Untreated (R3)	37.1 cd	52.5 a	36.0 ab	42.7 a-c	178.6	51.4
4. Quadris (V4-6)	35.8 cd	42.5 a-c	32.2 a-c	48.8 ab	161.4	51.5
5. Quadris (VT/R1)	50.4 a-c	20.7 ef	22.3 cd	28.4 b-d	166.8	51.1
6. Quadris (R3)	53.0 a-c	44.9 a-c	28.5 bc	25.4 cd	184.0	51.1
7. Domark 230ME (V4-6)	36.9 cd	35.5 b-d	33.6 a-c	39.5 a-c	177.1	51.4
8. Domark 230ME (VT/R1)	59.5 ab	20.7 ef	13.8 de	25.7 cd	178.1	50.6
9. Domark 230ME (R3)	66.1 ab	16.1 f	10.1 ef	40.2 a-c	181.1	51.0
10. Affiance (V4-6)	52.0 a-c	32.4 c-e	33.0 a-c	27.3 b-d	176.8	51.6
11. Affiance (VT/R1)	48.7 b-d	11.0 f	5.4 f	41.2 a-c	163.6	51.4
12. Affiance (R3)	71.1 a	21.2 d-f	12.3 ef	10.9 d	198.1	50.9
P(F)	**0.002**	**0.0001**	**0.0001**	**0.009**	0.27	0.76
LSD	18.25 – 22.33	12.17 – 16.26	7.51 – 12.72	18.20 – 22.99	N.S.	N.S.

[z] Foliar fungicides were applied at V4-6 (4-6 leaf collars) on 12 Jun, VT/R1 (tasseling/silking) on 6 Jul, and R3 (milk) on 21 Jul.
[y] Percent green leaf area prior to harvest.
[x] Percent leaf area with symptoms of overall foliar disease.
[w] Percent plants lodged.
[v] Yields are weight of corn with moisture content of 15.5%. Corn was harvested on 17 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.

TEST ID: CORNFOLFUN217

PURPOSE: Evaluate fungicide chemistries and timings for management of fungal diseases and yield response in corn

LOCATION: Tidewater AREC Research Farm, Hare Road, Suffolk, VA

CROP INFORMATION:

Field	34A
Crop history	2016 cotton, 2015 peanut, 2014 corn
Planting date	31 May
Variety	DK6208
Seeding rate	2 seed/row ft
Plot length/width	30’
Number of rows	4 rows
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	11 Sep

EXPERIMENTAL DESIGN: Randomized complete block with four replicates

APPLICATION OF TREATMENTS:

	Foliar spray
Equipment	Lee Spider sprayer
Pressure (psi)	38 psi
Nozzle type	8002 VS
Surfactant	None
Volume (gal/A)	19.88

TREATMENTS:

Trt #	**Product and formulation**	**Rate (fl oz/A**	**Appl. timing**	**Appl. date**
1	Untreated	---	V4-6	
2	Untreated	---	VT/R1	21 Jul
3	Untreated	---	R3	7 Aug
4	Quadris	6	V4-6	12 Jul
5	Quadris	6	VT/R1	21 Jul
6	Quadris	6	R3	7 Aug
7	Domark 230 ME	5	V4-6	12 Jul
8	Domark 230 ME	5	VT/R1	21 Jul
9	Domark 230 ME	5	R3	7 Aug
10	Affiance	14	V4-6	12 Jul
11	Affiance	14	VT/R1	21 Jul
12	Affiance	14	R3	7 Aug

SOIL PROPERTIES:

Soil type: Kenansville loamy fine sand

Soil fertility report (3 Nov 2016):

pH	**P (lb/A)**	**K (lb/A)**	**Ca (lb/A)**	**Mg (lb/A)**	**Zn (ppm)**	**Mn (ppm)**	**Cu (ppm)**	**Fe (ppm)**	**B (ppm)**
6.2	83	60	522	54	0.4	2.4	0.3	15.9	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	None except treatments
Nematicides	None

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
30 Mar	Herbicide	Roundup WeatherMAX	32 fl oz
30 Mar	Herbicide	2 4-D	1 pt
10 Apr	Fertility	10-14-28	283 lb
2 May	Fertility	24-0-0-3	10 gal
27 May	Herbicide	Roundup WeatherMAX	22 fl oz
8 Jun	Herbicide	Halex GT	4 pt
16 Jun	Herbicide	Roundup WeatherMAX	1 qt

Table 17. Effect of foliar treatment and timing on foliar disease, greening, and yield in corn (CORNFOLFUN217, Suffolk, VA 2017).

Treatment, rate/A and timing[z]	% foliar disease[y]				% green[x] (6 Sep)	Yield[w] (bu/A)	Test weight (lb/bu)
	5 leaves below flag leaf (14 Aug)		Flag leaf (6 Sep)				
	Brown spot	Leaf blight	Brown spot	Leaf blight			
1. Untreated (V4-6)	4.1 a	2.1	43.7 a	23.2 a	50.0 e	110.5	50.0
2. Untreated (VT/R1)	1.6 ab	1.4	36.2 a-c	19.1 a	53.1 de	127.9	50.0
3. Untreated (R3)	1.7 a	0.6	42.5 ab	19.8 a	55.5 c-e	108.6	49.6
4. Quadris (V4-6)	1.2 ab	0.6	35.0 a-d	17.0 ab	56.3 c-e	116.3	49.4
5. Quadris (VT/R1)	1.4 ab	0.6	23.5 c-f	4.1 d	63.1 a-c	111.7	50.4
6. Quadris (R3)	3.3 a	1.5	29.1 b-e	15.6 a-c	57.5 c-e	124.0	49.8
7. Domark 230ME (V4-6)	0.1 b	0.0	22.6 d-f	6.9 b-d	63.1 a-c	119.2	49.4
8. Domark 230ME (VT/R1)	1.8 a	0.4	26.5 c-f	5.8 cd	60.5 b-d	116.9	49.8
9. Domark 230ME (R3)	1.5 ab	0.9	18.6 ef	4.9 d	61.3 b-d	104.5	49.6
10. Affiance (V4-6)	0.1 b	0.0	17.5 ef	3.8 d	70.1 a	111.6	50.7
11. Affiance (VT/R1)	1.4 ab	0.9	15.4 f	3.0 d	67.8 ab	118.4	49.7
12. Affiance (R3)	1.5 ab	0.9	16.5 f	6.3 b-d	62.6 a-c	107.7	49.8
P(F)	**0.04**	0.12	**0.0002**	**0.001**	**0.002**	0.56	0.27
LSD	1.53 – 2.94	N.S.	12.11 – 14.27	8.81 – 13.26	8.57 – 9.01	N.S.	N.S.

[z] Foliar fungicides were applied at V4-6 (4-6 leaf collars) on 12 Jul, VT/R1 (tasseling/silking) on 21 Jul, and R3 (milk) on 7 Aug.

[y] Percent leaf area with symptoms of foliar disease.

[x] Percent green leaf area prior to harvest. Only trace amounts of lodging were observed in the trial (data not shown).

[w] Yields are weight of corn with moisture content of 15.5%. Corn was harvested on 11 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.

TEST ID: CORNFOLFUN317

PURPOSE: Evaluate fungicide chemistries and timings for management of fungal diseases and yield response in corn

LOCATION: **V**irginia Tech University, Blacksburg, VA

CROP INFORMATION:

Field	Big Bottom Field/Kentland
Planting date	16 May
Variety	DK6208
Seeding rate	2 seed/row ft
Plot length/width	25’
Number of rows	4 rows
Row spacing	30”
Alleys (length between blocks)	8’
Harvest date	1 Nov

EXPERIMENTAL DESIGN: Randomized complete block with four replicates

APPLICATION OF TREATMENTS:

	Foliar spray
Equipment	backpack sprayer
Pressure (psi)	38 psi
Nozzle type	8002 VS
Surfactant	None
Volume (gal/A)	19.88

TREATMENTS:

Trt #	**Product and formulation**	**Rate (fl oz/A**	**Appl. timing**	**Appl. date**
1	Untreated	---	V4-6	
2	Untreated	---	VT/R1	
3	Untreated	---	R3	
4	Quadris	6	V4-6	16 Jun
5	Quadris	6	VT/R1	31 Jul
6	Quadris	6	R3	22 Aug
7	Domark 230 ME	5	V4-6	16 Jun
8	Domark 230 ME	5	VT/R1	31 Jul
9	Domark 230 ME	5	R3	22 Aug
10	Affiance	14	V4-6	16 Jun
11	Affiance	14	VT/R1	31 Jul
12	Affiance	14	R3	22 Aug

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	None except treatments
Nematicides	None
Other	None

Table 18. Effect of fungicide treatment and timing on foliar disease, greening, and yield in corn (CORNFOLFUN317, Blacksburg, VA 2017).

Treatment, rate/A and timing[z]	% gray leaf spot Flag leaf[y]		% green[x] (23 Sep)	Yield[w] (bu/A)	Test weight (lb/bu)
	25 Aug	23 Sep			
1. Untreated (V4-6)	21.1	57.2	33.6	153.1	55.1
2. Untreated (VT/R1)	17.4	47.5	37.3	154.8	55.3
3. Untreated (R3)	17.5	50.0	39.8	143.0	55.0
4. Quadris (V4-6)	20.0	64.2	41.1	153.8	54.7
5. Quadris (VT/R1)	17.4	48.9	39.9	143.8	55.0
6. Quadris (R3)	18.9	54.3	47.5	151.0	54.8
7. Domark 230ME (V4-6)	19.1	48.8	43.7	141.4	53.8
8. Domark 230ME (VT/R1)	17.3	61.4	43.7	141.9	54.5
9. Domark 230ME (R3)	17.1	61.6	43.7	131.6	55.2
10. Affiance (V4-6)	19.4	68.3	46.1	123.0	54.7
11. Affiance (VT/R1)	19.9	56.6	39.7	133.4	54.8
12. Affiance (R3)	18.4	62.9	38.5	131.2	54.0
P(F)	1.00	0.49	0.44	0.06	0.09
LSD	N.S.	N.S.	N.S.	N.S.	N.S.

[z] Foliar fungicides were applied at V4-6 (4-6 leaf collars) on 16 Jun, VT/R1 (tasseling/silking) on 21 Jul, and R3 (milk) on 22 Aug.

[y] Percent leaf area with symptoms of overall foliar disease.

[x] Percent green leaf area prior to harvest. Only trace amounts of lodging were observed in the trial (data not shown).

[w] Yields are weight of corn with moisture content of 15.5%. Corn was harvested on 1 Nov. One bushel = 56 lbs of grain. Percentage data were arcsine transformed prior to statistical analysis.

TEST ID: CORNFOLFUN517

PURPOSE: Compare commercially available fungicides for foliar disease control in corn

LOCATION: Tidewater AREC Duke Farm, Holland Road, Suffolk, VA

CROP INFORMATION:

Field	45
Crop history	2016 wheat/dc soy, 2015 sorghum/corn, 2014 soybean
Planting date	3 May
Variety	DK 6208
Seeding rate	2 seed/row ft
Plot length/width	30’
Number of rows	4
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	12 Sep

EXPERIMENTAL DESIGN: Randomized complete block design with four replicates

APPLICATION OF TREATMENTS:

Equipment	Lee Spider sprayer
Pressure (psi)	38 psi
Nozzle type	8002 VS
Volume (gal/A)	19.88
Surfactant	See treatment list

TREATMENTS:

Trt #	**Product and formulation**	**Rate (fl oz/A)**	**Application timing**	**Application date**
1	Untreated	---		7 Jul
2	Quadris 2.08 SC	6	VT	7 Jul
3	Headline 2.09 EC/SC	6	VT	7 Jul
4	Aproach 2.08 SC	12	VT	7 Jul
5	Tilt 3.6 EC	4	VT	7 Jul
6	Proline 480 SC	5.7	VT	7 Jul
7	Folicur 3.6F	6	VT	7 Jul
8	Domark 230 ME + NIS 0.25% V/V	4	V5	12 Jun
9	Domark 230 ME	4	VT	7 Jul
10	Quilt Xcel	10.5	VT	7 Jul
11	Aproach Prima	6.8	VT	7 Jul
12	Priaxor 4.17 SC	4	VT	7 Jul
13	Stratego YLD	4	VT	7 Jul
14	Affiance + NIS 0.25%V/V	10	V5	12 Jun
15	Affiance	10	VT	7 Jul
16	Trivapro SC	13.7	VT	7 Jul

SOIL PROPERTIES:

Soil type: Nansemond loamy fine sand

Soil fertility report (7 Dec 2016):

pH	**P (lb/A)**	**K (lb/A)**	**Ca (lb/A)**	**Mg (lb/A)**	**Zn (ppm)**	**Mn (ppm)**	**Cu (ppm)**	**Fe (ppm)**	**B (ppm)**
6.1	33	131	645	116	0.2	2.0	0.3	38.5	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	None except treatments
Nematicides	None

MAINTENANCE CHEMICAL APPLICATIONS:

Date	**Type and target**	**Product and formulation**	**Rate/A**
30 Mar	Herbicide Herbicide	Roundup WeatherMAX 2,4-D	32 fl oz 1 pt
10 Apr	Fertility Fertility	12-16-23 24-0-0-3	251 lb 10 gal
30 Apr	Herbicide Herbicide	Bicep II MAGNUM Princep 4L	2 pt 1 pt
5 Jun	Herbicide	Halex GT	4 pt
8 Jun	Fertility	24-0-0-3	10 gal

Table 19. Effect of fungicide treatment and timing on foliar disease, greening, lodging, and yield in corn (CORNFOLFUN517, Suffolk, VA 2017).

Treatment, rate/A, and timing[z]	% foliar disease[y] Flag leaf (24 Aug)		% green[x] (24 Aug)	% lodging[w] (6 Sep)	Yield[v] (bu/A)	Test weight (lb/bu)
	Brown spot	Leaf blight				
1. Untreated	42.4 a	21.2	41.1	7.3	202.1	53.0
2. Quadris 2.08 SC 6 fl oz (VT)	24.6 b-d	13.5	56.3	2.7	170.3	53.2
3. Headline 2.09 EC/SC 6 fl oz (VT)	20.1c-e	12.9	52.5	1.7	166.9	52.6
4. Aproach 2.08 SC 12 fl oz (VT)	24.6 b-d	13.5	43.6	3.7	167.8	52.9
5. Tilt 3.6 EC 4 fl oz (VT)	20.9 b-e	10.5	51.3	7.4	178.9	52.8
6. Proline 480 SC 5.7 fl oz (VT)	23.7 b-e	14.0	47.4	2.2	206.2	52.7
7. Folicur 3.6F 6 fl oz (VT)	19.9 c-e	10.7	47.5	3.3	177.3	52.1
8. Domark 230 ME 4 fl oz + NIS 0.25% V/V (V5)	26.2 bc	13.1	50.0	2.3	169.6	53.1
9. Domark 230 ME 4 fl oz (VT)	17.1 c-e	10.5	50.0	8.8	182.5	53.1
10. Quilt Xcel10.5 fl oz (VT)	15.4 de	10.7	55.1	1.8	199.2	53.4
11. Aproach Prima 6.8 fl oz (VT)	21.1 b-e	12.0	43.2	2.7	181.8	53.1
12. Priaxor 4.17 SC 4 fl oz (VT)	19.9 c-e	12.0	48.7	1.9	203.9	53.3
13. Stratego YLD 4 fl oz (VT)	25.9 bc	15.1	48.7	3.2	186.9	52.8
14. Affiance 10 fl oz + NIS 0.25%V/V (V5)	31.1 ab	15.4	34.6	6.6	172.0	52.6
15. Affiance 10 fl oz (VT)	20.9 b-e	9.9	51.3	1.5	163.6	52.9
16. Trivapro SC 13.7 fl oz (VT)	14.6 e	7.7	53.8	3.7	199.7	52.3
P(F)	**0.001**	0.10	0.14	0.66	0.74	0.74
LSD	9.36 – 11.47	N.S.	N.S.	N.S.	N.S.	N.S.

[z] Foliar fungicides were applied at V5 (5 leaf collars) on 12 Jun, and VT (tasseling) on 7 Jul.
[y] Percent leaf area with symptoms of overall foliar disease.
[x] Percent green leaf area prior to harvest.
[w] Percent plants lodged.
[v] Yields are weight of corn with moisture content of 15.5%. Corn was harvested on 12 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.

TEST ID: CORNFOLFUN617

PURPOSE: Evaluate early, mid-season, and late foliar fungicide applications for disease control, improved stalk strength, and yield response in corn

LOCATION: TAREC Wynne Farm, Lummis Road, Suffolk, VA

CROP INFORMATION:

Field	64A
Crop history	2016 cotton, 2015 soybean, 2014 corn
Planting date	19 Apr
Variety	DK 6772
Seeding rate	2 seed/row ft
Plot length/width	30’
Number of rows	4
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	11 Sep

EXPERIMENTAL DESIGN: Randomized complete block design with four replicates

APPLICATION OF TREATMENTS:

Equipment	Lee Spider sprayer
Pressure (psi)	38 psi
Nozzle type	8002 VS
Volume (gal/A)	19.88
Surfactant	none

TREATMENTS:

Trt #	Product and formulation	Rate (fl oz/A)	Application timing	Application date
1	Untreated	---	---	
2	Headline AMP SC	10	V5/6	31 May
3	Headline AMP SC	10	R1	27 Jun
4	Headline AMP SC	10	R5	25 Jul
5	Headline AMP SC Headline AMP SC	10 10	V5/6 R1	31 May 27 Jun
6	Headline AMP SC Headline AMP SC	10 10	V5/6 R5	31 May 25 Jul
7	Headline AMP SC Headline AMP SC Headline AMP SC	10 10 10	V5/6 R1 R5	31 May 27 Jun 25 Jul
8	Trivapro A + B	4 + 10.5	V5/6	31 May
9	Trivapro A + B	4 + 10.5	R1	27 Jun
10	Trivapro A + B	4 + 10.5	R5	25 Jul
11	Trivapro A + B Trivapro A + B	4 + 10.5 4 + 10.5	V5/6 R1	31 May 27 Jun
12	Trivapro A + B Trivapro A + B	4 + 10.5 4 + 10.5	V5/6 R5	31 May 25 Jul
13	Trivapro A + B Trivapro A + B Trivapro A + B	4 + 10.5 4 + 10.5 4 + 10.5	V5/6 R1 R5	31 May 27 Jun 25 Jul

SOIL PROPERTIES:

Soil type: Nansemond loamy fine sand

Soil fertility report (7 Dec 2016):

pH	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)
6.3	42	133	626	91	0.3	1.4	0.2	14.6	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	None except treatments
Nematicides	None

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
30 Mar	Herbicide Herbicide	Roundup WeatherMAX 2,4-D	32 fl oz 1 pt
10 Apr	Fertility Fertility	12-16-23 24-0-0-3	251 lb 10 gal
18 Apr	Herbicide Herbicide	Bicep II MAGNUM Princep 4L	4 pt 2 pt
8 Jun	Fertility	24-0-0-3	10 gal

Table 20. Effect of fungicide treatment and timing on foliar disease in corn (CORNFOLFUN617, Suffolk, VA 2017).

Treatment, rate/A, and application timing[z]	% foliar disease[y] Flag leaf		
	Brown spot (2 Aug)	**Brown spot (17 Aug)**	**Leaf blight (17 Aug)**
1. Untreated	22.3 a	69.1 a	42.5 a
2. Headline AMP SC 10 fl oz (V5/6)	16.1 a-c	54.1 ab	25.4 b-d
3. Headline AMP SC 10 fl oz (R1)	3.2 f-h	38.5 b-d	23.4 b-d
4. Headline AMP SC 10 fl oz (R5)	16.1 a-c	47.5 bc	14.9 d-f
5. Headline AMP SC 10 fl oz (V5/6) Headline AMP SC 10 fl oz (R1)	5.4 e-g	45.0 bc	32.5 ab
6. Headline AMP SC 10 fl oz (V5/6) Headline AMP SC 10 fl oz (R5)	8.9 c-e	26.8 de	17.1 d-f
7. Headline AMP SC 10 fl oz (V5/6) Headline AMP SC 10 fl oz (R1) Headline AMP SC 10 fl oz (R5)	2.3 gh	14.8 e	9.7 f
8. Trivapro A 4 fl oz + Trivapro B 10.5 fl oz (V5/6)	12.3 b-d	53.9 ab	29.3 a-c
9. Trivapro A 4 fl oz + Trivapro B 10.5 fl oz (R1)	2.6 f-h	39.8 b-d	25.7 b-d
10. Trivapro A 4 fl oz + Trivapro B 10.5 fl oz (R5)	21.2 ab	44.9 bc	21.0 b-e
11. Trivapro A 4 fl oz + Trivapro B 10.5 fl oz (V5/6) Trivapro A 4 fl oz + Trivapro B 10.5 fl oz (R1)	1.0 h	34.5 cd	17.4 c-f
12. Trivapro A 4 fl oz + Trivapro B 10.5 fl oz (V5/6) Trivapro A 4 fl oz + Trivapro B 10.5 fl oz (R5)	7.7 d-f	43.7 b-d	20.9 b-e
13. Trivapro A 4 fl oz + Trivapro B 10.5 fl oz (V5/6) Trivapro A 4 fl oz + Trivapro B 10.5 fl oz (R1) Trivapro A 4 fl oz + Trivapro B 10.5 fl oz (R5)	1.0 h	26.1 de	11.2 ef
P(F)	**0.0001**	**0.0001**	**0.0001**
LSD	3.86 – 9.24	15.74 – 18.56	9.88 – 13.51

[z] Foliar fungicides were applied at V5 (5 leaf collars) on 31 May, R1 (silking) on 27 Jun, and R5 (kernel dent stage) on 25 Jul.

[y] Percent leaf area with symptoms of overall foliar disease.
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 21. Effect of foliar fungicide treatment and timing on green snap, greening, lodging, and yield in corn (CORNFOLFUN617, Suffolk, VA 2017).

Treatment, rate/A, and application timing[z]	% green snap[y] (17 Aug)	% green[x] (17 Aug)	% lodging[w] (31 Aug)	Yield[v] (bu/A)	Test weight (lb/bu)
1. Untreated	11.7	2.0 e	28.4 a	140.9	53.0
2. Headline AMP SC 10 fl oz (V5/6)	5.5	2.2 e	19.3 a-c	142.1	53.2
3. Headline AMP SC 10 fl oz (R1)	1.6	16.0 c-e	6.2 b-e	143.4	53.0
4. Headline AMP SC 10 fl oz (R5)	9.3	45.6 b	12.7 a-d	137.3	53.1
5. Headline AMP SC 10 fl oz (V5/6) Headline AMP SC 10 fl oz (R1)	6.1	12.9 de	12.5 a-d	138.0	53.4
6. Headline AMP SC 10 fl oz (V5/6) Headline AMP SC 10 fl oz (R5)	1.6	56.4 ab	3.3 c-e	134.3	53.1
7. Headline AMP SC 10 fl oz (V5/6) Headline AMP SC 10 fl oz (R1) Headline AMP SC 10 fl oz (R5)	2.9	60.5 ab	4.0 c-e	123.7	53.3
8. Trivapro A 4 fl oz + Trivapro B 10.5 fl oz (V5/6)	6.7	3.5 e	21.6 ab	141.7	53.2
9. Trivapro A 4 fl oz + Trivapro B 10.5 fl oz (R1)	3.0	36.2 b-d	6.2 b-e	141.8	52.1
10. Trivapro A 4 fl oz + Trivapro B 10.5 fl oz (R5)	2.4	41.1 bc	2.9 de	148.8	52.9
11. Trivapro A 4 fl oz + Trivapro B 10.5 fl oz (V5/6) Trivapro A 4 fl oz + Trivapro B 10.5 fl oz (R1)	3.3	41.0 bc	10.0 a-d	135.6	53.2
12. Trivapro A 4 fl oz + Trivapro B 10.5 fl oz (V5/6) Trivapro A 4 fl oz + Trivapro B 10.5 fl oz (R5)	2.3	50.3 ab	3.7 c-e	141.1	52.6
13. Trivapro A 4 fl oz + Trivapro B 10.5 fl oz (V5/6) Trivapro A 4 fl oz + Trivapro B 10.5 fl oz (R1) Trivapro A 4 fl oz + Trivapro B 10.5 fl oz (R5)	0.8	78.0 a	0.1 e	149.6	52.7
P(F)	0.38	**0.0001**	**0.02**	0.93	0.78
LSD	N.S	15.91 – 27.89	9.31 – 20.44	N.S	N.S

[z] Foliar fungicides were applied at V5 (5 leaf collars) on 31 May, R1 (silking) on 27 Jun, and R5 (kernel dent stage) on 25 Jul.

[y] Percent plants that became broken when pushed forward. Determined by evaluating number of broken plants per 30 stalks of each plot.

[x] Percent green leaf area prior to harvest.

[w] Percent plants lodged.

[v] Yields are weight of corn with moisture content of 15.5%. Corn was harvested on 11 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.

TEST ID: COTSEEDFUN117

PURPOSE: Compare seed treatments for seedling disease control and yield response in cotton

LOCATION: Tidewater AREC Research Farm, Hare Road, Suffolk, VA

CROP INFORMATION:

Field	16B
Crop history	2016 peanut, 2015 corn, 2014 cotton
Planting date	15 May
Variety	DP 1522 B2XF
Seeding rate	3.5 - 4 seed/row ft
Plot length/width	30’
Number of rows	2
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	29 Nov

EXPERIMENTAL DESIGN: Randomized complete block design with four replicates

TREATMENTS:

Trt #	**Seed treatment***	**Rate (oz/cwt)**
1	Apron XL + Maxim 4 FS + Systhane WSP + A21606B	0.31 + 0.08 + 0.84 + 3.33
2	Apron XL + Maxim 4 FS + Systhane WSP + A21606B	0.31 + 0.08 + 0.84 + 4.08
3	Allegiance + EverGol Prime + Fluopyram 600 FS + AB0271473	0.75 + 0.33 + 5.6 + 0.16
4	Allegiance + EverGol Prime + Spera +Vortex FL	0.75 + 0.33 + 1.8 + 0.08
5	Allegiance + EverGol Prime + Spera +EverGol XTend + AB0271473	0.75 + 0.33 + 1.8 + 1.0 + 0.16
6	Allegiance + EverGol Prime + Spera + AB0271473 + SP102000026368	0.75 + 0.33 + 1.8 + 0.16 + 0.16
7	Albaugh Base + Premium Fungicide Overtreatment	2.2 + 4.8
8	RTU-Baytan-Thiram + Allegiance FL	3.0 + 0.75
9	Vitavax-PCNB + Allegiance FL	6.0 + 0.75
10	EverGol Prime	0.64
11	Allegiance FL	1.5
12	Nontreated (destructive check)	---
*All seed received base fungicide treatment of Gaucho 600 12.8 oz/cwt.		

SOIL PROPERTIES:

Soil type: Goldsboro fine sandy loam

Soil fertility report (7 Dec 2016):

pH	**P (lb/A)**	**K (lb/A)**	**Ca (lb/A)**	**Mg (lb/A)**	**Zn (ppm)**	**Mn (ppm)**	**Cu (ppm)**	**Fe (ppm)**	**B (ppm)**
6.0	95	83	728	64	0.4	3.4	0.3	18.6	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	None except seed treatments
Nematicides	None

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
25 Mar	Herbicide Herbicide	2,4-D Valor EZ	1 pt 1.5 fl oz
27 Apr	Fertility	8-8-34	459 lb/
10 May	Herbicide Herbicide	Prowl H_2O Cotoran 4L	1 pt 1 qt
27 May	Herbicide Fertility	Roundup WeatherMAX ENC	22 fl oz 1 qt
31 May	Insecticide	Orthene 75S	12 oz
15 Jun	Insecticide Herbicide Fertility	Orthene 75S Roundup WeatherMAX ENC	12 oz 22 fl oz 1 pt
5 Jul	Fertility	24-0-0-3	32 lb

Table 22. Effect of seed treatment on emergence and yield in cotton (COTSEEDFUN117, Suffolk, VA 2017).

Seed treatment and rate/cwt[z]	Plants/ft[y] (13 Jun)	Yield[x]	
		lb/A	bales/A
1. Apron XL 0.31 oz + Maxim 4 FS 0.08 oz + Systhane WSP 0.84 oz + A21606B 3.33 oz	2.5	3031	2.9
2. Apron XL 0.31 oz + Maxim 4 FS 0.08 oz + Systhane WSP 0.84 oz + A21606B 4.08 oz	2.5	3158	2.9
3. Allegiance 0.75 oz + EverGol Prime 0.33 oz + Fluopyram 600 FS 5.6 oz + AB0271473 0.16 oz	2.2	3509	3.1
4. Allegiance 0.75 oz + EverGol Prime 0.33 oz + Spera 1.8 oz + Vortex FL 0.08 oz	2.3	3070	2.8
5. Allegiance 0.75 oz + EverGol Prime 0.33 oz + Spera 1.8 oz + EverGol XTend 1.0 oz + AB0271473 0.16 oz	2.7	3234	2.9
6. Allegiance 0.75 oz + EverGol Prime 0.33 oz + Spera 1.8 oz + AB0271473 0.16 oz + SP102000026368 0.16 oz	3.1	2983	2.7
7. Albaugh Base 2.2 oz + Premium Fungicide Overtreatment 4.8 oz	2.4	3213	3.0
8. RTU-Baytan-Thiram 3.0 oz + Allegiance FL 0.75 oz	2.5	3303	3.0
9. Vitavax-PCNB 6.0 oz + Allegiance FL 0.75 oz	2.8	2995	2.8
10. EverGol Prime 0.64 oz	2.2	3207	3.0
11. Allegiance FL 1.5 oz	2.4	3152	2.9
P(F)	0.17	0.29	0.63
LSD	N.S.	N.S.	N.S.

[z] All seed received Gaucho 600 12.8 oz/cwt seed. Treatments were applied at the University of Arkansas. Seed was planted 15 May.

[y] Determined from counts in one, 30-ft row per plot.

[x] Weight (lb/A) includes lint + seed, bales/A are weight of lint only. Lint weight (480 lb/bale) was determined by ginning composite samples of seed cotton from each treatment. Plots were harvested on 29 Nov.

TEST ID: COTSEEDFUN217

PURPOSE: Comparison of seed treatments for seedling disease control, plant growth, and yield in cotton

LOCATION: Tidewater AREC Research Farm, Hare Road, Suffolk, VA

CROP INFORMATION:

Field	16B
Crop history	2016 peanut, 2015 corn, 2014 cotton
Planting date	9 May
Seeding rate	3.5 - 4 seed/row ft
Plot length/width	30’
Number of rows	2 + 2 row blocks, (with and without inoculum)
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	29 Nov

EXPERIMENTAL DESIGN: Randomized complete block design with four replicates

INOCULUM: *Rhizoctonia solani* in-furrow at planting [500 ml/100 ft].

SEED TREATMENTS:

Trt #	**Seed treatment***
1	Untreated*
2	Spera 120.6 ml/100 kg + Proline 480 SC 5 g ai/100 kg + EverGol Prime 5 g ai/100 kg + Allegiance FL 48.9 ml/100 kg
3	Spera 120.6 ml/100 kg + Proline 480 SC 5 g ai/100 kg + EverGol Prime 5 g ai/100 kg + Allegiance FL 48.9 ml/100 kg + Trilex Advanced FS300 104.32 ml/100 kg
4	Spera 120.6 ml/100 kg + Proline 480 SC 5 g ai/100 kg + EverGol Prime 5 g ai/100 kg + Allegiance FL 48.9 ml/100 kg + EverGol Energy 65.2 ml/100 kg
5	Spera 120.6 ml/100 kg + Proline 480 SC 5 g ai/100 kg + EverGol Prime 5 g ai/100 kg + Allegiance FL 48.9 ml/100 kg + EverGol Xtend 65.2 ml/100 kg
*All seed received base fungicide treatment of Gaucho 0.375 mg ai/seed	

IN FURROW INOCULLUM:

Trt #	**Inoculum**
1	Non-inoculated
2	Inoculated (*Rhizoctonia solani* infested millet seed)

SOIL PROPERTIES:

Soil type: Goldsboro fine sandy loam

Soil fertility report (7 Dec 2016):

pH	**P (lb/A)**	**K (lb/A)**	**Ca (lb/A)**	**Mg (lb/A)**	**Zn (ppm)**	**Mn (ppm)**	**Cu (ppm)**	**Fe (ppm)**	**B (ppm)**
6.0	95	83	728	64	0.4	3.4	0.3	18.6	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	None except seed treatments
Nematicides	None

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
25 Mar	Herbicide Herbicide	2,4-D Valor EZ	1 pt 1.5 fl oz
27 Apr	Fertility	8-8-34	459 lb/
10 May	Herbicide Herbicide	Prowl H_2O Cotoran 4L	1 pt 1 qt
27 May	Herbicide Fertility	Roundup WeatherMAX ENC	22 fl oz 1 qt
31 May	Insecticide	Orthene 75S	12 oz
15 Jun	Insecticide Herbicide Fertility	Orthene 75S Roundup WeatherMAX ENC	12 oz 22 fl oz 1 pt
5 Jul	Fertility	24-0-0-3	32 lb

Table 23. Effect of seed treatment on emergence and yield in cotton (COTSEEDFUN217, Suffolk, VA 2017).

Seed treatment and rate/100 kg[z]	Plants/ft[y]				Yield[x]			
	31 May		20 Jun		lb/A		bales/A	
	Non	Inoc	Non	Inoc	Non	Inoc	Non	Inoc
Untreated	0.9	0.9b	0.9b	0.9b	3485	2995	3.2	2.9
Spera 120.6 ml + Proline 5 g ai + Evergol Prime 5 g ai + Allegiance FL 48.9 ml	1.3	1.3a	1.3a	1.4a	3034	3046	2.9	2.7
Trilex ADV FS300 104.32 ml + Spera 120.6 ml + Proline 5 g ai + Evergol Prime 5 g ai + Allegiance FL 48.9 ml	1.4	1.3a	1.4a	1.3a	3684	2828	3.3	2.7
Evergol Energy 65.2 ml + Spera 120.6 ml + Proline 5 g ai + Evergol Prime 5 g ai + Allegiance FL 48.9 ml	1.3	1.4a	1.3a	1.5a	2934	2837	2.8	2.7
Evergol Xtend 65.2 ml + Spera 120.6 ml + Proline 5 g ai + Evergol Prime 5 g ai + Allegiance FL 48.9 ml	1.3	1.3a	1.3a	1.4a	3424	3149	3.1	2.9
P(F)	0.10	**0.03**	**0.01**	**0.01**	0.49	0.49	0.81	0.67
LSD	N.S.	0.33	0.27	0.29	N.S.	N.S.	N.S.	N.S.

[z] Seed treatment were applied by personnel with Bayer CropScience. All seed received base fungicide treatment of Gaucho 0.375 mg ai/seed.

[y] Determined from counts in two, 30-ft row per plot.

[x] Weight (lb/A) includes lint + seed, bales/A are weight of lint only. Lint weight (480 lb/bale) was determined by ginning composite samples of seed cotton from each treatment. Plots were harvested on 29 Nov.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

TEST ID: COTSEEDFUN317

PURPOSE: Comparison of seed treatments for seedling disease control, growth, and yield in cotton

LOCATION: Tidewater AREC Research Farm, Hare Road, Suffolk, VA

CROP INFORMATION:

Field	16B
Crop history	2016 peanut, 2015 corn, 2014 cotton
Planting date	9 May
Seeding rate	3.5 - 4 seed/row ft
Plot length/width	30’
Number of rows	2 + 2 row blocks, (with and without inoculum)
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	29 Nov

EXPERIMENTAL DESIGN: Randomized complete block design with four replicates

INOCULUM: *Rhizoctonia solani* in-furrow at planting [500 ml/100 ft].

SEED TREATMENTS:

Trt #	**Seed treatment***
1	Untreated
2	Proline 480 SC 5 g ai/100 kg + EverGol Prime 5 g ai/100 kg + Allegiance FL 48.9 ml/100 kg
3	Proline 480 SC 5 g ai/100 kg + EverGol Prime 5 g ai/100 kg + Allegiance FL 48.9 ml/100 kg + Trilex Flowab Fungicide 20.9 ml/100 kg
4	Proline 480 SC 5 g ai/100 kg + EverGol Prime 5 g ai/100 kg + Allegiance FL 48.9 ml/100 kg + Fluoxostrobin FS480 2.5 g ai/100 kg
5	Proline 480 SC 5 g ai/100 kg + EverGol Prime 5 g ai/100 kg + Allegiance FL 48.9 ml/100 kg + Fluoxostrobin FS480 5 g ai/100 kg
6	Proline 480 SC 5 g ai/100 kg + EverGol Prime 5 g ai/100 kg + Allegiance FL 48.9 ml/100 kg + Fluoxostrobin FS480 10 g ai/100 kg
*All seed received base fungicide treatment of Gaucho 0.375 mg ai/seed	

SOIL PROPERTIES:

Soil type: Goldsboro fine sandy loam

Soil fertility report (7 Dec 2016):

pH	**P (lb/A)**	**K (lb/A)**	**Ca (lb/A)**	**Mg (lb/A)**	**Zn (ppm)**	**Mn (ppm)**	**Cu (ppm)**	**Fe (ppm)**	**B (ppm)**
6.0	95	83	728	64	0.4	3.4	0.3	18.6	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	None except seed treatments
Nematicides	None

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
25 Mar	Herbicide Herbicide	2,4-D Valor EZ	1 pt 1.5 fl oz
27 Apr	Fertility	8-8-34	459 lb/
10 May	Herbicide Herbicide	Prowl H_2O Cotoran 4L	1 pt 1 qt
27 May	Herbicide Fertility	Roundup WeatherMAX ENC	22 fl oz 1 qt
31 May	Insecticide	Orthene 75S	12 oz
15 Jun	Insecticide Herbicide Fertility	Orthene 75S Roundup WeatherMAX ENC	12 oz 22 fl oz 1 pt
5 Jul	Fertility	24-0-0-3	32 lb

Table 24. Effect of seed treatment on emergence and yield in cotton (COTSEEDFUN317, Suffolk, VA 2017).

Seed treatment and rate/100 kg[z]	Plants/ft[y]				Yield[x]			
	31 May		23 Jun		lb/A		bales/A	
	Non	Inoc	Non	Inoc	Non	Inoc	Non	Inoc
1. Untreated	1.6	1.5	1.8	1.6	3204	2496	2.7 a	2.0
2. Proline 480SC 5 g ai + Evergol Prime 5 g ai + Allegiance FL 48.9 ml	1.8	1.6	2.1	1.8	2971	2559	2.0 cd	2.1
3. Trilex Flowab Fung 20.9 ml + Proline 480SC 5 g ai + Evergol Prime 5 g ai + Allegiance FL 48.9 ml	1.8	1.6	1.8	1.9	2998	2508	2.2 b-d	1.8
4. Fluoxostrobin FS480 2.5 g ai + Proline 480SC 5 g ai + Evergol Prime 5 g ai + Allegiance FL 48.9 ml	1.7	1.7	2.0	1.8	3149	2795	2.0 d	2.0
5. Fluoxostrobin FS480 5 g ai + Proline 480SC 5 g ai + Evergol Prime 5 g ai + Allegiance FL 48.9 ml	1.9	1.5	2.0	1.8	3136	2862	2.5 ab	2.0
6. Fluoxostrobin FS480 10 g ai + Proline 480SC 5 g ai + Evergol Prime 5 g ai + Allegiance FL 48.9 ml	1.7	1.5	1.9	1.7	3161	2605	2.3 bc	1.9
P(F)	0.52	0.45	0.76	0.83	0.74	0.83	**0.001**	0.93
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	.28	N.S.

[z] Seed treatment were applied by personnel with Bayer CropScience.

[y] Determined from counts in two, 30-ft row per plot.

[x] 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 29 Nov.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

TEST ID: COTSEEDFUN417

PURPOSE: Determine any potential positive effects of seed treatment insecticides and plant population on stand establishment, early season vigor, and yield of cotton

LOCATION: Tidewater AREC Research Farm, Hare Road, Suffolk, VA

CROP INFORMATION:

Field	16B
Crop history	2016 peanut, 2015 corn, 2014 cotton
Planting date	15 May
Variety	ST4946
Seeding rate	2 seed/row ft; 4 seed/row ft
Plot length/width	30’
Number of rows	2
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	29 Nov

EXPERIMENTAL DESIGN: Factorial randomized complete block design with four replicates

SEED RATE AND SEED TREATMENTS:

Trt #	Plant population (seed/ft)	Seed treatment
1	2	Untreated (black seed)
2	2	Aeris Seed Applied System 0.75 mg ai/seed
3	2	Spera 1.8 oz + Vortex 0.08 oz + Allegiance FL 0.75 oz + EverGol Prime 0.32 oz/cwt
4	2	Spera 1.8 oz + Vortex 0.08 oz + Allegiance FL 0.75 oz + EverGol Prime 0.32 oz/cwt + Aeris Seed Applied System 0.75 mg ai/seed
5	4	Untreated (black seed)
6	4	Aeris Seed Applied System 0.75 mg ai/seed
7	4	Spera 1.8 oz + Vortex 0.08 oz + Allegiance FL 0.75 oz + EverGol Prime 0.32 oz/cwt
8	4	Spera 1.8 oz + Vortex 0.08 oz + Allegiance FL 0.75 oz + EverGol Prime 0.32 oz/cwt + Aeris Seed Applied System 0.75 mg ai/seed

SOIL PROPERTIES:

Soil type: Goldsboro fine sandy loam

Soil fertility report (7 Dec 2016):

pH	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)
6.0	95	83	728	64	0.4	3.4	0.3	18.6	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	None except seed treatments
Nematicides	None

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
25 Mar	Herbicide Herbicide	2,4-D Valor EZ	1 pt 1.5 fl oz
27 Apr	Fertility	8-8-34	459 lb/
10 May	Herbicide Herbicide	Prowl H_2O Cotoran 4L	1 pt 1 qt
27 May	Herbicide Fertility	Roundup WeatherMAX ENC	22 fl oz 1 qt
31 May	Insecticide	Orthene 75S	12 oz
15 Jun	Insecticide Herbicide Fertility	Orthene 75S Roundup WeatherMAX ENC	12 oz 22 fl oz 1 pt
5 Jul	Fertility	24-0-0-3	32 lb

Table 25. Effect of seeding rate and seed treatment on emergence, thrips injury, vigor, and yield in cotton (COTSEEDFUN417, Suffolk, VA 2017).

Seeding rate /row ft	Seed treatment and rate[z]	Plants/ft[y] 5 Jun	Plants/ft[y] 12 Jun	Thrips injury (0-5)[x] (5 Jun)	Vigor (0-10)[w] (20 Jun)	Yield[v] lb/A	Yield[v] bales/A
2 seed	1. Untreated	0.9 c	0.9 c	3.8 a	6.8	2898	2.5
2 seed	2. Aeris 0.75 mg ai/seed	1.0 c	1.1 a-c	1.4 cd	6.8	2883	2.5
2 seed	3. Spera 1.8 oz/cwt + Vortex 0.8 oz/cwt + Allegiance FL 0.75 oz/cwt + Evergol Prime 0.32 oz/cwt	1.3 a-c	1.2 a-c	3.0 b	8.5	3173	2.8
2 seed	4. Spera 1.8 oz/cwt + Vortex 0.8 oz/cwt + Allegiance FL 0.75 oz/cwt + Evergol Prime 0.32 oz/cwt + Aeris 0.75 mg ai/seed	1.0 bc	0.9 bc	1.5 c	8.0	3349	2.9
4 seed	5. Untreated	1.0 c	0.9 bc	3.2 b	7.3	3043	2.6
4 seed	6. Aeris 0.75 mg ai/seed	0.9 c	0.9 c	1.3 de	6.8	2892	2.5
4 seed	7. Spera 1.8 oz/cwt + Vortex 0.8 oz/cwt + Allegiance FL 0.75 oz/cwt + Evergol Prime 0.32 oz/cwt	1.4 ab	1.3 ab	3.1 b	8.5	3113	2.8
4 seed	8. Spera 1.8 oz/cwt + Vortex 0.8 oz/cwt + Allegiance FL 0.75 oz/cwt + Evergol Prime 0.32 oz/cwt + Aeris 0.75 mg ai/seed	1.5 a	1.4 a	1.1 e	8.8	3485	3.1
	P(F)	**0.02**	**0.047**	**0.0001**	0.19	0.40	0.38
	LSD	.41	.35	.23	N.S.	N.S.	N.S.

[z] Seed was planted 15 May.
[y] Determined from counts in two, 30-ft row per plot.
[x] Thrips injury rating scale: 0 = no damage, 5 = dead plants.
[w] Vigor index rating scale: 10 = 100% vigor, 0 = no vigor.
[v] Weight (lb/A) includes lint + seed, bales/A are weight of lint only. Lint weight (480 lb/bale) was determined by ginning composite samples of seed cotton from each treatment. Plots were harvested on 29 Nov.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

TEST ID: COTSEEDNEMA117

PURPOSE: Compare seed treatments for nematode control, plant growth, and yield in cotton

LOCATION: Rick Morgan Farm, Deer Forest Road, Suffolk, VA

CROP INFORMATION:

Field	Morgan
Crop history	Continuous cotton since 2001
Planting date	1 Jun
Seeding rate	3.5 - 4 seed/row ft
Plot length/width	30’
Number of rows	2
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	12 Dec

EXPERIMENTAL DESIGN: Randomized complete block design with four replicates

TREATMENT:

Trt #	**Seed treatment and rate**	**Treatment application**
1	Untreated (Base)	Seed treatment
2	COPeO Prime 0.2 mg ai/seed	Seed treatment
3	VOTiVO 7 miu/seed	Seed treatment
4	VOTiVO 7 miu/seed COPeO Prime 0.2 mg ai/seed	Seed treatment Seed treatment

Soil type: Rumford loamy fine sand

Soil fertility report (30 Mar 2017):

pH	**P (lb/A)**	**K (lb/A)**	**Ca (lb/A)**	**Mg (lb/A)**	**Zn (ppm)**	**Mn (ppm)**	**Cu (ppm)**	**Fe (ppm)**	**B (ppm)**
5.77	36	82	231	21	1.1	2.1	0.3	16	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	None except treatments
Nematicides	None except treatments

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
14 Apr	Fertility	Lime	1 ton
18 May	Fertility	7-10-33	260 lb
2 Jun	Herbicide Herbicide Herbicide Herbicide	Gramoxone SL Roundup WeatherMAX Prowl H_2O Cotoran 4L	1 pt 1 pt 1 pt 1 qt
27 Jun	Herbicide Insecticide	Roundup WeatherMAX Orthene 75S	22 fl oz 12 oz
27 Jul	Growth regulator Insecticide Fertility	Pentia Beseige Liquid Boron	1 pt 12 fl oz 1 qt

Table 26. Pre-plant, mid-season, and end season nematode populations in soil (COTSEEDNEMA117, Suffolk, VA 2017).

	Nematodes /500 cc soil[y]					
	Root knot			Stubby root		
Seed treatment and rate[z]	31 May	18 Jul	3 Nov	31 May	18 Jul	3 Nov
1. Untreated (Base)	60	60	480	240	60	120
2. COPeO Prime 0.2 mg ai/seed	60	0	540	180	60	0
3. VOTiVO 7 miu/seed	0	0	780	60	240	120
4. VOTiVO 7 miu/seed COPeO Prime 0.2 mg ai/seed	0	0	180	60	240	60

[1] Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 1 Jun.
[2] Soil was sampled on 31 May prior to planting. Data are counts of nematodes in a composite sample taken from 4 reps of each treatment.

Table 27. Effect of seed treatment on emergence, plant growth, yield and root galling in cotton (COTSEEDNEMA117, Suffolk, VA 2017).

	Plants/ft[y]		Plant height (in)[x]	Yield[w]		Root gall index (0-6)[v]
Seed treatment and rate[z]	26 Jun	11 Jul	(7 Aug)	lb/A	bales/A	20 Dec
1. Untreated (Base)	1.9	2.0	35.9	3612	3.2 a	0.3
2. COPeO Prime 0.2 mg ai/seed	1.8	1.8	35.6	3385	2.8 b	0.4
3. VOTiVO 7 miu/seed	2.1	2.1	35.4	3627	3.2 a	0.2
4. VOTiVO 7 miu/seed COPeO Prime 0.2 mg ai/seed	1.9	2.2	35.3	3436	3.0 ab	0.2
P(F)	0.31	0.08	0.91	0.17	**0.01**	0.41
LSD	N.S.	N.S.	N.S.	N.S.	0.23	N.S.

[z] Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 1 Jun.
[y] Determined from counts in two, 30-ft rows per plot.
[x] Measurement of three, randomly selected plants in each row per plot.
[w] 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 Dec.
[v] 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 in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

TEST ID: COTSEEDNEMA217

PURPOSE: Compare seed treatments for nematode control, stand, vigor, and yield in cotton

LOCATION: Rick Morgan Farm, Deer Forest Road, Suffolk, VA

CROP INFORMATION:

Field	Morgan
Crop history	Continuous cotton since 2001
Planting date	1 Jun
Seeding rate	3.5 - 4 seed/row ft
Plot length/width	30’
Number of rows	2
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	12 Dec

EXPERIMENTAL DESIGN: Randomized complete block design with four replicates

TREATMENT:

Trt #	**Treatment and rate**	**Treatment application**
1	Untreated	Seed treatment
2	Fluopyram 600FS 0.2 mg ai/seed	Seed treatment
3	Aeris Seed Applied System 0.75 mg ai/seed	Seed treatment
4	Aeris Seed Applied System 0.75 mg ai/seed Fluopyram 600FS 0.2 mg ai/seed	Seed treatment Seed treatment
5	Gaucho 0.375 mg ai/seed Cruiser 5FS 0.34 mg ai/seed Avicta 500FS 0.15 mg ai/seed	Seed treatment Seed treatment Seed treatment
6	Fluopyram 600FS 0.2 mg ai/seed Aeris Seed Applied System 0.75 mg ai/seed Velum Total SC 10 fl oz/A*	Seed treatment Seed treatment In-furrow
*Rate of product has not been labeled for use.		

Soil type: Rumford loamy fine sand

Soil fertility report (30 Mar 2017):

pH	**P (lb/A)**	**K (lb/A)**	**Ca (lb/A)**	**Mg (lb/A)**	**Zn (ppm)**	**Mn (ppm)**	**Cu (ppm)**	**Fe (ppm)**	**B (ppm)**
5.77	36	82	231	21	1.1	2.1	0.3	16	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	None except treatments
Nematicides	None except treatments

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
14 Apr	Fertility	Lime	1 ton
18 May	Fertility	7-10-33	260 lb
2 Jun	Herbicide	Gramoxone SL	1 pt
	Herbicide	Roundup WeatherMAX	1 pt
	Herbicide	Prowl H_2O	1 pt
	Herbicide	Cotoran 4L	1 qt
27 Jun	Herbicide	Roundup WeatherMAX	22 fl oz
	Insecticide	Orthene 75S	12 oz
27 Jul	Growth regulator	Pentia	1 pt
	Insecticide	Beseige	12 fl oz
	Fertility	Liquid Boron	1 qt

Table 28. Pre-plant, mid-season, and end season nematode populations in soil (COTSEEDNEMA217, Suffolk, VA 2017).

	Nematodes /500 cc soil[y]					
	Root knot			Stubby root		
Treatment and rate[z]	31 May	18 Jul	3 Nov	31 May	18 Jul	3 Nov
1. Untreated	120	60	120	420	0	60
2. Fluopyram 600FS 0.2 mg ai/seed (S)	60	240	1560	120	240	540
3. Aeris Seed Applied System 0.75 mg ai/seed (S)	0	60	120	240	120	0
4. Aeris Seed Applied System 0.75 mg ai/seed + Fluopyram 600FS 0.2 mg ai/seed (S)	0	120	180	300	60	240
5. Gaucho 0.375 mg ai/seed + Cruiser 5FS 0.34 mg ai/seed + Avicta 500FS 0.15 mg ai/seed (S)	0	0	180	180	60	120
6. Fluopyram 600FS 0.2 mg ai/seed + Aeris Seed Applied System 0.75 mg ai/seed (S) + Velum Total SC 10 fl oz/A (IF)*	60	0	60	360	180	240

[z] (S) = seed treatment; (IF) = in-furrow treatment (1 Jun). Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 1 Jun.

[y] Soil was sampled on 31 May prior to planting. Data are counts of nematodes in a composite sample taken from 4 reps of each treatment.

* Rate of product has not been labeled for use.

Table 29. Effect of seed treatment on emergence and vigor in cotton (COTSEEDNEMA217, Suffolk, VA 2017).

	Plants/ft[y]		Yield[x]	
Seed treatment and rate[z]	**26 Jun**	**11 Jul**	**lb/A**	**bales/A**
1. Untreated	1.8 a	1.9 a	3203	2.7
2. Fluopyram 600FS 0.2 mg ai/seed (S)	1.7 a	1.8 a	3070	2.7
3. Aeris Seed Applied System 0.75 mg ai/seed (S)	1.6 a-c	1.7 a-c	3340	2.9
4. Aeris Seed Applied System 0.75 mg ai/seed + Fluopyram 600FS 0.2 mg ai/seed (S)	1.4 c	1.4 c	3433	3.1
5. Gaucho 0.375 mg ai/seed + Cruiser 5FS 0.34 mg ai/seed + Avicta 500FS 0.15 mg ai/seed (S)	1.7 ab	1.7 ab	3458	3.0
6. Fluopyram 600FS 0.2 mg ai/seed + Aeris Seed Applied System 0.75 mg ai/seed (S) + Velum Total SC 10 fl oz/A (IF)*	1.5 bc	1.6 bc	3530	3.0
P(F)	**0.03**	**0.02**	0.83	0.79
LSD	0.25	0.29	N.S.	N.S.

[z] (S) = seed treatment; (IF) = in-furrow treatment (1 Jun). Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 1 Jun.

[y] Determined from counts in two, 30-ft rows per plot.

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

* Rate of product has not been labeled for use.

TEST ID: COTSEEDNEMA317

PURPOSE: Compare seed treatments for nematode control, plant growth, and yield in cotton

LOCATION: Rick Morgan Farm, Deer Forest Road, Suffolk, VA

CROP INFORMATION:

Field	Morgan
Crop history	Continuous cotton since 2001
Planting date	1 Jun
Seeding rate	3.5 - 4 seed/row ft
Plot length/width	30’
Number of rows	2
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	12 Dec

EXPERIMENTAL DESIGN: Randomized complete block design with four replicates

TREATMENTS:

Trt #	Treatment and rate	Treatment application
1	Untreated	
2	Proline 480SC 5 g ai/100 kg + Fluopyram 600FS 0.2 mg ai/seed	Seed treatment Seed treatment
3	Proline 480SC 5 g ai/100 kg + Fluopyram 600FS 0.2 mg ai/seed + Trilex Advanced FS300 104.3 ml/100 kg + Aeris Seed Applied System 0.75 mg ai/seed	Seed treatment Seed treatment Seed treatment Seed treatment
4	Proline 480SC 5 g ai/100 kg + Fluopyram 600FS 0.2 mg ai/seed + Trilex Advanced FS300 104.3 ml/100 kg + Aeris Seed Applied System 0.75 mg ai/seed Velum Total SC 10 fl oz/A*	Seed treatment Seed treatment Seed treatment Seed treatment In-furrow
5	Proline 480SC 5 g ai/100 kg + Fluopyram 600FS 0.2 mg ai/seed Velum Total SC 18 fl oz/A	Seed treatment Seed treatment In-furrow
6	Proline 480SC 5 g ai/100 kg + Fluopyram 600FS 0.2 mg ai/seed Velum Total SC 14 fl oz/A	Seed treatment Seed treatment In-furrow
7	Proline 480SC 5 g ai/100 kg + Fluopyram 600FS 0.2 mg ai/seed Velum Total SC 10 fl oz/A*	Seed treatment Seed treatment In-furrow
*Rate of product has not been labeled for use.		

Soil type: Rumford loamy fine sand

Soil fertility report (30 Mar 2017):

pH	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)
5.81	37	77	240	21	1	2	0.3	14.9	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	None except treatments
Nematicides	None except treatments

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
14 Apr	Fertility	Lime	1 ton
18 May	Fertility	7-10-33	260 lb
2 Jun	Herbicide Herbicide Herbicide Herbicide	Gramoxone SL Roundup WeatherMAX Prowl H_2O Cotoran 4L	1 pt 1 pt 1 pt 1 qt
27 Jun	Herbicide Insecticide	Roundup WeatherMAX Orthene 75S	22 fl oz 12 oz
27 Jul	Growth regulator Insecticide Fertility	Pentia Beseige Liquid Boron	1 pt 12 fl oz 1 qt

Table 30. Pre-plant, mid-season, and end season nematode populations in soil (COTSEEDNEMA317, Suffolk, VA 2017).

	Nematodes /500 cc soil[y]			
	Lesion[x]	Stubby root		
Treatment and rate/A[z]	**1 Jun**	**1 Jun**	**18 Jul**	**3 Nov**
1. Untreated	0	0	0	0
2. Proline 480SC 5 g ai/100 kg + Fluopyram 600FS 0.2 mg ai/seed (S)	60	60	120	120
3. Proline 480SC 5 g ai/100 kg + Fluopyram 600FS 0.2 mg ai/seed + Trilex Advanced FS300 104.3 ml/100 kg + Aeris Seed Applied System 0.75 mg ai/seed (S)	0	60	60	0
4. Proline 480SC 5 g ai/100 kg + Fluopyram 600FS 0.2 mg ai/seed + Trilex Advanced FS300 104.3 ml/100 kg + Aeris Seed Applied System 0.75 mg ai/seed (S) Velum Total SC 10 fl oz/A (F)*	0	0	60	60
5. Proline 480SC 5 g ai/100 kg + Fluopyram 600FS 0.2 mg ai/seed (S) Velum Total SC 18 fl oz/A (F)	0	0	0	60
6. Proline 480SC 5 g ai/100 kg + Fluopyram 600FS 0.2 mg ai/seed (S) Velum Total SC 14 fl oz/A (F)	0	0	60	0
7. Proline 480SC 5 g ai/100 kg + Fluopyram 600FS 0.2 mg ai/seed (S) Velum Total SC 10 fl oz/A (F)*	0	0	120	0

[z] (S) = seed treatment, (F) = in-furrow treatment. All seed have a base fungicide treatment of Spera 102.61 ml/100 kg + Proline 480SC 5 g a/100 kg + Evergol Prime 5 g a/100 kg+ Allegiance FL 48.9 ml/100 kg. Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 1 Jun.

[y] Soil was sampled on 1 Jun prior to planting. Data are counts of nematodes in a composite sample taken from 4 reps of each treatment.

[x] Lesion nematodes were not detected in the 18 Jul or 3 Nov sample dates.

* Rate of product has not been labeled for use.

Table 31. Effect of treatment on emergence and yield in cotton (COTSEEDNEMA317, Suffolk, VA 2017).

Treatment and rate[1]	Plants/ft[2]		Yield[4]	
	26 Jun	Jul 10	lb/A	bale/A
1. Untreated	1.9	1.8	2992 c	2.6 bc
2. Proline 480SC 5 g ai/100 kg + Fluopyram 600FS 0.2 mg ai/seed (S)	1.8	1.8	3739 a	3.3 a
3. Proline 480SC 5 g ai/100 kg + Fluopyram 600FS 0.2 mg ai/seed + Trilex Advanced FS300 104.3 ml/100 kg + Aeris Seed Applied System 0.75 mg ai/seed (S)	1.9	1.8	3654 a	3.2 a
4. Proline 480SC 5 g ai/100 kg + Fluopyram 600FS 0.2 mg ai/seed + Trilex Advanced FS300 104.3 ml/100 kg + Aeris Seed Applied System 0.75 mg ai/seed (S) Velum Total SC 10 fl oz/A (F)*	1.8	1.8	3694 a	3.3 a
5. Proline 480SC 5 g ai/100 kg + Fluopyram 600FS 0.2 mg ai/seed (S) Velum Total SC 18 fl oz/A (F)	1.7	1.9	3394 a-c	2.9 ab
6. Proline 480SC 5 g ai/100 kg + Fluopyram 600FS 0.2 mg ai/seed (S) Velum Total SC 14 fl oz/A (F)	1.7	1.8	3570 ab	3.2 a
7. Proline 480SC 5 g ai/100 kg + Fluopyram 600FS 0.2 mg ai/seed (S) Velum Total SC 10 fl oz/A (F)*	1.9	1.9	3110 bc	2.2 c
P(F)	0.88	0.99	**0.04**	**0.0002**
LSD	N.S.	N.S.	517.7	0.43

[1] (S) = seed treatment, (F) = in-furrow treatment. Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 1 Jun.

[2] Determined from counts in 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 Dec.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

* Rate of product has not been labeled for use.

TEST ID: COTSEEDNEMA417

PURPOSE: Compare efficacy of Albaugh's BioST cotton nematicide on early season control of root knot nematodes

LOCATION: Rick Morgan Farm, Deer Forest Road, Suffolk, VA

CROP INFORMATION:

Field	Morgan
Crop history	Continuous cotton since 2001
Planting date	Phytogen 333
Variety	1 Jun
Seeding rate	3.5 - 4 seed/row ft
Plot length/width	30'
Number of rows	2
Row spacing	36"
Alleys (length between blocks)	8'
Harvest date	12 Dec

EXPERIMENTAL DESIGN: Randomized complete block design with four replicates

SEED TREATMENTS:

Trt #	Seed treatment
1	Fungicide and insecticide base
2	BioST Cotton Nematicide
3	BioST Cotton Nematicide + Orthene
4	Fluopyram
5	Avicta Complete

Soil type: Rumford loamy fine sand

Soil fertility report (30 Mar 2017):

pH	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)
5.76	36	68	174	17	0.9	1.5	0.2	12.6	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	None
Nematicides	None except treatments

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
14 Apr	Fertility	Lime	1 ton
18 May	Fertility	7-10-33	260 lb
2 Jun	Herbicide	Gramoxone SL	1 pt
	Herbicide	Roundup WeatherMAX	1 pt
	Herbicide	Prowl H_2O	1 pt
	Herbicide	Cotoran 4L	1 qt
27 Jun	Herbicide	Roundup WeatherMAX	22 fl oz
	Insecticide	Orthene 75S	12 oz
27 Jul	Growth regulator	Pentia	1 pt
	Insecticide	Beseige	12 fl oz
	Fertility	Liquid Boron	1 qt

Table 32. Pre-plant, mid-season, and end season nematode populations in soil (COTSEEDNEMA417, Suffolk, VA 2017).

	Nematodes /500 cc soil[y]					
	Root knot			Stubby root		Lance
Seed treatment[z]	31 May	18 Jul	3 Nov	31 May	3 Nov	18 Jul
1. Fungicide & insecticide base	40	0	112	78	6	0
2. BioST Cotton Nematicide	6	114	18	130	10	10
3. BioST Cotton Nematicide + Orthene	0	46	6	133	0	0
4. Fluopyram	18	34	36	200	6	0
5. Avicta Complete	0	32	498	127	6	6
P(F)	0.19	0.38	0.47	0.84	0.39	0.68
LSD	N.S.	N.S.	N.S.	N.S.	N.S	N.S.

[z] Seed treatments were applied by personnel with Albaugh, LLC. Seed was planted 1 Jun.

[y] Soil was sampled on 31 May prior to planting. Data are the mean counts of nematodes in a sample from four reps of each treatment. Stubby root nematodes were not detected on the 18 Jul sample date; lance nematodes were not detected in samples collected on 31 May and 3 Nov. Square root transformation of population data was made in analysis to determine statistical significance.

Table 33. Effect of treatment on emergence, plant growth, and yield in cotton (COTSEEDNEMA417, 2017).

Seed treatment[z]	Plants/ft[y] (26 Jun)	Vigor (1-10)[x] (26 Jun)	Yield[w]	
			lb/A	bales/A
1. Fungicide and insecticide base	2.5	9.5	3521	3.1
2. BioST Cotton Nematicide	2.6	8.8	3657	3.4
3. BioST Cotton Nematicide + Orthene	2.6	9.5	3400	3.2
4. Fluopyram	2.5	9.5	3300	3.2
5. Avicta Complete	2.6	9.8	3615	3.3
P(F)	0.99	0.14	0.79	0.90
LSD	N.S.	N.S.	N.S.	N.S.

[z] Seed treatments were applied by personnel with Albaugh, LLC. Seed was planted 1 Jun.
[y] Determined from counts in two, 30-ft rows per plot.
[x] Vigor index rating scale: 10 = 100% vigor, 1 = no vigor.
[w] 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 Dec.

TEST ID: COTSEEDNEMA617

PURPOSE: Compare varieties, seed treatments, and in-furrow nematicides for nematode control and yield response in cotton

LOCATION: Rick Morgan Farm, Deer Forest Road, Suffolk, VA

CROP INFORMATION:

Field	Morgan Farm
Crop history	Continuous cotton since 2001
Planting date	1 Jun
Variety	ST 4949 & ST 4946
Seeding rate	3.5 - 4 seed/row ft
Plot length/width	30’
Number of rows	2
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	12 Dec

EXPERIMENTAL DESIGN: Randomized complete block design with four replicates

SEED TREATMENTS:

Trt #	Variety	Treatment/rate	Trt. application
1	ST4949	Gaucho 0.8 oz/cwt	Seed treatment
2	ST4949	Gaucho 0.8 oz/cwt+ COPeO Prime 0.2 mg ai/seed	Seed treatment
3	ST4949	Gaucho 0.8 oz/cwt Velum Total 14 fl oz/A	Seed treatment In-furrow
4	ST4949	Gaucho 0.8 oz/cwt Velum Total 18 fl oz/A	Seed treatment In-furrow
5	ST4949	AERIS 0.75 mg ai/seed Velum Total 14 fl oz/A	Seed treatment In-furrow
6	ST4949	AERIS 0.75 mg ai/seed	Seed treatment
7	ST4949	Gaucho 0.8 oz/cwt+ COPeO Prime 0.2 mg ai/seed Velum Total 10 fl oz/A	Seed treatment In-furrow
8	ST4949	Gaucho 0.8 oz/cwt+ COPeO Prime 0.2 mg ai/seed Velum Total 14 fl oz/A	Seed treatment In-furrow
9	ST4949	AERIS 0.75 mg ai/seed + COPeO Prime 0.2 mg ai/seed	Seed treatment
10	ST4949	Gaucho 0.8 oz/cwt AgLogic 5 lb/A	Seed treatment In-furrow
11	ST4949	Gaucho 0.8 oz/cwt Propulse 10 fl oz/A	Seed treatment In-furrow
12	ST4946	Gaucho 0.8 oz/cwt	Seed treatment
13	ST4946	Gaucho 0.8 oz/cwt+ COPeO Prime 0.2 mg ai/seed	Seed treatment
14	ST4946	Gaucho 0.8 oz/cwt+ COPeO Prime 0.2 mg ai/seed Velum Total 14 fl oz/A	Seed treatment In-furrow

Soil type: Rumford loamy fine sand

Soil fertility report (30 Mar 2017):

pH	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)
5.81	37	77	240	21	1	2	0.3	14.9	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard, overspray for thrips as needed
Fungicides	None except treatment
Nematicides	None except treatment

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
14 Apr	Fertility	Lime	1 ton
18 May	Fertility	7-10-33	260 lb
2 Jun	Herbicide Herbicide Herbicide Herbicide	Gramoxone SL Roundup WeatherMAX Prowl H_2O Cotoran 4L	1 pt 1 pt 1 pt 1 qt
27 Jun	Herbicide Insecticide	Roundup WeatherMAX Orthene 75S	22 fl oz 12 oz
27 Jul	Growth regulator Insecticide Fertility	Pentia Beseige Liquid Boron	1 pt 12 fl oz 1 qt

Table 34. Pre-plant and late season nematode populations in soil (COTSEEDNEMA617, Suffolk, VA 2017).

		Nematodes/500 cc soil[y]							
		Root knot[x]		Lance[x]		Stubby root			Lesion[x]
Variety	Treatment and rate[z]	31 May	3 Nov	31 May	3 Nov	31 May	18 Jul	3 Nov	31 May
1. ST4949	Gaucho 0.8 oz/cwt	65	390	0	0	55	6	0	0
2. ST4949	Gaucho 0.8 oz/cwt + COPeO Prime 0.2 mg ai/seed (S)	6	25	0	0	38	6	0	0
3. ST4949	Gaucho 0.8 oz/cwt (S) Velum Total 14 fl oz/A (F)	34	6	0	0	10	6	0	0
4. ST4949	Gaucho 0.8 oz/cwt (S) Velum Total 18 fl oz/A (F)	0	67	0	0	0	18	29	0
5. ST4949	AERIS 0.75 mg ai/seed (S) Velum Total 14 fl oz/A (F)	25	55	0	0	41	0	6	0
6. ST4949	AERIS 0.75 mg ai/seed (S)	10	686	0	0	6	0	29	0
7. ST4949	Gaucho 0.8 oz/cwt + COPeO Prime 0.2 mg ai/seed (S) Velum Total 10 fl oz/A (F)	55	149	6	7	25	10	29	0
8. ST4949	Gaucho 0.8 oz/cwt + COPeO Prime 0.2 mg ai/seed (S) Velum Total 14 fl oz/A	23	34	0	0	19	0	9	0
9. ST4949	AERIS 0.75 mg ai/seed + COPeO Prime 0.2 mg ai/seed (S)	34	170	0	0	0	0	61	6
10. ST4949	Gaucho 0.8 oz/cwt (S) AgLogic 5 lb/A (F)	18	97	0	0	18	18	29	0
11. ST4949	Gaucho 0.8 oz/cwt (S) Propulse 10 fl oz/A (F)	99	1885	0	19	38	6	18	0
12. ST4946	Gaucho 0.8 oz/cwt	78	21	0	0	57	0	29	0
13. ST4946	Gaucho 0.8 oz/cwt + COPeO Prime 0.2 mg ai/seed (S)	112	371	0	0	6	6	9	0
14. ST4946	Gaucho 0.8 oz/cwt + COPeO Prime 0.2 mg ai/seed (S) Velum Total 14 fl oz/A (F)	6	14	0	0	77	0	9	0
P(F)		0.56	0.06	0.47	0.52	0.25	0.53	0.14	0.47
LSD		N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (S) = seed treatment, (F) = in-furrow treatment (1 Jun). Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 1 Jun.

[w] Soil was sampled on 31 May prior to planting and on 18 Jul. Data are the mean counts of nematodes in a sample from four reps of each treatment. Square root transformation of population data was made in analysis to determine statistical significance

[x]

Table 35. Effect of treatment on emergence and plant growth in cotton (COTSEEDNEMA617, Suffolk, VA 2017).

Variety	Treatment and rate[z]	Plants/ft[y]		Vigor (1-10)[x]		Plant height (in)[w]
		26 Jun	Jul 11	26 Jun	Jul 11	(7 Aug)
1. ST4949	Gaucho 0.8 oz/cwt + COPeO Prime 0.2 mg ai/seed (S)	2.6 a	2.6 ab	9.5	10.0	41.4 b-e
2. ST4949	Gaucho 0.8 oz/cwt (S) Velum Total 14 fl oz/A (F)	2.4 ab	2.4 ab	9.5	10.0	42.8 a-e
3. ST4949	Gaucho 0.8 oz/cwt (S) Velum Total 18 fl oz/A (F)	2.5 ab	2.5 ab	9.8	10.0	43.7 a-c
4. ST4949	AERIS 0.75 mg ai/seed (S) Velum Total 14 fl oz/A (F)	2.6 ab	2.5 ab	9.8	10.0	43.8 a-c
5. ST4949	AERIS 0.75 mg ai/seed (S)	2.3 b	2.4 b	9.3	10.0	43.8 ab
6. ST4949	Gaucho 0.8 oz/cwt + COPeO Prime 0.2 mg ai/seed (S) Velum Total 10 fl oz/A (F)	2.6 ab	2.5 ab	9.8	10.0	44.0 a
7. ST4949	Gaucho 0.8 oz/cwt + COPeO Prime 0.2 mg ai/seed (S) Velum Total 14 fl oz/A	2.6 ab	2.6 a	9.5	10.0	43.2 a-d
8. ST4949	AERIS 0.75 mg ai/seed + COPeO Prime 0.2 mg ai/seed (S)	2.5 ab	2.5 ab	9.3	10.0	43.3 a-d
9. ST4949	Gaucho 0.8 oz/cwt (S) AgLogic 5 lb/A (F)	2.3 b	2.4 ab	9.5	10.0	43.4 a-d
10. ST4949	Gaucho 0.8 oz/cwt (S) Propulse 10 fl oz/A (F)	2.7 a	2.6 ab	10.0	10.0	44.8 a
11. ST4949	Gaucho 0.8 oz/cwt	2.5 ab	2.6 ab	9.5	10.0	43.1 a-e
12. ST4946	Gaucho 0.8 oz/cwt + COPeO Prime 0.2 mg ai/seed (S)	1.8 c	1.9 c	9.3	10.0	40.9 de
13. ST4946	Gaucho 0.8 oz/cwt + COPeO Prime 0.2 mg ai/seed (S) Velum Total 14 fl oz/A (F)	1.7 c	1.7 c	9.5	10.0	40.7 e
14. ST4946	Gaucho 0.8 oz/cwt + COPeO Prime 0.2 mg ai/seed (S)	1.9 c	1.9 c	9.3	10.0	41.3 c-e
P(F)		**0.0001**	**0.0001**	0.63	1.0	**0.04**
LSD		0.29	0.27	N.S.	- -	2.51

[z1] (S) = seed treatment, (F) = in-furrow treatment (1 Jun). Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 1 Jun.

[y] Determined from counts in two, 30-ft rows per plot.

[x] Vigor index rating scale: 10 = 100% vigor, 1 = no vigor.

[w] Measurement of three, randomly selected plants in 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 36. Effect of treatment on yield and root gall in cotton (COTSEEDNEMA617, Suffolk, VA 2017).

Variety	Treatment and rate[z]	Yield[y]		Root gall index (0-6)[x]
		lb/A	bales/A	20 Dec
1. ST4949	Gaucho 0.8 oz/cwt (S)	2592	2.4	0.4 ab
2. ST4949	Gaucho 0.8 oz/cwt + COPeO Prime 0.2 mg ai/seed (S)	2688	2.5	0.5 a
3. ST4949	Gaucho 0.8 oz/cwt (S) Velum Total 14 fl oz/A (F)	2638	2.5	0.4 ab
4. ST4949	Gaucho 0.8 oz/cwt (S) Velum Total 18 fl oz/A (F)	2208	1.9	0.1 a-c
5. ST4949	AERIS 0.75 mg ai/seed (S) Velum Total 14 fl oz/A (F)	2620	2.5	0.1 bc
6. ST4949	AERIS 0.75 mg ai/seed (S)	2620	2.0	0.4 a-c
7. ST4949	Gaucho 0.8 oz/cwt + COPeO Prime 0.2 mg ai/seed (S) Velum Total 10 fl oz/A (F)	2810	2.6	0.0 c
8. ST4949	Gaucho 0.8 oz/cwt + COPeO Prime 0.2 mg ai/seed (S)Velum Total 14 fl oz/A	2683	2.3	0.4 a-c
9. ST4949	AERIS 0.75 mg ai/seed + COPeO Prime 0.2 mg ai/seed (S)	2922	2.6	0.3 a-c
10. ST4949	Gaucho 0.8 oz/cwt (S) AgLogic 5 lb/A (F)	2671	2.5	0.1 bc
11. ST4949	Gaucho 0.8 oz/cwt (S) Propulse 10 fl oz/A (F)	2523	2.3	0.5 a
12. ST4946	Gaucho 0.8 oz/cwt	3119	2.7	0.1 bc
13. ST4946	Gaucho 0.8 oz/cwt + COPeO Prime 0.2 mg ai/seed (S)	2980	2.5	0.0 c
14. ST4946	Gaucho 0.8 oz/cwt + COPeO Prime 0.2 mg ai/seed (S)	3476	2.9	0.1 a-c
P(F)		0.07	0.26	**0.049**
LSD		N.S.	N.S.	0.39

[z] (S) = seed treatment, (F) = in-furrow treatment (1 Jun). Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 1 Jun.

[y] 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 Dec.

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

TEST ID: COTNEMA117

PURPOSE: Compare seed treatments and in-furrow rates of Velum Total for nematode control, stand, plant growth, and yield in cotton

LOCATION: Rick Morgan Farm, Deer Forest Road, Suffolk, VA

CROP INFORMATION:

Field	Morgan
Crop history	Continuous cotton since 2001
Planting date	1 Jun
Seeding rate	3-4.5/foot
Plot length/width	30’
Number of rows	2
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	12 Dec

EXPERIMENTAL DESIGN: Randomized complete block design with four replicates

APPLICATION OF TREATMENTS:

	In-furrow treatment
Equipment	---
Pressure (psi)	
Nozzle type	.075 microtube
Volume (gal/A)	5 gal/A

TREATMENTS:

Trt #	**Product and formulation ***	**Application timing**
1	Aeris SAS 0.75 mg a/seed Trilex Advanced 104.32 ml/100 kg Fluopyram 600FS 0.2 mg a/seed Admire Pro 8.51 fl oz/A	Seed treatment Seed treatment Seed treatment In-furrow
2	Aeris SAS 0.75 mg a/seed Trilex Advanced 104.32 ml/100 kg Fluopyram 600FS 0.2 mg a/seed Velum Total 18 fl oz/A	Seed treatment Seed treatment Seed treatment In-furrow
3	Aeris SAS 0.75 mg a/seed Trilex Advanced 104.32 ml/100 kg Fluopyram 600FS 0.2 mg a/seed Velum Total 14 fl oz/A Admire Pro 1.891 fl oz/A	Seed treatment Seed treatment Seed treatment In-furrow In-furrow
4	Aeris SAS 0.75 mg a/seed Trilex Advanced 104.32 ml/100 kg Fluopyram 600FS 0.2 mg a/seed Velum Total 12 fl oz/A Admire Pro 2.837 fl oz/A	Seed treatment Seed treatment Seed treatment In-furrow In-furrow
5	Aeris SAS 0.75 mg a/seed Trilex Advanced 104.32 ml/100 kg Fluopyram 600FS 0.2 mg a/seed Velum Total 10 fl oz/A Admire Pro 3.782 fl oz/A	Seed treatment Seed treatment Seed treatment In-furrow In-furrow

Trt #	Treatment and rate*	Application timing
6	Aeris SAS 0.75 mg a/seed	Seed treatment
	Trilex Advanced 104.32 ml/100 kg	Seed treatment
	Fluopyram 600FS 0.2 mg a/seed	Seed treatment
	Velum Total 8 fl oz/A	In-furrow
	Admire Pro 4.73 fl oz/A	In-furrow
7	Aeris SAS 0.75 mg a/seed	Seed treatment
	Trilex Advanced 104.32 ml/100 kg	Seed treatment
	Fluopyram 600FS 0.2 mg a/seed	Seed treatment
	Velum Total 6 fl oz/A	In-furrow
	Admire Pro 5.673 fl oz/A	In-furrow
8	Fluopyram 0.2 mg a/seed	Seed treatment
	Gaucho 306.4 ml/100 kg	Seed treatment
	Velum Total 14 fl oz/A	In-furrow
	Admire Pro 1.891 fl oz/A	In-furrow
*All seed received base fungicide treatment of Spera 102.61 ml/100 kg + Proline 480SC 5 g a/100 kg + Evergol Prime 5 g a/100 kg+ Allegiance FL 48.9 ml/100 kg		

SOIL PROPERTIES:

Soil type: Rumford loamy fine sand

Soil fertility report (30 Mar 2017):

pH	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)
5.77	36	82	231	21	1.1	2.1	0.3	16	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	No thrips control until after rating
Fungicides	None except treatments
Nematicides	None except treatments

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
14 Apr	Fertility	Lime	1 ton
18 May	Fertility	7-10-33	260 lb
2 Jun	Herbicide	Gramoxone SL	1 pt
	Herbicide	Roundup WeatherMAX	1 pt
	Herbicide	Prowl H_2O	1 pt
	Herbicide	Cotoran 4L	1 qt
27 Jun	Herbicide	Roundup WeatherMAX	22 fl oz
	Insecticide	Orthene 75S	12 oz
27 Jul	Growth regulator	Pentia	1 pt
	Insecticide	Beseige	12 fl oz
	Fertility	Liquid Boron	1 qt

Table 37. Pre-plant, mid-season, and late season nematode populations in soil (COTNEMA117, Suffolk, VA 2017).

Treatment and rate/A[z]	Nematodes /500 cc soil[y]								
	Root knot[x]		Lesion[x]		Lance[x]		Stubby root		
	1 Jun	18 Jul	1 Jun	3 Nov	1 Jun	18 Jul	1 Jun	18 Jul	3 Nov
1. Aeris SAS 0.75 mg a/seed + Trilex Advanced 104.32 ml/100 kg + Fluopyram 600FS 0.2 mg a/seed (S) Admire Pro 8.51 fl oz/A (F)	0	0	0	0	0	0	0	120	0
2. Aeris SAS 0.75 mg a/seed + Trilex Advanced 104.32 ml/100 kg + Fluopyram 600FS 0.2 mg a/seed (S) Velum Total 18 fl oz/A (F)	60	120	0	60	180	60	120	120	0
3. Aeris SAS 0.75 mg a/seed + Trilex Advanced 104.32 ml/100 kg + Fluopyram 600FS 0.2 mg a/seed (S) Velum Total 14 fl oz/A + Admire Pro 1.891 fl oz/A (F)	60	60	0	0	0	0	120	120	0
4. Aeris SAS 0.75 mg a/seed + Trilex Advanced 104.32 ml/100 kg + Fluopyram 600FS 0.2 mg a/seed (S) Velum Total 12 fl oz/A + Admire Pro 2.837 fl oz/A	120	120	60	0	60	120	300	240	0
5. Aeris SAS 0.75 mg a/seed + Trilex Advanced 104.32 ml/100 kg + Fluopyram 600FS 0.2 mg a/seed (S) Velum Total 10 fl oz/A + Admire Pro 3.782 fl oz/A (F)	120	0	60	0	0	0	120	0	0
6. Aeris SAS 0.75 mg a/seed + Trilex Advanced 104.32 ml/100 kg + Fluopyram 600FS 0.2 mg a/seed (S) Velum Total 8 fl oz/A + Admire Pro 4.73 fl oz/A (F)	60	0	0	0	120	180	240	120	0
7. Aeris SAS 0.75 mg a/seed + Trilex Advanced 104.32 ml/100 kg + Fluopyram 600FS 0.2 mg a/seed (S) Velum Total 6 fl oz/A + Admire Pro 5.673 fl oz/A (F)	180	60	0	0	0	0	300	120	0
8. Fluopyram 0.2 mg a/seed + Gaucho 306.4 ml/100 kg Velum Total 14 fl oz/A + Admire Pro 1.891 fl oz/A (F)	0	0	60	0	0	240	120	120	60

[z] (S) = seed treatment, (F) = in-furrow treatment. All seed have a base fungicide treatment of Spera 102.61 ml/100 kg + Proline 480SC 5 g a/100 kg + Evergol Prime 5 g a/100 kg+ Allegiance FL 48.9 ml/100 kg. Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 1 Jun.

[y] Soil was sampled on 1 Jun prior to planting. Data are counts of nematodes in a composite sample taken from 4 reps of each treatment.

[x] Root knot and lance nematodes were not detected on 3 Nov sample date; lesion nematodes were not detected on 18 Jul sample date.

Table 38. Effect of treatments on thrips injury, emergence, and yield in cotton (COTNEMA117, Suffolk, VA 2017).

Treatment and rate[z]	Thrips injury[y]	Plants/ft[x]		Yield[w]	
		26 Jun	Jul 11	lb/A	bales/A
1. Aeris SAS 0.75 mg a/seed + Trilex Advanced 104.32 ml/100 kg + Fluopyram 600FS 0.2 mg a/seed (S) Admire Pro 8.51 fl oz/A (F)	0.9	3.0	3.0	3025	2.7
2. Aeris SAS 0.75 mg a/seed + Trilex Advanced 104.32 ml/100 kg + Fluopyram 600FS 0.2 mg a/seed (S) Velum Total 18 fl oz/A (F)	0.8	2.9	3.0	3533	3.1
3. Aeris SAS 0.75 mg a/seed + Trilex Advanced 104.32 ml/100 kg + Fluopyram 600FS 0.2 mg a/seed (S) Velum Total 14 fl oz/A + Admire Pro 1.891 fl oz/A (F)	0.8	2.9	2.7	2892	2.5
4. Aeris SAS 0.75 mg a/seed + Trilex Advanced 104.32 ml/100 kg + Fluopyram 600FS 0.2 mg a/seed (S) Velum Total 12 fl oz/A + Admire Pro 2.837 fl oz/A	0.8	3.0	2.9	2886	2.7
5. Aeris SAS 0.75 mg a/seed + Trilex Advanced 104.32 ml/100 kg + Fluopyram 600FS 0.2 mg a/seed (S) Velum Total 10 fl oz/A + Admire Pro 3.782 fl oz/A (F)	0.8	3.0	2.8	3234	2.8
6. Aeris SAS 0.75 mg a/seed + Trilex Advanced 104.32 ml/100 kg + Fluopyram 600FS 0.2 mg a/seed (S) Velum Total 8 fl oz/A + Admire Pro 4.73 fl oz/A (F)	0.8	3.0	2.9	3412	3.1
7. Aeris SAS 0.75 mg a/seed + Trilex Advanced 104.32 ml/100 kg + Fluopyram 600FS 0.2 mg a/seed (S) Velum Total 6 fl oz/A + Admire Pro 5.673 fl oz/A (F)	0.8	3.0	3.0	2629	2.4
8. Fluopyram 0.2 mg a/seed + Gaucho 306.4 ml/100 kg Velum Total 14 fl oz/A + Admire Pro 1.891 fl oz/A (F)	0.9	3.1	3.0	3300	2.9
P(F)	0.50	0.99	0.71	0.54	0.60
LSD	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (S) = seed treatment, (F) = in-furrow treatment. All seed have a base fungicide treatment of Spera 102.61 ml/100 kg + Proline 480SC 5 g a/100 kg + Evergol Prime 5 g a/100 kg+ Allegiance FL 48.9 ml/100 kg. Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 1 Jun.

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

[x] Determined from counts in two, 30-ft rows per plot.

[w] 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 Dec.

TEST ID: COTNEMA217

PURPOSE: Compare COPeO seed treatment, Velum Total, AgLogic, and Telone II for root knot nematode control in cotton

LOCATION: Tidewater AREC Research Farm, Hare Road, Suffolk, VA

CROP INFORMATION:

Field	16B
Crop history	2016 peanut, 2015 corn, 2014 cotton
Planting date	15 May
Variety	Phytogen 499
Seeding rate	3.5 - 4 seed/row ft
Plot length/width	30’ x 6
Number of rows	2
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	29 Nov

EXPERIMENTAL DESIGN: Randomized complete block design with eight replicates

APPLICATION OF TREATMENTS:

	Pre-plant fumigation	**In-furrow liquid**	**In-furrow granular**
Equipment	2 row strip till rig	---	Nobel box
Pressure (psi)			---
Nozzle type	.075 microtube	.075 microtube	---
Volume (gal/A)	gal/A (trt rate)	5 gal/A	lb/A (trt rate)

TREATMENTS:

Trt #	**Product and formulation**	**Rate**	**Application timing**	**Application date**
1	Untreated			
2	AERIS Seed Applied System + COPeO Prime	0.75 mg/ai seed 0.2 mg ai/seed	Seed treatment Seed treatment	
3	Velum Total	18 fl oz/A	In-furrow	15 May
4	AgLogic 15G	5.0 lb/A	In-furrow	15 May
5	Telone II	3.0 gal/A	Pre-plant fumigant	1 May

SOIL PROPERTIES:

Soil type: Goldsboro fine sandy loam

Soil fertility report (7 Dec 2016):

pH	**P (lb/A)**	**K (lb/A)**	**Ca (lb/A)**	**Mg (lb/A)**	**Zn (ppm)**	**Mn (ppm)**	**Cu (ppm)**	**Fe (ppm)**	**B (ppm)**
6.0	95	83	728	64	0.4	3.4	0.3	18.6	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	None until after thrips injury rating
Fungicides	None except base treatments
Nematicides	None except treatments

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
25 Mar	Herbicide Herbicide	2,4-D Valor EZ	1 pt 1.5 fl oz
27 Apr	Fertility	8-8-34	459 lb/
10 May	Herbicide Herbicide	Prowl H_2O Cotoran 4L	1 pt 1 qt
27 May	Herbicide Fertility	Roundup WeatherMAX ENC	22 fl oz 1 qt
31 May	Insecticide	Orthene 75S	12 oz
15 Jun	Insecticide Herbicide Fertility	Orthene 75S Roundup WeatherMAX ENC	12 oz 22 fl oz 1 pt
5 Jul	Fertility	24-0-0-3	32 lb

Table 39. Pre-soil fumigation, pre-plant, and end season nematode populations in soil (COTNEMA217, Suffolk, VA 2017).

	Nematodes /500 cc soil[y]					
	Root knot			Stubby root		
Treatment and rate[z]	24 Apr	15 May	30 Nov	24 Apr	15 May	30 Nov
1. Untreated	--	131 b	979	--	43	398
2. AERIS Seed Applied System 0.75 mg ai/seed + COPeO Prime 0.2 mg ai/seed (S)	--	57 b	1638	--	30	335
3. Velum Total 18 fl oz/A (F)	--	172 b	1487	--	38	260
4. AgLogic 15G 5 lb/A (F)	--	171 b	1409	--	28	402
5. Telone II 3 gal/A (Fum)	103	520 a	1124	6	30	453
P(F)	--	**0.008**	0.86	--	1.0	0.24
LSD	--	182.4 – 298.1	N.S.	--	N.S.	N.S.

[z] (Fum) = pre-plant soil fumigation (1 May); (S) seed treatment; (F) in-furrow (15 May).

[y] Soil was sampled on 24 Apr prior to soil fumigation for treatment 5 only. Soil was sampled on 15 May prior to planting. Data are the mean counts of nematodes in a sample from four reps of each treatment. Square root transformation of population data was made in analysis to determine statistical significance.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 40. Effect of treatments on emergence in cotton (COTNEMA217, Suffolk, VA 2017).

	Plants/ft[y]		Vigor (1-10)[x]		Yield[w]	
Treatment and rate[z]	**31 May**	**23 Jun**	**12 Jun**	**23 Jun**	**lb/A**	**bales/A**
1. Untreated	3.5	4.0	8.1 c	9.4	2443 c	2.1 b
2. AERIS Seed Applied System 0.75 mg ai/seed + COPeO Prime 0.2 mg ai/seed (S)	3.5	3.5	9.8 a	9.3	2683 bc	2.4 ab
3. Velum Total 18 fl oz/A (F)	3.2	3.5	9.8 a	9.5	2865 ab	2.6 a
4. AgLogic 15G 5 lb/A (F)	3.3	3.6	10.0 a	9.8	3099 a	2.7 a
5. Telone II 3 gal/A (Fum)	3.4	3.7	8.6 b	9.6	2822 ab	2.4 ab
P(F)	0.30	0.20	**0.0001**	0.66	**0.01**	**0.03**
LSD	N.S.	N.S.	0.50	N.S.	356.0	0.36

[z] (Fum) = pre-plant soil fumigation (1 May); (S) seed treatment; (F) in-furrow (15 May).
[y] Determined from counts in two, 30-ft row per plot.
[x] Vigor index rating scale: 10 = 100% vigor, 0 = no vigor.
[w] 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 29 Nov.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

TEST ID: COTNEMA317

PURPOSE: Evaluate efficacy of seed treatment and in-furrow nematicides for cotton

LOCATION: Tidewater AREC Research Farm, Hare Road, Suffolk, VA

CROP INFORMATION:

Field	16B
Crop history	2016 peanut, 2015 corn, 2014 cotton
Planting date	15 May
Variety	Phytogen 499
Seeding rate	3.5 - 4 seed/row ft
Plot length/width	30’
Number of rows	2
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	29 Nov

EXPERIMENTAL DESIGN: Randomized complete block design with four replicates

INOCULUM: RKN (*M. incognita*) applied to all plots next to seed furrow 1 week after planting (22 May).

APPLICATION OF TREATMENTS:

	IF liquid
Equipment	---
Pressure (psi)	
Nozzle type	.075 microtube
Volume (gal/A)	5 gal/A

TREATMENTS:

Trt #	**Seed treatment**	**In-furrow treatment**	**In-furrow rate/A**
1	Base fungicide	Untreated	---
2	Base fungicide	Admire Pro	8.5 fl oz
3	Base fungicide	Velum Total	10 fl oz
4	Base fungicide	Velum Total	14 fl oz
5	Base fungicide	Velum Total	18 fl oz
6	Aeris SAS	Untreated	---
7	Aeris SAS	Admire Pro	8.5 fl oz
8	Aeris SAS	Velum Total	10 fl oz
9	Aeris SAS	Velum Total	14 fl oz
10	Aeris SAS	Velum Total	18 fl oz
11	Black seed (untreated)	Untreated	---

SOIL PROPERTIES:

Soil type: Goldsboro fine sandy loam

Soil fertility report (7 Dec 2016):

pH	**P (lb/A)**	**K (lb/A)**	**Ca (lb/A)**	**Mg (lb/A)**	**Zn (ppm)**	**Mn (ppm)**	**Cu (ppm)**	**Fe (ppm)**	**B (ppm)**
6.0	95	83	728	64	0.4	3.4	0.3	18.6	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	No control until after thrips rating
Fungicides	None except base treatments
Nematicides	None except treatments

MAINTENANCE CHEMICAL APPLICATIONS:

Date	**Type and target**	**Product and formulation**	**Rate/A**
25 Mar	Herbicide Herbicide	2,4-D Valor EZ	1 pt 1.5 fl oz
27 Apr	Fertility	8-8-34	459 lb/
10 May	Herbicide Herbicide	Prowl H_2O Cotoran 4L	1 pt 1 qt
27 May	Herbicide Fertility	Roundup WeatherMAX ENC	22 fl oz 1 qt
31 May	Insecticide	Orthene 75S	12 oz
15 Jun	Insecticide Herbicide Fertility	Orthene 75S Roundup WeatherMAX ENC	12 oz 22 fl oz 1 pt
5 Jul	Fertility	24-0-0-3	32 lb

Table 41. Pre-plant and late season nematode populations in soil (COTNEMA317, Suffolk, VA 2017).

	Nematodes/500 cc soil[y]						
	Root knot		Stubby root		Sting		Lesion
Treatment and rate[z]	12 May	2 Nov	12 May	2 Nov	12 May	2 Nov	12 May
Base fung. seed trt. (S)							
1. Untreated	474	344	143	15	0	0	6
2. Admire Pro 8.5 fl oz/A (F)	231	154	67	15	10	0	6
3. Velum Total 10 fl oz/A (F)	432	142	57	38	36	0	0
4. Velum Total 14 fl oz/A (F)	457	19	25	10	6	0	0
5. Velum Total 18 fl oz/A (F)	302	407	49	0	6	0	0
Aeris Seed Applied System 0.75 mg ai/seed (S)							
6. Untreated	233	155	99	81	6	0	10
7. Admire Pro 8.5 fl oz/A (F)	224	104	91	103	18	0	0
8. Velum Total 10 fl oz/A (F)	408	173	78	25	6	0	0
9. Velum Total 14 fl oz/A (F)	219	73	110	78	0	0	0
10. Velum Total 18 fl oz/A (F)	486	1112	63	67	18	0	0
Black Seed (untreated)							
11. Untreated	384	76	113	50	6	6	0
P(F)	0.83	0.13	0.90	0.29	0.48	0.47	0.60
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (S) seed treatment; (F) in-furrow (15 May).

[y] Soil was sampled on 12 May prior to planting. Data are the mean counts of nematodes in a sample from four reps of each treatment. Lesion nematode was not detected on 2 Nov sample. Square root transformation of population data was made in analysis to determine statistical significance.

Table 42. Effect of seed treatment with and without in-furrow nematicide on emergence, growth, thrips injury, and yield in cotton (COTNEMA317, Suffolk, VA 2017).

Treatment and rate[z]	Plants/ft[y]		Vigor (0-10)[x]		Thrips injury (0-5)[w]	Yield[v]	
	31 May	26 Jun	12 Jun	26 Jun	(12 Jun)	lb/A	bales/A
Base fung. seed trt. (S)							
1. Untreated	2.6 b	2.5 bc	8.3 bc	9.3	3.8 a	2692	2.4
2. Admire Pro 8.5 fl oz/A (F)	2.6 b	2.5 bc	9.8 a	9.5	0.5 fg	2847	2.7
3. Velum Total 10 fl oz/A (F)	2.7 b	2.9 ab	9.3 ab	10.0	0.4 g	3161	2.9
4. Velum Total 14 fl oz/A (F)	2.4 bc	2.4 bc	8.8 a-c	9.5	0.6 fg	3079	2.9
5. Velum Total 18 fl oz/A (F)	2.5 bc	2.5 bc	10.0 a	10.0	0.5 fg	3188	2.9
Aeris Seed Applied System 0.75 mg ai/seed (S)							
6. Untreated	2.4 bc	2.5 bc	8.3 bc	9.5	1.5 c	3122	2.8
7. Admire Pro 8.5 fl oz/A (F)	2.1 c	2.2 c	9.8 a	9.8	0.7 ef	3164	2.8
8. Velum Total 10 fl oz/A (F)	2.5 bc	2.5 bc	8.8 a-c	10.0	1.2 d	2937	2.7
9. Velum Total 14 fl oz/A (F)	2.5 bc	2.5 bc	9.3 ab	9.8	0.6 fg	3370	3.0
10. Velum Total 18 fl oz/A (F)	2.4 bc	2.5 bc	9.3 ab	9.5	0.9 e	3110	2.8
Black Seed (untreated)							
11. Untreated	3.5 a	3.3 a	7.8 c	8.8	3.4 b	2302	2.1
P(F)	**.0001**	**0.03**	**0.03**	0.23	**0.0001**	0.10	0.23
LSD	0.41	0.52	1.34	N.S.	0.22	626.6	0.62

[z] (S) seed treatment; (F) in-furrow (15 May).
[y] Determined from counts in two, 30-ft rows per plot.
[x] Vigor index rating scale: 10 = 100% vigor, 0 = no vigor.
[w] Thrips injury rating scale: 0 = no damage, 5 = dead plants.
[v] 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 29 Nov.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

TEST ID: COTNEMA417

PURPOSE: Evaluate efficacy of seed treatment and in-furrow nematicides for cotton

LOCATION: Rick Morgan Farm, Deer Forest Road, Suffolk, VA

CROP INFORMATION:

Field	Morgan
Crop history	Continuous cotton since 2001
Planting date	1 Jun
Variety	Phytogen 499
Seeding rate	3.5 - 4 seed/row ft
Plot length/width	30'x 6'
Number of rows	2 rows
Row spacing	36"
Alleys (length between blocks)	8'
Harvest date	12 Dec

EXPERIMENTAL DESIGN: Randomized complete block design with four replicates

APPLICATION OF TREATMENTS:

	In-furrow liquid
Equipment	---
Pressure (psi)	
Nozzle type	.075 microtube
Volume (gal/A)	5 gal/A

TREATMENTS:

Trt #	**Seed treatment**	**Seed treatment rate**	**In-furrow treatment**	**In-furrow rate/A**
1	Base fungicide		Untreated	---
2	Base fungicide		Admire Pro	8.5 fl oz
3	Base fungicide		Velum Total	10 fl oz
4	Base fungicide		Velum Total	14 fl oz
5	Base fungicide		Velum Total	18 fl oz
6	Aeris SAS	0.75 mg ai/seed	Untreated	---
7	Aeris SAS	0.75 mg ai/seed	Admire Pro	8.5 fl oz
8	Aeris SAS	0.75 mg ai/seed	Velum Total	10 fl oz
9	Aeris SAS	0.75 mg ai/seed	Velum Total	14 fl oz
10	Aeris SAS	0.75 mg ai/seed	Velum Total	18 fl oz
11	Black seed (untreated)		Untreated	---

SOIL PROPERTIES:

Soil type: Rumford loamy fine sand

Soil fertility report (30 Mar 2017):

pH	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)
5.77	36	82	231	21	1.1	2.1	0.3	16	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	No thrips control until after rating
Fungicides	Standard (none expect base seed treatment)
Nematicides	None except treatment

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
14 Apr	Fertility	Lime	1 ton
18 May	Fertility	7-10-33	260 lb
2 Jun	Herbicide Herbicide Herbicide Herbicide	Gramoxone SL Roundup WeatherMAX Prowl H_2O Cotoran 4L	1 pt 1 pt 1 pt 1 qt
27 Jun	Herbicide Insecticide	Roundup WeatherMAX Orthene 75S	22 fl oz 12 oz
27 Jul	Growth regulator Insecticide Fertility	Pentia Beseige Liquid Boron	1 pt 12 fl oz 1 qt

Table 43. Pre-plant, mid-season, and late season nematode populations in soil (COTNEMA417, Suffolk, VA 2017).

Treatment and rate[z]	Nematodes/500 cc soil[y]								
	Root knot		Le-sion	Lance			Stubby root		
	31 May	3 Nov	3 Nov	31 May	18 Jul	3 Nov	31 May	18 Jul	3 Nov
Base fung. seed trt. (S)									
1. Untreated	6	10	6	114	10	6	76	15	6
2. Admire Pro 8.5 fl oz/A (F)	32	6	6	10	0	0	67	70	6
3. Velum Total 10 fl oz/A (F)	10	0	0	70	6	6	63	32	6
4. Velum Total 14 fl oz/A (F)	34	6	0	6	6	6	81	57	25
5. Velum Total 18 fl oz/A (F)	18	10	0	99	0	10	76	41	6
Aeris Seed Applied System 0.75 mg ai/seed (S)									
6. Untreated	36	0	0	0	0	6	177	10	0
7. Admire Pro 8.5 fl oz/A (F)	46	0	0	85	10	0	78	25	6
8. Velum Total 10 fl oz/A (F)	32	18	18	6	0	0	194	55	6
9. Velum Total 14 fl oz/A (F)	32	6	0	120	6	6	130	57	0
10. Velum Total 18 fl oz/A (F)	25	6	6	73	0	10	142	46	10
Black Seed (untreated)									
11. Untreated	25	0	6	41	25	0	144	6	6
P(F)	0.98	0.84	0.21	0.52	0.50	0.84	0.76	0.90	0.93
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (S) seed treatment; (F) in-furrow (1 Jun).

[y] Soil was sampled on 31 May prior to planting. Data are the mean counts of nematodes in a sample from four reps of each treatment. Root knot nematodes were not detected on 18 Jul sample date; lesion nematodes were not detected on 31 May and 18 Jul sample dates. Square root transformation of population data was made in analysis to determine statistical significance.

Table 44. Effect of seed treatment with and without in-furrow nematicide on thrips injury, emergence, and vigor in cotton (COTNEMA417, Suffolk, VA 2017).

Treatment and rate[z]	Thrips injury (0-5)[y] (21 Jun)	Plants/ft[x]		Vigor (0-10)[w]	
		26 Jun	Jul 11	26 Jun	Jul 11
Base fung. seed treatment (S)					
1. Untreated	3.0 a	3.0 bc	3.1 bc	9.3 b	10.0
2. Admire Pro 8.5 fl oz/A (F)	1.4 bc	2.9 b-d	3.0 b-d	10.0 a	10.0
3. Velum Total 10 fl oz/A (F)	1.7 b	3.0 b-d	3.1 bc	10.0 a	10.0
4. Velum Total 14 fl oz/A (F)	1.3 b-d	3.2 b	3.3 b	10.0 a	10.0
5. Velum Total 18 fl oz/A (F)	1.0 d-f	3.0 b-d	3.1 bc	10.0 a	10.0
Aeris Seed Applied System 0.75 mg ai/seed (S)					
6. Untreated	1.6 bc	2.4 f	2.6 f	9.8 a	10.0
7. Admire Pro 8.5 fl oz/A (F)	1.3 c-e	2.9 b-d	2.9 c-e	10.0 a	10.0
8. Velum Total 10 fl oz/A (F)	1.5 bc	2.8 de	2.7 d-f	10.0 a	10.0
9. Velum Total 14 fl oz/A (F)	0.8 f	2.8 c-e	2.9 c-f	10.0 a	10.0
10. Velum Total 18 fl oz/A (F)	0.9 ef	2.6 ef	2.7 ef	10.0 a	10.0
Black Seed (untreated)					
11. Untreated	3.0 a	4.2 a	4.2 a	9.8 a	10.0
P(F)	**0.0001**	**0.0001**	**0.0001**	**0.01**	1.0
LSD	0.41	0.28	0.31	0.39	- -

[z] (S) seed treatment; (F) in-furrow (1 Jun).
[y] Thrips injury rating scale: 0 = no damage, 5 = dead plants.
[x] Determined from counts in two, 30-ft row per plot.
[w] Vigor index rating scale: 10 = 100% vigor, 0 = no vigor.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 45. Effect of seed treatment with and without in-furrow nematicide on yield and root gall in cotton (COTNEMA417, Suffolk, VA 2017).

Treatment and rate[z]	Yield[y]		Root gall index (0-6)[x]
	lb/A	bales/A	20 Dec
Base fung. seed treatment (S)			
1. Untreated	3331 c-e	3.1 b-d	0.9 a-c
2. Admire Pro 8.5 fl oz/A (F)	3715 ab	3.6 a	0.9 ab
3. Velum Total 10 fl oz/A (F)	3442 a-d	3.2 a-d	0.3 c
4. Velum Total 14 fl oz/A (F)	3778 a	3.6 a	0.6 bc
5. Velum Total 18 fl oz/A (F)	3361 b-d	3.1 b-d	0.7 bc
Aeris Seed Applied System 0.75 mg ai/seed (S)			
6. Untreated	3197 de	3.0 cd	1.5 a
7. Admire Pro 8.5 fl oz/A (F)	3563 a-c	3.3 a-c	1.0 ab
8. Velum Total 10 fl oz/A (F)	3663 a-c	3.4 ab	0.4 bc
9. Velum Total 14 fl oz/A (F)	3461 a-d	3.2 a-d	0.4 bc
10. Velum Total 18 fl oz/A (F)	3533 a-d	3.3 a-c	0.6 bc
Black Seed (untreated)			
11. Untreated	3004 e	2.9 d	0.6 bc
P(F)	**0.004**	**0.009**	**0.04**
LSD	356.1	0.38	0.66

[z] (S) seed treatment; (F) in-furrow (1 Jun).

[y] 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 Dec.

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

TEST ID: COTNEMA517

PURPOSE: Evaluate efficacy of seed treatment and in-furrow nematicides for cotton

LOCATION: Mike Grizzard Farm, Hobos Road, Capron, VA

CROP INFORMATION:

Field	Grizzard
Crop history	2016 cotton
Planting date	18 May
Variety	Phytogen 499
Seeding rate	3.5 - 4 seed/row ft
Plot length/width	30’ x 6’
Number of rows	2 rows
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	15 Nov

EXPERIMENTAL DESIGN: Randomized complete block design with six replicates

APPLICATION OF TREATMENTS:

	IF liquid
Equipment	---
Pressure (psi)	
Nozzle type	.075 microtube
Volume (gal/A)	5 gal/A

TREATMENTS:

Trt #	**Seed treatment**	**Seed treatment rate**	**In-furrow treatment**	**In-furrow rate/A**
1	Base fungicide		Untreated	---
2	Base fungicide		Admire Pro	8.5 fl oz
3	Base fungicide		Velum Total	10 fl oz
4	Base fungicide		Velum Total	14 fl oz
5	Base fungicide		Velum Total	18 fl oz
6	Aeris SAS	0.75 mg ai/seed	Untreated	---
7	Aeris SAS	0.75 mg ai/seed	Admire Pro	8.5 fl oz
8	Aeris SAS	0.75 mg ai/seed	Velum Total	10 fl oz
9	Aeris SAS	0.75 mg ai/seed	Velum Total	14 fl oz
10	Aeris SAS	0.75 mg ai/seed	Velum Total	18 fl oz
11	Black seed (untreated)		Untreated	---

SOIL PROPERTIES:

Soil fertility report (May 2017):

pH	**P (lb/A)**	**K (lb/A)**	**Ca (lb/A)**	**Mg (lb/A)**	**Zn (ppm)**	**Mn (ppm)**	**Cu (ppm)**	**Fe (ppm)**	**B (ppm)**
5.5	46	46	129	32	0.5	2.4	0.3	12.4	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	No thrips control until after rating
Fungicides	Standard (none expect base seed treatment)
Nematicides	None except treatments

MAINTENANCE CHEMICAL APPLICATIONS:

Date	**Type and target**	**Product and formulation**	**Rate/A**
Pre-season	Fertility	6-18-36	300 lb
	Fertility	Ammonium Sulfate	300 lb
	Fertility	30% Nitrogen	30 units
1 Jun	Insecticide	Admire Pro	2.5 fl oz
15 Jul	Plant regulator	MepStar 6X	4 fl oz
25 Aug	Insecticide	Tombstone	5.7 fl oz
25 Oct	Defoliant	Superboll	48 fl oz
	Defoliant	Folex	11 fl oz
	Defoliant	FreeFall	3 fl oz

Table 46. Pre-plant and late season nematode populations in soil (COTNEMA517, Capron, VA 2017).

	Nematodes/500 cc soil[y]					
	Lance		Stubby root		Sting	
Treatment and rate[z]	**18 May**	**27 Sep**	**18 May**	**27 Sep**	**18 May**	**27 Sep**
Base fung. seed trt. (S)						
1. Untreated	0	3	9	0	9	12
2. Admire Pro 8.5 fl oz/A (F)	3	21	3	0	28	34
3. Velum Total 10 fl oz/A (F)	0	0	9	3	18	9
4. Velum Total 14 fl oz/A (F)	0	0	3	3	18	12
5. Velum Total 18 fl oz/A (F)	0	0	0	0	12	40
Aeris Seed Applied System 0.75 mg ai/seed (S)						
6. Untreated	9	0	12	0	42	3
7. Admire Pro 8.5 fl oz/A (F)	3	16	9	0	18	5
8. Velum Total 10 fl oz/A (F)	0	0	3	0	9	37
9. Velum Total 14 fl oz/A (F)	8	8	12	9	40	0
10. Velum Total 18 fl oz/A (F)	0	0	3	0	94	39
Black Seed (untreated)						
11. Untreated	18	10	9	0	3	3
P(F)	0.64	0.77	0.88	0.25	0.14	0.27
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (S) seed treatment; (F) in-furrow (18 May).

[y] Soil was sampled on 18 May prior to planting. Data are the mean counts of nematodes in a sample from four reps of each treatment. Square root transformation of population data was made in analysis to determine statistical significance.

Table 47. Effect of seed treatment with and without in-furrow nematicide on thrips injury, emergence, and growth in cotton (COTNEMA517, Capron, VA 2017).

Treatment and rate[z]	Thrips injury (0-5)[y] (6 Jun)	Plants/ft[x]		Vigor (0-10)[w]	
		7 Jun	28 Jun	7 Jun	28 Jun
Base fung. seed trt. (S)					
1. Untreated	3.3 a	2.6 b	2.5	8.0	8.7
2. Admire Pro 8.5 fl oz/A (F)	1.1 c	2.4 b	2.3	8.0	9.0
3. Velum Total 10 fl oz/A (F)	1.2 c	2.6 b	2.7	8.5	9.0
4. Velum Total 14 fl oz/A (F)	1.0 cd	2.6 b	2.7	8.2	9.2
5. Velum Total 18 fl oz/A (F)	0.8 ef	2.6 b	2.6	9.2	9.7
Aeris Seed Applied System 0.75 mg ai/seed (S)					
6. Untreated	1.0 cd	2.4 b	2.6	8.8	9.5
7. Admire Pro 8.5 fl oz/A (F)	1.0 cd	2.5 b	2.7	8.8	9.5
8. Velum Total 10 fl oz/A (F)	0.8 ef	2.4 b	2.4	8.8	9.3
9. Velum Total 14 fl oz/A (F)	0.7 f	2.6 b	2.6	8.7	9.7
10. Velum Total 18 fl oz/A (F)	0.9 de	2.4 b	2.5	9.0	9.3
Black Seed (untreated)					
11. Untreated	2.8 b	3.1 a	2.8	7.8	9.0
P(F)	**0.0001**	**0.002**	0.18	0.10	0.09
LSD	0.20	0.31	N.S.	N.S.	N.S.

[z] (S) seed treatment; (F) in-furrow (18 May).
[y] Thrips injury rating scale: 0 = no damage, 5 = dead plants.
[x] Determined from counts in two, 30-ft rows per plot.
[w] Vigor index rating scale: 10 = 100% vigor, 0 = no vigor.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 48. Effect of seed treatment with and without in-furrow nematicide on plant growth, flowering, and yield in cotton (COTNEMA517, Capron, VA 2017).

Treatment and rate[z]	Plant height (in.)[y] (25 Jul)	Flowers/12 ft[x] (25 Jul)	Yield[w]	
			lb/A	bales/A
Base fung. seed trt. (S)				
1. Untreated	21.3	6.5	1720	1.5
2. Admire Pro 8.5 fl oz/A (F)	23.2	5.3	2153	2.0
3. Velum Total 10 fl oz/A (F)	18.8	4.3	1734	1.6
4. Velum Total 14 fl oz/A (F)	19.6	5.5	1873	1.7
5. Velum Total 18 fl oz/A (F)	23.6	7.0	2289	2.1
Aeris Seed Applied System 0.75 mg ai/seed (S)				
6. Untreated	24.6	8.5	2303	2.2
7. Admire Pro 8.5 fl oz/A (F)	22.4	8.5	2311	2.2
8. Velum Total 10 fl oz/A (F)	23.5	9.0	2374	2.2
9. Velum Total 14 fl oz/A (F)	21.9	6.8	1886	1.7
10. Velum Total 18 fl oz/A (F)	22.8	7.8	1831	1.7
Black Seed (untreated)				
11. Untreated	19.3	4.7	1831	1.7
P(F)	0.33	0.58	0.66	0.60
LSD	N.S.	N.S.	833.2	0.77

[z] (S) seed treatment; (F) in-furrow (18 May).
[y] Measurements of three, randomly selected plants in each row of plot.
[x] Determined from counts of two 6 ft sections per plot.
[w] 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 15 Nov.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

TEST ID: COTNEMA617

PURPOSE: Evaluate efficacy of seed treatment and in-furrow nematicides for cotton

LOCATION: Tidewater AREC Research Farm, Hare Road, Suffolk, VA

CROP INFORMATION:

Field	16B
Crop history	2016 peanut, 2015 corn, 2014 cotton
Planting date	10 May
Variety	Phytogen 499
Seeding rate	3.5 - 4 seed/row ft
Plot length/width	30’
Number of rows	2 rows
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	29 Nov

EXPERIMENTAL DESIGN: Randomized complete block design with four replicates

INOCULUM: RKN (*M. incognita*) next to seed furrow 1 week after planting [18 May].

APPLICATION OF TREATMENTS:

	IF liquid	**IF granular**
Equipment	---	Nobel box
Pressure (psi)		---
Nozzle type	.075 microtube	---
Volume (gal/A)	5 gal/A	lb/A (trt rate)

TREATMENTS:

Trt #	**Seed treatment**	**Seed treatment rate**	**In-furrow treatment**	**In-furrow rate/A**
1	Base fungicide		Untreated	
2	Base fungicide		Velum Total	18 fl oz
3	Base fungicide		AgLogic	5 lb
4	Aeris Seed Applied System	0.75 mg ai/seed	Untreated	
5	Aeris Seed Applied System	0.75 mg ai/seed	Velum Total	18 fl oz
6	Aeris Seed Applied System	0.75 mg ai/seed	AgLogic	5 lb
7	COPeO Prime	0.2 mg ai/seed	Untreated	
8	COPeO Prime	0.2 mg ai/seed	Velum Total	18 fl oz
9	COPeO Prime	0.2 mg ai/seed	AgLogic	5 lb
10	COPeO Prime + Aeris Seed Applied System	0.2 mg ai/seed 0.75 mg ai/seed	Untreated	
11	COPeO Prime + Aeris Seed Applied System	0.2 mg ai/seed 0.75 mg ai/seed	Velum Total	18 fl oz
12	COPeO Prime + Aeris Seed Applied System	0.2 mg ai/seed 0.75 mg ai/seed	AgLogic	5 lb
13	Black seed (untreated)		Untreated	

SOIL PROPERTIES:

Soil type: Goldsboro fine sandy loam

Soil fertility report (7 Dec 2016):

pH	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)
6.0	95	83	728	64	0.4	3.4	0.3	18.6	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	No thrips control until after rating
Fungicides	Standard (none except base seed treatment)
Nematicides	None except treatments

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
25 Mar	Herbicide Herbicide	2,4-D Valor EZ	1 pt 1.5 fl oz
27 Apr	Fertility	8-8-34	459 lb/
10 May	Herbicide Herbicide	Prowl H_2O Cotoran 4L	1 pt 1 qt
27 May	Herbicide Fertility	Roundup WeatherMAX ENC	22 fl oz 1 qt
31 May	Insecticide	Orthene 75S	12 oz
15 Jun	Insecticide Herbicide Fertility	Orthene 75S Roundup WeatherMAX ENC	12 oz 22 fl oz 1 pt
5 Jul	Fertility	24-0-0-3	32 lb

Table 49. Pre-plant and late season nematode populations in soil (COTNEMA617, Suffolk, VA 2017).

Seed treatment and rate ai/seed[z]	In-furrow trt and rate/A[z]	Nematodes/500 cc soil[y]		
		Stubby root		Sting
		10 May	2 Nov	10 May
1. Base fungicide	Untreated	6	0	6
2. Base fungicide	Velum Total 18 fl oz	57	0	0
3. Base fungicide	AgLogic 15GR 5 lb	34	10	10
4. Aeris SAS 0.75 mg	Untreated	25	0	0
5. Aeris SAS 0.75 mg	Velum Total 18 fl oz	25	6	0
6. Aeris SAS 0.75 mg	AgLogic 15GR 5 lb	18	0	0
7. COPeO Prime 0.2 mg	Untreated	46	18	0
8. COPeO Prime 0.2 mg	Velum Total 18 fl oz	73	18	0
9. COPeO Prime 0.2 mg	AgLogic 15GR 5 lb	36	10	10
10. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	Untreated	84	6	6
11. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	Velum Total 18 fl oz	41	0	6
12. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	AgLogic 15GR 5 lb	55	15	10
13. Black seed	Untreated	46	6	0
P(F)		0.94	0.74	0.76
LSD		N.S.	N.S.	N.S.

[z] (S) seed treatment; (F) in-furrow (10 May).

[y] Soil was sampled on 10 May prior to planting. Data are the mean counts of nematodes in a sample from four reps of each treatment. Sting nematodes were not detected on 2 Nov. Square root transformation of population data was made in analysis to determine statistical significance.

Table 50. .Effect of seed treatment with and without in-furrow nematicide on emergence, plant growth, and thrips injury in cotton (COTNEMA617, Suffolk, VA 2017).

Seed treatment and rate ai/seed[z]	In-furrow trt and rate/A[z]	Plants/ft[y]		Vigor (0-10)[x]		Thrips injury (0-5)[w] (5 Jun)
		31 May	23 Jun	31 May	20 Jun	
1. Base fungicide	Untreated	2.0	2.4	9.0	8.5	4.1 a
2. Base fungicide	Velum Total 18 fl oz	2.0	2.5	8.8	8.8	2.0 cd
3. Base fungicide	AgLogic 15GR 5 lb	2.0	2.1	8.0	8.8	1.5 ef
4. Aeris SAS 0.75 mg	Untreated	1.8	1.8	8.0	8.0	2.3 c
5. Aeris SAS 0.75 mg	Velum Total 18 fl oz	2.1	2.0	7.5	8.5	2.1 cd
6. Aeris SAS 0.75 mg	AgLogic 15GR 5 lb	1.8	1.8	6.8	7.8	3.4 b
7. COPeO Prime 0.2 mg	Untreated	2.3	2.2	8.0	8.3	4.2 a
8. COPeO Prime 0.2 mg	Velum Total 18 fl oz	2.2	2.7	9.0	9.0	1.9 de
9. COPeO Prime 0.2 mg	AgLogic 15GR 5 lb	2.4	2.5	9.0	9.5	1.3 f
10. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	Untreated	2.0	2.4	8.5	8.5	2.1 cd
11. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	Velum Total 18 fl oz	1.9	1.9	7.8	8.0	1.3 f
12. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	AgLogic 15GR 5 lb	1.6	1.9	7.3	8.0	2.1 cd
13. Black seed	Untreated	2.1	2.5	8.0	8.0	4.4 a
P(F)		0.26	0.051	0.27	0.78	**0.0001**
LSD		N.S.	N.S.	N.S.	N.S.	0.41

[z] (S) seed treatment; (F) in-furrow (10 May).
[y] Determined from counts in two, 30-ft row per plot.
[x] Vigor index rating scale: 10 = 100% vigor, 0 = no vigor.
[w] 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 51. Effect of seed treatment with and without in-furrow nematicide on yield in cotton (COTNEMA617, Suffolk, VA 2017).

Seed treatment and rate ai/seed[z]	In-furrow trt and rate/A[z]	Yield[y]	
		lb/A	bales/A
1. Base fungicide	Untreated	2538	2.3
2. Base fungicide	Velum Total 18 fl oz	2925	2.4
3. Base fungicide	AgLogic 15GR 5 lb	3554	3.2
4. Aeris SAS 0.75 mg	Untreated	3028	2.7
5. Aeris SAS 0.75 mg	Velum Total 18 fl oz	2986	2.7
6. Aeris SAS 0.75 mg	AgLogic 15GR 5 lb	2892	2.6
7. COPeO Prime 0.2 mg	Untreated	3010	2.7
8. COPeO Prime 0.2 mg	Velum Total 18 fl oz	2853	2.7
9. COPeO Prime 0.2 mg	AgLogic 15GR 5 lb	3712	3.4
10. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	Untreated	3052	2.6
11. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	Velum Total 18 fl oz	3025	2.8
12. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	AgLogic 15GR 5 lb	3203	2.9
13. Black seed	Untreated	2459	2.2
P(F)		0.08	0.11
LSD		N.S.	N.S.

[z] (S) seed treatment; (F) in-furrow (10 May).

[y] 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 29 Nov.

TEST ID: COTNEMA717

PURPOSE: Evaluate efficacy of seed treatment and in-furrow nematicides for cotton

LOCATION: Rick Morgan Farm, Deer Forest Road, Suffolk, VA

CROP INFORMATION:

Field	Morgan
Crop history	Continuous cotton since 2001
Planting date	1 Jun
Variety	Phytogen 499
Seeding rate	3.5 - 4 seed/row ft
Plot length/width	30’
Number of rows	2 rows
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	12 Dec

EXPERIMENTAL DESIGN: Random complete block design with four replicates

APPLICATION OF TREATMENTS:

	IF liquid	**IF granular**
Equipment	---	Nobel box
Pressure (psi)		---
Nozzle type	.075 microtube	---
Volume (gal/A)	5 gal/A	lb/A (trt rate)

TREATMENTS:

Trt #	**Seed treatment**	**Seed treatment rate**	**In-furrow treatment**	**In-furrow rate/A**
1	Base fungicide		Untreated	
2	Base fungicide		Velum Total	18 fl oz
3	Base fungicide		AgLogic	5 lb
4	Aeris Seed Applied System	0.75 mg ai/seed	Untreated	
5	Aeris Seed Applied System	0.75 mg ai/seed	Velum Total	18 fl oz
6	Aeris Seed Applied System	0.75 mg ai/seed	AgLogic	5 lb
7	COPeO Prime	0.2 mg ai/seed	Untreated	
8	COPeO Prime	0.2 mg ai/seed	Velum Total	18 fl oz
9	COPeO Prime	0.2 mg ai/seed	AgLogic	5 lb
10	COPeO Prime + Aeris Seed Applied System	0.2 mg ai/seed 0.75 mg ai/seed	Untreated	
11	COPeO Prime + Aeris Seed Applied System	0.2 mg ai/seed 0.75 mg ai/seed	Velum Total	18 fl oz
12	COPeO Prime + Aeris Seed Applied System	0.2 mg ai/seed 0.75 mg ai/seed	AgLogic	5 lb
13	Black seed (untreated)		Untreated	

Soil type: Rumford loamy fine sand

Soil fertility report (30 Mar 2017):

pH	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)
5.76	36	68	174	17	0.9	1.5	0.2	12.6	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	No thrips control until after rating
Fungicides	Standard (none except base seed treatment)
Nematicides	None except treatments

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
14 Apr	Fertility	Lime	1 ton
18 May	Fertility	7-10-33	260 lb
2 Jun	Herbicide Herbicide Herbicide Herbicide	Gramoxone SL Roundup WeatherMAX Prowl H_2O Cotoran 4L	1 pt 1 pt 1 pt 1 qt
27 Jun	Herbicide Insecticide	Roundup WeatherMAX Orthene 75S	22 fl oz 12 oz
27 Jul	Growth regulator Insecticide Fertility	Pentia Beseige Liquid Boron	1 pt 12 fl oz 1 qt

Table 52. Pre-plant, mid-season, and late season nematode populations in soil (COTNEMA717, Suffolk, VA 2017).

Seed treatment and rate ai/seed[z]	In-furrow trt and rate/A[z]	Nematodes/500 cc soil[y]							
		Root knot[x]		Lesion[x]		Lance[x]	Stubby root		
		1 Jun	3 Nov	1 Jun	3 Nov	1 Jun	1 Jun	18 Jul	3 Nov
1. Base fungicide	Untreated	6	48	0	0	0	32	110	15
2. Base fungicide	Velum Total 18 fl oz	6	81	0	0	0	287	25	18
3. Base fungicide	AgLogic 15GR 5 lb	18	0	0	0	10	196	127	30
4. Aeris SAS 0.75 mg	Untreated	6	251	0	0	0	270	67	10
5. Aeris SAS 0.75 mg	Velum Total 18 fl oz	6	751	6	0	0	121	92	46
6. Aeris SAS 0.75 mg	AgLogic 15GR 5 lb	0	193	0	0	0	189	38	46
7. COPeO Prime 0.2 mg	Untreated	0	235	0	6	0	216	67	10
8. COPeO Prime 0.2 mg	Velum Total 18 fl oz	6	49	0	0	0	206	18	67
9. COPeO Prime 0.2 mg	AgLogic 15GR 5 lb	15	117	0	0	0	103	76	18
10. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	Untreated	18	272	0	0	0	232	6	10
11. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	Velum Total 18 fl oz	6	6	0	0	0	139	18	55
12. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	AgLogic 15GR 5 lb	0	57	0	0	0	253	38	6
13. Black seed	Untreated	6	32	0	6	0	192	36	6
P(F)		0.92	0.23	0.47	0.59	0.47	0.50	0.43	0.41
LSD		N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (S) seed treatment; (F) in-furrow (1 Jun).

[y] Soil was sampled on 1 Jun prior to planting. Data are the mean counts of nematodes in a sample from four reps of each treatment. Square root transformation of population data was made in analysis to determine statistical significance.

[x] Root knot and lesion nematodes were not detected on 18 Jul sample date; lance nematodes were detected on the 1 Jun sample date only.

Table 53. Effect of seed treatment with and without in-furrow nematicide on thrips injury, emergence and plant growth in cotton (COTNEMA717, Suffolk, VA 2017).

Seed treatment and rate ai/seed[z]	In-furrow trt and rate/A[z]	Thrips injury (0-5)[y] (21 Jun)	Plants/ft[x]		Vigor (0-10)[w]	
			26 Jun	Jul 10	26 Jun	Jul 10
1. Base fungicide	Untreated	2.9 a	2.8 c-e	2.8 bc	10.0	10.0
2. Base fungicide	Velum Total 18 fl oz	0.8 bc	2.7 c-e	2.9 bc	9.5	10.0
3. Base fungicide	AgLogic 15GR 5 lb	0.8 bc	2.8 c-e	2.8 bc	10.0	10.0
4. Aeris SAS 0.75 mg	Untreated	1.4 b	2.8 c-e	2.8 bc	9.8	10.0
5. Aeris SAS 0.75 mg	Velum Total 18 fl oz	0.6 c	3.0 b-d	2.9 bc	9.5	10.0
6. Aeris SAS 0.75 mg	AgLogic 15GR 5 lb	0.8 bc	2.5 e	2.7 bc	10.0	10.0
7. COPeO Prime 0.2 mg	Untreated	2.6 a	3.0 b-d	3.1 b	9.8	10.0
8. COPeO Prime 0.2 mg	Velum Total 18 fl oz	0.9 bc	3.3 ab	3.1 ab	10.0	10.0
9. COPeO Prime 0.2 mg	AgLogic 15GR 5 lb	0.8 bc	3.1 bc	3.0 b	10.0	10.0
10. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	Untreated	1.4 b	2.6 e	2.6 c	9.8	10.0
11. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	Velum Total 18 fl oz	0.6 c	2.8 c-e	2.8 bc	10.0	10.0
12. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	AgLogic 15GR 5 lb	0.5 c	2.6 de	2.9 bc	10.0	10.0
13. Black seed	Untreated	2.7 a	3.6 a	3.5 a	9.8	10.0
P(F)		**0.0001**	**0.0002**	**0.01**	0.47	1.0
LSD		0.75	0.40	0.39	0	- -

[z] (S) seed treatment; (F) in-furrow (1 Jun).
[y] Thrips injury rating scale: 0 = no damage, 5 = dead plants.
[x] Determined from counts in two, 30-ft row per plot.
[w] Vigor index rating scale: 10 = 100% vigor, 0 = no vigor.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 54. Effect of seed treatment with and without in-furrow nematicide on yield and root gall in cotton (COTNEMA717, Suffolk, VA 2017).

Seed treatment and rate ai/seed[z]	In-furrow trt and rate/A[z]	Yield[y]		Root gall index (0-6)[x] 20 Dec
		lb/A	bales/A	
1. Base fungicide	Untreated	3285 d	3.0	1.3 a
2. Base fungicide	Velum Total 18 fl oz	3563 b-d	3.3	0.1 b
3. Base fungicide	AgLogic 15GR 5 lb	3996 ab	3.7	0.0 b
4. Aeris SAS 0.75 mg	Untreated	3600 b-d	3.3	0.3 b
5. Aeris SAS 0.75 mg	Velum Total 18 fl oz	3337 d	3.0	0.1 b
6. Aeris SAS 0.75 mg	AgLogic 15GR 5 lb	3917 a-c	3.5	0.1 b
7. COPeO Prime 0.2 mg	Untreated	3712 a-d	3.4	0.4 b
8. COPeO Prime 0.2 mg	Velum Total 18 fl oz	3433 cd	3.2	0.3 b
9. COPeO Prime 0.2 mg	AgLogic 15GR 5 lb	3757 a-d	3.5	0.0 b
10. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	Untreated	3687 a-d	3.4	0.1 b
11. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	Velum Total 18 fl oz	3579 b-d	3.3	0.2 b
12. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	AgLogic 15GR 5 lb	4120 a	3.8	0.1 b
13. Black seed	Untreated	3467 cd	3.2	0.5 b
P(F)		**0.04**	0.11	**0.005**
LSD		490.8	N.S.	0.57

[z] (S) seed treatment; (F) in-furrow (1 Jun).

[y] 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 Dec.

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

TEST ID: COTNEMA817

PURPOSE: Evaluate efficacy of seed treatment and in-furrow nematicides for cotton

LOCATION: Mike Grizzard Farm, Hobos Road, Capron,VA

CROP INFORMATION:

Field	Grizzard
Crop history	2016 cotton
Planting date	18 May
Variety	Phytogen 499
Seeding rate	3.5 - 4 seed/row ft
Plot length/width	30’
Number of rows	2 rows
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	15 Nov

EXPERIMENTAL DESIGN: Randomized complete block design with six replicates

APPLICATION OF TREATMENTS:

	IF liquid	**IF granular**
Equipment	---	Nobel box
Pressure (psi)		---
Nozzle type	.075 microtube	---
Volume (gal/A)	5 gal/A	lb/A (trt rate)

TREATMENTS:

Trt #	**Seed treatment**	**Seed treatment rate**	**In-furrow treatment**	**In-furrow rate/A**
1	Base fungicide		Untreated	
2	Base fungicide		Velum Total	18 fl oz
3	Base fungicide		AgLogic	5 lb
4	Aeris Seed Applied System	0.75 mg ai/seed	Untreated	
5	Aeris Seed Applied System	0.75 mg ai/seed	Velum Total	18 fl oz
6	Aeris Seed Applied System	0.75 mg ai/seed	AgLogic	5 lb
7	COPeO Prime	0.2 mg ai/seed	Untreated	
8	COPeO Prime	0.2 mg ai/seed	Velum Total	18 fl oz
9	COPeO Prime	0.2 mg ai/seed	AgLogic	5 lb
10	COPeO Prime + Aeris Seed Applied System	0.2 mg ai/seed 0.75 mg ai/seed	Untreated	
11	COPeO Prime + Aeris Seed Applied System	0.2 mg ai/seed 0.75 mg ai/seed	Velum Total	18 fl oz
12	COPeO Prime + Aeris Seed Applied System	0.2 mg ai/seed 0.75 mg ai/seed	AgLogic	5 lb
13	Black seed (untreated)		Untreated	

SOIL PROPERTIES:

Soil fertility report (May 2017):

pH	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)
5.5	46	46	129	32	0.5	2.4	0.3	12.4	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	No thrips control until after rating
Fungicides	Standard (none expect base seed treatment)
Nematicides	None except treatments

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
Pre-season	Fertility Fertility Fertility	6-18-36 Ammonium Sulfate 30% Nitrogen	300 lb 300 lb 30 units
1 Jun	Insecticide	Admire Pro	2.5 fl oz
15 Jul	Plant regulator	MepStar 6X	4 fl oz
25 Aug	Insecticide	Tombstone	5.7 fl oz
25 Oct	Defoliant Defoliant Defoliant	Superboll Folex FreeFall	48 fl oz 11 fl oz 3 fl oz

Table 55. Pre-plant and late season nematode populations in soil (COTNEMA817, Capron, VA 2017).

Seed treatment and rate ai/seed[z]	In-furrow trt and rate/A[z]	Nematodes/500 cc soil[y]							
		Root knot		Stubby root		Sting		Le-sion	Lance
		18 May	1 Nov	18 May	1 Nov	18 May	1 Nov	1 Nov	1 Nov
1. Base fungicide	Untreated	0	0	65	12	0 b	5	0	3
2. Base fungicide	Velum Total 18 fl oz	3	0	39	18	0 b	0	0	0
3. Base fungicide	AgLogic 15GR 5 lb	31	8	12	9	0 b	0	0	0
4. Aeris SAS 0.75 mg	Untreated	0	5	29	0	0 b	3	3	0
5. Aeris SAS 0.75 mg	Velum Total 18 fl oz	0	5	35	3	3 b	0	0	0
6. Aeris SAS 0.75 mg	AgLogic 15GR 5 lb	5	0	18	3	3 b	0	0	0
7. COPeO Prime 0.2 mg	Untreated	3	12	32	0	0 b	0	0	0
8. COPeO Prime 0.2 mg	Velum Total 18 fl oz	0	0	30	5	0 b	0	0	0
9. COPeO Prime 0.2 mg	AgLogic 15GR 5 lb	10	5	18	47	0 b	0	0	0
10. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	Untreated	0	9	42	3	0 b	0	0	0
11. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	Velum Total 18 fl oz	26	3	18	9	18 a	0	0	0
12. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	AgLogic 15GR 5 lb	10	3	9	35	3 b	0	0	0
13. Black seed	Untreated	0	58	35	3	0 b	0	0	0
P(F)		0.53	0.40	0.85	0.07	**0.02**	0.54	0.46	0.46
LSD		N.S.	N.S.	N.S.	N.S.	11.1 – 12.7	N.S.	N.S.	N.S.

[z] (S) seed treatment; (F) in-furrow (18 mAY).

[y] Soil was sampled on 18 May prior to planting. Data are the mean counts of nematodes in a sample from four reps of each treatment. Lesion and lance nematodes were detected on the 1 Nov sample only. Square root transformation of population data was made in analysis to determine statistical significance.

Table 56. Effect of seed treatment with and without in-furrow nematicide on thrips injury, emergence and plant growth in cotton (COTNEMA817, Capron, VA 2017).

Seed treatment and rate ai/seed[z]	In-furrow trt and rate/A[z]	Thrips injury (0-5)[y] (6 Jun)	Plants/ft[x]		Vigor (0-10)[w]	
			7 Jun	28 Jun	7 Jun	28 Jun
1. Base fungicide	Untreated	2.6 a	2.6 c-f	2.6 de	7.5 d	9.0
2. Base fungicide	Velum Total 18 fl oz	1.1 c	2.8 bc	2.9 bc	8.5 a-d	10.0
3. Base fungicide	AgLogic 15GR 5 lb	0.8 d-f	2.7 b-d	2.7 cd	9.3 a	9.8
4. Aeris SAS 0.75 mg	Untreated	1.0 cd	2.3 g	2.4 f	8.5 a-d	9.3
5. Aeris SAS 0.75 mg	Velum Total 18 fl oz	0.8 d-f	2.4 fg	2.4 f	8.7 a-c	9.5
6. Aeris SAS 0.75 mg	AgLogic 15GR 5 lb	0.6 f	2.3 g	2.4 f	8.5 a-d	9.3
7. COPeO Prime 0.2 mg	Untreated	2.2 b	2.6 b-e	2.7 de	7.8 cd	9.2
8. COPeO Prime 0.2 mg	Velum Total 18 fl oz	0.9 cd	2.7 b-d	2.7 cd	8.7 a-c	9.5
9. COPeO Prime 0.2 mg	AgLogic 15GR 5 lb	0.7 ef	2.8 b	3.0 b	9.2 ab	9.8
10. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	Untreated	0.9 de	2.5 d-g	2.6 d-f	8.7 a-c	9.7
11. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	Velum Total 18 fl oz	0.7 ef	2.5 d-g	2.6 d-f	8.2 b-d	9.5
12. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	AgLogic 15GR 5 lb	0.6 f	2.4 e-g	2.5 ef	8.7 a-c	9.8
13. Black seed	Untreated	2.2 b	3.4 a	3.4 a	7.5 d	9.3
P(F)		**0.0001**	**0.0001**	**0.0001**	**0.01**	0.07
LSD		0.23	0.24	0.24	1.02	0.62

[z] (S) seed treatment; (F) in-furrow (18 May).
[y] Thrips injury rating scale: 0 = no damage, 5 = dead plants.
[x] Determined from counts in two, 30-ft row per plot.
[w] Vigor index rating scale: 10 = 100% vigor, 0 = no vigor.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 57. Effect of seed treatment with and without in-furrow nematicide on plant height, flowering, and yield in cotton (COTNEMA817, Capron, VA 2017).

Seed treatment and rate ai/seed[z]	In-furrow trt and rate/A[z]	Plant height (in.)[y] (25 Jul)	Flowers/12 ft[x] (25 Jul)	Yield[w]	
				lb/A	bales/A
1. Base fungicide	Untreated	26.5 b	12.2	2870	2.7
2. Base fungicide	Velum Total 18 fl oz	34.7 a	22.2	3271	3.1
3. Base fungicide	AgLogic 15GR 5 lb	34.6 a	18.8	3529	3.3
4. Aeris SAS 0.75 mg	Untreated	29.7 ab	13.3	2503	2.4
5. Aeris SAS 0.75 mg	Velum Total 18 fl oz	31.3 ab	20.3	2747	2.6
6. Aeris SAS 0.75 mg	AgLogic 15GR 5 lb	29.5 ab	16.2	2837	2.7
7. COPeO Prime 0.2 mg	Untreated	26.2 b	13.8	2341	2.2
8. COPeO Prime 0.2 mg	Velum Total 18 fl oz	25.8 b	14.0	2577	2.4
9. COPeO Prime 0.2 mg	AgLogic 15GR 5 lb	35.0 a	23.2	3930	3.7
10. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	Untreated	29.3 ab	14.3	2884	2.7
11. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	Velum Total 18 fl oz	27.1 b	17.3	2547	2.4
12. Aeris SAS 0.75 mg + COPeO Prime 0.2 mg	AgLogic 15GR 5 lb	32.4 ab	18.8	3124	2.9
13. Black seed	Untreated	31.5 ab	16.8	2549	2.5
P(F)		**.05**	0.24	0.08	0.09
LSD		6.67	N.S.	N.S.	N.S.

[z] (S) seed treatment; (F) in-furrow (18 May).
[y] Measurements of three, randomly selected plants in each row of plot.
[x] Determined from counts of two 6 ft sections per plot.
[w] 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 15 Nov.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

TEST ID: PSEED117

PURPOSE: Compare seed treatments for disease control in peanut

LOCATION: Tidewater AREC Research Farm, Hare Road, Suffolk, VA

CROP INFORMATION:

Field	16A
Crop history	2016 corn, 2015 cotton, 2014 peanut
Planting date	8 May
Seeding rate	ca. 4 seed/row ft
Plot length/width	30’
Number of rows	2 rows
Row spacing	36”
Alleys (length between blocks)	10’
Dig date	26 Sep
Harvest date	2 Oct

EXPERIMENTAL DESIGN: Random complete block design with eight replicates

INOCULUM: *Rhizoctonia solani* in-furrow at planting (50 ml/100 row ft)

TREATMENTS:

Trt #	Product	Rate (mg a/seed)	Application
1	A9567 w/Rhizoc inoc	0.24 mg a/seed	Seed treatment
2	A9567	0.24 mg a/seed	Seed treatment
3	A17461 w/Rhizoc inoc	0.315 mg a/seed	Seed treatment
4	A17461	0.315 mg a/seed	Seed treatment
5	A17461 A16148 w/Rhizoc inoc	0.315 mg a/seed 0.013 mg a/seed	Seed treatment Seed treatment
6	A17461 A16148	0.315 mg a/seed 0.013 mg a/seed	Seed treatment Seed treatment
7	A17461 A16148 w/Rhizoc inoc	0.315 mg a/seed 0.026 mg a/seed	Seed treatment Seed treatment
8	A17461 A16148	0.315 mg a/seed 0.026 mg a/seed	Seed treatment Seed treatment
9	A9567 (check) A22350 w/Rhizoc inoc	0.24 mg a/seed 250 gr/100 kg seed	Seed treatment Seed treatment
10	A9567 (check) A22350	0.24 mg a/seed 250 gr/100 kg seed	Seed treatment Seed treatment

SOIL PROPERTIES:

Soil type: Kenansville loamy fine sand

Soil fertility report (3 Nov 2016):

pH	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)
6.0	78	55	564	65	0.6	2.1	0.2	13.6	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Thrips control 14 DAP & 21-28 DAP if needed; standard
Fungicides	Standard foliar fungicide program 35-45 DAP (Leaf spot & Sclerotinia)
Nematicides	none

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
27 Mar	Herbicide	2, 4-D	1 pt
10 May	Herbicide	Strongrm	0.45 fl oz
	Herbicide	Dual II MAGNUM	1 pt
	Herbicide	Prowl H_2O	1 pt
	Herbicide	Roundup WeatherMAX	1 qt
	Fertility	Liquid Boron	1 qt
15 Jun	Herbicide	Select 2 EC	12 fl oz
	Herbicide	Tide Glufosinate 280 SL	1 pt
	Insecticide	Orthene 75S	12 oz
29 Jun	Fertility	Peanut Maker	1500 lb
7 Jul	Herbicide	Tide Glufosinate 280 SL	1 pt
	Herbicide	Select 2 EC	1 pt
25 Jul	Fungicide	Bravo Weather Stik	1.5 pt
	Fertility	Liquid Manganese	1 pt
27 Jul	Fungicide	Omega 4SC	1 pt
8 Aug	Fungicide	Provost Opti	1 pt
9 Aug	Growth regulator	Apogee	8 fl oz
	Fertility	w/UAN (28% N)	1 lb
21 Aug	Fungicide	Omega 4SC	1 pt

Table 58. Effect of treatment with and without *Rhizoctonia solani* inoculum on emergence and foliar disease in peanut (PSEED117, Suffolk, VA 2017).

Seed treatment and rate ai/seed[z]	Plants/ft[y] (26 May)		% leaf spot[x]				% defoliation[w]			
			12 Sep		21 Sep		12 Sep		21 Sep	
	Non	Inoc	Non	Inoc	Non	Inoc	Non	Inoc	Non	Inoc
1. A9567 0.24 mg	1.9 c	1.7 b	39.7	37.3	53.9	52.5	14.2	13.8	25.6	22.5
2. A17461 0.315	2.4 ab	2.4 a	42.8	41.6	55.7	60.4	19.2	14.4	25.2	27.1
3. A17461 0.315 mg + A16148 0.013 mg	2.2 b	2.2 a	41.1	35.9	57.1	57.8	13.5	11.9	29.9	25.2
4. A17461 0.315 mg + A16148 0.026 mg	2.3 ab	2.4 a	43.1	43.4	57.0	60.2	17.2	16.7	26.8	29.5
5. A9567 0.24 mg + local standard	2.5 a	2.4 a	41.1	40.4	58.4	59.6	17.4	16.7	25.6	26.6
P(F)	**0.0001**	**0.0001**	0.92	0.15	0.85	0.49	0.41	0.27	0.59	0.42
LSD	.21	.25	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] Seed treatment were applied by personnel with Syngenta. Seed were planted 8 May.
[y] Determined from counts in two, 30-ft row per plot.
[x] Percent leaflets with one or more leaf spots.
[w] 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 59. Effect of treatment with and without *Rhizoctonia solani* inoculum on soilborne disease and yield in peanut (PSEED117, Suffolk, VA 2017).

Seed treatment and rate ai/seed[z]	CBR[y]		TSWV[y]		Root rot (0-6)[x] (2 Oct)		Pod rot (0-6)[w] (2 Oct)		Yield[v] (lb/A)	
	Non	Inoc	Non	Inoc	Non	Inoc	Non	Inoc	Non	Inoc
1. A9567 0.24 mg	1.5	2.8	4.5	6.0	2.3	2.0	2.4	2.4	4763	4545
2. A17461 0.315	1.9	2.6	4.6	3.3	2.0	2.0	2.3	2.1	4925	4899
3. A17461 0.315 mg + A16148 0.013 mg	1.8	1.5	4.9	4.8	1.9	2.1	2.1	2.1	5039	4882
4. A17461 0.315 mg + A16148 0.026 mg	1.0	1.4	5.4	5.6	1.9	2.0	2.4	2.4	5155	5033
5. A9567 0.24 mg + local standard	1.4	1.4	5.4	4.9	1.5	1.5	2.0	1.8	4960	5183
P(F)	0.68	0.37	0.89	0.19	0.13	0.08	0.61	0.15	0.66	0.18
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] Seed treatment were applied by personnel with Syngenta. Seed were planted 8 May.
[y] Counts of infection centers in the two center rows of each plot or a total of 60 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.
[x] 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.
[w] 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.
[v] Yields are weight of peanuts with moisture content of 7%. Peanuts were dug on 26 Sep and harvested on 2 Oct.

TEST ID: PNEMA117

PURPOSE: To evaluate efficacy and yield benefits of insecticide, nematicide, and fungicide chemistries and pre-mixes for pest management in peanut

LOCATION: Tidewater AREC Research Farm, Hare Road, Suffolk, VA

CROP INFORMATION:

Field	28
Crop history	2016 wheat/soybean, 2015 peanut, 2014 wheat/soybean
Planting date	3 May
Variety	Sullivan
Seeding rate	ca. 4 seed/row ft
Plot length/width	35’
Number of rows	4 rows
Row spacing	36”
Alleys (length between blocks)	10’
Dig date	6 Oct
Harvest date	20 Oct

EXPERIMENTAL DESIGN: Randomized complete block design with five replicates

INOCULUM: RKN (*M. hapla*) 1 week after planting (9 May)

APPLICATION OF TREATMENTS:

	IF liquid	**IF granular**	**Foliar spray**
Equipment	---	Noble Box	ATV sprayer
Pressure (psi)		---	42 psi
Nozzle type	.075 microtube	---	$D_3$23
Volume (gal/A)	5 gal/A	Rate/A	14.85

TREATMENTS:

Trt #	**Product and formulation**	**Rate/A**	**Application timing**	**Application date**
1	Untreated	---	In-furrow	3 May
2	Admire Pro 4.6SC	8.5 fl oz	In-furrow	3 May
3	Velum Total 3.67SC	18 fl oz	In-furrow	3 May
4	Proline 480SC	6.8 fl oz	In-furrow	3 May
5	Propulse 3.34L	16.2 fl oz	In-furrow	3 May
6	Admire Pro 4.6SC Propulse 3.34L	8.5 fl oz 13.7 fl oz	In-furrow Broadcast at pegging	3 May 12 Jul
7	Velum Total 3.67SC Propulse 3.34L	18 fl oz 13.7 fl oz	In-furrow Broadcast at pegging	3 May 12 Jul
8	Admire Pro 4.6SC Proline 480SC	8.5 fl oz 5.7 fl oz	In-furrow Broadcast at pegging	3 May 12 Jul
9	Velum Total 3.67SC Proline 480SC	18 fl oz 5.7 fl oz	In-furrow Broadcast at pegging	3 May 12 Jul
10	AgLogic 15G	5 lb	In-furrow	3 May
11	AgLogic 15G Propulse 3.34L	5 lb 13.7 fl oz	In-furrow Broadcast at pegging	3 May 12 Jul
12	AgLogic 15G Proline 480SC	5 lb 5.7 fl oz	In-furrow Broadcast at pegging	3 May 12 Jul

SOIL PROPERTIES:

Soil type: Kenansville loamy fine sand

Soil fertility report (7 Dec 2016):

pH	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)
6.5	58	76	686	97	0.3	3.7	0.2	19.1	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard, do not overspray for thrips until entomology finishes ratings
Fungicides	None in-furrow except indicated treatments, standard leafspot and Sclerotinia fungicide programs
Nematicides	None except indicated treatments

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
30 Mar	Herbicide	Roundup WeatherMAX	22 fl oz
10 May	Herbicide	Strongarm	0.45 fl oz
	Herbicide	Dual II MAGNUM	1 pt
	Herbicide	Prowl H_2O	1 pt
	Herbicide	Roundup WeatherMAX	1 qt
	Fertility	Liquid Boron	1 qt
15 Jun	Herbicide	Tide Glufosinate 280 SL	1 pt
	Insecticide	Orthene 75S	12 oz
16 Jun	Herbicide	Select 2 EC	1 pt
	Herbicide	Roundup WeatherMAX	1 qt
29 Jun	Fertility	Landplaster	1500 lb
7 Jul	Herbicide	Tide Glufosinate 280 SL	1 pt
	Adjuvant	Induce	4 fl oz
	Herbicide	Select 2 EC	1 pt
25 Jul	Fungicide	Bravo Weather Stik	1.5 pt
	Fertility	Liquid Mn	1 pt
27 Jul	Fungicide	Omega 4 SC	1 pt
21 Aug	Fungicide	Omega 4 SC	1 pt
18 Aug	Fungicide	Provost Opti	10.7 fl oz

Table 60. Pre-plant, mid-season, and end season nematode populations in soil (PNEMA117, Suffolk, VA 2017).

Treatment and rate/A[z]	Nematodes /500 cc soil[y]					
	Root knot			Spiral		
	4 May	15 Jun	28 Sep	4 May	15 Jun	28 Sep
1. Untreated	17	0	164	0	0	0
2. Admire Pro 4.6SC 8.5 fl oz (F)	37	58	7	40	7	0
3. Velum Total 3.67SC 18 fl oz (F)	110	29	45	40	7	4
4. Proline 480SC 6.8 fl oz (F)	147	50	19	40	0	0
5. Propulse 3.34L16.2 fl oz (F)	42	21	27	21	35	0
6. Admire Pro 4.6SC 8.5 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	21	21	308	0	0	0
7. Velum Total 3.67SC 18 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	176	81	10	12	4	7
8. Admire Pro 4.6SC 8.5 fl oz (F) Proline 480SC 5.7 fl oz (P)	42	38	60	0	0	0
9. Velum Total 3.67SC 18 fl oz (F) Proline 480SC 5.7 fl oz (P)	4	17	138	12	0	0
10. AgLogic 15G 5 lb (F)	62	31	228	4	0	0
11. AgLogic 15G 5 lb (F) Propulse 3.34L 13.7 fl oz (P)	12	4	174	0	0	0
12. AgLogic 15G 5 lb (F) Proline 480SC 5.7 fl oz (P)	45	31	0	4	13	0
P(F)	0.46	0.66	0.41	0.28	0.46	0.58
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (F) In-furrow (3 May); (P) broadcast at pegging (12 Jul).

[y] Soil was sampled on 4 May prior to planting. Data are the mean counts of nematodes in a sample from four reps of each treatment. Square root transformation of population data was made in analysis to determine statistical significance. Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 60 (cont). Pre-plant, mid-season, and end season nematode populations in soil (PNEMA117, Suffolk, VA 2017).

Treatment and rate/A[z]	Nematodes /500 cc soil[y]					
	Ring			Stubby root		
	4 May	15 Jun	28 Sep	4 May	15 Jun	28 Sep
1. Untreated	0	0	374	137	97 a	28
2. Admire Pro 4.6SC 8.5 fl oz (F)	21	4	174	134	21 a-d	24
3. Velum Total 3.67SC 18 fl oz (F)	17	17	1114	38	12 b-d	4
4. Proline 480SC 6.8 fl oz (F)	7	10	116	77	74 a-c	0
5. Propulse 3.34L16.2 fl oz (F)	53	82	166	141	100 a	17
6. Admire Pro 4.6SC 8.5 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	7	0	204	86	88 ab	0
7. Velum Total 3.67SC 18 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	4	7	553	123	66 a-c	4
8. Admire Pro 4.6SC 8.5 fl oz (F) Proline 480SC 5.7 fl oz (P)	43	4	360	64	17 a-d	0
9. Velum Total 3.67SC 18 fl oz (F) Proline 480SC 5.7 fl oz (P)	23	12	383	114	45 a-d	4
10. AgLogic 15G 5 lb (F)	16	56	735	96	7 cd	0
11. AgLogic 15G 5 lb (F) Propulse 3.34L 13.7 fl oz (P)	4	0	425	63	21 a-d	36
12. AgLogic 15G 5 lb (F) Proline 480SC 5.7 fl oz (P)	45	51	320	176	0 d	0
P(F)	0.66	0.18	0.98	0.67	**0.04**	0.10
LSD	N.S.	N.S.	N.S.	N.S.	71.71 – 85.72	N.S.

[z] (F) In-furrow (3 May); (P) broadcast at pegging (12 Jul).

[y] Soil was sampled on 4 May prior to planting. Data are the mean counts of nematodes in a sample from four reps of each treatment. Square root transformation of population data was made in analysis to determine statistical significance. Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 61. Effect of treatment on emergence, vigor and thrips injury in peanut (PNEMA117, Suffolk, VA 2017).

Treatment and rate/A[z]	Plants/ft[y]		Vigor (1-10)[x]		Thrips injury rating[w]		
	18 May	8 Jun	6 Jun	12 Jun	24 May	31 May	7 Jun
1. Untreated	0.9 ab	1.4	6.0c	8.0d	2.2 a	5.5 a	6.8 a
2. Admire Pro 4.6SC 8.5 fl oz (F)	0.9 a-c	1.3	8.6ab	9.6ab	0.6 e	2.2 b	2.1 c
3. Velum Total 3.67SC 18 fl oz (F)	0.9 a	1.3	9.4a	10.0a	0.9 cd	2.1 bc	2.2 bc
4. Proline 480SC 6.8 fl oz (F)	0.8 a-c	1.3	6.2c	8.0d	1.8 b	5.4 a	6.8 a
5. Propulse 3.34L16.2 fl oz (F)	0.7 d	1.4	6.2c	8.0d	1.9 b	5.3 a	6.8 a
6. Admire Pro 4.6SC 8.5 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	0.9 a-c	1.3	8.8ab	9.6ab	0.5 e	2.1 bc	2.1 bc
7. Velum Total 3.67SC 18 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	0.9 a-c	1.3	8.4ab	9.4bc	1.0 cd	2.0 b-d	2.3 bc
8. Admire Pro 4.6SC 8.5 fl oz (F) Proline 480SC 5.7 fl oz (P)	0.9 ab	1.3	9.0ab	10.0a	0.5 e	2.0 b-d	2.1 bc
9. Velum Total 3.67SC 18 fl oz (F) Proline 480SC 5.7 fl oz (P)	0.9 a-c	1.4	9.2ab	10.0a	0.8 d	2.1 bc	2.3 bc
10. AgLogic 15G 5 lb (F)	0.8 a-d	1.3	8.6ab	9.6ab	1.0 cd	1.7 d	2.4 bc
11. AgLogic 15G 5 lb (F) Propulse 3.34L 13.7 fl oz (P)	0.8 cd	1.3	8.2b	9.0c	1.0 cd	1.8 cd	2.4 b
12. AgLogic 15G 5 lb (F) Proline 480SC 5.7 fl oz (P)	0.8 b-d	1.3	8.4ab	9.8ab	1.0 c	1.7 d	2.4 b
P(F)	**0.02**	0.28	**0.0001**	**0.0001**	**0.0001**	**0.0001**	**0.0001**
LSD	0.10	N.S.	1.07	0.45	0.18	0.36	0.33

[z] (F) In-furrow (3 May); (P) broadcast at pegging (12 Jul).
[y] Determined from counts in two, 35-ft rows per plot.
[x] Vigor index rating scale: 10 = 100% vigor, 1 = no vigor.
[w] 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 treatment on thrips populations in peanut (PNEMA117, Suffolk, VA 2017).

Treatment and rate/A[z]	Mean number of thrips per 10 terminal leaflets			
	22 May		5 Jun	
	Immature thrips	Adult thrips	Immature thrips	Adult thrips
1. Untreated	0.0	6.6a	21.0a	0.4
2. Admire Pro 4.6SC 8.5 fl oz (F)	0.0	2.0c-f	2.8b	0.6
3. Velum Total 3.67SC 18 fl oz (F)	0.0	3.0b-e	1.2b	1.0
4. Proline 480SC 6.8 fl oz (F)	0.0	5.2ab	13.0ab	0.2
5. Propulse 3.34L16.2 fl oz (F)	0.0	4.2bc	12.0ab	0.4
6. Admire Pro 4.6SC 8.5 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	0.0	1.0ef	3.0b	0.2
7. Velum Total 3.67SC 18 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	0.0	3.4b-d	5.4b	1.6
8. Admire Pro 4.6SC 8.5 fl oz (F) Proline 480SC 5.7 fl oz (P)	0.0	0.6f	2.8b	0.8
9. Velum Total 3.67SC 18 fl oz (F) Proline 480SC 5.7 fl oz (P)	0.0	1.8d-f	1.4b	0.4
10. AgLogic 15G 5 lb (F)	0.0	0.8ef	4.2b	0.2
11. AgLogic 15G 5 lb (F) Propulse 3.34L 13.7 fl oz (P)	0.0	1.0ef	12.2ab	1.4
12. AgLogic 15G 5 lb (F) Proline 480SC 5.7 fl oz (P)	0.0	0.8ef	6.6b	0.8
P(F)	1.0	**0.0001**	**0.04**	0.25
LSD	- -	2.23	11.89	N.S.

[z] (F) In-furrow (3 May); (P) broadcast at pegging (12 Jul).
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 63. Effect of treatment on disease incidence in peanut (PNEMA117, Suffolk, VA 2017).

Treatment and rate/A[z]	% leaf spot[y]		% defoliation[x]	
	7 Sep	3 Oct	7 Sep	3 Oct
1. Untreated	75.6 ab	68.6 a	15.6 a	37.8a
2. Admire Pro 4.6SC 8.5 fl oz (F)	67.7 a-d	67.4 a	14.7 ab	36.5ab
3. Velum Total 3.67SC 18 fl oz (F)	53.1 b-e	40.6 bc	5.2 cd	17.7cd
4. Proline 480SC 6.8 fl oz (F)	71.1 a-c	70.0 a	16.5 a	36.5ab
5. Propulse 3.34L16.2 fl oz (F)	47.1 c-f	47.0 ab	6.3 c	23.4a-c
6. Admire Pro 4.6SC 8.5 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	29.0 e-g	46.8 a-c	3.7 cd	22.2bc
7. Velum Total 3.67SC 18 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	17.3 g	23.5 c	0.3 e	9.9d
8. Admire Pro 4.6SC 8.5 fl oz (F) Proline 480SC 5.7 fl oz (P)	54.6 b-d	52.1 ab	5.8 c	26.8a-c
9. Velum Total 3.67SC 18 fl oz (F) Proline 480SC 5.7 fl oz (P)	23.5 fg	37.8 bc	1.1 de	17.7cd
10. AgLogic 15G 5 lb (F)	83.7 a	69.5 a	21.8 a	34.3ab
11. AgLogic 15G 5 lb (F) Propulse 3.34L 13.7 fl oz (P)	45.4 d-f	55.7 ab	6.3 c	25.3a-c
12. AgLogic 15G 5 lb (F) Proline 480SC 5.7 fl oz (P)	60.4 b-d	68.1 a	6.8 bc	34.6ab
P(F)	**0.0001**	**0.002**	**0.0001**	**0.001**
LSD	23.05 – 23.33	23.35 – 24.19	3.15 – 9.87	11.54 – 14.76

[z] (F) In-furrow (3 May); (P) broadcast at pegging (12 Jul).

[y] Percent leaflets with one or more leaf spots.

[x] 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 64. Effect of treatment on soilborne disease incidence in peanut (PNEMA117, Suffolk, VA 2017).

Treatment and rate/A[z]	Southern stem rot[y]		Sclerotinia blight[y]		CBR[y] (3 Oct)	TSWV[y] (3 Oct)
	7 Sep	3 Oct	7 Sep	3 Oct		
1. Untreated	1.4 a	2.0	0.6	3.4	0.0 c	13.2 a
2. Admire Pro 4.6SC 8.5 fl oz (F)	0.4 bc	1.6	0.4	4.2	0.0 c	10.0 bc
3. Velum Total 3.67SC 18 fl oz (F)	0.0 c	1.6	0.0	5.2	0.0 c	9.6 bc
4. Proline 480SC 6.8 fl oz (F)	0.2 c	2.2	0.0	4.4	0.0 c	10.8 bc
5. Propulse 3.34L16.2 fl oz (F)	0.4 bc	1.2	0.0	4.0	1.2 a	10.6 bc
6. Admire Pro 4.6SC 8.5 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	0.0 c	0.8	0.8	7.8	0.2 c	11.6 ab
7. Velum Total 3.67SC 18 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	0.0 c	1.2	0.0	6.0	0.4 bc	8.8 c
8. Admire Pro 4.6SC 8.5 fl oz (F) Proline 480SC 5.7 fl oz (P)	0.0 c	1.4	0.0	6.4	0.0 c	11.0 b
9. Velum Total 3.67SC 18 fl oz (F) Proline 480SC 5.7 fl oz (P)	0.2 c	1.0	0.2	4.8	1.0 ab	11.0 b
10. AgLogic 15G 5 lb (F)	1.0 ab	3.6	0.6	5.0	0.0 c	11.6 ab
11. AgLogic 15G 5 lb (F) Propulse 3.34L 13.7 fl oz (P)	0.6 bc	0.8	0.4	6.2	0.0 c	11.2 ab
12. AgLogic 15G 5 lb (F) Proline 480SC 5.7 fl oz (P)	0.6 bc	1.8	0.4	5.4	0.0 c	10.8 bc
P(F)	**0.001**	**0.25**	0.67	0.83	**0.02**	**0.04**
LSD	0.66	1.92	N.S.	N.S.	0.79	2.17

[z] (F) In-furrow (3 May); (P) broadcast at pegging (12 Jul).

[y] 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. CBR = Cylindrocladium black rot; TSWV = Tomato spotted wilt virus.

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

Table 65. Effect of treatment on soilborne disease incidence and yield in peanut (PNEMA117, Suffolk, VA 2017).

Treatment and rate/A[z]	Root rot[y] (17 Oct)	Pod rot[x] (17 Oct)	Yield[w] (lb/A)
1. Untreated	2.4	2.6	5254
2. Admire Pro 4.6SC 8.5 fl oz (F)	2.2	2.4	5209
3. Velum Total 3.67SC 18 fl oz (F)	1.8	2.0	5625
4. Proline 480SC 6.8 fl oz (F)	1.8	2.0	5395
5. Propulse 3.34L16.2 fl oz (F)	1.6	1.6	5623
6. Admire Pro 4.6SC 8.5 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	2.0	2.0	5421
7. Velum Total 3.67SC 18 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	2.0	1.6	5784
8. Admire Pro 4.6SC 8.5 fl oz (F) Proline 480SC 5.7 fl oz (P)	1.8	2.0	5399
9. Velum Total 3.67SC 18 fl oz (F) Proline 480SC 5.7 fl oz (P)	1.4	1.6	5472
10. AgLogic 15G 5 lb (F)	1.8	1.8	5446
11. AgLogic 15G 5 lb (F) Propulse 3.34L 13.7 fl oz (P)	1.6	2.2	5686
12. AgLogic 15G 5 lb (F) Proline 480SC 5.7 fl oz (P)	1.8	1.6	5177
P(F)	0.20	0.17	0.83
LSD	N.S.	N.S.	N.S.

[z] (F) In-furrow (3 May); (P) broadcast at pegging (12 Jul).

[y] 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.

[x] 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

[w] Yields are weight of peanuts with moisture content adjusted to 7%. Peanuts were dug 6 Oct and harvested 20 Oct.

Table 66. Effect of treatment on grade characteristics of peanut (PNEMA117, Suffolk, VA 2017).

Treatment, rate/A and timing[z]	%[y]								Value (¢/lb)[x]	
	FM	LSK	FAN	ELK	SS	OK	DK	SMK	100%	CV
1. Untreated	25.5	8.3	89.6	58.6	3.0	0.8	1.0	68.7	18.7	16.9
2. Admire Pro 4.6SC 8.5 fl oz (F)	23.9	8.6	88.9	58.9	2.8	1.0	1.1	69.6	18.9	17.3
3. Velum Total 3.67SC 18 fl oz (F)	25.9	5.3	89.6	56.8	2.6	0.9	0.9	68.8	18.6	16.8
4. Proline 480SC 6.8 fl oz (F)	25.8	7.5	89.8	57.6	3.4	1.1	0.9	67.7	18.5	16.8
5. Propulse 3.34L16.2 fl oz (F)	25.9	5.9	89.9	57.7	2.5	1.0	1.0	68.0	18.4	16.6
6. Admire Pro 4.6SC 8.5 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	21.8	10.1	90.3	57.2	3.4	0.8	1.0	67.9	18.6	17.2
7. Velum Total 3.67SC 18 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	24.8	5.5	90.3	58.0	2.7	1.2	0.9	68.5	18.6	16.9
8. Admire Pro 4.6SC 8.5 fl oz (F) Proline 480SC 5.7 fl oz (P)	22.2	9.3	88.3	58.4	2.4	0.7	0.9	68.2	18.4	16.9
9. Velum Total 3.67SC 18 fl oz (F) Proline 480SC 5.7 fl oz (P)	31.7	11.0	91.1	57.0	3.3	0.9	1.1	68.1	18.6	16.2
10. AgLogic 15G 5 lb (F)	21.7	10.0	90.8	57.2	3.2	1.0	1.0	68.3	18.6	17.3
11. AgLogic 15G 5 lb (F) Propulse 3.34L 13.7 fl oz (P)	20.3	10.0	88.6	57.9	2.4	0.9	0.8	68.6	18.5	17.3
12. AgLogic 15G 5 lb (F) Proline 480SC 5.7 fl oz (P)	22.0	13.1	90.4	58.4	3.0	1.1	1.0	68.2	18.6	17.2
P(F)	0.65	0.13	0.88	0.96	0.62	0.32	0.83	0.97	0.88	0.55
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (F) In-furrow (3 May); (P) broadcast at pegging (12 Jul).

[y] 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.

[x] 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 (CV) includes the deduction for segregation 2 due to damaged kernels ≥ 2.5%; producers receive 35% of value for these peanuts.

TEST ID: PNEMA217

PURPOSE: To evaluate efficacy and yield benefits of insecticide, nematicide, and fungicide chemistries and pre-mixes for pest management in peanut

LOCATION: Tidewater AREC, 6321 Holland Road, Suffolk, VA

CROP INFORMATION:

Field	46A
Crop history	2016 sorghum, 2015 cotton, 2014 peanut
Planting date	10 May
Variety	Sullivan
Seeding rate	ca. 4 seed/row ft
Plot length/width	35’
Number of rows	4 rows
Row spacing	36”
Alleys (length between blocks)	10’
Dig date	6 Oct
Harvest date	20 Oct

EXPERIMENTAL DESIGN: Randomized complete block design with four replicates

APPLICATION OF TREATMENTS:

	IF liquid	**IF granular**	**Foliar spray**
Equipment	---	Noble Box	ATV sprayer
Pressure (psi)		---	42 psi
Nozzle type	.075 microtube	---	$D_3$23
Volume (gal/A)	5 gal/A	Rate/A	14.85

TREATMENTS:

Trt #	**Product and formulation**	**Rate/A**	**Application timing**	**Application date**
1	Untreated	---	In-furrow	
2	Admire Pro 4.6SC	8.5 fl oz	In-furrow	10 May
3	Velum Total 3.67SC	18 fl oz	In-furrow	10 May
4	Proline 480SC	6.8 fl oz	In-furrow	10 May
5	Propulse 3.34L	16.2 fl oz	In-furrow	10 May
6	Admire Pro 4.6SC Propulse 3.34L	8.5 fl oz 13.7 fl oz	In-furrow Broadcast at pegging	10 May 13 Jul
7	Velum Total 3.67SC Propulse 3.34L	18 fl oz 13.7 fl oz	In-furrow Broadcast at pegging	10 May 13 Jul
8	Admire Pro 4.6SC Proline 480SC	8.5 fl oz 5.7 fl oz	In-furrow Broadcast at pegging	10 May 13 Jul
9	Velum Total 3.67SC Proline 480SC	18 fl oz 5.7 fl oz	In-furrow Broadcast at pegging	10 May 13 Jul
10	AgLogic 15G	5 lb	In-furrow	10 May
11	AgLogic 15G Propulse 3.34L	5 lb 13.7 fl oz	In-furrow Broadcast at pegging	10 May 13 Jul
12	AgLogic 15G Proline 480SC	5 lb 5.7 fl oz	In-furrow Broadcast at pegging	10 May 13 Jul

SOIL PROPERTIES:

Soil type: Nansemond fine sandy loam

Soil fertility report (7 Dec 2016):

pH	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)
6.4	91	198	1070	122	0.5	3.1	0.5	33.5	0.2

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard, do not overspray for thrips until entomology finishes ratings
Fungicides	None in-furrow except indicated treatments, standard leafspot and Sclerotinia fungicide programs
Nematicides	None except indicated treatments

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
9 Apr	Herbicide	Roundup Weather MAX	1 qt
16 May	Herbicide	Gramaxone	1.5 pt
	Herbicide	Strongarm	0.45 fl oz
	Herbicide	Prowl H_2O	1 pt
	Herbicide	Dual II MAGNUM	1 pt
	Fertility	Liquid Boron	1 qt
15 Jun	Herbicide	Tide Glufosinate 280 SL	1 pt
	Insecticide	Orthene 75S	12 oz
	Adjuvant	Induce	4 fl oz
16 Jun	Herbicide	Select 2 EC	1 pt
7 Jul	Herbicide	Select 2 EC	1 pt
25 Jul	Fungicide	Bravo Weather Stik	1.5 pt
	Fertility	Liquid Manganese	1 pt
1 Aug	Fungicide	Omega 4 SC	1 pt
21 Aug	Fungicide	Omega 4 SC	1 pt

Table 67. Pre-plant and end season nematode populations in soil (PNEMA217, Suffolk, VA 2017).

	Nematodes /500 cc soil[y]							
	Root knot		Ring		Stubby root		Spiral	Sting
Treatment and rate/A[z]	11 May	29 Sep	11 May	29 Sep	11 May	29 Sep	11 May	29 Sep
1. Untreated	6	6	813	2035	78	0	0	0
2. Admire Pro 4.6SC 8.5 fl oz (F)	138	476	1610	2108	25	19	0	0
3. Velum Total 3.67SC 18 fl oz (F)	36	314	821	2314	25	19	0	0
4. Proline 480SC 6.8 fl oz (F)	67	442	772	4078	120	48	6	0
5. Propulse 3.34L16.2 fl oz (F)	55	874	1350	1517	67	10	0	0
6. Admire Pro 4.6SC 8.5 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	32	979	1004	4894	38	0	0	0
7. Velum Total 3.67SC 18 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	6	104	1189	4332	78	27	0	0
8. Admire Pro 4.6SC 8.5 fl oz (F) Proline 480SC 5.7 fl oz (P)	57	237	1312	1672	134	6	0	0
9. Velum Total 3.67SC 18 fl oz (F) Proline 480SC 5.7 fl oz (P)	25	817	838	1649	106	104	10	6
10. AgLogic 15G 5 lb (F)	34	943	911	2006	84	309	0	10
11. AgLogic 15G 5 lb (F) Propulse 3.34L 13.7 fl oz (P)	55	1069	1079	5088	87	15	0	0
12. AgLogic 15G 5 lb (F) Proline 480SC 5.7 fl oz (P)	55	167	880	2992	148	0	0	0
P(F)	0.84	0.43	0.69	0.22	0.73	0.44	0.56	0.47
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (F) In-furrow (10 May); (P) broadcast at pegging (13 Jul).

[y] Soil was sampled on 11 May prior to planting. Data are the mean counts of nematodes in a sample from four reps of each treatment. Sting nematode was not detected on 11 May sample; Spiral nematode was not detected on 29 Sep sample. Square root transformation of population data was made in analysis to determine statistical significance.

Table 68. Effect of treatment on emergence, vigor and thrips injury in peanut (PNEMA217, Suffolk, VA 2017).

Treatment and rate/A[z]	Plants/ft[y]		Vigor (1-10)[x]		Thrips injury rating[w]		
	2 Jun	15 Jun	6 Jun	27 Jun	30 May	8 Jun	15 Jun
1. Untreated	1.4	1.2	10.0	9.8	3.0a	6.1a	6.5a
2. Admire Pro 4.6SC 8.5 fl oz (F)	1.4	1.4	9.3	10.0	1.0de	1.6c-e	2.6b
3. Velum Total 3.67SC 18 fl oz (F)	1.4	1.4	8.5	9.8	1.3cd	1.9b	1.8c
4. Proline 480SC 6.8 fl oz (F)	1.4	1.3	9.3	9.5	2.6b	6.2a	6.5a
5. Propulse 3.34L16.2 fl oz (F)	1.4	1.3	9.3	9.3	2.6b	6.2a	6.4a
6. Admire Pro 4.6SC 8.5 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	1.4	1.3	8.5	10.0	0.9e	1.4e	2.5b
7. Velum Total 3.67SC 18 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	1.4	1.4	10.0	9.8	1.5c	1.8bc	1.8c
8. Admire Pro 4.6SC 8.5 fl oz (F) Proline 480SC 5.7 fl oz (P)	1.4	1.4	10.0	10.0	1.3cd	1.5de	2.6b
9. Velum Total 3.67SC 18 fl oz (F) Proline 480SC 5.7 fl oz (P)	1.3	1.3	10.0	10.0	1.6c	1.9b	1.7c
10. AgLogic 15G 5 lb (F)	1.4	1.3	10.0	10.0	1.0de	1.8bc	2.4b
11. AgLogic 15G 5 lb (F) Propulse 3.34L 13.7 fl oz (P)	1.4	1.3	10.0	10.0	1.0de	1.7b-d	2.6b
12. AgLogic 15G 5 lb (F) Proline 480SC 5.7 fl oz (P)	1.3	1.4	10.0	9.8	1.0de	1.6c-e	2.7b
P(F)	0.98	0.54	0.27	0.07	**0.0001**	**0.0001**	**0.0001**
LSD	N.S.	N.S.	N.S.	N.S.	0.35	0.29	0.32

[z] (F) In-furrow (10 May); (P) broadcast at pegging (13 Jul).
[y] Determined from counts in two, 35-ft rows per plot.
[x] Vigor index rating scale: 10 = 100% vigor, 1 = no vigor.
[w] 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 69. Effect of treatment on thrips populations in peanut (PNEMA217, Suffolk, VA 2017).

Treatment and rate/A[z]	Mean number of thrips per 10 terminal leaflets			
	5 Jun		15 Jun	
	Immature thrips	Adult thrips	Immature thrips	Adult thrips
1. Untreated	21.3 b	0.8	2.3 b-e	0.0
2. Admire Pro 4.6SC 8.5 fl oz (F)	16.0 bc	0.8	3.0 a-c	0.0
3. Velum Total 3.67SC 18 fl oz (F)	4.0 d	1.3	1.0 c-e	0.0
4. Proline 480SC 6.8 fl oz (F)	21.8 b	1.0	4.8 a	0.0
5. Propulse 3.34L16.2 fl oz (F)	34.0 a	1.8	1.5 b-e	0.0
6. Admire Pro 4.6SC 8.5 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	10.5 cd	1.0	2.0 b-e	0.0
7. Velum Total 3.67SC 18 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	3.5 d	1.5	1.0 c-e	0.3
8. Admire Pro 4.6SC 8.5 fl oz (F) Proline 480SC 5.7 fl oz (P)	14.5 bc	1.5	2.8 a-d	0.0
9. Velum Total 3.67SC 18 fl oz (F) Proline 480SC 5.7 fl oz (P)	3.0 d	2.5	3.5 ab	0.5
10. AgLogic 15G 5 lb (F)	14.3 bc	1.0	0.5 de	0.0
11. AgLogic 15G 5 lb (F) Propulse 3.34L 13.7 fl oz (P)	4.3 d	1.3	1.5 b-e	0.8
12. AgLogic 15G 5 lb (F) Proline 480SC 5.7 fl oz (P)	4.3 d	1.3	0.3 e	0.5
P(F)	**0.0001**	0.71	**0.02**	0.06
LSD	9.24	N.S.	2.35	N.S.

[z] (F) In-furrow (10 May); (P) broadcast at pegging (13 Jul).
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 70. Effect of treatment on disease incidence in peanut (PNEMA217, Suffolk, VA 2017).

Treatment and rate/A[z]	% leaf spot[y]		% defoliation[x]	
	11 Sep	3 Oct	11 Sep	3 Oct
1. Untreated	1.4a-d	7.3ab	0.0	1.5a
2. Admire Pro 4.6SC 8.5 fl oz (F)	2.6ab	6.1a-c	0.0	1.0ab
3. Velum Total 3.67SC 18 fl oz (F)	0.7cd	3.6a-d	0.0	0.3bc
4. Proline 480SC 6.8 fl oz (F)	2.0a-c	7.9a	0.0	0.6ab
5. Propulse 3.34L16.2 fl oz (F)	0.5cd	2.3cd	0.0	0.3bc
6. Admire Pro 4.6SC 8.5 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	0.7cd	2.0cd	0.0	0.3bc
7. Velum Total 3.67SC 18 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	1.8a-d	3.6a-d	0.0	0.3bc
8. Admire Pro 4.6SC 8.5 fl oz (F) Proline 480SC 5.7 fl oz (P)	1.1b-d	5.1a-d	0.1	0.8ab
9. Velum Total 3.67SC 18 fl oz (F) Proline 480SC 5.7 fl oz (P)	0.6cd	2.3cd	0.0	0.3bc
10. AgLogic 15G 5 lb (F)	3.5a	9.1a	0.0	1.7a
11. AgLogic 15G 5 lb (F) Propulse 3.34L 13.7 fl oz (P)	0.4d	1.3d	0.0	0.0c
12. AgLogic 15G 5 lb (F) Proline 480SC 5.7 fl oz (P)	0.8b-d	2.6b-d	0.0	0.3bc
P(F)	**0.03**	**0.02**	0.47	**0.01**
LSD	1.50 – 2.22	3.96 – 5.54	N.S.	0.43 – 1.16

[z] (F) In-furrow (10 May); (P) broadcast at pegging (13 Jul).
[y] Percent leaflets with one or more leaf spots.
[x] 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 71. Effect of treatment on soilborne disease incidence in peanut (PNEMA217, Suffolk, VA 2017).

Treatment and rate/A[z]	Southern stem rot[y]		Sclerotinia blight[y]		CBR[y]	
	11 Sep	4 Oct	11 Sep	4 Oct	11 Sep	4 Oct
1. Untreated	0.5	1.5	0.8	6.8	0.0	0.0
2. Admire Pro 4.6SC 8.5 fl oz (F)	0.3	0.5	0.3	8.3	0.0	1.0
3. Velum Total 3.67SC 18 fl oz (F)	0.0	1.0	0.0	5.5	0.0	0.8
4. Proline 480SC 6.8 fl oz (F)	0.3	0.3	0.3	5.0	0.0	0.0
5. Propulse 3.34L16.2 fl oz (F)	0.0	1.5	0.5	5.5	0.5	0.5
6. Admire Pro 4.6SC 8.5 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	0.3	0.3	0.8	6.8	0.0	0.5
7. Velum Total 3.67SC 18 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	0.0	1.3	0.0	6.0	0.0	0.5
8. Admire Pro 4.6SC 8.5 fl oz (F) Proline 480SC 5.7 fl oz (P)	0.3	1.0	0.0	8.3	0.0	0.8
9. Velum Total 3.67SC 18 fl oz (F) Proline 480SC 5.7 fl oz (P)	0.5	0.3	0.8	7.0	0.0	0.0
10. AgLogic 15G 5 lb (F)	0.3	0.5	0.8	8.5	0.0	0.0
11. AgLogic 15G 5 lb (F) Propulse 3.34L 13.7 fl oz (P)	0.0	0.3	0.5	7.8	0.0	0.0
12. AgLogic 15G 5 lb (F) Proline 480SC 5.7 fl oz (P)	0.0	0.5	0.3	8.3	0.0	0.0
P(F)	0.77	0.52	0.59	0.13	0.47	0.71
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (F) In-furrow (10 May); (P) broadcast at pegging (13 Jul).

[y] 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.

Table 72. Effect of treatment on disease incidence and yield in peanut (PNEMA217, Suffolk, VA 2017).

Treatment and rate/A[z]	Tomato spotted wilt virus[y] 11 Sep	Tomato spotted wilt virus[y] 4 Oct	Root rot[x] 16 Oct	Pod rot[w] 16 Oct	Yield[v] (lb/A)
1. Untreated	10.8	10.0	1.5	2.0	5345
2. Admire Pro 4.6SC 8.5 fl oz (F)	10.8	10.8	1.5	2.0	5392
3. Velum Total 3.67SC 18 fl oz (F)	7.3	8.0	1.8	2.5	5885
4. Proline 480SC 6.8 fl oz (F)	10.8	10.5	2.0	2.0	5751
5. Propulse 3.34L16.2 fl oz (F)	7.5	8.8	1.8	2.5	5897
6. Admire Pro 4.6SC 8.5 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	6.3	8.5	2.0	2.0	5865
7. Velum Total 3.67SC 18 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	6.8	9.0	1.8	1.8	6005
8. Admire Pro 4.6SC 8.5 fl oz (F) Proline 480SC 5.7 fl oz (P)	7.0	10.8	1.8	2.3	5667
9. Velum Total 3.67SC 18 fl oz (F) Proline 480SC 5.7 fl oz (P)	10.5	9.5	1.5	2.0	5377
10. AgLogic 15G 5 lb (F)	5.3	9.0	2.0	2.5	5402
11. AgLogic 15G 5 lb (F) Propulse 3.34L 13.7 fl oz (P)	6.3	10.3	1.3	1.3	5848
12. AgLogic 15G 5 lb (F) Proline 480SC 5.7 fl oz (P)	9.3	10.5	1.8	2.0	5453
P(F)	0.33	0.64	0.65	0.41	0.28
LSD	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (F) In-furrow (10 May); (P) broadcast at pegging (13 Jul).

[y] 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.

[x] 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.

[w] 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

[v] Yields are weight of peanuts with moisture content adjusted to 7%. Peanuts were dug 6 Oct and harvested 20 Oct.

Table 73. Effect of treatment on grade characteristics of peanut (PNEMA217, Suffolk, VA 2017).

Treatment, rate/A and timing[z]	%[y]								Value (¢/lb)[x]	
	FM	LSK	FAN	ELK	SS	OK	DK	SMK	100%	CV
1. Untreated	28.2	9.8	85.4	52.0	1.5	1.0	0.3	67.9	18.0	16.0
2. Admire Pro 4.6SC 8.5 fl oz (F)	31.1	10.6	85.6	52.5	1.3	0.9	0.3	68.1	18.0	15.7
3. Velum Total 3.67SC 18 fl oz (F)	22.2	6.5	86.3	51.8	1.7	0.9	0.2	68.3	18.1	16.7
4. Proline 480SC 6.8 fl oz (F)	28.6	8.2	86.0	54.5	0.9	0.8	0.3	69.7	18.3	16.3
5. Propulse 3.34L16.2 fl oz (F)	28.0	8.8	86.6	51.3	1.3	0.9	0.3	68.0	18.0	16.0
6. Admire Pro 4.6SC 8.5 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	36.7	10.8	84.0	53.6	1.5	0.9	0.3	69.5	18.4	15.6
7. Velum Total 3.67SC 18 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	24.1	7.0	87.1	53.2	1.0	1.1	0.3	67.3	17.7	16.1
8. Admire Pro 4.6SC 8.5 fl oz (F) Proline 480SC 5.7 fl oz (P)	18.6	7.5	87.7	54.1	0.9	0.9	0.3	68.3	18.0	16.9
9. Velum Total 3.67SC 18 fl oz (F) Proline 480SC 5.7 fl oz (P)	28.6	9.0	86.4	51.6	1.8	1.1	0.3	67.0	17.9	15.9
10. AgLogic 15G 5 lb (F)	23.1	11.2	85.5	51.7	0.9	1.3	0.4	68.0	17.9	16.4
11. AgLogic 15G 5 lb (F) Propulse 3.34L 13.7 fl oz (P)	19.5	6.5	85.1	52.1	1.2	1.1	0.3	68.3	18.0	16.9
12. AgLogic 15G 5 lb (F) Proline 480SC 5.7 fl oz (P)	33.5	9.4	85.1	53.8	1.3	1.1	0.3	69.3	18.3	15.8
P(F)	0.23	0.83	0.78	0.84	0.46	0.63	0.49	0.44	0.52	0.78
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (F) In-furrow (10 May); (P) broadcast at pegging (13 Jul).

[y] 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.

[x] 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 (CV) includes the deduction for segregation 2 due to damaged kernels ≥ 2.5%; producers receive 35% of value for these peanuts.

TEST ID: PNEMA317

PURPOSE: To evaluate efficacy and yield benefits of insecticide, nematicide, and fungicide chemistries and pre-mixes for pest management in peanut

LOCATION: Mike Grizzard Farm, Hobos Road, Capron, VA

CROP INFORMATION:

Field	Grizzard
Planting date	19 May
Variety	Sullivan
Seeding rate	ca. 4 seed/row ft
Plot length/width	35’
Number of rows	4 rows
Row spacing	36”
Alleys (length between blocks)	10’
Harvest date	18 Oct

EXPERIMENTAL DESIGN: Random complete block design with six replicates

APPLICATION OF TREATMENTS:

	IF liquid	**IF granular**	**Foliar spray**
Equipment	---	Noble Box	ATV sprayer
Pressure (psi)		---	42 psi
Nozzle type	.075 microtube	---	$D_3$23
Volume (gal/A)	5 gal/A	Rate/A	14.85

TREATMENTS:

Trt #	**Prodeuct and formulation**	**Rate/A**	**Application timing**	**Application date**
1	Untreated	---	In-furrow	19 May
2	Admire Pro 4.6SC	8.5 fl oz	In-furrow	19 May
3	Velum Total 3.67SC	18 fl oz	In-furrow	19 May
4	Proline 480SC	6.8 fl oz	In-furrow	19 May
5	Propulse 3.34L	16.2 fl oz	In-furrow	19 May
6	Admire Pro 4.6SC Propulse 3.34L	8.5 fl oz 13.7 fl oz	In-furrow Broadcast at pegging	19 May 12 Jul
7	Velum Total 3.67SC Propulse 3.34L	18 fl oz 13.7 fl oz	In-furrow Broadcast at pegging	19 May 12 Jul
8	Admire Pro 4.6SC Proline 480SC	8.5 fl oz 5.7 fl oz	In-furrow Broadcast at pegging	19 May 12 Jul
9	Velum Total 3.67SC Proline 480SC	18 fl oz 5.7 fl oz	In-furrow Broadcast at pegging	19 May 12 Jul
10	AgLogic 15G	5 lb	In-furrow	19 May
11	AgLogic 15G Propulse 3.34L	5 lb 13.7 fl oz	In-furrow Broadcast at pegging	19 May 12 Jul
12	AgLogic 15G Proline 480SC	5 lb 5.7 fl oz	In-furrow Broadcast at pegging	19 May 12 Jul

SOIL PROPERTIES:

Soil fertility report (May 2017):

pH	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)
5.83	52	39	178	33	0.4	1.7	0.2	15.5	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard, do not overspray for thrips until entomology finishes ratings
Fungicides	None in-furrow except indicated treatments, standard leafspot and Sclerotinia fungicide programs
Nematicides	None except indicated treatments

MAINTENANCE CHEMICAL APPLICATIONS*:

Date	Type and target	Product and formulation	Rate
Pre-season burn-down	Herbicide Herbicide Herbicide	Strongarm Gramaxone Dual	.45 fl oz 22 fl oz 12 fl oz
15 Jun	Herbicide Herbicide	Storm 4EC Basagran	1.5 pt 8 fl oz
11 Jul	Fungicide Fungicide	Headline Folicur	7 fl oz 7 fl oz
? Jul	Fertility	Peanut Maker	1100 lb
9 Aug	Fungicide Growth regulator	Provost Bifitrin	8 fl oz 8 fl oz
25 Jul	Fungicide	Bravo	1.5 pt/A

*Field preparation/maintenance chemicals provided and applied by M. Grizzard.

Table 74. Pre-plant and end season nematode populations in soil (PNEMA317, Capron, VA 2017).

	Nematodes /500 cc soil[y]						
	Root knot		Sting		Stubby root		Ring
Treatment and rate/A[z]	19 May	26 Sep	19 May	26 Sep	19 May	26 Sep	26 Sep
1. Untreated	0	26	145	14	3	0	5
2. Admire Pro 4.6SC 8.5 fl oz (F)	0	410	299	3	3	9	8
3. Velum Total 3.67SC 18 fl oz (F)	0	359	165	22	9	4	51
4. Proline 480SC 6.8 fl oz (F)	0	57	111	27	12	0	2
5. Propulse 3.34L16.2 fl oz (F)	0	144	189	9	0	0	0
6. Admire Pro 4.6SC 8.5 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	0	843	107	9	3	3	84
7. Velum Total 3.67SC 18 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	0	326	236	40	5	3	3
8. Admire Pro 4.6SC 8.5 fl oz (F) Proline 480SC 5.7 fl oz (P)	0	309	144	23	9	1	0
9. Velum Total 3.67SC 18 fl oz (F) Proline 480SC 5.7 fl oz (P)	0	64	240	12	12	3	0
10. AgLogic 15G 5 lb (F)	0	146	137	18	0	0	21
11. AgLogic 15G 5 lb (F) Propulse 3.34L 13.7 fl oz (P)	3	1738	129	3	12	12	0
12. AgLogic 15G 5 lb (F) Proline 480SC 5.7 fl oz (P)	0	159	147	18	9	3	8
P(F)	0.46	0.09	0.74	0.49	0.86	0.42	0.16
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (F) In-furrow (19 May); (P) broadcast at pegging (12 Jul).

[y] Soil was sampled on 19 May prior to planting. Data are the mean counts of nematodes in a sample from four reps of each treatment. Root know nematode was not detected on 19 May sample. Square root transformation of population data was made in analysis to determine statistical significance.

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

Table 75. Effect of treatment on emergence, vigor and thrips injury in peanut (PNEMA317, Capron, VA 2017).

Treatment and rate/A[z]	Plants/ft[y]		Vigor (1-10)[x]			Thrips injury (0-10)[w]		
	6 Jun	19 Jun	6 Jun	16 Jun	5 Oct	6 Jun	13 Jun	19 Jun
1. Untreated	0.9 bc	0.9	9.0	7.7 e	8.7	2.7 a	4.7 a	4.4 a
2. Admire Pro 4.6SC 8.5 fl oz (F)	0.9 a-c	0.9	10.0	9.5 ab	9.2	0.6 b	0.8 e	1.0 b-d
3. Velum Total 3.67SC 18 fl oz (F)	0.9 a-c	1.0	10.0	8.8 a-d	8.8	0.9 b	1.1 c	1.1 bc
4. Proline 480SC 6.8 fl oz (F)	0.8 c	0.9	9.0	8.5 b-e	9.0	2.6 a	4.6 b	4.4 a
5. Propulse 3.34L16.2 fl oz (F)	1.0 a-c	0.9	10.0	8.0 de	8.8	2.5 a	4.6 ab	4.5 a
6. Admire Pro 4.6SC 8.5 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	1.0 a-c	0.9	10.0	9.5 ab	9.2	0.6 b	0.8 e	1.0 b-d
7. Velum Total 3.67SC 18 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	1.0 a-c	1.0	9.0	9.5 ab	9.3	0.8 b	1.0 d	1.1 b
8. Admire Pro 4.6SC 8.5 fl oz (F) Proline 480SC 5.7 fl oz (P)	0.8 c	0.8	9.0	8.3 c-e	8.7	0.9 b	0.8 e	1.0 b-d
9. Velum Total 3.67SC 18 fl oz (F) Proline 480SC 5.7 fl oz (P)	1.0 ab	1.1	9.5	9.7 a	9.0	0.9 b	1.0 d	1.1 b
10. AgLogic 15G 5 lb (F)	1.1 a	1.0	9.5	9.3 a-c	9.0	0.8 b	0.8 e	0.9 c-e
11. AgLogic 15G 5 lb (F) Propulse 3.34L 13.7 fl oz (P)	1.1 a	1.1	9.5	9.5 ab	9.8	0.8 b	1.0 d	0.8 e
12. AgLogic 15G 5 lb (F) Proline 480SC 5.7 fl oz (P)	1.1 a	1.1	9.5	9.3 a-c	9.5	0.8 b	0.8 e	0.9 de
P(F)	**0.03**	0.09	0.64	**0.003**	0.38	**0.0001**	**0.0001**	**0.0001**
LSD	0.17	N.S.	N.S.	1.12	N.S.	0.36	0.12	0.17

[z] (F) In-furrow (19 May); (P) broadcast at pegging (12 Jul).
[y] Determined from counts in two, 35-ft rows per plot.
[x] Vigor index rating scale: 10 = 100% vigor, 1 = no vigor.
[w] 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 76. Effect of treatment on thrips populations in peanut (PNEMA317, Capron, VA 2017).

Treatment and rate/A[z]	Mean number of thrips per 10 terminal leaflets			
	6 Jun		13 Jun	
	Immature thrips	Adult thrips	Immature thrips	Adult thrips
1. Untreated	2.7	2.3	7.2 a	0.3
2. Admire Pro 4.6SC 8.5 fl oz (F)	0.2	2.3	0.8 b	0.5
3. Velum Total 3.67SC 18 fl oz (F)	0.0	1.2	0.5 b	0.5
4. Proline 480SC 6.8 fl oz (F)	1.2	2.2	5.8 a	0.7
5. Propulse 3.34L16.2 fl oz (F)	1.0	3.0	6.2 a	0.3
6. Admire Pro 4.6SC 8.5 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	0.8	1.7	0.5 b	0.7
7. Velum Total 3.67SC 18 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	0.7	1.3	0.5 b	0.7
8. Admire Pro 4.6SC 8.5 fl oz (F) Proline 480SC 5.7 fl oz (P)	0.5	0.8	0.2 b	1.2
9. Velum Total 3.67SC 18 fl oz (F) Proline 480SC 5.7 fl oz (P)	0.7	1.8	0.7 b	0.2
10. AgLogic 15G 5 lb (F)	1.0	0.8	0.3 b	0.7
11. AgLogic 15G 5 lb (F) Propulse 3.34L 13.7 fl oz (P)	1.0	1.3	0.7 b	1.0
12. AgLogic 15G 5 lb (F) Proline 480SC 5.7 fl oz (P)	1.3	1.5	1.0 b	0.3
P(F)	0.09	0.36	**0.0001**	0.70
LSD	N.S.	N.S.	3.91	N.S.

[z] (F) In-furrow (19 May); (P) broadcast at pegging (12 Jul).
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

Table 77. Effect of treatment on disease incidence in peanut (PNEMA317, Capron, VA 2017).

Treatment and rate/A[z]	% leaf spot[y]		% defoliation[x]	
	13 Sep	5 Oct	13 Sep	5 Oct
1. Untreated	4.0	39.3 a	0.3	3.3 a
2. Admire Pro 4.6SC 8.5 fl oz (F)	4.9	38.4 a	0.5	3.3 a
3. Velum Total 3.67SC 18 fl oz (F)	3.0	14.0 b	0.2	1.0 b
4. Proline 480SC 6.8 fl oz (F)	2.6	13.9 b	0.0	1.5 b
5. Propulse 3.34L16.2 fl oz (F)	2.4	11.2 b	0.1	1.0 b
6. Admire Pro 4.6SC 8.5 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	5.0	11.2 b	0.2	1.0 b
7. Velum Total 3.67SC 18 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	6.5	9.8 b	1.2	1.0 b
8. Admire Pro 4.6SC 8.5 fl oz (F) Proline 480SC 5.7 fl oz (P)	2.4	13.6 b	0.1	1.0 b
9. Velum Total 3.67SC 18 fl oz (F) Proline 480SC 5.7 fl oz (P)	6.3	9.5 b	1.2	1.0 b
10. AgLogic 15G 5 lb (F)	3.7	40.7 a	0.4	3.9 a
11. AgLogic 15G 5 lb (F) Propulse 3.34L 13.7 fl oz (P)	4.7	16.9 b	0.0	1.0 b
12. AgLogic 15G 5 lb (F) Proline 480SC 5.7 fl oz (P)	5.3	17.9 b	1.0	1.0 b
P(F)	0.07	**0.0001**	0.12	**0.0001**
LSD	N.S.	9.53 – 13.04	N.S.	1.07 – 1.54

[z] (F) In-furrow (19 May); (P) broadcast at pegging (12 Jul).
[y] Percent leaflets with one or more leaf spots.
[x] 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 78. Effect of treatment on soilborne disease incidence in peanut (PNEMA317, Capron, VA 2017).

Treatment and rate/A[z]	Southern stem rot[y]		Sclerotinia blight[y]		Tomato spotted wilt virus[y]		CBR[y]
	13 Sep	5 Oct	13 Sep	5 Oct	13 Sep	5 Oct	5 Oct
1. Untreated	0.2	0.0	1.3	1.8	1.8	8.2	0.0
2. Admire Pro 4.6SC 8.5 fl oz (F)	0.3	0.0	1.5	2.7	4.2	8.3	0.0
3. Velum Total 3.67SC 18 fl oz (F)	0.2	0.0	0.8	1.8	2.7	8.5	0.0
4. Proline 480SC 6.8 fl oz (F)	0.0	0.2	0.5	3.5	2.3	8.8	0.0
5. Propulse 3.34L16.2 fl oz (F)	0.0	0.0	0.0	0.0	2.3	9.3	0.0
6. Admire Pro 4.6SC 8.5 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	0.3	0.5	0.7	2.8	1.7	9.0	0.0
7. Velum Total 3.67SC 18 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	0.0	0.5	0.7	3.3	2.7	9.3	0.0
8. Admire Pro 4.6SC 8.5 fl oz (F) Proline 480SC 5.7 fl oz (P)	0.2	0.3	0.3	0.7	3.5	9.5	0.2
9. Velum Total 3.67SC 18 fl oz (F) Proline 480SC 5.7 fl oz (P)	0.0	0.0	2.3	6.3	1.8	6.3	0.0
10. AgLogic 15G 5 lb (F)	0.2	0.3	1.2	4.0	1.3	7.8	0.0
11. AgLogic 15G 5 lb (F) Propulse 3.34L 13.7 fl oz (P)	0.3	0.2	1.3	3.7	1.8	7.0	0.0
12. AgLogic 15G 5 lb (F) Proline 480SC 5.7 fl oz (P)	0.3	0.2	1.0	3.3	1.2	7.8	0.0
P(F)	0.86	0.75	0.73	0.36	0.19	0.23	0.46
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (F) In-furrow (19 May); (P) broadcast at pegging (12 Jul).

[y] 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.

Table 79. Effect of treatment on soilborne disease incidence and yield in peanut (PNEMA317, Capron, VA 2017).

Treatment and rate/A[z]	Yellowing 5 Oct # hits	Yellowing 5 Oct %	Root rot[y] 17 Oct	Pod rot[x] 17 Oct	Yield[w] (lb/A)
1. Untreated	6.2	12.4	3.0	3.5	4016
2. Admire Pro 4.6SC 8.5 fl oz (F)	5.5	11.9	2.8	3.3	4614
3. Velum Total 3.67SC 18 fl oz (F)	7.3	9.1	2.5	2.7	4487
4. Proline 480SC 6.8 fl oz (F)	6.7	6.1	2.8	3.2	4330
5. Propulse 3.34L16.2 fl oz (F)	8.3	8.2	2.3	2.8	3805
6. Admire Pro 4.6SC 8.5 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	6.0	8.6	2.2	2.3	4574
7. Velum Total 3.67SC 18 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	5.5	6.3	2.7	2.8	4730
8. Admire Pro 4.6SC 8.5 fl oz (F) Proline 480SC 5.7 fl oz (P)	9.2	12.1	2.7	3.0	4081
9. Velum Total 3.67SC 18 fl oz (F) Proline 480SC 5.7 fl oz (P)	1.8	10.6	2.3	2.7	4897
10. AgLogic 15G 5 lb (F)	6.5	6.1	2.5	2.8	4479
11. AgLogic 15G 5 lb (F) Propulse 3.34L 13.7 fl oz (P)	3.0	5.5	2.2	2.5	5036
12. AgLogic 15G 5 lb (F) Proline 480SC 5.7 fl oz (P)	4.8	6.6	2.3	2.8	4639
P(F)	0.30	0.26	0.15	0.16	0.64
LSD	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (F) In-furrow (19 May); (P) broadcast at pegging (12 Jul).

[y] 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.

[x] 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

[w] Yields are weight of peanuts with moisture content adjusted to 7%. Peanuts were dug 6 Oct and harvested 18 Oct.

Table 80. Effect of treatment on grade characteristics of peanut (PNEMA317, Capron, VA 2017).

Treatment, rate/A and timing[z]	%[y]								Value (¢/lb)[x]	
	FM	LSK	FAN	ELK	SS	OK	DK	SMK	100%	CV
1. Untreated	33.3	5.5	83.6	50.7	2.3	2.1	1.0	63.3	17.1	14.6
2. Admire Pro 4.6SC 8.5 fl oz (F)	34.5	7.6	84.6	54.5	1.9	1.5	0.7	66.7	17.9	15.3
3. Velum Total 3.67SC 18 fl oz (F)	30.7	8.7	86.4	53.4	1.6	1.2	0.5	65.4	17.4	15.2
4. Proline 480SC 6.8 fl oz (F)	33.8	9.3	83.6	51.7	1.5	1.4	0.9	65.7	17.5	14.9
5. Propulse 3.34L16.2 fl oz (F)	31.2	5.9	86.5	51.4	2.2	1.8	1.0	63.0	17.0	14.7
6. Admire Pro 4.6SC 8.5 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	31.8	7.3	84.5	53.0	1.6	1.6	0.7	65.5	17.5	15.2
7. Velum Total 3.67SC 18 fl oz (F) Propulse 3.34L 13.7 fl oz (P)	33.2	8.1	87.7	55.0	1.9	1.6	0.9	65.1	17.5	15.0
8. Admire Pro 4.6SC 8.5 fl oz (F) Proline 480SC 5.7 fl oz (P)	31.2	6.8	84.9	50.3	1.8	1.5	0.6	63.7	17.0	14.8
9. Velum Total 3.67SC 18 fl oz (F) Proline 480SC 5.7 fl oz (P)	31.0	5.1	84.0	54.0	2.0	1.5	0.6	65.5	17.6	15.4
10. AgLogic 15G 5 lb (F)	26.0	7.0	86.0	53.4	2.0	1.8	1.0	64.1	17.3	15.5
11. AgLogic 15G 5 lb (F) Propulse 3.34L 13.7 fl oz (P)	42.6	9.2	86.2	57.1	1.5	1.6	0.8	67.1	17.9	14.5
12. AgLogic 15G 5 lb (F) Proline 480SC 5.7 fl oz (P)	27.4	3.6	83.0	55.2	2.6	1.3	0.7	65.8	17.8	15.9
P(F)	0.17	0.30	0.55	0.16	0.45	0.09	0.09	0.08	0.12	0.49
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (F) In-furrow (19 May); (P) broadcast at pegging (12 Jul).

[y] 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.

[x] 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 (CV) includes the deduction for segregation 2 due to damaged kernels ≥ 2.5%; producers receive 35% of value for these peanuts.

TEST ID: PNEMA417

PURPOSE: Compare fungicides and nematicides for disease and nematode control in peanut

LOCATION: Tidewater AREC Research Farm, Hare Road, Suffolk, VA

CROP INFORMATION:

Field	28
Crop history	2016 wheat/soybean, 2015 peanut, 2014 wheat/soybean
Planting date	16 May
Variety	Sullivan
Seeding rate	ca. 4 seed/row ft
Plot length/width	35’
Number of rows	4 rows
Row spacing	36”
Alleys (length between blocks)	10’
Dig date	6 Oct
Harvest date	20 Oct

EXPERIMENTAL DESIGN: Randomized complete block design with five replicates

APPLICATION OF TREATMENTS:

	IF liquid	**IF granular**	**Foliar spray**	**Soil Fumigation**
Equipment	---	Noble Box	ATV sprayer	Rip/strip till rig
Pressure (psi)		---	42 psi	---
Nozzle type	.075 microtube	---	$D_3$23	---
Volume (gal/A)	5 gal/A	Rate/A	14.85	---
Soil depth	---	---	---	8-10 inches

IN-FURROW TREATMENTS:

Trt #	**Product, rate, and application timing**	**Application date**
1	Untreated	
2	Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (1st spray) Provost Opti 10.7 fl oz (2nd, 3rd, 4th, spray) Bravo 720 1.5 pt (Final spray)*	25 Jul 17 Aug, 3 Sep - -
3	Absolute 500SC 3.5 fl oz (1st spray) Propulse 3.34L 13.7 fl oz (2nd spray) Provost Opti 10.7 fl oz (3rd, 4th spray) Bravo 720 1.5 pt (Final)*	25 Jul 17 Aug 3 Sep - -
4	Admire Pro 8.51 fl oz (IF) Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (1st spray) Provost Opti 10.7 fl oz (2nd, 3rd, 4th, spray) Bravo 720 1.5 pt (Final spray)*	16 May 25 Jul 17 Aug, 3 Sep - -
5	Velum Total 3.67SC 18 fl oz (IF) Folicur 3.6F r 7.2 fl oz + Bravo 720 1.5 pt (1st spray) Provost Opti 10.7 fl oz (2nd, 3rd, 4th spray) Bravo 720 1.5 pt (Final spray)*	16 May 25 Jul 17 Aug, 3 Sep - -
6	Velum Total 3.67SC 18 fl oz (IF) Absolute 500SC 3.5 fl oz (1st spray) Propulse 3.34L 13.7 fl oz (2nd spray) Provost Opti 10.7 fl oz (3rd, 4th spray) Bravo 720 1.5 pt (Final spray)*	16 May 25 Jul 17 Aug 3 Sep - -

Trt #	Product, rate, and application timing	Application date
7	Velum Total 3.67SC 18 fl oz (IF) Propulse 3.34L 13.7 fl oz (Pegging) Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (1st spray) Provost Opti 10.7 fl oz (2nd, 3rd, 4th, spray) Bravo 720 1.5 pt (Final spray)*	16 May 26 Jul 25 Jul 17 Aug, 3 Sep - -
8	AgLogic 15G 7 lb (IF) Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (1st spray) Provost Opti 10.7 fl oz (2nd, 3rd, 4th, spray) Bravo 720 1.5 pt (Final spray)*	16 May 25 Jul 17 Aug, 3 Sep - -
9	AgLogic 15G 7 lb (IF) AgLogic 15G 10 lb (Pegging) Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (1st spray) Provost Opti 10.7 fl oz (2nd, 3rd, 4th, spray) Bravo 720 1.5 pt (Final spray)*	16 May 26 Jul 25 Jul 17 Aug, 3 Sep - -
10	Telone II 4.5 gal (Pre-plant fumigation) Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (1st spray) Provost Opti 10.7 fl oz (2nd, 3rd, 4th, spray) Bravo 720 1.5 pt (Final spray)*	1 May 25 Jul 17 Aug, 3 Sep - -
11	Telone II 4.5 gal (Pre-plant fumigation) Velum Total 18 fl oz (IF) Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (1st spray) Provost Opti 10.7 fl oz (2nd, 3rd, 4th, spray) Bravo 720 1.5 pt (Final spray)*	1 May 16 May 25 Jul 17 Aug, 3 Sep - -
*Final spray Bravo 720 1.5 pt was not applied.		

SOIL PROPERTIES:

Soil type: Kenansville loamy fine sand

Soil fertility report (7 Dec 2016):

pH	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)
6.5	58	76	686	97	0.3	3.7	0.2	19.1	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard, overspray for thrips as needed
Fungicides	None except treatments
Nematicides	None except treatments

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
30 Mar	Herbicide	Roundup WeatherMAX	22 fl oz
10 May	Herbicide	Strongarm	.45 fl oz
	Herbicide	Dual II MAGNUM	1 pt
	Herbicide	Prowl H_2O	1 pt
	Herbicide	Roundup WeatherMAX	1 qt
	Fertility	Liquid Boron	1 qt
15 Jun	Herbicide	Tide Glufosinate 280 SL	1 pt
	Insecticide	Orthene 75S	12 oz
16 Jun	Herbicide	Select 2 EC	1 pt
	Herbicide	Roundup WeatherMAX	1 qt
29 Jun	Fertility	Landplaster	1500 lb/A
7 Jul	Herbicide	Tide Glufosinate 280 SL	1 pt
	Adjuvant	Induce	4 fl oz
	Herbicide	Select 2 EC	1 pt
25 Jul	Fertility	Liquid Mn	1 pt

Table 81. Pre-plant, mid-season and end season nematode populations in soil (PNEMA417, Suffolk, VA 2017).

Treatment, rate/A, and application timing/date[z]	Nematodes /500 cc soil[y]								
	Root knot			Ring			Stubby root		
	16 May	30 Jun	26 Sep	16 May	30 Jun	26 Sep	16 May	30 Jun	26 Sep
1. Untreated	540	60	3240	0	180	1260	0	240	0
2. Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (7/25) Provost Opti 10.7 fl oz (8/17, 9/3, 9/20)	480	0	12660	0	0	420	120	120	60
3. Absolute 500SC 3.5 fl oz (7/25) Propulse 3.34L 13.7 fl oz (8/17) Provost Opti 10.7 fl oz (9/3, 9/20)	180	120	11040	180	240	60	60	240	0
4. Admire Pro 8.51 fl oz (IF) Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (7/25) Provost Opti 10.7 fl oz (8/17, 9/3, 9/20)	420	120	3240	180	60	60	60	60	0
5. Velum Total 3.67SC 18 fl oz (IF) Folicur 3.6F r 7.2 fl oz + Bravo 720 1.5 pt (7/25) Provost Opti 10.7 fl oz (8/17, 9/3, 9/20)	0	0	6120	0	0	180	120	60	0
6. Velum Total 3.67SC 18 fl oz (IF) Absolute 500SC 3.5 fl oz (7/25) Propulse 3.34L 13.7 fl oz (8/17) Provost Opti 10.7 fl oz (9/3, 9/20)	180	0	2940	120	240	180	0	240	0
7. Velum Total 3.67SC 18 fl oz (IF) Propulse 3.34L 13.7 fl oz (Pegging) Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (7/25) Provost Opti 10.7 fl oz (8/17, 9/3, 9/20)	0	60	2580	120	120	2040	180	60	0
8. AgLogic 15G 7 lb (IF) Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (7/25) Provost Opti 10.7 fl oz (8/17, 9/3, 9/20)	60	60	1260	120	60	240	120	0	0
9. AgLogic 15G 7 lb (IF) AgLogic 15G 10 lb (Pegging) Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (7/25) Provost Opti 10.7 fl oz (8/17, 9/3, 9/20)	60	120	1920	0	120	7680	120	60	0
10. Telone II 4.5 gal (Fum) Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (7/25) Provost Opti 10.7 fl oz (8/17, 9/3, 9/20)	180	0	3420	0	240	5700	0	0	0
11. Telone II 4.5 gal (Fum) Velum Total 18 fl oz (IF) Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (7/25) Provost Opti 10.7 fl oz (8/17, 9/3, 9/20)	120	60	480	0	540	3420	120	0	0
P(F)	0.31	- -	- -	0.97	- -	- -	0.83	- -	- -
LSD	N.S.	- -	- -	N.S.	- -	- -	N.S.	- -	- -

[z] (Fum) = pre-plant soil fumigation (1 May); (F) in-furrow (16 May); (Peg) = Pegging (26 Jul). Fungicides for prescribed foliar disease program were applied at R_3 (beginning pod, 7/25) and thereafter according to the Va. Peanut Leaf Spot Advisory and Sclerotinia Advisory Program until R_7 (beginning maturity). Final treatment of Bravo 270 1.5 pt/A was not applied due to late season maturing of peanut.

[y] Soil was sampled on 16 May prior to planting; data are the mean counts of nematodes in a sample from 5 reps of each treatment. Square root transformation of population data was made in analysis to determine statistical significance. 30 Jun and 26 Sep data are counts of nematodes in a composite sample taken from 5 reps of each treatment.

Table 82. Effect of treatment on disease incidence in peanut (PNEMA417, Suffolk, VA 2017)

Treatment and rate/A[z]	% leaf spot[y]			% defoliation[x]		
	17 Aug	5 Sep	3 Oct	17 Aug	5 Sep	3 Oct
1. Untreated	8.1	93.2 a	99.8 a	0.8	23.8a	87.5a
2. Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (7/25) Provost Opti 10.7 fl oz (8/17, 9/3, 9/20)	5.5	56.3 b	64.6 b	0.4	10.7b-d	29.8b
3. Absolute 500SC 3.5 fl oz (7/25) Propulse 3.34L 13.7 fl oz (8/17) Provost Opti 10.7 fl oz (9/3, 9/20)	9.2	39.3 b	42.8 b-d	0.9	4.1ef	15.9b-d
4. Admire Pro 8.51 fl oz (IF) Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (7/25) Provost Opti 10.7 fl oz (8/17, 9/3, 9/20)	6.2	67.4 b	62.7 b	0.4	11.2bc	29.7b
5. Velum Total 3.67SC 18 fl oz (IF) Folicur 3.6F r 7.2 fl oz + Bravo 720 1.5 pt (7/25) Provost Opti 10.7 fl oz (8/17, 9/3, 9/20)	2.4	43.3 b	53.0 bc	0.0	4.5d-f	22.7b-d
6. Velum Total 3.67SC 18 fl oz (IF) Absolute 500SC 3.5 fl oz (7/25) Propulse 3.34L 13.7 fl oz (8/17) Provost Opti 10.7 fl oz (9/3, 9/20)	2.3	7.9 c	28.9 cd	0.1	0.8fg	11.4cd
7. Velum Total 3.67SC 18 fl oz (IF) Propulse 3.34L 13.7 fl oz (Pegging) Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (7/25) Provost Opti 10.7 fl oz (8/17, 9/3, 9/20)	1.1	5.9 c	22.8 d	0.0	0.2g	10.0d
8. AgLogic 15G 7 lb (IF) Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (7/25) Provost Opti 10.7 fl oz (8/17, 9/3, 9/20)	8.2	65.7 b	63.0 b	1.5	12.5 b	26.8bc
9. AgLogic 15G 7 lb (IF) AgLogic 15G 10 lb (Pegging) Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (7/25) Provost Opti 10.7 fl oz (8/17, 9/3, 9/20)	3.7	62.3 b	57.6bc	0.1	11.5bc	26.1b-d
10. Telone II 4.5 gal (Fum) Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (7/25) Provost Opti 10.7 fl oz (8/17, 9/3, 9/20)	3.1	41.9 b	59.3 b	0.1	4.7c-e	27.7bc
11. Telone II 4.5 gal (Fum) Velum Total 18 fl oz (IF) Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (7/25) Provost Opti 10.7 fl oz (8/17, 9/3, 9/20)	5.8	49.9 b	62.3 b	0.3	6.9b-e	29.4b
P(F)	0.08	**0.0001**	**0.0001**	0.10	**0.0001**	**0.0001**
LSD	N.S.	22.91 – 23.67	11.36 – 28.63	N.S.	2.75 – 9.85	16.11 – 17.13

[z](Fum) = pre-plant soil fumigation (1 May); (F) in-furrow (16 May); (Peg) = Pegging (26 Jul). Fungicides for prescribed foliar disease program were applied at R_3 (beginning pod, 7/25) and thereafter according to the Va. Peanut Leaf Spot Advisory and Sclerotinia Advisory Program until R_7 (beginning maturity). [y]Percent leaflets with one or more leaf spots. [x]Percent canopy defoliated. 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).Arcsine transformation of percentage data was made in analysis to determine statistical significance.

Table 83. Effect of treatment on soilborne disease incidence in peanut (PNEMA417, Suffolk, VA 2017)

Treatment and rate/A[z]	Southern stem rot[y] 5 Sep	Southern stem rot[y] 3 Oct	Sclerotinia[y] 3 Oct	TSWV[y] 3 Oct	Yield[x] (lb/A)
1. Untreated	0.2	0.8	0.4	11.2 a	4345d
2. Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (7/25) Provost Opti 10.7 fl oz (8/17, 9/3, 9/20)	0.2	0.2	0.6	5.8 cd	5259 a-c
3. Absolute 500SC 3.5 fl oz (7/25) Propulse 3.34L 13.7 fl oz (8/17) Provost Opti 10.7 fl oz (9/3, 9/20)	0.2	1.6	1.4	5.4 d	5057 cd
4. Admire Pro 8.51 fl oz (IF) Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (7/25) Provost Opti 10.7 fl oz (8/17, 9/3, 9/20)	0.0	0.2	0.8	8.2 a-d	5153 bc
5. Velum Total 3.67SC 18 fl oz (IF) Folicur 3.6F r 7.2 fl oz + Bravo 720 1.5 pt (7/25) Provost Opti 10.7 fl oz (8/17, 9/3, 9/20)	0.0	0.0	1.2	8.6 a-c	5784 ab
6. Velum Total 3.67SC 18 fl oz (IF) Absolute 500SC 3.5 fl oz (7/25) Propulse 3.34L 13.7 fl oz (8/17) Provost Opti 10.7 fl oz (9/3, 9/20)	0.0	0.4	1.4	7.8 b-d	5510 a-c
7. Velum Total 3.67SC 18 fl oz (IF) Propulse 3.34L 13.7 fl oz (Pegging) Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (7/25) Provost Opti 10.7 fl oz (8/17, 9/3, 9/20)	0.0	0.0	2.0	6.6 b-d	5929 a
8. AgLogic 15G 7 lb (IF) Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (7/25) Provost Opti 10.7 fl oz (8/17, 9/3, 9/20)	0.2	1.4	1.0	8.0 b-d	5369 a-c
9. AgLogic 15G 7 lb (IF) AgLogic 15G 10 lb (Pegging) Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (7/25) Provost Opti 10.7 fl oz (8/17, 9/3, 9/20)	0.0	0.6	3.2	7.2 b-d	5490 a-c
10. Telone II 4.5 gal (Fum) Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (7/25) Provost Opti 10.7 fl oz (8/17, 9/3, 9/20)	0.0	0.2	3.0	8.4 a-d	5620 a-c
11. Telone II 4.5 gal (Fum) Velum Total 18 fl oz (IF) Folicur 3.6F 7.2 fl oz + Bravo 720 1.5 pt (7/25) Provost Opti 10.7 fl oz (8/17, 9/3, 9/20)	0.4	0.2	2.4	9.0 ab	5726 a-c
P(F)	0.50	0.26	0.44	**0.04**	**0.007**
LSD	N.S.	N.S.	N.S.	3.08	726.4

[z](Fum) = pre-plant soil fumigation (1 May); (F) in-furrow (16 May); (Peg) = Pegging (26 Jul). Fungicides for prescribed foliar disease program were applied at R_3 (beginning pod, 7/25) and thereafter according to the Va. Peanut Leaf Spot Advisory and Sclerotinia Advisory Program until R_7 (beginning maturity). [y]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. [x]Yields are weight of peanuts with moisture content adjusted to 7%. Peanuts were dug 6 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).Arcsine transformation of percentage data was made in analysis to determine statistical significance.

TEST ID: PNEMA517

PURPOSE: Compare fumigation with Telone II to in-furrow applications of Velum Total and AgLogic for nematode control and yield response in peanut

LOCATION: Tidewater AREC Research Farm, Hare Road, Suffolk, VA

CROP INFORMATION:

Field	28
Crop history	2016 wheat/soybean, 2015 peanut, 2014 wheat/soybean
Planting date	16 May
Variety	Sullivan
Seeding rate	ca. 4 seed/row ft
Plot length/width	35’
Number of rows	4 rows
Row spacing	36”
Alleys (length between blocks)	10’
Dig date	6 Oct
Harvest date	20 Oct

EXPERIMENTAL DESIGN: Randomized complete block design with five replicates

APPLICATION OF TREATMENTS:

	IF liquid	**IF granular**	**Soil Fumigation**
Equipment	---	Noble Box	Rip/strip till rig
Pressure (psi)		---	---
Nozzle type	.075 microtube	---	---
Volume (gal/A)	5 gal/A	Rate/A	---
Soil depth	---	---	8-10 inches

TREATMENT:

Trt #	**Product and formulation**	**Rate/A**	**Application timing**	**Application date**
1	Untreated	---		
2	Telone II	4.5 gal	Pre-plant	1 May
3	Velum Total 3.67SC	18 fl oz	In-furrow	16 May
4	AgLogic 15G	7 lb	In-furrow	16 May

SOIL PROPERTIES:

Soil type: Kenansville loamy fine sand

Soil fertility report (7 Dec 2016):

pH	**P (lb/A)**	**K (lb/A)**	**Ca (lb/A)**	**Mg (lb/A)**	**Zn (ppm)**	**Mn (ppm)**	**Cu (ppm)**	**Fe (ppm)**	**B (ppm)**
6.5	58	76	686	97	0.3	3.7	0.2	19.1	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard, overspray for thrips as needed
Fungicides	Standard leafspot and Sclerotinia fungicide programs
Nematicides	None except treatments

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
30 Mar	Herbicide	Roundup WeatherMAX	22 fl oz
10 May	Herbicide	Strongarm	.45 fl oz
	Herbicide	Dual II MAGNUM	1 pt
	Herbicide	Prowl H_2O	1 pt
	Herbicide	Roundup WeatherMAX	1 qt
	Fertility	Liquid Boron	1 qt
15 Jun	Herbicide	Tide Glufosinate 280 SL	1 pt
	Insecticide	Orthene 75S	12 oz
16 Jun	Herbicide	Select 2 EC	1 pt
	Herbicide	Roundup WeatherMAX	1 qt
29 Jun	Fertility	Landplaster	1500 lb/A
7 Jul	Herbicide	Tide Glufosinate 280 SL	1 pt
	Adjuvant	Induce	4 fl oz
	Herbicide	Select 2 EC	1 pt
25 Jul	Fungicide	Bravo Weather Stik	1.5 pt
	Fertility	Liquid Mn	1 pt
27 Jul	Fungicide	Omega 4 SC	1 pt
21 Aug	Fungicide	Omega 4 SC	1 pt
18 Aug	Fungicide	Provost Opti	10.7 fl oz

Table 84. Early and late season nematode populations in soil (PNEMA517, Suffolk, VA 2017).

	Nematodes/500 cc soil[y]						
	Root knot		Ring		Stubby root		Spiral
Treatment and rate/A[z]	25 Apr	12 Sep	25 Apr	12 Sep	25 Apr	12 Sep	12 Sep
1. Untreated	224	6	134	1055	139	9	0
2. Telone II 4.5 gal (Fum)	74	0	222	674	235	1	6
3. Velum Total 18 fl oz (F)	154	0	113	1056	47	5	0
4. AgLogic 15G (F)	42	4	135	2168	38	4	0
P(F)	0.41	0.47	0.71	0.47	0.30	0.65	0.31
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (Fum) = pre-plant soil fumigation (1 May); (F) = in-furrow treatment (16 May).

[y] Soil was sampled on 25 April prior to planting. Data are the mean counts of nematodes in a sample from four reps of each treatment. Square root transformation of population data was made in analysis to determine statistical significance. Spiral nematode was not detected in samples collected 25 Apr.

Table 85. Effect of treatment on emergence, plant growth, and foliar disease incidence in peanut (PNEMA517, Suffolk, VA 2017).

	Plants/ft[y]		Vigor (0-10)[x]		% leaf spot[w]		% defoliation[v]	
Treatment and rate/A[z]	5 Jun	12 Jun	5 Jun	12 Jun	5 Sep	3 Oct	5 Sep	3 Oct
1. Untreated	2.9	3.4	7.4 c	9.0 cd	25.0	31.5	25.0	14.2
2. Telone II 4.5 gal (Fum)	2.9	3.2	8.2 ab	8.8 d	25.0	41.5	25.0	18.6
3. Velum Total 18 fl oz (F)	3.1	3.4	8.2 ab	10.0 a	25.0	26.3	25.0	11.3
4. AgLogic 15G (F)	3.0	3.3	8.6 a	10.0 a	25.0	33.8	25.0	15.4
P(F)	0.33	0.47	**0.01**	**0.002**	1.0	0.11	1.0	0.13
LSD	N.S.	N.S.	.79	.56	N.S.	N.S.	N.S.	N.S.

[z] (Fum) = pre-plant soil fumigation (1 May); (F) = in-furrow treatment (16 May).
[y] Determined from counts in two, 30-ft row per plot.
[x] Vigor index rating scale: 10 = 100% vigor, 0 = no vigor.
[w] Percent leaflets with one or more leaf spots.
[v] Percent canopy defoliated.
Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05). Arcsine transformation of percentage data was made in analysis to determine statistical significance.

Table 86. Effect of treatment on soilborne disease incidence and yield in peanut (PNEMA517, Suffolk, VA 2017).

	Southern stem rot[y]		Sclerotinia[y]		TSWV[y]	Root rot[x] (0-6)	Pod rot[w] (0-6)	Yield[v]
Treatment and rate/A[z]	5 Sep	3 Oct	5 Sep	3 Oct	3 Oct	18 Oct	18 Oct	(lb/A)
1. Untreated	0.2	1.2	0.4	10.2	9.8	1.8	2.2	4995
2. Telone II 4.5 gal (Fum)	0.2	2.0	0.0	9.8	10.4	1.8	2.0	5464
3. Velum Total 18 fl oz (F)	0.4	1.0	0.2	6.2	7.6	1.4	2.2	5620
4. AgLogic 15G (F)	0.0	1.6	0.2	8.0	10.8	1.4	1.6	5109
P(F)	0.31	0.53	0.74	0.70	0.15	0.43	0.73	0.88
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (Fum) = pre-plant soil fumigation (1 May); (F) = in-furrow treatment (16 May).
[y] 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. TSWV = Tomato spotted wilt virus.
[x] 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.
[w] 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
[v] Yields are weight of peanuts with moisture content adjusted to 7%. Peanuts were dug 6 Oct and harvested 20 Oct.

Table 87. Effect of treatment on grade characteristics of peanut (PNEMA517, Suffolk, VA 2017).

	%[y]								Value (¢/lb)[x]	
Treatment and rate/A[z]	**FM**	**LSK**	**FAN**	**ELK**	**SS**	**OK**	**DK**	**SMK**	**100%**	**CV**
1. Untreated	22.9	7.0	90.5	56.7	1.9	1.2	0.8	68.3	18.3	16.9
2. Telone II 4.5 gal (FUM)	19.2	5.9	89.9	57.3	1.6	0.9	0.9	69.2	18.4	17.4
3. Velum Total 18 fl oz (F)	27.4	8.0	89.6	55.6	2.2	1.2	0.7	67.4	18.1	16.3
4. AgLogic 15G (F)	22.4	9.5	89.4	56.1	2.0	0.9	0.8	68.7	18.4	17.0
P(F)	0.54	0.67	1.0	1.0	0.35	0.52	0.12	1.0	1.0	1.0
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (Fum) = pre-plant soil fumigation (1 May); (F) = in-furrow treatment (16 May

[y] 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.

[x] 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 (CV) includes the deduction for segregation 2 due to damaged kernels ≥ 2.5%; producers receive 35% of value for these peanuts.

TEST ID: LFSPOT217

PURPOSE: Compare peanut fungicide programs for leaf spot and soilborne disease control

LOCATION: Tidewater AREC Research Farm, Hare Road, Suffolk, VA

CROP INFORMATION:

Field	9A
Crop history	2016 corn, 2015 cotton, 2014 peanut
Planting date	4 May
Variety	Sullivan
Seeding rate	ca. 4 seed/row ft (12 lb/A)
Plot length/width	35’
Number of rows	4 rows
Row spacing	36”
Alleys (length between blocks)	10’
Dig date	26 Sep
Harvest date	2 Oct

EXPERIMENTAL DESIGN: Random complete block design with four replicates

APPLICATION OF TREATMENTS:

	Foliar spray
Equipment	ATV sprayer
Pressure (psi)	42 psi
Nozzle type	$D_3$23
Volume (gal/A)	14.85
Surfactant	none

APPLICATION SCHEDULE:

A	R3
B	2nd leaf spot advisory
C	3rd leaf spot advisory
D	4th leaf spot advisory
E	5th leaf spot advisory (final spray)
F	Sclerotinia advisory spray (1 or 2, based on advisory)

TREATMENTS:

Trt #	Product and formulation	Rate/A	Application timing*	Application date*
1	None	---	---	---
2	Bravo Weather Stik 6SC	24 fl oz	ABCDE	24 Jul, 17 Aug, 3 Sep, 20 Sep
3	Bravo Weather Stik 6SC Alto 0.83SL	24 fl oz 5.5 fl oz	ABCDE BD	24 Jul, 17 Aug, 3 Sep, 20 Sep 3 Sep, 20 Sep
4	Bravo Weather Stik 6SC Folicur 3.6F	24 fl oz 7.2 fl oz	ABCDE BD	24 Jul, 17 Aug, 3 Sep, 20 Sep 17 Aug, 20 Sep
5	Bravo Weather Stik 6SC Provost Opti	24 fl oz 10.7 fl oz	ACE BD	24 Jul, 3 Sep 17 Aug, 20 Sep
6	Bravo Weather Stik 6SC Elatus 45WG	24 fl oz 7.3 oz	ACE BD	24 Jul, 3 Sep 17 Aug, 20 Sep
7	Bravo Weather Stik 6SC Priaxor 4.17SC	24 fl oz 6 fl oz	ACE BD	24 Jul, 3 Sep 17 Aug, 20 Sep
8	Bravo Weather Stik 6SC Miravis ACE	24 fl oz 3.42 fl oz	ACE BD	24 Jul, 3 Sep 17 Aug, 20 Sep
9	Bravo Weather Stik 6SC Propulse	24 fl oz 13.6 fl oz	ACE BD	24 Jul, 3 Sep 17 Aug, 20 Sep
10	Bravo Weather Stik 6SC Fontelis	24 fl oz 24 fl oz	ACE BD	24 Jul, 3 Sep 17 Aug, 20 Sep
11	Bravo Weather Stik 6SC Fontelis Omega 4SC	24 fl oz 24 fl oz 24 fl oz	ACE BD F	24 Jul, 3 Sep 17 Aug, 20 Sep 31 Jul, 22 Aug
12	Bravo Weather Stik 6SC Omega 4SC	24 fl oz 24 fl oz	ABCDE F	24 Jul, 17 Aug, 3 Sep, 20 Sep 31 Jul, 22 Aug
13	Bravo Weather Stik 6SC Miravis ACE Omega 4SC	24 fl oz 3.42 fl oz 24 fl oz	ACE BD F	24 Jul, 3 Sep 17 Aug, 20 Sep 31 Jul, 22 Aug
*A final prescribed leaf spot treatment (E) was not applied due to peanut maturation.				

SOIL PROPERTIES:

Soil type: Kenansville loamy fine sand

Soil fertility report (3 Nov 2016):

pH	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)
5.8	75	57	398	33	0.3	1.6	0.2	18.5	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	None except treatments
Nematicides	None

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
4 May	Fungicide (IF) Insecticide (IF)	Proline 480SC Admire Pro Systemic	5.7 fl oz 9 fl oz
10 May	Herbicide Herbicide Herbicide Herbicide Fertility	Strongarm Dual II MAGNUM Prowl H_2O Roundup WeatherMAX Liquid Boron	.45 fl oz 1 pt 1 pt 1 qt 1 qt
31 May	Insecticide	Orthene 75S	12 oz
16 Jun	Herbicide Herbicide Insecticide	Select 2 EC Tide Glufosinate 280 SL Orthene 75S	12 fl oz 1 pt 12 oz
29 Jun	Fertility	Peanut Maker	1500 lb
7 Jul	Herbicide Herbicide	Tide Glufosinate 280 SL Select 2 EC	1 pt 1 pt
13 Jul	Insecticide Fertility	Steward EC Liquid Manganese	9 fl oz 1 pt
9 Aug	Growth regulator Fertility	Apogee w/UAN (28% N)	8 oz 1 lb

Table 88. Effect of foliar treatment on disease incidence in peanut (LFSPOT217, Suffolk, VA 2017).

Treatment, rate/A and application date[z]	% leaf spot[y]			% defoliation[x]	
	9 Aug	8 Sep	21 Sep	8 Sep	21 Sep
1. Untreated	1.0	94.2a	100.0a	41.1a	85.2a
2. Bravo Weather Stik 6SC 24 fl oz (7/24, 8/17, 9/3, 9/20)	0.4	3.6ef	73.0cd	0.0e	28.6cd
3. Bravo Weather Stik 6SC 24 fl oz (7/24, 8/17, 9/3, 9/20) Alto 0.83SL 5.5 fl oz (8/17, 9/20)	0.3	10.7c-e	64.2de	0.3de	16.9d-f
4. Bravo Weather Stik 6SC 24 fl oz (7/24, 8/17, 9/3, 9/20) Folicur 3.6F 7.2 fl oz (8/17, 9/20)	0.4	13.4c-e	75.0cd	2.0c-e	27.7cd
5. Bravo Weather Stik 6SC 24 fl oz (7/24, 9/3) Provost Opti 10.7 fl oz (8/17, 9/20)	0.6	5.4ef	87.1bc	0.2de	38.6bc
6. Bravo Weather Stik 6SC 24 fl oz (7/24, 9/3) Elatus 45WG 7.3 oz (8/17, 9/20)	0.3	22.2c	76.6cd	4.2c	28.4cd
7. Bravo Weather Stik 6SC 24 fl oz (7/24, 9/3) Priaxor 4.17SC 6 fl oz (8/17, 9/20)	0.8	18.1cd	71.8cd	2.2cd	20.5d-f
8. Bravo Weather Stik 6SC 24 fl oz (7/24, 9/3) Miravis ACE 3.42 fl oz (8/17, 9/20)	0.4	13.5c-e	38.3fg	1.3c-e	9.4f-h
9. Bravo Weather Stik 6SC 24 fl oz (7/24, 9/3) Propulse 13.6 fl oz (8/17, 9/20)	0.4	7.6d-f	42.2ef	0.6c-e	10.5e-g
10. Bravo Weather Stik 6SC 24 fl oz (7/24, 9/3) Fontelis 24 fl oz (8/17, 9/20)	0.3	9.8c-f	71.2cd	0.9c-e	24.0d-e
11. Bravo Weather Stik 6SC 24 fl oz (7/24, 9/3) Fontelis 24 fl oz (8/17, 9/20) Omega 4SC 24 fl oz (7/31, 8/22)	0.1	1.7f	13.0h	0.0e	1.5h
12. Bravo Weather Stik 6SC 24 fl oz (7/24, 8/17, 9/3, 9/20) Omega 4SC 24 fl oz (7/31, 8/22)	0.1	1.4f	17.4gh	0.0e	2.2gh
13. Bravo Weather Stik 6SC 24 fl oz (7/24, 9/3) Miravis ACE 3.42 fl oz (8/17, 9/20) Omega 4SC 24 fl oz (7/31, 8/22)	0.3	5.0ef	16.6gh	0.0de	2.6gh
P(F)	0.99	**0.0001**	**0.0001**	**0.0001**	**0.0001**
LSD	N.S.	8.54 – 12.72	6.12 – 20.66	2.05 – 13.37	8.08 – 15.83

[z] Fungicides for leaf spot program were applied beginning at R3 (7/24) and thereafter according to the Virginia Leaf Spot Advisory (8/17, 9/3 and 9/20). A final prescribed leaf spot spray was not applied due to peanut maturation. Fungicides for Sclerotinia program were applied according to the Virginia Sclerotinia Advisory (7/31, 8/22).

[y] Percent leaflets with one or more leaf spots.

[x] 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 89. Effect of foliar treatment on soilborne disease and yield in peanut (LFSPOT217, Suffolk, VA 2017).

Treatment, rate/A and application date[z]	SCL[y] (8 Sep)	Root rot (0-6)[x] (2 Oct)	Pod rot (0-6)[w] (2 Oct)	Yield[v] (lb/A)
1. Untreated	1.3	2.3	2.3	4590 d
2. Bravo Weather Stik 6SC 24 fl oz (7/24, 8/17, 9/3, 9/20)	0.8	2.3	2.5	5779 ab
3. Bravo Weather Stik 6SC 24 fl oz (7/24, 8/17, 9/3, 9/20) Alto 0.83SL 5.5 fl oz (8/17, 9/20)	0.8	1.8	2.0	6200 ab
4. Bravo Weather Stik 6SC 24 fl oz (7/24, 8/17, 9/3, 9/20) Folicur 3.6F 7.2 fl oz (8/17, 9/20)	2.3	2.3	2.5	5920 ab
5. Bravo Weather Stik 6SC 24 fl oz (7/24, 9/3) Provost Opti 10.7 fl oz (8/17, 9/20)	3.0	2.3	2.3	5589 a-c
6. Bravo Weather Stik 6SC 24 fl oz (7/24, 9/3) Elatus 45WG 7.3 oz (8/17, 9/20)	0.0	1.5	2.3	5737 ab
7. Bravo Weather Stik 6SC 24 fl oz (7/24, 9/3) Priaxor 4.17SC 6 fl oz (8/17, 9/20)	2.3	2.0	2.3	5896 ab
8. Bravo Weather Stik 6SC 24 fl oz (7/24, 9/3) Miravis ACE 3.42 fl oz (8/17, 9/20)	1.0	1.5	2.0	5693 ab
9. Bravo Weather Stik 6SC 24 fl oz (7/24, 9/3) Propulse 13.6 fl oz (8/17, 9/20)	1.0	2.0	2.5	5366 b-d
10. Bravo Weather Stik 6SC 24 fl oz (7/24, 9/3) Fontelis 24 fl oz (8/17, 9/20)	0.3	2.0	2.3	5947 ab
11. Bravo Weather Stik 6SC 24 fl oz (7/24, 9/3) Fontelis 24 fl oz (8/17, 9/20) Omega 4SC 24 fl oz (7/31, 8/22)	0.3	1.5	2.0	6244 a
12. Bravo Weather Stik 6SC 24 fl oz (7/24, 8/17, 9/3, 9/20) Omega 4SC 24 fl oz (7/31, 8/22)	0.0	1.5	2.0	6316 a
13. Bravo Weather Stik 6SC 24 fl oz (7/24, 9/3) Miravis ACE 3.42 fl oz (8/17, 9/20) Omega 4SC 24 fl oz (7/31, 8/22)	0.8	1.5	1.5	5856 ab
P(F)	0.16	0.06	0.41	**0.006**
LSD	N.S.	N.S.	N.S.	841.8

[z] Fungicides for leaf spot program were applied beginning at R3 (7/24) and thereafter according to the Virginia Leaf Spot Advisory (8/17, 9/3 and 9/20). A final prescribed leaf spot spray was not applied due to peanut maturation. Fungicides for Sclerotinia program were applied according to the Virginia Sclerotinia Advisory (7/31, 8/22).

[y] 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.

[x] 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.

[w] 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.

[v] Yields are weight of peanuts with moisture content of 7%. Peanuts were dug on 26 Sep and harvested on 2 Oct. Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (*P*=0.05).

TEST ID: SCL217

PURPOSE: Compare fungicides for control of Sclerotinia blight and other fungal diseases in peanut

LOCATION: Tidewater AREC Research Farm, Hare Road, Suffolk, VA

CROP INFORMATION:

Field	34B
Crop history	2016 corn, 2015 cotton, 2014 peanut
Planting date	3 May
Variety	Wynne
Seeding rate	ca. 4 seed/row ft
Plot length/width	35’
Number of rows	4 rows
Row spacing	36”
Alleys (length between blocks)	10’
Dig date	25 Sep
Harvest date	3 Oct

EXPERIMENTAL DESIGN: Random complete block design with four replicates

APPLICATION OF TREATMENTS:

	Foliar spray
Equipment	ATV sprayer
Pressure (psi)	42 psi
Nozzle type	$D_3$23
Volume (gal/A)	14.85

APPLICATION SCHEDULE:

A	70 DAP
B	A + 14d
C	B + 14d
D	C + 14d
E	D + 14d
F	E + 14d

TREATMENTS:

Trt #	Product and formulation	Rate (fl oz/A)	Application timing	Application date
1	Untreated	---		
2	Alto 100 SL	5.5	AD	12 Jul, 23 Aug
	Bravo Weather Stik 6SC	16	AD	12 Jul, 23 Aug
	Bravo Weather Stik 6SC	24	BEF	25 Jul, 5 Sep, 20 Sep
3	Alto 100 SL	5.5	AD	12 Jul, 23 Aug
	Bravo Weather Stik 6SC	16	AD	12 Jul, 23 Aug
	Bravo Weather Stik 6SC	24	BEF	25 Jul, 5 Sep, 20 Sep
	Omega 4SC	24	BE	25 Jul, 5 Sep
4	Alto 100 SL	5.5	A	12 Jul
	Bravo Weather Stik 6SC	24	AF	12 Jul, 20 Sep
	A19649	3.42	CE	10 Aug, 5 Sep
	Elatus 45WG	7.3	CE	10 Aug, 5 Sep
5	Alto 100 SL	5.5	A	12 Jul
	Bravo Weather Stik 6SC	24	AF	12 Jul, 20 Sep
	A19649	3.42	CE	10 Aug, 5 Sep
	Elatus 45WG	7.3	C	10 Aug, 5 Sep
6	Alto 100 SL	5.5	A	12 Jul
	Bravo Weather Stik 6SC	24	AF	12 Jul, 20 Sep
	A19649	3.42	CE	10 Aug, 5 Sep
7	Alto 100 SL	5.5	A	12 Jul
	Bravo Weather Stik 6SC	24	AF	12 Jul, 20 Sep
	A19649	3.42	CE	10 Aug, 5 Sep
	Omega 4SC	16	CE	10 Aug, 5 Sep
8	Alto 100 SL	5.5	AD	12 Jul, 23 Aug
	Bravo Weather Stik 6SC	16	AD	12 Jul, 23 Aug
	Bravo Weather Stik 6SC	24	BEF	25 Jul, 5 Sep, 20 Sep
	A19649	3.42	ADF	12 Jul, 23 Aug, 20 Sep

SOIL PROPERTIES:

Soil type: Kenansville loamy fine sand

Soil fertility report (3 Nov 2016):

pH	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)
5.7	67	80	410	37	0.5	2.4	0.2	22.4	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	None except treatments
Nematicides	Standard

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
3 May	Fungicide (IF) Insecticide (IF)	Proline 480 SC Admire Pro	5.7 fl oz 9 fl oz
10 May	Herbicide Herbicide Herbicide Herbicide Fertility	Strongarm Dual II MAGNUM Prowl H_2O Roundup WeatherMAX Liquid Boron	0.45 fl oz 1 pt 1 pt 1 qt 1 qt
31 May	Insecticide	Orthene 75S	12 oz
15 Jun	Herbicide Insecticide	Tide Glufosinate 280 SL Orthene 75S	1 pt 12 oz
29 Jun	Fertility	Peanut Maker	1500 lb
7 Jul	Herbicide Herbicide	Tide Glufosinate 280 SL Select 2EC	1 pt 1 pt
25 Jul	Fertility	Liquid Mn	1.5 pt
9 Aug	Growth regulator Fertility	Apogee w/UAN (28% N)	8 oz 1 lb

Table 90. Effect of treatment on soilborne disease incidence in peanut (SCL217, Suffolk, VA 2017).

Treatment, rate/A and application date[z]	Southern stem rot[y]				Sclerotinia[y]		
	21 Jul	1 Aug	17 Aug	12 Sep	1 Aug	17 Aug	12 Sep
1. Untreated	1.3	7.5	3.3 ab	2.3 a	0.8	3.0	19.0 a
2. Alto 100 SL 5.5 fl oz (7/12, 8/23) Bravo Weather Stik 6SC 16 fl oz (7/12, 8/23) Bravo Weather Stik 6SC 24 fl oz (7/26, 9/5, 9/20)	0.0	7.3	1.8 bc	0.0 b	0.5	3.0	14.0 b
3. Alto 100 SL 5.5 fl oz (7/12, 8/23) Bravo Weather Stik 6SC 16 fl oz (7/12, 8/23) Bravo Weather Stik 6SC 24 fl oz (7/26, 9/5, 9/20) Omega 4 SC 24 fl oz (7/26, 9/5)	0.5	3.3	0.5 c	0.8 b	0.0	0.0	3.3 d
4. Alto 100 SL 5.5 fl oz (7/12) Bravo Weather Stik 6SC 24 fl oz (7/12, 9/20) A19649 3.42 fl oz (8/10. 9/5) Elatus 45WG 7.3 oz (8/10, 9/5)	0.8	5.8	1.3 bc	0.0 b	0.5	5.0	14.8 ab
5. Alto 100 SL 5.5 fl oz (7/12) Bravo Weather Stik 6SC 24 fl oz (7/12, 9/20) A19649 3.42 fl oz (8/10, 9/5) Elatus 45WG 7.3 oz (8/10)	0.8	5.8	0.5 c	0.5 b	0.5	2.3	14.3 b
6. Alto 100 SL 5.5 fl oz (7/12) Bravo Weather Stik 6SC 24 fl oz (7/12, 9/20) A19649 3.42 fl oz (8/10, 9/5)	0.0	8.0	2.5 bc	0.8 b	0.3	4.5	13.3 b
7. Alto 100 SL 5.5 fl oz (7/12) Bravo Weather Stik 6SC 24 fl oz (7/12, 9/20) A19649 3.42 fl oz (8/10, 9/5) Omega 4 SC 16 fl oz (8/10, 9/5)	0.3	8.3	1.5 bc	0.5 b	0.3	2.5	8.8 c
8. Alto 100 SL 5.5 fl oz (7/12, 8/23) Bravo Weather Stik 6SC 16 fl oz (7/12, 8/23) Bravo Weather Stik 6SC 24 fl oz (7/26, 9/5, 9/20) A19649 3.42 fl oz (7/12, 8/23, 9/20)	0.8	6.5	4.8 a	0.8 b	0.0	3.0	14.3 b
P(F)	0.20	0.53	**0.01**	**0.02**	0.16	0.15	**0.0001**
LSD	N.S.	N.S.	2.19	1.17	N.S.	N.S.	4.49

[z] Fungicides were applied at 70 DAP on 12 Jul thereafter on 14d intervals.

[y] 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. No Sclerotinia was observed on 21 Jul. 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 91. Effect of treatment on disease severity and yield of peanut (SCL217, Suffolk, VA 2017).

Treatment, rate/A, and application date[z]	% leaf spot[y]		% defoliation[x]		Yield[w] (lb/A)
	12 Sep	21 Sep	12 Sep	21 Sep	
1. Untreated	92.8 a	97.8 a	43.7 a	73.8 a	3701 d
2. Alto 100 SL 5.5 fl oz (7/12, 8/23) Bravo Weather Stik 6SC 16 fl oz (7/12, 8/23) Bravo Weather Stik 6SC 24 fl oz (7/26, 9/5, 9/20)	16.2 bc	51.3 b	3.5 b	18.2 b	4202 cd
3. Alto 100 SL 5.5 fl oz (7/12, 8/23) Bravo Weather Stik 6SC 16 fl oz (7/12, 8/23) Bravo Weather Stik 6SC 24 fl oz (7/26, 9/5, 9/20) Omega 4 SC 24 fl oz (7/26, 9/5)	17.1 bc	53.9 b	3.7 b	21.0 b	5595 a
4. Alto 100 SL 5.5 fl oz (7/12) Bravo Weather Stik 6SC 24 fl oz (7/12, 9/20) A19649 3.42 fl oz (8/10. 9/5) Elatus 45WG 7.3 oz (8/10, 9/5)	19.8 bc	63.9 b	4.7 b	25.5 b	4455 bc
5. Alto 100 SL 5.5 fl oz (7/12) Bravo Weather Stik 6SC 24 fl oz (7/12, 9/20) A19649 3.42 fl oz (8/10, 9/5) Elatus 45WG 7.3 oz (8/10)	3.5 c	66.9 b	0.5 b	26.0 b	5000 b
6. Alto 100 SL 5.5 fl oz (7/12) Bravo Weather Stik 6SC 24 fl oz (7/12, 9/20) A19649 3.42 fl oz (8/10, 9/5)	3.3 c	55.3 b	0.2 b	21.6 b	4377 c
7. Alto 100 SL 5.5 fl oz (7/12) Bravo Weather Stik 6SC 24 fl oz (7/12, 9/20) A19649 3.42 fl oz (8/10, 9/5) Omega 4 SC 16 fl oz (8/10, 9/5)	5.8 bc	64.3 b	0.3 b	27.0 b	4635 bc
8. Alto 100 SL 5.5 fl oz (7/12, 8/23) Bravo Weather Stik 6SC 16 fl oz (7/12, 8/23) Bravo Weather Stik 6SC 24 fl oz (7/26, 9/5, 9/20) A19649 3.42 fl oz (7/12, 8/23, 9/20)	22.9 b	56.3 b	6.1 b	24.7 b	4227 cd
P(F)	**0.0001**	**0.0002**	**0.0001**	**0.0001**	**0.0001**
LSD	19.18 – 23.10	11.08 – 21.58	7.36 – 21.61	14.55 – 15.89	580.8

[z] Fungicides were applied at 70 DAP on 12 Jul thereafter on 14d intervals.
[y] Percentage of total leaflets with early or late leaf spot lesions.
[x] Percentage of total canopy defoliated.
[w] Yields are weight of peanuts with moisture content adjusted to 7%. Peanuts were dug 25 Sep and harvested 2 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). Arcsine transformation of percentage data was made in analysis to determine statistical significance.

TEST ID: SOYSEEDNEMA117

PURPOSE: Comparison of seed treatments for nematode control, plant growth, and yield in soybean

LOCATION: Manly West Farm, Currituck Ridge Drive, Moyock, NC

CROP INFORMATION:

Field	West
Crop history	2016 corn, 2015 soybean, 2014 corn
Planting date	17 May
Seeding rate	10 seed/row ft
Plot length/width	30’
Number of rows	2
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	26 Oct

EXPERIMENTAL DESIGN: Randomized complete block design with four replicates

TREATMENTS:

Trt #	**Seed teatment**	**Rate**
1	Untreated*	
2	Test compound 1	0.075 mg ai/seed
3	Test compound 2	0.15 mg ai/seed
4	Test compound 2	0.25 mg ai/seed
5	Test compound 2	0.50 mg ai/seed
6	Test compound 3	0.25 mg ai/seed
7	Test compound 3	0.5 mg ai/seed
8	Test compound 4	0.25 mg ai/seed
9	Test compound 4	0.5 mg ai/seed
10	Test compound 1	0.075 mg ai/seed
*All treatments received base treatment of Trilex 2000 FS 65 ml/100 kg (all seed)		

SOIL PROPERTIES:

Soil fertility report (30 Mar 2017):

pH	**P (lb/A)**	**K (lb/A)**	**Ca (lb/A)**	**Mg (lb/A)**	**Zn (ppm)**	**Mn (ppm)**	**Cu (ppm)**	**Fe (ppm)**	**B (ppm)**
6.5	10	66	512	82	1	3.2	0.9	15.1	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	Standard
Nematicides	None except treatment

MAINTENANCE CHEMICAL APPLICATIONS*:

Date	Type and target	Product and formulation	Rate
n/a	Fertility	33-30-70-25S	n/a
n/a	Fertility	Black Label Zn	1 gal/A
n/a	Herbicide	Flexstar GT	2 qt/A
n/a	Seed oil protectant	MSO	20 oz/A
n/a	Herbicide	Radiate	2 fl oz/A
n/a	Fungicide	Alto (aerial application)	5 fl oz/A
n/a	Insecticide	Intrepid Edge (aerial application)	4 fl oz/A
n/a	Insecticide	Brigade (aerial application)	6.4 fl oz/A
* Maintenance chemical program supplied by M. West, Cedar Crest Plantation, Moyock, NC. Application dates were not provided.			

Table 92. Pre-plant nematode populations in soil (SOYSEEDNEMA117, Moyock, NC 2017).

	Nematodes /500 cc soil[y]					
Treatment and rate/A[z]	**Root knot**	**Cyst**	**Lesion**	**Stunt**	**Spiral**	**Stubby root**
1. Untreated	355	6	6	196	125	6
2. Test Compound 1 0.075 mg (1st)	199	6	6	46	168	6
3. Test Compound 2 0.15 mg	187	6	6	80	216	15
4. Test Compound 2 0.25mg	454	0	6	41	146	6
5. Test Compound 2 0.50 mg	472	6	6	116	361	32
6. Test Compound 3 0.25 mg	569	0	0	32	326	18
7. Test Compound 3 0.5 mg	547	6	0	127	78	10
8. Test Compound 4 0.25 mg	443	0	6	239	242	0
9. Test Compound 4 0.5 mg	389	0	6	108	55	6
10. Test Compound 1 0.075 mg (2nd)	138	6	0	63	277	10
P(F)	0.86	0.89	0.96	0.35	0.48	0.87
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] All seed received Trilex 2000 FS 65 ml/100 kg. Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 17 May.

[y] Soil was sampled on 17 May prior to planting. Data are the mean counts of nematodes in a sample from four reps of each treatment. Square root transformation of population data was made in analysis to determine statistical significance.

Table 93. Effect of treatment on early season nematode populations in soil (SOYSEEDNEMA117, Moyock, NC 2017).

Treatment and rate/A[z]	Nematodes /500 cc soil[y]					
	Root knot	Cyst	Lesion	Stunt	Spiral	Stubby root
1. Untreated	6	6	0	116 b	99	6
2. Test Compound 1 0.075 mg (1st)	0	0	0	6 b	34	0
3. Test Compound 2 0.15 mg	0	0	0	144 ab	67	0
4. Test Compound 2 0.25mg	1937	0	0	49 b	55	0
5. Test Compound 2 0.50 mg	25	0	0	46 b	78	0
6. Test Compound 3 0.25 mg	0	6	0	15 b	269	0
7. Test Compound 3 0.5 mg	10	0	0	6 b	63	6
8. Test Compound 4 0.25 mg	23	0	6	522 a	38	0
9. Test Compound 4 0.5 mg	18	0	0	15 b	10	0
10. Test Compound 1 0.075 mg (2nd)	6	0	6	64 b	189	0
P(F)	0.46	0.57	0.46	**0.03**	0.06	0.57
LSD	N.S.	N.S.	N.S.	184.4 – 389.5	N.S.	N.S.

[z] All seed received Trilex 2000 FS 65 ml/100 kg. Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 17 May.

[y] Soil was sampled on 1 Jun. Data are the mean counts of nematodes in a sample from four reps of each treatmenT. Square root transformation of population data was made in analysis to determine statistical significance.
Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05)

Table 94. Mid-season nematode populations in soil (SOYSEEDNEMA117, Moyock, NC 2017).

Treatment and rate/A[z]	Nematodes /500 cc soil[y]					
	Root knot	Cyst	Lesion	Stunt	Spiral	Stubby root
1. Untreated	65	0	18	104	107	6
2. Test Compound 1 0.075 mg (1st)	244	0	0	38	133	18
3. Test Compound 2 0.15 mg	162	6	6	373	244	6
4. Test Compound 2 0.25mg	544	0	0	67	89	10
5. Test Compound 2 0.50 mg	234	0	0	55	143	18
6. Test Compound 3 0.25 mg	334	0	0	10	162	0
7. Test Compound 3 0.5 mg	438	0	6	111	57	25
8. Test Compound 4 0.25 mg	397	6	15	153	177	0
9. Test Compound 4 0.5 mg	356	0	6	190	81	18
10. Test Compound 1 0.075 mg (2nd)	92	0	6	116	298	6
P(F)	0.71	0.57	0.66	0.07	0.42	0.79
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] All seed received Trilex 2000 FS 65 ml/100 kg. Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 17 May.

[y] Soil was sampled on 26 Jul. Data are the mean counts of nematodes in a sample from four reps of each treatment. Square root transformation of population data was made in analysis to determine statistical significance.

Table 95. Late-season nematode populations in soil (SOYSEEDNEMA117, Moyock, NC 2017).

Treatment and rate/A[z]	Nematodes /500 cc soil[y]						
	Root knot	**Cyst juvenile**	**Cyst female**	**Lesion**	**Stunt**	**Spiral**	**Stubby root**
1. Untreated	1886	177	18	6	469	1340	0 b
2. Test Compound 1 0.075 mg (1st)	9672	120	6	18	657	1175	0 b
3. Test Compound 2 0.15 mg	6052	55	18	10	534	961	0 b
4. Test Compound 2 0.25mg	15544	99	76	43	614	1264	0 b
5. Test Compound 2 0.50 mg	4914	103	34	27	440	2730	0 b
6. Test Compound 3 0.25 mg	2297	120	168	15	362	2260	0 b
7. Test Compound 3 0.5 mg	11072	67	70	57	490	1276	0 b
8. Test Compound 4 0.25 mg	3803	131	25	34	938	1041	0 b
9. Test Compound 4 0.5 mg	25859	144	18	0	487	1163	18 a
10. Test Compound 1 0.075 mg (2nd)	10474	250	60	6	426	8480	0 b
P(F)	0.10	0.46	0.10	0.49	0.99	0.053	**0.01**
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	12.4 – 19.4

[1] All seed received Trilex 2000 FS 65 ml/100 kg. Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 17 May.

[2] Soil was sampled on 4 Oct. Data are the mean counts of nematodes in a sample from four reps of each treatment. Square root transformation of population data was made in analysis to determine statistical significance.
Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05)

Table 96. Effect of seed treatment on phytotoxicity, emergence and root galling in soybean (SOYSEEDNEMA117, Moyock, NC 2017).

Seed treatment and rate ai/seed[z]	% Phyto-toxicity[y] (1 Jun)	Plants/ft[x]		Root galling (0-6)[w] (2 Aug)
		1 Jun	22 Jun	
Untreated	2.6	9.9	10.2 de	1.3
Test Compound 1 0.075 mg (1st)	8.5	10.6	13.8 a	1.9
Test Compound 2 0.15 mg	3.7	10.2	10.4 c-e	2.0
Test Compound 2 0.25mg	3.9	10.2	12.9 ab	2.1
Test Compound 2 0.50 mg	8.5	9.8	9.9 e	2.4
Test Compound 3 0.25 mg	3.7	10.5	11.0 b-e	1.6
Test Compound 3 0.5 mg	6.3	9.9	12.3 a-d	3.1
Test Compound 4 0.25 mg	1.3	10.0	11.8 a-e	2.2
Test Compound 4 0.5 mg	9.3	9.1	10.7 b-e	2.7
Test Compound 1 0.075 mg (2nd)	11.9	10.2	12.5 a-c	1.3
P(F)	0.94	0.10	**0.01**	0.18
LSD	N.S.	N.S.	2.18	N.S.

[z] All seed received Trilex 2000 FS 65 ml/100 kg. Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 17 May.

[y] Percent leaf area with symptoms of Phytoxicity.

[x] Determined from counts in two, 30-ft rows per plot. No symptoms of phytotoxicity were observed on 22 Jun.

[w] 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 five randomly selected plants per plot.

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

Table 97. Effect of seed treatment on yield in soybean (SOYSEEDNEMA117, Moyock, NC 2017).

Seed treatment and rate ai/seed[z]	Yield (bu/A)[y]	Wt./100 seed (oz)
1. Untreated	57.6	16.1
2. Test Compound 1 0.075 mg (1st)	46.3	15.5
3. Test Compound 2 0.15 mg	59.9	16.0
4. Test Compound 2 0.25mg	63.5	15.6
5. Test Compound 2 0.50 mg	56.6	15.7
6. Test Compound 3 0.25 mg	58.4	15.8
7. Test Compound 3 0.5 mg	51.8	15.7
8. Test Compound 4 0.25 mg	48.1	15.4
9. Test Compound 4 0.5 mg	56.0	15.1
10. Test Compound 1 0.075 mg (2nd)	47.2	15.7
P(F)	0.35	0.58
LSD	N.S.	N.S.

[z] All seed received Trilex 2000 FS 65 ml/100 kg. Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 17 May.

[y] Yields are weight of soybeans with 13.5% moisture. One bushel equals 60 lb. Soybeans were harvested 26 Oct.

TEST ID: SOYSEEDNEMA217

PURPOSE: Compare seed treatments for nematode control, plant growth, and yield in soybean

LOCATION: Manly West Farm, Currituck Ridge Drive, Moyock, NC

CROP INFORMATION:

Field	West
Crop history	2016 corn, 2015 soybean, 2014 corn
Planting date	17 May
Seeding rate	10 seed/row ft
Plot length/width	30’
Number of rows	2
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	26 Oct

EXPERIMENTAL DESIGN: Randomized complete block design with four replicates

TREATMENTS:

Trt #	**Seed treatment**	**Rate**
1	Untreated*	
2	Test compound 1 Test compound 2	6 miu/seed 0.15 mg ai/seed
3	Test compound 1 Test compound 2	3 miu/seed 0.075 mg ai/seed
	*Base treatment = Evergol Energy 65 ml/100 kg + Gaucho 0.12 mg ai/seed (all seed)	

SOIL PROPERTIES:

Soil fertility report (30 Mar 2017):

pH	**P (lb/A)**	**K (lb/A)**	**Ca (lb/A)**	**Mg (lb/A)**	**Zn (ppm)**	**Mn (ppm)**	**Cu (ppm)**	**Fe (ppm)**	**B (ppm)**
6.5	10	66	512	82	1	3.2	0.9	15.1	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	Standard
Nematicides	None except treatment

MAINTENANCE CHEMICAL APPLICATIONS*:

Date	Type and target	Product and formulation	Rate
n/a	Fertility	33-30-70-25S	n/a
n/a	Fertility	Black Label Zn	1 gal/A
n/a	Herbicide	Flexstar GT	2 qt/A
n/a	Seed oil protectant	MSO	20 oz/A
n/a	Herbicide	Radiate	2 fl oz/A
n/a	Fungicide	Alto (aerial application)	5 fl oz/A
n/a	Insecticide	Intrepid Edge (aerial application)	4 fl oz/A
n/a	Insecticide	Brigade (aerial application)	6.4 fl oz/A
* Maintenance chemical program supplied by M. West, Cedar Crest Plantation, Moyock, NC. Application dates were not provided.			

Table 98. Pre-plant and mid-season nematode populations in soil (SOYSEEDNEMA217, Moyock, NC 2017).

	Nematodes /500 cc soil[y]					
	Root knot	Stunt		Spiral		Stubby root
Seed treatment and rate[z]	17 May	17 May	26 Jul	17 May	26 Jul	17 May
1. Untreated	0	180	600	120	0	60
2. Test Compound 1 6 miu/seed + Test Compound 2 0.15 mg ai/seed	120	360	240	0	0	60
3. Test Compound 1 3 miu/seed + Test Compound 2 0.075 mg ai/seed	0	300	120	0	0	0

[z] (S) All seed received Evergol Energy 65 ml/100 kg + Gaucho 0.12 mg ai/seed. Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 17 May.

[y] Soil was sampled on 17 May prior to planting. Data are counts of nematodes in a composite sample taken from 4 reps of each treatment.

Table 99. End season nematode populations in soil (SOYSEEDNEMA217, Moyock, NC 2017).

	Nematodes /500 cc soil[y]						
					Cyst		
Seed treatment and rate[z]	Root knot	Stunt	Spiral	Stubby root	Juve-nile	Female /cysts	Lesion
1. Untreated	60	240	3600	0	0	0	0
2. Test Compound 1 6 miu/seed + Test Compound 2 0.15 mg ai/seed	120	420	540	0	120	120	0
3. Test Compound 1 3 miu/seed + Test Compound 2 0.075 mg ai/seed	180	1140	480	0	60	120	120

[z] (S) All seed received Evergol Energy 65 ml/100 kg + Gaucho 0.12 mg ai/seed. Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 17 May.

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

Table 100. Effect of seed treatment on phytotoxicity, emergence, and root galling in soybean (SOYSEEDNEMA217, Moyock, NC 2017).

Seed treatment and rate[z]	% Phytotoxicity[y] (1 Jun)	Plants/ft[x] (1 Jun)	Root galling (0-6)[w] (2 Aug)
1. Untreated	0.0 c	11.3	1.4
2. Test Compound 1 6 miu/seed + Test Compound 2 0.15 mg ai/seed	9.3 ab	11.3	1.0
3. Test Compound 1 3 miu/seed + Test Compound 2 0.075 mg ai/seed	15.8 a	11.2	1.5
P(F)	**0.005**	0.10	0.47
LSD	12.08 – 18.49	N.S.	N.S.

[z] (S) All seed received Evergol Energy 65 ml/100 kg + Gaucho 0.12 mg ai/seed. Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 17 May.
[y] Percent leaf area with symptoms of phytotoxicity.
[x] Determined from counts in two, 30-ft rows per plot.
[w] 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 five randomly selected plants per plot.
Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05), Arcsine transformation of percentage data was made in analysis to determine statistical significance.

Table 101. Effect of seed treatment on yield in soybean (SOYSEEDNEMA217, Moyock, NC 2017).

Seed treatment and rate ai/seed[z]	Yield (bu/A)[y]	Wt./100 seed (oz)
1. Untreated	64.6	0.6
2. Test Compound 1 6 miu/seed + Test Compound 2 0.15 mg ai/seed	70.2	0.6
3. Test Compound 1 3 miu/seed + Test Compound 2 0.075 mg ai/seed	60.1	0.5
P(F)	0.47	0.24
LSD	N.S.	N.S.

[z] (S) All seed received Evergol Energy 65 ml/100 kg + Gaucho 0.12 mg ai/seed. Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 17 May.
[y] Yields are weight of soybeans with 13.5% moisture. One bushel equals 60 lb. Soybean was harvested 26 Oct.

TEST ID: SOYSEEDNEMA317

PURPOSE: Comparison of seed treatments for nematode control, plant growth, and yield in soybean

LOCATION: Manly West Farm, Currituck Ridge Drive, Moyock, NC

CROP INFORMATION:

Field	West
Crop history	2016 corn, 2015 soybean, 2014 corn
Planting date	17 May
Seeding rate	10 seed/row ft
Plot length/width	30’
Number of rows	2
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	26 Oct

EXPERIMENTAL DESIGN: Randomized complete block design with four replicates

TREATMENTS:

Trt #	Treatment
1	Untreated
2	Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Gaucho 600 FS 0.12 mg ai/seed
3	Fluopyram 600 FS 0.15 mg + Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Gaucho 600 FS 0.12 mg ai/seed
4	Fluopyram 600 FS 0.075 mg + Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Gaucho 600 FS 0.12 mg ai/seed
5	Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Poncho/Votivo 0.13 mg ai/seed
6	Fluopyram 600 FS 0.15 mg + Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Poncho/Votivo 0.13 mg ai/seed
7	Maxim 2.5 g + Apron XL LS 3.75 g + Cruiser 5FS 50 g ai/100 kg + Clariva PN 50 130 ml/100 kg + Vibrance 500FS 0.0038 mg ai/seed + Mertect 340F 14.19 g ai/100 kg
8	Ilevo 0.15 mg + Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Gaucho 600 FS 0.12 mg ai/seed

SOIL PROPERTIES:

Soil fertility report (30 Mar 2017):

pH	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)
6.5	10	66	512	82	1	3.2	0.9	15.1	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	Standard
Nematicides	None except treatment

MAINTENANCE CHEMICAL APPLICATIONS*:

Date	Type and target	Product and formulation	Rate
n/a	Fertility	33-30-70-25S	n/a
n/a	Fertility	Black Label Zn	1 gal/A
n/a	Herbicide	Flexstar GT	2 qt/A
n/a	Seed oil protectant	MSO	20 oz/A
n/a	Herbicide	Radiate	2 fl oz/A
n/a	Fungicide	Alto (aerial application)	5 fl oz/A
n/a	Insecticide	Intrepid Edge (aerial application)	4 fl oz/A
n/a	Insecticide	Brigade (aerial application)	6.4 fl oz/A
* Maintenance chemical program supplied by M. West, Cedar Crest Plantation, Moyock, NC. Application dates were not provided.			

Table 102. Pre-plant nematode populations in soil (SOYSEEDNEMA317, Moyock, NC 2017).

	Nematodes /500 cc soil[y]						
Seed treatment and rate[z]	**Root knot**	**Cyst**	**Lesion**	**Stunt**	**Spiral**	**Ring**	**Stubby root**
1. Untreated	180	0	0	0	360	60	0
2. Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Gaucho 600 FS 0.12 mg ai/seed	120	120	0	0	300	0	60
3. Fluopyram 600 FS 0.15 mg + Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Gaucho 600 FS 0.12 mg ai/seed	0	0	0	0	420	0	0
4. Fluopyram 600 FS 0.075 mg + Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Gaucho 600 FS 0.12 mg ai/seed	360	0	0	60	300	0	0
5. Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Poncho/Votivo 0.13 mg ai/seed	720	0	0	120	180	0	0
6. Fluopyram 600 FS 0.15 mg + Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Poncho/Votivo 0.13 mg ai/seed	960	0	60	0	480	0	0
7. Maxim 2.5 g + Apron XL LS 3.75 g + Cruiser 5FS 50 g ai/100 kg + Clariva PN 50 130 ml/100 kg + Vibrance 500FS 0.0038 mg ai/seed + Mertect 340F 14.19 g ai/100 kg	720	0	0	0	60	0	0
8. Ilevo 0.15 mg + Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Gaucho 600 FS 0.12 mg ai/seed	1560	0	60	0	180	0	0

[z] (S) Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 17 May.

[y] Soil was sampled on 17 May prior to planting. Data are counts of nematodes in a composite sample taken from 4 reps of each treatment.

Table 103. Effect of seed treatment on mid-season nematode populations in soybean (SOYSEEDNEMA317, Moyock, NC 2017).

Seed treatment and rate[z]	Nematodes /500 cc soil[y]						
	Root knot	Cyst	Lesion	Stunt	Spiral	Ring	Stubby root
1. Untreated	44880	240	0	1,080	300	0	0
2. Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Gaucho 600 FS 0.12 mg ai/seed	17700	240	420	240	720	0	0
3. Fluopyram 600 FS 0.15 mg + Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Gaucho 600 FS 0.12 mg ai/seed	5820	300	60	240	780	0	0
4. Fluopyram 600 FS 0.075 mg + Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Gaucho 600 FS 0.12 mg ai/seed	12900	0	0	0	300	0	0
5. Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Poncho/Votivo 0.13 mg ai/seed	15420	0	0	120	120	0	0
6. Fluopyram 600 FS 0.15 mg + Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Poncho/Votivo 0.13 mg ai/seed	45840	120	0	240	0	0	0
7. Maxim 2.5 g + Apron XL LS 3.75 g + Cruiser 5FS 50 g ai/100 kg + Clariva PN 50 130 ml/100 kg + Vibrance 500FS 0.0038 mg ai/seed + Mertect 340F 14.19 g ai/100 kg	1020	0	60	180	0	0	60
8. Ilevo 0.15 mg + Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Gaucho 600 FS 0.12 mg ai/seed	39780	0	0	60	60	0	0

[z] (S) Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 17 May.
[y] Soil was sampled on 26 Jul. Data are counts of nematodes in a composite sample taken from 4 reps of each treatment.

Table 104. Effect of seed treatment on late-season nematode populations in soybean (SOYSEEDNEMA317, Moyock, NC 2017).

Seed treatment and rate[z]	Nematodes /500 cc soil[y]			
	Root knot	**Lesion**	**Stunt**	**Spiral**
1. Untreated	18240	0	720	420
2. Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Gaucho 600 FS 0.12 mg ai/seed	15600	120	840	180
3. Fluopyram 600 FS 0.15 mg + Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Gaucho 600 FS 0.12 mg ai/seed	7200	240	180	120
4. Fluopyram 600 FS 0.075 mg + Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Gaucho 600 FS 0.12 mg ai/seed	66660	0	120	60
5. Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Poncho/Votivo 0.13 mg ai/seed	30960	0	180	60
6. Fluopyram 600 FS 0.15 mg + Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Poncho/Votivo 0.13 mg ai/seed	2040	60	0	0
7. Maxim 2.5 g + Apron XL LS 3.75 g + Cruiser 5FS 50 g ai/100 kg + Clariva PN 50 130 ml/100 kg + Vibrance 500FS 0.0038 mg ai/seed + Mertect 340F 14.19 g ai/100 kg	420	0	60	0
8. Ilevo 0.15 mg + Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Gaucho 600 FS 0.12 mg ai/seed	0	0	60	60

[z] (S) Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 17 May.

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

Table 105. Effect of seed treatment on phytotoxicity, emergence, root galling, and yield in soybean (SOYSEEDNEMA317, Moyock, NC 2017).

Seed treatment and rate[z]	% Phyto-toxicity[y] (1 Jun)	Plants/ft[x] (1 Jun)	Root galling (0-6)[w] (2 Aug)	Yield (bu/A)[v]	Wt./100 seed (g)
1. Untreated	0.0 c	11.2	4.7	28.2	13.9
2. Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Gaucho 600 FS 0.12 mg ai/seed	0.3 bc	10.4	4.0	56.2	15.7
3. Fluopyram 600 FS 0.15 mg + Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Gaucho 600 FS 0.12 mg ai/seed	23.7 a	11.2	4.0	28.9	14.0
4. Fluopyram 600 FS 0.075 mg + Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Gaucho 600 FS 0.12 mg ai/seed	14.8 ab	10.8	4.7	37.4	14.7
5. Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Poncho/Votivo 0.13 mg ai/seed	0.0 c	10.1	5.1	19.8	14.4
6. Fluopyram 600 FS 0.15 mg + Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Poncho/Votivo 0.13 mg ai/seed	18.2 a	10.0	4.5	30.9	14.4
7. Maxim 2.5 g + Apron XL LS 3.75 g + Cruiser 5FS 50 g ai/100 kg + Clariva PN 50 130 ml/100 kg + Vibrance 500FS 0.0038 mg ai/seed + Mertect 340F 14.19 g ai/100 kg	0.0 c	11.1	4.3	16.7	14.4
8. Ilevo 0.15 mg + Evergol Energy 0.019 mg + Allegiance FL 0.02 mg + Gaucho 600 FS 0.12 mg ai/seed	14.8 ab	10.7	4.5	41.8	14.4
P(F)	**0.02**	0.20	0.88	0.13	0.41
LSD	16.87 – 21.84	N.S.	N.S.	N.S.	N.S.

[z] (S) Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 17 May.
[y] Percent leaf area with symptoms of phytotoxicity.
[x] Determined from counts in two, 30-ft rows per plot.
[w] 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 five randomly selected plants per plot.
[v] Yields are weight of soybeans with 13.5% moisture. One bushel equals 60 lb. Soybeans were harvested 26 Oct.
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.

TEST ID: SOYNEMA117

PURPOSE: Compare seed treatments for nematode control and yield response in soybean

LOCATION: Tidewater AREC, 6321 Holland Road, Suffolk, VA

CROP INFORMATION:

Field	55
Crop history	2016 corn, 2015 soybean, 2014 corn
Planting date	8 Jun
Variety	AG5233
Seeding rate	10 seed/row ft
Plot length/width	30’
Number of rows	2 rows
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	27 Oct

EXPERIMENTAL DESIGN: Randomized complete block design with four replicates

APPLICATION OF TREATMENTS:

	IF granular
Equipment	Noble Box
Pressure (psi)	---
Nozzle type	---
Volume (gal/A)	Rate/A

TREATMENTS:

Trt #	**Seed treatment/rate**	**In-furrow treatment/rate**
1	Base (Acceleron)	Untreated
2	Avicta Complete Pak 10 g a/100 kg	Untreated
3	Clariva 130 ml/100 kg	Untreated
4	Fluopyram (ILeVO) 0.075 mg a/seed	Untreated
5	Poncho/VOTIVO 0.13 mg a/seed	Untreated
6	Fluopyram (ILeVO)0.075 mg a/seed + Poncho/VOTIVO 0.13 mg a/seed	Untreated Untreated
7	Base (Acceleron)	AgLogic 15G 7 lb/A

SOIL PROPERTIES:

Soil type: Kenansville loamy fine sand

Soil fertility report (8 Jun 2017):

pH	**P (lb/A)**	**K (lb/A)**	**Ca (lb/A)**	**Mg (lb/A)**	**Zn (ppm)**	**Mn (ppm)**	**Cu (ppm)**	**Fe (ppm)**	**B (ppm)**
6.3	75	152	973	150	0.8	2.3	0.8	41.8	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	Standard
Nematicides	None except treatment

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
9 Apr	Herbicide	Roundup WeatherMax	1 qt
18 Apr	Fertility	7-18-37	215 lb
27 May	Herbicide Herbicide	Roundup WeatherMax Ignite 280SL	1 qt 1 qt
16 Jun	Herbicide	Roundup WeatherMax	1 qt
7 Jul	Herbicide	Roundup WeatherMax	1 qt

Table 106. Pre-plant, mid-season, and end season nematode populations in soil (SOYNEMA117, Suffolk, VA 2017).

	Nematodes /500 cc soil[y]							
	Cyst female			Cyst juvenile		Lesion		RKN
Treatment and rate[z]	8 Jun	7 Aug	30 Oct	7 Aug	30 Oct	8 Jun	30 Oct	30 Oct
1. Base fungicide treatment (S)	6	6	323	55	57	18	6	6
2. Avicta Complete Pak 10 g a/100 kg (S)	10	18	254	168	94	0	0	0
3. Clariva 130 ml/100 kg (S)	6	0	296	6	55	0	0	6
4. Fluopyram (ILeVO) 0.075 mg a/seed (S)	18	0	144	70	10	0	0	0
5. Poncho/VOTIVO 0.13 mg a/seed (S)	0	0	84	67	10	0	0	0
6. Fluopyram (ILeVO)0.075 mg a/seed + Poncho/VOTIVO 0.13 mg a/seed (S)	0	6	104	94	18	19	6	0
7. Base fungicide treatment (S) + AgLogic 15G 7 lb/A (F)	6	6	73	84	10	6	0	0
P(F)	0.62	0.52	0.06	0.40	0.53	0.50	0.59	0.59
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (S) = seed treatment, (F) = in-furrow treatment (8 Jun). All seed received base fungicide treatment of Acceleron. Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 8 Jun.

[y] Soil was sampled on 8 Jun prior to planting. Cyst juvenile nematode were not detected on 8 Jun; lesion nematode were not detected on 7 Aug; and root knot nematode was only detected on 30 Oct. Data are the mean counts of nematodes in a sample from four reps of each treatment. Square root transformation of population data was made in analysis to determine statistical significance.

Table 106 (cont.). Pre-plant, mid-season, and end season nematode populations in soil (SOYNEMA117, Suffolk, VA 2017).

Treatment and rate[z]	Nematodes /500 cc soil[y]								
	Stunt			Spiral			Stubby root		
	8 Jun	7 Aug	30 Oct	8 Jun	7 Aug	30 Oct	8 Jun	7 Aug	30 Oct
1. Base fungicide treatment (S)	25	19	57	506	403	2834	25	67	76
2. Avicta Complete Pak 10 g a/100 kg (S)	0	96	46	231	359	2599	10	10	18
3. Clariva 130 ml/100 kg (S)	0	153	0	78	294	3404	32	41	10
4. Fluopyram (ILeVO) 0.075 mg a/seed (S)	10	94	50	133	297	2826	0	57	25
5. Poncho/VOTIVO 0.13 mg a/seed (S)	0	67	6	234	192	2958	25	32	6
6. Fluopyram (ILeVO)0.075 mg a/seed + Poncho/VOTIVO 0.13 mg a/seed (S)	6	60	57	336	559	3222	36	6	10
7. Base fungicide treatment (S) + AgLogic 15G 7 lb/A (F)	0	15	6	243	164	2303	25	0	10
P(F)	0.17	0.59	0.21	0.12	0.27	0.97	0.58	0.27	0.30
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (S) = seed treatment, (F) = in-furrow treatment (8 Jun). All seed received base fungicide treatment of Acceleron. Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 8 Jun.

[y] Soil was sampled on 8 Jun prior to planting. Cyst juvenile nematode were not detected on 8 Jun; lesion nematode were not detected on 7 Aug; and root knot nematode was only detected on 30 Oct. Data are the mean counts of nematodes in a sample from four reps of each treatment. Square root transformation of population data was made in analysis to determine statistical significance.

Table 107. Effect of treatment on emergence, cyst nematode, yield, and seed weight in soybean (SOYNEMA117, Suffolk, VA 2017).

Treatment and rate[z]	Plants/ft[y]		No. RKN eggs/g root wt[x] (10 Aug)	Yield (bu/A)[w]	Wt./100 seed (oz)
	26 Jun	10 Jul			
1. Base fungicide treatment (S)	13.7	14.7 ab	4.5	68.2	0.56
2. Avicta Complete Pak 10 g a/100 kg (S)	12.7	13.7 b	9.1	73.0	0.58
3. Clariva 130 ml/100 kg (S)	12.8	14.8 ab	2.7	71.0	0.58
4. Fluopyram (ILeVO) 0.075 mg a/seed (S)	12.1	14.5 b	3.8	66.5	0.58
5. Poncho/VOTIVO 0.13 mg a/seed (S)	12.4	13.6 b	3.8	70.4	0.58
6. Fluopyram (ILeVO)0.075 mg a/seed + Poncho/VOTIVO 0.13 mg a/seed (S)	11.9	13.6 b	5.5	71.1	0.57
7. Base fungicide treatment (S) + AgLogic 15G 7 lb/A (F)	12.6	16.3 a	2.9	64.7	0.58
P(F)	0.33	**0.04**	0.34	0.47	0.75
LSD	N.S.	1.72	N.S.	N.S.	N.S.

[z](S) = seed treatment, (F) = in-furrow treatment (8 Jun). All seed received base fungicide treatment of Acceleron. Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 8 Jun. [y]Determined from counts of one 1-meter section per each row. Plots were examined and no symptoms of phytotoxicity were observed. [x]Determined from count of eggs removed by washing and weighing 3-5 randomly selected roots with symptoms of *Meloidogyne* sp. galling per plot. Square root transformation of population data was made in analysis to determine statistical significance. [w]Yields are weight of soybeans with 13.5% moisture. One bushel equals 60 lb. Soybeans were harvested 27 Oct. Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05).

TEST ID: SOYNEMA217

PURPOSE: Compare seed treatments for nematode control and yield response in soybean

LOCATION: Bennie Jennings Farm, 3101 Ballahack Road, Chesapeake, VA

CROP INFORMATION:

Field	Jennings
Crop history	2016 soybean
Planting date	9 Jun
Variety	AG5233
Seeding rate	10 seed/row ft
Plot length/width	25’
Number of rows	2 rows
Row spacing	36”
Alleys (length between blocks)	6’
Harvest date	26 Oct

EXPERIMENTAL DESIGN: Randomized complete block design with six replicates

APPLICATION OF TREATMENTS:

	IF granular
Equipment	Noble Box
Pressure (psi)	---
Nozzle type	---
Volume (gal/A)	Rate/A

TREATMENTS:

Trt #	**Seed treatment/rate**	**In-furrow treatment/rate**
1	Base (Acceleron)	Untreated
2	Avicta Complete Pak 10 g a/100 kg	Untreated
3	Clariva 130 ml/100 kg	Untreated
4	Fluopyram (ILeVO) 0.075 mg a/seed	Untreated
5	Poncho/VOTIVO 0.13 mg a/seed	Untreated
6	Fluopyram (ILeVO)0.075 mg a/seed + Poncho/VOTIVO 0.13 mg a/seed	Untreated Untreated
7	Base (Acceleron)	AgLogic 15G 7 lb/A

SOIL PROPERTIES:

Soil fertility report (9 Jun 2017):

pH	**P (lb/A)**	**K (lb/A)**	**Ca (lb/A)**	**Mg (lb/A)**	**Zn (ppm)**	**Mn (ppm)**	**Cu (ppm)**	**Fe (ppm)**	**B (ppm)**
6.14	19	114	1029	102	0.4	39	03	29.4	0.3

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	Standard
Nematicides	None except treatment

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate
Burndown	Herbicide	Glyphosate	1 qt/A
26 Jun	Herbicide	Flexstar GT (aerial application)	N/A
18 Jul	Fertility	7-18-36	205 lb/A

Table 108. Pre-plant, mid-season, and end season nematode populations in soil (SOYNEMA217, Chesapeake, VA 2017).

	Nematodes /500 cc soil[y]						
	Cyst juvenile		Cyst female			Lesion	
Treatment and rate[z]	**25 Jul**	**26 Oct**	**9 Jun**	**25 Jul**	**26 Oct**	**25 Jul**	**26 Oct**
1. Base fungicide treatment (S)	0	8	17	3	3	0	52
2. Avicta Complete Pak 10 g a/100 kg (S)	21	5	28	0	37	3	113
3. Clariva 130 ml/100 kg (S)	5	67	45	4	17	1	29
4. Fluopyram (ILeVO) 0.075 mg a/seed (S)	28	12	42	0	8	0	60
5. Poncho/VOTIVO 0.13 mg a/seed (S)	45	36	9	3	29	3	87
6. Fluopyram (ILeVO)0.075 mg a/seed + Poncho/VOTIVO 0.13 mg a/seed (S)	6	3	12	3	0	4	28
7. Base fungicide treatment (S) + AgLogic 15G 7 lb/A (F)	12	5	40	3	22	28	9
P(F)	0.50	0.09	0.82	0.89	0.38	0.08	0.36
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (S) = seed treatment, (F) = in-furrow treatment (9 Jun). All seed received base fungicide treatment of Acceleron. Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 9 Jun.

[y] Soil was sampled on 9 Jun prior to planting. Cyst juvenile nematode and lesion nematode were not detected on 9 Jun. Data are the mean counts of nematodes in a sample from four reps of each treatment. Square root transformation of population data was made in analysis to determine statistical significance.

Table 108 (cont). Pre-plant, mid-season, and end season nematode populations in soil (SOYNEMA217, Chesapeake, VA 2017).

Treatment and rate[z]	Nematodes /500 cc soil[y]					
	Stunt			Spiral		
	9 Jun	25 Jul	26 Oct	9 Jun	25 Jul	26 Oct
1. Base fungicide treatment (S)	3	9	9	148	596	3153
2. Avicta Complete Pak 10 g a/100 kg (S)	8	3	12	100	157	2653
3. Clariva 130 ml/100 kg (S)	0	27	5	195	299	2931
4. Fluopyram (ILeVO) 0.075 mg a/seed (S)	0	0	12	122	609	3959
5. Poncho/VOTIVO 0.13 mg a/seed (S)	0	35	3	152	455	2544
6. Fluopyram (ILeVO)0.075 mg a/seed + Poncho/VOTIVO 0.13 mg a/seed (S)	0	20	26	157	344	1702
7. Base fungicide treatment (S) + AgLogic 15G 7 lb/A (F)	0	3	0	281	245	1464
P(F)	0.55	0.23	0.57	0.84	0.47	0.33
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (S) = seed treatment, (F) = in-furrow treatment (9 Jun). All seed received base fungicide treatment of Acceleron. Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 9 Jun.

[y] Soil was sampled on 9 Jun prior to planting. Cyst juvenile nematode and lesion nematode were not detected on 9 Jun. Data are the mean counts of nematodes in a sample from four reps of each treatment. Square root transformation of population data was made in analysis to determine statistical significance.

Table 109. Effect of treatment on emergence, cyst nematode, yield, and seed weight in soybean (SOYNEMA217, Chesapeake, VA 2017).

Treatment and rate[z]	Plants/ft[y]		No. cyst/gram root wt[x] (28 Aug)	No. eggs/ gram root wt[x] (28 Aug)	Yield (bu/A)[w]	Wt./100 seed (oz)
	22 Jun	13 Jul				
1. Base fungicide treatment (S)	17.4	12.9	0.8	6.8	59.0	0.51
2. Avicta Complete Pak 10 g a/100 kg (S)	16.5	12.5	0.9	8.5	67.0	0.52
3. Clariva 130 ml/100 kg (S)	16.4	11.5	0.6	5.9	56.4	0.50
4. Fluopyram (ILeVO) 0.075 mg a/seed (S)	16.0	11.4	0.5	4.7	58.2	0.50
5. Poncho/VOTIVO 0.13 mg a/seed (S)	16.4	11.3	1.0	13.5	67.5	0.52
6. Fluopyram (ILeVO)0.075 mg a/seed + Poncho/VOTIVO 0.13 mg a/seed (S)	15.6	11.3	0.3	0.9	58.6	0.52
7. Base fungicide treatment (S) + AgLogic 15G 7 lb/A (F)	15.6	11.2	0.3	2.3	59.0	0.52
P(F)	0.69	0.32	0.67	0.45	0.51	0.56
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (S) = seed treatment, (F) = in-furrow treatment (9 Jun). All seed received base fungicide treatment = Acceleron. Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 9 Jun.

[y] Determined from counts of one 1-meter section per each row. No symptoms of phytotoxicity were observed.

[x] Determined from count of *Heterodera glycines* cysts and eggs removed by washing and weighing 3-5 randomly selected roots with galling per plot. Square root transformation of population data was made in analysis to determine statistical significance.

[w] Yields are weight of soybeans with 13.5% moisture. One bushel equals 60 lb. Soybeans were harvested 26 Oct.

TEST ID: SOYNEMA317

PURPOSE: Compare seed treatments for nematode control and yield response in soybean

LOCATION: Manly West Farm, Currituck Ridge Drive, Moyock, NC

CROP INFORMATION:

Field	West
Crop history	2016 corn, 2015 soybean, 2014 corn
Planting date	17 May
Variety	Ag5233
Seeding rate	10 seed/row ft
Plot length/width	30’
Number of rows	2 rows
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	26 Oct

EXPERIMENTAL DESIGN: Randomized complete block design with six replicates

APPLICATION OF TREATMENTS:

	IF granular
Equipment	Noble Box
Pressure (psi)	---
Nozzle type	---
Volume (gal/A)	Rate/A

TREATMENTS:

Trt #	**Seed treatment/rate**	**In-furrow treatment/rate**
1	Base (Acceleron)	Untreated
2	Avicta Complete Pak 10 g a/100 kg	Untreated
3	Clariva 130 ml/100 kg	Untreated
4	Fluopyram (ILeVO) 0.075 mg a/seed	Untreated
5	Poncho/VOTIVO 0.13 mg a/seed	Untreated
6	Fluopyram (ILeVO)0.075 mg a/seed + Poncho/VOTIVO 0.13 mg a/seed	Untreated Untreated
7	Base (Acceleron)	AgLogic 15G 7 lb/A

SOIL PROPERTIES:

Soil fertility report (30 Mar 2017):

pH	**P (lb/A)**	**K (lb/A)**	**Ca (lb/A)**	**Mg (lb/A)**	**Zn (ppm)**	**Mn (ppm)**	**Cu (ppm)**	**Fe (ppm)**	**B (ppm)**
6.5	10	66	512	82	1	3.2	0.9	15.1	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	Standard
Nematicides	None except treatment

MAINTENANCE CHEMICAL APPLICATIONS*:

Date	Type and target	Product and formulation	Rate
n/a	Fertility	33-30-70-25S	n/a
n/a	Fertility	Black Label Zn	1 gal/A
n/a	Herbicide	Flexstar GT	2 qt/A
n/a	Seed oil protectant	MSO	20 oz/A
n/a	Herbicide	Radiate	2 fl oz/A
n/a	Fungicide	Alto (aerial application)	5 fl oz/A
n/a	Insecticide	Intrepid Edge (aerial application)	4 fl oz/A
n/a	Insecticide	Brigade (aerial application)	6.4 fl oz/A
* Maintenance chemical program supplied by M. West, Cedar Crest Plantation, Moyock, NC. Application dates were not provided.			

Table 110. Pre-plant, mid-season, and end season nematode populations in soil (SOYNEMA317, Moyock, NC 2017).

	Nematodes /500 cc soil[y]					
	Root knot			Cyst		
Treatment and rate[z]	**17 May**	**26 Jul**	**4 Oct**	**17 May**	**26 Jul**	**4 Oct**
1. Base fungicide treatment (S)	286	21216	3938	9	21	35
2. Avicta Complete Pak 10 g a/100 kg (S)	203	24439	3292	3	40	96
3. Clariva 130 ml/100 kg (S)	454	42024	3992	0	21	91
4. Fluopyram (ILeVO) 0.075 mg a/seed (S)	556	22153	2924	0	21	201
5. Poncho/VOTIVO 0.13 mg a/seed (S)	230	18433	2773	0	182	169
6. Fluopyram (ILeVO)0.075 mg a/seed + Poncho/VOTIVO 0.13 mg a/seed (S)	612	38138	3001	3	58	105
7. Base fungicide treatment (S) + AgLogic 15G 7 lb/A (F)	417	26942	2358	9	40	132
P(F)	0.55	0.63	0.12	0.30	0.85	0.76
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (S) = seed treatment, (F) = in-furrow treatment (17 May). All seed received base fungicide treatment of Acceleron. Seed treatments were applied by personnel with Bayer CropScience.

[y] Soil was sampled on 17 May prior to planting. Square root transformation of population data was made in analysis to determine statistical significance.
Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05).

Table 110 (cont). Pre-plant, mid-season, and end season nematode populations in soil (SOYNEMA317, Moyock, NC 2017).

	Nematodes /500 cc soil[y]					
	Lesion			Stunt		
Treatment and rate[z]	17 May	26 Jul	4 Oct	17 May	26 Jul	4 Oct
1. Base fungicide treatment (S)	22	0	3 d	0	0	637
2. Avicta Complete Pak 10 g a/100 kg (S)	18	0	47 ab	0	0	460
3. Clariva 130 ml/100 kg (S)	12	21	10 b-d	3	0	276
4. Fluopyram (ILeVO) 0.075 mg a/seed (S)	12	0	65 a	0	0	322
5. Poncho/VOTIVO 0.13 mg a/seed (S)	28	0	42 a-c	3	0	348
6. Fluopyram (ILeVO)0.075 mg a/seed + Poncho/VOTIVO 0.13 mg a/seed (S)	9	0	55 a	0	21	439
7. Base fungicide treatment (S) + AgLogic 15G 7 lb/A (F)	49	0	8 cd	5	0	384
P(F)	0.65	0.44	**0.01**	0.70	0.44	0.56
LSD	N.S.	N.S.	31.41 – 48.8	N.S.	N.S.	N.S.

[z] (S) = seed treatment, (F) = in-furrow treatment (17 May). All seed received base fungicide treatment of Acceleron. Seed treatments were applied by personnel with Bayer CropScience.

[y] Soil was sampled on 17 May prior to planting. Square root transformation of population data was made in analysis to determine statistical significance.
Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05).

Table 110 (cont). Pre-plant, mid-season, and end season nematode populations in soil (SOYNEMA317, Moyock, NC 2017).

	Nematodes /500 cc soil[y]					
	Spiral			Stubby root		
Treatment and rate[z]	17 May	26 Jul	4 Oct	17 May	26 Jul	4 Oct
1. Base fungicide treatment (S)	81	31	581	3	21	9
2. Avicta Complete Pak 10 g a/100 kg (S)	67	204	1925	3	0	5
3. Clariva 130 ml/100 kg (S)	133	398	1093	47	40	12
4. Fluopyram (ILeVO) 0.075 mg a/seed (S)	16	76	1177	3	0	3
5. Poncho/VOTIVO 0.13 mg a/seed (S)	112	0	1807	3	21	5
6. Fluopyram (ILeVO)0.075 mg a/seed + Poncho/VOTIVO 0.13 mg a/seed (S)	18	144	1724	32	21	55
7. Base fungicide treatment (S) + AgLogic 15G 7 lb/A (F)	87	5	1294	9	0	3
P(F)	0.26	0.13	0.51	0.11	0.80	0.16
LSD	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (S) = seed treatment, (F) = in-furrow treatment (17 May). All seed received base fungicide treatment of Acceleron. Seed treatments were applied by personnel with Bayer CropScience.

[y] Soil was sampled on 17 May prior to planting. Square root transformation of population data was made in analysis to determine statistical significance.
Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05).

Table 111. Effect of treatment on phytotoxicity, emergence, and cyst nematode, in soybean (SOYNEMA317, Moyock, NC 2017).

Treatment and rate[z]	% Phyto-toxicity[y] (1 Jun)	Plants/ft[x]		No. cyst/gram root wt[w] (2 Aug)	No. eggs/ gram root wt[u] (2 Aug)
		1 Jun	22 Jun		
1. Base fungicide treatment (S)	1.1	10.7	12.2	2.6	6185
2. Avicta Complete Pak 10 g a/100 kg (S)	1.3	10.6	11.7	1.5	6539
3. Clariva 130 ml/100 kg (S)	1.6	11.1	10.9	2.3	9805
4. Fluopyram (ILeVO) 0.075 mg a/seed (S)	2.2	10.9	11.2	2.5	8193
5. Poncho/VOTIVO 0.13 mg a/seed (S)	2.0	10.5	12.2	2.5	5752
6. Fluopyram (ILeVO)0.075 mg a/seed + Poncho/VOTIVO 0.13 mg a/seed (S)	0.6	10.5	11.3	2.6	6051
7. Base fungicide treatment (S) + AgLogic 15G 7 lb/A (F)	0.1	10.5	12.0	1.6	3723
P(F)	0.81	0.80	0.87	0.17	0.47
LSD	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (S) = seed treatment, (F) = in-furrow treatment. All seed received base fungicide treatment = Acceleron. Seed treatments were applied by personnel with Bayer CropScience.

[y] Percent of leaf area with symptoms of phytotoxicity. Plots were observed on 22 Jun and showed no symptoms of phytoxicity.

[x] Average number of plants per row foot on 1 Jun determined from counts in two, 30-ft rows per plot. Average number of plants per row foot on 22 Jun determined from counts of one 1-meter section per each row. No symptoms of phytotoxicity were observed on 22 Jun.

[w] 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 five randomly selected plants per plot.

[u] Determined from count of eggs removed by washing and weighing 3-5 randomly selected roots with symptoms of *Meloidogyne* sp. galling per plot. Square root transformation of population data was made in analysis to determine statistical significance.

Arcsine transformation of percentage data was made in analysis to determine statistical significance.

Table 112. Effect of treatment on yield in soybean (SOYNEMA317, Moyock, NC 2017).

Treatment and rate[z]	Yield (bu/A)[y]	Wt./100 seed (oz)
1. Base fungicide treatment (S)	26.3	15.0
2. Avicta Complete Pak 10 g a/100 kg (S)	33.0	13.9
3. Clariva 130 ml/100 kg (S)	26.7	14.5
4. Fluopyram (ILeVO) 0.075 mg a/seed (S)	30.9	14.7
5. Poncho/VOTIVO 0.13 mg a/seed (S)	36.5	14.5
6. Fluopyram (ILeVO)0.075 mg a/seed + Poncho/VOTIVO 0.13 mg a/seed (S)	27.3	14.3
7. Base fungicide treatment (S) + AgLogic 15G 7 lb/A (F)	35.2	14.8
P(F)	0.75	0.68
LSD	N.S.	N.S.

[z] (S) = seed treatment, (F) = in-furrow treatment (17 May). All seed received base fungicide treatment of Acceleron. Seed treatments were applied by personnel with Bayer CropScience.

[y] Yields are weight of soybeans with 13.5% moisture. One bushel equals 60 lb. Soybeans were harvested 26 Oct.

TEST ID: SOYNEMA417

PURPOSE: Compare soybean varieties with and without AgLogic in-furrow for nematode damage and yield

LOCATION: Tidewater AREC, 6321 Holland Road, Suffolk, VA

CROP INFORMATION:

Field	55
Crop history	2016 corn, 2015 soybean, 2014 corn
Planting date	8 Jun
Variety	AG54X6, AG5535. AG55X7
Seeding rate	10 seed/row ft
Plot length/width	30’
Number of rows	2 rows
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	27 Oct

EXPERIMENTAL DESIGN: Factorial randomized complete block design with four replicates (3 varieties x 2 in-furrow treatments)

APPLICATION OF TREATMENTS:

	IF granular
Equipment	Noble Box
Pressure (psi)	---
Nozzle type	---
Volume (gal/A)	Rate/A

VARIETY:

Trt #	**Variety**	**RKN**	**SCN**
1	AG54X6	Susceptible	Resistant (race 3)
2	AG5535	Susceptible	Resistant (race 1, 3)
3	AG55X7	Resistant	Susceptible

TREATMENT:

Trt #	**In-furrow treatment**	**Rate/A**
1	Untreated	Untreated
2	AgLogic	7 lb

SOIL PROPERTIES:

Soil type: Kenansville loamy fine sand

Soil fertility report (9 Dec 2016):

pH	**P (lb/A)**	**K (lb/A)**	**Ca (lb/A)**	**Mg (lb/A)**	**Zn (ppm)**	**Mn (ppm)**	**Cu (ppm)**	**Fe (ppm)**	**B (ppm)**
6.3	75	152	973	150	0.8	2.3	0.8	41.8	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	Standard
Nematicides	None except treatment

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate/A
9 Apr	Herbicide	Roundup WeatherMAX	1 qt
18 Apr	Fertility	7-18-37	215 lb
27 May	Herbicide Herbicide	Roundup WeatherMAX Ignite 280SL	1 qt 1 qt
16 Jun	Herbicide	Roundup WeatherMAX	1 qt
7 Jul	Herbicide	Roundup WeatherMAX	1 qt

Table 113. Pre-plant, mid-season and end season nematode populations in soil (SOYNEMA417, Suffolk, VA 2017).

		Nematodes /500 cc soil[y]						
		Cyst female			Cyst juvenile		Lesion	Ring
Variety	Treatment and rate/A[z]	8 Jun	7 Aug	31 Oct	7 Aug	31 Oct	8 Jun	8 Jun
1. AG54X6	Untreated	18	0	123	327 b	36	6	0
2. AG54X6	AgLogic 7 lb (F)	6	0	189	177 bc	6	6	0
3. AG5535	Untreated	0	0	50	36. cd	25	32	6
4. AG5535	AgLogic 7 lb (F)	0	0	41	10. d	6	25	0
5. AG55X7	Untreated	0	0	388	851 a	10	15	0
6. AG55X7	AgLogic 7 lb (F)	0	6	123	224 bc	6	6	0
P(F)		0.13	0.45	0.12	**0.001**	0.77	0.78	0.45
LSD		N.S.	N.S.	N.S.	157.7 – 472.1	N.S.	N.S.	N.S.

[z] (F) = in-furrow treatment (8 Jun). All seed received base fungicide treatment of Acceleron. Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 8 Jun.

[y] Soil was sampled on 8 Jun prior to planting. Data are the mean counts of nematodes in a sample from four reps of each treatment combination. Lesion and ring nematode were not detected on 7 Aug and 31 Oct. Square root transformation of population data was made in analysis to determine statistical significance.

Table 113 (cont.). Pre-plant, mid-season and end season nematode populations in soil (SOYNEMA417, Suffolk, VA 2017).

Variety	Treatment and rate/A[z]	Nematodes /500 cc soil[y]								
		Stunt			Spiral			Stubby root		
		8 Jun	7 Aug	31 Oct	8 Jun	7 Aug	31 Oct	8 Jun	7 Aug	31 Oct
1. AG54X6	Untreated	46	148	78	438	334	2257	34	56	6
2. AG54X6	AgLogic 7 lb (F)	6	55	18	157	241	1510	18	6	10
3. AG5535	Untreated	144	148	38	295	178	2604	36	10	6
4. AG5535	AgLogic 7 lb (F)	77	108	170	472	32	2923	34	6	10
5. AG55X7	Untreated	10	148	110	303	442	2173	18	34	70
6. AG55X7	AgLogic 7 lb (F)	36	41	153	342	99	1926	25	6	6
P(F)		0.10	0.80	0.53	0.48	0.30	0.84	0.92	0.20	0.45
LSD		N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (F) = in-furrow treatment (8 Jun). All seed received base fungicide treatment of Acceleron. Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 8 Jun.

[y] Soil was sampled on 8 Jun prior to planting. Data are the mean counts of nematodes in a sample from four reps of each treatment combination. Lesion and ring nematode were not detected on 7 Aug and 31 Oct. Square root transformation of population data was made in analysis to determine statistical significance.

Table 114. Effect of variety and treatment on emergence, cyst nematode, yield, and seed weight in soybean (SOYNEMA417, Suffolk, VA 2017).

Variety	Treatment and rate/A[z]	Plants/ft[y]		No. cyst/gram root wt[x] (9 Aug)	No. egg/gram root wt[x] (9 Aug)	Yield (bu/A)[w]	Wt./100 seed (oz)
		22 Jun	10 Jul				
1. AG54X6	Untreated	9.7 ab	9.8 ab	7.3 b	203.3 b	63.5 c	0.66 a
2. AG54X6	AgLogic 7 lb (F)	10.4 a	9.6 ab	4.1 bc	193.2 b	67.3 bc	0.66 a
3. AG5535	Untreated	8.4 bc	7.4 c	0.4 c	13.7 c	73.2 ab	0.62 ab
4. AG5535	AgLogic 7 lb (F)	7.9 c	9.0 bc	0.0 c	8.0 c	73.9 a	0.63 ab
5. AG55X7	Untreated	11.2 a	10.3 ab	19.4 a	589.6 a	64.1 c	0.58 bc
6. AG55X7	AgLogic 7 lb (F)	11.1 a	11.0 a	4.7 bc	230.9 b	70.8 ab	0.57 c
P(F)		**0.001**	**0.03**	**0.002**	**0.001**	**0.01**	**0.009**
LSD		1.48	1.99	4.97 – 11.75	119.78 – 337.87	6.24	0.05

[z] (F) = in-furrow treatment (8 Jun). All seed received base fungicide treatment of Acceleron. Seed treatments were applied by personnel with Bayer CropScience. Seed was planted 8 Jun.

[y] Determined from counts of one 1-meter section per each row. No symptoms of phytotoxicity were observed.

[x] Determined from count of *Heterodera glycines* cysts and eggs removed by washing and weighing 3-5 randomly selected roots with galling per plot. Square root transformation of population data was made in analysis to determine statistical significance.

[w] Yields are weight of soybeans with 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).

TEST ID: SOYNEMA517

PURPOSE: Compare soybean varieties with and without AgLogic in-furrow for nematode damage and yield

LOCATION: Bennie Jennings Farm, 3010 Ballahack Road, Chesapeake, VA

CROP INFORMATION:

Field	Jennings
Crop history	2016 soybean
Planting date	9 Jun
Variety	AG54X6, AG5535. AG55X7
Seeding rate	10 seed/row ft
Plot length/width	25’
Number of rows	2 rows
Row spacing	36”
Alleys (length between blocks)	6’
Harvest date	26 Oct

EXPERIMENTAL DESIGN: Factorial randomized complete block design with four replicates (3 varieties x 2 in-furrow treatments)

APPLICATION OF TREATMENTS:

	IF granular
Equipment	Noble Box
Pressure (psi)	---
Nozzle type	---
Volume (gal/A)	Rate/A

VARIETY:

Trt #	**Variety**	**RKN**	**SCN**
1	AG54X6	Susceptible	Resistant (race 3)
2	AG5535	Susceptible	Resistant (race 1, 3)
3	AG55X7	Resistant	Susceptible

TREATMENT:

Trt #	**In-furrow treatment**	**Rate/A**
1	Untreated	Untreated
2	AgLogic	7 lb

SOIL PROPERTIES:

Soil fertility report (9 Jun 2017):

pH	**P (lb/A)**	**K (lb/A)**	**Ca (lb/A)**	**Mg (lb/A)**	**Zn (ppm)**	**Mn (ppm)**	**Cu (ppm)**	**Fe (ppm)**	**B (ppm)**
6.14	19	114	1029	102	0.4	39	03	29.4	0.3

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	Standard
Nematicides	None except treatment

MAINTENANCE CHEMICAL APPLICATIONS:

Date	Type and target	Product and formulation	Rate
Burndown	Herbicide	Glyphosate	1 qt/A
26 Jun	Herbicide	Flexstar GT (aerial application)	N/A
18 Jul	Fertility	7-18-36	205 lb/A

Table 115. Pre-plant, mid-season and late season nematode populations in soil (SOYNEMA517, Chesapeake, VA 2017).

Variety	Treatment and rate/A[z]	Nematodes /500 cc soil[y]						
		Cyst female			Cyst juvenile		Lesion	
		9 Jun	25 Jul	26 Oct	25 Jul	26 Oct	25 Jul	26 Oct
1. AG54X6	Untreated	29	0	5	22	26	9	78
2. AG54X6	AgLogic 7 lb (F)	3	0	5	2	26	0	0
3. AG5535	Untreated	22	0	3	0	17	3	40
4. AG5535	AgLogic 7 lb (F)	29	3	16	3	3	0	0
5. AG55X7	Untreated	18	8	3	4	26	5	35
6. AG55X7	AgLogic 7 lb (F)	12	12	12	16	9	0	18
P(F)		0.66	0.50	0.88	0.39	0.56	0.44	0.07
LSD		N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (F) = in-furrow treatment (9 Jun). All seed received base fungicide treatment of Acceleron. Seed treatments were applied by personnel with Bayer CropScience.

[y] Soil was sampled on 9 Jun prior to planting. Data are the mean counts of nematodes in a sample from four reps of each treatment combination. Cyst juvenile and lesion nematode were not detected on 9 Jun. Square root transformation of population data was made in analysis to determine statistical significance.

Table 115 (cont.). Pre-plant, mid-season and end season nematode populations in soil (SOYNEMA517, Chesapeake, VA 2017).

Variety	Treatment and rate/A[z]	Nematodes /500 cc soil[y]					
		Stunt			Spiral		
		9 Jun	25 Jul	26 Oct	9 Jun	25 Jul	26 Oct
1. AG54X6	Untreated	8	98	235	172	556	2369
2. AG54X6	AgLogic 7 lb (F)	3	25	32	158	461	3056
3. AG5535	Untreated	9	44	100	103	400	3686
4. AG5535	AgLogic 7 lb (F)	16	46	44	134	399	2916
5. AG55X7	Untreated	32	93	155	169	556	2501
6. AG55X7	AgLogic 7 lb (F)	9	29	51	241	496	2314
P(F)		0.57	0.65	0.07	0.82	0.97	0.68
LSD		N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

[z] (F) = in-furrow treatment (9 Jun). All seed received base fungicide treatment of Acceleron. Seed treatments were applied by personnel with Bayer CropScience.

[y] Soil was sampled on 9 Jun prior to planting. Data are the mean counts of nematodes in a sample from four reps of each treatment combination. Cyst juvenile and lesion nematode were not detected on 9 Jun. Square root transformation of population data was made in analysis to determine statistical significance.

Table 116. Effect of variety and treatment on emergence, cyst nematode, yield, and seed weight in soybean (SOYNEMA517, Chesapeake, VA 2017).

Variety	Treatment and rate/A[z]	Plants/ft[y]		No. cyst/gram root wt[x] (28 Aug)	No. egg/gram root wt[x] (28 Aug)	Yield (bu/A)[w]	Wt./100 seed (oz)
		22 Jun	10 Jul				
1. AG54X6	Untreated	11.8 ab	10.8	0.5	1.5	57.9	16.5 a
2. AG54X6	AgLogic 7 lb (F)	10.6 b	10.1	0.7	8.2	51.1	16.0 a
3. AG5535	Untreated	10.2 b	9.2	0.7	7.4	54.3	16.5 a
4.AG5535	AgLogic 7 lb (F)	10.9 b	10.3	0.3	0.7	60.2	16.2 a
5.AG55X7	Untreated	14.2 a	11.2	0.3	0.7	63.0	14.3 b
6.AG55X7	AgLogic 7 lb (F)	12.4 ab	10.5	1.1	11.2	49.0	14.4 b
P(F)		**0.03**	0.55	0.80	0.32	0.24	**0.003**
LSD		2.48	N.S.	N.S.	N.S.	N.S.	1.38

[z] (F) = in-furrow treatment (9 Jun). All seed received base fungicide treatment of Acceleron. Seed treatments were applied by personnel with Bayer CropScience.

[y] Determined from counts of one 1-meter section per each row. No symptoms of phytotoxicity were observed.

[x] Determined from count of *Heterodera glycines* cysts and eggs removed by washing and weighing 3-5 randomly selected roots with galling per plot. Square root transformation of population data was made in analysis to determine statistical significance.

[w] Yields are weight of soybeans with 13.5% moisture. One bushel equals 60 lb. Soybeans were harvested 26 Oct. Means in a column followed by the same letter(s) are not significantly different according to Fisher's Protected LSD (*P*=0.05).

TEST ID: SOYNEMA617

PURPOSE: Compare soybean varieties with and without AgLogic in-furrow for nematode damage and yield

LOCATION: Manly West Farm, Currituck Ridge Drive, Moyock, NC

CROP INFORMATION:

Field	West
Crop history	2016 corn, 2015 soybean, 2014 corn
Planting date	17 May
Variety	AG54X6, AG5535. AG55X7
Seeding rate	10 seed/row ft
Plot length/width	30’
Number of rows	2 rows
Row spacing	36”
Alleys (length between blocks)	8’
Harvest date	26 Oct

EXPERIMENTAL DESIGN: Factorial randomized complete block design with four replicates (3 varieties x 2 in-furrow treatments)

APPLICATION OF TREATMENTS:

	IF granular
Equipment	Noble Box
Pressure (psi)	---
Nozzle type	---
Volume (gal/A)	Rate/A

VARIETY:

Trt #	**Variety**	**RKN**	**SCN**
1	AG54X6	Susceptible	Resistant (race 3)
2	AG5535	Susceptible	Resistant (race 1, 3)
3	AG55X7	Resistant	Susceptible

TREATMENT:

Trt #	**In-furrow treatment**	**Rate/A**
1	Untreated	Untreated
2	AgLogic	7 lb

SOIL PROPERTIES:

Soil fertility report (30 Mar 2017):

pH	**P (lb/A)**	**K (lb/A)**	**Ca (lb/A)**	**Mg (lb/A)**	**Zn (ppm)**	**Mn (ppm)**	**Cu (ppm)**	**Fe (ppm)**	**B (ppm)**
6.5	10	66	512	82	1	3.2	0.9	15.1	0.1

MAINTENANCE CHEMICAL PROGRAMS:

Fertilizer	Standard
Herbicides	Standard
Insecticides	Standard
Fungicides	Standard
Nematicides	None except treatment

MAINTENANCE CHEMICAL APPLICATIONS*:

Date	Type and target	Product and formulation	Rate
n/a	Fertility	33-30-70-25S	n/a
n/a	Fertility	Black Label Zn	1 gal/A
n/a	Herbicide	Flexstar GT	2 qt/A
n/a	Seed oil protectant	MSO	20 oz/A
n/a	Herbicide	Radiate	2 fl oz/A
n/a	Fungicide	Alto (aerial application)	5 fl oz/A
n/a	Insecticide	Intrepid Edge (aerial application)	4 fl oz/A
n/a	Insecticide	Brigade (aerial application)	6.4 fl oz/A
* Maintenance chemical program supplied by M. West, Cedar Crest Plantation, Moyock, NC. Application dates were not provided.			

Table 117. Pre-plant, mid-season, and end season nematode populations in soil (SOYNEMA617, Moyock, NC 2017).

Variety	Treatment and rate/A[z]	Nematodes /500 cc soil[y]					
		Cyst female			Cyst juvenile		Stunt
		17 May	26 Jul	4 Oct	26 Jul	4 Oct	17 May
1. AG54X6	Untreated	32	0	3	78	5 c	0
2. AG54X6	AgLogic 7 lb (F)	28	0	17	12	83 ab	0
3. AG5535	Untreated	9	5	9	8	169 a	0
4. AG5535	AgLogic 7 lb (F)	29	0	5	20	78 a-c	32
5. AG55X7	Untreated	12	21	35	136	187 a	12
6. AG55X7	AgLogic 7 lb (F)	35	3	5	187	40 bc	18
P(F)		0.77	0.34	0.60	0.08	**0.01**	0.30
LSD		N.S.	N.S.	N.S.	N.S.	73.4 – 135.5	N.S.

[z] (S) = seed treatment, (F) = in-furrow treatment (17 May). All seed received base fungicide treatment of Acceleron. Seed treatments were applied by personnel with Bayer CropScience.

[y] Soil was sampled on 17 May prior to planting. Data are the mean counts of nematodes in a sample from four reps of each treatment. Square root transformation of population data was made in analysis to determine statistical significance. Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05).

Table 117 (cont.). Pre-plant, mid-season, and end season nematode populations in soil (SOYNEMA617, Moyock, NC 2017).

Variety	Treatment and rate/A[z]	Nematodes /500 cc soil[y]					
		Root knot			Lesion		
		17 May	26 Jul	4 Oct	17 May	26 Jul	4 Oct
1. AG54X6	Untreated	1045	30928 a	2658	0	8	12
2. AG54X6	AgLogic 7 lb (F)	689	7889 b	501	3	0	68
3. AG5535	Untreated	653	74485 b	279	0	0	22
4. AG5535	AgLogic 7 lb (F)	1023	13518 ab	644	0	0	34
5. AG55X7	Untreated	1724	5956 b	325	0	0	70
6. AG55X7	AgLogic 7 lb (F)	1074	1975 b	409	3	0	36
P(F)		0.27	**0.05**	0.06	0.44	0.44	0.56
LSD		N.S.	13533.0-21755.3	N.S.	N.S.	N.S.	N.S.

[z] (S) = seed treatment, (F) = in-furrow treatment (17 May). All seed received base fungicide treatment of Acceleron. Seed treatments were applied by personnel with Bayer CropScience.

[y] Soil was sampled on 17 May prior to planting. Data are the mean counts of nematodes in a sample from four reps of each treatment. Square root transformation of population data was made in analysis to determine statistical significance. Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05).

Table 117 (cont.). Pre-plant, mid-season, and end season nematode populations in soil (SOYNEMA617, Moyock, NC 2017).

Variety	Treatment and rate/A[z]	Nematodes /500 cc soil[y]					
		Spiral			Stubby root		
		17 May	26 Jul	4 Oct	17 May	26 Jul	4 Oct
1. AG54X6	Untreated	89	335 a	234	40	3	668
2. AG54X6	AgLogic 7 lb (F)	88	40 b	72	29	8	1578
3. AG5535	Untreated	283	209 ab	118	23	21	2430
4. AG5535	AgLogic 7 lb (F)	206	43 b	182	12	12	2152
5. AG55X7	Untreated	184	485 a	131	22	100	1960
6. AG55X7	AgLogic 7 lb (F)	104	395 a	115	22	103	728
P(F)		0.20	**0.03**	0.38	0.93	0.12	0.33
LSD		N.S.	280.3 – 375.4	N.S.	N.S.	N.S.	N.S.

[z] (S) = seed treatment, (F) = in-furrow treatment (17 May). All seed received base fungicide treatment of Acceleron. Seed treatments were applied by personnel with Bayer CropScience.

[y] Soil was sampled on 17 May prior to planting. Data are the mean counts of nematodes in a sample from four reps of each treatment. Square root transformation of population data was made in analysis to determine statistical significance. Means followed by the same letter(s) in a column are not significantly different according to Fisher's Protected LSD (P=0.05).

Table 118. Effect of treatment on phytotoxicity, emergence, and cyst nematode, in soybean (SOYNEMA617, Currituck Co., NC 2017).

Variety	Treatment and rate/A[z]	% Phyto-toxicity[y] (1 Jun)	Plants/ft[x]		No. cyst/gram root wt[w] (3 Aug)	No. eggs/ gram root wt[u] (3 Aug)
			1 Jun	22 Jun		
1. AG54X6	Untreated	5.4	11.2	9.6	3.9a	4326.8 a
2. AG54X6	AgLogic 7 lb (F)	0.6	10.4	9.7	1.8b	2954.6 ab
3. AG5535	Untreated	6.9	10.8	11.3	0.5c	1658.2 a-c
4. AG5535	AgLogic 7 lb (F)	2.3	10.7	9.5	0.7bc	1298.6 bc
5. AG55X7	Untreated	4.0	11.1	11.1	0.2c	1439.3 bc
6. AG55X7	AgLogic 7 lb (F)	5.6	10.9	11.1	0.2c	740.8 c
P(F)		0.52	0.74	0.62	**0.0001**	**0.05**
LSD		N.S.	N.S.	N.S.	N.S.	N.S.

[z] (S) = seed treatment, (F) = in-furrow treatment. All seed received base fungicide treatment = Acceleron. Seed treatments were applied by personnel with Bayer CropScience.

[y] Percent of leaf area with symptoms of phytotoxicity. Plots were observed on 22 Jun and showed no symptoms of phytoxicity.

[x] Average number of plants per row foot on 1 Jun determined from counts in two, 30-ft rows per plot. Average number of plants per row foot on 22 Jun determined from counts of one 1-meter section per each row. No symptoms of phytotoxicity were observed on 22 Jun.

[w] 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 five randomly selected plants per plot.

[u] Determined from count of eggs removed by washing and weighing 3-5 randomly selected roots with symptoms of *Meloidogyne* sp. galling per plot. Square root transformation of population data was made in analysis to determine statistical significance. Arcsine transformation of percentage data was made in analysis to determine statistical significance.

Table 119. Effect of treatment on yield in soybean (SOYNEMA617, Currituck Co., 2017).

Variety	Treatment and rate/A[z]	Yield (bu/A)[y]	Wt./100 seed (oz)
1. AG54X6	Untreated	45.0	0.60 ab
2. AG54X6	AgLogic 7 lb (F)	40.2	0.60 ab
3. AG5535	Untreated	52.2	0.57 bc
4. AG5535	AgLogic 7 lb (F)	54.5	0.61 a
5. AG55X7	Untreated	50.2	0.56 c
6. AG55X7	AgLogic 7 lb (F)	74.0	0.56 c
P(F)		0.07	**0.04**
LSD		N.S.	0.04

[z] (S) = seed treatment, (F) = in-furrow treatment (17 May). All seed received base fungicide treatment of Acceleron. Seed treatments were applied by personnel with Bayer CropScience.

[y] Yields are weight of soybeans with 13.5% moisture. One bushel equals 60 lb. Soybeans were harvested 26 Oct.

CLIMATOLOGICAL SUMMARY OF THE 2017 GROWING SEASON AT THE TIDEWATER AGRICULTURAL RESEARCH & EXTENSION CENTER, SUFFOLK, VA.

Table 120. Daily maximum and minimum temperatures (◦F) November 2016 - April 2017.

Day of month	NOV		DEC		JAN		FEB		MAR		APR	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	62	41	71	41	56	43	60	37	81	59	72	51
2	76	52	57	32	54	48	59	35	62	32	65	38
3	84	56	54	31	55	47	42	27	52	28	73	37
4	68	44	48	35	62	41	41	20	48	23	81	58
5	67	39	59	42	45	25	55	23	44	26	79	50
6	74	36	57	45	39	31	63	28	63	25	76	55
7	60	34	60	37	31	13	70	47	72	47	56	45
8	69	32	52	34	25	3	72	53	69	48	66	30
9	63	47	44	24	28	1	60	30	72	38	75	34
10	63	40	41	20	42	7	45	22	62	32	79	49
11	70	39	50	22	55	41	70	41	48	25	82	57
12	56	28	58	40	72	52	81	55	48	27	82	59
13	66	24	56	38	68	45	60	28	47	23	71	48
14	64	31	51	40	46	41	52	25	51	34	74	40
15	58	37	43	18	51	39	52	30	39	24	82	53
16	64	32	32	14	47	37	45	24	47	24	85	63
17	64	33	49	30	58	44	59	21	56	20	85	62
18	75	34	78	43	68	38	73	32	50	42	69	47
19	76	37	42	34	60	35	73	44	52	33	73	47
20	51	35	46	27	50	36	69	37	58	29	83	59
21	50	30	57	23	54	46	62	33	73	46	89	66
22	55	20	63	28	53	50	64	40	58	31	83	55
23	60	23	54	31	67	44	74	53	49	24	59	52
24	65	34	52	40	56	39	76	45	70	26	64	53
25	67	47	55	42	69	41	76	47	77	54	77	61
26	53	30	54	44	68	42	54	33	76	50	77	59
27	52	27	66	44	49	30	64	30	77	53	84	61
28	52	29	59	33	50	27	75	43	74	54	87	68
29	73	52	56	32	54	31			66	46	88	72
30	77	63	47	31	43	24			63	38	86	69
31			47	31	64	23			73	48		
Average	**64.4**	**36.8**	**53.5**	**33.0**	**52.8**	**34.2**	**62.4**	**35.2**	**60.5**	**35.7**	**76.6**	**53.3**
Normal	**63.9**	**38.2**	**54.8**	**32.1**	**50.8**	**28.4**	**53.1**	**30.0**	**61.0**	**36.8**	**71.1**	**45.3**
Deviation from normal	**0.6**	**-1.4**	**-1.3**	**1.0**	**2.1**	**5.9**	**9.3**	**5.2**	**-0.5**	**-1.1**	**5.5**	**8.0**

Table 121. Daily maximum and minimum temperatures (◦F) May 2017 – October 2017.

Day of month	MAY		JUN		JUL		AUG		SEP		OCT	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	85	68	88	68	101	81	89	57	73	60	73	49
2	77	61	87	65	104	80	90	64	82	61	75	44
3	77	49	88	61	102	85	89	68	81	62	77	43
4	75	50	91	61	103	85	88	67	85	57	83	48
5	71	62	83	71	93	76	89	67	88	68	84	53
6	65	46	85	68	88	74	86	59	83	64	85	52
7	67	46	72	59	95	80	86	70	77	56	85	60
8	68	41	73	59	96	76	79	70	80	51	82	73
9	72	39	83	55	90	70	82	61	78	51	88	73
10	79	52	88	61	91	69	86	59	72	51	90	74
11	66	55	91	68	92	72	83	67	74	54	88	75
12	56	53	91	70	94	75	86	74	79	65	76	68
13	64	49	90	71	95	77	84	71	85	67	74	68
14	81	43	93	72	96	73	88	70	82	66	74	68
15	78	53	83	71	94	73	91	75	88	67	86	69
16	83	47	88	70	91	71	91	71	86	66	71	48
17	92	61	85	72	85	71	91	69	83	63	64	37
18	88	67	88	75	88	72	94	74	85	69	71	34
19	91	69	89	75	95	71	93	72	83	68	77	39
20	85	61	82	67	95	70	95	69	91	64	80	40
21	78	57	85	67	94	75	91	70	91	60	81	45
22	81	65	88	70	95	75	91	70	90	61	81	46
23	69	64	91	73	94	72	95	72	89	57	81	54
24	73	62	91	73	89	71	86	67	89	60	79	51
25	82	64	88	65	89	68	88	64	82	58	69	42
26	82	64	86	58	87	64	83	62	78	71	65	35
27	89	61	84	59	88	67	81	61	88	74	72	32
28	82	66	83	53	85	72	79	61	90	67	74	37
29	90	67	87	57	79	67	75	66	80	56	68	47
30	86	72	91	67	81	60	82	65	75	50	60	38
31	87	71			85	54	86	65			72	37
Average	**77.9**	**57.5**	**86.3**	**66.0**	**92.1**	**72.5**	**86.9**	**67.0**	**82.8**	**61.4**	**76.8**	**50.9**
Normal	**78.7**	**55.0**	**86.4**	**63.3**	**89.6**	**67.3**	**88.4**	**65.5**	**82.6**	**60.1**	**73.2**	**48.1**
Deviation from normal	**-0.8**	**2.6**	**-0.1**	**2.7**	**2.5**	**5.2**	**-1.4**	**1.5**	**0.2**	**1.3**	**3.7**	**2.7**

Table 122. Daily precipitation (inches) November 2016– April 2017.						
Day of month	**NOV**	**DEC**	**JAN**	**FEB**	**MAR**	**APR**
1	0.00	0.00	0.01	0.00	0.41	0.00
2	0.00	0.00	1.15	0.00	0.00	0.01
3	0.00	0.00	0.03	0.00	0.00	0.01
4	0.37	0.08	0.00	0.00	0.00	0.00
5	0.00	0.47	0.01	0.00	0.00	0.00
6	0.00	0.48	0.02	0.00	0.00	0.05
7	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.04	0.00	0.00	0.00
9	0.05	0.00	0.02	0.27	0.00	0.00
10	0.00	0.00	0.47	0.00	0.00	0.00
11	0.00	0.00	0.03	0.00	0.00	0.00
12	0.00	0.06	0.01	0.00	0.00	0.00
13	0.00	0.02	0.00	0.00	0.35	0.00
14	0.03	0.00	0.00	0.00	1.42	0.00
15	0.02	0.00	0.00	0.13	0.00	0.00
16	0.00	0.00	0.02	0.00	0.00	0.00
17	0.00	0.09	0.01	0.00	0.00	0.49
18	0.00	0.08	0.00	0.00	0.07	0.13
19	0.00	0.05	0.00	0.00	0.28	0.00
20	0.00	0.00	0.17	0.00	0.00	0.00
21	0.00	0.00	0.32	0.00	0.00	0.00
22	0.00	0.00	0.01	0.00	0.03	0.37
23	0.05	0.00	0.12	0.00	0.00	0.03
24	0.00	0.16	0.01	0.00	0.00	0.02
25	0.00	0.00	0.00	0.00	0.00	1.00
26	0.12	0.00	0.07	0.00	0.00	0.18
27	0.00	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	0.02	0.05
29	0.01	0.31	0.00		0.01	0.00
30	0.01	0.00	0.00		0.00	0.00
31		0.00	0.00		1.66	
Total	**0.66**	**1.80**	**2.52**	**0.40**	**4.25**	**2.34**
Normal	**3.45**	**3.59**	**3.79**	**3.41**	**3.45**	**3.34**
Deviation from normal	**-2.79**	**-1.79**	**-1.27**	**-3.01**	**0.80**	**-1.00**

Table 123. Daily precipitation (inches) May 2017 – October 2017.						
Day of month	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**
1	0.00	0.00	0.00	0.22	0.54	0.00
2	0.14	0.00	0.00	0.00	0.52	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00
4	0.03	0.08	0.09	0.00	0.00	0.00
5	0.65	0.76	1.58	0.00	0.16	0.00
6	0.00	0.02	0.19	0.00	1.60	0.00
7	0.00	0.00	0.09	0.34	0.03	0.02
8	0.00	0.00	0.03	0.24	0.00	0.10
9	0.00	0.00	0.01	0.00	0.00	0.00
10	0.14	0.00	0.00	0.00	0.00	0.06
11	0.01	0.00	0.00	1.70	0.00	1.75
12	0.38	0.00	0.00	1.33	0.00	0.02
13	0.19	0.00	0.00	0.01	0.00	0.28
14	0.00	0.00	0.21	1.25	0.48	0.04
15	0.00	0.01	0.06	0.02	0.00	0.01
16	0.00	0.08	0.01	0.00	0.00	0.04
17	0.00	0.74	0.01	0.00	0.03	0.00
18	0.00	0.00	0.01	0.00	0.07	0.00
19	0.09	0.20	0.00	0.07	0.01	0.00
20	0.01	0.72	0.01	0.00	0.00	0.00
21	0.00	0.17	0.00	0.00	0.00	0.00
22	0.47	0.00	0.00	0.00	0.00	0.00
23	1.51	0.00	0.00	0.11	0.00	0.00
24	0.27	0.00	0.00	0.00	0.00	0.00
25	0.08	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	0.01	0.00	0.22	0.00
27	0.46	0.00	0.01	0.00	0.04	0.00
28	0.21	0.00	0.02	0.30	0.00	0.00
29	0.00	0.00	0.01	1.74	0.00	0.00
30	0.08	0.00	0.01	0.00	0.00	0.00
31	0.00		0.00	0.00		0.00
Total	**4.72**	**2.78**	**2.36**	**7.33**	**3.70**	**2.32**
Normal	**4.09**	**4.26**	**5.29**	**5.05**	**6.52**	**4.34**
Deviation from normal	**0.63**	**-1.48**	**-2.93**	**2.28**	**-2.82**	**-2.02**