2011

Insect Pest Management in Virginia Cotton, Peanut, and Soybean

Tidewater Agricultural Research and Extension Center
Virginia Agricultural Experiment Station

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INSECT PEST MANAGEMENT IN VIRGINIA

COTTON, PEANUT, AND SOYBEAN

2011

D. Ames Herbert, Jr., Extension Entomologist, Virginia Tech Tidewater AREC

Technical Support:
Mike Arrington, Research Specialist, Virginia Tech Tidewater AREC
Bobby Estienne, Virginia Tech Tidewater AREC
Nathan Harris, Virginia Tech Tidewater AREC
Katherine Kamminga, Post-Doctoral Fellow, Virginia Tech Dept. of Entomology
Laura Maxey, Virginia Tech Dept. of Entomology
Rebecca McGrath, Agricultural Technician, Virginia Tech Tidewater AREC
David Owens, Graduate Student, Virginia Tech Dept. of Entomology
Jessica Samler, Graduate Student, Virginia Tech Dept. of Entomology
Sean Malone, Research Specialist, Virginia Tech Tidewater AREC
Ed Seymore, Virginia Tech Tidewater AREC
John Xenakis, Virginia Tech Tidewater AREC

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UNIVERSITY FACULTY AND STAFF

Virginia Polytechnic Institute and State University

David Holshouser, Soybean Specialist, Tidewater AREC, Suffolk, VA
Patrick Phipps, Plant Pathologist, Tidewater AREC, Suffolk, VA
Maria Balota, Crop Physiologist, Tidewater AREC, Suffolk, VA
Thomas Kuhar, Entomologist, Eastern Shore AREC, Painter, VA
Robert Pitman, Director, Eastern Virginia AREC, Warsaw, VA
Mary Beahm, Agricultural Specialist, Eastern Virginia AREC, Warsaw, VA
Pete Schultz, Director/Entomologist, Hampton Roads AREC, Virginia Beach, VA
Hélène Doughty, Senior Research Specialist, Eastern Shore AREC, Painter, VA
Jim Jenrette, Research Assistant, Eastern Shore AREC, Painter, VA

North Carolina State University

Jack Bacheler, Entomologist, Dept. of Entomology, Raleigh, NC
Dan Mott, Research Specialist, Dept. of Entomology, Raleigh, NC
Dominic Reisig, Entomologist, Dept. of Entomology, Plymouth, NC
Steven Roberson, Research Technician, Dept. of Entomology, Plymouth, NC

University of Delaware
Joanne Whalen, Entomologist, Newark, DE

University of Maryland
Galen Dively, Entomologist, College Park, MD

Virginia State University
Mark Kraemer, Entomologist, Dept. of Entomology, Petersburg, VA

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Watson Lawrence, Chesapeake
Carl Stafford, Culpeper Co.
Mike Parrish, Dinwiddie Co.
Keith Balderson, Essex Co.
Livvy Gill, Intern, Essex Co.
Janet Spencer, Isle of Wight Co.
Micah Owens, Intern, New Kent Co.
Susan Dunaway, Intern, Middlesex Co.
David Moore, Middlesex Co.
William Shockley, Northampton Co.
Steve Hopkins, Orange Co.
Scott Reiter, Prince George Co.
Kelly Liddington, Richmond Co.
Matt Yancey, Rockingham Co.
Robert Clark, Shenandoah Co.
Neil Clark, Southampton Co.
Chris Drake, Southampton Co.
Glenn Slade, Surry Co.
Kelvin Wells, Sussex Co.

UNITED STATES DEPARTMENT OF AGRICULTURE
Ryan Jackson, Research Entomologist, Stoneville, MS

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Insect Rating Scales Used in Efficacy Trials and Abbreviations Used in this Publication

Thrips injury rating scale for cotton:
0 = no injury
1 = 10% injured leaves, no bud injury
2 = 25% injured leaves, no bud injury
3 = 75% injured leaves, 0-25% buds injured
4 = 90% injured leaves, >25% buds injured
5 = dead plants

Thrips injury rating scale for peanut:
0 = no injury
1 = 10% leaves injured
2 = 20% leaves injured
3 = 30% leaves injured
4 = 40% leaves injured
5 = ≥ 50% leaves injured + ≤ 5% terminal buds injured
6 = ≥ 50% leaves injured + 25% terminal buds injured
7 = ≥ 50% leaves injured + 50% terminal buds injured
8 = ≥ 50% leaves injured + 75% terminal buds injured
9 = ≥ 50% leaves injured + 90% terminal buds injured
10 = dead plants

Abbreviations used in this publication:
1st tl: first true leaf
ai: active ingredient
BC: broadcast
cotyl: cotyledon
cwt: hundred-weight
GC: ground-cracking
IF: in-furrow
RCBD: randomized complete block design
Tidewater AREC: Tidewater Agricultural Research and Extension Center

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Climatological Summary of the 2011 Growing Season—Tidewater AREC, Suffolk, VA

Table 1. Daily maximum and minimum temperatures (°F) for 2011.

	JAN		FEB		MAR		APR		MAY		JUN	
Day of month	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	56	20	40	30	79	35	49	40	74	41	97	64
2	46	21	64	33	51	22	51	30	75	48	97	68
3	65	27	72	31	64	30	60	34	83	56	95	61
4	41	19	41	32	46	25	68	43	86	51	83	47
5	49	23	42	35	58	33	86	58	63	39	87	61
6	49	33	52	31	67	42	70	29	70	40	80	62
7	48	24	55	26	65	35	67	46	75	49	89	57
8	42	25	56	34	55	25	79	45	71	48	91	65
9	42	33	52	19	55	29	80	44	77	46	98	69
10	40	18	45	27	59	46	65	46	79	43	100	69
11	37	28	41	11	67	37	75	52	78	44	96	64
12	34	27	45	19	52	26	84	61	79	43	90	63
13	38	20	58	23	67	44	85	47	77	58	91	65
14	43	27	60	23	77	36	68	39	70	58	81	58
15	40	18	71	30	57	34	73	39	90	61	80	58
16	51	28	62	33	58	47	73	52	85	54	81	55
17	50	27	61	20	64	37	72	59	83	61	86	67
18	49	24	72	42	67	42	74	43	79	56	90	65
19	44	33	76	52	83	57	83	52	83	50	95	67
20	48	36	62	33	69	34	87	61	79	53	88	68
21	59	35	57	34	57	42	89	55	82	55	79	60
22	43	19	74	32	77	50	70	37	83	53	92	69
23	30	10	39	26	70	47	61	50	88	66	90	69
24	42	11	52	24	73	50	83	55	92	77	91	67
25	38	25	67	44	60	36	90	63	93	62	90	65
26	52	33	75	26	58	36	89	65	90	68	90	60
27	44	28	58	36	45	33	85	63	93	66	89	67
28	42	22	77	42	40	26	85	69	96	68	92	69
29	51	21			53	23	83	50	90	64	98	68
30	54	28			60	34	71	45	97	70	88	65
31	59	30			46	37			95	68		
Avg.	**46.0**	**24.9**	**58.1**	**30.3**	**61.3**	**36.5**	**75.2**	**49.1**	**82.4**	**55.4**	**89.8**	**63.7**

Table 1, continued. Daily maximum and minimum temperatures (°F) for 2011.

	JUL		AUG		SEP		OCT		NOV		DEC	
Day of month	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**
1	89	59	82	66	83	53	85	50				
2	90	58	92	66	84	56	66	40				
3	92	68	93	67	81	58	58	40				
4	96	67	95	70	86	59	62	41				
5	98	68	93	69	89	64	70	47				
6	99	69	89	69	86	67	76	47				
7	87	65	95	72	92	73	75	39				
8	92	65	96	70	86	71	74	43				
9	91	65	95	71	89	67	78	46				
10	97	63	96	66	88	72	80	58				
11	92	63	97	67	87	60	79	54				
12	95	72	89	64	89	61	74	62				
13	98	73	89	65	88	59	72	64				
14	89	72	90	63	89	60	81	60				
15	90	55	87	63	90	62	74	43				
16	83	56	86	61	90	53	74	40				
17	85	62	87	59	70	57	76	41				
18	91	61	89	59	72	58	85	54				
19	93	64	89	61	69	53	87	61				
20	97	65	91	66	77	57	78	46				
21	98	65	88	64	80	64	65	39				
22	102	74	92	65	83	68	67	42				
23	103	76	87	58	88	67	67	37				
24	104	73	86	56	78	64	68	39				
25	100	72	91	65	79	66	71	44				
26	96	71	95	66	75	66	69	40				
27	93	70	88	74	83	66	77	49				
28	93	69	80	55	85	63	78	42				
29	100	75	90	66	86	63	52	29				
30	99	71	85	62	85	58	52	29				
31	95	70	83	55			57	29				
Avg.	**94.4**	**67.0**	**89.8**	**64.5**	**83.6**	**62.2**	**71.8**	**45.0**				

Table 2. Daily precipitation (inches) for 2011—Tidewater AREC, Suffolk, VA.

Day of month	JAN	FEB	MAR	APR	MAY	JUN
1	0	0	0.06	0.21	0	0
2	0	0.14	0	0	0	0
3	0.08	0.05	0	0.06	0	0
4	0	0	0	0.45	0.12	0
5	0	0	0	0.23	0.15	0.38
6	0	0.09	0.15	0.07	0	0.04
7	0	0	0.48	0	0	0.03
8	0	0.11	0	0	0	0
9	0	0	0	0.45	0	0
10	0	0.21	0.18	0.07	0	0
11	0.09	0	0.38	0	0.16	0.67
12	0.21	0	0.02	0	0	1.67
13	0	0	0	0	0	0.09
14	1.2	0	0	0	0.14	0
15	0	0	0	0	0.12	0
16	0	0	0.05	0	0	0
17	0	0	0	0	0	0.03
18	0	0	0	0	0	0
19	0.05	0	0	0	0.05	0.03
20	0	0	0	0	0	0.19
21	0	0	0.03	0	0	0
22	0	0.03	0.19	0	0	0
23	0	0	0	0.03	0	0.01
24	0	0	0.07	0	0.46	0.07
25	0	0.04	0.17	0	1.03	0.35
26	0.67	0.06	0.02	0	0	0
27	0.36	0	0.27	0.1	0	0.07
28	0	0.07	0	0.34	0	0.06
29	0		0	0	0	0.59
30	0		0.03	0	0	0
31	0		0.82		0	
Total	**2.66**	**0.80**	**2.92**	**2.01**	**2.23**	**4.28**

Table 2, continued. Daily precipitation (inches) for 2011—Tidewater AREC, Suffolk, VA.

Day of month	JUL	AUG	SEP	OCT	NOV	DEC
1	0	0.42	0	0.48		
2	0	0.03	0	0.02		
3	0.13	0	0	0		
4	0	0.04	0	0		
5	0.71	0	0	0.02		
6	0	0.03	0.23	0		
7	0.3	0	1.08	0		
8	0.96	0	0.85	0.02		
9	1.58	0.06	1.02	0		
10	1.57	0	0	0		
11	0	0	0	0		
12	0	0.1	0	0.02		
13	0	0	0	0.03		
14	0	0.5	0	0.23		
15	0	0.18	0	0		
16	0	0.38	1.85	0		
17	0	0	0	0		
18	0	0	0	0		
19	0	0	0.56	1.58		
20	0	0.13	0	0.38		
21	0	0.03	0	0		
22	0	0.12	0.05	0.01		
23	0	0	0.05	0.01		
24	0	0	0	0		
25	1.76	0	1.87	0		
26	0.4	0.17	0.02	0		
27	0	3.5	0	0		
28	0	8.15	0.93	0		
29	0	0	0.45	0.39		
30	0	0.37	0	0.15		
31	0.55	0		0		
Total	**7.96**	**14.21**	**8.96**	**3.34**		

Table 3. Soil types, nutrient analyses (ppm), and pH for tests conducted in 2011—Tidewater AREC, Suffolk, VA.

Field #	Crop	Soil type(s)	P	K	Ca	Mg	Zn	Mn	pH
6	Cotton	Uchee, Nansemond, Eunola	27	76	370	36	0.6	2.9	6.23
13	Peanut	Dragston, Rains	45	118	443	71	0.4	2.9	6.39
15	Cotton	Emporia, Nansemond	67	38	309	37	0.5	3.8	6.45
23	Cotton	Emporia, Uchee	36	54	242	44	0.7	2.7	6.38
27	Cotton	Emporia, Uchee	38	60	234	25	0.9	3.4	6.03
36	Peanut	Uchee, Nansemond	63	52	241	26	1.0	3.3	6.29
40	Soybean	Emporia, Eunola, Dragston	24	68	281	41	0.6	1.9	6.32
50	Cotton	Dragston	55	110	496	84	0.8	1.9	6.30
60	Soybean	Dragston, Weston	25	96	306	57	0.4	2.2	6.52
63D	Peanut	Nansemond, Emporia	26	84	344	45	0.4	2.2	6.34
64A	Cotton	Nansemond, Emporia	24	69	269	27	0.3	1.5	6.01
66	Cotton	Nansemond, Emporia	37	71	423	44	0.8	4.6	6.44
67	Peanut	Eunola, Emporia, Nansemond	44	65	376	38	0.6	4.5	6.52

2011

Cotton Insect Pest Management Tests and Demonstrations

Test: CT11-THP-Regional-Irrigated, Efficacy of an insecticide (thiamethoxam) seed treatment in combination with either base fertilizer alone or base fertilizer plus starter fertilizer, with or without a supplemental single foliar application of acephate, on irrigated cotton.

#	Fertilization[1]	Seed treatment	Foliar timing of acephate[2]	Date of foliar application
1	Base only	Fungicide only	None	
2	Base only	Fungicide only	First true leaf bud on 90%	May 13
3	Base only	Fungicide only	Second true leaf on 50%	May 20
4	Base only	Cruiser 5FS+ Fungicide	None	
5	Base only	Cruiser 5FS+ Fungicide	First true leaf bud on 90%	May 13
6	Base only	Cruiser 5FS+ Fungicide	Second true leaf on 50%	May 20
7	Starter + base	Fungicide only	None	
8	Starter + base	Fungicide only	First true leaf bud on 90%	May 13
9	Starter + base	Fungicide only	Second true leaf on 50%	May 20
10	Starter + base	Cruiser 5FS + Fungicide	None	
11	Starter + base	Cruiser 5FS + Fungicide	First true leaf bud on 90%	May 13
12	Starter + base	Cruiser 5FS + Fungicide	Second true leaf on 50%	May 20

[1]Starter plots (treatments 7-12) received 10 gpa of 10-34-0 liquid fertilizer applied 2 inches below and 2 inches beside the seed at planting (2x2 placement). Treatments 1-6 and 7-12 received 30 and 18 units N (24-0-3), respectively, as a side dress on June 10.
[2]Foliar broadcast application of Orthene 97 @ 4 oz/A

Test: CT11-THP-Regional-Irrigated	**Experimental design:** Split-plot
Year: 2011	**Plot size:** 4 rows x 35’
Crop: Cotton	**Row spacing:** 36”
Variety: PHY 375 WRF	**Planting date:** Apr. 27
Field: 15	**Harvest date:** Oct 17
Location: Tidewater AREC, Suffolk, VA	**Row feet harvested:** 70

Treatment application(s):

Broadcast using backpack	**Nozzle type:** 8002VS	**Nozzle spacing:** 18”	**PSI:** 16.8	**GPA:** 14.3

Comments: Irrigated 1.5” on June 8.

Herbicides

Date	Product	Rate/A
4/10	Roundup WeatherMax	22 oz
4/27	Acumen	1.5 pt
4/27	Cotoran 4L	1 qt
4/27	Roundup WeatherMax	22 oz
5/27	Roundup WeatherMax	22 oz
6/30	MSMA	1 qt
6/30	Envoke	0.1 oz
6/30	Cotton Pro	1.5 pt
8/02	Roundup WeatherMax	22 oz

Additional insecticides

Date	Product	Rate/A
7/19	Brigade 2EC	4 oz
7/30	Baythroid XL	3 oz
8/10	Baythroid XL	3 oz

Lime & fertilizer

Date	Product	Rate/A
4/06	6-16-39	330 lb
6/10	Boron	1 qt
6/23	Boron	1 qt
6/23	N	30 units

Growth regulators

Date	Product	Rate/A
7/05	Pentia	8 oz
7/14	Pentia	1 pt
7/30	Pentia	8 oz

Defoliation

Date	Product	Rate/A
9/21	Finish	1 qt
9/21	Dropp	3 oz
9/21	Folex	6 oz
10/04	Super Boll	1 pt

Table 4. Thrips injury ratings[1], CT11-THP-Regional-Irrigated. Tidewater AREC, Suffolk, VA, 2011. Broadcast at 1st true leaf bud and 2nd true leaf applications were made on May 13 and May 20, respectively.

#	Fertilization	Seed trt[2]	Foliar timing of acephate	May 18	May 25	May 31	Jun 6
1	Base only	F	None	3.25 a	3.88 a	4.56 a	4.50 a
2	Base only	F	1st tl bud on 90%	2.81 bc	3.69 a	4.19 b	3.69 c
3	Base only	F	2nd tl on 50%	3.13 a	3.69 a	4.19 b	3.69 c
4	Base only	C/F	None	1.50 d	2.50 de	3.13 d	1.75 d
5	Base only	C/F	1st tl bud on 90%	1.38 d	2.38 e	1.50 f	0.75 f
6	Base only	C/F	2nd tl on 50%	1.56 d	2.31 e	2.06 e	0.75 f
7	Starter + base	F	None	3.00 ab	3.69 a	4.50 a	4.25 b
8	Starter + base	F	1st tl bud on 90%	2.69 c	3.38 b	3.94 bc	3.56 c
9	Starter + base	F	2nd tl on 50%	3.13 a	3.31 b	3.81 c	3.56 c
10	Starter + base	C/F	None	1.31 d	2.75 c	2.13 e	1.25 e
11	Starter + base	C/F	1st tl bud on 90%	1.31 d	2.63 cd	1.75 f	0.75 f
12	Starter + base	C/F	2nd tl on 50%	1.50 d	2.31 e	2.19 e	0.75 f
	LSD			0.25	0.22	0.27	0.16

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

[1]*Thrips injury based on a 0-5 scale, 0 = no injury and 5 = dead plants.*

[2]*F=Fungicide only; C/F=Cruiser 5FS + fungicide.*

Table 5. Mean number of thrips per 5 plants, CT11-THP-Regional-Irrigated. Tidewater AREC, Suffolk, VA, 2011. Broadcast at 1st true leaf bud and 2nd true leaf applications were made on May 13 and May 20, respectively.

#	Fertilization	Seed trt[1]	Foliar timing of acephate	May 12 (1st true leaf bud stage)		May 16 (1st true leaf stage)		May 23 (1-2 true leaf stage)		May 31		Jun 6	
				Immature	Adult	Immature	Adult	Immature	Adult	Immature	Adult	Immature	Adult
1	Base only	F	None	0.25	9.75	2.00	11.75	119.50 a	15.50 a-c	72.42 ab	9.25	58.00 a-c	7.00 bc
2	Base only	F	1st tl bud on 90%	---	---	1.25	6.25	60.25 b	8.75 cd	48.25 b-d	11.56	78.75 a	14.00 a
3	Base only	F	2nd tl on 50%	---	---	---	---	63.00 b	6.75 d	37.63 cd	8.38	28.00 c	8.75 a-c
4	Base only	C/F	None	0.00	3.00	1.50	5.00	27.75 bc	9.00 cd	55.50 bc	10.75	50.25 a-c	11.50 ab
5	Base only	C/F	1st tl bud on 90%	---	---	0.50	4.75	19.08 c	5.50 d	38.50 cd	12.25	72.81 ab	14.00 a
6	Base only	C/F	2nd tl on 50%	---	---	---	---	19.25 c	6.25 d	24.75 d	10.25	36.50 bc	7.25 a-c
7	Starter + base	F	None	---	---	---	---	129.75 a	21.75 a	93.25 a	10.25	82.50 a	14.00 a
8	Starter + base	F	1st tl bud on 90%	---	---	4.00	7.50	53.75 bc	11.50 b-d	54.75 bc	14.75	78.50 a	6.75 bc
9	Starter + base	F	2nd tl on 50%	---	---	---	---	54.00 bc	8.00 cd	23.75 d	4.75	46.71 a-c	12.13 ab
10	Starter + base	C/F	None	---	---	---	---	23.00 bc	20.00 ab	35.75 cd	8.75	47.25 a-c	3.50 c
11	Starter + base	C/F	1st tl bud on 90%	---	---	0.25	3.50	23.25 bc	9.00 cd	27.00 d	10.00	75.75 a	11.75 ab
12	Starter + base	C/F	2nd tl on 50%	---	---	---	---	14.00 c	7.25 cd	22.50 d	12.00	35.00 c	7.75 a-c
	LSD			NS	NS	NS	NS	40.24	8.65	26.14	NS	37.36	6.91

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]F=Fungicide only; C/F=Cruiser 5FS + fungicide.

Table 6. Plant height[1], number of true leaves[1], number of nodes per plant[1], and aboveground biomass[2], CT11-THP-Regional-Irrigated. Tidewater AREC, Suffolk, VA, 2011. Broadcast at 1st true leaf bud and 2nd true leaf applications were made on May 13 and May 20, respectively.

				May 23		May 31		Jun 6			
#	Fertilization	Seed trt[3]	Foliar timing of acephate	Height (cm)	True leaves	Height (cm)	True leaves	Height (cm)	True leaves	Nodes	Biomass (g)
1	Base only	F	None	4.45 e	1.05 e	7.05 e	2.10 f	9.70 g	3.60 g	4.40 de	2.84 d
2	Base only	F	1st tl bud on 90%	4.78 c-e	1.20 de	7.42 de	3.15 cd	10.60 d-g	4.75 d-f	4.00 f	3.06 d
3	Base only	F	2nd tl on 50%	4.75 c-e	1.15 de	7.58 de	2.80 de	10.43 e-g	4.65 ef	4.85 bc	3.13 d
4	Base only	C/F	None	4.90 c-e	1.50 a-c	8.43 a-c	3.50 a-c	10.98 d-f	4.95 c-f	4.05 ef	3.05 d
5	Base only	C/F	1st tl bud on 90%	5.20 bc	1.20 de	8.13 b-d	3.45 bc	11.66 cd	5.21 c-e	4.58 cd	4.75 a-c
6	Base only	C/F	2nd tl on 50%	5.45 ab	1.50 a-c	8.50 a-c	3.60 a-c	11.78 b-d	5.05 c-f	4.35 d-f	3.53 cd
7	Starter + base	F	None	4.95 cd	1.40 b-d	7.70 de	2.35 ef	10.18 fg	4.45 f	5.05 ab	3.29 d
8	Starter + base	F	1st tl bud on 90%	4.65 de	1.25 c-e	7.98 cd	3.15 cd	11.58 de	4.95 c-f	4.65 cd	4.02 b-d
9	Starter + base	F	2nd tl on 50%	4.48 de	1.20 de	7.83 cd	3.15 cd	10.88 d-g	5.40 b-d	5.35 a	4.01 b-d
10	Starter + base	C/F	None	5.88 a	1.65 ab	9.13 a	3.65 a-c	12.93 ab	5.60 a-c	5.05 ab	5.20 ab
11	Starter + base	C/F	1st tl bud on 90%	5.90 a	1.60 ab	9.05 a	4.00 a	13.03 a	6.00 ab	4.90 bc	5.99 a
12	Starter + base	C/F	2nd tl on 50%	5.73 a	1.75 a	8.83 ab	3.79 ab	12.83 a-c	6.25 a	4.95 bc	5.60 a
	LSD			0.48	0.29	0.70	0.55	1.20	0.72	0.40	1.42

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

[1]*Based on sampling five plants per plot.*

[2]*Aboveground biomass based on cutting 5 plants/plot at soil level, pooling those samples into labeled paper bags, and drying at 60°C for 48 hours.*

[3]*F=Fungicide only; C/F=Cruiser 5FS + fungicide.*

Table 7. Stand counts and yield, CT11-THP-Regional-Irrigated. Tidewater AREC, S 2011. Broadcast at 1st true leaf bud and 2nd true leaf applications were made on May 20, respectively.

#	Fertilization	Seed trt[1]	Foliar timing of acephate	Plants/35 row ft[2] Jun 9	Lint lb/ac
1	Base only	F	None	77.25	634
2	Base only	F	1st tl bud on 90%	84.00	576
3	Base only	F	2nd tl on 50%	86.25	623
4	Base only	C/F	None	76.13	615
5	Base only	C/F	1st tl bud on 90%	79.25	644
6	Base only	C/F	2nd tl on 50%	85.88	558
7	Starter + base	F	None	84.50	630
8	Starter + base	F	1st tl bud on 90%	87.25	482
9	Starter + base	F	2nd tl on 50%	85.88	486
10	Starter + base	C/F	None	86.13	489
11	Starter + base	C/F	1st tl bud on 90%	81.75	504
12	Starter + base	C/F	2nd tl on 50%	82.75	474
	LSD			NS	NS

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]F=Fungicide only; C/F=Cruiser 5FS + fungicide.
[2]Based on sampling all plants in rows 1 and 2 of each plot.
[3]Cotton was harvested on October 17. Gross yields were reduced by 56.5% to account for seed and trash.

Test: CT11-THP-Regional-Dryland, Efficacy of an insecticide (thiamethoxam) seed treatment in combination with either base fertilizer alone or base fertilizer plus starter fertilizer, with or without a supplemental single foliar application of acephate, on dryland cotton

#	Fertilization[1]	Seed treatment	Foliar timing of acephate[2]	Date of foliar application
1	Base only	Fungicide only	None	
2	Base only	Fungicide only	First true leaf bud on 90%	May 13
3	Base only	Fungicide only	Second true leaf on 50%	May 20
4	Base only	Cruiser 5FS+ Fungicide	None	
5	Base only	Cruiser 5FS+ Fungicide	First true leaf bud on 90%	May 13
6	Base only	Cruiser 5FS+ Fungicide	Second true leaf on 50%	May 20
7	Starter + base	Fungicide only	None	
8	Starter + base	Fungicide only	First true leaf bud on 90%	May 13
9	Starter + base	Fungicide only	Second true leaf on 50%	May 20
10	Starter + base	Cruiser 5FS + Fungicide	None	
11	Starter + base	Cruiser 5FS + Fungicide	First true leaf bud on 90%	May 13
12	Starter + base	Cruiser 5FS + Fungicide	Second true leaf on 50%	May 20

[1]Starter plots (treatments 7-12) received 10 gpa of 10-34-0 liquid fertilizer applied 2 inches below and 2 inches beside the seed at planting (2x2 placement). Treatments 1-6 and 7-12 received 30 and 18 units N (24-0-3), respectively, as a side dress on June 10.
[2]Foliar broadcast application of Orthene 97 @ 4 oz/A

Test: CT11-THP-Regional-Dryland	**Experimental design:** Split-plot
Year: 2011	**Plot size:** 4 rows x 35’
Crop: Cotton	**Row spacing:** 36”
Variety: PHY 375 WRF	**Planting date:** Apr. 27
Field: 6	**Harvest date:** Oct. 21
Location: Tidewater AREC, Suffolk, VA	**Row feet harvested:** 70

Treatment application(s):

Broadcast using backpack	**Nozzle type:** 8002VS	**Nozzle spacing:** 18”	**PSI:** 16.8	**GPA:** 14.3

Herbicides

Date	Product	Rate/A
4/27	Acumen	1.5 pt
4/27	Cotoran 4L	1 qt
4/27	Roundup WeatherMax	22 oz
5/27	Roundup WeatherMax	22 oz
6/14	Roundup WeatherMax	22 oz
7/13	MSMA	1 qt
7/13	Envoke	0.1 oz
7/13	Cotton Pro	1.5 pt
8/11	Roundup PowerMax	22 oz

Additional insecticides

Date	Product	Rate/A
7/19	Brigade 2EC	4 oz
7/29	Baythroid XL	3 oz
8/11	Baythroid XL	3 oz

Lime & fertilizer

Date	Product	Rate/A
4/06	6-16-39	330 lb
6/10	Boron	1 qt
6/24	Boron	1 qt
6/24	N	30 units

Growth regulators

Date	Product	Rate/A
7/05	Pentia	8 oz
7/14	Pentia	1 pt
7/29	Pentia	8 oz

Defoliation

Date	Product	Rate/A
10/05	Finish	1 qt
10/05	Dropp	3 oz
10/05	Folex	10 oz
10/05	Super Boll	6 oz

Table 8. Thrips injury ratings[1], CT11-THP-Regional-Dryland. Tidewater AREC, Suffolk, VA, 2011. Broadcast at 1st true leaf bud and 2nd true leaf applications were made on May 13 and May 20, respectively.

#	Fertilization	Seed trt[2]	Foliar timing of acephate	May 18	May 25	May 31	Jun 6
1	Base only	F	None	3.25 a	3.75 a	4.31 a	4.38 a
2	Base only	F	1st tl bud on 90%	2.81 c	3.13 c	3.69 b	3.69 b
3	Base only	F	2nd tl on 50%	3.13 ab	3.25 c	3.19 c	2.94 d
4	Base only	C/F	None	1.75 d	2.38 ef	1.81 de	1.63 e
5	Base only	C/F	1st tl bud on 90%	1.50 e	2.44 ef	1.75 de	0.81 g
6	Base only	C/F	2nd tl on 50%	1.75 d	2.25 fg	1.75 de	0.75 g
7	Starter + base	F	None	3.06 ab	3.50 b	4.19 a	4.19 a
8	Starter + base	F	1st tl bud on 90%	2.94 bc	3.06 c	3.25 c	3.31 c
9	Starter + base	F	2nd tl on 50%	3.13 ab	3.25 c	3.38 bc	3.50 bc
10	Starter + base	C/F	None	1.69 de	2.75 d	2.06 d	1.25 f
11	Starter + base	C/F	1st tl bud on 90%	1.50 e	2.50 e	1.69 e	0.75 g
12	Starter + base	C/F	2nd tl on 50%	1.75 d	2.13 g	1.63 e	0.75 g
	LSD			0.22	0.23	0.32	0.26

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

[1]*Thrips injury based on a 0-5 scale, 0 = no injury and 5 = dead plants.*

[2]*F=Fungicide only; C/F=Cruiser 5FS + fungicide.*

Table 9. Mean number of thrips per 5 plants, CT11-THP-Regional-Dryland. Tidewater AREC, Suffolk, VA, 2011. Broadcast at 1st true leaf bud and 2nd true leaf applications were made on May 13 and May 20, respectively.

#	Fertiliz-ation	Seed trt[1]	Foliar timing of acephate	May 12 (1st true leaf bud stage)		May 16 (1st true leaf stage)		May 23 (1-2 true leaf stage)		May 31		Jun 6	
				Immature	Adult	Immature	Adult	Immature	Adult	Immature	Adult	Immature	Adult
1	Base only	F	None	0.25	11.75 a	4.25 a	10.00 a	58.00 a	8.50 ab	46.50 a	5.50 cd	69.92 a	6.92
2	Base only	F	1st tl bud on 90%	---	---	1.25 b	4.75 b	16.75 b-d	2.25 d	35.00 a-c	12.75 a	46.75 ab	6.75
3	Base only	F	2nd tl on 50%	---	---	---	---	16.25 cd	1.50 d	18.25 cd	4.75 cd	31.00 b-d	8.75
4	Base only	C/F	None	0.00	2.00 b	0.75 b	1.75 b	11.25 cd	4.50 b-d	43.63 a	11.00 ab	31.50 b-d	8.00
5	Base only	C/F	1st tl bud on 90%	---	---	0.00 b	4.25 b	12.25 cd	3.00 cd	29.75 a-d	9.50 a-d	40.00 bc	4.75
6	Base only	C/F	2nd tl on 50%	---	---	---	---	4.50 d	1.75 d	16.79 cd	8.21 a-d	18.52 cd	5.44
7	Starter + base	F	None	---	---	---	---	73.25 a	13.00 a	44.69 a	4.44 d	50.63 ab	8.13
8	Starter + base	F	1st tl bud on 90%	---	---	0.75 b	3.00 b	34.50 b	5.50 b-d	37.63 ab	8.44 a-d	36.75 b-d	7.00
9	Starter + base	F	2nd tl on 50%	---	---	---	---	22.50 bc	1.75 d	15.19 d	4.38 d	14.75 d	4.50
10	Starter + base	C/F	None	---	---	---	---	12.25 cd	9.00 ab	42.25 a	9.75 a-c	39.25 bc	8.75
11	Starter + base	C/F	1st tl bud on 90%	---	---	0.00 b	5.50 b	11.75 cd	8.00 a-c	22.25 b-d	9.25 a-d	19.50 cd	3.75
12	Starter + base	C/F	2nd tl on 50%	---	---	---	---	6.00 cd	3.25 cd	12.56 d	5.94 b-d	16.25 cd	6.50
	LSD			NS	4.57	2.39	3.84	17.84	5.23	18.68	5.20	23.88	NS

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]*F=Fungicide only; C/F=Cruiser 5FS + fungicide.*

Table 10. Plant height[1], number of true leaves[1], number of nodes per plant[1], and aboveground biomass[2], CT11-THP-Regional-Dryland. Tidewater AREC, Suffolk, VA, 2011. Broadcast at 1st true leaf bud and 2nd true leaf applications were made on May 13 and May 20, respectively.

#	Fertilization	Seed trt[3]	Foliar timing of acephate	May 23		May 31		Jun 6			
				Height (cm)	True leaves	Height (cm)	True leaves	Height (cm)	True leaves	Nodes	Biomass (g)
1	Base only	F	None	4.83 f	1.30	7.58 e	2.85 d	10.48 f	4.20 c	4.75 c-g	2.93 ef
2	Base only	F	1st tl bud on 90%	5.18 d-f	1.30	8.95 b-d	3.65 a-c	11.30 d-f	4.45 bc	4.35 g	2.48 f
3	Base only	F	2nd tl on 50%	5.08 ef	1.35	8.43 d	4.00 a	10.68 ef	4.85 a-c	5.05 a-e	3.39 c-f
4	Base only	C/F	None	5.30 c-f	1.20	8.61 d	3.84 ab	11.53 d-f	4.70 bc	4.65 e-g	3.10 d-f
5	Base only	C/F	1st tl bud on 90%	5.35 c-e	1.45	8.78 cd	3.70 a-c	11.55 c-f	5.10 ab	4.85 b-f	3.92 b-e
6	Base only	C/F	2nd tl on 50%	5.40 b-e	1.45	9.38 a-c	3.80 ab	12.36 b-d	5.11 ab	4.39 fg	4.32 a-c
7	Starter + base	F	None	5.70 a-c	1.20	8.94 cd	3.44 bc	12.00 cd	4.70 bc	5.15 a-d	3.79 b-e
8	Starter + base	F	1st tl bud on 90%	5.68 a-c	1.45	8.92 cd	3.32 c	12.68 a-c	5.50 a	5.20 a-c	4.19 b-d
9	Starter + base	F	2nd tl on 50%	5.63 a-d	1.45	8.42 d	3.79 ab	11.78 c-e	5.15 ab	5.50 a	4.17 b-d
10	Starter + base	C/F	None	5.95 a	1.65	9.68 ab	4.00 a	13.70 a	5.55 a	5.30 ab	4.82 ab
11	Starter + base	C/F	1st tl bud on 90%	5.93 a	1.60	9.83 a	3.90 a	13.33 ab	5.05 ab	4.95 b-e	4.72 ab
12	Starter + base	C/F	2nd tl on 50%	5.88 ab	1.55	9.92 a	4.05 a	12.43 b-d	5.45 a	4.70 d-g	5.43 a
	LSD			0.48	NS	0.73	0.45	1.15	0.70	0.50	1.22

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

[1]*Based on sampling five plants per plot.*

[2]*Aboveground biomass based on cutting 5 plants/plot at soil level, pooling those samples into labeled paper bags, and drying at 60°C for 48 hours.*

[3]*F=Fungicide only; C/F=Cruiser 5FS + fungicide.*

Table 11. Stand counts and yield, CT11-THP-Regional-Dryland. Tidewater AREC, S 2011. Broadcast at 1st true leaf bud and 2nd true leaf applications were made on May 20, respectively.

#	Fertilization	Seed trt[1]	Foliar timing of acephate	Plants/35 row ft[2] Jun 8	Lint lb/ac
1	Base only	F	None	76.13 b-d	728
2	Base only	F	1st tl bud on 90%	81.38 a-c	726
3	Base only	F	2nd tl on 50%	84.00 ab	780
4	Base only	C/F	None	82.88 ab	839
5	Base only	C/F	1st tl bud on 90%	78.13 a-d	720
6	Base only	C/F	2nd tl on 50%	75.25 b-d	795
7	Starter + base	F	None	81.75 ab	682
8	Starter + base	F	1st tl bud on 90%	78.13 a-d	806
9	Starter + base	F	2nd tl on 50%	79.50 a-d	770
10	Starter + base	C/F	None	87.00 a	746
11	Starter + base	C/F	1st tl bud on 90%	71.88 d	708
12	Starter + base	C/F	2nd tl on 50%	72.38 cd	702
	LSD			9.33	NS

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]F=Fungicide only; C/F=Cruiser 5FS + fungicide.
[2]Based on sampling all plants in rows 3 and 4 of each plot.
[3]Cotton was harvested on October 21. Gross yields were reduced by 57.6% to account for seed and trash.

Test: CT11-THP-Regional-Foliar, Efficacy of foliar insecticides for managing thrips on seedling cotton

#	Material	Rate/A	Dates of foliar applications[1]
1	Untreated		
2	Orthene 97	4.0 oz	May 13 and May 20
3	Benevia 10OD	20.6 oz	May 13 and May 20
4	Vydate C-LV	17 oz	May 13 and May 20
5	Radiant SC	6 oz	May 13 and May 20
6	Karate Z	1.28 oz	May 13 and May 20
7	Dimethoate 4EC	8 oz	May 13 and May 20
8	Lannate 2.4LV	12 oz	May 13 and May 20

[1]All insecticides applied **twice** (the first application when the first true leaf bud was evident on 90% of the stand and the second application 7 days later)

Test: CT11-THP-Regional-Foliar	**Experimental design:** RCBD
Year: 2011	**Plot size:** 4 rows x 35’
Crop: Cotton	**Row spacing:** 36”
Variety: PHY 375 WRF	**Planting date:** Apr. 27
Field: 6	**Harvest date:** Oct 17
Location: Tidewater AREC, Suffolk, VA	**Row feet harvested:** 70

Treatment application(s):

Broadcast using backpack	**Nozzle type:** 8002VS	**Nozzle spacing:** 18”	**PSI:** 16.9	**GPA:** 14.3

Herbicides

Date	Product	Rate/A
4/10	Roundup WeatherMax	22 oz
4/27	Acumen	1.5 pt
4/27	Cotoran 4L	1 qt
4/27	Roundup WeatherMax	22 oz
5/27	Roundup WeatherMax	22 oz
6/14	Roundup WeatherMax	22 oz
7/13	MSMA	1 qt
7/13	Envoke	0.1 oz
7/13	Cotton Pro	1.5 pt
8/11	Roundup PowerMax	22 oz

Additional insecticides

Date	Product	Rate/A
7/19	Brigade 2EC	4 oz
7/29	Baythroid XL	3 oz
8/11	Baythroid XL	3 oz

Lime & fertilizer

Date	Product	Rate/A
4/06	6-16-39	330 lb
6/10	N	30 units
6/10	Boron	1 qt
6/24	N	30 units
6/24	Boron	1 qt

Growth regulators

Date	Product	Rate/A
7/07	Pentia	8 oz
7/14	Pentia	1 pt
7/29	Pentia	8 oz

Defoliation

Date	Product	Rate/A
10/05	Finish	1 qt
10/05	Dropp	3 oz
10/05	Folex	10 oz
10/05	Super Boll	6 oz

Table 12. Thrips injury ratings[1], CT11-THP-Regional-Foliar. Tidewater AREC, Suffolk, VA, 2011. Insecticide treatments were broadcast on May 13 and again on May 20.

#	Material	Rate/A	May 18	May 25	May 31	Jun 6
1	Untreated		3.19 a	3.50 a	4.50 a	4.38 a
2	Orthene 97	4.0 oz	2.56 bc	2.75 c	2.50 e	1.38 e
3	Benevia 10OD	20.6 oz	2.44 c	2.50 c	1.88 f	0.75 f
4	Vydate C-LV	17 oz	2.75 b	3.38 ab	3.75 bc	2.75 c
5	Radiant SC	6 oz	2.44 c	3.19 b	3.56 c	2.75 c
6	Karate Z	1.28 oz	2.75 b	3.38 ab	4.31 a	4.38 a
7	Dimethoate 4EC	8 oz	2.81 b	3.50 a	2.88 d	1.63 d
8	Lannate 2.4LV	12 oz	2.81 b	3.19 b	3.81 b	3.75 b
	LSD		0.31	0.27	0.19	0.24

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

[1]*Thrips injury based on a 0-5 scale, 0 = no injury and 5 = dead plants.*

Table 13. Mean number of thrips per 5 plants, CT11-THP-Regional-Foliar. Tidewater AREC, Suffolk, VA, 2011. Insecticide treatments were broadcast on May 13 and again on May 20.

#	Material	Rate/A	May 12 (1st true leaf bud stage)		May 16 (1st true leaf stage)		May 23 (1-2 true leaf stage)		May 31		Jun 6	
			Immature	Adult	Immature	Adult	Immature	Adult	Immature	Adult	Immature	Adult
1	Untreated		0.25	14.50	3.75 a	16.25 a	70.75 a	15.25 a	46.25 b	5.50	59.06 ab	5.94
2	Orthene 97	4.0 oz	---	---	1.25 b	2.25 c	8.75 bc	3.50 b	11.25 d	7.00	47.00 a-c	5.50
3	Benevia 10OD	20.6 oz	---	---	0.50 b	4.50 c	1.50 c	4.50 b	4.46 d	5.17	22.29 c	4.67
4	Vydate C-LV	17 oz	---	---	0.25 b	3.50 c	16.00 bc	2.75 b	11.81 d	6.75	31.75 bc	3.00
5	Radiant SC	6 oz	---	---	0.00 b	9.50 b	15.50 bc	17.00 a	27.75 c	5.25	63.50 a	4.00
6	Karate Z	1.28 oz	---	---	1.00 b	11.00 b	65.00 a	13.00 a	61.00 a	2.75	22.75 c	4.00
7	Dimethoate 4EC	8 oz	---	---	1.00 b	4.25 c	3.25 c	1.75 b	7.00 d	6.75	24.63 c	5.21
8	Lannate 2.4LV	12 oz	---	---	0.25 b	3.75 c	22.75 b	6.25 b	25.50 c	7.94	29.00 bc	2.50
	LSD		---	---	2.07	4.90	16.40	6.22	12.55	NS	31.08	NS

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

Table 14. Plant height[1], number of true leaves[1], number of nodes per plant[1], and aboveground biomass[2], CT11-THP-Regional-Foliar. Tidewater AREC, Suffolk, VA, 2011. Insecticide treatments were broadcast on May 13 and again on May 20.

#	Material	Rate/A	May 23		May 31		Jun 6			
			Height (cm)	True leaves	Height (cm)	True leaves	Height (cm)	True leaves	Nodes	Biomass (g)
1	Untreated		4.30 c	1.05 d	6.10 d	2.80 b	8.97 c	4.37 bc	5.53 ab	2.59
2	Orthene 97	4.0 oz	4.93 ab	1.70 a	7.45 a	4.00 a	10.45 a	5.10 a	4.95 cd	3.32
3	Benevia 10OD	20.6 oz	4.60 a-c	1.60 ab	6.58 b-d	3.70 a	9.20 c	4.85 ab	5.30 a-c	3.31
4	Vydate C-LV	17 oz	4.55 bc	1.10 d	6.84 bc	3.89 a	10.38 ab	4.85 ab	4.70 d	2.94
5	Radiant SC	6 oz	4.98 a	1.30 cd	6.55 cd	3.80 a	9.33 c	5.15 a	5.75 a	2.95
6	Karate Z	1.28 oz	4.53 bc	1.20 cd	6.03 d	2.80 b	8.88 c	3.90 c	4.70 d	1.97
7	Dimethoate 4EC	8 oz	4.68 a-c	1.40 bc	6.68 bc	3.95 a	9.53 bc	4.75 ab	5.25 a-c	2.91
8	Lannate 2.4LV	12 oz	4.30 c	1.30 cd	7.13 ab	3.68 a	9.73 a-c	4.85 ab	5.15 b-d	2.91
	LSD		0.40	0.29	0.57	0.47	0.87	0.61	0.51	NS

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

[1]*Based on sampling five plants per plot.*

[2]*Aboveground biomass based on cutting 5 plants/plot at soil level, pooling those samples into labeled paper bags, and drying at 60°C for 48 hours.*

Table 15. Stand counts and yield, CT11-THP-Regional-Foliar. Tidewater AREC, Suf
2011. Insecticide treatments were broadcast on May 13 and again on May 20.

#	Material	Rate/A	Plants/35 row ft[1]	Lint lb/acre[2]
			Jun 8	
1	Untreated		74.88 c	650
2	Orthene 97	4.0 oz	84.63 ab	912
3	Benevia 10OD	20.6 oz	81.38 a-c	871
4	Vydate C-LV	17 oz	82.50 ab	785
5	Radiant SC	6 oz	87.38 a	757
6	Karate Z	1.28 oz	82.13 ab	740
7	Dimethoate 4EC	8 oz	78.88 bc	902
8	Lannate 2.4LV	12 oz	81.25 a-c	717
	LSD		7.03	NS

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]Based on sampling all plants in rows 3 and 4 of each plot.
[2]Cotton was harvested on October 17. Gross yields were reduced by 56.5% to account for seed and trash.

Test: CT11-THP-Regional-Eastern, Value of automatic foliar thrips insecticide applications at various stages of cotton growth following preventative insecticide treatment (seed or in-furrow applied insecticide)

#	Material	Rate	Date(s) treated
1	Untreated	---	
2	Temik 15G	5 lb/A	
3	Aeris	Seed trt	
4	Untreated + Orthene 97	--- 4 oz/A (BC @ 1-2 tl)	 May 20
5	Temik 15G + Orthene 97	5 lb/A 4 oz/A (BC @ 1-2 tl)	 May 20
6	Aeris + Orthene 97	Seed trt 4 oz/A (BC @ 1-2 tl)	 May 20
7	Untreated + Orthene 97	--- 4 oz/A (BC @ 3-4 tl)	 Jun 1
8	Temik 15G + Orthene 97	5 lb/A 4 oz/A (BC @ 3-4 tl)	 Jun 1
9	Aeris + Orthene 97	Seed trt 4 oz/A (BC @ 3-4 tl)	 Jun 1
10	Untreated + Orthene 97 + Orthene 97	--- 4 oz/A (BC @ 1-2 tl) 4 oz/A (BC @ 3-4 tl)	 May 20 Jun 1
11	Temik 15G + Orthene 97 + Orthene 97	5 lb/A 4 oz/A (BC @ 1-2 tl) 4 oz/A (BC @ 3-4 tl)	 May 20 Jun 1
12	Aeris + Orthene 97 + Orthene 97	Seed trt 4 oz/A (BC @ 1-2 tl) 4 oz/A (BC @ 3-4 tl)	 May 20 Jun 1

Test: CT11-THP-Regional-Eastern	**Experimental design:** RCBD
Year: 2011	**Plot size:** 4 rows x 35’
Crop: Cotton	**Row spacing:** 36”
Variety: PHY 375 WRF	**Planting date:** Apr. 29
Field: 6	**Harvest date:** Oct. 21
Location: Tidewater AREC	**Row feet harvested:** 70

Treatment application(s):

Granular in-furrow	Tractor-mounted inverted jars			
Broadcast using backpack	**Nozzle type:** 8002VS	**Nozzle spacing:** 18”	**PSI:** 16.8	**GPA:** 14.3

Herbicides

Date	Product	Rate/A
4/10	Roundup WeatherMax	22 oz
4/29	Acumen	1.5 pt
4/29	Cotoran 4L	1 qt
4/29	Roundup WeatherMax	22 oz
5/27	Roundup WeatherMax	22 oz
6/14	Roundup WeatherMax	22 oz
7/13	MSMA	1 qt
7/13	Envoke	0.1 oz
7/13	Cotton Pro	1.5 pt
8/11	Roundup PowerMax	22 oz

Additional insecticides

Date	Product	Rate/A
7/19	Brigade 2EC	4 oz
7/29	Baythroid XL	3 oz
8/11	Baythroid XL	3 oz

Lime & fertilizer

Date	Product	Rate/A
4/06	6-16-39	330 lb
6/10	N	30 units
6/10	Boron	1 qt
6/24	N	30 units
6/24	Boron	1 qt

Growth regulators

Date	Product	Rate/A
7/07	Pentia	8 oz
7/14	Pentia	1 pt
7/29	Pentia	8 oz

Defoliation

Date	Product	Rate/A
10/05	Finish	1 qt
10/05	Dropp	3 oz
10/05	Folex	10 oz
10/05	Super Boll	6 oz

Table 16. Thrips injury ratings and yield, CT11-THP-Regional-Eastern. Tidewater AREC, Suffolk, VA, 2011. Broadcast at 1-2 and 3-4 true leaf applications were made on May 20 and June 1, respectively.

#	Material	Rate	Thrips injury rating[1]				Lint lb/acre[2]
			May 19	May 26	May 31	Jun 6	
1	Untreated	---	3.25 a	4.00 a	4.69 a	4.56 a	589 e
2	Temik 15G	5 lb/A	1.00 d	1.00 f	1.25 d	0.88 de	828 a-c
3	Aeris	Seed trt	1.44 c	1.94 d	1.63 c	1.31 c	745 cd
4	Untreated + Orthene 97	--- 4 oz/A (BC @ 1-2 tl)	3.25 a	3.25 c	4.06 b	3.19 b	693 de
5	Temik 15G + Orthene 97	5 lb/A 4 oz/A (BC @ 1-2 tl)	1.06 d	1.00 f	0.88 e	0.56 f	897 a
6	Aeris + Orthene 97	Seed trt 4 oz/A (BC @ 1-2 tl)	2.00 b	1.25 e	1.25 d	0.69 ef	783 b-d
7	Untreated + Orthene 97	--- 4 oz/A (BC @ 3-4 tl)	3.25 a	3.81 b	4.63 a	4.69 a	612 e
8	Temik 15G + Orthene 97	5 lb/A 4 oz/A (BC @ 3-4 tl)	1.00 d	1.00 f	1.25 d	0.81 d-f	888 ab
9	Aeris + Orthene 97	Seed trt 4 oz/A (BC @ 3-4 tl)	1.44 c	1.88 d	1.81 c	1.06 cd	907 a
10	Untreated + Orthene 97 + Orthene 97	--- 4 oz/A (BC @ 1-2 tl) 4 oz/A (BC @ 3-4 tl)	3.25 a	3.25 c	3.81 b	3.44 b	866 ab
11	Temik 15G + Orthene 97 + Orthene 97	5 lb/A 4 oz/A (BC @ 1-2 tl) 4 oz/A (BC @ 3-4tl)	1.06 d	0.81 g	1.19 d	0.69 ef	849 a-c
12	Aeris + Orthene 97 + Orthene 97	Seed trt 4 oz/A (BC @ 1-2 tl) 4 oz/A (BC @ 3-4 tl)	1.44 c	1.25 e	1.31 d	0.75 ef	825 a-c
	LSD		0.14	0.11	0.29	0.25	111.4

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

[1]Thrips injury based on a 0-5 scale, 0 = no injury and 5 = dead plants

Table 17. Mean number of thrips per 5 plants, CT11-THP-Regional-Eastern. Tidewater AREC, Suffolk, VA, 2011. Broadcast at 1-2 and 3-4 true leaf applications were made on May 20 and June 1, respectively.

#	Material	Rate	May 17 (1st true leaf stage)		May 24 (1-2 true leaf stage)		May 31		Jun 8	
			Immature	Adult	Immature	Adult	Immature	Adult	Immature	Adult
1	Untreated	---	17.0 a	17.00 a	88.00 a	3.75 a-c	56.00 a	22.25	46.50 a	5.75
2	Temik 15G	5 lb/A	0.50 b	2.75 b	3.50 b	1.75 cd	10.25 c	8.25	14.75 c	5.25
3	Aeris	Seed trt	0.75 b	7.25 b	12.75 b	4.50 ab	27.50 bc	12.75	23.75 bc	7.00
4	Untreated + Orthene 97	--- 4 oz/A (BC @ 1-2 tl)	---	---	24.25 b	0.75 d	13.25 bc	15.75	35.50 ab	8.50
5	Temik 15G + Orthene 97	5 lb/A 4 oz/A (BC @ 1-2 tl)	---	---	2.00 b	1.50 cd	6.75 c	9.50	8.50 c	7.25
6	Aeris + Orthene 97	Seed trt 4 oz/A (BC @ 1-2 tl)	---	---	7.75 b	2.00 cd	17.50 bc	10.50	18.50 bc	7.75
7	Untreated + Orthene 97	--- 4 oz/A (BC @ 3-4 tl)	---	---	90.75 a	2.25 b-d	51.00 a	10.00	19.50 bc	3.50
8	Temik 15G + Orthene 97	5 lb/A 4 oz/A (BC @ 3-4 tl)	---	---	2.75 b	0.25 d	8.50 c	14.00	7.50 c	4.75
9	Aeris + Orthene 97	Seed trt 4 oz/A (BC @ 3-4 tl)	---	---	26.00 b	5.50 a	35.00 ab	12.00	13.00 c	2.50
10	Untreated + Orthene 97 + Orthene 97	--- 4 oz/A (BC @ 1-2 tl) 4 oz/A (BC @ 3-4 tl)	---	---	15.75 b	0.75 d	12.75 bc	15.75	15.50 c	3.25
11	Temik 15G + Orthene 97 + Orthene 97	5 lb/A 4 oz/A (BC @ 1-2 tl) 4 oz/A (BC @ 3-4tl)	---	---	4.00 b	0.50 d	10.25 c	11.50	9.25 c	4.25
12	Aeris + Orthene 97 + Orthene 97	Seed trt 4 oz/A (BC @ 1-2 tl) 4 oz/A (BC @ 3-4 tl)	---	---	18.00 b	2.00 cd	13.75 bc	14.75	15.50 c	1.75
	LSD		7.09	6.11	25.19	2.42	22.79	NS	18.04	NS

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

Test: CT11-THP-Bayer, Evaluation of seed treatments for thrips management

#	Material*	Rate
1	Base only	
2	Gaucho 600FS	0.375 mg ai/seed
3	Gaucho 600FS + Poncho Votivo	0.375 mg ai/seed 0.425 mg ai/seed
4	Aeris Seed Applied System + Poncho Votivo	0.75 mg ai/seed 0.425 mg ai/seed
5	Aeris Seed Applied System + Poncho Votivo + BYF14182	0.75 mg ai/seed 0.425 mg ai/seed 5 g ai/100 kg seed
6	Avicta Complete Pak	0.15 mg ai/seed (Avicta) 0.34 mg ai/seed (Cruiser)

*All seed treatments included a base treatment of Vortex FL, Baytan 30, and Allegiance FL

Test: CT11-THP-Bayer	**Experimental design:** RCBD
Year: 2011	**Plot size:** 4 rows x 35’
Crop: Cotton	**Row spacing:** 36”
Variety: ST 5458 B2RF	**Planting date:** Apr. 27
Field: 6	**Harvest date:** Oct 17
Location: Tidewater AREC	**Row feet harvested:** 70

Herbicides

Date	Product	Rate/A
4/10	Roundup WeatherMax	22 oz
4/27	Acumen	1.5 pt
4/27	Cotoran 4L	1 qt
4/27	Roundup WeatherMax	22 oz
5/27	Roundup WeatherMax	22 oz
6/14	Roundup WeatherMax	22 oz
7/13	MSMA	1 qt
7/13	Envoke	0.1 oz
7/13	Cotton Pro	1.5 pt
8/11	Roundup PowerMax	22 oz

Additional insecticides

Date	Product	Rate/A
7/19	Brigade 2EC	4 oz
7/29	Baythroid XL	3 oz
8/11	Baythroid XL	3 oz

Lime & fertilize

Date	Product	R
4/06	6-16-39	3
6/10	N	3
6/10	Boron	1
6/24	N	3
6/24	Boron	1

Growth regulators

Date	Product	Rate/A
7/07	Pentia	8 oz
7/14	Pentia	1 pt
7/29	Pentia	8 oz

Defoliation

Date	Product	R
10/05	Finish	1
10/05	Dropp	3
10/05	Folex	1
10/05	Super Boll	6

Table 18. Stand counts and plant heights, CT11-THP-Bayer. Tidewater AREC, Suffolk, VA, 2011.

#	Material	Rate	Plants/35 row ft[1]			Height (cm)
			May 5	May 12	May 27	May 27
1	Base only		49.4	99.5 a	91.4	5.18 c
2	Gaucho 600FS	0.375 mg ai/seed	36.5	88.1 b	88.3	6.98 a
3	Gaucho 600FS + Poncho Votivo	0.375 mg ai/seed 0.425 mg ai/seed	50.3	91.8 b	86.5	6.43 b
4	Aeris Seed Applied System + Poncho Votivo	0.75 mg ai/seed 0.425 mg ai/seed	42.4	91.3 b	90.0	6.30 b
5	Aeris Seed Applied System + Poncho Votivo + BYF14182	0.75 mg ai/seed 0.425 mg ai/seed 5 g ai/100 kg seed	47.0	88.6 b	89.3	6.40 b
6	Avicta Complete Pak	0.15 mg ai/seed (Avicta) 0.34 mg ai/seed (Cruiser)	43.1	90.6 b	94.1	6.65 ab
	LSD		NS	6.4	NS	0.47

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]*Based on sampling all plants in rows 1 and 2 of each plot on May 5 and 12; rows 3 and 4 on May 27.*

Table 19. Thrips injury ratings and yield, CT11-THP-Bayer. Tidewater AREC, Suffolk, VA, 2011.

#	Material	Rate	Thrips injury rating[1]				Lint lb/acre[2]
			May 18	May 24	May 31	Jun 8	
1	Base only		2.56 a	3.56 a	4.13 a	4.25 a	678
2	Gaucho 600FS	0.375 mg ai/seed	0.75 c	1.38 b	1.25 c	0.75 c	939
3	Gaucho 600FS + Poncho Votivo	0.375 mg ai/seed 0.425 mg ai/seed	0.75 c	1.19 bc	1.13 c	0.75 c	831
4	Aeris Seed Applied System + Poncho Votivo	0.75 mg ai/seed 0.425 mg ai/seed	0.75 c	1.06 cd	1.31 c	0.75 c	872
5	Aeris Seed Applied System + Poncho Votivo + BYF14182	0.75 mg ai/seed 0.425 mg ai/seed 5 g ai/100 kg seed	0.75 c	0.88 d	1.06 c	0.63 c	889
6	Avicta Complete Pak	0.15 mg ai/seed (Avicta) 0.34 mg ai/seed (Cruiser)	1.25 b	1.38 b	2.00 b	1.50 b	881
	LSD		0.08	0.27	0.31	0.16	NS

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

[1]*Thrips injury based on a 0-5 scale, 0 = no injury and 5 = dead plants.*

[2]*Cotton was harvested on October 17. Gross yields were reduced by 58.9% to account for seed and trash.*

Table 20. Mean number of thrips per 5 plants, CT11-THP-Bayer. Tidewater AREC, Suffolk, VA, 2011.

#	Material	Rate	May 17 (1st true leaf stage)		May 24 (1-2 true leaf stage)		May 31		Jun 7	
			Immature	Adult	Immature	Adult	Immature	Adult	Immature	Adult
1	Base only		4.50 a	14.25 a	59.00 a	4.75	66.75 a	6.25	39.00 a	5.75
2	Gaucho 600FS	0.375 mg ai/seed	0.50 b	7.00 b	5.75 b	3.75	23.25 b	13.50	7.50 c	5.50
3	Gaucho 600FS + Poncho Votivo	0.375 mg ai/seed 0.425 mg ai/seed	1.00 b	4.25 b	9.25 b	5.75	15.75 b	7.00	19.75 bc	3.50
4	Aeris Seed Applied System + Poncho Votivo	0.75 mg ai/seed 0.425 mg ai/seed	0.50 b	4.25 b	4.00 b	2.25	9.00 b	10.00	9.50 c	3.00
5	Aeris Seed Applied System + Poncho Votivo + BYF14182	0.75 mg ai/seed 0.425 mg ai/seed 5 g ai/100 kg seed	0.00 b	4.25 b	5.00 b	1.75	12.00 b	9.75	14.25 c	3.25
6	Avicta Complete Pak	0.15 mg ai/seed (Avicta) 0.34 mg ai/seed (Cruiser)	1.25 b	3.50 b	10.50 b	1.50	22.75 b	14.00	34.75 ab	2.75
	LSD		2.30	4.74	17.30	NS	20.47	NS	15.02	NS

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

Test: CT11-THP-Dow, Efficacy of foliar and in-furrow insecticides against thrips

#	Material	Rate	Dates of foliar applications
1	Radiant SC	1.5 oz/A	May 20 and May 26
2	Radiant SC	3 oz/A	May 20 and May 26
3	Radiant SC	6 oz/A	May 20 and May 26
4	Radiant SC + Orthene 97	1.5 oz/A 4 oz/A	May 20 and May 26
5	Orthene 97	4 oz/A	May 20 and May 26
6	Ecotec + Saf-T-Side + Orthene 97	1 pt 1 pt 4 oz/A	May 20 and May 26
7	Orthene 97	6 oz/A	May 20 and May 26
8	Temik 15G	5 lb/A (in-furrow)	
9	Untreated		

[1]All foliar insecticides (treatments 1-7) were applied **twice** (the first application at first true and the second application 7 days later)

Test: CT11-THP-Dow
Year: 2011
Crop: Cotton
Variety: PHY 499 WRF
Field: 66
Location: Tidewater AREC

Experimental design: RCBD
Plot size: 4 rows x 35’
Row spacing: 36”
Planting date: May 2
Harvest date: Oct 17
Row feet harvested: 70

Treatment application(s):

Granular in-furrow	Tractor-mounted inverted jars			
Broadcast using backpack	**Nozzle type:** 8002VS	**Nozzle spacing:** 18”	**PSI:** 16.8	**GPA:** 14.3

Herbicides

Date	Product	Rate/A
4/10	Roundup WeatherMax	22 oz
5/02	Acumen	1.5 pt
5/02	Cotoran 4L	1 qt
5/02	Roundup WeatherMax	22 oz
7/13	MSMA	1 qt
7/13	Envoke	0.1 oz
7/13	Cotton Pro	1.5 pt

Additional insecticides

Date	Product	Rate/A
7/19	Brigade 2EC	4 oz
7/29	Baythroid XL	3 oz
8/10	Baythroid XL	3 oz

Growth regulators

Date	Product	Rate/A
7/07	Pentia	8 oz
7/14	Pentia	1 pt
7/29	Pentia	8 oz

Lime & fertilizer

Date	Product	Rate/A
4/06	6-16-39	330 lb
6/08	N	30 units
6/08	Boron	1 qt
6/23	N	30 units
6/23	Boron	1 qt

Defoliation

Date	Product	Rate/A
9/21	Finish	1 qt
9/21	Dropp	3 oz
9/21	Folex	6 oz
10/04	Super Boll	1 pt

Table 21. Stand counts, thrips injury ratings, and yield, CT11-THP-Dow. Tidewater AREC, Suffolk, VA, 2011. Insecticide treatments were broadcast on May 20 and May 26.

#	Material	Rate	Plants/35 row ft[1]	Thrips injury rating[2]			Lint lb/acre[3]
				May 24	May 31	Jun 8	
1	Radiant SC	1.5 oz/A	102.6	2.13 bc	3.31 b	1.31 b	908
2	Radiant SC	3 oz/A	99.9	1.81 cd	2.94 c	1.00 c	935
3	Radiant SC	6 oz/A	97.4	1.69 d	2.00 d	0.69 ef	893
4	Radiant SC + Orthene 97	1.5 oz/A 4 oz/A	99.6	1.81 cd	1.88 de	0.75 de	887
5	Orthene 97	4 oz/A	98.0	2.13 bc	1.88 de	0.94 cd	1002
6	Ecotec + Saf-T-Side + Orthene 97	1 pt 1 pt 4 oz/A	101.0	2.31 b	1.63 e	0.94 cd	1025
7	Orthene 97	6 oz/A	99.4	1.69 d	1.63 e	0.63 ef	909
8	Temik 15G	5 lb/A (in-furrow)	97.5	1.06 e	1.00 f	0.50 f	1155
9	Untreated		101.4	3.00 a	4.44 a	3.13 a	915
	LSD		NS	0.32	0.36	0.22	NS

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

[1]*Based on sampling all plants in rows 3 and 4 of each plot on May 27.*

[2]*Thrips injury based on a 0-5 scale, 0 = no injury and 5 = dead plants.*

[3]*Cotton was harvested on October 17. Gross yields were reduced by 56.4% to account for seed and trash.*

Table 22. Mean number of thrips per 5 plants, CT11-THP-Dow. Tidewater AREC, Suffolk, VA, 2011. Insecticide treatments were broadcast on May 20 and May 26.

#	Material	Rate	May 24 (1-2 true leaf stage)		May 31		Jun 8	
			Immature	Adult	Immature	Adult	Immature	Adult
1	Radiant SC	1.5 oz/A	15.25 ab	4.25	11.75 ab	10.50 ab	25.00 ab	5.75
2	Radiant SC	3 oz/A	10.25 bc	4.00	9.00 a-c	8.75 a-c	25.50 ab	6.25
3	Radiant SC	6 oz/A	7.25 bc	3.50	10.75 a-c	12.75 a	16.50 a-c	6.75
4	Radiant SC + Orthene 97	1.5 oz/A 4 oz/A	14.00 ab	0.50	6.50 b-d	6.00 b-d	8.50 bc	3.50
5	Orthene 97	4 oz/A	5.50 bc	1.00	6.75 b-d	4.00 cd	9.00 bc	3.25
6	Ecotec + Saf-T-Side + Orthene 97	1 pt 1 pt 4 oz/A	18.25 ab	0.75	5.25 cd	3.50 d	9.00 bc	3.50
7	Orthene 97	6 oz/A	6.75 bc	2.00	5.25 cd	4.00 cd	4.00 c	2.50
8	Temik 15G	5 lb/A (in-furrow)	0.00 c	2.50	1.25 d	1.00 d	1.00 c	1.50
9	Untreated		24.50 a	3.50	13.25 a	3.75 cd	36.50 a	3.50
	LSD		13.32	NS	5.86	5.13	20.09	NS

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

Test: CT11-THP-PHY, Test to evaluate PhytoGen 367 for vigor

#	Variety	Material	Rate
1	PHY 367 WRF	Avicta CP	---
2	PHY 367 WRF	Avicta CP + Temik 15G	--- 5 lb/A
3	PHY 367 WRF	Avicta CP + Starter	--- See footnote 1
4	PHY 375 WRF	Avicta CP	---
5	PHY 375 WRF	Avicta CP + Temik 15G	--- 5 lb/A
6	PHY 375 WRF	Avicta CP + Starter	--- See footnote 1

[1]Starter plots (treatments 3 and 6) received 10 gpa of 10-34-0 liquid fertilizer applied 2 inch below and 2 inches beside the seed at planting (2x2 placement). Treatments 1, 2, 4, and 5 received 30 units N (24-0-3) and treatments 3 and 6 received 18 units N (24-0-3) as a side d on June 10.

Test: CT11-THP-PHY
Year: 2011
Crop: Cotton
Varieties: PHY 367 WRF, PHY 375 WRF
Field: 6
Location: Tidewater AREC

Experimental design: RCBD
Plot size: 4 rows x 35’
Row spacing: 36”
Planting date: Apr. 27
Harvest date: Oct 17
Row feet harvested: 70

Treatment application(s):

Granular in-furrow	Tractor-mounted hopperbox

Herbicides

Date	Product	Rate/A
4/10	Roundup WeatherMax	22 oz
4/27	Acumen	1.5 pt
4/27	Cotoran 4L	1 qt
4/27	Roundup WeatherMax	22 oz
5/27	Roundup WeatherMax	22 oz
6/14	Roundup WeatherMax	22 oz
7/13	MSMA	1 qt
7/13	Envoke	0.1 oz
7/13	Cotton Pro	1.5 pt
8/11	Roundup PowerMax	22 oz

Additional insecticides

Date	Product	Rate/A
7/19	Brigade 2EC	4 oz
7/29	Baythroid XL	3 oz
8/11	Baythroid XL	3 oz

Lime & fertilizer

Date	Product	Rate/A
4/06	6-16-39	330 lb
6/10	Boron	1 qt
6/24	Boron	1 qt
6/24	N	30 units

Growth regulators

Date	Product	Rate/A
7/07	Pentia	8 oz
7/14	Pentia	1 pt
7/29	Pentia	8 oz

Defoliation

Date	Product	Rate/A
10/05	Finish	1 qt
10/05	Dropp	3 oz
10/05	Folex	10 oz
10/05	Super Boll	6 oz

Table 23. Stand counts, thrips injury ratings, and yield, CT11-THP-PHY. Tidewater AREC, Suffolk, VA, 2011.

#	Variety	Material	Rate	Plants/35 row ft[1]		Thrips injury rating[2]				Lint lb/acre[3]
				May 18	May 25	May 18	May 25	May 31	Jun 6	
1	PHY 367 WRF	Avicta CP	---	96.1 a	91.0 a	0.94 a	1.75 b	2.06 b	1.25 bc	804
2	PHY 367 WRF	Avicta CP + Temik 15G	--- 5 lb/A	95.1 a	90.5 a	0.75 b	1.31 c	1.13 c	0.50 d	910
3	PHY 367 WRF	Avicta CP + Starter	--- See footnote 4	93.5 a	88.4 a	0.75 b	1.75 b	2.56 a	1.13 c	774
4	PHY 375 WRF	Avicta CP	---	77.6 b	75.4 b	0.81 b	2.25 a	2.44 a	1.31 b	743
5	PHY 375 WRF	Avicta CP + Temik 15G	--- 5 lb/A	78.0 b	75.0 b	0.75 b	1.06 c	1.31 c	0.50 d	770
6	PHY 375 WRF	Avicta CP + Starter	--- See footnote 4	76.3 b	74.5 b	1.00 a	2.25 a	2.56 a	1.56 a	688
	LSD			11.41	10.19	0.11	0.40	0.23	0.18	NS

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

[1]*Based on sampling all plants in rows 3 and 4 of each plot.*

[2]*Thrips injury based on a 0-5 scale, 0 = no injury and 5 = dead plants.*

[3]*Cotton was harvested on October 17. Gross yields were reduced by 56.5% to account for seed and trash.*

[4]*Starter = 10 gpa of 10-34-0 liquid fertilizer applied 2 inches below and 2 inches beside the seed at planting (2x2 placement).*

Test: CT11-THP-AMVAC, Evaluation of granular in-furrow insecticides for thrips management in cotton

#	Material	Rate
1	Untreated	
2	Thimet 20G	3.5 lb/A
3	Thimet 20G	5 lb/A
4	Thimet 20G	7 lb/A
5	Temik 15G	5 lb/A
6	Temik 15G	7 lb/A

Test: CT11-THP-AMVAC	**Experimental design:** RCBD
Year: 2011	**Plot size:** 4 rows x 35’
Crop: Cotton	**Row spacing:** 36”
Variety: PHY 499 WRF	**Planting date:** May 2
Field: 6	**Harvest date:** Oct 17
Location: Tidewater AREC	**Row feet harvested:** 70

Treatment application(s):

Granular in-furrow	Tractor-mounted inverted jars

Herbicides

Date	Product	Rate/A
5/02	Acumen	1.5 pt
5/02	Cotoran 4L	1 qt
5/02	Roundup WeatherMax	22 oz
5/27	Roundup WeatherMax	22 oz
6/14	Roundup WeatherMax	22 oz
7/13	MSMA	1 qt
7/13	Envoke	0.1 oz
7/13	Cotton Pro	1.5 pt
8/11	Roundup PowerMax	22 oz

Additional insecticides

Date	Product	Rate/A
7/19	Brigade 2EC	4 oz
7/29	Baythroid XL	3 oz
8/11	Baythroid XL	3 oz

Growth regulators

Date	Product	Rate/A
7/07	Pentia	8 oz
7/14	Pentia	1 pt
7/29	Pentia	8 oz

Lime & fertilize

Date	Product	
4/06	6-16-39	3
6/10	N	3
6/10	Boron	1
6/24	N	3
6/24	Boron	1

Defoliation

Date	Product	
10/05	Finish	1
10/05	Dropp	3
10/05	Folex	1
10/05	Super Boll	6

Table 24. Stand counts, number of nodes above the highest 1st position white flower (NAWF), and number of nodes above the highest 1st position cracked boll to the uppermost harvestable boll (NACB), CT11-THP-AMVAC. Tidewater AREC, Suffolk, VA, 2011.

#	Material	Rate	Plants/35 row ft[1]			NAWF[2]	NACB[3]
			May 5	May 16	May 23	Jul 20	Sep 9
1	Untreated		59.1 a	86.5 a	99.6 a	6.65	2.80 bc
2	Thimet 20G	3.5 lb/A	51.0 ab	94.3 a	101.1 a	5.85	2.60 b-d
3	Thimet 20G	5 lb/A	45.9 ab	86.8 a	99.8 a	6.25	3.75 a
4	Thimet 20G	7 lb/A	38.0 b	83.3 ab	98.6 a	6.00	2.25 cd
5	Temik 15G	5 lb/A	22.8 c	85.5 a	96.1 ab	6.35	3.05 b
6	Temik 15G	7 lb/A	5.4 d	67.9 b	90.5 b	6.05	2.10 d
	LSD		15.2	15.6	6.76	NS	0.67

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]Based on sampling all plants in rows 1 and 2 of each plot on May 5 and 16; rows 3 and 4 on May 23.
[2]Based on sampling 5 plants in row 3 of each plot.
[3]Based on sampling 5 plants in rows 3 and 4 of each plot.

Table 25. Thrips injury ratings and yield, CT11-THP-AMVAC. Tidewater AREC, Suffolk, VA, 2011.

#	Material	Rate	Thrips injury rating[1]			Lint lb/acre[2]
			May 24	May 31	Jun 8	
1	Untreated		3.38 a	4.44 a	3.94 a	1001
2	Thimet 20G	3.5 lb/A	2.00 b	2.31 b	0.81 bc	1008
3	Thimet 20G	5 lb/A	1.44 c	1.94 c	0.69 bc	840
4	Thimet 20G	7 lb/A	1.31 c	1.50 d	0.56 c	1127
5	Temik 15G	5 lb/A	0.94 d	1.50 d	0.88 b	1122
6	Temik 15G	7 lb/A	0.75 d	1.13 e	0.63 bc	1128
	LSD		0.29	0.20	0.27	NS

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]*Thrips injury based on a 0-5 scale, 0 = no injury and 5 = dead plants.*
[2]*Cotton was harvested on October 17. Gross yields were reduced by 54.8% to account for seed and trash.*

Table 26. Mean number of thrips per 5 plants, CT11-THP-AMVAC. Tidewater AREC, Suffolk, VA, 2011.

#	Material	Rate	May 17 (1st true leaf bud stage)		May 24 (1-2 true leaf stage)		May 31 (3-4 true leaf stage)		Jun 7	
			Immature	Adult	Immature	Adult	Immature	Adult	Immature	Adult
1	Untreated		1.25 a	18.25 a	42.50 a	7.75 a	59.75 a	9.75	31.00 a	3.00
2	Thimet 20G	3.5 lb/A	0.00 b	2.00 b	3.25 b	1.25 b	8.25 b	9.50	9.00 b	4.50
3	Thimet 20G	5 lb/A	0.25 b	3.25 b	2.25 b	2.50 b	8.25 b	6.75	10.25 b	5.50
4	Thimet 20G	7 lb/A	0.00 b	2.00 b	2.25 b	1.00 b	4.25 b	10.00	6.50 b	2.75
5	Temik 15G	5 lb/A	0.00 b	0.75 b	1.75 b	0.75 b	6.25 b	11.50	16.50 ab	7.25
6	Temik 15G	7 lb/A	0.00 b	1.00 b	0.00 b	1.00 b	4.50 b	7.50	10.25 b	3.00
	LSD		0.87	3.02	6.83	4.00	12.70	NS	14.67	NS

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

Test: CT11-THP-DuPont, Evaluation of Cyazypyr and Orthene for thrips management.

#	Material	Rate	Date(s) treated
1	Verimark 20SC	10.3 oz/A (liquid IF)	
2	Verimark 20SC	13.5 oz/A (liquid IF)	
3	Verimark 20SC Benevia 10OD	10.3 oz/A (liquid IF) 13.5 oz/A (BC @ 1st tl)	May 20
4	Orthene 97	12 oz/A (liquid IF)	
5	Orthene 97	16 oz/A (liquid IF)	
6	Orthene 97 + Orthene 97	12 oz/A (liquid IF) 6 oz/A (BC @ 1st tl)	May 20
7	Admire Pro	8.5 oz/A (liquid IF)	
8	Untreated		

Tap water pH of 7.9 adjusted to 6.7 with 1 ml Buffer Xtra Strength:2000 ml water.

Test: CT11-THP-DuPont
Year: 2011
Crop: Cotton
Variety: PHY 499 WRF (insecticide untreated)
Field: 6
Location: Tidewater AREC

Experimental design: RCBD
Plot size: 4 rows x 35’
Row spacing: 36”
Planting date: May 2
Harvest date: Oct. 21
Row feet harvested: 70

Treatment application(s):

Liquid in-furrow	**Nozzle type:** microtube	**Nozzle spacing:** 36”	**PSI:** 51	**GPA:** 5.0
Broadcast using backpack	**Nozzle type:** 8002VS	**Nozzle spacing:** 18”	**PSI:** 16.8	**GPA:** 14.3

Herbicides

Date	Product	Rate/A
4/10	Roundup WeatherMax	22 oz
5/02	Acumen	1.5 pt
5/02	Cotoran 4L	1 qt
5/02	Roundup WeatherMax	22 oz
5/27	Roundup WeatherMax	22 oz
6/14	Roundup WeatherMax	22 oz
7/13	MSMA	1 qt
7/13	Envoke	0.1 oz
7/13	Cotton Pro	1.5 pt
8/11	Roundup PowerMax	22 oz

Additional insecticides

Date	Product	Rate/A
7/19	Brigade 2EC	4 oz
7/29	Baythroid XL	3 oz
8/11	Baythroid XL	3 oz

Lime & fertilizer

Date	Product	Rate/A
4/06	6-16-39	330 lb
6/10	N	30 units
6/10	Boron	1 qt
6/24	N	30 units
6/24	Boron	1 qt

Growth regulators

Date	Product	Rate/A
7/07	Pentia	8 oz
7/14	Pentia	1 pt
7/29	Pentia	8 oz

Defoliation

Date	Product	Rate/A
10/05	Finish	1 qt
10/05	Dropp	3 oz
10/05	Folex	10 oz
10/05	Super Boll	6 oz

Table 27. Thrips injury ratings and yield, CT11-THP-DuPont. Tidewater AREC, Suffolk, VA, 2011. Broadcast at 1st true leaf applications were made on May 20.

#	Material	Rate	Thrips injury rating[1]			Lint lb/acre[2]
			May 24	May 31	Jun 8	
1	Verimark 20SC	10.3 oz/A (liquid IF)	2.44 b	3.69 b	2.81 b	980
2	Verimark 20SC	13.5 oz/A (liquid IF)	2.31 b	3.44 bc	2.75 b	950
3	Verimark 20SC Benevia 10OD	10.3 oz/A (liquid IF) 13.5 oz/A (BC @ 1st tl)	2.13 b	3.25 c	2.69 b	903
4	Orthene 97	12 oz/A (liquid IF)	0.63 d	2.00 e	0.75 c	974
5	Orthene 97	16 oz/A (liquid IF)	0.88 cd	2.31 d	0.75 c	1011
6	Orthene 97 + Orthene 97	12 oz/A (liquid IF) 6 oz/A (BC @ 1st tl)	0.75 cd	1.50 f	0.63 cd	919
7	Admire Pro	8.5 oz/A (liquid IF)	1.06 c	1.25 f	0.50 d	1020
8	Untreated		3.50 a	4.50 a	4.31 a	835
	LSD		0.42	0.31	0.18	NS

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

[1]*Thrips injury based on a 0-5 scale, 0 = no injury and 5 = dead plants.*

[2]*Cotton was harvested on October 21. Gross yields were reduced by 57.9% to account for seed and trash.*

Table 28. Mean number of thrips per 5 plants, CT11-THP-DuPont. Tidewater AREC, Suffolk, VA, 2011. Broadcast at 1st true leaf applications were made on May 20.

#	Material	Rate	May 17 (1st true leaf bud stage)		May 24 (1-2 true leaf stage)		May 31		Jun 8	
			Immature	Adult	Immature	Adult	Immature	Adult	Immature	Adult
1	Verimark 20SC	10.3 oz/A (liquid IF)	0.75	16.25 b	19.50 b	6.75	35.75 b	14.75	26.75	5.25
2	Verimark 20SC	13.5 oz/A (liquid IF)	0.75	10.00 bc	18.25 b	5.00	18.75 bc	14.50	33.25	4.75
3	Verimark 20SC Benevia 10OD	10.3 oz/A (liquid IF) 13.5 oz/A (BC @ 1st tl)	0.75	15.25 b	10.50 b	5.25	23.25 bc	21.00	46.00	4.25
6	Orthene 97 + Orthene 97	12 oz/A (liquid IF) 6 oz/A (BC @ 1st tl)	0.00	3.50 c	2.75 b	1.25	4.50 c	11.25	20.50	3.25
8	Untreated		0.25	24.25 a	73.75 a	7.25	62.50 a	8.25	37.50	4.00
	LSD		NS	7.93	24.07	NS	23.97	NS	NS	NS

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

Test: CT11-THP-Nichino, Evaluation of Bexar SC for thrips control in cotton

#	Material	Rate	Dates treated[1]
1	Bexar SC + NIS	11 oz/A 0.25% v/v	May 19 and May 26
2	Bexar SC + NIS	14 oz/A 0.25% v/v	May 19 and May 26
3	Lannate LV + NIS	12 oz/A 0.25% v/v	May 19 and May 26
4	Bexar SC + Lannate LV + NIS	11 oz/A 12 oz/A 0.25% v/v	May 19 and May 26
5	Orthene 97	6 oz/A	May 19 and May 26
6	Untreated		

[1]All treatments applied twice, once at first true leaf and again in 7 days.

Test: CT11-THP-Nichino
Year: 2011
Crop: Cotton
Variety: PHY 499 WRF
Field: 6
Location: Tidewater AREC

Experimental design: RCBD
Plot size: 4 rows x 35’
Row spacing: 36”
Planting date: Apr. 27
Harvest date: Oct 17
Row feet harvested: 70

Treatment application(s):

Broadcast using backpack	**Nozzle type:** 8002VS	**Nozzle spacing:** 18”	**PSI:** 16.8	**GPA:** 1

Herbicides

Date	Product	Rate/A
4/10	Roundup WeatherMax	22 oz
4/27	Acumen	1.5 pt
4/27	Cotoran 4L	1 qt
4/27	Roundup WeatherMax	22 oz
5/27	Roundup WeatherMax	22 oz
6/14	Roundup WeatherMax	22 oz
7/13	MSMA	1 qt
7/13	Envoke	0.1 oz
7/13	Cotton Pro	1.5 pt
8/11	Roundup PowerMax	22 oz

Additional insecticides

Date	Product	Rate/A
7/19	Brigade 2EC	4 oz
7/29	Baythroid XL	3 oz
8/11	Baythroid XL	3 oz

Growth regulators

Date	Product	Rate/A
7/07	Pentia	8 oz
7/14	Pentia	1 pt
7/29	Pentia	8 oz

Lime & fertilize

Date	Product	
4/06	6-16-39	3
6/10	N	3
6/10	Boron	1
6/24	N	3
6/24	Boron	1

Defoliation

Date	Product	
10/05	Finish	1
10/05	Dropp	3
10/05	Folex	1
10/05	Super Boll	6

Table 29. Stand counts, plant heights, thrips injury ratings, and yield, CT11-THP-Nichino. Tidewater AREC, Suffolk, VA, 2011. Insecticide treatments were broadcast on May 19 and May 26.

#	Material	Rate	Plants/35 row ft[1]	Height (cm)	Thrips injury rating[2]			Lint lb/acre[3]
			May 16	May 26	May 24	May 31	Jun 8	
1	Bexar SC + NIS	11 oz/A 0.25% v/v	114.0	8.13	3.06 b	3.94 b	3.19 a	1103
2	Bexar SC + NIS	14 oz/A 0.25% v/v	113.1	8.30	3.00 b	4.31 a	3.63 a	1101
3	Lannate LV + NIS	12 oz/A 0.25% v/v	105.0	8.05	2.69 c	3.75 b	1.75 c	1101
4	Bexar SC + Lannate LV + NIS	11 oz/A 12 oz/A 0.25% v/v	110.3	8.05	3.00 b	3.75 b	2.38 b	1125
5	Orthene 97	6 oz/A	117.4	8.03	2.50 c	2.94 c	1.13 d	1071
6	Untreated		112.0	7.80	3.44 a	4.25 a	3.25 a	1103
	LSD		NS	NS	0.25	0.25	0.54	NS

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

[1]*Based on sampling all plants in rows 1 and 2 of each plot.*

[2]*Thrips injury based on a 0-5 scale, 0 = no injury and 5 = dead plants.*

[3]*Cotton was harvested on October 17. Gross yields were reduced by 55.5% to account for seed and trash.*

Test: CT11-BW1, Value of bollworm sprays on double-gene insect-resistant varieties

#	Variety	Date(s) treated for "Bollworm Protected" p
1	PHY 499 WRF	Aug 3
2	PHY 375 WRF	Aug 3
3	PHY 367 WRF	Aug 3
4	PHY 565 WRF	Aug 3
5	DP 1032 B2RF	Aug 3
6	DP 1028 B2RF	Aug 3
7	DP 1034 B2RF	Aug 3
8	AM 1550 B2RF	Aug 3
9	DG 2570 B2RF	Aug 3
10	FM 1740 B2F	Aug 3
11	ST 5288 B2F	Aug 3
12	DP 1133 B2RF	Aug 3
13	PHY 315 RF	Jul 28 and Aug 3
14	DP 121 RF	Jul 28 and Aug 3
15	SSG HQ 210 CT	Jul 28 and Aug 3

Each variety was treated with insecticides targeting bollworm, or untreated. In the treated p
double-gene insect resistant varieties received one spray (Baythroid XL @ 2.6 oz on Augus
and conventional varieties received two sprays for bollworm (Baythroid XL @ 1.6 oz/A on
28 and 2.6 oz on August 3).

Test: CT11_BW1	**Experimental design:** Split-plot
Year: 2011	**Plot size:** 2 rows x 35'
Crop: Cotton	**Row spacing:** 36"
Varieties: see treatment list	**Planting date:** May 10
Field: 64-a	**Harvest date:** Oct. 24
Location: Tidewater AREC	**Row feet harvested:** 70

Treatment application(s):

Broadcast using spider rig	**Nozzle type:** 8002VS	**Nozzle spacing:** 18”	**PSI:** 30	**GPA:** 16.5

Herbicides

Date	Product	Rate/A
4/10	Roundup WeatherMax	22 oz
5/11	Acumen	1.5 pt
5/11	Cotoran 4L	1 qt
5/11	Roundup WeatherMax	22 oz
7/12	MSMA	1 qt
7/12	Envoke	0.1 oz
7/12	Cotton Pro	1.5 pt

Additional insecticides

Date	Product	Rate/ A
5/10	Temik 15G	5 lb
5/27	Orthene 97	6 oz
7/19	Brigade 2EC	4 oz

Growth regulators

Date	Product	Rate/A
7/14	Pentia	1 pt

Lime & fertilizer

Date	Product	Rate/A
2/23	Lime	1000 lb
4/06	6-16-39	330 lb
6/10	N	30 units
6/10	Boron	1 qt
6/24	N	30 units
6/24	Boron	1 qt

Defoliation

Date	Product	Rate/A
10/08	Finish	1 qt
10/08	Dropp	3 oz
10/08	Folex	10 oz
10/08	Super Boll	6 oz

Table 30. Percent external bollworm damage[1] and yield, CT11-BW1. Tidewater AREC, Suffolk, VA, 2011.

#	Variety	Aug 8		Aug 15		Lint lb/acre[2]	
		Protected	Not protected	Protected	Not protected	Protected	Not protected
1	PHY 499 WRF	0.00	0.00	0.00	0.00 d	977 a-c	1008 a
2	PHY 375 WRF	0.00	0.00	0.00	0.00 d	898 a-e	863 a-d
3	PHY 367 WRF	0.00	0.00	0.00	0.00 d	824 c-e	839 b-d
4	PHY 565 WRF	0.00	0.00	0.00	2.00 cd	941 a-c	953 ab
5	DP 1032 B2RF	0.00	0.00	0.00	0.00 d	986 ab	1021 a
6	DP 1028 B2RF	0.00	0.00	0.00	0.00 d	1033 a	909 a-d
7	DP 1034 B2RF	0.00	0.00	0.00	1.00 cd	1031 a	948 a-c
8	AM 1550 B2RF	0.00	0.00	1.00	2.00 cd	844 b-e	873 a-d
9	DG 2570 B2RF	0.00	0.00	0.00	0.00 d	757 e	780 c-e
10	FM 1740 B2F	0.00	0.00	0.00	0.00 d	766 e	766 de
11	ST 5288 B2F	1.00	0.00	0.00	0.00 d	929 a-d	935 a-c
12	DP 1133 B2RF	0.00	0.00	0.00	0.00 d	1033 a	1027 a
13	PHY 315 RF	1.00	5.00	1.00	9.00 ab	775 de	653 e
14	DP 121 RF	0.00	4.00	0.00	13.00 a	875 a-e	752 de
15	SSG HQ 210 CT	4.00	7.00	0.00	5.00 bc	903 a-e	755 de
	LSD	NS	NS	NS	4.30	161.5	168.6

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]External bollworm damage based on a sample of 25 bolls per plot.
[2]Cotton was harvested on October 24. Gross yields were reduced for each plot (mean = 57.7-62.9%) to account for seed and trash.

Treatment means (% bollworm damage, yield)	Aug 8	Aug 15	Yield
1. With insecticide	0.4000 b	0.1333	903
2. Without insecticide	1.0667 a	2.1333	872
LSD	0.5478	---	NS

Variety mean (% bollworm damage, yield)	Aug 8	Aug 15	Yield
1. PHY 499 WRF	0.00 d	0.00	993 ab
2. PHY 375 WRF	0.00 d	0.00	881 ab
3. PHY 367 WRF	0.00 d	0.00	831 ab
4. PHY 565 WRF	0.00 d	1.00	947 ab
5. DP 1032 B2RF	0.00 d	0.00	1006 a
6. DP 1028 B2RF	0.00 d	0.00	971 ab
7. DP 1034 B2RF	0.00 d	0.50	990 ab
8. AM 1550 B2RF	0.00 d	1.50	859 ab
9. DG 2570 B2RF	0.00 d	0.00	768 ab
10. FM 1740 B2F	0.00 d	0.00	766 ab
11. ST 5288 B2F	0.50 cd	0.00	932 ab
12. DP 1133 B2RF	0.00 d	0.00	1030 a
13. PHY 315 RF	3.00 b	5.00	714 b
14. DP 121 RF	2.00 bc	6.50	813 ab
15. SSG HQ 210 CT	5.50 a	2.50	829 ab
LSD	1.5002	---	285.9

Split plot analysis (% bollworm damage, yield)	Aug 8	Aug 15	Yield
Treatment	0.0305	0.0109	0.3809
Variety	0.0016	<0.0001	<0.0001
Treatment x variety	0.7612	<0.0001	0.8038

Test: CT11-BW2, Research to evaluate conventional cotton varieties and insecticide management of the bollworm/budworm complex

#	Conventional variety	Date(s) treated for "Bollworm Protected" plots
1	SSG HQ 110 CT	Jul 28 and Aug 3
2	SSG HQ 210 CT	Jul 28 and Aug 3
3	SSG HQ 212 CT	Jul 28 and Aug 3

Each variety was treated with insecticides targeting bollworm, or untreated. "Protected" plots received Baythroid XL @ 1.6 oz/A on July 28 and 2.6 oz on August 3 (timed on egg threshold and live worms/fresh boll damage).

Test: CT11-BW2	**Experimental design:** Split-plot
Year: 2011	**Plot size:** 2 rows x 35'
Crop: Cotton	**Row spacing:** 36"
Variety: see treatment list	**Planting date:** May 10
Field: 64-a	**Harvest date:** Oct. 24
Location: Tidewater AREC	**Row feet harvested:** 70

Treatment application(s):

Granular in-furrow	Tractor-mounted			
Broadcast using spider rig	**Nozzle type:** 8002VS	**Nozzle spacing:** 18"	**PSI:** 30	**GPA:** 16.5

Comments: Checker variety = DP 1032 B2RF.

Herbicides

Date	Product	Rate/A
4/10	Roundup WeatherMax	22 oz
5/11	Acumen	1.5 pt
5/11	Cotoran 4L	1 qt
5/11	Roundup WeatherMax	22 oz
7/12	MSMA	1 qt
7/12	Envoke	0.1 oz
7/12	Cotton Pro	1.5 pt

Additional insecticides

Date	Product	Rate/ A
5/10	Temik 15G	5 lb
5/27	Orthene 97	6 oz
7/19	Brigade 2EC	4 oz

Growth regulators

Date	Product	Rate/A
7/14	Pentia	1 pt

Lime & fertilizer

Date	Product	Rate/A
2/23	Lime	1000 lb
4/06	6-16-39	330 lb
6/10	N	30 units
6/10	Boron	1 qt
6/24	N	30 units
6/24	Boron	1 qt

Defoliation

Date	Product	Rate/A
10/08	Finish	1 qt
10/08	Dropp	3 oz
10/08	Folex	10 oz
10/08	Super Boll	6 oz

Table 31. Percent external bollworm damage, yield, and fiber properties, CT11-BW2. Tidewater AREC, Suffolk, VA, 2011.

#	Variety	Percent external bollworm damage[1]				Lint lb/acre[2]		Fiber properties for Protected cotton[3]			
		Aug 8		Aug 15							
		Protected	Not protected	Protected	Not protected	Protected	Not protected	Micronaire	Length (in.)	Strength (g/tex)	Length uniformity (%)
1	SSG HQ 110 CT	0.00	2.00	0.00	0.00	949	887	4.53	1.13	30.93 b	81.38
2	SSG HQ 210 CT	0.00	2.00	0.00	5.00	854	739	4.70	1.11	32.25 a	81.95
3	SSG HQ 212 CT	0.00	1.00	1.00	5.00	912	725	4.58	1.11	31.78 ab	81.50
	LSD	NS	NS	NS	NS	NS	NS	NS	NS	0.903	NS

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]External bollworm damage based on a sample of 25 bolls per plot.
[2]Cotton was harvested on October 24. Gross yields were reduced by 61.3-62.9% to account for seed and trash.
[3]Provided by the USDA Florence Classing Office's high volume instrumentation (HVI) classing system.

Treatment means (% bollworm damage, yield)	**Aug 8**	**Aug 15**	**Yield**
1. With insecticide	0.000	0.333	905 a
2. Without insecticide	1.667	3.333	784 b
LSD	NS	NS	107.1

Variety mean (% bollworm damage, yield)	**Aug 8**	**Aug 15**	**Yield**
1. SSG HQ 110 CT	1.00	0.00	918 a
2. SSG HQ 210 CT	1.00	2.50	796 a
3. SSG HQ 212 CT	0.50	3.00	806 a
LSD	NS	NS	131.3

Split plot analysis (% bollworm damage, yield)	**Aug 8**	**Aug 15**	**Yield**
Treatment	0.1942	0.0577	0.0393
Variety	0.8214	0.0605	0.0130
Treatment x variety	0.8214	0.1306	0.3175

Test: CT11-BW3-Dow, Efficacy of a WideStrike vs. non-Bt variety, with and without bollworm insecticide applications

#	Material	Date(s) treated for "Bollworm Protected" plo
1	PHY 375 WRF	Aug 3
2	PHY 315 RF	Jul 28 and Aug 3

Both treatments were treated with Avicta CP. Each variety was treated with insecticides targeting bollworm, or untreated. PHY 375 WRF "Bollworm Protected" plots received 1 bollworm spray (Baythroid XL @ 2.6 oz on August 3). PHY 315 RF "Bollworm Protected plots received 2 bollworm sprays (Baythroid XL @ 1.6 oz/A at egg threshold on July 28 an oz/A on August 3).

Test: CT11-BW3-Dow	**Experimental design:** Split-plot
Year: 2011	**Plot size:** 2 rows x 35'
Crop: Cotton	**Row spacing:** 36"
Varieties: PHY 315 RF, PHY 375 WRF	**Planting date:** May 10
Field: 64-a	**Harvest date:** Oct. 24
Location: Tidewater AREC	**Row feet harvested:** 70

Treatment application(s):

Broadcast using spider rig	**Nozzle type:** 8002VS	**Nozzle spacing:** 18"	**PSI:** 30	**GPA:** 1

Comments: Checker variety = DP 1032 B2RF.

Herbicides

Date	Product	Rate/A
4/10	Roundup WeatherMax	22 oz
5/11	Acumen	1.5 pt
5/11	Cotoran 4L	1 qt
5/11	Roundup WeatherMax	22 oz
7/12	MSMA	1 qt
7/12	Envoke	0.1 oz
7/12	Cotton Pro	1.5 pt

Additional insecticides

Date	Product	Rate/ A
5/27	Orthene 97	6 oz
7/19	Brigade 2EC	4 oz

Growth regulators

Date	Product	Rate/A
7/14	Pentia	1 pt

Lime & fertilize

Date	Product	I
2/23	Lime	1(
4/06	6-16-39	3(
6/10	N	3(
6/10	Boron	1
6/24	N	3(
6/24	Boron	1

Defoliation

Date	Product	I
10/08	Finish	1
10/08	Dropp	3
10/08	Folex	1(
10/08	Super Boll	6

Table 32. Percent external bollworm damage[1] and yield, CT11-BW3. Tidewater AREC, Suffolk, VA, 2011.

#	Variety	Aug 8		Aug 15		Lint lb/acre[2]	
		Protected	Not protected	Protected	Not protected	Protected	Not protected
1	PHY 375 WRF	0.00	1.00	0.00	0.00	880	840 a
2	PHY 315 RF	0.00	8.00	1.00	2.00	770	643 b
	LSD	NS	NS	NS	NS	NS	127.4

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]External bollworm damage based on a sample of 25 bolls per plot.
[2]Cotton was harvested on October 24. Gross yields were reduced by 58.6-59.3% to account for seed and trash.

Treatment means (% bollworm damage, yield)	**Aug 8**	**Aug 15**	**Yield**
1. With insecticide	0.000	0.50	833
2. Without insecticide	4.500	1.00	742
LSD	NS	NS	NS

Variety mean (% bollworm damage, yield)	**Aug 8**	**Aug 15**	**Yield**
1. PHY 375 WRF	0.500	0.00	860 a
2. PHY 315 RF	4.000	1.50	697 b
LSD	NS	NS	110.6

Split plot analysis (% bollworm damage, yield)	**Aug 8**	**Aug 15**	**Yield**
Treatment	0.0780	0.7177	0.1382
Variety	0.1405	0.2283	0.0018
Treatment x variety	0.1405	0.6704	0.2807

Table 33. External damage and larval counts per 40 terminals, squares, and bolls on August 10, CT11-BW3. Tidewater AREC, Suffolk, VA, 2011.

#	Variety	Damaged terminals (per 40)		Larvae in 40 terminals		Damaged squares (per 40)		Larvae in 40 squares		Damaged bolls (per 40)		Larvae in 40 bolls	
		Protected	Not protected	Protected	Not protected	Protected	Not protected	Protected	Not protected	Protected	Not protected	Protected	Not protected
1	PHY 375 WRF	0.50	1.00	0.00	0.25	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00
2	PHY 315 RF	0.25	4.25	0.25	1.00	0.00	0.25	0.00	0.00	0.50	2.75	0.25	1.00
	LSD	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

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

Treatment means (Aug 10)	**Terminal damage**	**Terminal larvae**	**Square damage**	**Square larvae**	**Boll damage**	**Boll larvae**
1. With insecticide	0.375	0.125	0.000	0.00	0.375	0.125
2. Without insecticide	2.625	0.625	0.125	0.00	1.375	0.500
LSD	NS	NS	NS	NS	NS	NS

Variety mean (Aug 10)	**Terminal damage**	**Terminal larvae**	**Square damage**	**Square larvae**	**Boll damage**	**Boll larvae**
1. PHY 375 WRF	0.75	0.125	0.000	0.00	0.125 a	0.000
2. PHY 315 RF	2.25	0.625	0.125	0.00	1.625 a	0.625
LSD	NS	NS	NS	NS	1.719	NS

Split plot analysis (Aug 10)	**Terminal damage**	**Terminal larvae**	**Square damage**	**Square larvae**	**Boll damage**	**Boll larvae**
Treatment	0.1123	0.3534	0.3910	1.00	0.1612	0.3910
Variety	0.3091	0.2528	0.3559	1.00	0.0475	0.1466
Treatment x variety	0.2425	0.5504	0.3559	1.00	0.0839	0.3559

Test: CT11-BW4, Efficacy of selected foliar-applied insecticides against bollworm.

#	Material	Rate	Date(s) treated
1	Belt SC	4 oz/A (BC @ ET)	Jul 28
2	Coragen 1.67SC	6.74 oz/A (BC @ ET)	Jul 28
3	Besiege	10 oz/A (BC @ ET)	Jul 28
4	Prevathon	13.3 oz/A (BC @ ET)	Jul 28
5	Radiant SC	6 oz/A (BC @ ET)	Jul 28
6	Baythroid XL	1.6 oz/A (BC @ ET) 2.6 oz/A (BC @ 5-7 d after ET)	Jul 28 Aug 3
7	Leverage 360	2.8 oz/A (BC @ ET) 3.2 oz/A (BC @ 5-7 d after ET)	Jul 28 Aug 3
8	Karate Z	1.6 oz/A (BC @ ET) 2.56 oz/A (BC @ 5-7 d after ET)	Jul 28 Aug 3
9	Endigo ZCX	5 oz/A (BC @ ET) 5 oz/A (BC @ 5-7 d after ET)	Jul 28 Aug 3
10	Fastac	2 oz/A (BC @ ET) 2 oz/A (BC @ 5-7 d after ET)	Jul 28 Aug 3
11	Fastac	4 oz/A (BC @ ET) 4 oz (BC @ 5-7 d after ET)	Jul 28 Aug 3
12	Brigade 2EC	2.6 oz/A (BC @ ET) 4 oz (BC @ 5-7 d after ET)	Jul 28 Aug 3
13	Untreated		

Test: CT11-BW4	**Experimental design:** RCBD
Year: 2011	**Plot size:** 4 rows x 35’
Crop: Cotton	**Row spacing:** 36”
Variety: PHY 315 RF	**Planting date:** Apr. 29
Field: 50	**Harvest date:** Oct. 21
Location: Tidewater AREC	**Row feet harvested:** 70

Treatment application(s):

Broadcast using spider rig	**Nozzle type:** 8002VS	**Nozzle spacing:** 18”	**PSI:** 30	**GPA:** 16.5

Herbicides

Date	Product	Rate/A
4/12	Roundup WeatherMax	22 oz
4/30	Acumen	1.5 pt
4/30	Cotoran 4L	1 qt
4/30	Gramoxone	1 qt
5/25	Credit	1 qt
6/21	Credit	1 qt
6/28	MSMA	1 qt
6/28	Envoke	0.1 oz
6/28	Cotton Pro	1.5 pt

Additional insecticides

Date	Product	Rate/A
4/29	Temik 15G	5 lb
5/28	Orthene 97	6 oz

Growth regulators

Date	Product	Rate/A
7/07	Pentia	8 oz
7/15	Pentia	1 pt
7/20	Pentia	20 oz

Lime & fertilizer

Date	Product	Rate/A
4/06	6-16-39	330 lb
6/11	N	30 units
6/11	Boron	1 qt
6/25	N	30 units
6/25	Boron	1 qt

Defoliation

Date	Product	Rate/A
10/05	Finish	1 qt
10/05	Dropp	3 oz
10/05	Folex	10 oz
10/05	Super Boll	6 oz

Table 34. Percent external bollworm damage and yield, CT11-BW4. Tidewater AREC, Suffolk, VA, 2011.

#	Material	Rate	Percent external bollworm damage[1]		Lint lb/acre[2]
			Aug 8	Aug 15	
1	Belt SC	4 oz/A (BC @ ET)	1.00 bc	1.00 b	778
2	Coragen 1.67SC	6.74 oz/A (BC @ ET)	0.00 c	0.00 b	806
3	Besiege	10 oz/A (BC @ ET)	2.00 b	2.00 b	706
4	Prevathon	13.3 oz/A (BC @ ET)	0.00 c	2.00 b	742
5	Radiant SC	6 oz/A (BC @ ET)	1.00 bc	2.00 b	745
6	Baythroid XL	1.6 oz/A (BC @ ET) 2.6 oz/A (BC @ 5-7 d after ET)	0.00 c	1.00 b	776
7	Leverage 360	2.8 oz/A (BC @ ET) 3.2 oz/A (BC @ 5-7 d after ET)	0.00 c	1.00 b	726
8	Karate Z	1.6 oz/A (BC @ ET) 2.56 oz/A (BC @ 5-7 d after ET)	0.00 c	1.00 b	815
9	Endigo ZCX	5 oz/A (BC @ ET) 5 oz/A (BC @ 5-7 d after ET)	0.00 c	1.00 b	712
10	Fastac	2 oz/A (BC @ ET) 2 oz/A (BC @ 5-7 d after ET)	0.00 c	2.00 b	721
11	Fastac	4 oz/A (BC @ ET) 4 oz (BC @ 5-7 d after ET)	0.00 c	1.00 b	761
12	Brigade 2EC	2.6 oz/A (BC @ ET) 4 oz (BC @ 5-7 d after ET)	0.00 c	3.00 b	751
13	Untreated		10.00 a	17.00 a	589
	LSD		1.56	4.69	NS

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]*External bollworm damage based on a sample of 25 bolls per plot.*
[2]*Cotton was harvested on October 21. Gross yields were reduced by 58.7% to account for seed and trash.*

Test: CT11-BW-Everett, Research to evaluate conventional cotton varieties and insecticide management of the bollworm/budworm complex—Everett farm

#	Conventional variety
1	SSG HQ 110 CT
2	SSG HQ 210 CT
3	SSG HQ 212 CT
4	PHY 375 WRF

Each variety was treated with insecticides targeting bollworm, with insecticide treatments timed on egg threshold and live worms/fresh boll damage. These bollworm treatments consisted of Baythroid XL applied at 2.8 oz/A on Jul. 30 and 2.8 oz/A on Aug. 8.

Test: CT11-BW-Everett
Year: 2011
Crop: Cotton
Variety: see treatment list
Field: n/a
Location: Everett Farms, Southampton Co., VA

Experimental design: Replicated strip
Plot size: 8 rows x 550-771 ft
Row spacing: 36”
Planting date: May 10
Harvest date: Oct. 25
Row feet harvested: 4400-6168

Herbicides

Date	Product	Rate/ A
4/08	Barrage (2,4-D)	1 pt
4/08	Valor	2 oz
4/08	Touchdown	26 oz
4/08	Helfire (surfactant)	1 qt*
5/12	Prowl H2O	1 pt
5/12	Reflex	1 pt
5/12	Gramoxone	1.4 pt
5/12	80/20 Spreader Sticker	1 qt*
7/05	Arrow	14 oz
7/05	Crop Smart (crop oil)	1 qt
*per 100 gal water		

Additional insecticides

Date	Product	Rate/A
5/31	Acephate	8 oz
7/30	Bidrin	4 oz

Growth regulators

Date	Product	Rate/A
7/14	Mepiquat Chloride	1 pt

Lime & fertilizer

Date	Product	Rate/A
4/08	N 30%	7 gal
7/14	Boron 10%	1 qt
7/30	Ful Bor (Boron)	6 oz

Defoliation

Date	Product	Rate/A

Table 35. Percent external bollworm damage, yield, and fiber properties, CT11-BW-Everett (Everett Farms, Southampton Co., VA). Tidewater AREC, Suffolk, VA, 2011.

#	Conventional variety	Percent external bollworm damage[1]	Lint lb/acre[2]	Fiber properties[3]			
		Aug 18		Micronaire	Length (in.)	Strength (g/tex)	Length uniformity (%)
1	SSG HQ 110 CT	0.00	942	4.28	1.18 a	32.53	82.28 a
2	SSG HQ 210 CT	0.00	1069	4.40	1.12 c	30.65	80.58 b
3	SSG HQ 212 CT	0.00	1020	4.23	1.13 bc	31.33	81.58 ab
4	PHY 375 WRF	0.00	954	4.33	1.15 b	30.65	81.58 ab
	LSD	NS	NS	NS	0.024	NS	1.080

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]*External bollworm damage based on a sample of 25 bolls per plot.*
[2]*Cotton was harvested on October 25. Gross yields were reduced for each individual plot (57.7-61.7%) to account for seed and trash.*
[3]*Provided by the USDA Florence Classing Office's high volume instrumentation (HVI) classing system.*

Test: CT11-BW-Grizzard, Research to evaluate conventional cotton varieties and insecti
management of the bollworm/budworm complex—Grizzard farm

#	Conventional variety
1	SSG HQ 110 CT
2	SSG HQ 210 CT
3	SSG HQ 212 CT

Each variety was treated with insecticides targeting bollworm, with insecticide treatments t
on egg threshold and live worms/fresh boll damage. These bollworm treatments consisted
Baythroid XL applied at 3.2 oz/A on Jul. 27, 3.2 oz/A on Aug. 3, and 3.0 oz/A on Aug. 16.

Test: CT11-BW-Grizzard
Year: 2011
Crop: Cotton
Variety: see treatment list
Field: n/a
Location: Mike Grizzard farm, Southampton Co., VA

Experimental design: Strip
Plot size: 40 rows x ~2,000 ft
Row spacing: 36”
Planting date: May 5
Harvest date: Oct. 10
Row feet harvested: 32,240 to 32,48

Herbicides

Date	Product	Rate/A
4/07	Roundup	1 qt
4/07	2,4-D	1.5 pt
5/05	Reflex	1.1 pt
5/05	Accumen	24 oz
6/05	Staple	2.5 oz
6/15	MSMA	1.3 qt
6/15	Suprend	1 lb

Additional insecticides

Date	Product	Rate/A
5/25	Acephate	6 oz

Growth regulators

Date	Product	Rate/A
7/18	Pix	12 oz

Lime & fertilize

Date	Product	
4/15	7-0-40	2
6/15	0-0-21	3
7/10	Soluble Boron	2
7/27	Soluble Boron	1

Defoliation

Date	Product	
9/18	Folex	1
9/18	Super Boll	3
9/18	Pre Fall	2

Table 36. Percent external bollworm damage and yield, CT11-BW-Grizzard (Mike Grizzard farm, Southampton Co., VA). Tidewater AREC, Suffolk, VA, 2011.

#	Conventional variety	Percent external bollworm damage[1]		Lint lb/acre[2]
		Aug 9	Aug 24	
1	SSG HQ 110 CT	1.00	0.00	1025
2	SSG HQ 210 CT	4.00	0.00	953
3	SSG HQ 212 CT	0.00	0.00	928
	LSD	NS	NS	---

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]External bollworm damage based on a sample of 25 bolls per plot.
[2]Cotton was harvested on October 10. Gross yields were reduced by 61-62% to account for seed and trash.

Test: CT11-BW-Lowe, Research to evaluate conventional cotton varieties and insecticide management of the bollworm/budworm complex—Lowe farm

#	Conventional variety
1	SSG HQ 110 CT
2	SSG HQ 210 CT
3	SSG HQ 212 CT

Each variety was treated with insecticides targeting bollworm, with insecticide treatments timed on egg threshold and live worms/fresh boll damage. These bollworm treatments consisted of Baythroid XL applied at 3.2 oz/A on Jul. 22, Aug. 1, and Aug. 10.

Test: CT11-BW-Lowe	**Experimental design:** Replicated strip
Year: 2011	**Plot size:** 8 rows x variable lengths
Crop: Cotton	**Row spacing:** 36”
Variety: see treatment list	**Planting date:** May 12
Field: n/a	**Harvest date:** Nov. 28
Location: Lowe farm, Surry Co., VA	**Row feet harvested:** 3,696-5,952

Herbicides

Date	Product	Rate/A
3/25	2,4-D	1 qt
4/01	Roundup PowerMax	1 qt
4/01	Valor	2 oz
4/01	Response surfactant	4 oz
5/12	Ignite	27 oz
5/12	Pendipro	32 oz
5/12	Cotoran 4L	40 oz
6/21	Staple	2.6 oz
6/21	Metolachlor	1 pt
6/21	Response surfactant	3.2 oz
7/22	Clethodim	16 oz
7/22	80/20 Spreader sticker	3.2 oz

Additional insecticides

Date	Product	Rate/A
5/26	Acephate 97	6.8 oz
5/26	Response surfactant	4 oz
7/15	Admire Pro	1.5 oz
8/10	Acephate 97	12.3 oz

Growth regulators

Date	Product	Rate/A
7/15	Mepstar	10 oz
8/01	Mepiquat	9.6 oz

Lime & fertilizer

Date	Product	Rate/A
5/12	20-20-0	15 gpa
5/12	Boron	0.25 lb*
6/21	N	65 units
7/15	Boric acid	1.5 lb
8/01	Boric acid	1.5 lb
*2x2 placement		

Defoliation

Date	Product	Rate/A

Table 37. Percent external bollworm damage and yield, CT11-BW-Lowe (Lowe farm, Surry Co., VA). Tidewater AREC, Suffolk, VA, 2011.

#	Conventional variety	Percent external bollworm damage[1]		Lint lb/acre[2]
		Aug 9	Aug 16	
1	SSG HQ 110 CT	2.00	0.00	682 b
2	SSG HQ 210 CT	5.00	0.00	838 a
3	SSG HQ 212 CT	5.00	0.00	618 b
	LSD	NS	NS	152.5

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]*External bollworm damage based on a sample of 25 bolls per plot.*
[2]*Cotton was harvested on November 28. Gross yields were reduced by 59.0-62.4% to account for seed and trash.*

Test: CT11-SBUG-Bayer/AMVAC, Test description

#	Material	Rate	Date(s) treated
1	Leverage 360 + NIS	3.2 oz/A 0.25% v/v	Jul 21
2	Leverage 360 + Crop oil concentrate	3.2 oz/A 1% v/v	Jul 21
3	Leverage 360 + Orthene 97 + NIS	3.2 oz/A 7.42 oz/A 0.25% v/v	Jul 21
4	Endigo ZCX	5 oz/A	Jul 21
5	Beseige 1.25 ZC	10 oz/A	Jul 21
6	Orthene 97	11.13 oz/A	Jul 21
7	Baythroid XL	2.6 oz/A	Jul 21
8	CMT 4586 + Methylated spray oil + UAN 28%	8 oz/A 0.25% v/v 2.5% v/v	Jul 21
9	Movento 240 SC + Induce	4 oz/A 0.25% v/v	Jul 21
10	Bidrin 8	4 oz/A	Jul 21
11	Untreated		

Test: CT11-SBUG-Bayer/AMVAC	**Experimental design:** RCBD
Year: 2011	**Plot size:** 4 rows x 35’
Crop: Cotton	**Row spacing:** 36”
Variety: PHY 315 RF (Avicta CP)	**Planting date:** Apr. 29
Field: 23	**Harvest date:** n/a
Location: Tidewater AREC	**Row feet harvested:** n/a

Treatment application(s):

Broadcast using spider	**Nozzle type:** 8002VS	**Nozzle spacing:** 18”	**PSI:** 30	**GPA:** 16.5

Comments: Background bug damage level was 13% (determined by inspecting 100 bolls on July 18, 2011).

Herbicides

Date	Product	Rate/A
4/30	Acumen	1.5 pt
4/30	Cotoran 4L	1 qt
4/30	Gramoxone	1 qt
5/23	Roundup WeatherMax	22 oz
5/28	Credit	1 qt
6/30	MSMA	1 qt
6/30	Envoke	0.1 oz
6/30	Cotton Pro	1.5 pt

Additional insecticides

Date	Product	Rate/A
4/29	Temik 15G	5 lb
5/23	Orthene 97	6 oz

Growth regulators

Date	Product	Rate/A
7/01	Pentia	10 oz

Lime & fertilizer

Date	Product	Rate/A
3/28	6-16-39	330 lb
6/8	N	30 units
6/8	Boron	1 qt
6/23	N	30 units
6/23	Boron	1 qt

Defoliation

Date	Product	Rate/A
9/21	Finish	1 qt
9/21	Dropp	3 oz
9/21	Folex	6 oz
10/04	Super Boll	1 pt

Table 38. Percent internal boll damage[1], CT11-SBUG-BAYER/AMVAC. Tidewater AREC, Suffolk, VA, 2011. Treatments were applied on July 21.

#	Material	Rate/A	Jul 27	Aug 1
1	Leverage 360 + NIS	3.2 oz/A 0.25% v/v	12.50	15.00
2	Leverage 360 + Crop oil concentrate	3.2 oz/A 1% v/v	17.50	22.50
3	Leverage 360 + Orthene 97 + NIS	3.2 oz/A 7.42 oz/A 0.25% v/v	10.00	7.50
4	Endigo ZCX	5 oz/A	10.00	7.50
5	Beseige 1.25 ZC	10 oz/A	17.50	7.50
6	Orthene 97	11.13 oz/A	22.50	20.00
7	Baythroid XL	2.6 oz/A	5.00	10.00
8	CMT 4586 + Methylated spray oil + UAN 28%	8 oz/A 0.25% v/v 2.5% v/v	5.00	7.50
9	Movento 240 SC + Induce	4 oz/A 0.25% v/v	20.00	32.50
10	Bidrin 8	4 oz/A	12.50	10.00
11	Untreated		17.50	20.00
	LSD		NS	NS

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]*Based on sampling ten 0.9-1.1-inch-diameter bolls per plot.*

Test: CT11-SBUG-Valent, Evaluation of foliar insecticides for stink bug management in cotton

#	Material*	Rate/A	Date(s) treated
1	Untreated		
2	Belay	3 oz	Jul 19
3	Belay	4 oz	Jul 19
4	Belay + Kaiso	2 oz 1.3 oz	Jul 19
5	Belay + Baythroid XL	2 oz 2.6 oz	Jul 19
6	Orthene 97	8 oz	Jul 19
7	Endigo ZC	5 oz	Jul 19
8	Bidrin 8	6 oz	Jul 19
9	Baythroid XL	2.6 oz	Jul 19

*All treatments were tank mixed with NIS @ 0.25% v/v

Test: CT11-STINKBUG-VALENT	**Experimental design:** RCBD
Year: 2011	**Plot size:** 4 rows x 35’
Crop: Cotton	**Row spacing:** 36”
Variety: PHY 315 RF (Avicta CP)	**Planting date:** Apr. 29
Field: 23	**Harvest date:** n/a
Location: Tidewater AREC	**Row feet harvested:** n/a

Treatment application(s):

Broadcast using spider	**Nozzle type:** 8002VS	**Nozzle spacing:** 18”	**PSI:** 30	**GPA:** 16.5

Comments: Background bug damage level was 13% (determined by inspecting 100 bolls on July 18, 2011); mostly green stink bugs (based on observation).

Herbicides

Date	Product	Rate/A
4/30	Acumen	1.5 pt
4/30	Cotoran 4L	1 qt
4/30	Gramoxone	1 qt
5/23	Roundup WeatherMax	22 oz
5/28	Credit	1 qt
6/30	MSMA	1 qt
6/30	Envoke	0.1 oz
6/30	Cotton Pro	1.5 pt

Additional insecticides

Date	Product	Rate/A
4/29	Temik 15G	5 lb
5/23	Orthene 97	6 oz

Growth regulators

Date	Product	Rate/A
7/01	Pentia	10 oz

Lime & fertilizer

Date	Product	Rate/A
3/28	6-16-39	330 lb
6/8	N	30 units
6/8	Boron	1 qt
6/23	N	30 units
6/23	Boron	1 qt

Defoliation

Date	Product	Rate/A
9/21	Finish	1 qt
9/21	Dropp	3 oz
9/21	Folex	6 oz
10/04	Super Boll	1 pt

Table 39. Percent internal boll damage[1], CT11-SBUG-Valent. Tidewater AREC, Suffolk, VA, 2011. Treatments were applied on July 19.

#	Material	Rate/A	Jul 25	Jul 28
1	Untreated		27.50 a	32.50 a
2	Belay	3 oz	10.00 b	10.00 b
3	Belay	4 oz	2.50 b	5.00 b
4	Belay + Kaiso	2 oz 1.3 oz	5.00 b	17.50 ab
5	Belay + Baythroid XL	2 oz 2.6 oz	5.00 b	2.50 b
6	Orthene 97	8 oz**	10.00 b	5.00 b
7	Endigo ZC	5 oz	5.00 b	5.00 b
8	Bidrin 8	6 oz	12.50 b	12.50 b
9	Baythroid XL	2.6 oz	7.50 b	7.50 b
	LSD		12.68	16.44

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]Based on sampling ten 0.9-1.1-inch-diameter bolls per plot.

Test: CT11-SBUG-3, Efficacy of selected foliar-applied insecticides against stink bug in cotton.

#	Material	Rate	Date(s) treated
1	Baythroid XL	2 oz/A	Jul 20
2	Brigade 2EC	4 oz/A	Jul 20
3	Admire Pro	2 oz/A	Jul 20
4	Centric 40WG	2 oz/A	Jul 20
5	Cobalt Advanced	26 oz/A	Jul 20
6	Vydate CLV	8.5 oz/A	Jul 20
7	Bidrin 8	4 oz/A	Jul 20
8	Untreated		

Test: CT11_SBUG-3	**Experimental design:** RCBD
Year: 2011	**Plot size:** 4 rows x 35’
Crop: Cotton	**Row spacing:** 36”
Variety: PHY 499 WRF	**Planting date:** Apr. 30
Field: 27	**Harvest date:** n/a
Location: Tidewater AREC	**Row feet harvested:** n/a

Treatment application(s):

Broadcast using spider	**Nozzle type:** 8002VS	**Nozzle spacing:** 18”	**PSI:** 30	**GPA:** 16.5

Comments: Pre-treatment 50-boll sample on July 19 indicated 34% internal bug damage.

Herbicides

Date	Product	Rate/A
4/13	Roundup WeatherMax	22 oz
4/30	Acumen	1.5 pt
4/30	Cotoran 4L	1 qt
5/23	Roundup WeatherMax	22 oz
6/30	MSMA	1 qt
6/30	Envoke	0.1 oz
6/30	Cotton Pro	1.5 pt

Additional insecticides

Date	Product	Rate/A
4/30	Temik 15G	5 lb
5/23	Orthene 97	6 oz

Growth regulators

Date	Product	Rate/A
7/01	Pentia	10 oz

Lime & fertilizer

Date	Product	Rate/A
4/06	6-16-39	330 lb
6/8	N	30 units
6/8	Boron	1 qt
6/23	N	30 units
6/23	Boron	1 qt

Defoliation

Date	Product	Rate/A
10/05	Finish	1 qt
10/05	Dropp	3 oz
10/05	Folex	10 oz
10/05	Super Boll	6 oz

Table 40. Percent internal boll damage[1], CT11-SBUG-3. Tidewater AREC, Suffolk, VA, 2011. Treatments were applied on July 20.

#	Material	Rate/A	Jul 26	Jul 29
1	Baythroid XL	2 oz/A	17.50	20.00
2	Brigade 2EC	4 oz/A	15.00	20.00
3	Admire Pro	2 oz/A	17.50	35.00
4	Centric 40WG	2 oz/A	7.50	35.00
5	Cobalt Advanced	26 oz/A	17.50	5.00
6	Vydate CLV	8.5 oz/A	27.50	30.00
7	Bidrin 8	4 oz/A	22.50	35.00
8	Untreated		17.50	50.00
	LSD		NS	NS

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]Based on sampling ten 0.9-1.1-inch-diameter bolls per plot.

Test: CT11-SBUG-4, Efficacy of selected foliar-applied insecticides against stink bug in cotton.

#	Material	Rate	Date(s) treated
1	Bidrin XPII	10.5 oz/A	Aug 3
2	Bidrin XPII	12.8 oz/A	Aug 3
3	Endigo ZC	4 oz/A	Aug 3
4	Leverage 360	3.2 oz/A	Aug 3
5	Brigade 2EC	4 oz/A	Aug 3
6	Untreated		

Test: CT11_SBUG-4	**Experimental design:** RCBD
Year: 2011	**Plot size:** 4 rows x 35’
Crop: Cotton	**Row spacing:** 36”
Variety: PHY 315 RF	**Planting date:** Apr. 29
Field: 50	**Harvest date:** n/a
Location: Tidewater AREC	**Row feet harvested:** n/a

Treatment application(s):

Broadcast using spider	**Nozzle type:** 8002VS	**Nozzle spacing:** 18”	**PSI:** 30	**GPA:** 16.5

Comments: Pre-treatment sample of 100 bolls on August 3 indicated 18% internal bug damage.

Herbicides

Date	Product	Rate/A
4/12	Roundup WeatherMax	22 oz
4/30	Acumen	1.5 pt
4/30	Cotoran 4L	1 qt
4/30	Gramoxone	1 qt
5/25	Credit	1 qt
6/21	Credit	1 qt
6/28	MSMA	1 qt
6/28	Envoke	0.1 oz
6/28	Cotton Pro	1.5 pt

Additional insecticides

Date	Product	Rate/A
4/29	Temik 15G	5 lb
5/28	Orthene 97	6 oz

Growth regulators

Date	Product	Rate/A
7/07	Pentia	8 oz
7/15	Pentia	1 pt
7/20	Pentia	20 oz

Lime & fertilizer

Date	Product	Rate/A
4/06	6-16-39	330 lb
6/11	N	30 units
6/11	Boron	1 qt
6/25	N	30 units
6/25	Boron	1 qt

Defoliation

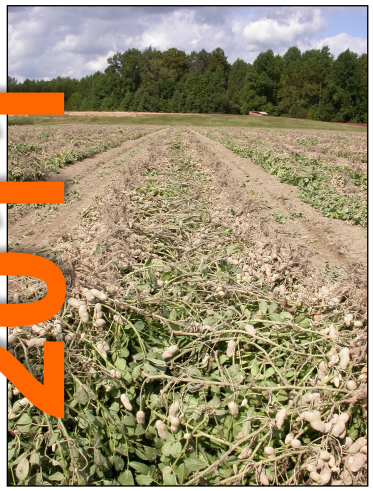
Date	Product	Rate/A
10/05	Finish	1 qt
10/05	Dropp	3 oz
10/05	Folex	10 oz
10/05	Super Boll	6 oz

Table 41. Percent internal boll damage[1], CT11-SBUG-4. Tidewater AREC, Suffolk, VA, 2011. Treatments were applied on August 3.

#	Material	Rate/A	Aug 8	Aug 11
1	Bidrin XPII	10.5 oz/A	13.75	10.00 b
2	Bidrin XPII	12.8 oz/A	11.25	15.00 b
3	Endigo ZC	4 oz/A	15.00	12.50 b
4	Leverage 360	3.2 oz/A	18.75	11.25 b
5	Brigade 2EC	4 oz/A	17.50	12.50 b
6	Untreated		23.75	37.50 a
	LSD		NS	16.27

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]Based on sampling twenty 0.9-1.1-inch-diameter bolls per plot.

2011



Peanut Insect Pest Management Tests and Demonstrations

Test: PT11-THP-1, Evaluation of in-furrow and foliar insecticides for thrips management in peanut.

#	Material	Rate	Date(s) treated
1	Thimet 20G	5 lb/A	
2	Orthene 97	12.4 oz/A (liquid IF)	
3	Orthene 97	12.4 oz/A (liquid IF) 6 oz/A (BC @ late GC)	 May 23
4	Orthene 97	16.5 oz/A (liquid IF)	
5	Orthene 97	16.5 oz/A (liquid IF) 6 oz/A (BC @ late GC)	 May 23
6	Orthene 97	6 oz/A (BC @ late GC) 6 oz/A (7-10 days after late GC)	May 23 May 27
7	Benevia 10OD	13.6 oz/A (BC @ late GC) 13.6 oz/A (7-10 days after late GC)	May 23 May 27
8	Verimark 20SC + Orthene 97	13.5 oz/A (liquid IF) 6 oz/A (BC @ late GC)	 May 23
9	Verimark 20SC + Benevia 10OD	13.5 oz/A (liquid IF) 13.6 oz/A (BC @ late GC)	 May 23
10	Admire Pro	8.5 oz/A (liquid IF)	
11	Untreated		

Test: PT11-THP-1
Year: 2011
Crop: Peanut
Variety: Phillips
Field: 36
Location: Tidewater AREC
Experimental design: RCBD

Plot size: 4 rows x 40’
Row spacing: 36”
Planting date: May 3
Dig date: Oct. 6
Harvest date: Oct. 14
Row feet harvested: 80

Treatment application(s):

Granular in-furrow	Tractor-mounted inverted jars			
Liquid in-furrow	**Nozzle type:** microtube	**Nozzle spacing:** 36”	**PSI:** 55	**GPA:** 5.0
Broadcast using backpack	**Nozzle type:** 8002VS	**Nozzle spacing:** 18”	**PSI:** 16.8	**GPA:** 14.3

Comments: Cultivated on Jun. 16; irrigated 1.2” on Jul. 18.

Herbicides

Date	Product	Rate/A
4/18	Dual	1 pt
5/12	Intrro	1 qt

Additional insecticides

Date	Product	Rate/A
6/30	Danitol 2.4 EC	6 oz
8/18	Baythroid XL	2.5 oz

Fungicides

Date	Product	Rate/A
7/11	Provost	8 oz
8/02	Provost	8 oz
8/02	Omega	1 pt
8/18	Provost	1 pt
9/12	Bravo	1.5 pt

Lime, fertilizer, landplaster, & adjuvants

Date	Product	Rate/A
6/14	Gypsum 420 Landplaster	1200 lb
6/30	Mn	1 qt
6/30	Boron	1 pt
7/11	Mn	1 qt
7/11	Boron	1 qt
8/02	Mn	1 qt
8/02	Boron	1 qt

Fumigants

Date	Product	Rate/A
4/15	Vapam	10 gal

Table 42. Stand counts, PT11-THP-1. Tidewater AREC, Suffolk, VA, 2011. Broadcast at late ground cracking applications were made on May 23 and May 27.

#	Material	Rate	Plants/40 row ft[1]	
			May 19	May 27
1	Thimet 20G	5 lb/A	84.5 bc	124.8
2	Orthene 97	12.4 oz/A (liquid IF)	58.8 e	125.5
3	Orthene 97	12.4 oz/A (liquid IF) 6 oz/A (BC @ late GC)	56.4 ef	122.6
4	Orthene 97	16.5 oz/A (liquid IF)	49.9 fg	127.4
5	Orthene 97	16.5 oz/A (liquid IF) 6 oz/A (BC @ late GC)	48.8 g	128.1
6	Orthene 97	6 oz/A (BC @ late GC) 6 oz/A (7-10 days after late GC)	80.9 cd	128.0
7	Benevia 10OD	13.6 oz/A (BC @ late GC) 13.6 oz/A (7-10 days after late GC)	91.8 a	133.8
8	Verimark 20SC + Orthene 97	13.5 oz/A (liquid IF) 6 oz/A (BC @ late GC)	86.0 a-c	135.3
9	Verimark 20SC + Benevia 10OD	13.5 oz/A (liquid IF) 13.6 oz/A (BC @ late GC)	80.4 cd	121.4
10	Admire Pro	8.5 oz/A (liquid IF)	77.0 d	129.6
11	Untreated		89.6 ab	128.9
	LSD		6.71	NS

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]Based on sampling all plants in rows 1 and 2 of each plot.

Table 43. Thrips injury ratings[1], PT11-THP-1. Tidewater AREC, Suffolk, VA, 2011. Broadcast at late ground cracking applications were made on May 23 and May 27.

#	Material	Rate	May 24	May 31	Jun 9	Jun 15
1	Thimet 20G	5 lb/A	1.81 d	1.69 c	0.75 e	0.75 fg
2	Orthene 97	12.4 oz/A (liquid IF)	0.75 e	1.69 c	1.25 d	1.69 cd
3	Orthene 97	12.4 oz/A (liquid IF) 6 oz/A (BC @ late GC)	0.69 e	1.50 c	0.88 e	1.19 d-f
4	Orthene 97	16.5 oz/A (liquid IF)	0.63 e	1.38 cd	0.75 e	1.38 de
5	Orthene 97	16.5 oz/A (liquid IF) 6 oz/A (BC @ late GC)	0.63 e	1.38 cd	0.69 e	1.19 d-f
6	Orthene 97	6 oz/A (BC @ late GC) 6 oz/A (7-10 days after late GC)	3.25 b	3.25 b	1.25 d	0.88 e-g
7	Benevia 10OD	13.6 oz/A (BC @ late GC) 13.6 oz/A (7-10 days after late GC)	3.50 a	3.56 b	1.25 d	1.38 de
8	Verimark 20SC + Orthene 97	13.5 oz/A (liquid IF) 6 oz/A (BC @ late GC)	2.06 c	3.56 b	2.75 c	2.06 c
9	Verimark 20SC + Benevia 10OD	13.5 oz/A (liquid IF) 13.6 oz/A (BC @ late GC)	1.88 cd	3.50 b	3.44 b	3.75 b
10	Admire Pro	8.5 oz/A (liquid IF)	0.75 e	1.13 d	0.69 e	0.63 g
11	Untreated		3.50 a	5.69 a	6.50 a	6.19 a
	LSD		0.23	0.35	0.29	0.52

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]Thrips injury rated on a 0-10 scale, 0 = no injury and 10 = dead plants. Peanut was planted on May 3.

Table 44. Mean number of thrips per 10 terminal leaflets, PT11-THP-1. Tidewater AREC, Suffolk, VA, 2011. Broadcast at late ground cracking applications were made on May 23 and May 27.

#	Material	Rate	May 18		May 25		Jun 3		Jun 9		Jun 15	
			Immature	Adult	Immature	Adult	Immature	Adult	Immature	Adult	Immature	Adult
1	Thimet 20G	5 lb/A	0.00	1.00 c	0.25 b	9.25 b	6.25 b	0.75	1.75 c	0.25	1.00	0.25
5	Orthene 97	16.5 oz/A (liquid IF) 6 oz/A (BC @ late GC)	0.00	0.75 c	0.50 b	6.25 b	4.25 b	2.75	2.25 bc	1.25	1.50	1.00
7	Benevia 10OD	13.6 oz/A (BC @ late GC) 13.6 oz/A (7-10 days after late GC)	0.00	15.75 a	5.50 b	11.25 b	10.50 b	4.00	5.00 a-c	1.25	1.25	1.25
8	Verimark 20SC + Orthene 97	13.5 oz/A (liquid IF) 6 oz/A (BC @ late GC)	0.00	8.25 b	2.00 b	24.00 a	11.25 b	2.25	4.50 a-c	0.25	1.25	0.75
9	Verimark 20SC + Benevia 10OD	13.5 oz/A (liquid IF) 13.6 oz/A (BC @ late GC)	0.25	6.50 bc	1.25 b	10.00 b	9.50 b	1.00	6.50 ab	1.00	1.50	0.50
11	Untreated		0.00	16.75 a	14.00 a	11.75 b	22.75 a	1.00	9.00 a	1.25	1.00	0.25
	LSD		NS	6.76	5.32	9.83	9.28	NS	4.62	NS	NS	NS

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

Table 45. Tomato spotted wilt virus (TSWV) hits and yield, PT11-THP-1. Tidewater AREC, Suffolk, VA, 2011. Broadcast at late ground cracking applications were made on May 23 and May 27.

#	Material	Rate	TSWV hits/80 row ft[1]			Yield[2] (lb/A)
			Jun 15	Aug 16	Sep 12	
1	Thimet 20G	5 lb/A	3.25 b	8.00 d	30.00 cd	4497 b-e
2	Orthene 97	12.4 oz/A (liquid IF)	5.75 b	8.50 d	35.50 b-d	4759 a-d
3	Orthene 97	12.4 oz/A (liquid IF) 6 oz/A (BC @ late GC)	4.25 b	12.50 b-d	31.50 cd	4931 a-c
4	Orthene 97	16.5 oz/A (liquid IF)	4.75 b	11.75 cd	28.50 d	5367 a
5	Orthene 97	16.5 oz/A (liquid IF) 6 oz/A (BC @ late GC)	4.25 b	10.50 cd	36.50 b-d	5264 ab
6	Orthene 97	6 oz/A (BC @ late GC) 6 oz/A (7-10 days after late GC)	11.25 a	18.00 b-d	39.50 a-c	3701 e
7	Benevia 10OD	13.6 oz/A (BC @ late GC) 13.6 oz/A (7-10 days after late GC)	13.50 a	14.75 b-d	34.75 cd	4152 c-e
8	Verimark 20SC + Orthene 97	13.5 oz/A (liquid IF) 6 oz/A (BC @ late GC)	10.00 a	31.75 a	44.75 ab	4040 de
9	Verimark 20SC + Benevia 10OD	13.5 oz/A (liquid IF) 13.6 oz/A (BC @ late GC)	11.25 a	24.75 ab	48.25 a	4000 de
10	Admire Pro	8.5 oz/A (liquid IF)	2.00 b	10.50 cd	29.50 d	4472 b-e
11	Untreated		12.00 a	21.75 a-c	45.25 ab	3804 e
	LSD		4.01	12.80	9.96	803.6

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]*Based on visual inspection of all plants in rows 1 and 2 of each plot.*
[2]*Yield based on weight of peanut with moisture content of 7%. Dig date = October 6 and harvest date = October 14.*

Test: PT11-THP-2, Evaluation of liquid in-furrow insecticides, fungicides, and inoculants for thrips and disease management in peanut.

#	Material	Rate (all are liquid in-furrow)
1	Orthene 97	16.5 oz/A
2	Orthene 97 Proline 480 SC	16.5 oz/A 5.7 oz/A
3	Orthene 97 Propulse	16.5 oz/A 13.69 oz/A
4	Orthene 97 Optimize Lift	16.5 oz/A 15 oz/A
5	Orthene 97 Proline 480 SC Optimize Lift	16.5 oz/A 5.7 oz/A 15 oz/A
6	Verimark 20SC	10.2 oz/A
7	Verimark 20SC	13.5 oz/A
8	Verimark 20SC Proline 480 SC	13.5 oz/A 5.7 oz/A
9	Verimark 20SC Propulse	13.5 oz/A 13.69 oz/A
10	Verimark 20SC Optimize Lift	13.5 oz/A 15 oz/A
11	Verimark 20SC Proline 480 SC Optimize Lift	13.5 oz/A 5.7 oz/A 15 oz/A
12	Untreated	

Verimark was buffered to a pH of 5-7 with Buffer Xtra Strength

Test: PT11-THP-2
Year: 2011
Crop: Peanut
Variety: Phillips
Field: 67
Location: Tidewater AREC
Experimental design: RCBD

Plot size: 4 rows x 40’
Row spacing: 36”
Planting date: May 3
Dig date: Oct. 6
Harvest date: Oct. 11
Row feet harvested: 80

Treatment application(s):

Liquid in-furrow	**Nozzle type:** microtube	**Nozzle spacing:** 36”	**PSI:** 55	**GPA:** 5.0

Comments: Cultivated on Jun. 16; irrigated 1” on Jul. 19.

Herbicides

Date	Product	Rate/A
4/04	Acumen	1.5 pt
4/15	Dual	1 pt
5/12	Intrro	1 qt

Additional insecticides

Date	Product	Rate/A
6/30	Danitol 2.4 EC	6 oz
8/18	Baythroid XL	2.5 oz

Fungicides

Date	Product	Rate/A
7/11	Provost	8 oz
8/02	Provost	8 oz
8/02	Omega	1 pt
8/18	Provost	8 oz
9/12	Bravo	1.5 pt

Lime, fertilizer, landplaster, & adjuvants

Date	Product	Rate/A
6/15	Gypsum 420 Landplaster	1200 lb
6/30	Mn	1 qt
6/30	Boron	1 pt
7/11	Mn	1 qt
7/11	Boron	1 qt
8/02	Mn	1 qt
8/02	Boron	1 qt

Fumigants

Date	Product	Rate/A
4/14	Vapam	10 gal

Table 46. Stand counts and yield, PT11-THP-2. Tidewater AREC, Suffolk, VA, 2011. All treatments were applied as liquid in-furrows at planting.

#	Material	Rate	Plants/40 row ft[1]		Yield[2] (lb/A)
			May 19	May 27	
1	Orthene 97	16.5 oz/A	40.3 e	103.8 a-d	4671 b-e
2	Orthene 97 Proline 480 SC	16.5 oz/A 5.7 oz/A	33.1 f	100.9 cd	4781 b-d
3	Orthene 97 Propulse	16.5 oz/A 13.69 oz/A	36.9 ef	101.4 b-d	5535 a
4	Orthene 97 Optimize Lift	16.5 oz/A 15 oz/A	40.6 e	100.0 d	5111 ab
5	Orthene 97 Proline 480 SC Optimize Lift	16.5 oz/A 5.7 oz/A 15 oz/A	37.0 ef	101.6 b-d	4827 bc
6	Verimark 20SC	10.2 oz/A	73.0 a-c	110.9 a	4111 ef
7	Verimark 20SC	13.5 oz/A	76.4 a	109.5 a-c	4307 c-f
8	Verimark 20SC Proline 480 SC	13.5 oz/A 5.7 oz/A	66.3 d	108.5 a-d	4541 b-f
9	Verimark 20SC Propulse	13.5 oz/A 13.69 oz/A	68.6 cd	108.8 a-d	4613 b-e
10	Verimark 20SC Optimize Lift	13.5 oz/A 15 oz/A	75.9 ab	112.5 a	4212 c-f
11	Verimark 20SC Proline 480 SC Optimize Lift	13.5 oz/A 5.7 oz/A 15 oz/A	69.8 b-d	108.0 a-d	4153 d-f
12	Untreated		77.9 a	110.5 ab	3941 f
	LSD		6.30	9.13	656.2

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]Based on sampling all plants in rows 1 and 2 of each plot.
[2]Yield based on weight of peanut with moisture content of 7%. Dig date = October 6 and harvest date = October 11.

Table 47. Thrips injury ratings[1], PT11-THP-2. Tidewater AREC, Suffolk, VA, 2011. All treatments were applied as liquid in-furrows at planting.

#	Material	Rate	May 24	May 31	Jun 9	Jun 15
1	Orthene 97	16.5 oz/A	0.50 e	1.50 e	1.00 d	1.63 e
2	Orthene 97 Proline 480 SC	16.5 oz/A 5.7 oz/A	0.50 e	1.44 e	0.75 d	1.56 e
3	Orthene 97 Propulse	16.5 oz/A 13.69 oz/A	0.50 e	1.25 e	0.75 d	1.44 e
4	Orthene 97 Optimize Lift	16.5 oz/A 15 oz/A	0.50 e	1.38 e	0.81 d	1.44 e
5	Orthene 97 Proline 480 SC Optimize Lift	16.5 oz/A 5.7 oz/A 15 oz/A	0.50 e	1.13 e	0.81 d	1.44 e
6	Verimark 20SC	10.2 oz/A	1.50 b	3.06 b	3.56 b	3.69 bc
7	Verimark 20SC	13.5 oz/A	1.50 b	2.81 bc	3.69 b	2.81 d
8	Verimark 20SC Proline 480 SC	13.5 oz/A 5.7 oz/A	1.00 cd	2.44 cd	3.56 b	3.75 b
9	Verimark 20SC Propulse	13.5 oz/A 13.69 oz/A	0.75 de	2.31 d	2.25 c	3.38 c
10	Verimark 20SC Optimize Lift	13.5 oz/A 15 oz/A	1.13 c	2.81 bc	3.63 b	3.75 b
11	Verimark 20SC Proline 480 SC Optimize Lift	13.5 oz/A 5.7 oz/A 15 oz/A	1.24 bc	2.50 cd	3.44 b	3.88 b
12	Untreated		2.75 a	4.94 a	6.81 a	6.31 a
	LSD		0.27	0.46	0.30	0.37

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]Thrips injury rated on a 0-10 scale, 0 = no injury and 10 = dead plants. Peanut was planted on May 3.

Table 48. Mean number of thrips per 10 terminal leaflets, PT11-THP-2. Tidewater AREC, Suffolk, VA, 2011. All treatments were applied as liquid in-furrows at planting.

#	Material	Rate	May 18		May 25		Jun 3		Jun 9		Jun 15	
			Im-mature	Adult	Im-mature	Adult	Im-mature	Adult	Im-mature	Adult	Im-mature	Adult
1	Orthene 97	16.5 oz/A	0.00	0.00 b	0.00	6.50	1.75 b	0.75	6.25	0.00	1.75	0.75
6	Verimark 20SC	10.2 oz/A	0.25	2.75 a	0.25	17.50	2.25 b	0.00	11.75	1.00	2.50	1.00
7	Verimark 20SC	13.5 oz/A	0.00	2.00 ab	1.00	17.75	3.50 b	0.00	8.25	1.25	1.75	0.75
12	Untreated		0.00	4.25 a	1.75	17.25	8.00 a	0.50	11.25	0.75	0.25	0.50
	LSD		NS	2.58	NS	NS	4.40	NS	NS	NS	NS	NS

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

Test: PT11-THP-3, Evaluation of 'Bailey' peanut for thrips tolerance.

#	Variety	Material	Rate	Date(s) tr
1	Bailey	Orthene 97	16.5 oz/A (liquid IF)	
2	Bailey	Orthene 97	6 oz/A (BC @ late GC) 6 oz/A (7-10 days after late GC)	May 23 May 27
3	Bailey	Untreated		
4	Phillips	Orthene 97	16.5 oz/A (liquid IF)	
5	Phillips	Orthene 97	6 oz/A (BC @ late GC) 6 oz/A (7-10 days after late GC)	May 23 May 27
6	Phillips	Untreated		

Test: PT11-THP-3
Year: 2011
Crop: Peanut
Varieties: Bailey and Phillips
Field: 63-d
Location: Tidewater AREC
Experimental design: RCBD

Plot size: 4 rows x 35'
Row spacing: 36"
Planting date: May 5
Dig date: Oct. 6
Harvest date: Oct. 13
Row feet harvested: 70

Treatment application(s):

Liquid in-furrow	**Nozzle type:** microtube	**Nozzle spacing:** 36”	**PSI:** 55	**GPA:** 5.0
Broadcast using backpack	**Nozzle type:** 8002VS	**Nozzle spacing:** 18”	**PSI:** 16.8	**GPA:** 14.3

Comments: Rows 3 and 4 = ‘Phillips.’ Planted by Ed Seymore. Irrigated 1” on Jul. 21.

Herbicides

Date	Product	Rate/A
3/08	Roundup WeatherMax	22 oz
4/18	Dual	1 pt
4/18	Roundup WeatherMax	22 oz
5/12	Intrro	1 qt
6/15	Storm	1.5 pt
6/15	Basagran	1 pt
7/29	Select Max	12 oz

Additional insecticides

Date	Product	Rate/A
6/30	Danitol 2.4 EC	6 oz
8/18	Baythroid XL	2.5 oz

Fungicides

Date	Product	Rate/A
7/11	Provost	8 oz
8/02	Provost	8 oz
8/02	Omega	1 pt
8/18	Provost	8 oz
9/12	Bravo	1.5 pt

Lime, fertilizer, landplaster, & adjuvants

Date	Product	Rate/A
6/15	Gypsum 420 Landplaster	1200 lb
6/15	Coverall	1 pt*
6/30	Mn	1 qt
6/30	Boron	1 pt
7/11	Mn	1 qt
7/11	Boron	1 qt
7/29	Induce	1 qt*
8/02	Mn	1 qt
8/02	Boron	1 qt
*per 100 gal water		

Fumigants

Date	Product	Rate/A
4/15	Vapam	10 gal

Table 49. Stand counts and yield, PT11-THP-3. Tidewater AREC, Suffolk, VA, 2011. Broadcast at late ground cracking applications were made on May 23 and May 27.

#	Variety	Material	Rate	Plants/35 row ft[1]		Yield[2] (lb/A)
				May 20	May 27	
1	Bailey	Orthene 97	16.5 oz/A (liquid IF)	15.3 d	96.8	5778 a
2	Bailey	Orthene 97	6 oz/A (BC @ late GC) 6 oz/A (7-10 days after late GC)	61.8 bc	96.0	5521 ab
3	Bailey	Untreated		71.1 ab	106.1	5136 b
4	Phillips	Orthene 97	16.5 oz/A (liquid IF)	55.1 c	101.6	4602 c
5	Phillips	Orthene 97	6 oz/A (BC @ late GC) 6 oz/A (7-10 days after late GC)	80.5 a	109.1	4119 d
6	Phillips	Untreated		80.9 a	105.8	3430 e
	LSD			11.22	NS	445.7

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]Based on sampling all plants in rows 1 and 2 of each plot.
[2]Yield based on weight of peanut with moisture content of 7%. Dig date = October 6 and harvest date = October 13.

Table 50. Thrips injury ratings[1], PT11-THP-3. Tidewater AREC, Suffolk, VA, 2011. Broadcast at late ground cracking applications were made on May 23 and May 27.

#	Variety	Material	Rate	May 24	May 31	Jun 9	Jun 15
1	Bailey	Orthene 97	16.5 oz/A (liquid IF)	0.50 b	0.94 c	1.50 c	1.81 c
2	Bailey	Orthene 97	6 oz/A (BC @ late GC) 6 oz/A (7-10 days after late GC)	3.25 a	2.69 b	2.31 b	1.00 d
3	Bailey	Untreated		3.25 a	6.00 a	6.25 a	5.75 a
4	Phillips	Orthene 97	16.5 oz/A (liquid IF)	0.50 b	1.00 c	0.92 d	1.00 d
5	Phillips	Orthene 97	6 oz/A (BC @ late GC) 6 oz/A (7-10 days after late GC)	3.25 a	2.88 b	1.38 c	1.13 d
6	Phillips	Untreated		3.25 a	5.81 a	6.38 a	4.81 b
	LSD			0.00	0.25	0.39	0.43

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]Thrips injury rated on a 0-10 scale, 0 = no injury and 10 = dead plants. Peanut was planted on May 5.

Test: PT11-THP-Foliar, Evaluation of foliar insecticides for thrips control in peanut

#	Material	Rate	Dates treated
1	Tolfenpyrad EC + NIS	11 oz/A 0.25% v/v	May 23 and May
2	Tolfenpyrad EC + NIS	14 oz/A 0.25% v/v	May 23 and May
3	Lannate LV + NIS	12 oz/A 0.25% v/v	May 23 and May
4	Tolfenpyrad EC + Lannate LV + NIS	11 oz/A 12 oz/A 0.25% v/v	May 23 and May
5	Orthene 97	6 oz/A	May 23 and May
6	Radiant SC	6 oz/A	May 23 and May
7	Baythroid XL	2.8 oz/A	May 23 and May
8	Untreated		

[1]All treatments applied twice, once at late ground cracking (May 23) and again in 4 days (M
27).

Test: PT11-THP-Foliar
Year: 2011
Crop: Peanut
Variety: Phillips
Field: 63-d
Location: Tidewater AREC
Experimental design: RCBD

Plot size: 4 rows x 35’
Row spacing: 36”
Planting date: May 5
Dig date: Oct. 6
Harvest date: Oct. 13
Row feet harvested: 70

Treatment application(s):

Broadcast using backpack	**Nozzle type:** 8002VS	**Nozzle spacing:** 18”	**PSI:** 16.8	**GPA:** 14.3

Comments: Irrigated 1” on July 21.

Herbicides

Date	Product	Rate/A
3/18	Roundup WeatherMax	22 oz
4/18	Dual	1 pt
4/18	Roundup WeatherMax	22 oz
5/12	Intrro	1 qt
6/15	Storm	1.5 pt
6/15	Basagran	1 pt
7/29	Select Max	12 oz

Additional insecticides

Date	Product	Rate/A
6/30	Danitol 2.4 EC	6 oz
8/18	Baythroid XL	2.5 oz

Fungicides

Date	Product	Rate/A
7/11	Provost	8 oz
8/02	Provost	8 oz
8/02	Omega	1 pt
8/18	Provost	8 oz
9/12	Bravo	1.5 pt

Lime, fertilizer, landplaster, & adjuvants

Date	Product	Rate/A
6/15	Gypsum 420 Landplaster	1200 lb
6/15	Coverall	1 pt*
6/30	Mn	1 qt
6/30	Boron	1 pt
7/11	Mn	1 qt
7/11	Boron	1 qt
7/29	Induce	1 qt*
8/02	Mn	1 qt
8/02	Boron	1 qt
*per 100 gal water		

Fumigants

Date	Product	Rate/A
4/15	Vapam	10 gal

Table 51. Stand counts and yield, PT11-THP-Foliar. Tidewater AREC, Suffolk, VA, 2011. Broadcast at late ground cracking applications were made on May 23 and May 27.

#	Material	Rate	Plants/35 row ft[1]	Yield[2] (lb/A)
			May 20	
1	Tolfenpyrad EC + NIS	11 oz/A 0.25% v/v	77.1	3942
2	Tolfenpyrad EC + NIS	14 oz/A 0.25% v/v	69.4	3551
3	Lannate LV + NIS	12 oz/A 0.25% v/v	72.8	3869
4	Tolfenpyrad EC + Lannate LV + NIS	11 oz/A 12 oz/A 0.25% v/v	70.5	3704
5	Orthene 97	6 oz/A	74.6	3639
6	Radiant SC	6 oz/A	67.9	3765
7	Baythroid XL	2.8 oz/A	69.8	3243
8	Untreated		70.0	3393
	LSD		NS	NS

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]Based on sampling all plants in rows 1 and 2 of each plot.
[2]Yield based on weight of peanut with moisture content of 7%. Dig date = October 6 and harvest date = October 13.

Table 52. Thrips injury ratings[1], PT11-THP-Foliar. Tidewater AREC, Suffolk, VA, 2011. Broadcast at late ground cracking applications were made on May 23 and May 27.

#	Material	Rate	May 27	May 31	Jun 9	Jun 15
1	Tolfenpyrad EC + NIS	11 oz/A 0.25% v/v	3.25 b	5.50 ab	5.06 b	4.44 a
2	Tolfenpyrad EC + NIS	14 oz/A 0.25% v/v	3.00 c	5.38 bc	4.94 b	3.69 b
3	Lannate LV + NIS	12 oz/A 0.25% v/v	2.81 d	5.06 cd	4.19 c	3.50 bc
4	Tolfenpyrad EC + Lannate LV + NIS	11 oz/A 12 oz/A 0.25% v/v	2.75 d	4.69 d	4.94 b	3.19 cd
5	Orthene 97	6 oz/A	2.25 e	3.50 e	1.81 d	1.13 f
6	Radiant SC	6 oz/A	2.75 d	3.69 e	1.63 d	1.69 e
7	Baythroid XL	2.8 oz/A	2.75 d	5.56 ab	5.06 b	3.88 b
8	Untreated		3.50 a	5.81 a	6.31 a	2.81 d
	LSD		0.065	0.38	0.40	0.41

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]Thrips injury rated on a 0-10 scale, 0 = no injury and 10 = dead plants. Peanut was planted on May 5.

Table 53. Mean number of thrips per 10 terminal leaflets, PT11-THP-Foliar. Tidewater AREC, Suffolk, VA, 2011. Broadcast at late ground cracking applications were made on May 23 and May 27.

#	Material	Rate	May 18		May 25		Jun 3		Jun 9		Jun 15	
			Im-mature	Adult	Im-mature	Adult	Im-mature	Adult	Im-mature	Adult	Im-mature	Adult
5	Orthene 97	6 oz/A	0.25	11.50	4.25	13.25	18.00	2.00	0.75 b	1.50	0.50 b	0.00
6	Radiant SC	6 oz/A	0.00	16.00	1.25	12.00	22.25	2.75	2.50 ab	0.50	1.75 ab	0.50
7	Baythroid XL	2.8 oz/A	0.00	9.00	4.75	10.50	33.00	0.50	4.75 a	1.00	0.50 b	0.00
8	Untreated		0.25	15.50	3.75	13.75	46.50	1.50	3.50 a	2.00	2.00 a	0.25
	LSD		NS	NS	NS	NS	NS	NS	2.52	NS	1.26	NS

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

Test: PT11-THP-Syngenta-1, Evaluation of seed treatments for thrips control and effect o
TSWV in peanut

#	Material	Rate
1	Untreated	
2	Cruiser 70WS	1 oz/cwt
3	Dynasty PD	4 oz/cwt
4	Dynasty PD + Cruiser 70WS	4 oz/cwt 1 oz/cwt
5	A17461	4 oz/cwt
6	Dynasty PD + Cruiser 5FS	4 oz/cwt 1 oz/cwt
7	Dynasty PD + Thimet 20G	4 oz/cwt 5 lb/A
8	Dynasty PD + Temik 15G	4 oz/cwt 7 lb/A

Treated seed provided by Syngenta

Test: PT11-THP-Syngenta-1	**Plot size:** 4 rows x 40’
Year: 2011	**Row spacing:** 36”
Crop: Peanut	**Planting date:** May 6
Variety: NC V11	**Dig date:** Oct. 6
Field: 36	**Harvest date:** Oct. 14
Location: Tidewater AREC	**Row feet harvested:** 80
Experimental design: RCBD	

Treatment application(s):

Granular in-furrow	Tractor-mounted inverted jars

Comments: Cultivated on Jun. 16; irrigated 1.2" on Jul. 18.

Herbicides

Date	Product	Rate/A
4/18	Dual	1 pt
5/12	Intrro	1 qt

Additional insecticides

Date	Product	Rate/A
6/30	Danitol 2.4 EC	6 oz
8/18	Baythroid XL	2.5 oz

Fungicides

Date	Product	Rate/A
7/11	Provost	8 oz
8/02	Provost	8 oz
8/02	Omega	1 pt
8/18	Provost	8 oz
9/12	Bravo	1.5 pt

Lime, fertilizer, landplaster, & adjuvants

Date	Product	Rate/A
6/15	Gypsum 420 Landplaster	1200 lb
6/30	Mn	1 qt
6/30	Boron	1 pt
7/11	Mn	1 qt
7/11	Boron	1 qt
8/02	Mn	1 qt
8/02	Boron	1 qt

Fumigants

Date	Product	Rate/A
4/15	Vapam	10 gal

Table 54. Stand counts and thrips injury ratings, PT11-THP-Syngenta-1. Tidewater AREC, Suffolk, VA, 2011.

#	Material	Rate	Plants/40 row ft[1]	Thrips injury rating[2]			
			May 19	May 24	May 31	Jun 9	Jun 15
1	Untreated		56.4 a	3.50 a	5.63 a	6.38 a	5.50 a
2	Cruiser 70WS	1 oz/cwt	47.8 b	1.06 bc	3.44 b	4.38 b	4.63 b
3	Dynasty PD	4 oz/cwt	53.8 ab	3.50 a	5.50 a	6.38 a	4.56 b
4	Dynasty PD + Cruiser 70WS	4 oz/cwt 1 oz/cwt	52.3 ab	0.81 d	3.00 c	4.50 b	4.38 b
5	A17461	4 oz/cwt	53.4 ab	1.13 b	2.63 c	3.94 c	4.50 b
6	Dynasty PD + Cruiser 5FS	4 oz/cwt 1 oz/cwt	52.9 ab	0.88 cd	2.94 c	3.56 d	4.50 b
7	Dynasty PD + Thimet 20G	4 oz/cwt 5 lb/A	49.0 b	0.75 d	1.56 d	0.69 e	0.63 c
8	Dynasty PD + Temik 15G	4 oz/cwt 7 lb/A	28.1 c	0.69 d	1.13 e	0.50 e	0.56 c
	LSD		6.46	0.23	0.39	0.29	0.44

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

[1]*Based on sampling all plants in rows 1 and 2 of each plot.*

[2]*Thrips injury rated on a 0-10 scale, 0 = no injury and 10 = dead plants. Peanut was planted on May 6.*

Table 55. Mean number of thrips per 10 terminal leaflets, PT11-THP-Syngenta-1. Tidewater AREC, Suffolk, VA, 2011.

#	Material	Rate	May 25					Jun 2	
				Adult					
			Immature	Tobacco	Onion	Western flower	Total	Immature	Adult
1	Untreated		1.25	9.00	0.00	0.25 c	9.25	31.00 a	0.75
2	Cruiser 70WS	1 oz/cwt	0.25	5.50	1.25	2.50 a	9.25	25.75 ab	1.50
3	Dynasty PD	4 oz/cwt	1.50	6.75	0.75	1.00 bc	8.50	34.00 a	1.50
4	Dynasty PD + Cruiser 70WS	4 oz/cwt 1 oz/cwt	0.75	5.25	1.25	1.25 a-c	7.75	14.75 b-d	1.00
5	A17461	4 oz/cwt	1.25	5.00	2.00	1.25 a-c	8.25	24.50 ab	1.50
6	Dynasty PD + Cruiser 5FS	4 oz/cwt 1 oz/cwt	0.25	4.75	1.00	2.00 ab	7.75	17.75 bc	1.25
7	Dynasty PD + Thimet 20G	4 oz/cwt 5 lb/A	0.25	3.75	1.00	0.50 c	5.25	10.75 cd	1.00
8	Dynasty PD + Temik 15G	4 oz/cwt 7 lb/A	0.25	3.75	0.25	0.50 c	4.50	4.25 d	0.75
	LSD		NS	NS	NS	1.40	NS	12.40	NS

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

Table 56. Tomato spotted wilt virus (TSWV) hits and yield, PT11-THP-Syngenta-1. T AREC, Suffolk, VA, 2011.

#	Material	Rate	TSWV hits/80 row ft[1]			Yield
			Jun 15	Aug 16	Sep 12	(lb/A
1	Untreated		4.25 a	8.25	45.50 a	3652
2	Cruiser 70WS	1 oz/cwt	4.00 a	9.75	35.75 ab	4362
3	Dynasty PD	4 oz/cwt	4.00 a	4.75	29.75 b	3927 b
4	Dynasty PD + Cruiser 70WS	4 oz/cwt 1 oz/cwt	3.00 a	4.00	28.50 b	4305
5	A17461	4 oz/cwt	2.50 ab	5.00	32.75 b	4950
6	Dynasty PD + Cruiser 5FS	4 oz/cwt 1 oz/cwt	4.25 a	6.75	29.50 b	4187
7	Dynasty PD + Thimet 20G	4 oz/cwt 5 lb/A	0.75 bc	4.75	28.25 b	4478
8	Dynasty PD + Temik 15G	4 oz/cwt 7 lb/A	0.25 c	6.00	35.00 b	3540
	LSD		2.22	NS	10.38	637.

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]Based on visual inspection of all plants in rows 1 and 2 of each plot.
[2]Yield based on weight of peanut with moisture content of 7%. Dig date = October 6 and harvest date = Oct

Test: PT11-THP-Syngenta-2, Evaluation of seed treatments for thrips and other early-season insect control in peanut

#	Material	Rate
1	Untreated	
2	Cruiser 70WS	1 oz/cwt
3	Dynasty PD	4 oz/cwt
4	Dynasty PD + Cruiser 70WS	4 oz/cwt 1 oz/cwt
5	A17461	4 oz/cwt
6	Dynasty PD + Cruiser 5FS	4 oz/cwt 1 oz/cwt
7	Dynasty PD + Thimet 20G	4 oz/cwt 5 lb/A
8	Dynasty PD + Temik 15G	4 oz/cwt 7 lb/A

Treated seed provided by Syngenta

Test: PT11-THP-Syngenta-2
Year: 2011
Crop: Peanut
Variety: NC V11
Field: 63-d
Location: Tidewater AREC
Experimental design: RCBD

Plot size: 4 rows x 35’
Row spacing: 36”
Planting date: May 6
Dig date: Oct. 6
Harvest date: Oct. 13
Row feet harvested: 70

Treatment application(s):

Granular in-furrow	Tractor-mounted inverted jars

Comments: Irrigated 1" on Jul. 21.

Herbicides

Date	Product	Rate/A
3/18	Roundup WeatherMax	22 oz
4/18	Dual	1 pt
4/18	Roundup WeatherMax	22 oz
5/12	Intrro	1 qt
6/15	Storm	1.5 pt
6/15	Basagran	1 pt
7/29	Select Max	12 oz

Additional insecticides

Date	Product	Rate/A
6/30	Danitol 2.4 EC	6 oz
8/18	Baythroid XL	2.5 oz

Fungicides

Date	Product	Rate/A
7/11	Provost	8 oz
8/02	Provost	8 oz
8/02	Omega	1 pt
8/18	Provost	8 oz
9/12	Bravo	1.5 pt

Lime, fertilizer, landplaster, & adjuvants

Date	Product	Rate/A
6/15	Gypsum 420 Landplaster	1200 lb
6/15	Coverall	1 pt*
6/30	Mn	1 qt
6/30	Boron	1 pt
7/11	Mn	1 qt
7/11	Boron	1 qt
7/29	Induce	1 qt*
8/02	Mn	1 qt
8/02	Boron	1 qt
*per 100 gal water		

Fumigants

Date	Product	Rate/A
4/15	Vapam	10 gal

Table 57. Stand counts and thrips injury ratings, PT11-THP-Syngenta-2. Tidewater AREC, Suffolk, VA, 2011.

#	Material	Rate	Plants/35 row ft[1]	Thrips injury rating[2]			
			May 20	May 24	May 31	Jun 9	Jun 15
1	Untreated		47.1 a-c	3.31 a	6.25 a	6.81 a	5.19 a
2	Cruiser 70WS	1 oz/cwt	40.0 c	1.63 bc	3.44 c	5.63 b	4.69 bc
3	Dynasty PD	4 oz/cwt	47.9 a-c	3.50 a	5.50 b	6.88 a	4.06 d
4	Dynasty PD + Cruiser 70WS	4 oz/cwt 1 oz/cwt	48.9 a-c	1.13 cd	3.56 c	5.13 d	4.56 c
5	A17461	4 oz/cwt	50.6 ab	1.88 b	2.00 e	5.56 bc	4.75 b
6	Dynasty PD + Cruiser 5FS	4 oz/cwt 1 oz/cwt	53.8 a	1.38 bc	2.75 d	5.31 cd	3.81 e
7	Dynasty PD + Thimet 20G	4 oz/cwt 5 lb/A	42.5 bc	1.25 cd	1.56 f	1.06 e	0.75 f
8	Dynasty PD + Temik 15G	4 oz/cwt 7 lb/A	24.8 d	0.75 d	1.00 g	1.25 e	0.75 f
	LSD		9.39	0.51	0.31	0.29	0.15

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

[1]*Based on sampling all plants in rows 1 and 2 of each plot.*

[2]*Thrips injury rated on a 0-10 scale, 0 = no injury and 10 = dead plants. Peanut was planted on May 6.*

Table 58. Mean number of thrips per 10 terminal leaflets, PT11-THP-Syngenta-2. Tidewater AREC, Suffolk, VA, 2011.

#	Material	Rate	May 25						Jun 2	
				Adult						
			Immature	Tobacco	Onion	Western flower	Eastern flower	Total	Immature	Adult
1	Untreated		8.00 a	24.50 a	1.00	0.75	0.25	26.50 a	80.25 a	2.25
2	Cruiser 70WS	1 oz/cwt	1.50 bc	18.00 ab	1.50	1.75	0.25	21.50 ab	36.50 bc	3.25
3	Dynasty PD	4 oz/cwt	2.75 b	16.25 ab	1.00	0.25	0.00	17.50 ab	47.25 b	1.50
4	Dynasty PD + Cruiser 70WS	4 oz/cwt 1 oz/cwt	0.75 c	11.25 bc	1.25	2.50	0.00	15.00 bc	38.75 bc	3.75
5	A17461	4 oz/cwt	0.75 c	14.25 bc	0.75	1.00	0.00	16.00 bc	32.50 b-d	1.75
6	Dynasty PD + Cruiser 5FS	4 oz/cwt 1 oz/cwt	0.75 c	11.00 bc	2.25	3.25	0.25	16.75 a-c	25.00 b-d	2.25
7	Dynasty PD + Thimet 20G	4 oz/cwt 5 lb/A	0.50 c	15.25 b	1.50	2.25	0.00	19.00 ab	12.50 cd	4.00
8	Dynasty PD + Temik 15G	4 oz/cwt 7 lb/A	0.50 c	6.00 c	0.00	1.00	0.00	7.00 c	5.00 d	1.75
	LSD		1.84	8.95	NS	NS	NS	10.00	27.60	NS

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

Table 59. Tomato spotted wilt virus (TSWV) hits and yield, PT11-THP-Syngenta-2. T AREC, Suffolk, VA, 2011.

#	Material	Rate	TSWV hits/70 row ft[1]			Yield (lb/A
			Jun 15	Aug 16	Sep 12	
1	Untreated		11.00 a	36.00 a	47.25 ab	3029
2	Cruiser 70WS	1 oz/cwt	6.75 bc	23.75 b	38.25 b	3569
3	Dynasty PD	4 oz/cwt	10.25 ab	42.75 a	61.75 a	3149
4	Dynasty PD + Cruiser 70WS	4 oz/cwt 1 oz/cwt	7.25 bc	18.25 b	37.25 b	3490
5	A17461	4 oz/cwt	4.00 cd	18.50 b	37.75 b	4245
6	Dynasty PD + Cruiser 5FS	4 oz/cwt 1 oz/cwt	5.50 c	19.00 b	47.75 ab	3906
7	Dynasty PD + Thimet 20G	4 oz/cwt 5 lb/A	1.25 d	17.25 b	43.25 b	3930
8	Dynasty PD + Temik 15G	4 oz/cwt 7 lb/A	1.00 d	22.25 b	39.25 b	4008
	LSD		3.56	9.63	14.54	NS

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]Based on visual inspection of all plants in rows 1 and 2 of each plot.
[2]Yield based on weight of peanut with moisture content of 7%. Dig date = October 6 and harvest date = Oct

Test: PT11-THP-VA Lines, Evaluation of virginia-type lines for resistance to thrips.

#	Variety*
1	VT 003069
2	VT 004152
3	VT 024051
4	Titan
5	Bailey

Each variety was treated with insecticides and non-treated. Treated plots received Temik 15G @ 7 lb/A in-furrow at planting, followed by Orthene 97 @ 4 oz/A broadcast at late-ground cracking on May 23. All varieties were treated with fungicide (Trilex).

Test: PT11-THP-VA Lines
Year: 2011
Crop: Peanut
Varieties: see treatment list
Field: 13
Location: Tidewater AREC
Experimental design: Split-plot

Plot size: 2 rows x 40’
Row spacing: 36”
Planting date: May 5
Dig date: Oct. 6
Harvest date: Oct. 11
Row feet harvested: 80

Treatment application(s):

Granular in-furrow	Tractor-mounted inverted jars			
Broadcast using backpack	**Nozzle type:** 8002VS	**Nozzle spacing:** 18”	**PSI:** 16.8	**GPA:** 14.3

Comments: Cultivated on Jun. 16; irrigated 1” on Jul. 19.

Herbicides

Date	Product	Rate/A
4/04	Acumen	1.5 pt
4/14	Dual	1 pt
5/12	Intrro	1 qt

Additional insecticides

Date	Product	Rate/A
6/30	Danitol 2.4 EC	6 oz
8/18	Baythroid XL	2.5 oz

Fungicides

Date	Product	Rate/A
7/11	Provost	8 oz
8/02	Provost	8 oz
8/02	Omega	1 pt
8/18	Provost	8 oz
9/12	Bravo	1.5 pt

Lime, fertilizer, landplaster, & adjuvants

Date	Product	Rate/A
6/15	Gypsum 420 Landplaster	1200 lb
6/30	Mn	1 qt
6/30	Boron	1 pt
7/11	Mn	1 qt
7/11	Boron	1 qt
8/02	Mn	1 qt
8/02	Boron	1 qt

Fumigants

Date	Product	Rate/A
4/14	Vapam	10 gal

Table 60. Thrips injury ratings and thrips counts, PT11-THP-VA Lines. Tidewater AREC, Suffolk, VA, 2011. Treated plots received Temik 15G @ 7 lb/A in-furrow at planting, followed by Orthene 97 @ 4 oz/A broadcast at late-ground cracking on May 23.

#	Variety TREATED	Thrips injury rating[1]				Thrips per 10 terminal leaflets							
						May 18		May 26		Jun 2		Jun 9	
		May24	May 31	Jun 9	Jun 15	Im-mature	Adult	Im-mature	Adult	Im-mature	Adult	Im-mature	Adult
1	VT 003069	0.50 b	1.19 a	1.75 a	0.75	0.00	0.00	0.00	4.75	8.50	1.50	3.00 ab	2.00
2	VT 004152	0.56 b	0.63 b	0.88 b	0.63	0.00	0.25	0.50	14.00	17.75	1.00	6.00 a	1.25
3	VT 024051	0.50 b	0.56 b	0.81 b	0.63	0.00	0.00	0.00	8.75	11.25	1.25	1.25 b	0.25
4	Titan	0.75 a	0.88 ab	0.88 b	0.75	0.00	0.00	0.00	14.00	13.50	3.00	6.25 a	1.50
5	Bailey	0.50 b	0.75 b	0.69 b	0.56	0.00	0.00	0.0	6.50	9.00	1.50	6.25 a	2.00
	LSD	0.09	0.34	0.20	NS	---	NS	NS	NS	NS	NS	3.81	NS

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

[1]*Thrips injury rated on a 0-10 scale, 0 = no injury and 10 = dead plants. Peanut was planted on May 5.*

Table 61. Thrips injury ratings and thrips counts, PT11-THP-VA Lines. Tidewater AREC, Suffolk, VA, 2011. No insecticides were applied for thrips management.

#	Variety NON-TREATED	Thrips injury rating[1]				Thrips per 10 terminal leaflets							
						May 18		May 26		Jun 2		Jun 9	
		May 24	May 31	Jun 9	Jun 15	Im-mature	Adult	Im-mature	Adult	Im-mature	Adult	Im-mature	Adult
1	VT 003069	3.00 b	6.00	6.88	6.13 a	0.25	2.50	6.50	17.25	42.00	1.50	8.00	2.00
2	VT 004152	3.13 ab	5.81	6.63	5.50 b	0.00	7.50	20.75	19.75	29.00	1.50	3.00	0.75
3	VT 024051	3.13 ab	5.81	6.56	5.63 b	0.25	5.50	19.50	18.50	39.50	1.00	5.50	1.50
4	Titan	3.25 a	5.94	6.81	6.00 a	0.00	6.00	7.50	25.50	46.75	2.00	4.25	1.50
5	Bailey	3.00 b	5.94	6.56	5.50 b	0.00	5.25	6.50	14.25	29.00	1.25	8.25	1.25
	LSD	0.16	NS	NS	0.25	NS	NS	NS	NS	NS	NS	NS	NS

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]Thrips injury rated on a 0-10 scale, 0 = no injury and 10 = dead plants. Peanut was planted on May 5.

Treatment means (thrips injury ratings)	May 24	May 31	Jun 9	Jun 15
1. With insecticide	0.56 b	0.80 b	1.00	0.66
2. Without insecticide	3.10 a	5.90 a	6.69	5.75
LSD	0.0398	0.1591	---	---

Variety mean (thrips injury ratings)	May 24	May 31	Jun 9	Jun 15
1. VT 003069	1.75 c	3.59 a	4.31	3.44
2. VT 004152	1.84 b	3.22 b	3.75	3.06
3. VT 024051	1.81 bc	3.19 b	3.69	3.13
4. Titan	2.00 a	3.41 ab	3.84	3.38
5. Bailey	1.75 c	3.34 ab	3.63	3.03
LSD	0.0629	0.2516	---	---

Split plot analysis (thrips injury ratings)	May 24	May 31	Jun 9	Jun 15
Treatment	<0.0001	<0.0001	<0.0001	<0.0001
Variety	<0.0001	0.0013	<0.0001	<0.0001
Treatment x variety	0.4669	0.1590	0.0002	0.0042

Treatment means (immature thrips counts)	May 18	May 26	Jun 2	Jun
1. With insecticide	0.00	0.10 b	12.00 b	4.55
2. Without insecticide	0.10	12.15 a	37.25 a	5.80
LSD	NS	10.27	25.08	NS

Variety mean (immature thrips counts)	May 18	May 26	Jun 2	Jun
1. VT 003069	0.13	3.25	25.25	5.5
2. VT 004152	0.00	10.63	23.38	4.5
3. VT 024051	0.13	9.75	25.38	3.3
4. Titan	0.00	3.75	30.13	5.2
5. Bailey	0.00	3.25	19.00	7.2
LSD	NS	NS	NS	NS

Split plot analysis (immature thrips counts)	May 18	May 26	Jun 2	Jun
Treatment	0.1817	0.0335	0.0492	0.5
Variety	0.6045	0.2201	0.6654	0.2
Treatment x variety	0.6045	0.2548	0.5072	0.0

Treatment means (adult thrips counts)	May 18	May 26	Jun 2	Jun
1. With insecticide	0.05 b	9.60	1.65	1.40
2. Without insecticide	5.35 a	19.05	1.45	1.40
LSD	3.53	NS	NS	NS

Variety mean (adult thrips counts)	May 18	May 26	Jun 2	Jun
1. VT 003069	1.25	11.00	1.50	2.0
2. VT 004152	3.88	16.88	1.25	1.0
3. VT 024051	2.75	13.63	1.13	0.8
4. Titan	3.00	19.75	2.50	1.5
5. Bailey	2.63	10.38	1.38	1.6
LSD	NS	NS	NS	NS

Split plot analysis (adult thrips counts)	May 18	May 26	Jun 2	Jun
Treatment	0.0174	0.1468	0.6447	1.0
Variety	0.5383	0.0584	0.4769	0.4
Treatment x variety	0.6137	0.8643	0.9245	0.6

Table 62. Stand counts on May 19 and yield, PT11-THP-VA Lines. Tidewater AREC, Suffolk, VA, 2011. Treated plots received Temik 15G @ 7 lb/A in-furrow at planting, followed by Orthene 97 @ 4 oz/A broadcast at late-ground cracking on May 23.

#	Variety	Plants/40 row ft[1]		Yield[2] (lb/A)	
		Treated	Non-treated	Treated	Non-treated
1	VT 003069	16.9 d	23.1 d	1882 c	1559 c
2	VT 004152	91.4 a	99.4 a	3767 b	3328 b
3	VT 024051	71.5 b	92.8 b	4239 b	3222 b
4	Titan	61.9 c	72.1 c	3788 b	2956 b
5	Bailey	72.6 b	100.3 a	5367 a	4944 a
	LSD	7.21	5.38	798.0	650.9

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]Based on sampling all plants in rows 1 and 2 of each plot.
[2]Yield based on weight of peanut with moisture content of 7%. Dig date = October 6 and harvest date = October 11.

Treatment means	Stand count on May 19	Yield
1. With insecticide	62.9	3809 a
2. Without insecticide	77.5	3201 b
LSD	---	339.1

Variety mean	Stand count on May 19	Yield
1. VT 003069	20.0	1720 c
2. VT 004152	95.4	3547 b
3. VT 024051	82.1	3731 b
4. Titan	67.0	3372 b
5. Bailey	86.4	5155 a
LSD	---	536.1

Split plot analysis	Stand count on May 19	Yield
Treatment	<0.0001	0.0107
Variety	<0.0001	<0.0001
Treatment x variety	<0.0001	0.5317

Test: PT11-CEW-1, Evaluation of foliar treatments for lepidopteran pest management in peanut

#	Material	Rate	Dates treated[1]
1	Untreated		
2	Beseige 1.25ZC	7 oz/A	Aug 16
3	Beseige 1.25ZC	9 oz/A	Aug 16
4	Lannate LV	24 oz/A	Aug 16
5	Steward 1.25EC	10.25 oz/A	Aug 16

Test: PT11-CEW1
Year: 2011
Crop: Peanut
Variety: NC V11
Field: n/a
Location: Mike Grizzard farm, Southampton Co., VA
Experimental design: RCBD

Plot size: 2 rows x 40’
Row spacing: 36”
Planting date: May 8
Dig date: n/a
Harvest date: n/a
Row feet harvested: n/a

Treatment application(s):

Full coverage using backpack	**Nozzle type:** D2-13	**Nozzle spacing:** 3 nozzles per row	**PSI:** 42	**GPA:** 14.7

Comments: Pre-treatment counts indicated 7 small, 7 medium, and 3 large larvae per 3-ft beat cloth sample. Mandibular dissection indicated 76% corn earworm larvae and 24% tobacco budworm larvae on August 16 (n=25).

Herbicides

Date	Product	Rate/A
4/18	Prowl	1.5 pt
5/15	Strongarm	0.45 oz
5/15	Dual	1 pt
5/15	Gramoxone	11 oz
5/20	Dual	12 oz
6/06	Storm	12 oz
6/06	Butyrac	5 oz

Additional insecticides

Date	Product	Rate/A
5/08	Temik 15G	7 lb
5/20	Orthene 97	4 oz
6/29	Lorsban 15G	11 lb

Fungicides

Date	Product	Rate/A
6/29	Stratego	5 oz
7/20	Headline	8 oz
8/14	Provost	8 oz
9/30	Bravo	1.5 pt

Lime, fertilizer, landplaster, & adjuvants

Date	Product	Rate/A
6/01	Peanut Maker Landplaster	1100 lb
7/20	Mandate	2 lb

Fumigants

Date	Product	Rate/A
4/18	Metam	7.5 gal

Table 63. Mean number of larvae per 3-ft beat cloth sample and percent control[1], PT11-CEW-1 (Mike Grizzard farm, Southampton Co., VA). Tidewater AREC, Suffolk, VA, 2011. Insecticide treatments were applied on August 16.

#	Material	Rate	Aug 18[2]				Aug 22				% control
			Small larvae	Medium larvae	Large larvae	Total larvae	Small larvae	Medium larvae	Large larvae	Total larvae	
1	Untreated		0.50	6.00 a	9.5 a	16.00 a	1.00	3.75 a	2.50 a	7.25 a	---
2	Beseige 1.25ZC	7 oz/A	1.00	1.00 b	1.00 b	3.00 b	0.00	0.50 b	0.25 b	0.75 b	83.9
3	Beseige 1.25ZC	9 oz/A	0.25	2.00 b	1.00 b	3.25 b	0.00	0.00 b	0.00 b	0.00 b	86.0
4	Lannate LV	24 oz/A	1.00	1.50 b	0.50 b	3.00 b	0.00	0.75 b	0.50 b	1.25 b	81.7
5	Steward 1.25EC	10.25 oz/A	1.00	1.75 b	1.50 b	4.25 b	0.25	1.00 b	0.50 b	1.75 b	74.2
	LSD		NS	2.09	2.56	4.17	NS	1.62	1.35	2.13	---

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

[1]Percent control is based on cumulative larval days (CLD) in the treatment relative to the untreated control. CLD's are calculated with the following equation: $\Sigma (X_{i+1} - X_i)[(Y_i + Y_{i+1})/2]$, where X_i and X_{i+1} are adjacent sample dates and Y_i and Y_{i+1} are corresponding points of total larvae per 3-ft beat cloth sample. There were 46.5 CLD's in the untreated control.

[2]Larval numbers were multiplied by 2 in the untreated control on August 18.

Test: PT11-CEW-2, Evaluation of foliar treatments for lepidopteran pest management in peanut

#	Material	Rate	Dates treate
1	Prevathon 0.43SC (= DPX-E2Y45)	9.8 oz/A	Aug 16
2	Prevathon 0.43SC (= DPX-E2Y45)	13.4 oz/A	Aug 16
3	Coragen 1.67SC	5 oz/A	Aug 16
4	Prevathon 0.43SC (or DPX-E2Y45 5%SC) + Asana XL	4.15 oz/A 4.75 oz/A	Aug 16
5	Belt 4SC	2 oz/A	Aug 16
6	Steward 1.25EC	4.6 oz/A	Aug 16
7	Exirel 10SE + Methylated spray oil	0.088 lb ai/A 0.25% v/v	Aug 16
8	Exirel 10SE + Methylated spray oil	0.134 lb ai/A 0.25% v/v	Aug 16
9	Untreated		

Exirel was buffered to a pH of 5-7 with Buffer Xtra Strength

Test: PT11-CEW2
Year: 2011
Crop: Peanut
Variety: NC V11
Field: n/a
Location: Mike Grizzard farm, Southampton Co., VA
Experimental design: RCBD

Plot size: 2 rows x 40’
Row spacing: 36”
Planting date: May 8
Dig date: n/a
Harvest date: n/a
Row feet harvested: n/a

Treatment application(s):

Full coverage using backpack	**Nozzle type:** D2-13	**Nozzle spacing:** 3 nozzles per row	**PSI:** 42	**GPA:** 14.7

Comments: Pre-treatment counts indicated 7 small, 7 medium, and 3 large larvae per 3-ft beat cloth sample. Mandibular dissection indicated 76% corn earworm larvae and 24% tobacco budworm larvae on August 16 (n=25).

Herbicides

Date	Product	Rate/A
4/18	Prowl	1.5 pt
5/15	Strongarm	0.45 oz
5/15	Dual	1 pt
5/15	Gramoxone	11 oz
5/20	Dual	12 oz
6/06	Storm	12 oz
6/06	Butyrac	5 oz

Additional insecticides

Date	Product	Rate/A
5/08	Temik 15G	7 lb
5/20	Orthene 97	4 oz
6/29	Lorsban 15G	11 lb

Fungicides

Date	Product	Rate/A
6/29	Stratego	5 oz
7/20	Headline	8 oz
8/14	Provost	8 oz
9/30	Bravo	1.5 pt

Lime, fertilizer, landplaster, & adjuvants

Date	Product	Rate/A
6/01	Peanut Maker Landplaster	1100 lb
7/20	Mandate	2 lb

Fumigants

Date	Product	Rate/A
4/18	Metam	7.5 gal

Table 64. Mean number of larvae per 3-ft beat cloth sample and percent control[1], PT11-CEW-2 (Mike Grizzard farm, Southampton Co., VA). Tidewater AREC, Suffolk, VA, 2011. Insecticide treatments were applied on August 16.

#	Material	Rate	Aug 18[2]				Aug 22				% control
			Small larvae	Medium larvae	Large larvae	Total larvae	Small larvae	Medium larvae	Large larvae	Total larvae	
1	Prevathon 0.43SC	9.8 oz/A	2.75	4.00	2.50 a-d	9.25 ab	0.00 b	1.00 b	0.00 b	1.00 b	53.4
2	Prevathon 0.43SC	13.4 oz/A	2.00	1.75	3.25 ab	7.00 bc	0.25 b	0.25 b	0.00 b	0.50 b	65.9
3	Coragen 1.67SC	5 oz/A	0.75	4.25	1.00 d	6.00 bc	0.00 b	0.00 b	0.25 b	0.25 b	71.6
4	Prevathon 0.43SC + Asana XL	4.15 oz/A 4.75 oz/A	0.75	2.25	1.25 cd	4.25 c	0.00 b	0.00 b	0.25 b	0.25 b	79.5
5	Belt 4SC	2 oz/A	2.00	3.75	3.00 a-c	8.75 bc	0.25 b	1.00 b	0.00 b	1.25 b	54.5
6	Steward 1.25EC	4.6 oz/A	1.75	2.75	3.00 a-c	7.50 bc	0.25 b	0.25 b	1.00 b	1.50 b	59.1
7	Exirel 10SE + MSO	13.57 oz/A 0.25% v/v	1.25	3.75	1.50 b-d	6.50 bc	0.25 b	0.75 b	0.00 b	1.00 b	65.9
8	Exirel 10SE + MSO	20.67 oz/A 0.25% v/v	1.25	3.25	1.25 cd	5.75 bc	0.00 b	0.50 b	0.00 b	0.50 b	71.6
9	Untreated		2.00	7.50	4.00 a	13.50 a	2.25 a	2.75 a	3.50 a	8.50 a	---
	LSD		NS	NS	1.76	4.67	0.68	1.28	1.66	2.17	---

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

[1]Percent control is based on cumulative larval days (CLD) in the treatment relative to the untreated control. CLD's are calculated with the following equation: $\Sigma (X_{i+1} - X_i)[(Y_i + Y_{i+1})/2]$, where X_i and X_{i+1} are adjacent sample dates and Y_i and Y_{i+1} are corresponding points of total larvae per 3-ft beat cloth sample. There were 44.0 CLD's in the untreated control.

[2]Larval numbers were multiplied by 2 in the untreated control on August 18.

Test: PT11-CEW-3, Evaluation of foliar treatments for lepidopteran pest management in peanut

#	Material	Rate/A	Date(s) treated
1	DiPel ES (Kur.)	1 pt	Aug 16
2	Karate Z	1.28 oz	Aug 16
3	Karate Z	1.92 oz	Aug 16
4	DiPel ES (Kur.) + Karate Z	1 pt 1.28 oz	Aug 16
5	DiPel ES (Kur.) + Karate Z	1 pt 1.92 oz	Aug 16
6	Baythroid XL	2.4 oz	Aug 16
7	Brigade 2EC	5.12 oz	Aug 16
8	Untreated		

Test: PT11-CEW3	**Plot size:** 2 rows x 40’
Year: 2011	**Row spacing:** 36”
Crop: Peanut	**Planting date:** May 8
Variety: NC V11	**Dig date:** n/a
Field: n/a	**Harvest date:** n/a
Location: Mike Grizzard farm, Southampton Co., VA	**Row feet harvested:** n/a
Experimental design: RCBD	

Treatment application(s):

Full coverage using backpack	**Nozzle type:** D2-13	**Nozzle spacing:** 3 nozzles per row	**PSI:** 42	**GPA:** 14.7

Comments: Pre-treatment counts indicated 7 small, 7 medium, and 3 large larvae per 3-ft beat cloth sample. Mandibular dissection indicated 76% corn earworm larvae and 24% tobacco budworm larvae on August 16 (n=25).

Herbicides

Date	Product	Rate/A
4/18	Prowl	1.5 pt
5/15	Strongarm	0.45 oz
5/15	Dual	1 pt
5/15	Gramoxone	11 oz
5/20	Dual	12 oz
6/06	Storm	12 oz
6/06	Butyrac	5 oz

Additional insecticides

Date	Product	Rate/A
5/08	Temik 15G	7 lb
5/20	Orthene 97	4 oz
6/29	Lorsban 15G	11 lb

Fungicides

Date	Product	Rate/A
6/29	Stratego	5 oz
7/20	Headline	8 oz
8/14	Provost	8 oz
9/30	Bravo	1.5 pt

Lime, fertilizer, landplaster, & adjuvants

Date	Product	Rate/A
6/01	Peanut Maker Landplaster	1100 lb
7/20	Mandate	2 lb

Fumigants

Date	Product	Rate/A
4/18	Metam	7.5 gal

Table 65. Mean number of larvae per 3-ft beat cloth sample and percent control[1], PT11-CEW-3 (Mike Grizzard farm, Southampton Co., VA). Tidewater AREC, Suffolk, VA, 2011. Insecticide treatments were applied on August 16.

#	Material	Rate	Aug 18[2]				Aug 22				% control
			Small larvae	Medium larvae	Large larvae	Total larvae	Small larvae	Medium larvae	Large larvae	Total larvae	
1	DiPel ES (Kur.)	1 pt	2.25	5.00 b	2.00 b	9.25 b	0.00 b	1.25	0.00 c	1.25 b	65.9
2	Karate Z	1.28 oz	1.50	2.75 b-d	1.50 b	5.75 bc	0.25 b	1.25	0.25 c	1.75 b	75.6
3	Karate Z	1.92 oz	2.25	2.00 cd	2.25 b	6.50 bc	0.25 b	1.00	1.50 bc	2.75 b	69.9
4	DiPel ES (Kur.) + Karate Z	1 pt 1.28 oz	1.00	3.75 b-d	0.50 b	5.25 bc	0.50 b	2.50	1.25 bc	4.25 b	69.1
5	DiPel ES (Kur.) + Karate Z	1 pt 1.92 oz	2.75	4.00 bc	1.75 b	8.50 bc	1.00 b	0.75	2.50 ab	4.25 b	58.5
6	Baythroid XL	2.4 oz	0.50	1.25 d	1.50 b	3.25 c	0.00 b	1.75	0.50 c	2.25 b	82.1
7	Brigade 2EC	5.12 oz	1.50	2.50 b-d	1.50 b	5.50 bc	0.25 b	1.75	1.25 bc	3.25 b	71.5
8	Untreated		5.00	11.00 a	5.00 a	21.00 a	3.25 a	3.25	3.25 a	9.75 a	---
	LSD		NS	2.69	2.27	5.57	1.01	NS	1.69	3.28	---

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

[1]Percent control is based on cumulative larval days (CLD) in the treatment relative to the untreated control. CLD's are calculated with the following equation: $\Sigma (X_{i+1} - X_i)[(Y_i + Y_{i+1})/2]$, where X_i and X_{i+1} are adjacent sample dates and Y_i and Y_{i+1} are corresponding points of total larvae per 3-ft beat cloth sample. There were 61.5 CLD's in the untreated control.

[2]Larval numbers were multiplied by 2 in the untreated control on August 18.

Test: PT11-SCR1, Evaluation of at-pegging insecticide treatments for southern corn rootv management in peanut

#	Material	Rate	Date(s) treated
1	Benevia 10OD	6.75 oz/A (at pegging)	Jun 27
2	Benevia 10OD	13.5 oz/A (at pegging)	Jun 27
3	Benevia 10OD	20.5 oz/A (at pegging)	Jun 27
4	Lorsban 15G	13 lb/A (at pegging)	Jun 27
5	Untreated		

Benevia was buffered from a pH of 7.7 to a pH of 7.0 with 1 mL Buffer Xtra Strength:5000 water.

Test: PT11-SCR1
Year: 2011
Crop: Peanut
Variety: Perry
Field: n/a
Location: Steven and Michael Pittman farm, Surry Co., VA
Experimental design: RCBD

Plot size: 8 rows x 30’
Row spacing: 34”
Planting date: May 3
Dig date: Oct. 10
Harvest date: Oct. 15
Row feet harvested: n/a

Treatment application(s):

Band using bike rig	**Nozzle type:** 8004E	**Nozzle spacing:** 36”	**PSI:** 22.4	**GPA:** 1

Comments: Moldboard plowed on Apr. 11. Pod samples were collected on Oct. 12.

Herbicides

Date	Product	Rate/A
5/03	Prowl	1.5 pt
5/03	Dual Magnum	1.3 pt
5/03	Pursuit	2 oz
5/31	Dual Magnum	1.3 pt
5/31	Pursuit	2 oz
5/31	Butyrac	12 oz

Additional insecticides

Date	Product	Rate/A
5/03	Temik 15G	7 lb
7/05	Lorsban 15G	13 lb
8/15	Baythroid XL	2.8 oz

Fungicides

Date	Product	Rate/A
5/03	Proline	6 oz
6/22	Bravo 720	1.5 pt
7/08	Provost	10.6 oz
7/25	Provost	10.6 oz
8/15	Provost	10.6 oz
8/15	Omega	1 pt
8/25	Bravo 720	1.5 pt

Lime, fertilizer landplaster, & adju

Date	Product	
6/23	Landplaster	1

Fumigants

Date	Product	

Table 66. Southern corn rootworm mean percent damaged pods[1], PT11-SCR1 (Steven & Michael Pittman Farm, Surry Co., VA). Tidewater AREC, Suffolk, VA, 2011.

#	Material	Rate and timing	Mean percent scarified pods	Mean percent penetrated pods
1	Benevia 10OD	6.75 oz/A (at pegging)	2.50 b	0.00
2	Benevia 10OD	13.5 oz/A (at pegging)	3.75 ab	0.00
3	Benevia 10OD	20.5 oz/A (at pegging)	1.50 b	0.00
4	Lorsban 15G	13 lb/A (at pegging)	2.50 b	0.00
5	Untreated		5.75 a	0.00
	LSD		2.69	NS

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]A pre-harvest sample of 100 full-sized pods were randomly selected per plot after digging. Samples were taken on October12.

2011

Soybean Insect Pest Management Tests and Demonstrations

Test: SB11-SEED-1, Evaluation of seed treatments for early-season insect management

#	Material	Rate
1	Untreated	
2	Inovate system, consisting of: Rancona Xtra 0.24FS NipsIt INSIDE 5FS	 3.50 fl oz/cwt 1.28 fl oz/cwt
3	Inovate system, consisting of: Rancona Xtra 0.24FS NipsIt INSIDE 5FS + Metastar ST 2.65FS	 3.50 fl oz/cwt 1.28 fl oz/cwt 0.53 fl oz/cwt
4	Cruiser Maxx Plus 2.47FS	3.2 fl oz/cwt
5	Trilex 2SC Allegiance-FL 2.65SC Yield Shield 100SS Gaucho 600FS	0.32 fl oz/cwt 0.75 fl oz/cwt 0.10 fl oz/cwt 1.60 fl oz/cwt

Treated seed provided by Valent.

Test: SB11-SEED-1	**Experimental design:** RCBD
Year: 2011	**Plot size:** 2 rows x 40’
Crop: Soybean	**Row spacing:** 36”
Variety: Asgrow 5605 RR/STS	**Planting date:** May 9
Field: 40	**Harvest date:** Oct. 27
Location: Tidewater AREC	**Row feet harvested:** 80

Comments: Seed treated by Valent on Apr. 21 (untreated treated with just water); germination = 85%; 3,910 seeds/lb. Guard rows = ‘AG5531.’ Deer browse data recorded on Oct. 5.

Herbicides

Date	Product	Rate/A
3/17	Roundup WeatherMax	22 oz
5/10	Intrro	1 qt
6/14	FirstRate	0.3 oz
6/14	Roundup WeatherMax	22 oz

Additional insecticides

Date	Product	Rate/A

Fertilizer

Date	Product	Rate/A
4/22	3-9-30	250 lb
7/15	Mn	1 qt

Fungicides

Date	Product	Rate/A

Table 67. Stand counts, thrips counts, and yield, SB11-Seed-1. Tidewater AREC, Suffolk, VA, 2011.

#	Material	Rate	Plants per 40 row ft[1]	Plants per 10 row ft	Plants per 10 row ft	Thrips per 5 plants								Yield (bu/A)[2]
						May 17 (VC stage)		May 26 (VC stage)		Jun 3 (V2 stage)		Jun 10 (V3-V4 stage)		
			May 16 (7 DAP)	May 23 (14 DAP)	Jun 7 (29 DAP)	Immature	Adult	Immature	Adult	Immature	Adult	Immature	Adult	
1	Untreated		317.5	100.1	86.0	1.50	22.00 a	21.25	17.25	51.00 a	2.00	17.25	7.50 a	57.4
2	Inovate system: Rancona Xtra 0.24FS NipsIt INSIDE 5FS	 3.50 fl oz/cwt 1.28 fl oz/cwt	337.4	106.0	93.8	0.25	8.00 b	17.50	14.75	25.75 b	5.00	19.75	5.25 ab	54.7
3	Inovate system: Rancona Xtra 0.24FS NipsIt INSIDE 5FS + Metastar ST 2.65FS	 3.50 fl oz/cwt 1.28 fl oz/cwt 0.53 fl oz/cwt	317.1	99.3	88.6	0.00	6.00 b	25.50	22.00	25.75 b	4.00	22.00	4.75 ab	56.0
4	Cruiser Maxx Plus 2.47FS	3.2 fl oz/cwt	338.4	108.6	92.1	0.00	2.25 b	28.75	26.50	5.75 b	4.75	10.00	2.00 bc	59.0
5	Trilex 2SC Allegiance-FL 2.65SC Yield Shield 100SS Gaucho 600FS	0.32 fl oz/cwt 0.75 fl oz/cwt 0.10 fl oz/cwt 1.60 fl oz/cwt	336.1	100.6	87.5	0.00	3.00 b	27.50	20.50	22.00 b	5.00	16.25	1.00 c	57.7
	LSD		NS	NS	NS	NS	7.60	NS	NS	22.68	NS	NS	3.42	NS

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

[1]*Based on the total number of plants in rows 1 and 2 of each plot (80 row feet).*

[2]*Yield based on weight of soybean with moisture content of 13%.*

Table 68. Thrips injury ratings[1] and bean leaf beetle defoliation ratings[2], SB11-Seed-1. Tidewater AREC, Suffolk, VA, 2011.

#	Material	Rate	Thrips injury rating			Defoliation rating
			May 23	Jun 1	Jun 10	Jun 23
1	Untreated		2.81 a	1.19 a	1.56 a	0.63
2	Inovate system: Rancona Xtra 0.24FS NipsIt INSIDE 5FS	 3.50 fl oz/cwt 1.28 fl oz/cwt	1.25 b	0.75 b	0.56 cd	0.63
3	Inovate system: Rancona Xtra 0.24FS NipsIt INSIDE 5FS + Metastar ST 2.65FS	 3.50 fl oz/cwt 1.28 fl oz/cwt 0.53 fl oz/cwt	0.94 c	0.81 b	0.69 bc	0.56
4	Cruiser Maxx Plus 2.47FS	3.2 fl oz/cwt	0.31 d	0.69 b	0.81 b	0.50
5	Trilex 2SC Allegiance-FL 2.65SC Yield Shield 100SS Gaucho 600FS	0.32 fl oz/cwt 0.75 fl oz/cwt 0.10 fl oz/cwt 1.60 fl oz/cwt	0.50 d	0.75 b	0.50 d	0.56
	LSD		0.26	0.13	0.16	NS

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]Thrips injury based on a 0-5 scale, 0 = no injury and 5 = 100% damaged plants.
[2]Bean leaf beetle defoliation rating based on a 0-10 scale, 0 = no defoliation and 10 = 100% defoliation.

Test: SB11-SEED-2, Seed treatment test

#	Material	Rate
1	Base only	
2	Gaucho 600FS	62.5 g ai/100 kg seed
3	Poncho Votivo	0.13 mg ai/seed
4	Gaucho 600FS + Poncho Votivo	62.5 g ai/100 kg seed 0.13 mg ai/seed
5	Maxim Apron XL Cruiser 5FS	2.5 g ai/100 kg seed 7.5 g ai/100 kg seed 50 g ai/100 kg seed

*All seed treatments include base treatment of Trilex FL, Allegiance FL, and Yield Shield.

Test: SB11-SEED-2	**Experimental design:** RCBD
Year: 2011	**Plot size:** 2 rows x 40’
Crop: Soybean	**Row spacing:** 36”
Variety: Stine 4782 RR/STS	**Planting date:** May 9
Field: 40	**Harvest date:** Oct. 27
Location: Tidewater AREC	**Row feet harvested:** 80

Comments: Guard rows = ‘AG5531.’ Deer browse data recorded on Oct. 5.

Herbicides

Date	Product	Rate/A
3/17	Roundup WeatherMax	22 oz
5/10	Intrro	1 qt
6/14	FirstRate	0.3 oz
6/14	Roundup WeatherMax	22 oz

Additional insecticides

Date	Product	Rate/A

Fertilizer

Date	Product	R
4/22	3-9-30	2
7/15	Mn	1

Fungicides

Date	Product	Rate/A

Table 69. Stand counts, thrips counts, and yield, SB11-Seed-2. Tidewater AREC, Suffolk, VA, 2011.

#	Material	Rate	Plants per 40 row ft[1]	Plants per 10 row ft	Plants per 10 row ft	Thrips per 5 plants								Yield (bu/A)[2]
						May 17 (VC stage)		May 26 (V1 stage)		Jun 3 (V2 stage)		Jun 10 (V3-V4 stage)		
			May 16 (7 DAP)	May 23 (14 DAP)	Jun 7 (29 DAP)	Immature	Adult	Immature	Adult	Immature	Adult	Immature	Adult	
1	Base only		356.0	106.3	92.4 a	3.50 a	16.25 a	19.00	19.25	26.00	1.75	6.50 b	0.25	42.2
2	Gaucho 600FS	62.5 g ai/100 kg seed	330.6	103.6	92.5 a	0.00 b	3.25 b	22.00	29.25	24.50	3.50	20.50 ab	4.25	41.9
3	Poncho Votivo	0.13 mg ai/seed	353.9	108.1	90.8 a	0.25 b	7.00 b	12.25	25.75	28.75	2.25	16.00 b	3.25	38.7
4	Gaucho 600FS + Poncho Votivo	62.5 g ai/100 kg seed 0.13 mg ai/seed	353.0	105.9	84.9 b	0.50 b	2.25 b	24.25	27.50	15.50	3.25	40.75 a	5.00	42.1
5	Maxim Apron XL Cruiser 5FS	2.5 g ai/100 kg seed 7.5 g ai/100 kg seed 50 g ai/100 kg seed	360.3	105.6	91.4 a	0.00 b	3.25 b	24.50	30.75	9.50	4.75	24.25 ab	3.75	40.2
	LSD		NS	NS	5.44	2.10	6.22	NS	NS	NS	NS	20.75	NS	NS

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

[1]*Based on the total number of plants in rows 1 and 2 of each plot (80 row feet).*

[2]*Yield based on weight of soybean with moisture content of 13%.*

Table 70. Thrips injury ratings[1] and bean leaf beetle defoliation ratings[2], SB11-Seed-2. Tidewater AREC, Suffolk, VA, 2011.

#	Material	Rate	Thrips injury rating			Defoliation rating
			May 23	Jun 1	Jun 10	Jun 23
1	Base only		2.94 a	1.63 a	1.75 a	0.31
2	Gaucho 600FS	62.5 g ai/100 kg seed	0.75 c	1.13 b	0.88 c	0.31
3	Poncho Votivo	0.13 mg ai/seed	1.81 b	1.19 b	0.69 d	0.25
4	Gaucho 600FS + Poncho Votivo	62.5 g ai/100 kg seed 0.13 mg ai/seed	0.44 d	1.13 b	0.50 e	0.31
5	Maxim Apron XL Cruiser 5FS	2.5 g ai/100 kg seed 7.5 g ai/100 kg seed 50 g ai/100 kg seed	0.63 cd	1.00 b	1.19 b	0.31
	LSD		0.21	0.25	0.16	NS

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]*Thrips injury based on a 0-5 scale, 0 = no injury and 5 = 100% damaged plants.*
[2]*Bean leaf beetle defoliation rating based on a 0-10 scale, 0 = no defoliation and 10 = 100% defoliation.*

Test: SB11-BMSB-1, Efficacy of foliar-applied pesticides against brown marmorated stink in soybean

#	Material	Rate	Date(s) treated
1	Vydate L	1 pt/A	Aug 17
2	Vydate L	1.5 pt/A	Aug 17
3	Vydate L	3 pt/A	Aug 17
4	Lannate LV	1 pt/A	Aug 17
5	Lannate LV	1.5 pt/A	Aug 17
6	Lannate LV	2.25 pt/A	Aug 17
7	Cobalt Advanced	22 oz/A	Aug 17
8	Cobalt Advanced	25 oz/A	Aug 17
9	Cobalt Advanced	31 oz/A	Aug 17
10	Untreated		

Test: SB11-BMSB-1	**Experimental design:** RCBD
Year: 2011	**Plot size:** 6 ft x 20 ft
Crop: Soybean	**Row spacing:**
Variety:	**Planting date:**
Field:	**Harvest date:**
Location: Orange Co., VA	**Row feet harvested:**

Treatment application(s):

Broadcast using backpack	**Nozzle type:** 8002VS	**Nozzle spacing:** 18”	**PSI:** 18	**GPA:** 1

Table 71. Mean number of brown marmorated stink bugs (BMSB) per 10 sweeps, SB11-BMSB-1 (Orange Co., VA). Tidewater AREC, Suffolk, VA, 2011. Insecticide treatments were applied on August 17.

#	Material	Rate	Aug 18			Aug 23			Aug 30		
			Adult	Nymph	Total	Adult	Nymph	Total	Adult	Nymph	Total
1	Vydate L	1 pt/A	0.25 b	0.75 b	1.00 b	0.00	0.50 b	0.50 b	0.00	1.25 c	1.25 c
2	Vydate L	1.5 pt/A	0.75 b	0.75 b	1.50 b	0.00	2.00 b	2.00 b	0.50	2.00 bc	2.50 bc
3	Vydate L	3 pt/A	0.00 b	0.00 b	0.00 b	0.00	1.75 b	1.75 b	0.25	0.25 c	0.50 c
4	Lannate LV	1 pt/A	0.00 b	1.75 b	1.75 b	0.50	2.25 b	2.75 b	0.75	3.25 b	4.00 b
5	Lannate LV	1.5 pt/A	0.00 b	1.00 b	1.00 b	0.25	2.25 b	2.50 b	0.25	2.00 bc	2.25 bc
6	Lannate LV	2.25 pt/A	0.00 b	0.25 b	0.25 b	0.00	0.75 b	0.75 b	0.50	1.50 bc	2.00 bc
7	Cobalt Advanced	22 oz/A	0.00 b	1.25 b	1.25 b	0.00	0.50 b	0.50 b	0.25	0.75 c	1.00 c
8	Cobalt Advanced	25 oz/A	0.00 b	0.50 b	0.50 b	0.00	1.25 b	1.25 b	0.00	0.75 c	0.75 c
9	Cobalt Advanced	31 oz/A	0.00 b	1.50 b	1.50 b	0.00	0.75 b	0.75 b	0.75	0.50 c	1.25 c
10	Untreated		2.25 a	15.00 a	17.25 a	1.00	9.25 a	10.25 a	0.75	6.75 a	7.50 a
	LSD		1.03	3.23	3.36	NS	2.79	2.86	NS	1.92	2.28

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

Table 71 (continued). Mean number of brown marmorated stink bugs (BMSB) per 10 sweeps, SB11-BMSB-1 (Orange Co., VA). Tidewater AREC, Suffolk, VA, 2011. Insecticide treatments were applied on August 17.

#	Material	Rate	Sep 8		
			Adult	Nymph	Total
1	Vydate L	1 pt/A	0.00	1.50 a-c	1.50
2	Vydate L	1.5 pt/A	0.75	1.00 bc	1.75
3	Vydate L	3 pt/A	1.50	1.50 a-c	3.00
4	Lannate LV	1 pt/A	1.50	0.75 c	2.25
5	Lannate LV	1.5 pt/A	1.00	2.50 ab	3.50
6	Lannate LV	2.25 pt/A	0.75	1.25 a-c	2.00
7	Cobalt Advanced	22 oz/A	0.75	0.75 c	1.50
8	Cobalt Advanced	25 oz/A	0.50	0.75 c	1.25
9	Cobalt Advanced	31 oz/A	1.25	0.00 c	1.25
10	Untreated		1.00	2.75 a	3.75
	LSD		NS	1.51	NS

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

Test: SB11-BMSB-2, Efficacy of foliar-applied pesticides against brown marmorated stink bug in soybean

#	Material	Rate	Date(s) treated
1	Belay	3 oz/A	Aug 17
2	Belay	4 oz/A	Aug 17
3	Belay + Kaiso 24WG	2 oz/A 1.3 oz/A	Aug 17
4	Belay + Baythroid XL	2 oz/A 2.8 oz/A	Aug 17
5	Baythroid XL	2.8 oz/A	Aug 17
6	Orthene 97	8 oz/A	Aug 17
7	Endigo ZC	5 oz/A	Aug 17
8	Brigade 2EC	5.12 oz	Aug 17
9	CMT 4586 + Methylated spray oil + UAN 27%	8 oz/A 0.25% v/v 2.5% v/v	Aug 17
10	Untreated		

Test: SB11-BMSB-2	**Experimental design:** RCBD
Year: 2011	**Plot size:** 6 ft x 20 ft
Crop: Soybean	**Row spacing:**
Variety:	**Planting date:**
Field:	**Harvest date:**
Location: Orange Co., VA	**Row feet harvested:**

Treatment application(s):

Broadcast using backpack	**Nozzle type:** 8002VS	**Nozzle spacing:** 18”	**PSI:** 18	**GPA:** 14.3

Table 72. Mean number of brown marmorated stink bugs (BMSB) per 10 sweeps, SB11-BMSB-2 (Orange Co., VA). Tidewater AREC, Suffolk, VA, 2011. Insecticide treatments were applied on August 17.

#	Material	Rate	Aug 18			Aug 23			Aug 30		
			Adult	Nymph	Total	Adult	Nymph	Total	Adult	Nymph	Total
1	Belay	3 oz/A	0.25	1.75 b	2.00 b	0.00	0.50 b	0.50 b	0.25 b	0.75 b	1.00 b
2	Belay	4 oz/A	0.00	0.50 bc	0.50 bc	0.00	0.25 b	0.25 b	0.00 b	0.50 b	0.50 b
3	Belay + Kaiso 24WG	2 oz/A 1.3 oz/A	0.00	1.25 bc	1.25 bc	0.00	0.00 b	0.00 b	0.00 b	1.00 b	1.00 b
4	Belay + Baythroid XL	2 oz/A 2.8 oz/A	0.00	0.00 c	0.00 c	0.00	0.00 b	0.00 b	0.00 b	0.00 b	0.00 b
5	Baythroid XL	2.8 oz/A	0.00	0.50 bc	0.50 bc	0.00	0.25 b	0.25 b	0.00 b	0.00 b	0.00 b
6	Orthene 97	8 oz/A	0.00	0.25 c	0.25 c	0.00	0.25 b	0.25 b	0.25 b	0.25 b	0.50 b
7	Endigo ZC	5 oz/A	0.00	0.25 c	0.25 c	0.00	0.00 b	0.00 b	0.00 b	0.50 b	0.50 b
8	Brigade 2EC	5.12 oz	0.00	0.00 c	0.00 c	0.00	0.25 b	0.25 b	0.00 b	0.00 b	0.00 b
9	CMT 4586 + MSO + UAN 27%	8 oz/A 0.25% v/v 2.5% v/v	0.00	1.00 bc	1.00 bc	0.00	1.25 b	1.25 b	0.00 b	0.25 b	0.25 b
10	Untreated		0.00	5.75 a	5.75 a	0.00	6.00 a	6.00 a	1.00 a	4.00 a	5.00 a
	LSD		NS	1.41	1.53	NS	1.81	1.81	0.59	1.75	1.75

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

Test: SB11-BMSB-3, Efficacy of foliar-applied pesticides against brown marmorated stink in soybean

#	Material	Rate	Date(s) treated
1	Belay	3 oz/A	Aug 23
2	Belay	4 oz/A	Aug 23
3	Belay + Kaiso 24WG	2 oz/A 1.3 oz/A	Aug 23
4	Belay + Baythroid XL	2 oz/A 2.8 oz/A	Aug 23
5	Baythroid XL	2.8 oz/A	Aug 23
6	Orthene 97	8 oz/A	Aug 23
7	Endigo ZC	5 oz/A	Aug 23
8	Brigade 2EC	5.12 oz	Aug 23
9	CMT 4586 + Methylated spray oil + UAN 27%	8 oz/A 0.25% v/v 2.5% v/v	Aug 23
10	Untreated		

Test: SB11-BMSB-3	**Experimental design:** RCBD
Year: 2011	**Plot size:** 6 ft x 20 ft
Crop: Soybean	**Row spacing:**
Variety:	**Planting date:**
Field:	**Harvest date:**
Location: Orange Co., VA	**Row feet harvested:**

Treatment application(s):

Broadcast using backpack	**Nozzle type:** 8002VS	**Nozzle spacing:** 18”	**PSI:** 18	**GPA:** 1

Table 73. Mean number of brown marmorated stink bugs (BMSB) per 10 sweeps, SB11-BMSB-3 (Orange Co., VA). Tidewater AREC, Suffolk, VA, 2011. Insecticide treatments were applied on August 23.

			Aug 25			Aug 30			Sep 8		
#	Material	Rate	Adult	Nymph	Total	Adult	Nymph	Total	Adult	Nymph	Total
1	Belay	3 oz/A	1.25 a-c	2.50 b	3.75 b	1.00 b	4.75 b	5.75 b	3.25	7.75 a	11.00 a
2	Belay	4 oz/A	1.75 ab	0.25 b	2.00 bc	1.50 b	2.00 bc	3.50 bc	2.50	6.50 ab	9.00 ab
3	Belay + Kaiso 24WG	2 oz/A 1.3 oz/A	0.25 c	0.25 b	0.50 c	0.25 b	1.25 c	1.50 c	1.25	1.00 cd	2.25 c
4	Belay + Baythroid XL	2 oz/A 2.8 oz/A	0.00 c	1.25 b	1.25 bc	0.00 b	2.50 bc	2.50 bc	1.75	0.75 d	2.50 c
5	Baythroid XL	2.8 oz/A	0.50 bc	1.50 b	2.00 bc	0.00 b	1.50 c	1.50 c	0.75	1.00 cd	1.75 c
6	Orthene 97	8 oz/A	0.25 c	0.75 b	1.00 bc	0.25 b	2.00 bc	2.25 bc	4.25	4.25 bc	8.50 ab
7	Endigo ZC	5 oz/A	0.75 bc	0.25 b	1.00 bc	0.50 b	3.00 bc	3.50 bc	3.25	1.50 cd	4.75 bc
8	Brigade 2EC	5.12 oz	0.00 c	1.75 b	1.75 bc	0.50 b	1.25 c	1.75 c	0.75	1.50 cd	2.25 c
9	CMT 4586 + MSO + UAN 27%	8 oz/A 0.25% v/v 2.5% v/v	1.25 a-c	0.25 b	1.50 bc	0.50 b	1.25 c	1.75 c	1.25	3.50 b-d	4.75 bc
10	Untreated		2.50 a	14.00 a	16.50 a	3.75 a	13.75 a	17.50 a	2.50	6.75 ab	9.25 a
	LSD		1.47	2.93	3.22	1.95	2.98	3.99	NS	3.28	4.44

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

Test: SB11-CEW-Speight, Efficacy of foliar-applied pesticides against corn earworm in soybean

#	Material	Rate	Date(s) treated
1	Steward 1.25EC	6 oz/A	Aug 12
2	Steward 1.25EC	10 oz/A	Aug 12
3	Steward 1.25EC + Baythroid XL	6 oz/A 2 oz/A	Aug 12
4	Belt 4SC	2 oz/A	Aug 12
5	Belt 4SC	3 oz/A	Aug 12
6	Belt 4SC + Baythroid XL	2 oz/A 2 oz/A	Aug 12
7	Baythroid XL + Orthene 97	2.8 oz/A 8 oz/A	Aug 12
8	Larvin 3.2	10 oz/A	Aug 12
9	Larvin 3.2	16 oz/A	Aug 12
10	Larvin 3.2 + Baythroid XL	10 oz/A 2 oz/A	Aug 12
11	Cobalt	19 oz/A	Aug 12
12	Untreated		

Test: SB11-CEW-Speight	**Experimental design:** RCBD
Year: 2011	**Plot size:** 9 rows x 40’
Crop: Soybean	**Row spacing:** 15”
Variety: MFS-541	**Planting date:** Jun. 17
Field: n/a	**Harvest date:** n/a
Location: Speight farm, Suffolk, VA	**Row feet harvested:** n/a

Treatment application(s):

Broadcast using full coverage boom	**Nozzle type:** D2-13	**Nozzle spacing:** 3 nozzles per row	**PSI:** 42	**GPA:** 1

Comments: Pre-treatment counts on August 12 indicated 6.0 small, 12.5 medium, and 8.5 larvae per 15 sweeps. Mandibular dissection indicated 96% corn earworm larvae and 4% tobacco budworm larvae on August 12 (n=25) and 100% corn earworm larvae on August 1 (n=25).

Table 74. Mean number of larvae per 10 sweeps and percent control[1], SB11CEW-Speight (Speight farm, Suffolk, VA). Tidewater AREC, Suffolk, VA, 2011. Insecticide treatments were applied on August 12.

#	Material	Rate	Aug 15				Aug 18				% control
			Small larvae	Medium larvae	Large larvae	Total larvae	Small larvae	Medium larvae	Large larvae	Total larvae	
1	Steward 1.25EC	6 oz/A	6.25	1.50 b	1.50 b	9.25 b	0.00 b	1.25 b	1.00 b	2.25 b	83.2
2	Steward 1.25EC	10 oz/A	0.00	0.50 b	0.00 b	0.50 c	0.00 b	0.50 b	0.00 b	0.50 b	98.5
3	Steward 1.25EC + Baythroid XL	6 oz/A 2 oz/A	0.00	0.00 b	0.50 b	0.50 c	0.00 b	0.75 b	1.00 b	1.75 b	96.7
4	Belt 4SC	2 oz/A	0.75	3.00 b	1.00 b	4.75 bc	0.25 b	0.25 b	1.00 b	1.50 b	90.8
5	Belt 4SC	3 oz/A	0.25	3.25 b	1.25 b	4.75 bc	0.00 b	0.00 b	0.50 b	0.50 b	92.3
6	Belt 4SC + Baythroid XL	2 oz/A 2 oz/A	0.25	0.25 b	0.00 b	0.50 c	0.00 b	0.25 b	0.25 b	0.50 b	98.5
7	Baythroid XL + Orthene 97	2.8 oz/A 8 oz/A	0.25	0.50 b	0.00 b	0.75 c	0.00 b	0.00 b	0.50 b	0.50 b	98.2
8	Larvin 3.2	10 oz/A	1.25	1.25 b	0.25 b	2.75 bc	0.00 b	0.00 b	0.50 b	0.50 b	95.2
9	Larvin 3.2	16 oz/A	0.00	0.25 b	0.25 b	0.50 c	0.00 b	0.00 b	1.25 b	1.25 b	97.4
10	Larvin 3.2 + Baythroid XL	10 oz/A 2 oz/A	0.00	0.00 b	0.25 b	0.25 c	0.00 b	0.00 b	0.50 b	0.50 b	98.9
11	Cobalt	19 oz/A	0.25	0.50 b	0.25 b	1.00 c	0.00 b	1.75 b	2.50 b	4.25 b	92.3
12	Untreated		4.75	12.75 a	18.00 a	35.50 a	4.00 a	12.25 a	16.50 a	32.75 a	---
	LSD		NS	3.42	2.35	8.07	0.92	2.07	2.59	3.83	---

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

[1]Percent control is based on cumulative larval days (CLD) in the treatment relative to the untreated control. CLD's are calculated with the following equation:

Test: SB11-CEW-Worrell-1, Efficacy of Intrepid against lepidopteran pests

#	Material	Rate	Date(s) treated
1	Intrepid 2F + NIS	4 oz/A 0.25% v/v	Aug 12
2	Intrepid 2F + NIS	6 oz/A 0.25% v/v	Aug 12
3	Intrepid 2F + Karate Z + NIS	4 oz/A 1.6 oz/A 0.25% v/v	Aug 12
4	Belt SC + NIS	2 oz/A 0.25% v/v	Aug 12
5	Untreated		

Test: SB11-CEW-Worrell-1	**Experimental design:** RCBD
Year: 2011	**Plot size:** 40’
Crop: Soybean	**Row spacing:** 7.5”
Variety: Pioneer 95M82	**Planting date:** Jun. 14
Field: n/a	**Harvest date:** n/a
Location: Kenneth Worrell farm, Suffolk, VA	**Row feet harvested:** n/a

Treatment application(s):

Broadcast using backpack	**Nozzle type:** 8002VS	**Nozzle spacing:** 18”	**PSI:** 17.9	**GPA:** 1

Comments: Mandibular dissection indicated 92% corn earworm larvae and 8% tobacco budworm larvae on August 12 (n=25).

Table 75. Mean number of larvae per 10 sweeps and percent control[1], SB11CEW-Worrell-1 (Kenneth Worrell farm, Suffolk, VA). Tidewater AREC, Suffolk, VA, 2011. Insecticide treatments were applied on August 12.

#	Material	Rate	Aug 15				Aug 18				% control
			Small larvae	Medium larvae	Large larvae	Total larvae	Small larvae	Medium larvae	Large larvae	Total larvae	
1	Intrepid 2F + NIS	4 oz/A 0.25% v/v	6.50	3.75	3.50 b	13.75 b	4.00	4.50	3.25	11.75 ab	29.2
2	Intrepid 2F + NIS	6 oz/A 0.25% v/v	6.50	2.50	3.75 b	12.75 b	2.00	2.25	2.75	7.00 bc	45.1
3	Intrepid 2F + Karate Z + NIS	4 oz/A 1.6 oz/A 0.25% v/v	0.75	0.75	1.25 b	2.75 c	0.50	3.50	2.25	6.25 c	75.0
4	Belt SC + NIS	2 oz/A 0.25% v/v	2.75	3.50	1.25 b	7.50 bc	0.75	2.25	1.25	4.25 c	67.4
5	Untreated		7.25	6.75	9.25 a	23.25 a	3.75	4.25	4.75	12.75 a	---
	LSD		NS	NS	4.90	9.39	NS	NS	NS	5.45	---

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

[1]Percent control is based on cumulative larval days (CLD) in the treatment relative to the untreated control. CLD's are calculated with the following equation: $\Sigma (X_{i+1} - X_i)[(Y_i + Y_{i+1})/2]$, where X_i and X_{i+1} are adjacent sample dates and Y_i and Y_{i+1} are corresponding points of total larvae per 10-sweep sample. There were 54.0 CLD's in the untreated control.

Test: SB11-CEW-Worrell-2, Efficacy of foliar-applied pesticides against corn earworm i soybean

#	Material	Rate	Date(s) treated
1	Fastac	4 oz/A	Aug 12
2	Prevathon 0.43SC (or DPX-E2Y45 5%SC)	9.8 oz/A	Aug 12
3	Prevathon 0.43SC (or DPX-E2Y45 5%SC)	13.4 oz/A	Aug 12
4	Prevathon 0.43SC (or DPX-E2Y45 5%SC) + Asana XL	4 oz/A 4.5 oz/A	Aug 12
5	Besiege 2EC	9 oz/A	Aug 12
6	Belt 4SC	2 oz/A	Aug 12
7	Steward 1.25EC	6 oz/A	Aug 12
8	DiPel ES (Kur.)	1 pt	Aug 12
9	Karate Z	0.96 oz	Aug 12
10	Karate Z	1.6 oz	Aug 12
11	DiPel ES (Kur.) + Karate Z	1 pt 0.96 oz	Aug 12
12	DiPel ES (Kur.) + Karate Z	1 pt 1.6 oz	Aug 12
13	Endigo ZCX	4.5 oz/A	Aug 12
14	Untreated		

Test: SB11-CEW-Worrell-2	**Experimental design:** RCBD
Year: 2011	**Plot size:** 40’
Crop: Soybean	**Row spacing:** 7.5”
Variety: Pioneer 95M82	**Planting date:** Jun. 14
Field: n/a	**Harvest date:** n/a
Location: Kenneth Worrell farm, Suffolk, VA	**Row feet harvested:** n/a

Treatment application(s):

Broadcast using backpack	**Nozzle type:** 8002VS	**Nozzle spacing:** 18”	**PSI:** 17.9	**GPA:** 1

Comments: Mandibular dissection indicated 92% corn earworm larvae and 8% tobacco budworm larvae on August 12 (n=25).

Table 76. Mean number of larvae per 10 sweeps and percent control[1], SB11CEW-Worrell-2 (Kenneth Worrell farm, Suffolk, VA). Tidewater AREC, Suffolk, VA, 2011. Insecticide treatments were applied on August 12.

#	Material	Rate/A	Aug 15				Aug 18				% control
			Small larvae	Medium larvae	Large larvae	Total larvae	Small larvae	Medium larvae	Large larvae	Total larvae	
1	Fastac	4 oz	1.00 cd	1.25 d-f	0.50 d	2.75 d-f	0.75 bc	1.75 c-e	1.50 b-e	4.00 d-g	79.7
2	Prevathon 0.43SC	9.8 oz	0.75 cd	2.50 b-e	0.50 d	3.75 c-f	0.50 c	0.50 de	1.00 b-e	2.00 f-h	82.7
3	Prevathon 0.43SC	13.4 oz	0.75 cd	2.25 b-f	1.00 cd	4.00 c-f	0.25 c	0.50 de	0.75 c-e	1.50 gh	83.5
4	Prevathon 0.43SC + Asana XL	4 oz 4.5 oz	2.00 b-d	1.00 d-f	0.50 d	3.50 c-f	0.25 c	0.50 de	0.25 e	1.00 gh	86.5
5	Besiege 2EC	9 oz	0.25 d	0.75 d-f	0.25 d	1.25 ef	0.00 c	0.25 e	0.25 e	0.50 h	94.7
6	Belt 4SC	2 oz	3.75 b	1.00 d-f	1.75 b-d	6.50 b-d	1.00 bc	1.00 de	0.75 c-e	2.75 e-h	72.2
7	Steward 1.25EC	6 oz	1.00 cd	0.00 f	0.00 d	1.00 ef	0.25 c	0.25 e	0.50 de	1.00 gh	94.0
8	DiPel ES (Kur.)	1 pt	2.25 b-d	4.00 ab	3.50 ab	9.75 b	2.00 bc	2.25 b-d	2.25 a-d	6.50 b-d	51.1
9	Karate Z	0.96 oz	1.50 b-d	3.75 a-c	2.75 a-c	8.00 bc	2.75 b	3.75 b	2.75 ab	9.25 b	48.1
10	Karate Z	1.6 oz	0.00 d	0.50 ef	0.25 d	0.75 f	0.75 bc	1.25 de	1.75 b-e	3.75 d-h	86.5
11	DiPel ES (Kur.) + Karate Z	1 pt 0.96 oz	1.75 b-d	2.25 b-f	1.75 b-d	5.75 b-e	0.00 c	1.50 c-e	3.75 a	5.25 c-f	66.9
12	DiPel ES (Kur.) + Karate Z	1 pt 1.6 oz	2.75 bc	3.00 b-d	1.50 b-d	7.25 b-d	2.75 b	3.25 bc	2.50 a-c	8.50 bc	52.6
13	Endigo ZCX	4.5 oz	0.25 d	1.50 c-f	0.75 cd	2.50 d-f	1.00 bc	2.25 b-d	2.25 a-d	5.50 c-e	75.9
14	Untreated		6.75 a	6.00 a	4.00 a	16.75 a	6.00 a	6.50 a	4.00 a	16.50 a	---
	LSD		2.42	2.50	2.24	4.87	2.14	1.86	1.83	3.50	---

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

[1]Percent control is based on cumulative larval days (CLD) in the treatment relative to the untreated control. CLD's are calculated with the following equation: $\Sigma (X_{i+1} - X_i)[(Y_i + Y_{i+1})/2]$, where X_i and X_{i+1} are adjacent sample dates and Y_i and Y_{i+1} are corresponding points of total larvae per 10-sweep sample. There were 49.9 CLD's in the untreated control.

Test: SB11-CEW-LOOP-Bayer, Evaluation of Belt for corn earworm management, and residual activity against soybean looper

#	Material	Rate	Soybean growth stage	Date(s) treat
1	Untreated			
2	Belt SC	2 oz/A	R3	Aug 11
3	Belt SC	3 oz/A	R3	Aug 11
4	Belt SC	2 oz/A	R4	Aug 18
5	Belt SC	3 oz/A	R4	Aug 18
6	Belt SC	2 oz/A	R5	Aug 31
7	Belt SC	3 oz/A	R5	Aug 31

Test: SB11-CEW-LOOP-Bayer	**Experimental design:** RCBD
Year: 2011	**Plot size:** 4 rows x 40’
Crop: Soybean	**Row spacing:** 36”
Variety: AG 4630	**Planting date:** Apr. 25
Field: 60	**Harvest date:** n/a
Location: Tidewater AREC	**Row feet harvested:** n/a

Treatment application(s):

Banded using backpack	**Nozzle type:** 8004E	**Nozzle spacing:** 18”	**PSI:** 22	**GPA:** 1

Comments: Pre-treatment counts on August 18 indicated a mean of 2.75 green cloverworn 0.25 corn earworm per 15 sweeps (n=4).

Herbicides

Date	Product	Rate/A
4/25	Dual	1.5 pt
4/25	Acumen	1.5 pt
6/02	Roundup WeatherMax	22 oz
7/11	Roundup WeatherMax	22 oz
7/11	FirstRate	0.6 oz

Additional insecticides

Date	Product	Rate/A

Fungicides

Date	Product	Rate/A

Fertilizer

Date	Product	I

Table 77. Mean number of insects per 15 sweeps, SB11-CEW-LOOP-BAYER. Tidewater AREC, Suffolk, VA, 2011.

#	Material	Rate	Soybean growth stage at time of treatment	Date(s) treated	Aug 31		Sep 8		Sep 20	
					CEW[1]	SL[1]	CEW	SL	CEW	SL
1	Untreated	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0
2	Belt SC	2 oz/A	R3	Aug 11	0.0	0.0	0.0	0.0	0.0	0.0
3	Belt SC	3 oz/A	R3	Aug 11	0.0	0.0	0.0	0.0	0.0	0.0
4	Belt SC	2 oz/A	R4	Aug 18	0.0	0.0	0.0	0.0	0.0	0.0
5	Belt SC	3 oz/A	R4	Aug 18	0.0	0.0	0.0	0.0	0.0	0.0
6	Belt SC	2 oz/A	R5	Aug 31	0.0	0.0	0.0	0.0	0.0	0.0
7	Belt SC	3 oz/A	R5	Aug 31	0.0	0.0	0.0	0.0	0.0	0.0
	LSD				NS	NS	NS	NS	NS	NS

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).
[1]CEW=corn earwom; SL=soybean looper.

Table 78. Corn earworm survey of field corn in Virginia, 2011.

County	# Fields	# Ears Sampled	% Ears Infested	Field type(s)
Eastern Shore				
Accomack	5	250	36.8	Random sample
Northampton	5	250	24.8	1 Bt, 4 random sample
Regional avg. %			*30.8*	
Mid-Eastern				
Charles City	5	250	30.0	Random sample
Essex	5	250	9.2	4 Bt, 1 random sample
Gloucester	5	250	21.2	Random sample
Henrico	5	250	22.4	Random sample
King and Queen	5	250	23.2	Random sample
King William	5	250	22.8	Random sample
Mathews	5	250	19.2	Random sample
Middlesex	5	250	43.6	Random sample
New Kent	5	250	29.2	Random sample
Regional avg. %			*24.5*	
Southeast				
Chesapeake	5	250	29.2	5 Bt
Dinwiddie	3	150	50.0	3 Non-Bt
Greensville	5	250	86.8	Random sample
Isle of Wight	5	200	57.6	1 Bt, 1 non-Bt, 3 random samp
Prince George	5	250	49.6	4 Non-Bt, 1 random sample
Southampton	5	250	76.0	Random sample
Suffolk	5	250	60.0	Random sample
Surry	5	250	6.4	2 Bt, 3 random sample
Sussex	5	200	40.0	3 Bt, 2 non-Bt
Virginia Beach	5	250	20.0	Random sample
Regional avg. %			*47.6*	
Northern Neck				
Lancaster	5	250	6.4	Random sample
Northumberland	5	250	18.4	Random sample
Richmond	5	250	28.8	Random sample
Westmoreland	5	250	26.8	Random sample
Regional avg. %			*20.1*	
Northern				
Caroline	5	250	24.8	Random sample
King George	5	250	27.6	Random sample
Regional avg. %			*26.2*	
State average			**33.0%**	

Table 79. Results of the 2011 Virginia soybean insecticide usage survey.

District	Acres in region	Estimated acreage treated for:[1]														Acres scouted	Acres treated[3]	Acres over-treated	Acres under-treated
		Corn earworm-1	Corn earworm-2	BMSB (entire field)	BMSB (edge treatment)	Native stink bug-1	Native stink bug-2	Soybean aphid	Green cloverworm	Spider mite	Bean leaf beetle	Grasshopper	Thrips	Soybean looper	Other pests and/or complex[2]				
NORTHERN																			
Rockingham, Augusta, Rockbridge	10,858	0	0	0	43	0	0	0	0	0	0	0	0	0	3,400	150	3,443	0	400
Shenandoah, Page, Clarke, Frederick, & Warren	6,000	0	0	0	200	0	0	0	0	0	0	0	0	0	0	2,000	200	0	200
CENTRAL																	0		
Culpeper	6,000	0	0	0	50	0	0	100	0	0	0	200	0	0	0	500	350	.	.
Orange	4,600	0	0	1,200	300	0	0	0	0	0	0	300	0	0	0	600	1,800	800	250
EASTERN																	0		
Eastern Shore																	0		
Northampton	20,000	18,000	5,000	0	0	5,000	0	0	0	0	0	0	0	0	9,000	18,000	37,000		2,000
Mid-Eastern																	0		
Essex, King and Queen, & King William	54,500	35,000	0	0	0	0	0	0	0	0	0	0	500	0	0	40,000	35,500	4,000	500
Gloucester	10,000	6,000	1,500	0	0	1,000	0	0	0	500	0	0	0	0	0	7,000	9,000	1,500	400
Mathews	3,000	1,500	500	0	0	100	0	0	0	100	0	0	0	0	0	2,000	2,200	500	250
Middlesex	9,000	6,000	1,000	0	0	500	0	0	0	500	0	0	0	0	0	6,000	8,000	2,000	500
Southeast																	0		
Chesapeake	24,285	23,000	3,000	0	0	2,000	0	0	0	0	0	0	0	300	0	10,000	28,300	0	0
Dinwiddie	16,000	6,000	2,000	0	0	2,000	1,000	0	1,000	0	0	200	0	0	0	1,000	12,200	2,000	2,000
Isle of Wight	17,025	8,512	8,512	0	0	0	0	0	0	0	0	0	0	0	0	12,768	17,024	0	0
Prince George	10,500	2,500	0	0	0	1,000	0	0	200	0	0	100	0	0	0	9,500	3,800	500	0
Southampton	24,788	21,000	3,500	0	0	2,500	0	0	500	0	0	0	0	4,500	0	18,000	32,000	1,500	500
Surry	18,500															10,000			
Sussex	24,500	5,500	400	0	0	0	0	0	0	0	0	175	0	0	0	12,000	6,075	760	0
Virginia Beach	13,284	12,500	2,500	0	0	800	0	0	0	500	0	0	0	200	0	9,000	16,500	0	0
GRAND TOTAL	**272,840**	**145,512**	**27,912**	**1,200**	**593**	**14,900**	**1,000**	**100**	**1,700**	**1,600**	**0**	**975**	**500**	**5,000**	**10,900**	**158,518**	**213,392**	**13,560**	**7,000**

[1]*Corn earworm-1 and Native stink bug-1= acres treated once for the pest; Corn earworm-2 and Native stink bug-2= acres treated twice for the pest; BMSB = brown marmorated stink bug.*

[2]*Other pests and/or species complexes consisted of the following: Rockingham/Augusta/Rockbridge—grasshopper, bean leaf beetle, and green cloverworm; Northampton—defoliators (7,500 acres) and beet armyworm (1,500 acres).*

[3]*Treated acreage may exceed actual acreage due to some acres being treated more than once.*

Table 80. 2011 Virginia soybean insecticide usage percentages by district and state to

District	Total acreage surveyed	% Acreage scouted	% Acreage treated[1]	% Acreage overtreated	% un
Northern	16,858	12.8	21.6	0.0	
Central	10,600	10.4	20.3	7.5	
Eastern (total)	**245,382**	**63.3**	**84.6**	**5.2**	
Eastern Shore	20,000	90.0	185.0	0.0	
Mid-Eastern	76,500	71.9	71.5	10.5	
Southeast	148,882	55.3	77.8	3.2	
STATE TOTAL[2]	**272,840**	**58.1**	**78.2**	**5.0**	

[1]Acreage treated for all arthropod pests, combined. Treated acreage may exceed actual ac some acres being treated more than once.
[2]State totals are determined using grand total data from Table 79, not by means of district

Figure 1. Corn earworm regression. Relationship between the percentage of total soybean acreage treated for corn earworm from 1976-2011 and the percentage of corn ears infested in mid-July. Eastern Virginia, 2011. $Y = 1.11x - 2.14$; $R^2 = 0.43$

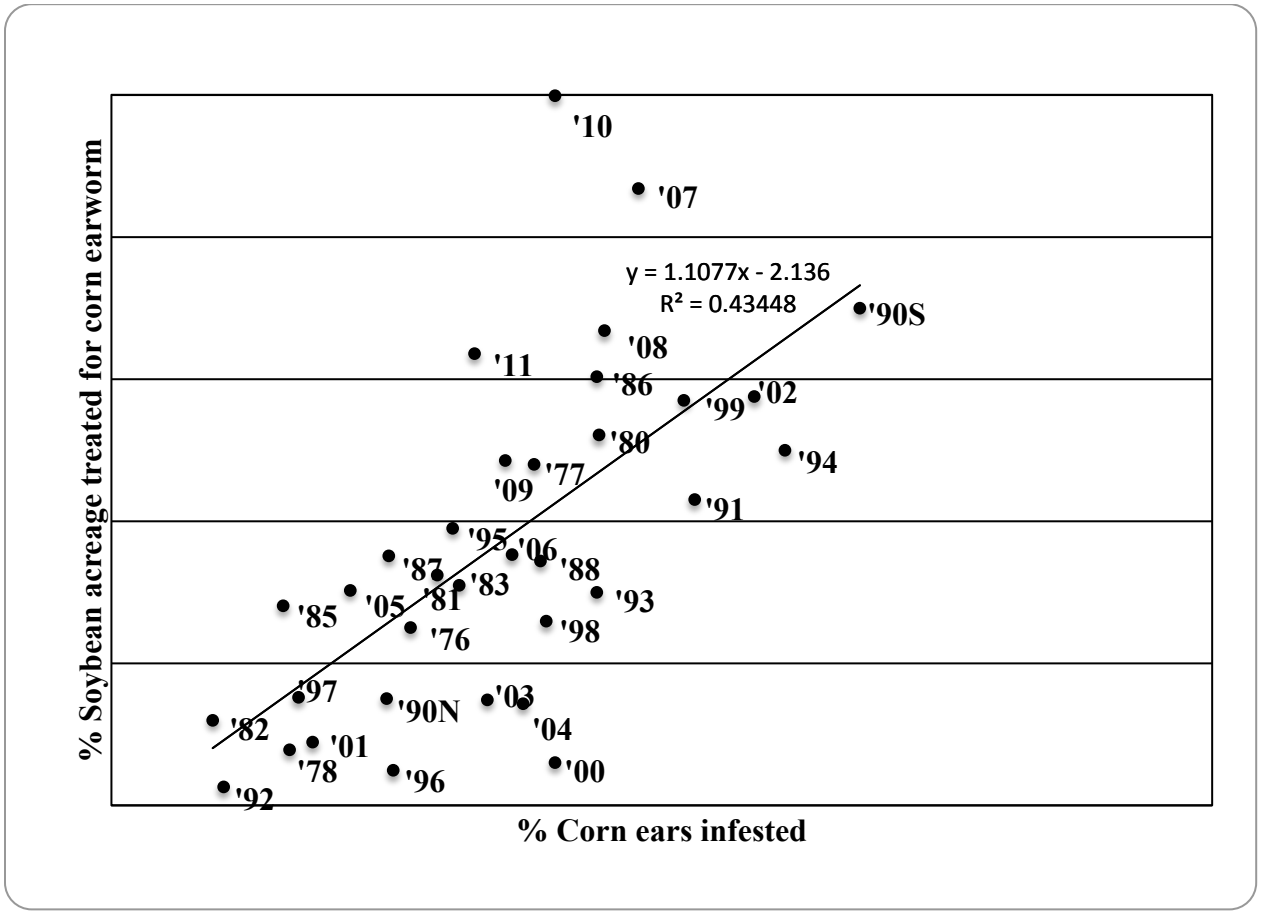


Table 81. Average nightly number of corn earworm moths captured in eastern Virginia black light traps, 2011 season.

	Nightly trap catch average for week ending:																	
Location (county-town)	5/26	6/02	6/09	6/16	6/23	6/30	7/07	7/14	7/21	7/28	8/04	8/11	8/18	8/25	9/01	9/08	9/15	9/22	9/29
Southeast																			
Accomack-Painter	n/a	n/a	n/a	n/a	n/a	n/a	0.0	n/a	n/a	0.0	n/a	n/a	n/a	6.6	3.7	17.9	24.7	6.6	5.6
Chesapeake-Ballahack Rd.	n/a	n/a	n/a	n/a	n/a	0.9	n/a	3.6	n/a	8.3	23.4	15.7	3.9	5.1	n/a	n/a	n/a	n/a	n/a
Dinwiddie-Old Hickory	n/a	n/a	n/a	n/a	n/a	5.0	2.5	1.7	5.3	13.7	19.7	25.4	11.3	n/a	n/a	n/a	n/a	n/a	n/a
Dinwiddie-North	n/a	n/a	n/a	n/a	n/a	n/a	n/a	13.7	11.4	0.6	3.7	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Isle of Wight	n/a	n/a	n/a	n/a	n/a	n/a	3.0	n/a	1.2	31.7	33.5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Petersburg	n/a	n/a	n/a	n/a	n/a	n/a	2.7	0.6	0.4	2.4	18.6	33.0	14.8	15.0	12.6	20.0	17.6	6.6	5.3
Prince George-Templeton	n/a	n/a	n/a	n/a	n/a	n/a	0.5	0.3	0.7	10.6	43.1	15.5	1.4	1.5	7.5	n/a	n/a	n/a	n/a
Prince George-Disputanta	n/a	n/a	n/a	n/a	n/a	n/a	0.0	0.6	1.9	4.3	14.6	8.3	4.3	3.0	7.0	10.0	12.4	2.9	n/a
Southampton	n/a	n/a	n/a	n/a	0.0	0.3	0.6	2.3	0.6	7.1	20.0	6.0	4.8	2.8	2.4	6.8	n/a	n/a	2.7
Suffolk-Holland	1.9	1.0	0.4	0.0	2.6	1.7	0.8	2.0	3.0	27.0	57.4	31.7	6.7	9.4	10.0	n/a	15.0	7.4	6.1
Sussex-Waverly	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.2	1.3	0.2	1.7	3.3	5.4	4.4	n/a	n/a	n/a	n/a	n/a
Virginia Beach	n/a	n/a	n/a	n/a	n/a	n/a	0.0	n/a	0.1	0.6	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
North of James River																			
Essex	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.0	2.5	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Gloucester	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.5	6.0	6.0	8.0	n/a	n/a	n/a	n/a	n/a	n/a
Hanover-Studley	n/a	n/a	n/a	n/a	0.0	2.0	0.6	1.9	3.6	10.3	64.0	32.1	13.7	8.3	n/a	21.0	9.2	n/a	n/a
Northumberland	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Middlesex	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3.5	24.0	51.5	20.0	n/a	n/a	n/a	n/a	n/a	n/a
New Kent	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.0	3.0	n/a	12.0	n/a	n/a	n/a	n/a	n/a	n/a
Richmond Co.-Warsaw	n/a	n/a	n/a	n/a	n/a	3.1	1.6	6.0	2.3	20.0	137.3	168.8	32.7	51.3	15.3	118.6	33.1	21.8	2.8

n/a = report not available.